Quantifying climatic influences on tree-ring width: Supplementary Information

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This Supplementary Information contains information about the tree ring data used in our analyses (SI Table 1), including the sampling age distribution through time at each site (SI Figure 1) and comparisons of reconstructed *P** and the standardized bi-weighted mean of the raw ring width (RWI-*mean*) data for each site (SI Figure 2). We also include the Table of parameter values used in the calculation of peak-growth year (SI Table 2).

SI Table 1: Information about the tree-ring data for *Picea* and *Pinus* taken from the International Tree Ring Data Base (ITRDB: https://www.ncdc.noaa.gov/data-access/paleoclimatology-data/datasets/tree-ring).

Site code	Genus	Latitude	Longitude	No. of trees sampled	Period covered
CANA348	*Picea*	54.75	-115.62	11	1752-2004
GERM172	*Picea*	50.7	7.2	15	1916-2008
GERM185	*Picea*	50.58	6.47	15	1864-2004
GERM189	*Picea*	50.72	8.1	16	1877-2005
GERM057	*Picea*	49.2	12.38	30	1864-2001
AK132	*Picea*	68.65	-141.63	246	1073-2002
CANA442	*Picea*	55.43	-123.03	32	1809-2002
CANA454	*Picea*	55.93	-122.75	35	1692-2002
CANA455	*Picea*	53.75	-121.52	68	1755-2002
CANA197	*Picea*	57.85	-103.83	27	1852-2002
CANA199	*Picea*	55.55	-104.68	48	1854-2001
CANA205	*Picea*	55.63	-104.73	33	1879-2002
CANA207	*Picea*	56.65	-103.2	33	1835-2001
SWIT186	*Picea*	46.63	9.78	12	1736-2007
CO633	*Picea*	40.55	-105.83	16	1552-2003
SWIT179	*Picea*	46.77	9.82	19	1733-2005
SWIT189	*Picea*	47.03	9.07	23	1773-2007
SWIT279	*Picea*	46.59	7.98	27	1670-2011
SWIT193	*Picea*	46.62	9.2	19	1715-2008
SWIT258	*Picea*	47.05	8.71	30	1825-2001
CANA209	*Picea*	57.92	-61.6	22	1713-2001
CANA295	*Picea*	61.7	-116.95	18	1933-2008
CANA299	*Picea*	60.92	-111.6	17	1909-2008

CANA301	*Picea*	61.43	-121.27	38	1824-2008
CANA296	*Picea*	61.2	-120	16	1819-2008
CANA298	*Picea*	60.03	-119.05	41	1903-2008
CANA302	*Picea*	61.1	-118.78	44	1903-2008
CANA306	*Picea*	60.55	-110.6	16	1929-2008
POLA022	*Picea*	49.58	19.05	46	1687-2004
POLA023	*Picea*	49.28	19.08	50	1782-2004
POLA025	*Picea*	49.25	20.03	36	1737-2004
POLA026	*Picea*	49.23	20.08	39	1773-2004
POLA027	*Picea*	49.25	20.03	58	1628-2004
POLA028	*Picea*	49.25	20.07	24	1748-2004
SWIT256	*Picea*	46.3	7.72	24	1878-2005
SVK002	*Picea*	48.93	19.6	99	1869-2004
POLA030	*Picea*	49.52	19.03	61	1627-2004
POLA032	*Picea*	49.23	20.08	81	1647-2000
POLA035	*Picea*	49.23	20.08	47	1795-2000
SWIT329	*Picea*	46.27	7.03	32	1906-2005
SVK005	*Picea*	48.87	19.6	22	1891-2003
POLA037	*Picea*	49.25	20.02	82	1538-2004
BT006	*Picea*	27.47	89.5	17	1400-2005
PAKI024	*Picea*	35.03	74.58	18	1394-2005
BT007	*Picea*	27.47	89.52	15	1611-2005
BT008	*Picea*	27.58	90.65	44	1280-2003
BT009	*Picea*	27.42	90.97	19	1457-2002
PAKI030	*Picea*	35.88	74.18	22	1574-2008
PAKI036	*Picea*	36.15	74.18	35	1387-2005
BT010	*Picea*	27.25	89.38	17	1484-2005
PAKI037	*Picea*	35.03	71.53	21	1663-2006
BT011	*Picea*	27.45	90.15	13	1456-2005
AK057	*Picea*	65.18	-162.2	37	1607-2002
AK058	*Picea*	65.18	-162.22	60	1406-2002
AK060	*Picea*	65.22	-162.25	24	1621-2002
AK061	*Picea*	65.08	-162.18	36	1575-2002
AK062	*Picea*	65.2	-162.27	51	1358-2002
AK063	*Picea*	65.1	-162.15	38	1590-2002
AK064	*Picea*	65.08	-162.15	47	1611-2002
AK065	*Picea*	65.2	-162.2	20	1400-2002
AK068	*Picea*	65.08	-162.18	53	1550-2002
AK113	*Picea*	67.5	-150	294	952-2000
AK069	*Picea*	65.07	-162.23	34	1718-2002
AK115	*Picea*	65.16	-162.25	52	1389-2001
AK070	*Picea*	65.18	-162.22	48	1556-2002
JAPA011	*Picea*	44.02	143.83	58	1693-2003
RUSS237	*Picea*	67.82	60.02	101	1751-2000
CHIN037	*Picea*	27.58	99.35	38	1429-2005

GERM159	*Picea*	51.15	8.98	12	1880-2009
SWIT332	*Picea*	46.46	9.18	20	1827-2005
VT006	*Picea*	44.45	-72.85	76	1734-2005
VT005	*Picea*	44.45	-72.85	102	1668-2005
CANA458	*Picea*	53.86	-72.41	215	642-2011
CANA459	*Picea*	54.46	-70.39	245	572-2011
CANA460	*Picea*	54.1	-71.63	100	774-2011
CANA461	*Picea*	54.25	-72.38	444	596-2011
CANA462	*Picea*	54.56	-71.24	610	653-2011
CANA463	*Picea*	54.15	-70.29	317	650-2011
AK104	*Picea*	67.97	-149.77	122	1303-2000
CANA315	*Picea*	68.78	-142.35	131	1067-2002
JAPA010	*Picea*	43.99	145.01	52	1693-2003
CANA318	*Picea*	64.03	-103.87	10	1899-2005
UKR001	*Picea*	48.15	24.52	81	1676-2003
ROMA010	*Picea*	45.35	22.77	52	1880-2004
CANA439	*Picea*	52.15	-117.2	43	1428-2000
WY046	*Picea*	44.73	-109.9	33	1440-2012
CHIN007	*Picea*	43.93	88.15	40	1867-2004
CHIN008	*Picea*	42.88	82.13	44	1690-2004
CHIN009	*Picea*	43.07	82.15	57	1605-2004
CHIN010	*Picea*	42.8	81.72	41	1686-2004
CHIN013	*Picea*	43.72	86.72	46	1785-2004
CHIN014	*Picea*	43.88	88.12	49	1694-2004
CHIN015	*Picea*	43.78	86.3	44	1706-2004
CHIN033	*Picea*	43.77	87.92	52	1653-2002
CHIN034	*Picea*	43.8	88.02	60	1653-2002
CHIN035	*Picea*	43.6	90.22	89	1715-2002
CHIN036	*Picea*	43.6	90.1	56	1829-2002
SWED311	*Picea*	59.2	18.7	61	1759-2004
CHIN022	*Picea*	30.87	100.28	42	1663-2007
CHIN023	*Picea*	30	100	48	1715-2007
AK122	*Picea*	63.82	-144.8	29	1835-2009
AK079	*Picea*	67.22	-150.27	54	1878-2005
AK081	*Picea*	67.38	-150.1	91	1848-2004
AK082	*Picea*	67.53	-149.85	82	1815-2001
AK085	*Picea*	68.03	-149.68	22	1806-2005
AK126	*Picea*	64.8	-141.2	30	1854-2009
RUSS205	*Picea*	66.28	123.92	21	1551-2007
AK124	*Picea*	64.17	-149.3	29	1827-2009
AK125	*Picea*	64.48	-146.97	20	1890-2009
AK123	*Picea*	63.72	-144.15	20	1851-2009
CANA434	*Picea*	51.72	-116.5	45	1575-2000
CANA363	*Picea*	59.55	-136.46	29	1717-2003
CANA359	*Picea*	59.76	-136.59	129	1572-2003

CANA360	*Picea*	60.13	-136.96	30	1813-2003
CANA361	*Picea*	59.55	-136.47	30	1719-2003
CANA362	*Picea*	60.02	-136.87	39	1781-2003
CANA272	*Picea*	58.62	-93.83	64	1716-2006
CANA274	*Picea*	58.53	-93.47	150	1743-2003
CANA279	*Picea*	57.32	-93.03	39	1729-2004
CANA280	*Picea*	57.32	-93.03	76	1743-2004
CANA277	*Picea*	57.95	-93.22	60	1771-2004
CANA278	*Picea*	57.95	-93.22	76	1737-2004
CANA270	*Picea*	58.62	-93.8	160	1743-2006
CANA217	*Picea*	58.37	-111.5	41	1708-2000
CANA218	*Picea*	58.5	-112.5	27	1757-2000
CANA213	*Picea*	58.78	-111.45	54	1712-2000
CANA214	*Picea*	58.9	-111.6	30	1801-2000
CANA219	*Picea*	58.6	-111.3	26	1801-2000
CANA216	*Picea*	58.97	-111.25	54	1687-2000
CANA212	*Picea*	59	-112	45	1698-2000
CANA215	*Picea*	58.87	-111.3	58	1742-2000
FINL044	*Picea*	61.87	28.82	84	1815-2001
CANA340	*Picea*	62	-128.3	28	1703-2001
CANA341	*Picea*	62.03	-128.27	19	1666-2001
CANA342	*Picea*	62.03	-128.27	44	1709-2001
KAZ001	*Picea*	43.35	77.35	20	1570-2001
AK086	*Picea*	60.48	-154.33	42	1627-2003
AK089	*Picea*	60.65	-154.02	40	1600-2003
AK088	*Picea*	60.97	-153.92	20	1769-2004
AK054	*Picea*	63.1	-150	111	1735-2000
AK047	*Picea*	68.1	-141.1	16	1676-2002
AK049	*Picea*	67.15	-150.08	99	1715-2001
AK051	*Picea*	67.15	-149.13	39	1828-2001
AK056	*Picea*	63.12	-149	111	1735-2000
GERM059	*Picea*	48.92	12.62	21	1917-2001
AK134	*Picea*	65	-147.66	27	1875-2010
AK133	*Picea*	65	-147.65	31	1908-2010
AK135	*Picea*	65	147.67	30	1895-2010
AK136	*Picea*	65	-147.67	26	1857-2012
CANA284	*Pinus*	62.57	-114.35	54	1862-2005
CANA286	*Pinus*	62.48	-114.37	49	1858-2005
CANA287	*Pinus*	62.48	-114.42	44	1679-2005
CANA288	*Pinus*	62.42	-114.42	47	1828-2005
CANA289	*Pinus*	62.47	-114.3	30	1806-2005
CANA290	*Pinus*	62.6	-114.13	57	1829-2005
CANA291	*Pinus*	62.55	-113.85	47	1853-2005
CANA292	*Pinus*	62.52	-113.82	40	1936-2005
CANA293	*Pinus*	62.55	-113.87	52	1734-2005

CANA294	*Pinus*	62.5	-113.43	48	1804-2005
CANA335	*Pinus*	49.6	-114.6	36	1450-2004
CANA344	*Pinus*	56.63	-119.62	30	1860-2006
CANA349	*Pinus*	54.75	-115.62	21	1733-2004
GEOR004	*Pinus*	41.78	43.48	50	1776-2006
GEOR005	*Pinus*	41.8	43.45	59	1773-2006
GEOR008	*Pinus*	41.77	43.52	26	1767-2006
GEOR010	*Pinus*	41.82	42.85	58	1813-2006
GERM186	*Pinus*	50.58	6.47	14	1854-2005
GERM187	*Pinus*	50.5	6.57	11	1844-2009
GERM188	*Pinus*	50.6	6.48	13	1854-2011
GERM214	*Pinus*	50.78	7.57	11	1886-2001
PAKI018	*Pinus*	35.33	74.8	44	1317-2005
PAKI023	*Pinus*	35.9	71.73	19	1260-2006
RUSS182	*Pinus*	68.65	31.67	24	1681-2001
SWIT273	*Pinus*	46.43	9.78	20	1741-2011
SWIT275	*Pinus*	46.43	9.78	19	1700-2011
TN028	*Pinus*	36.48	-88	40	1791-2005
SWED305	*Pinus*	60.45	14.73	66	1450-2002
SWED307	*Pinus*	58.95	15.03	24	1778-2004
SWED313	*Pinus*	56.77	16.55	29	1858-2006
AL003	*Pinus*	33.82	-85.7	24	1583-2006
UT534	*Pinus*	40.25	-111.42	52	1428-2011
UT533	*Pinus*	40.14	-111.33	55	1313-2011
CANA196	*Pinus*	57.85	-103.83	26	1817-2002
CANA200	*Pinus*	57.55	-106.88	30	1766-2002
CANA201	*Pinus*	56.82	-107.58	20	1875-2002
CANA204	*Pinus*	57.42	-106.13	24	1854-2002
CANA203	*Pinus*	57.07	-105.5	29	1832-2002
CANA208	*Pinus*	56.5	-102.97	30	1878-2002
SWIT182	*Pinus*	46.58	9.4	19	1704-2006
SWIT187	*Pinus*	47.03	9.08	17	1893-2007
SWIT269	*Pinus*	46.85	9.47	19	1816-2009
SWIT280	*Pinus*	46.59	7.97	19	1546-2011
SWIT191	*Pinus*	46.55	8.82	19	1671-2008
SWIT281	*Pinus*	46.54	8.83	24	1707-2012
SWIT282	*Pinus*	46.54	8.83	22	1761-2012
SWIT188	*Pinus*	46.3	7.57	48	1866-2007
SWIT283	*Pinus*	46.67	10.22	44	1681-2008
SPAI057	*Pinus*	40.67	-2.77	22	1874-2001
LS001	*Pinus*	18.17	102.8	30	1743-2005
TH006	*Pinus*	19.02	98.23	25	1648-2004
CANA300	*Pinus*	60.92	-111.6	27	1894-2008
CANA305	*Pinus*	61.35	-120.8	26	1922-2008
CANA297	*Pinus*	61.2	-120	20	1816-2008

CANA307	*Pinus*	60.55	-110.6	26	1899-2008
GEOR002	*Pinus*	41.72	43.48	64	1754-2006
GEOR003	*Pinus*	41.72	43.5	49	1781-2006
SPAI071	*Pinus*	40.79	-4.04	31	1551-2008
SPAI072	*Pinus*	40.79	-4.04	74	1554-2008
SWIT231	*Pinus*	46.38	8.1	50	1841-2005
FRAN042	*Pinus*	42.28	2.07	83	1736-2004
SPAI068	*Pinus*	40.66	-4.16	49	1502-2008
FRAN043	*Pinus*	42.85	0.15	82	1324-2005
GEOR009	*Pinus*	41.58	42.75	28	1882-2006
FRAN047	*Pinus*	42.48	2.42	42	1798-2005
SVK006	*Pinus*	48.92	20.28	86	1734-2006
SPAI069	*Pinus*	42.53	1.42	42	1377-2005
SWIT321	*Pinus*	46.15	7.22	28	1887-2005
SWIT328	*Pinus*	46.38	8.1	34	1819-2005
SWIT330	*Pinus*	46.27	7.03	32	1819-2005
SWIT209	*Pinus*	46.38	8.1	45	1701-2005
GEOR006	*Pinus*	41.62	42.72	33	1833-2006
SPAI073	*Pinus*	42.8	-0.73	32	1829-2005
NH005	*Pinus*	43.8	-71.83	53	1690-2008
PAKI026	*Pinus*	35.53	74.5	25	1738-2007
PAKI028	*Pinus*	35.4	74.12	28	1559-2007
PAKI021	*Pinus*	35.68	71.63	19	1403-2006
BT014	*Pinus*	27.18	91.2	47	1650-2003
PAKI033	*Pinus*	35.5	74.75	18	1362-2007
PAKI034	*Pinus*	35.5	74.75	12	1730-2007
BT013	*Pinus*	27.25	89.38	12	1741-2005
RUSS222	*Pinus*	50.42	84.62	52	1598-2011
LATV002	*Pinus*	57.22	22.25	18	1900-2006
SWIT219	*Pinus*	46.48	9.88	154	1713-2002
SWIT337	*Pinus*	46.48	9.88	137	1662-2001
SWIT336	*Pinus*	46.47	9.78	169	1601-2002
SWIT347	*Pinus*	46.68	10.37	177	1478-2002
FINL069	*Pinus*	67.56	24.3	98	1475-2006
FINL072	*Pinus*	68.22	24.05	82	1724-2006
FINL073	*Pinus*	68.22	24.05	65	1572-2006
FINL074	*Pinus*	68.22	24.05	48	1569-2006
SWED330	*Pinus*	67.9	20.1	103	1775-2006
SWED331	*Pinus*	67.9	20.1	86	1656-2006
FINL070	*Pinus*	67.5	24.15	61	1844-2006
FINL071	*Pinus*	67.5	24.15	65	1653-2006
SWED332	*Pinus*	68.2	19.8	96	1796-2006
SWED333	*Pinus*	68.2	19.8	78	1800-2006
WY042	*Pinus*	42.45	-108.87	28	1200-2006
UT525	*Pinus*	40.97	-109.42	73	1365-2001

UT526	*Pinus*	39.82	-110.67	20	1040-2001
UT527	*Pinus*	39.83	-110.17	31	887-2001
UT516	*Pinus*	37.62	-112	14	1555-2000
UT518	*Pinus*	37.65	-111.97	16	1507-1999
UT520	*Pinus*	37.42	-111.88	26	1561-1999
UT521	*Pinus*	37.5	-112.07	21	1590-2000
UT522	*Pinus*	37.47	-112.1	19	1406-2000
MONG039	*Pinus*	48.17	99.87	110	-106-2011
WY048	*Pinus*	44.7	-110.5	33	1680-2010
CA642	*Pinus*	37.88	-119.37	21	1700-2005
WY035	*Pinus*	44.62	-110.43	17	1900-2008
CA671	*Pinus*	37.62	-119.02	31	1610-2009
WY047	*Pinus*	44.57	-110.38	35	1758-2010
CA641	*Pinus*	37.87	-119.37	22	1700-2005
OR082	*Pinus*	44.7	-118.55	49	1740-2002
OR083	*Pinus*	44.7	-118.55	43	1892-2002
WY033	*Pinus*	44.75	-110.25	26	1280-2005
WY036	*Pinus*	44.6	-110.4	47	1734-2009
NV519	*Pinus*	37.87	-118.33	33	990-2000
WY051	*Pinus*	44.73	-110.72	27	1597-2009
MT111	*Pinus*	45.3	-111.33	65	500-2000
CA643	*Pinus*	37.87	-119.37	44	1700-2005
MT128	*Pinus*	46.95	-114.33	47	1602-2006
ID016	*Pinus*	48.37	-116.79	42	1653-2009
GA015	*Pinus*	30.86	-83.97	47	1661-2003
GA016	*Pinus*	34.33	-85.25	40	1795-2003
GA018	*Pinus*	32.25	-85.2	46	1730-2001
GA017	*Pinus*	32.85	-84.48	46	1649-2002
SWED309	*Pinus*	57.9	14.9	35	1744-2003
SWED327	*Pinus*	64.45	13.97	26	1500-2000
SWED328	*Pinus*	59.18	18.27	19	1694-2000
RUSS200	*Pinus*	61.34	129.08	62	1810-2007
RUSS201	*Pinus*	62.03	128.59	58	1797-2007
CA674	*Pinus*	40.1	-120.63	70	1450-2010
CA676	*Pinus*	41.67	-120.98	57	1357-2010
CA677	*Pinus*	39.57	-120.28	59	1415-2010
CA678	*Pinus*	37.95	-119.15	68	1304-2010
WV004	*Pinus*	38.05	-81.05	31	1830-2005
FRAN035	*Pinus*	44.63	6.78	11	1564-2000
FRAN036	*Pinus*	44.63	6.83	23	1551-2000
FINL057	*Pinus*	61.92	26.02	134	1750-2000
FINL054	*Pinus*	67.22	26.82	59	1550-2000
FINL055	*Pinus*	67.08	27.02	139	1550-2000
FINL056	*Pinus*	61.93	25.72	59	1686-2000
RUSS183	*Pinus*	64.77	32.33	22	1590-2002

FINL043	*Pinus*	61.93	28.98	22	1865-2001
FINL041	*Pinus*	61.92	29	33	1851-2002
NORW007	*Pinus*	69.42	25.63	85	1698-2001
FINL021	*Pinus*	68.83	27.25	85	1410-2001
FINL049	*Pinus*	63.28	28.93	38	1821-2001
FINL047	*Pinus*	68.92	28.48	44	1622-2001
FINL052	*Pinus*	63.1	29.63	33	1882-2001
FINL046	*Pinus*	66.37	29.3	33	1758-2001
FINL042	*Pinus*	61.8	29.3	103	1799-2002
RUSS016	*Pinus*	66.27	30.8	172	1471-2002
RUSS181	*Pinus*	64.95	30.2	34	1681-2001
FINL045	*Pinus*	68.07	27.2	28	1740-2001
GERM153	*Pinus*	51.15	9.08	13	1862-2005
GERM160	*Pinus*	51.15	8.98	12	1871-2009
NC017	*Pinus*	35.15	-79.37	35	1690-2006
MONG034	*Pinus*	49.41	107.57	32	1730-2008
MONG035	*Pinus*	49.94	106.2	44	1653-2008
MONG036	*Pinus*	50.08	106.18	17	1770-2008
MONG038	*Pinus*	49.4	107.31	32	1626-2008
MONG037	*Pinus*	50.15	106.37	20	1731-2008
TURK023	*Pinus*	36.45	32.52	22	1444-2003
TURK022	*Pinus*	40.55	41.98	28	1717-2001
CA669	*Pinus*	37.52	-118.17	40	1400-2006
NV520	*Pinus*	38.92	-114.32	209	-2649-2002
CA668	*Pinus*	37.52	-118.18	35	1400-2006
NV521	*Pinus*	40.23	-115.53	147	-2649-2002
CA667	*Pinus*	37.52	-118.2	310	-2649-2005
SPAI060	*Pinus*	40.38	-0.68	23	1931-2008
CANA329	*Pinus*	51.97	-116.72	32	1617-2007
ALB003	*Pinus*	40.7	20.13	124	1405-2008
ALB002	*Pinus*	41.8	20.23	124	617-2008
ALB001	*Pinus*	42.42	19.77	54	1303-2007
CHIN057	*Pinus*	34.46	110.08	66	1512-2005
CANA243	*Pinus*	50.32	-94	36	1784-2004
CANA244	*Pinus*	49.12	-91.13	20	1797-2003
CANA245	*Pinus*	49.07	-93.9	32	1836-2004
CANA246	*Pinus*	50.07	-93.52	46	1776-2004
CANA247	*Pinus*	48.97	-91.25	24	1846-2003
CANA248	*Pinus*	48.72	-91.17	29	1796-2003
CANA249	*Pinus*	49.67	-93.77	21	1885-2003
CANA250	*Pinus*	48.88	-91.7	32	1817-2003
CANA252	*Pinus*	49.88	-93.75	34	1759-2004
CANA253	*Pinus*	49.68	-94.87	38	1775-2004
CANA254	*Pinus*	48.38	-90.75	85	1732-2004
CANA255	*Pinus*	49.68	-93.88	19	1875-2003

CANA256	*Pinus*	50.38	-93.88	34	1801-2004
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CANA260	*Pinus*	48.72	-91.87	30	1807-2004
CANA263	*Pinus*	49.68	-93.67	27	1750-2003
CANA264	*Pinus*	48.65	-91.22	75	1768-2003
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CANA266	*Pinus*	49.18	-94.15	30	1862-2004
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CANA268	*Pinus*	48.67	-91.08	39	1791-2004
AR074	*Pinus*	35.68	-93.3	26	1600-2003
KY006	*Pinus*	37.88	-83.68	42	1750-2004
LA002	*Pinus*	31.47	-92.99	48	1587-2007
MI020	*Pinus*	46.87	-87.9	36	1723-2007
OK034	*Pinus*	36.03	-94.83	38	1662-2006
TN032	*Pinus*	36.48	-87.98	40	1791-2005
MI021	*Pinus*	46.87	-87.87	43	1-2006
AR076	*Pinus*	34.45	-93.5	17	1913-2009
AR082	*Pinus*	35	-93.88	22	1923-2007
AR080	*Pinus*	34.73	-93.45	18	1939-2007
AR081	*Pinus*	34.67	-93.47	28	1887-2007
UT535	*Pinus*	40.57	-111.58	73	351-2006
TURK038	*Pinus*	39.27	28.85	23	1771-2002
CYPR016	*Pinus*	34.92	32.9	33	1584-2002
CYPR017	*Pinus*	34.92	32.9	38	1554-2002
TURK039	*Pinus*	39.23	28.78	19	1792-2004
TURK032	*Pinus*	37.03	30.47	15	1738-2001
NM585	*Pinus*	35.92	-106.67	45	1568-2007
CYPR018	*Pinus*	34.93	32.87	44	1379-2002
TURK031	*Pinus*	37.63	35.43	18	1475-2001
TUNI002	*Pinus*	36.23	8.43	19	1890-2003
TURK015	*Pinus*	37.4	30.63	32	1730-2000
TURK036	*Pinus*	37.08	30.52	35	1694-2001
TURK037	*Pinus*	39.33	29.08	38	1794-2002
TURK020	*Pinus*	36.65	32.2	25	1586-2000
ALGE002	*Pinus*	36.45	4.1	40	1569-2005
CYPR015	*Pinus*	35.02	32.63	38	1739-2002
ALGE003	*Pinus*	34.6	3.12	39	1854-2006
SWIT348	*Pinus*	46.5	8.77	55	1622-2002
ID015	*Pinus*	43.75	-116.1	34	1488-2011
WY037	*Pinus*	43.62	-110.43	68	1315-2006
CO590	*Pinus*	40.67	-105.52	38	1392-2002
CO591	*Pinus*	40.98	-105.67	36	1423-2001
CO637	*Pinus*	37.55	-105.57	38	1450-2003

CO594	*Pinus*	38.25	-106.67	62	1437-2002
CO596	*Pinus*	39.93	-105.3	29	1545-2003
CO598	*Pinus*	40.37	-105.58	26	1547-2000
CO600	*Pinus*	38.25	-108.33	40	1536-2000
CO605	*Pinus*	38.6	-107.58	53	1383-2002
CO638	*Pinus*	37.22	-107.85	40	1566-2002
CO607	*Pinus*	40.13	-105.42	24	1354-2000
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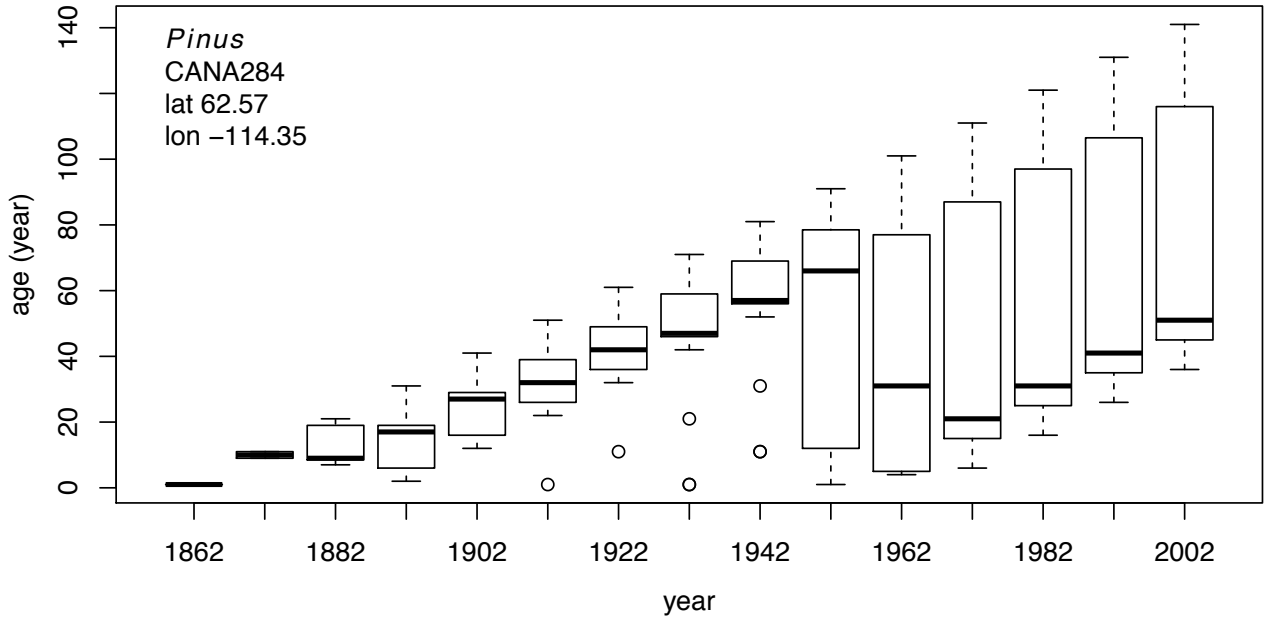
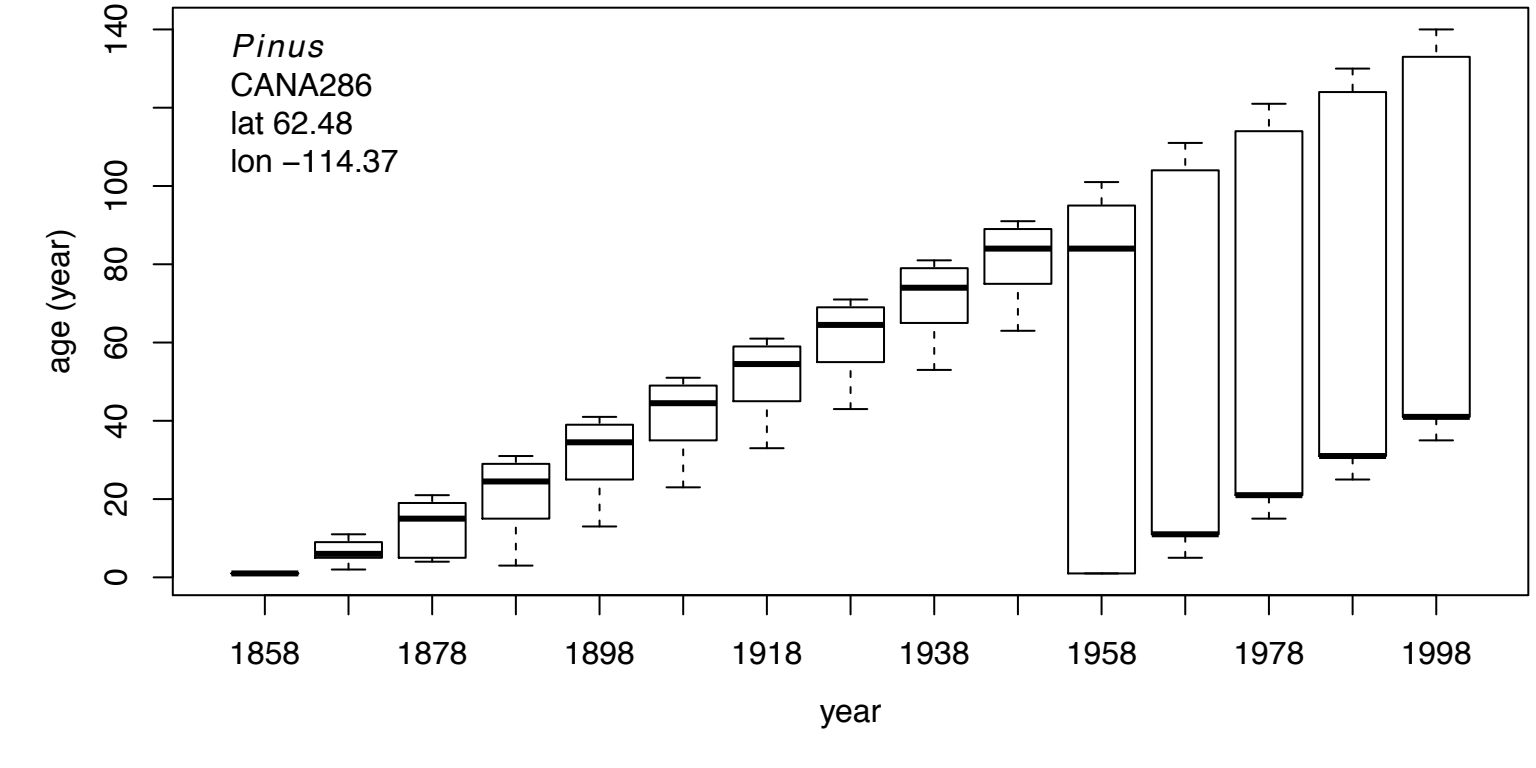
NM581	*Pinus*	36.53	-106.02	45	1520-2003
CO610	*Pinus*	37.58	-108.58	61	1270-2002
CO612	*Pinus*	38.38	-108.02	55	1440-2002
CO636	*Pinus*	37.82	-106.38	32	1508-2002
UT524	*Pinus*	37.35	-112.13	38	1378-2002
CO614	*Pinus*	40.8	-105.18	33	1508-2002
CO615	*Pinus*	40.05	-108.3	34	1126-2001
CO588	*Pinus*	37.47	-106.3	20	1632-2004
CO616	*Pinus*	40.78	-108.97	49	1270-2000
CO648	*Pinus*	39.95	-106.52	69	1175-2002
CO621	*Pinus*	39.67	-107.88	31	1352-2000
CO622	*Pinus*	40.72	-105.58	37	1436-2002
CO623	*Pinus*	38.32	-107.2	14	1599-2000
CO626	*Pinus*	38.02	-108.92	32	1490-2002
CO625	*Pinus*	37.67	-106.65	35	1566-2002
CO640	*Pinus*	38.4	-105.3	28	1577-2003
CO583	*Pinus*	39.72	-106.98	40	1402-2002
NM582	*Pinus*	36.62	-105.98	42	1575-2003
CO629	*Pinus*	38.83	-108.57	61	1296-2002
CO641	*Pinus*	39.8	-105.25	29	1566-2003
WY032	*Pinus*	41.15	-105.37	33	1511-2001
MI017	*Pinus*	44.72	-86.08	19	1862-2002
MI015	*Pinus*	44.72	-86.08	21	1912-2002

The sites in the ITRDB were screened prior to analysis. We could not use sites where there were gaps in the core records, which precludes the estimation of tree diameter. We excludes records where there were very large measurements of a single ring (>10mm) or where the difference between maximum and mean ring widths was >10 times of the mean value – both of these circumstances might highly suggest that either the units given in the metadata were wrong or something wrong with the measurements. This screening resulted in the exclusion of 36 *Picea* and 35 *Pinus* sites.

SI Figure 1: Sampling age distribution through time for *Picea* and *Pinus* sites from the International Tree Ring Data Base (ITRDB: https://www.ncdc.noaa.gov/data-access/paleoclimatology-data/datasets/tree-ring).




Pinus
CANA286
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lon −114.37
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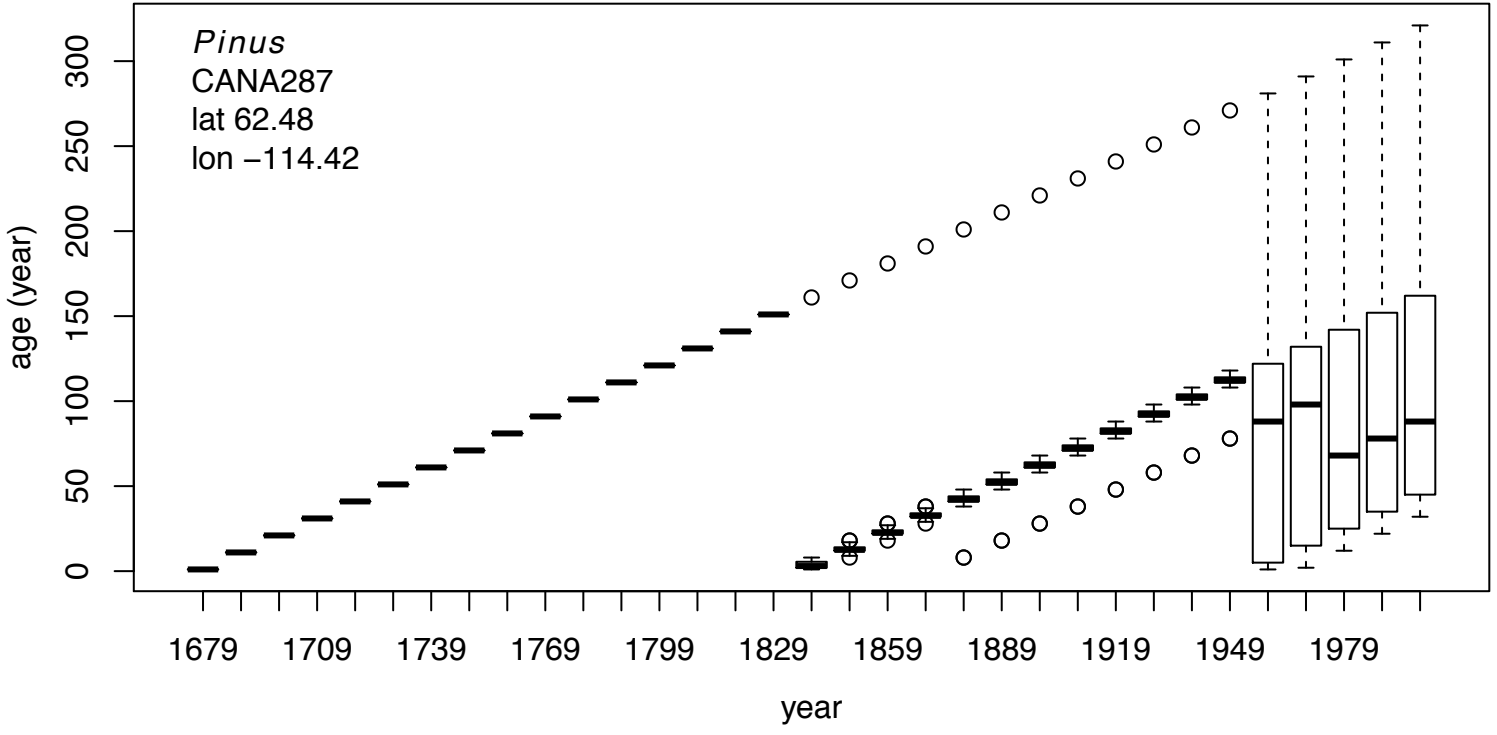
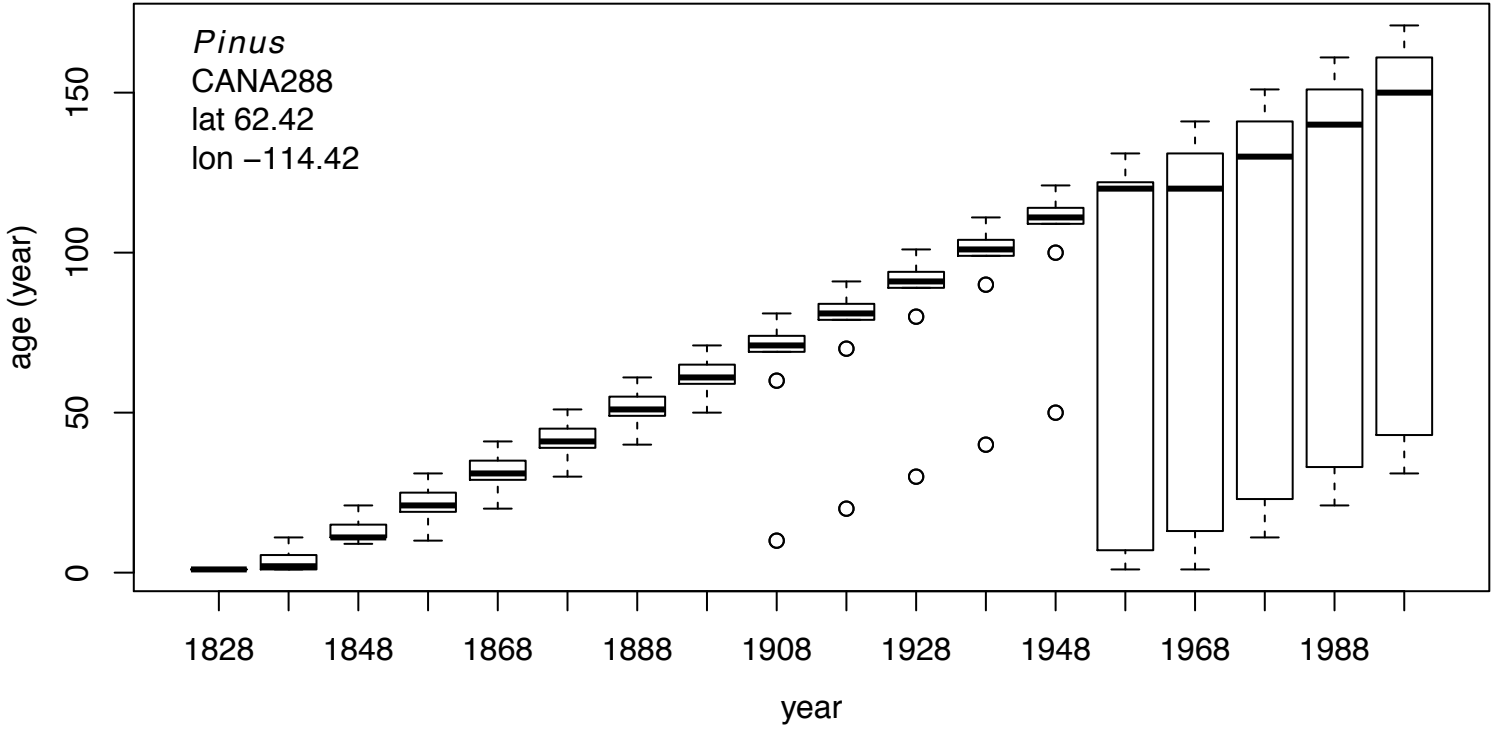
20
40
60
80
100
140
1858
1878
1898
1918
1938
1958
1978
1998
year


Pinus
CANA287
lat 62.48
lon −114.42
age (year)
0
50
100
150
200
250
300
1679
1709
1739
1769
1799
1829
1859
1889
1919
1949
1979
year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CANA288
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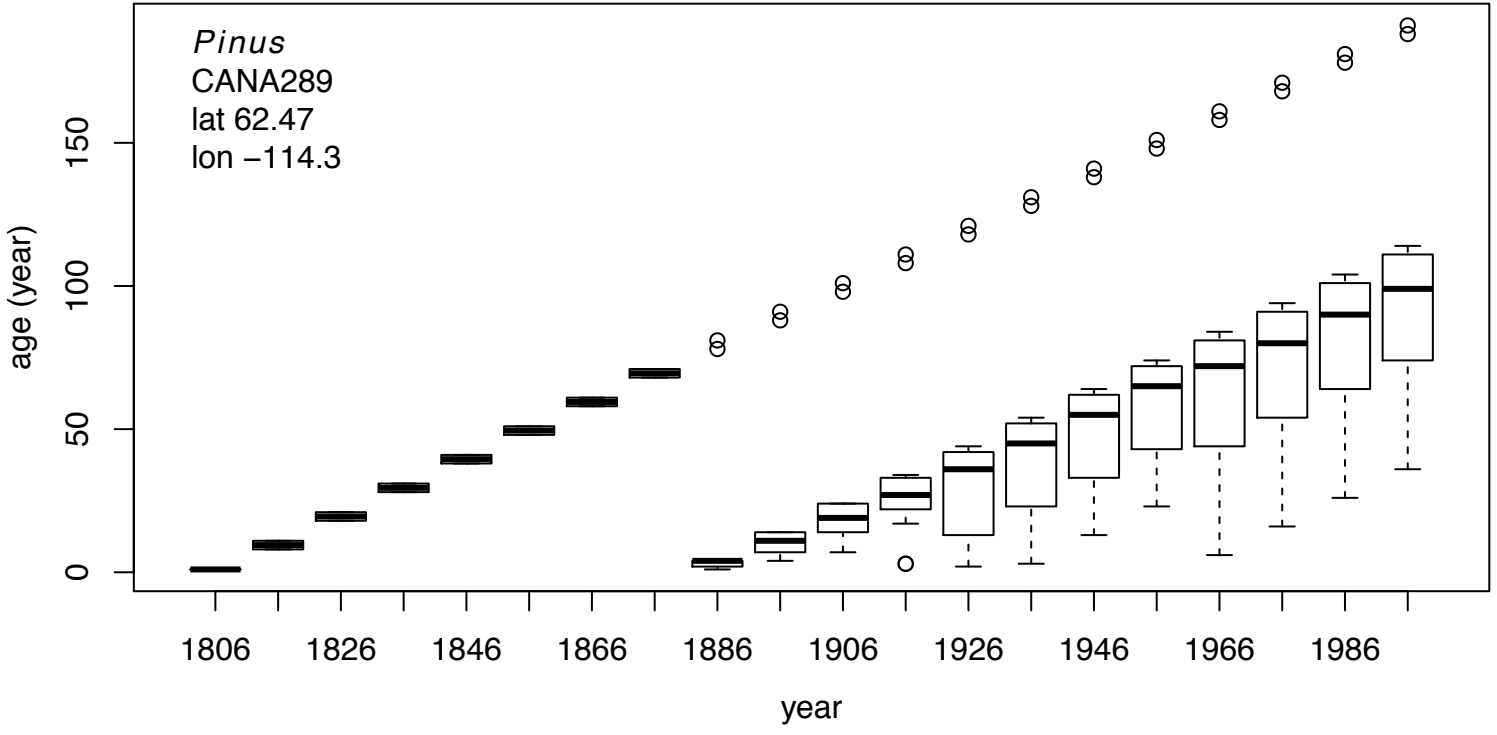
50
100
150
1828
1848
1868
1888
1908
1928
1948
1968
1988
year


Pinus
CANA289
lat 62.47
lon −114.3
age (year)
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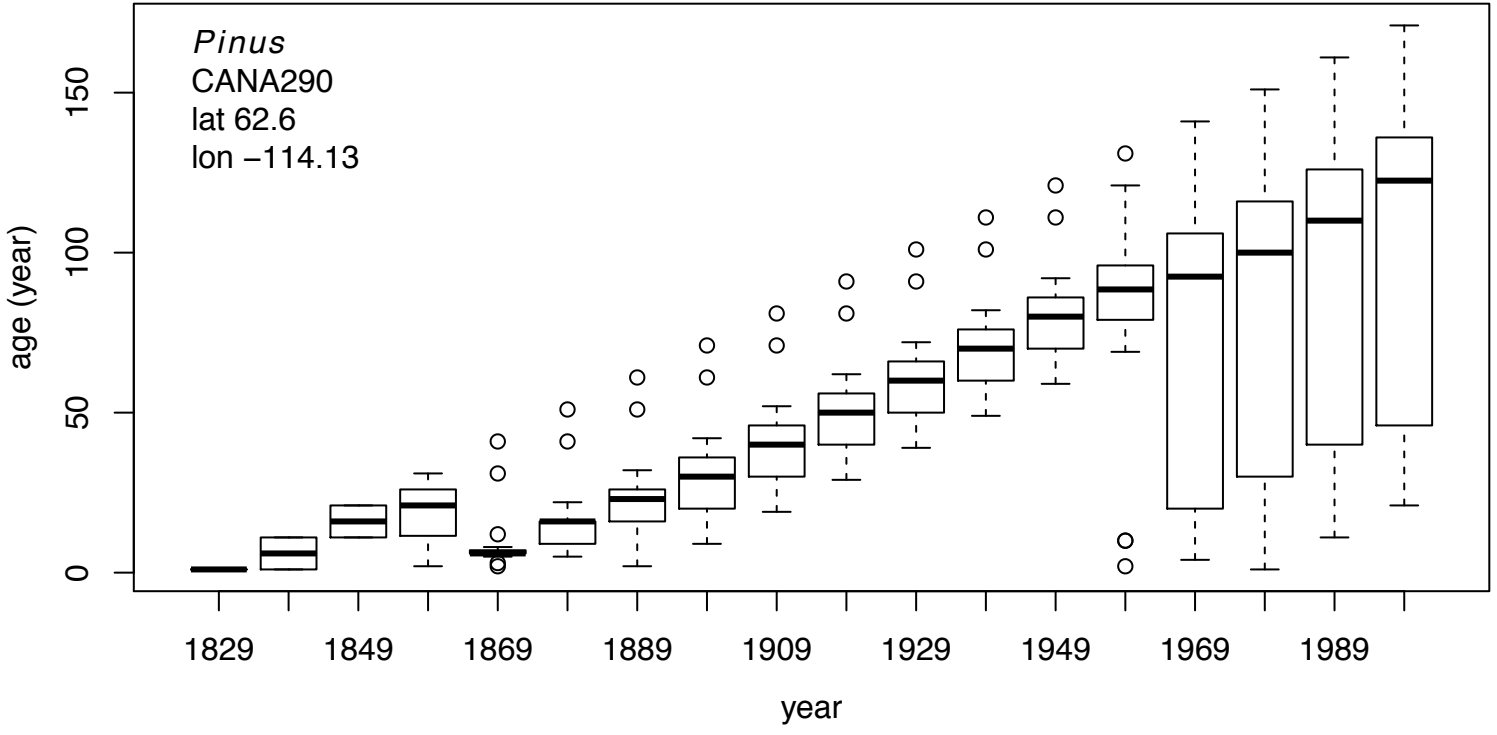
50
100
150
1806
1826
1846
1866
1886
1906
1926
1946
1966
1986
year


Pinus
CANA290
lat 62.6
lon −114.13
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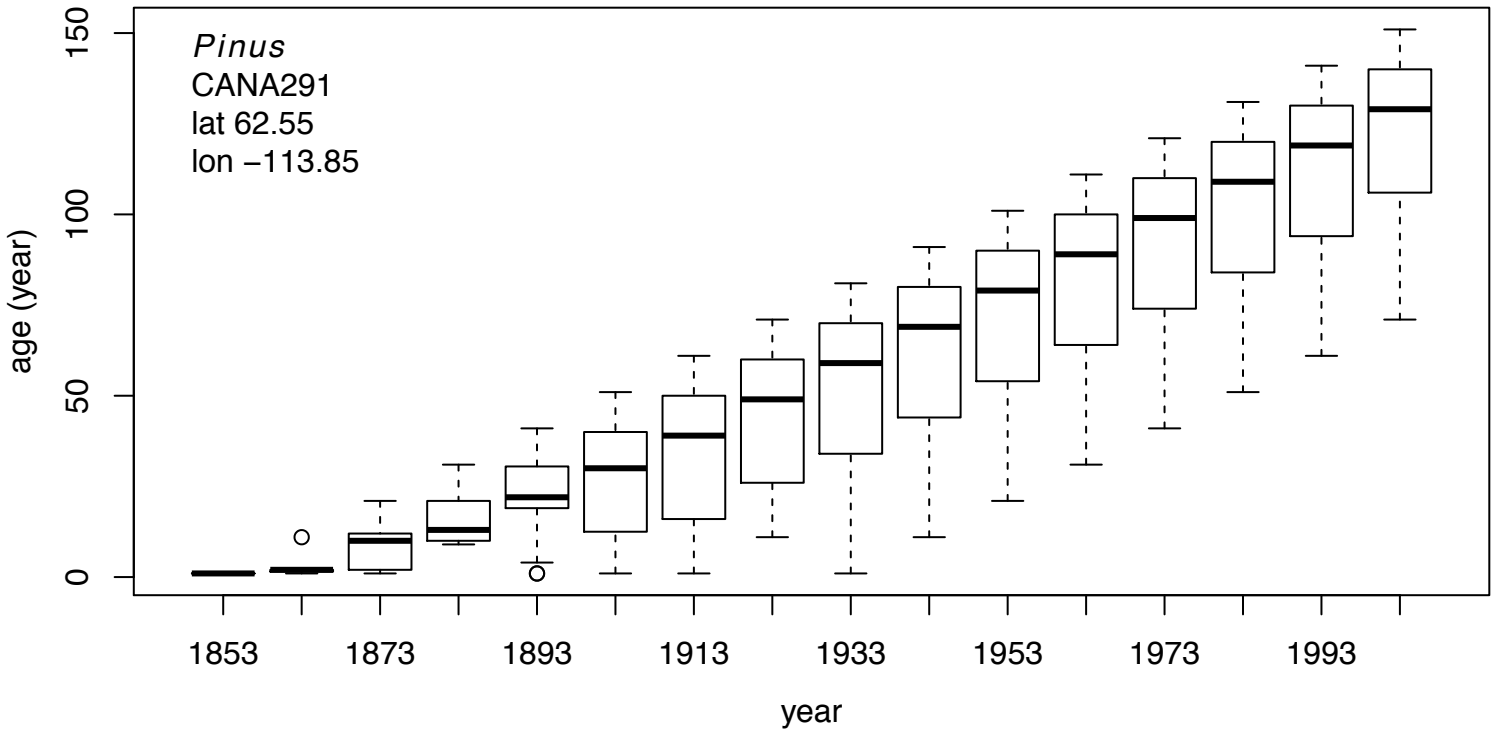
100
150
1829
1849
1869
1889
1909
1929
1949
1969
1989
year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CANA291
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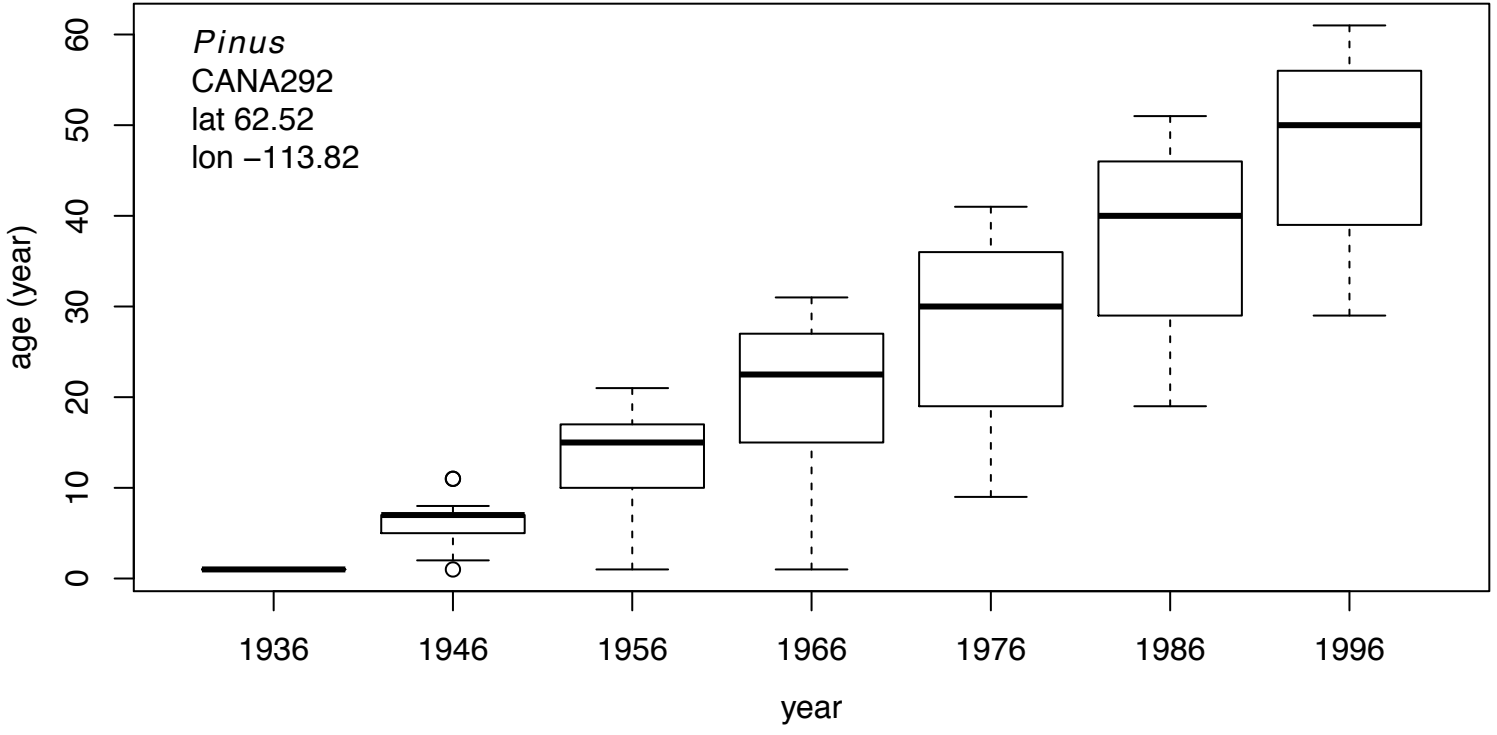
100
150
1853
1873
1893
1913
1933
1953
1973
1993
year


Pinus
CANA292
lat 62.52
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age (year)
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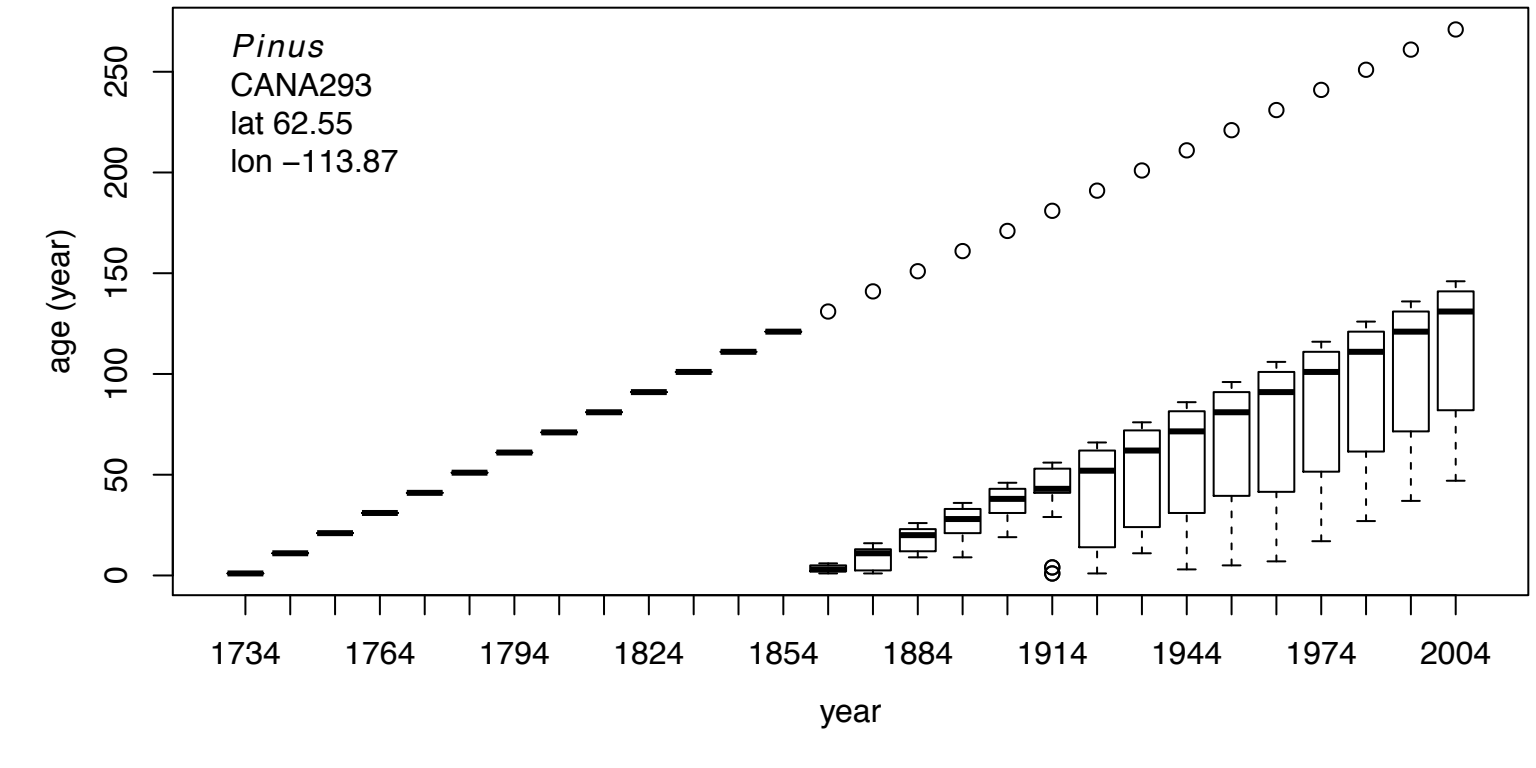
10
20
30
40
50
60
1936
1946
1956
1966
1976
1986
1996
year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CANA293
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lon −113.87
age (year)
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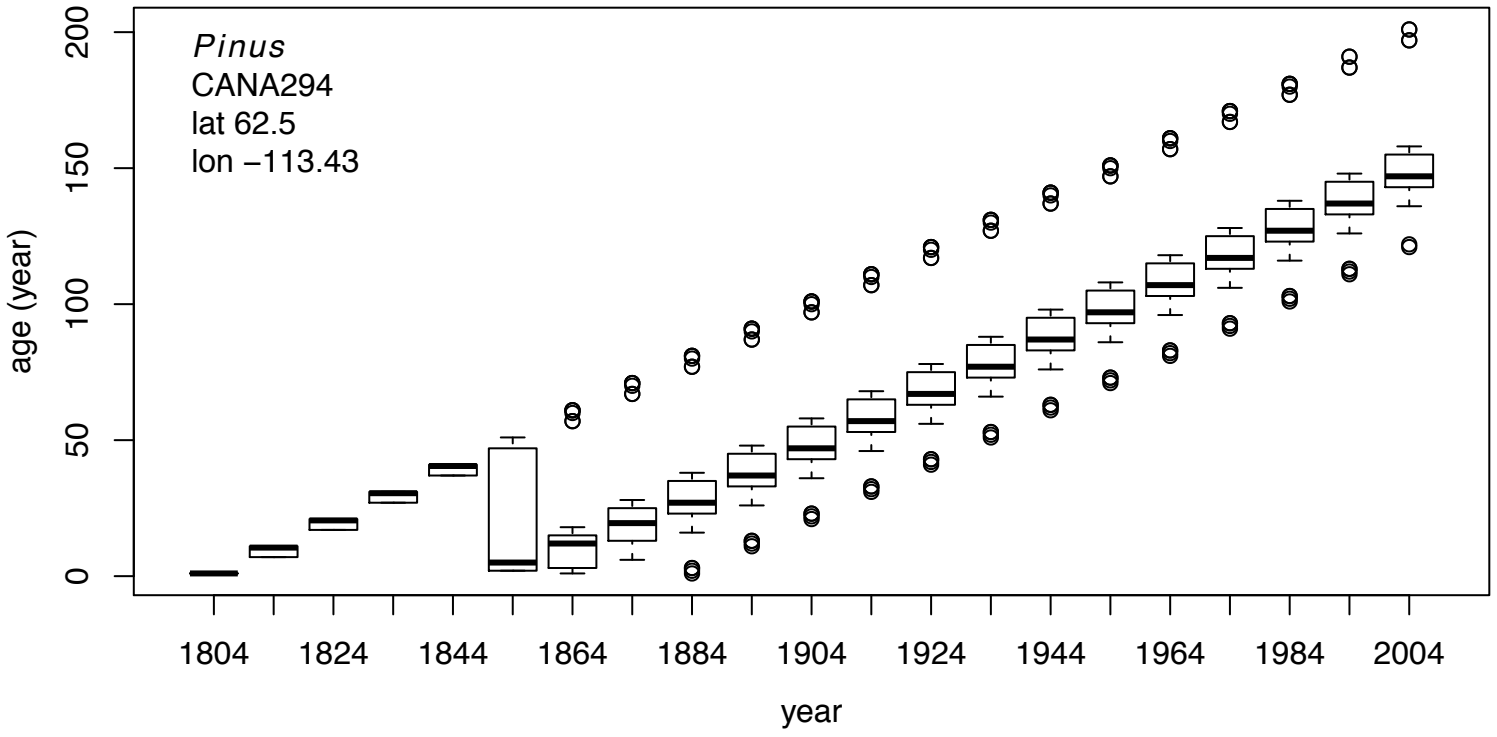
100
150
200
250
1734
1764
1794
1824
1854
1884
1914
1944
1974
2004
year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CANA294
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lon −113.43
age (year)
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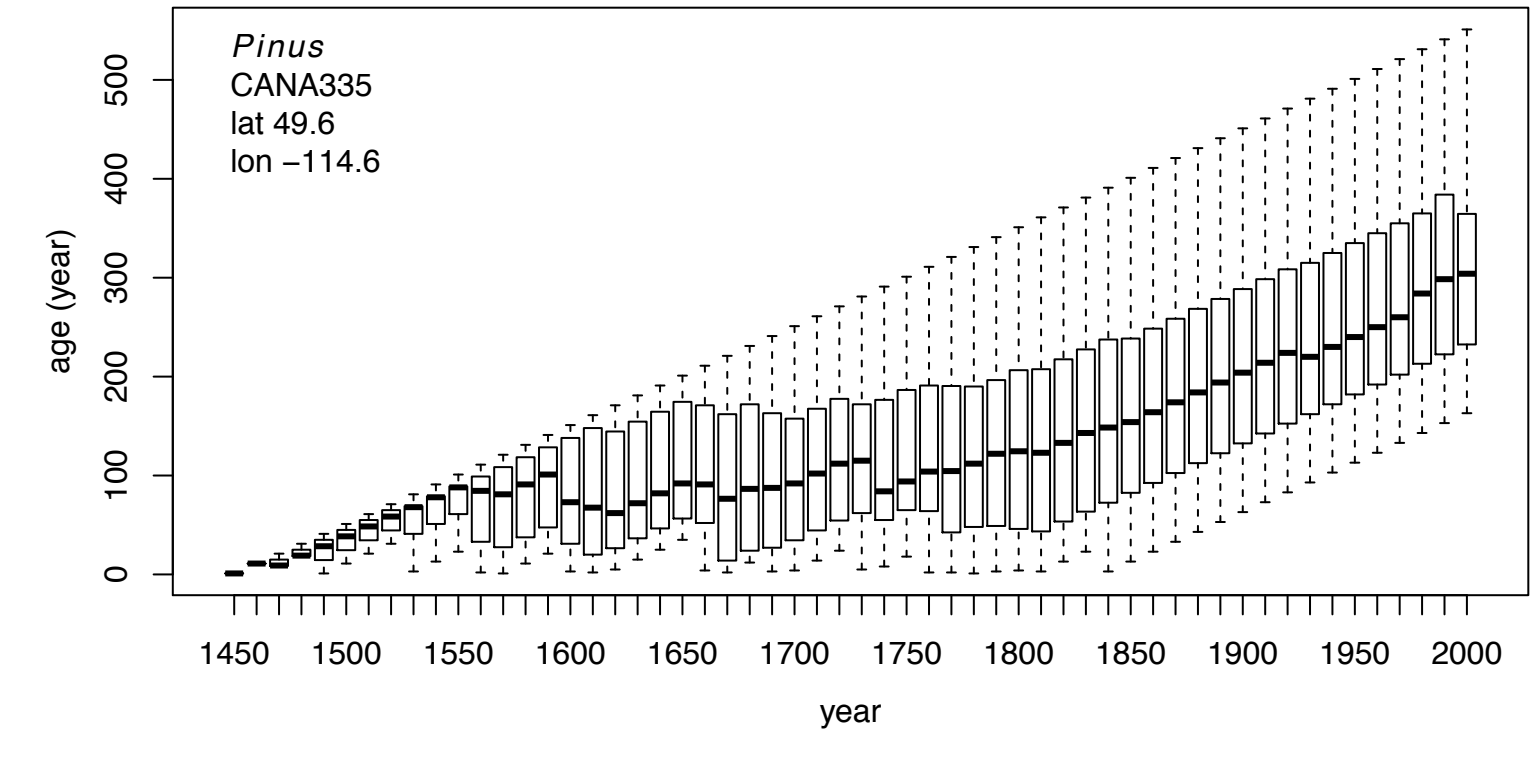
100
150
200
1804
1824
1844
1864
1884
1904
1924
1944
1964
1984
2004
year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CANA335
lat 49.6
lon −114.6
age (year)
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500
1450
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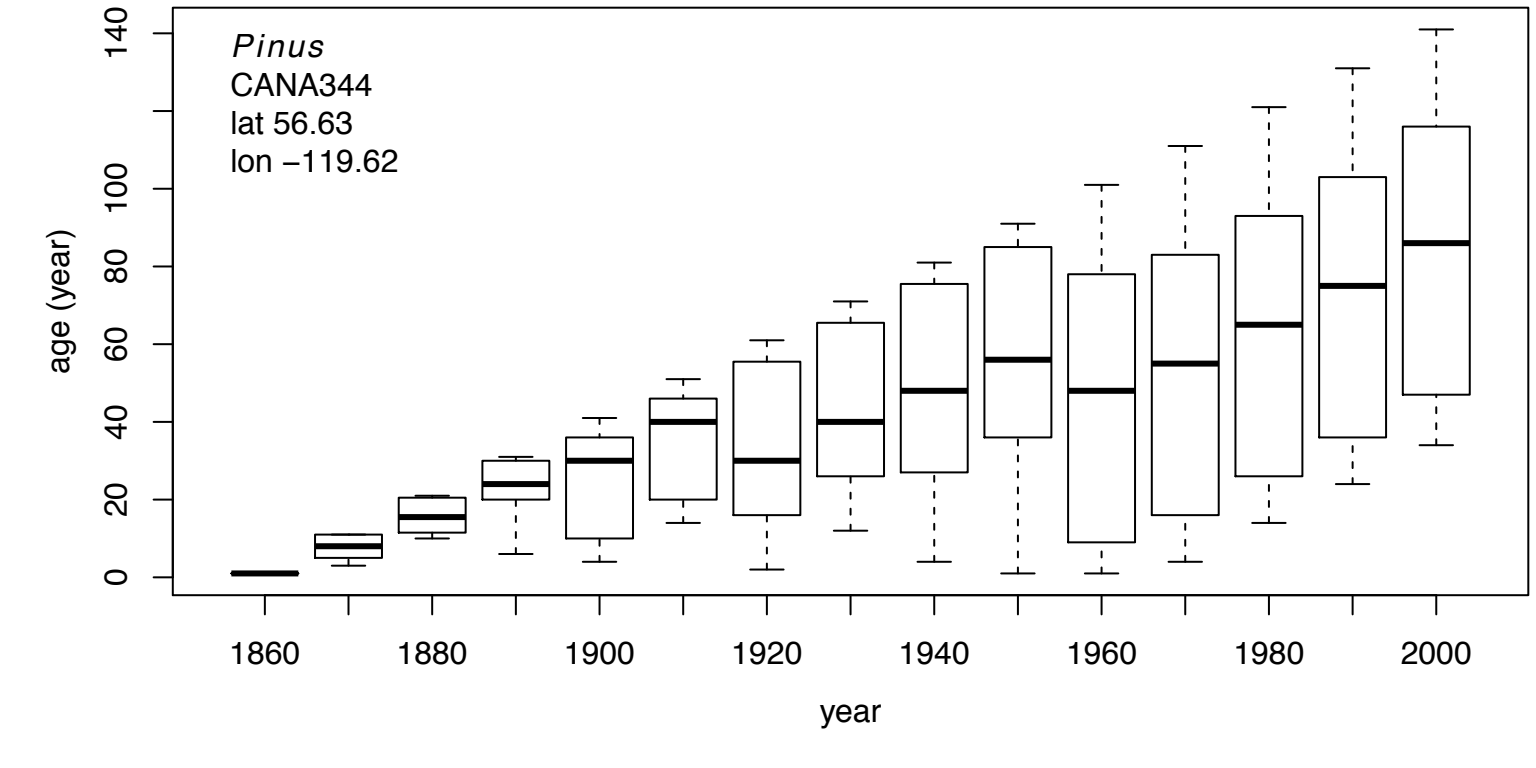
1550
1600
1650
1700
1750
1800
1850
1900
1950
2000
year


Pinus
CANA344
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60
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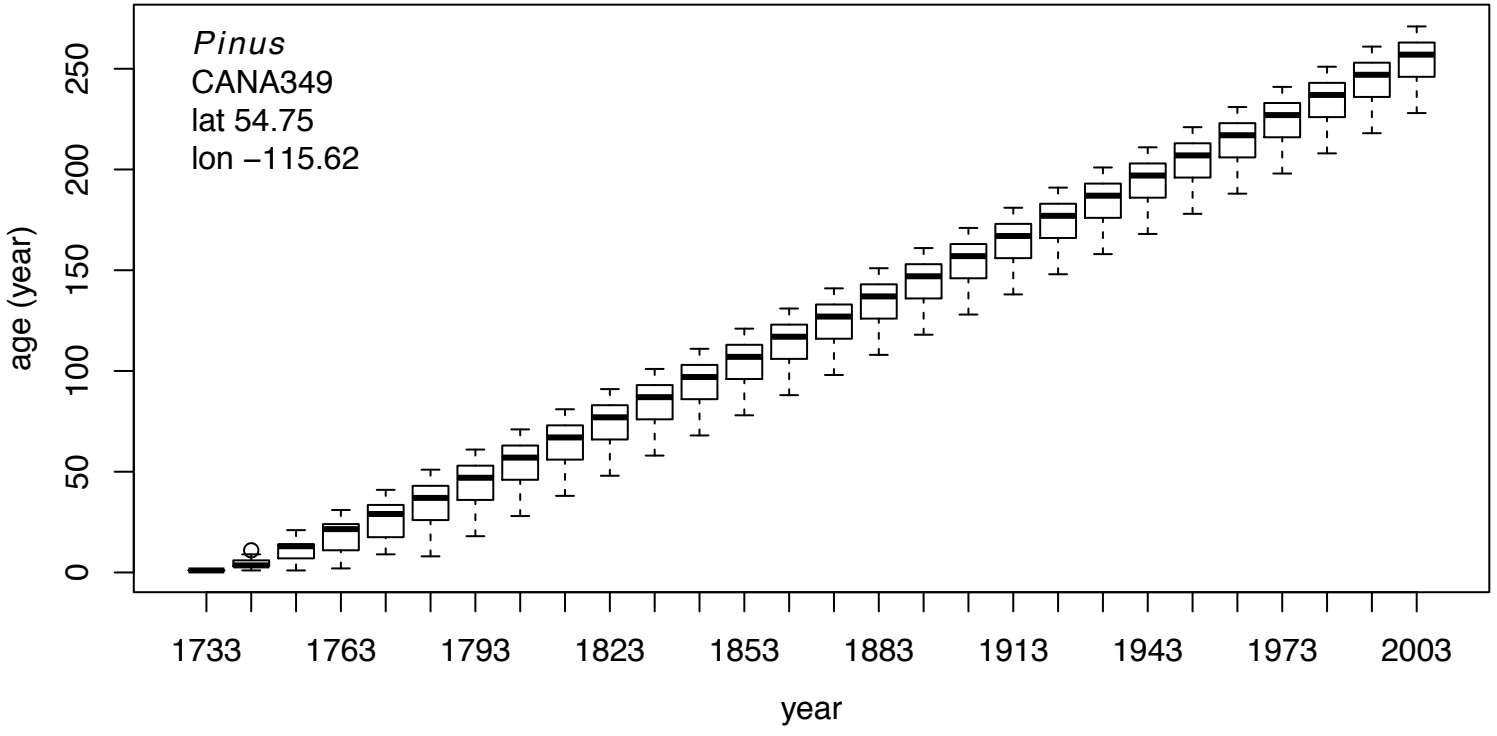
1880
1900
1920
1940
1960
1980
2000
year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age (year)
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150
200
250
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1763
1793
1823
1853
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1913
1943
1973
2003
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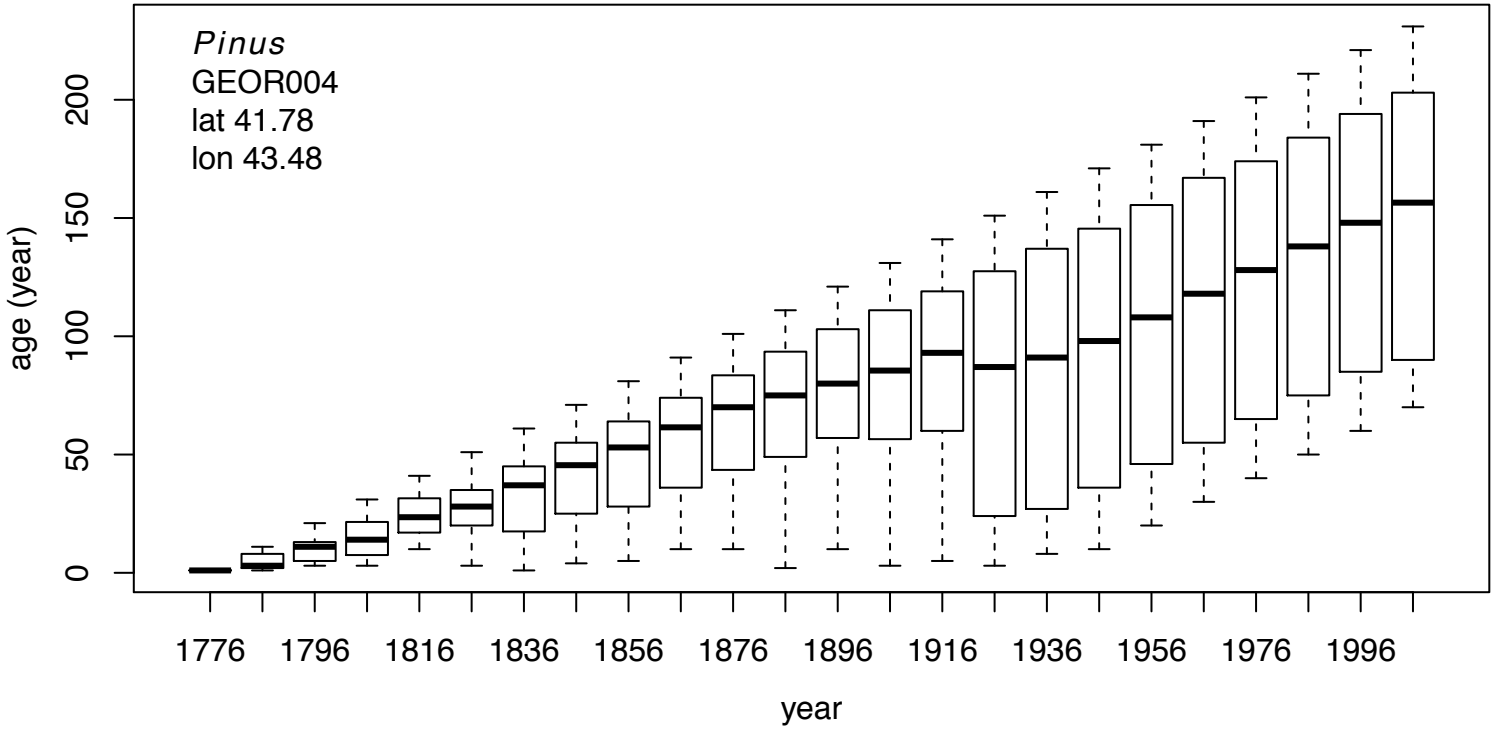
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1956
1976
1996
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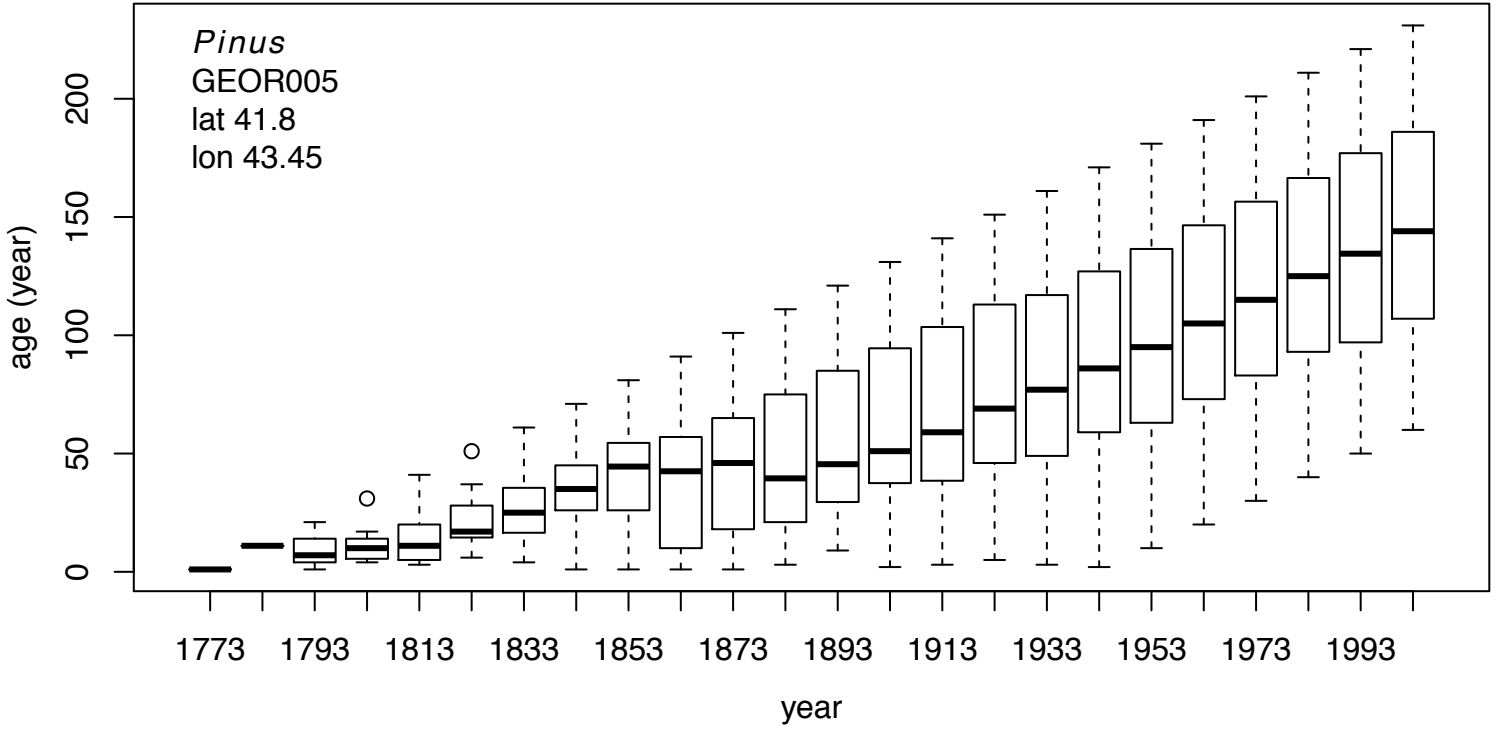
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1893
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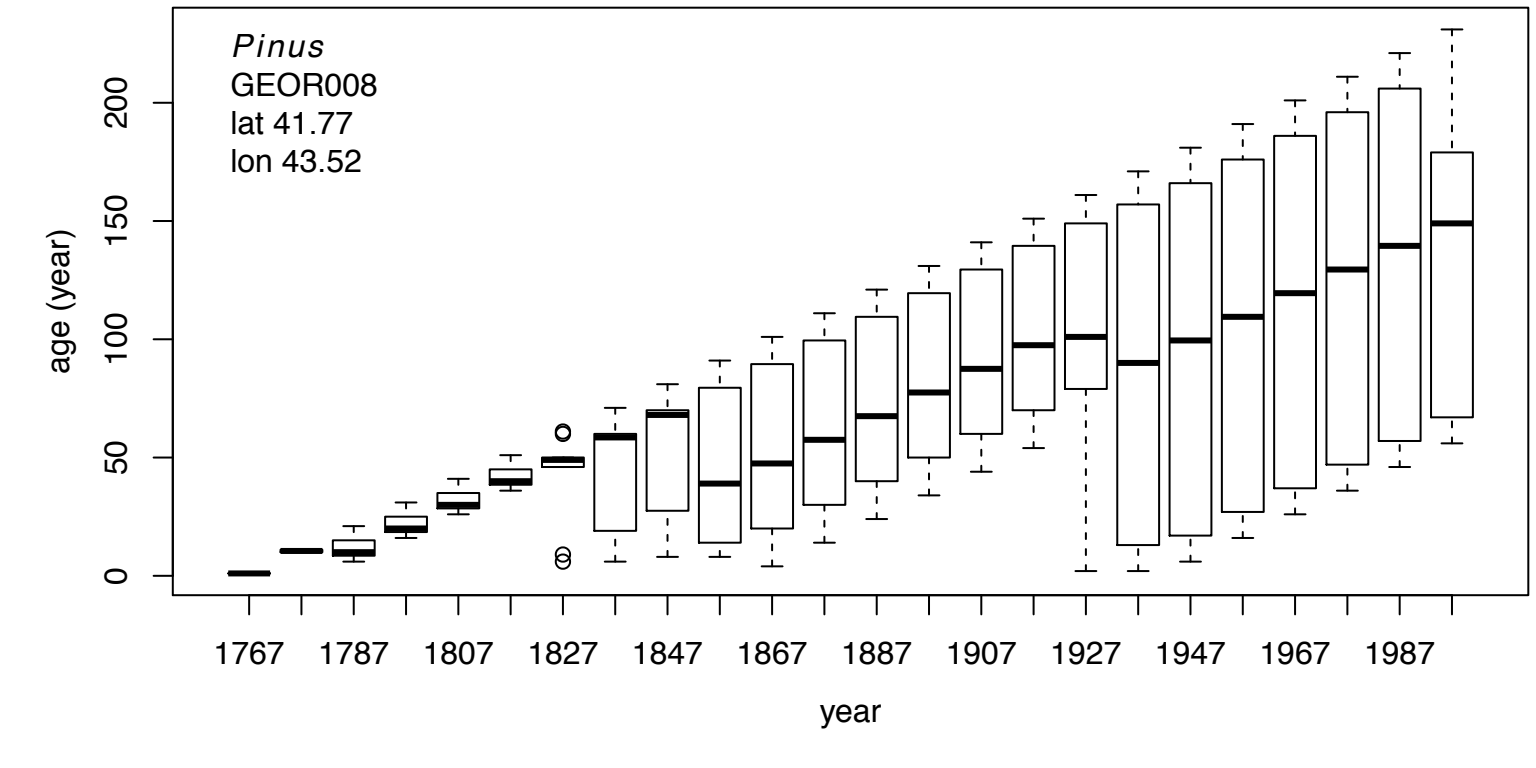
1933
1953
1973
1993
year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1827
1847
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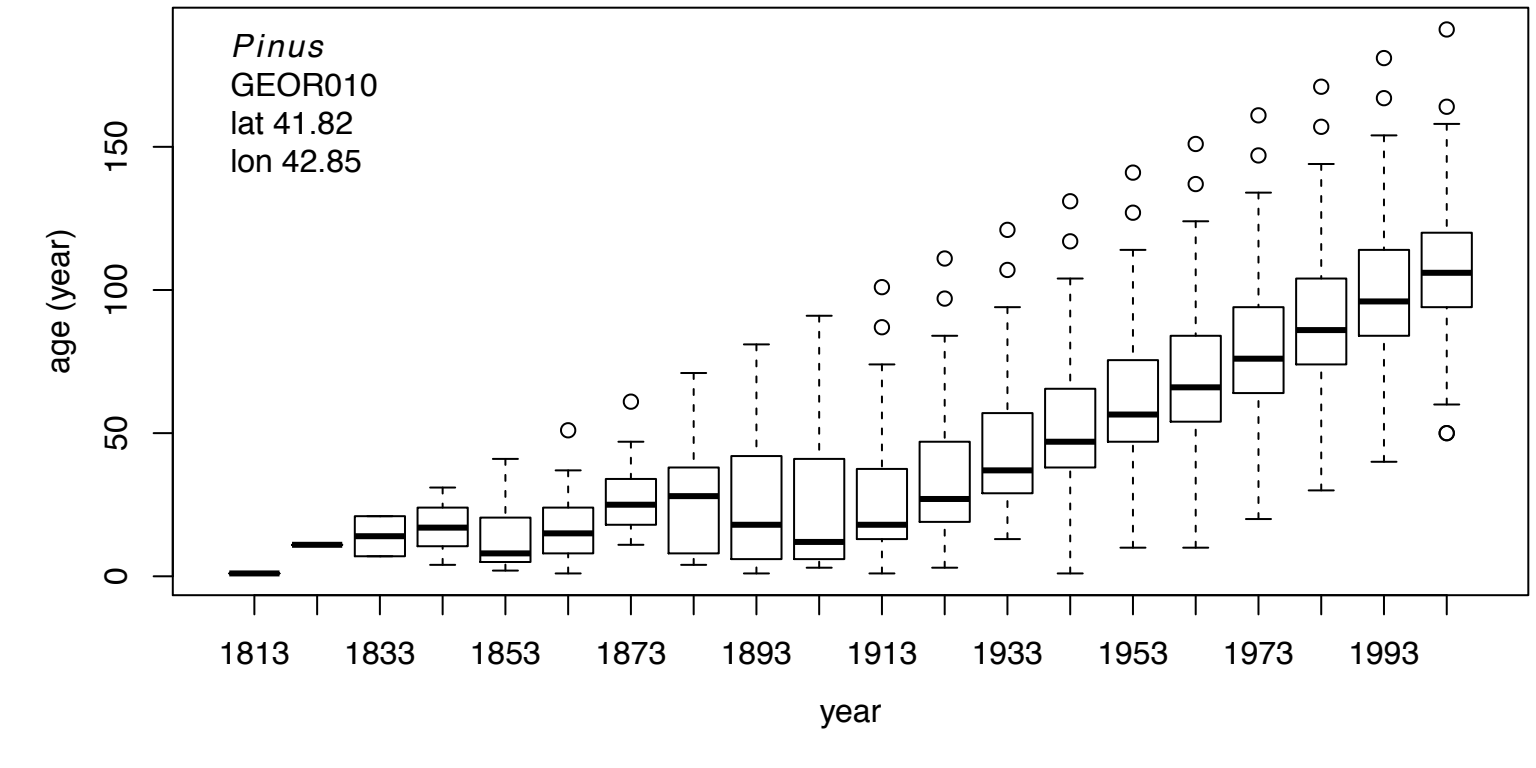
1887
1907
1927
1947
1967
1987
year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1993
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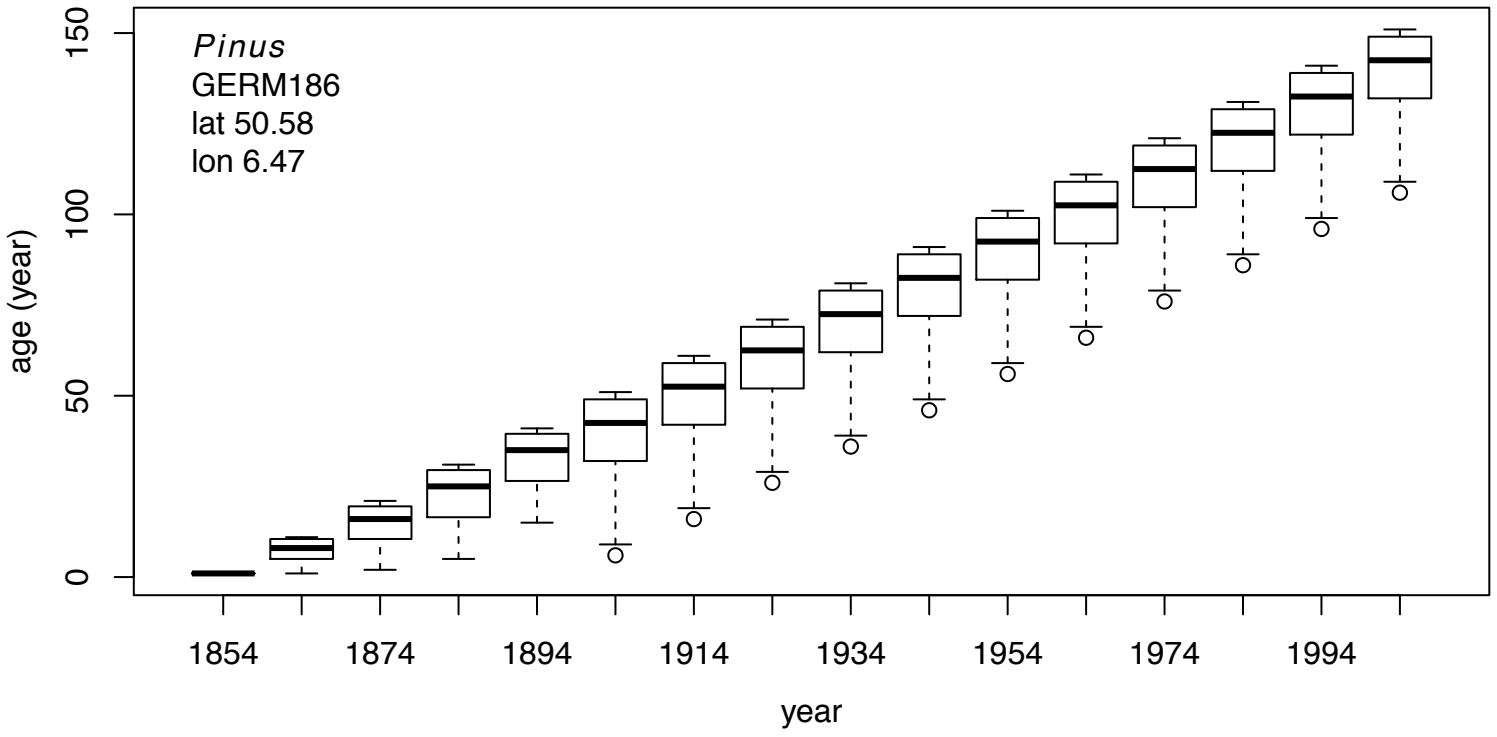
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1854
1874
1894
1914
1934
1954
1974
1994
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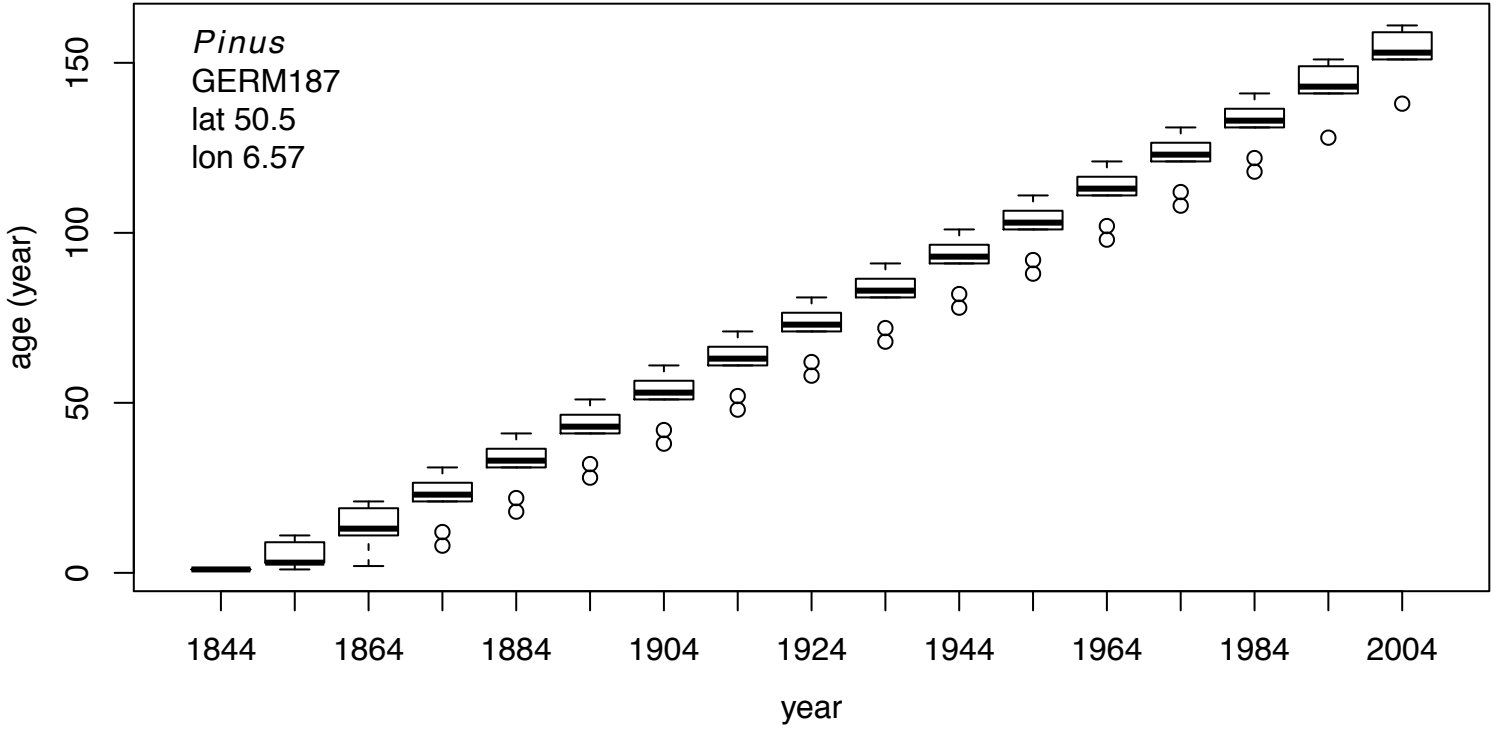
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1844
1864
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1904
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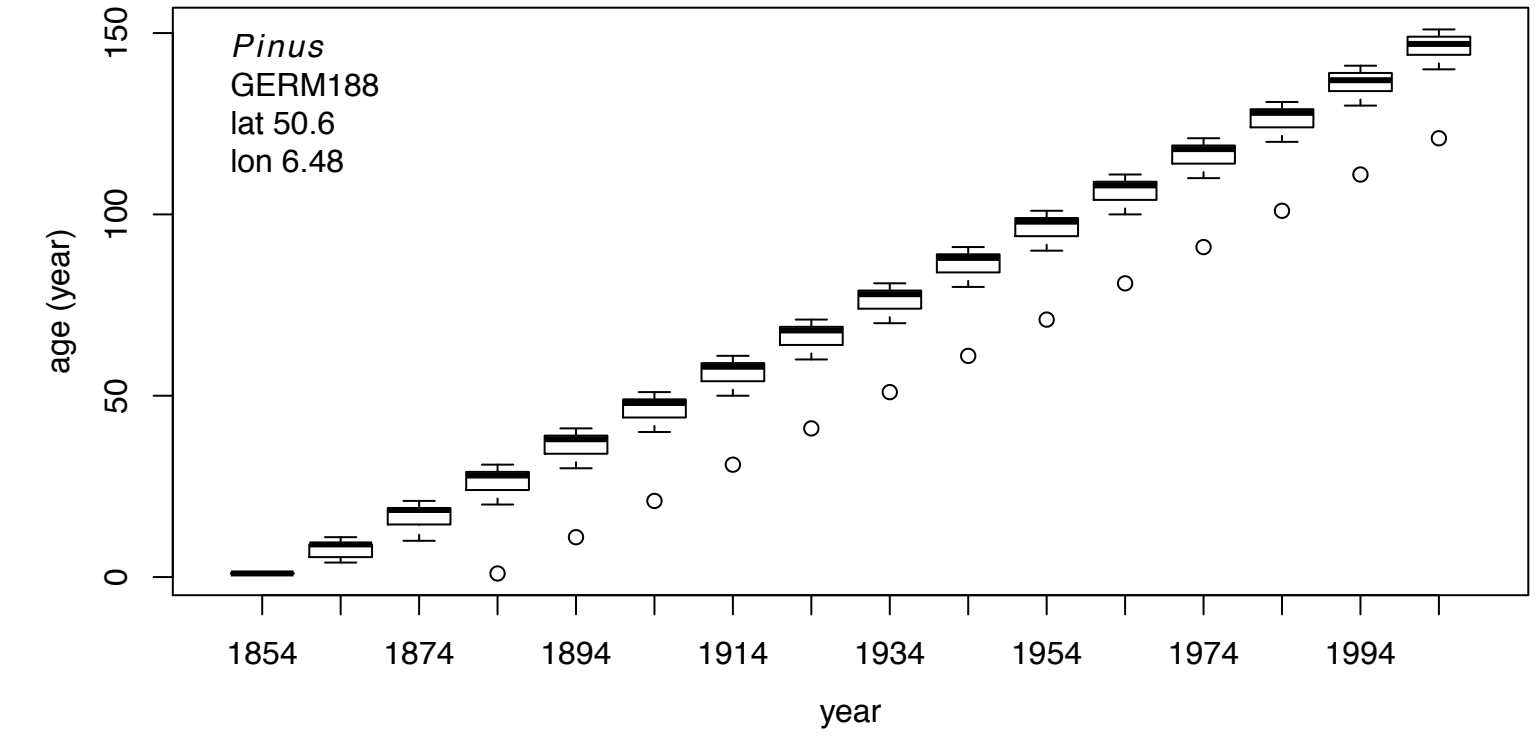
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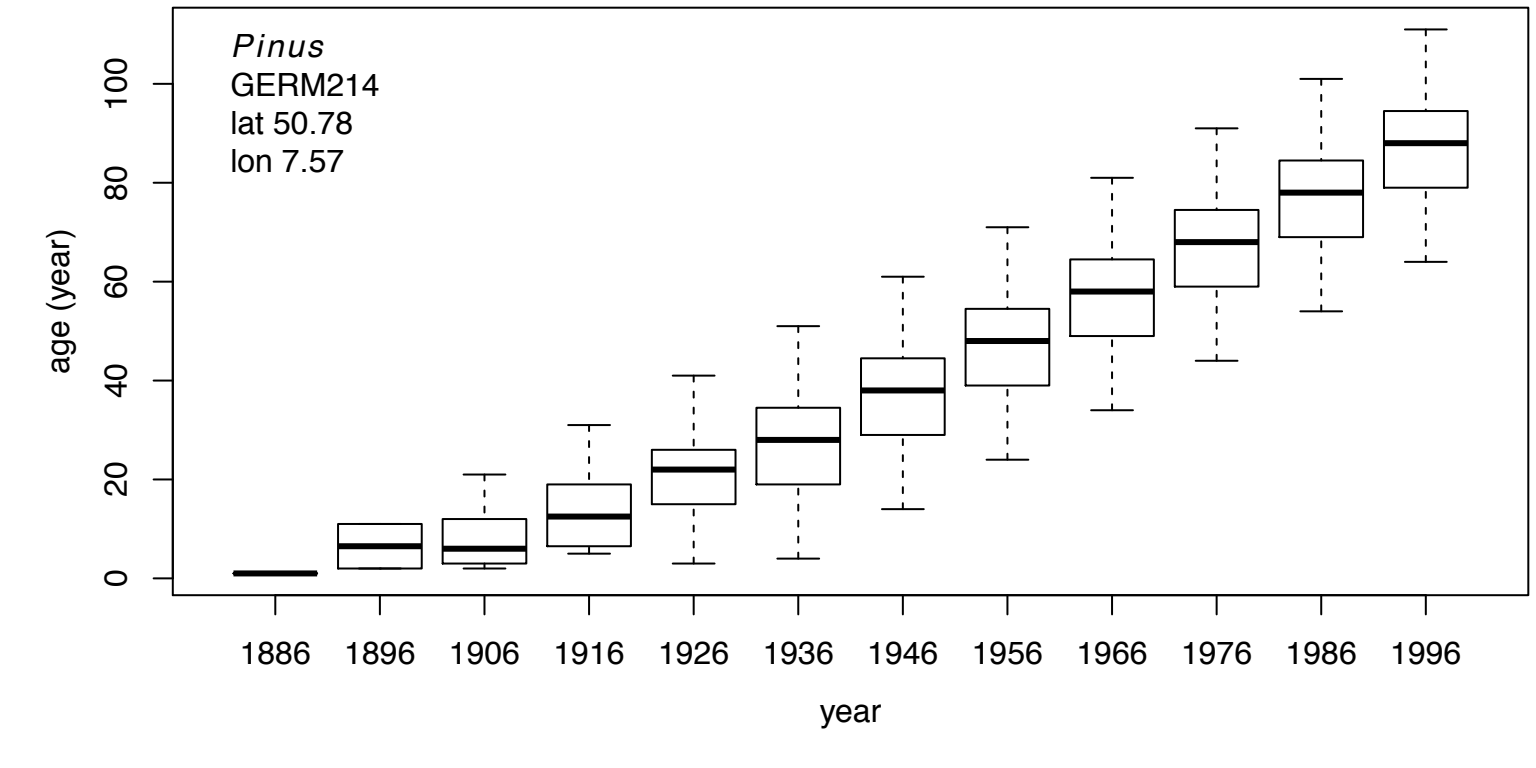
Pinus
GERM214
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lon 7.57
age (year)
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1886
1896
1906
1916
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1936
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1976
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1996
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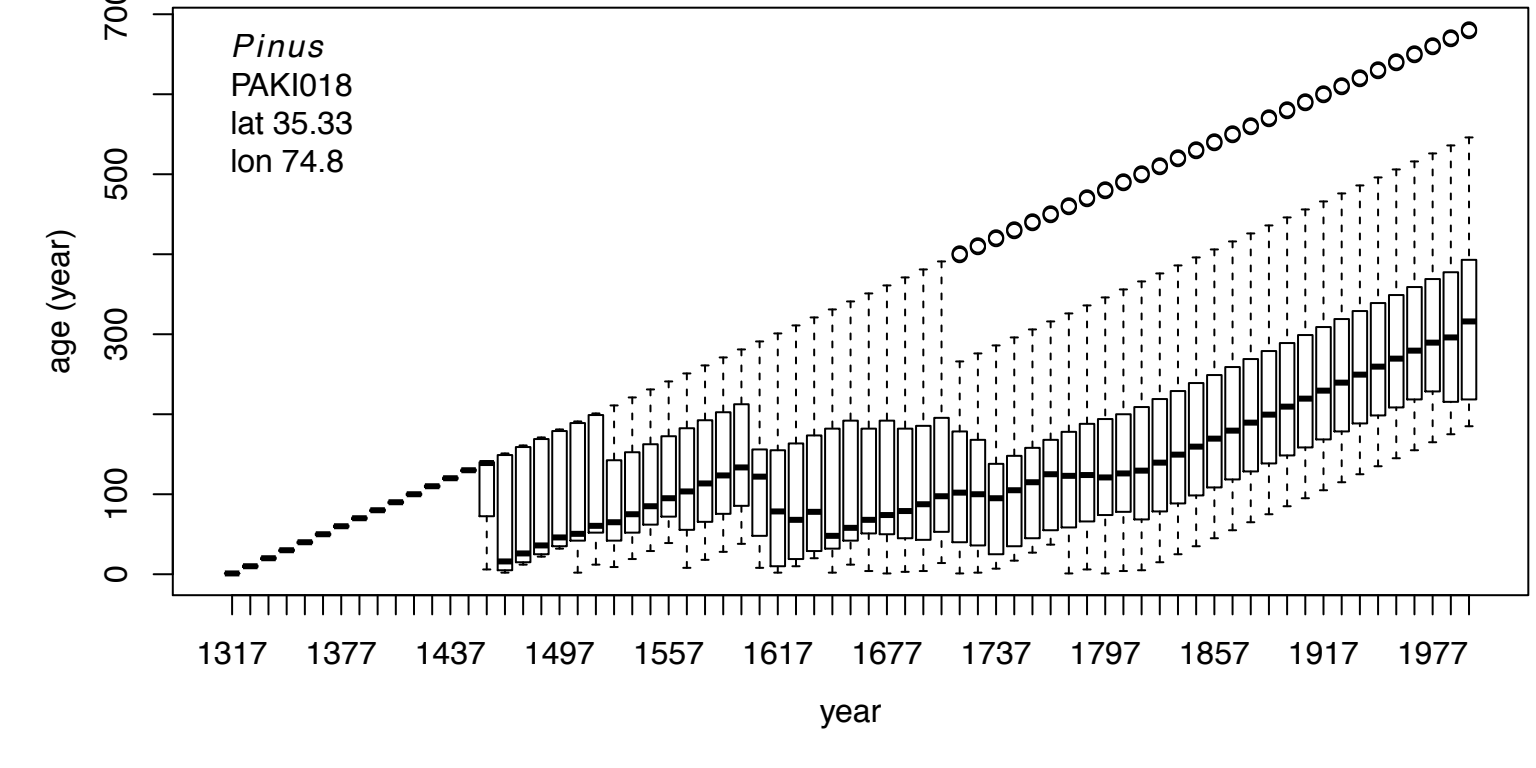
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age (year)
0
100
300
500
700
1317
1377
1437
1497
1557
1617
1677
1737
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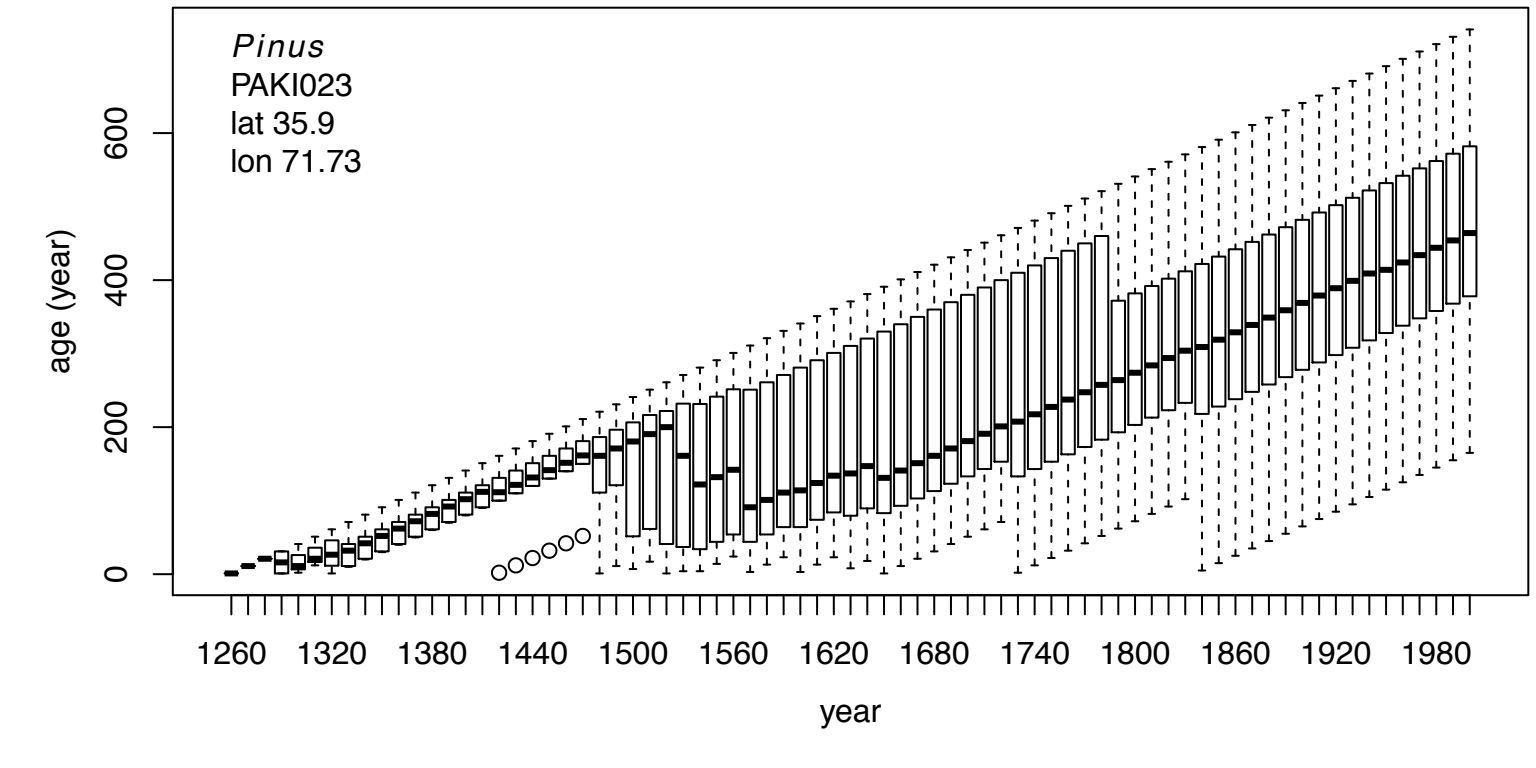
1857
1917
1977
year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1860
1920
1980
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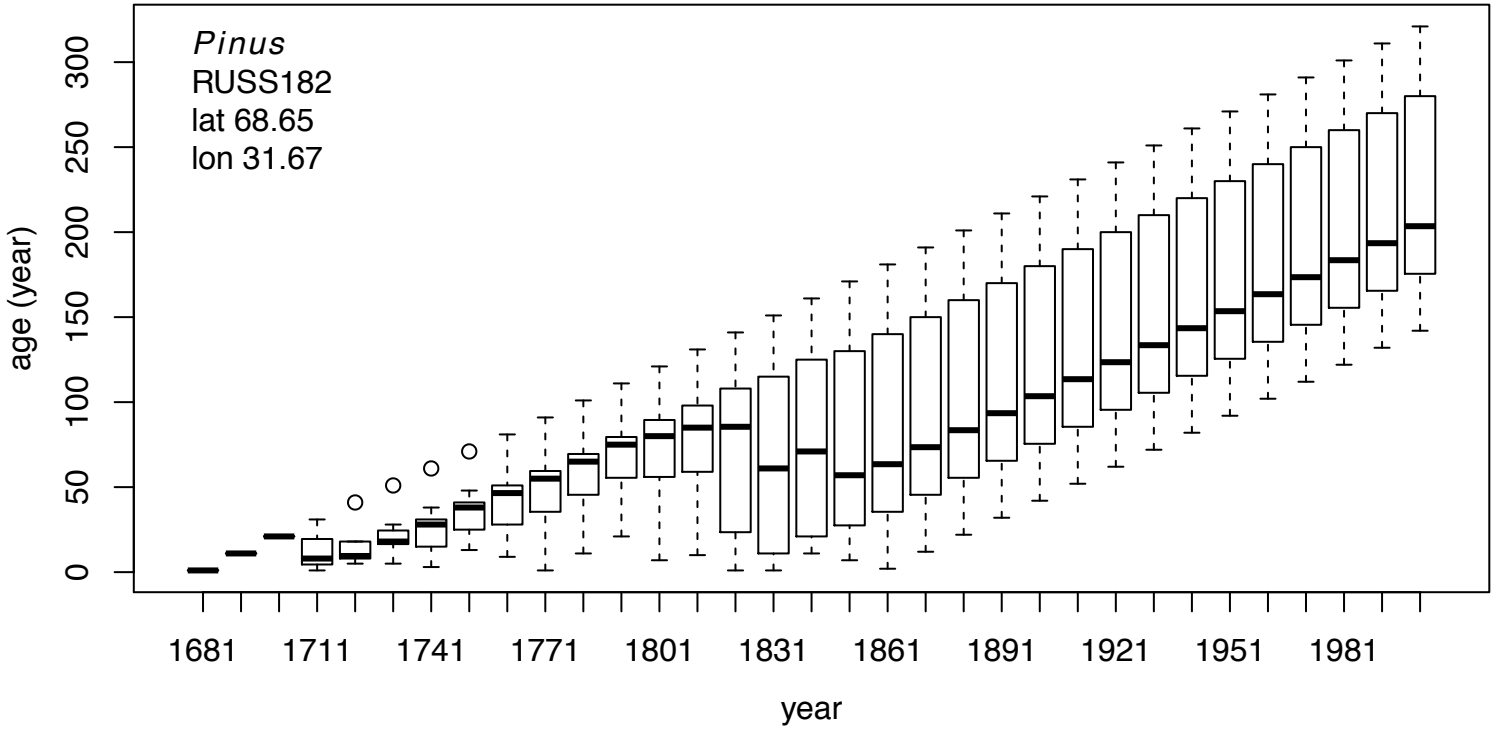
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1801
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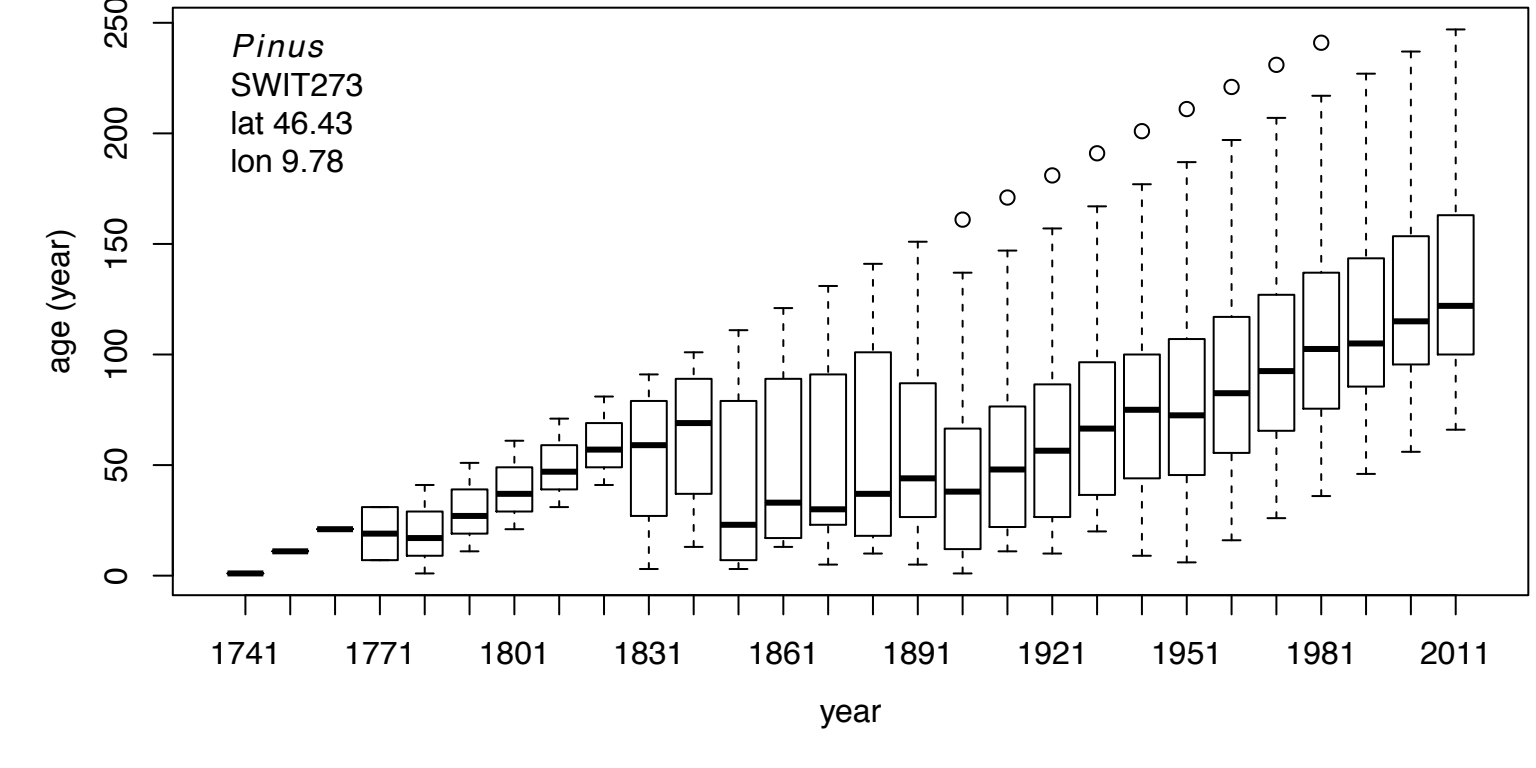
1921
1951
1981
year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SWIT273
lat 46.43
lon 9.78
age (year)
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1771
1801
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1861
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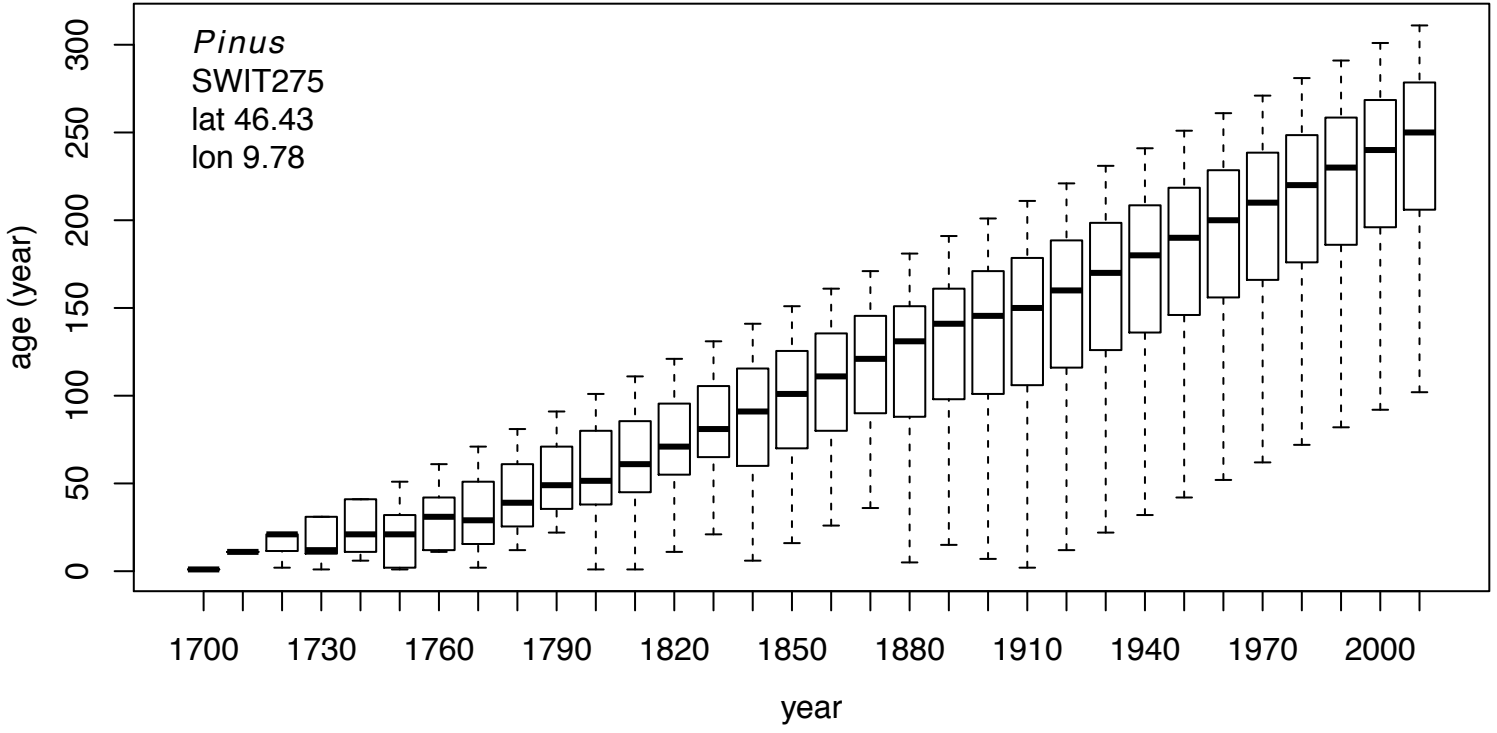
1951
1981
2011
year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SWIT275
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2000
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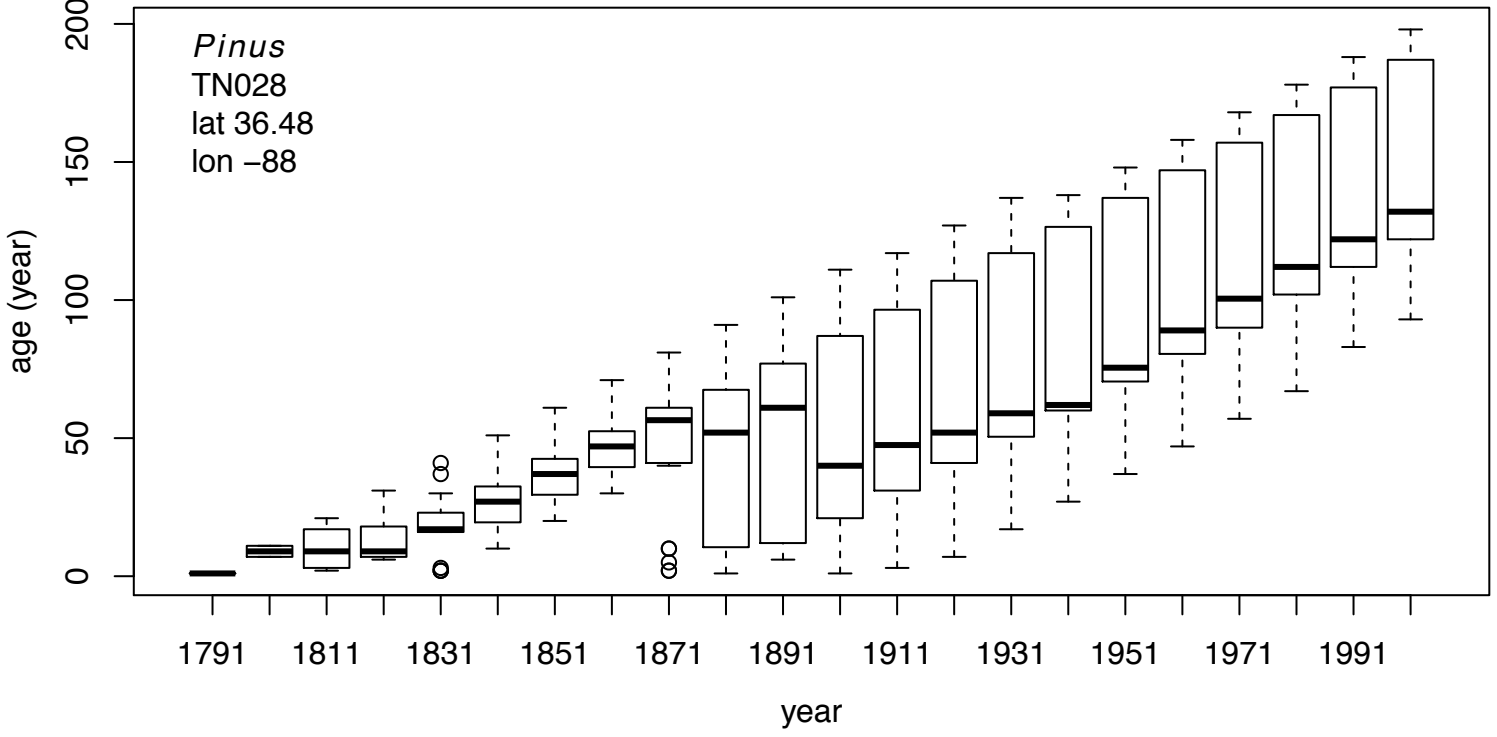
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TN028
lat 36.48
lon −88
age (year)
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1831
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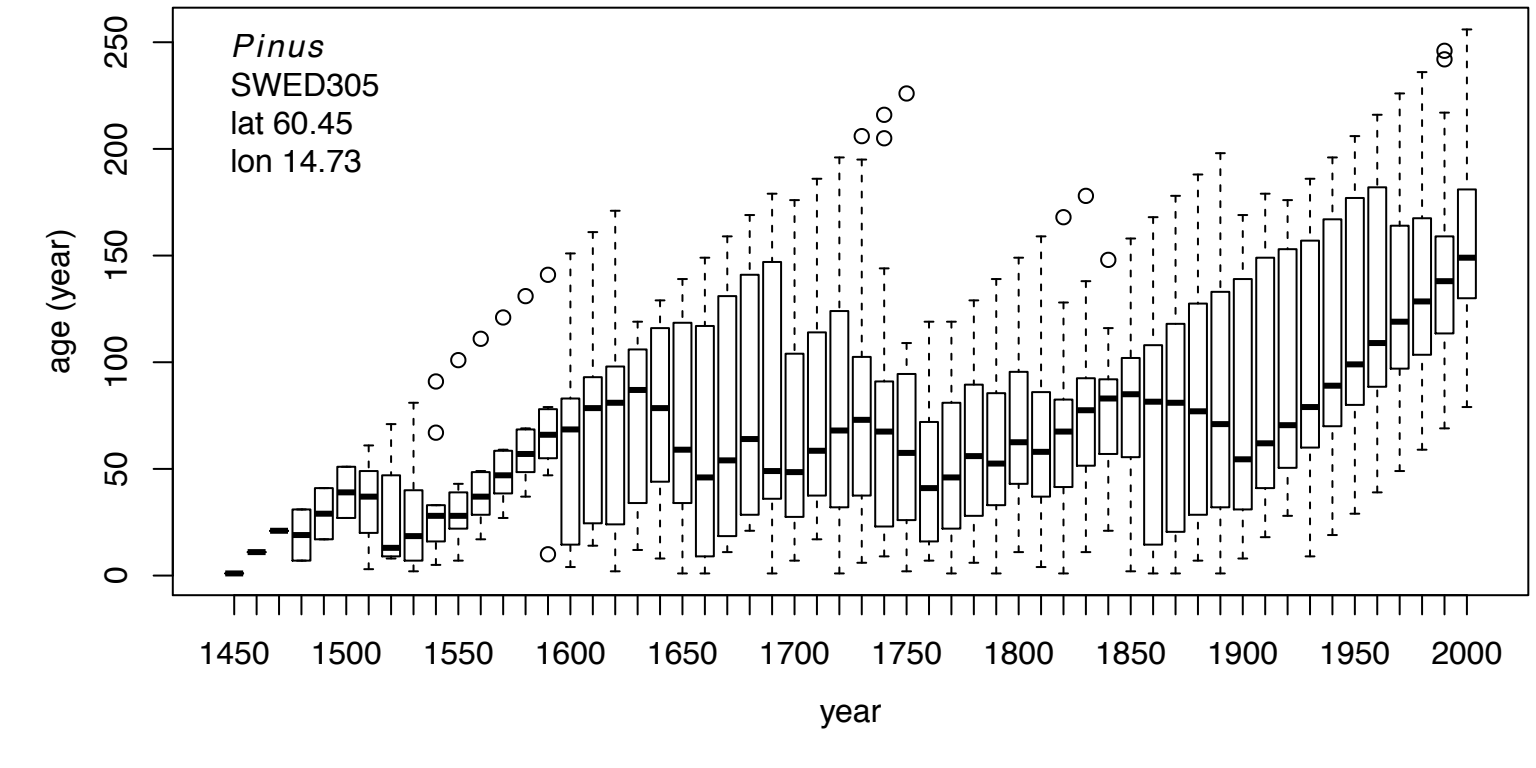
1951
1971
1991
year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SWED305
lat 60.45
lon 14.73
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1900
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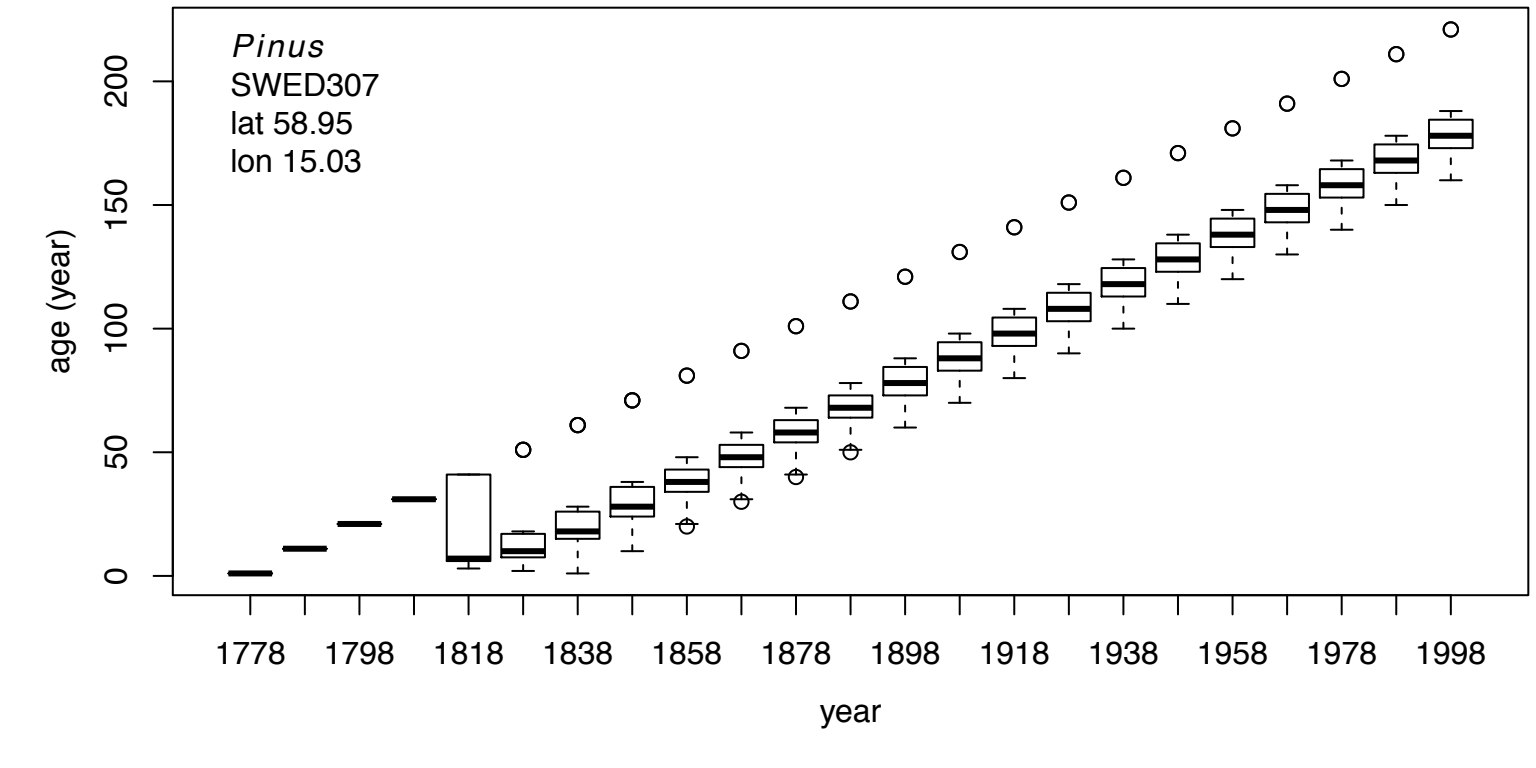
2000
year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SWED307
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age (year)
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1898
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1958
1978
1998
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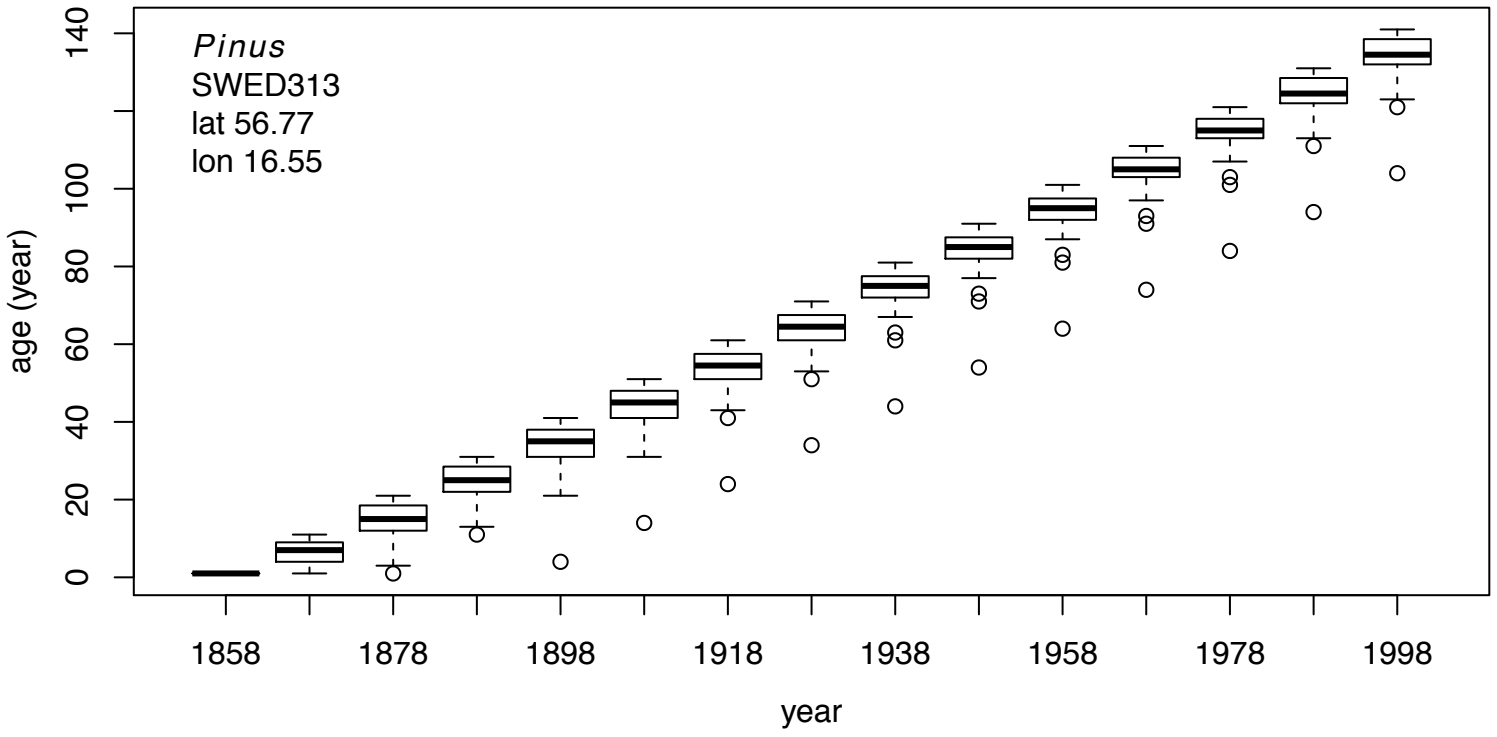
Pinus
SWED313
lat 56.77
lon 16.55
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1878
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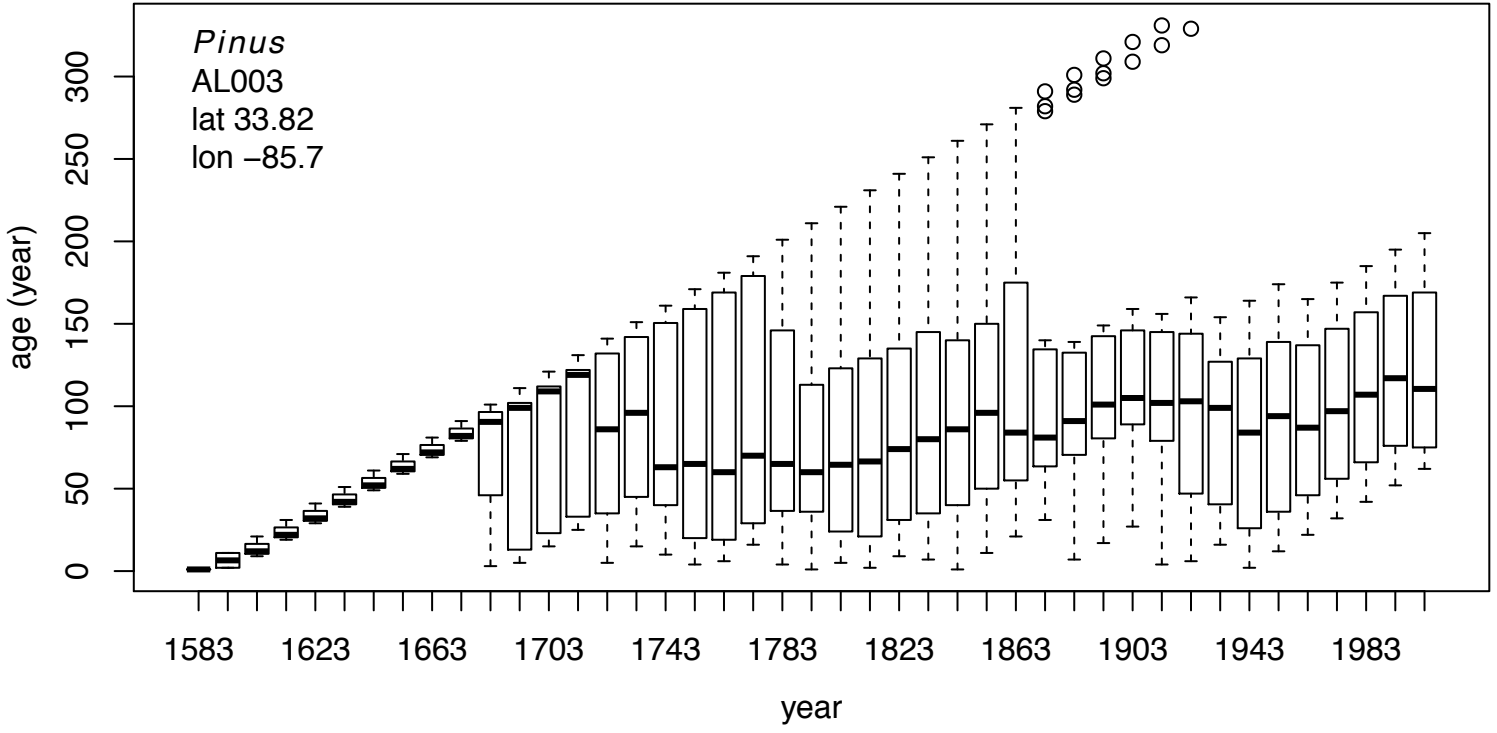
1958
1978
1998
year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AL003
lat 33.82
lon −85.7
age (year)
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300
1583
1623
1663
1703
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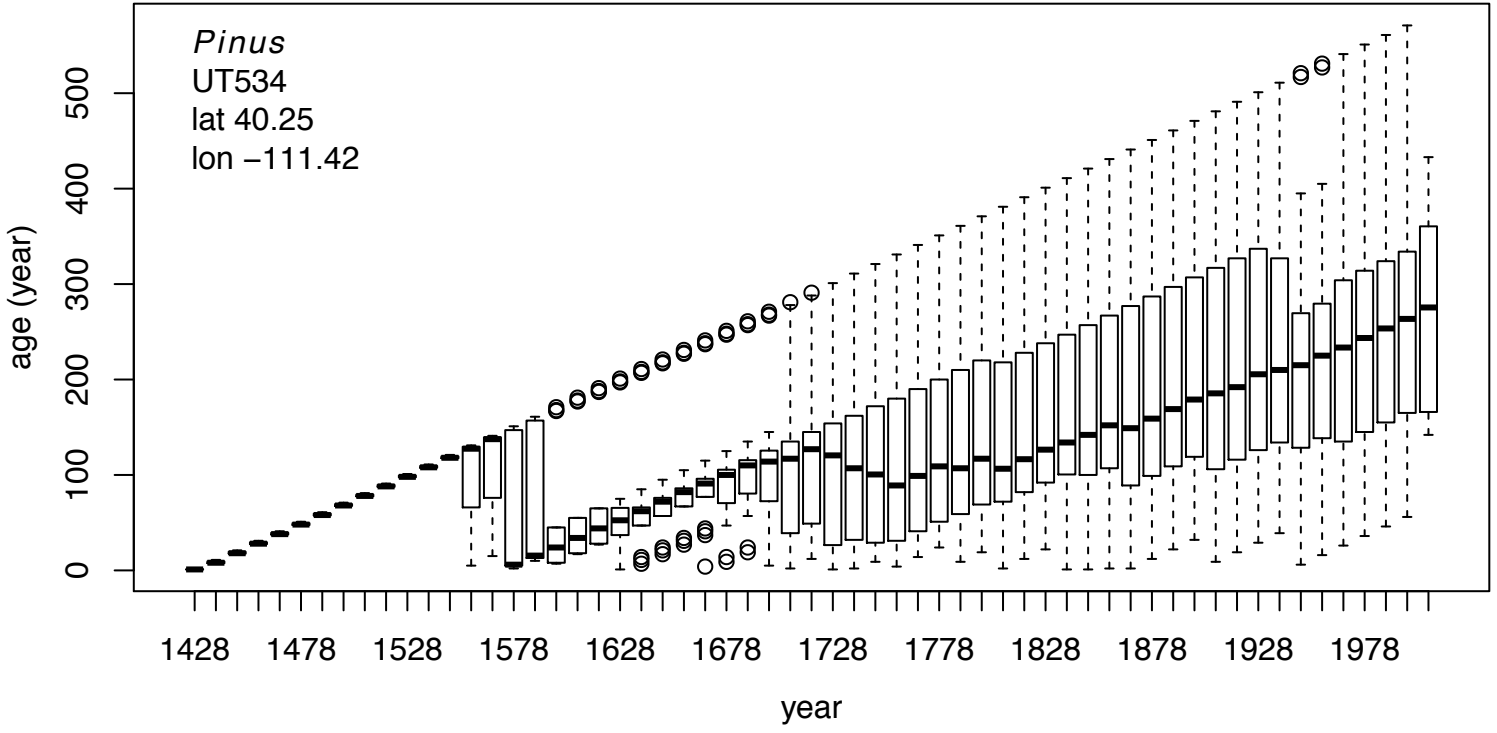
1783
1823
1863
1903
1943
1983
year


Pinus
UT534
lat 40.25
lon −111.42
age (year)
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100
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300
400
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1428
1478
1528
1578
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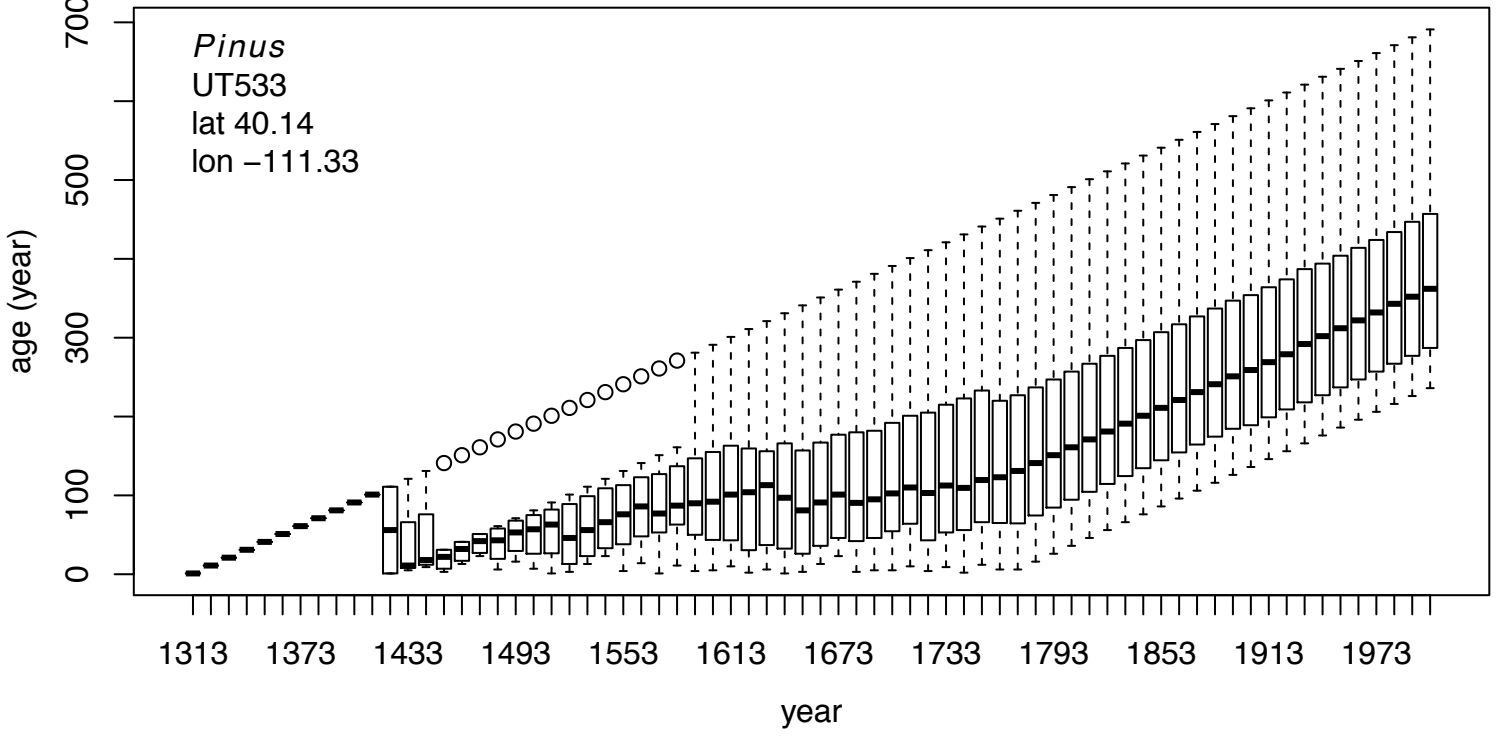
1678
1728
1778
1828
1878
1928
1978
year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UT533
lat 40.14
lon −111.33
age (year)
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1373
1433
1493
1553
1613
1673
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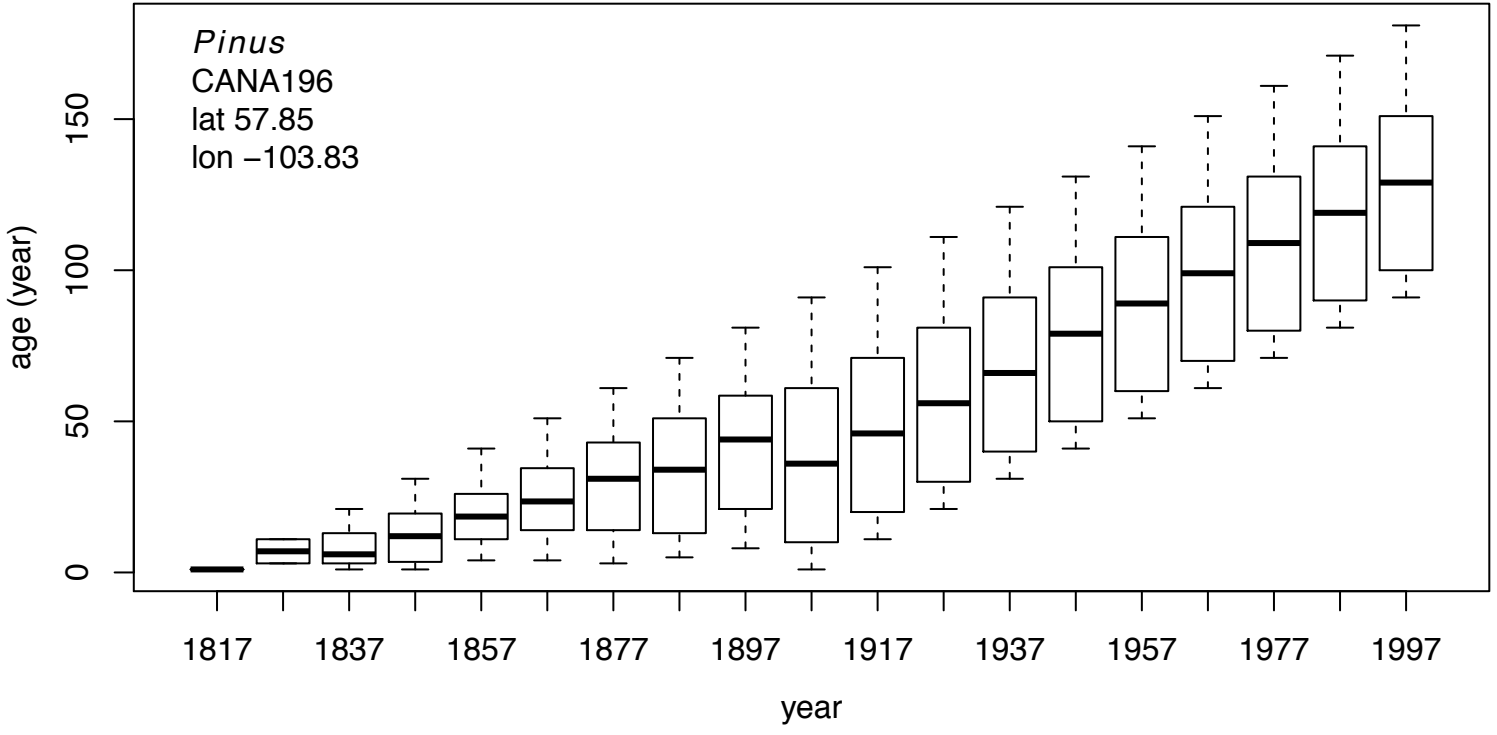
1793
1853
1913
1973
year


Pinus
CANA196
lat 57.85
lon −103.83
age (year)
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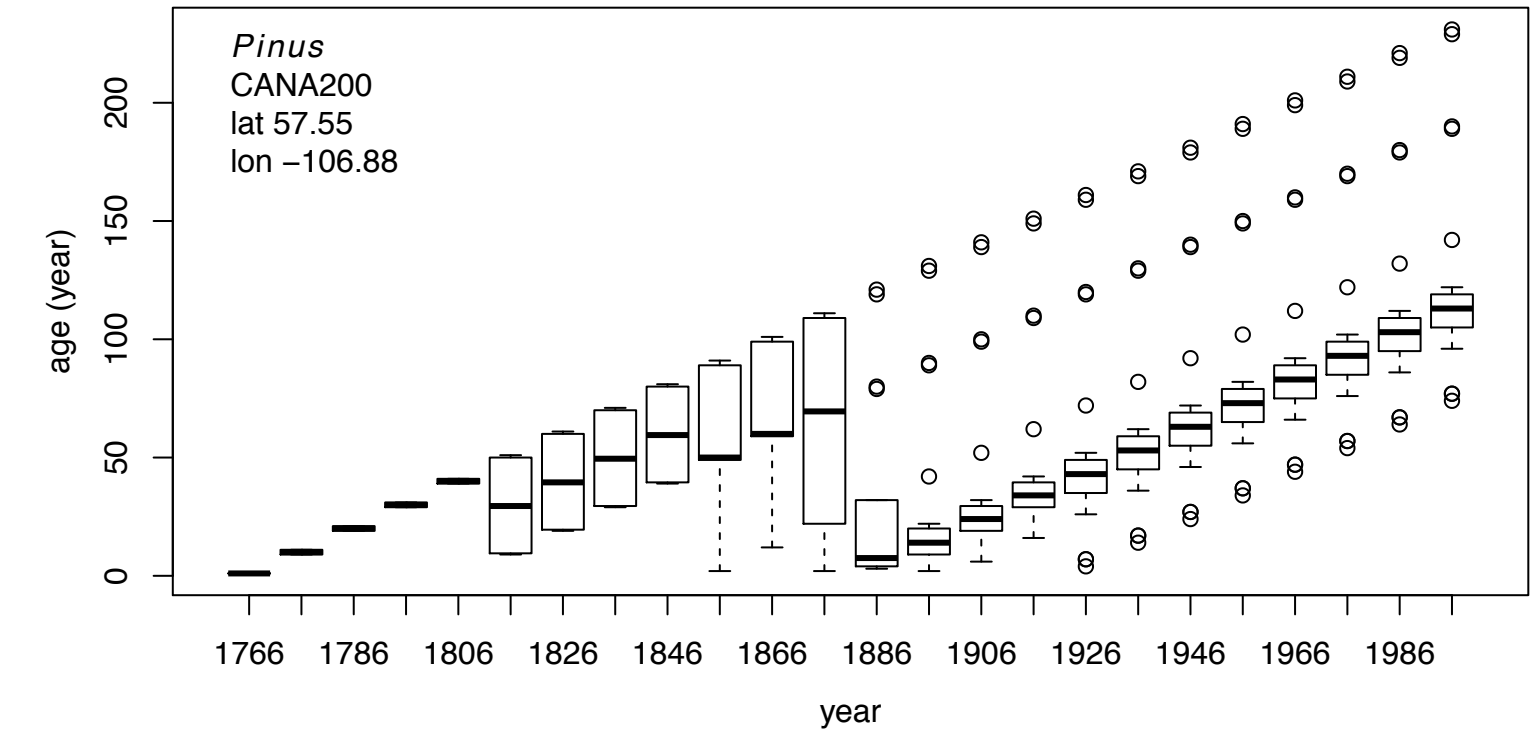
100
150
1817
1837
1857
1877
1897
1917
1937
1957
1977
1997
year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CANA200
lat 57.55
lon −106.88
age (year)
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100
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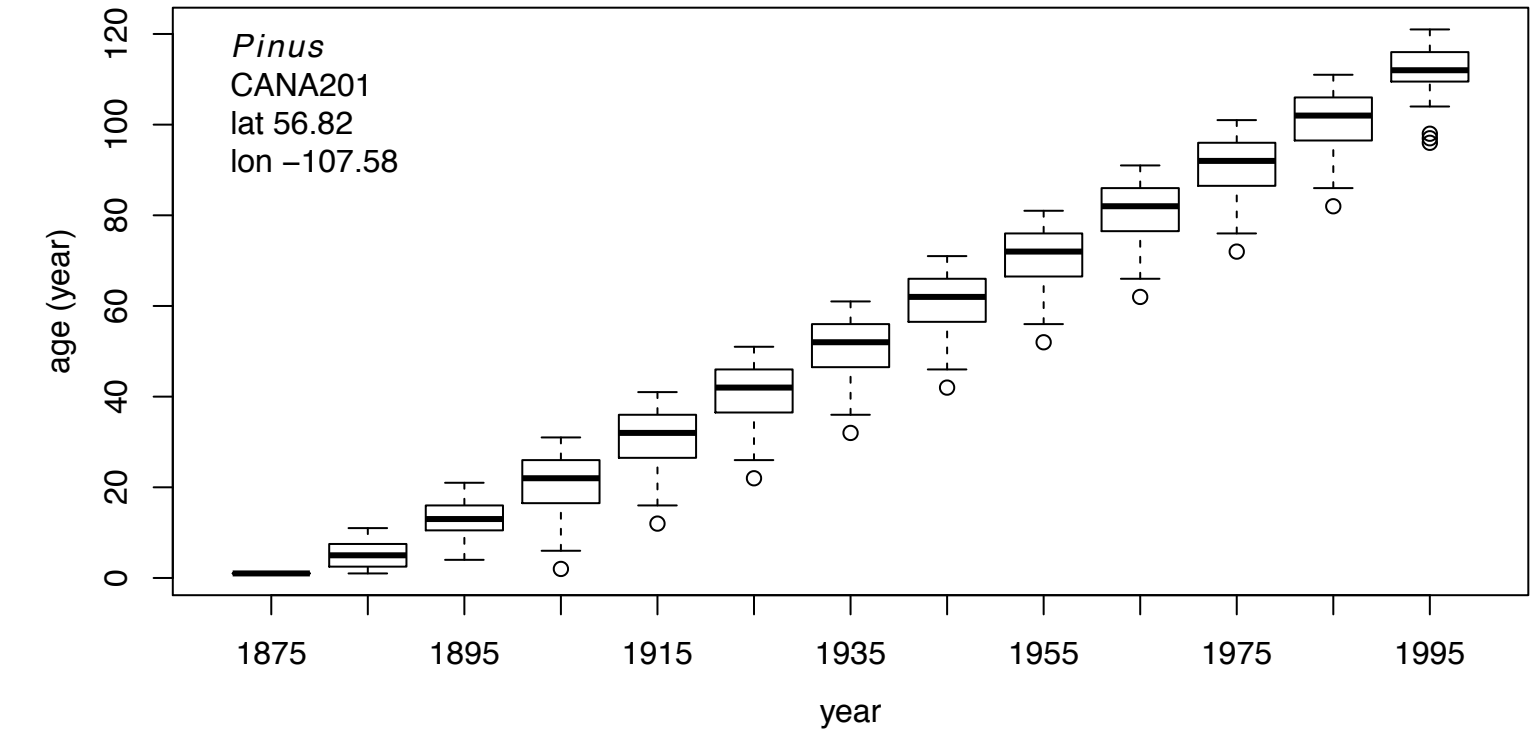
200
1766
1786
1806
1826
1846
1866
1886
1906
1926
1946
1966
1986
year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CANA201
lat 56.82
lon −107.58
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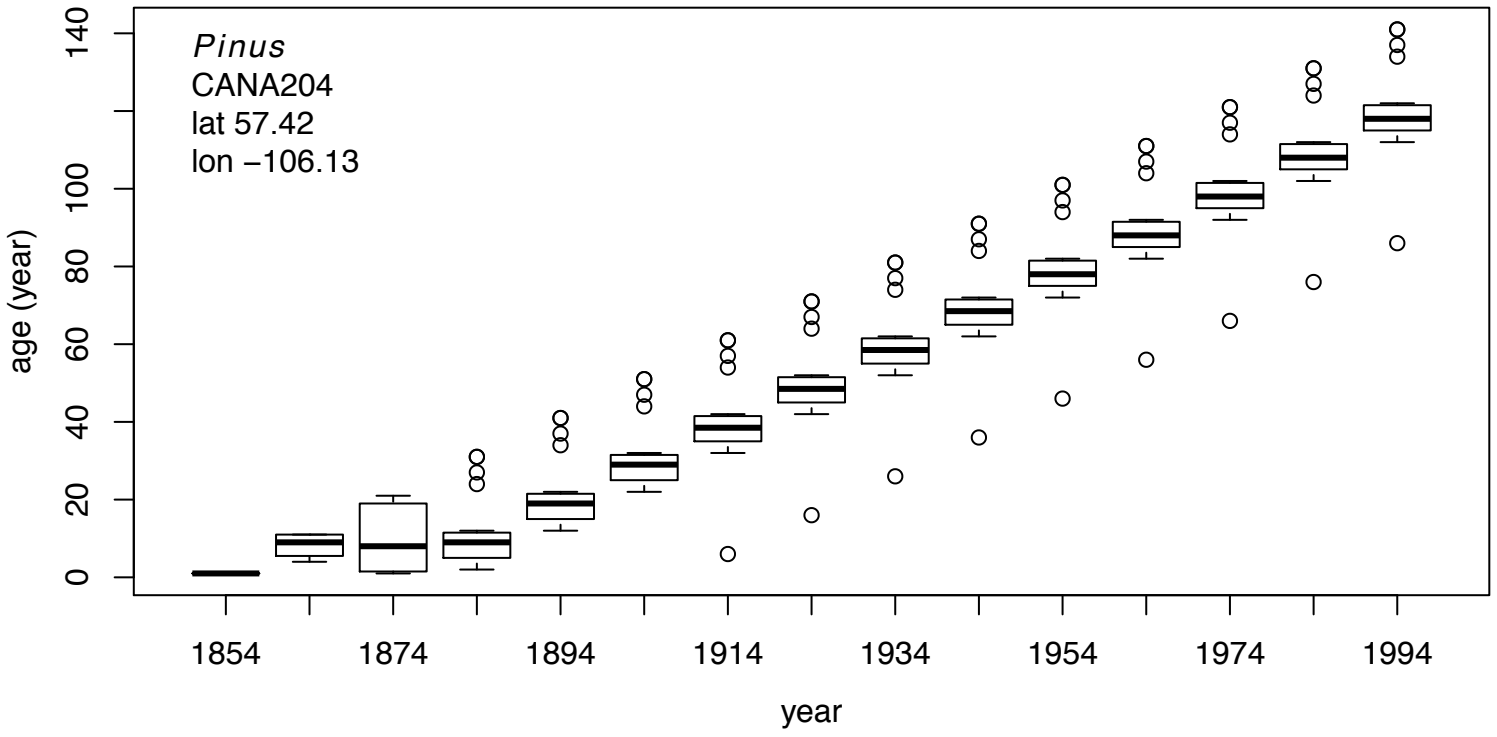
80
100
120
1875
1895
1915
1935
1955
1975
1995
year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CANA204
lat 57.42
lon −106.13
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1854
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1894
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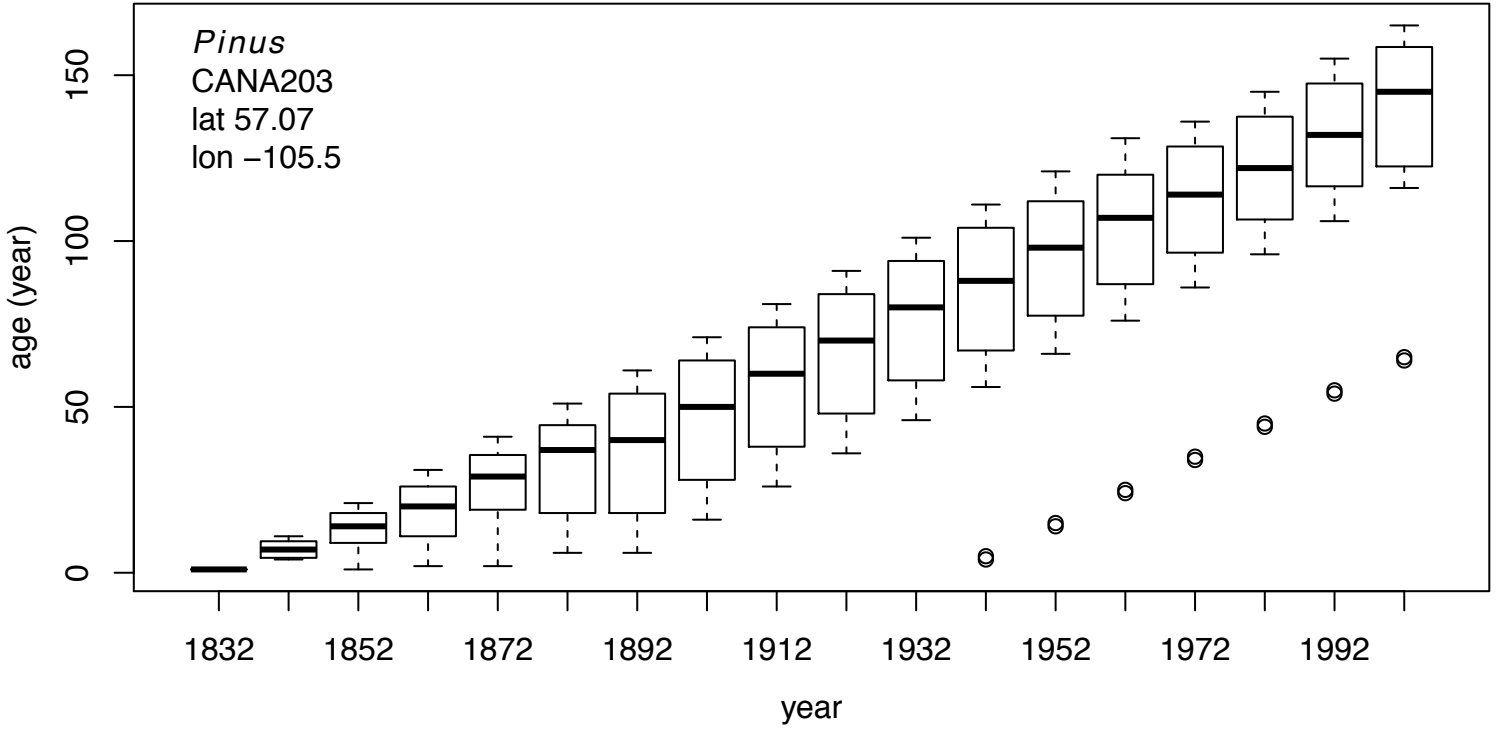
1954
1974
1994
year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CANA203
lat 57.07
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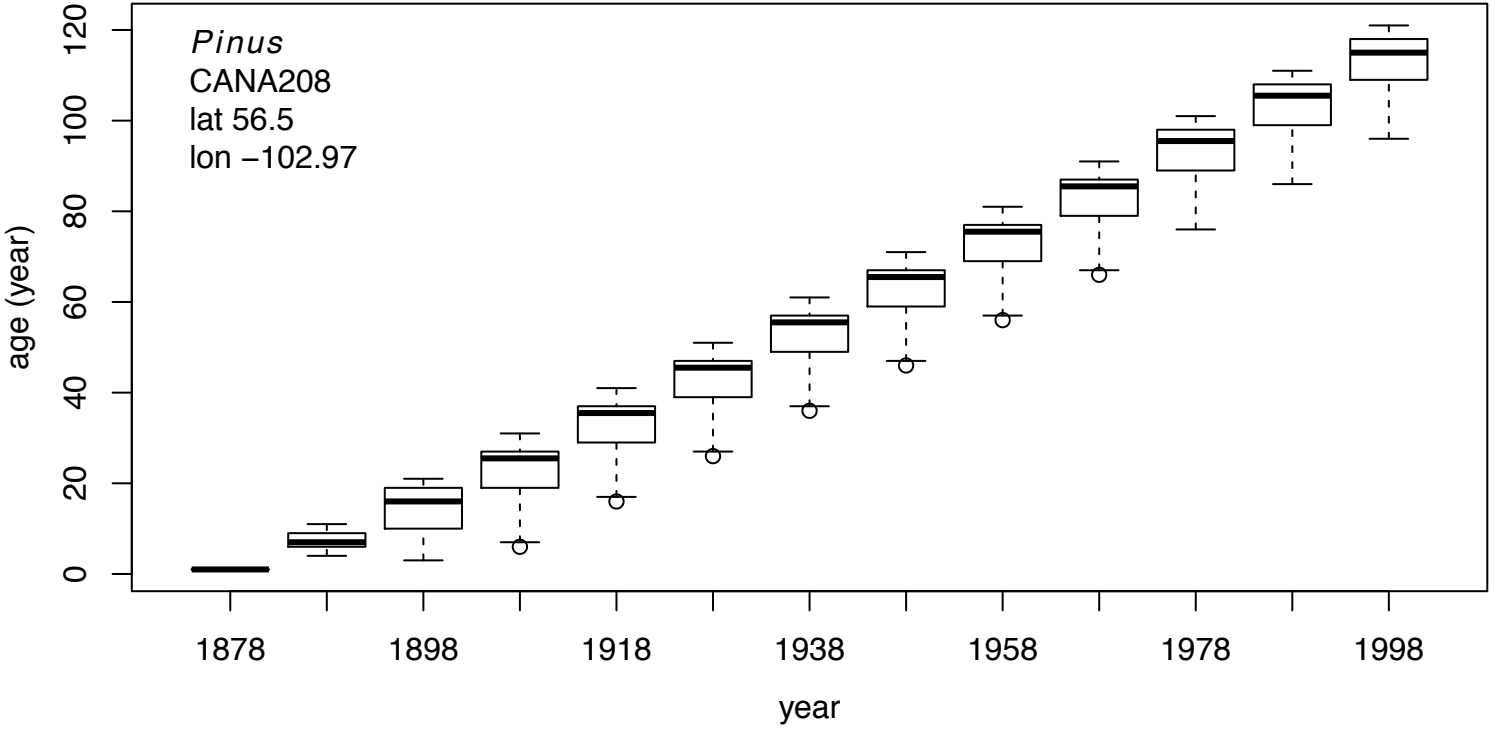
150
1832
1852
1872
1892
1912
1932
1952
1972
1992
year


Pinus
CANA208
lat 56.5
lon −102.97
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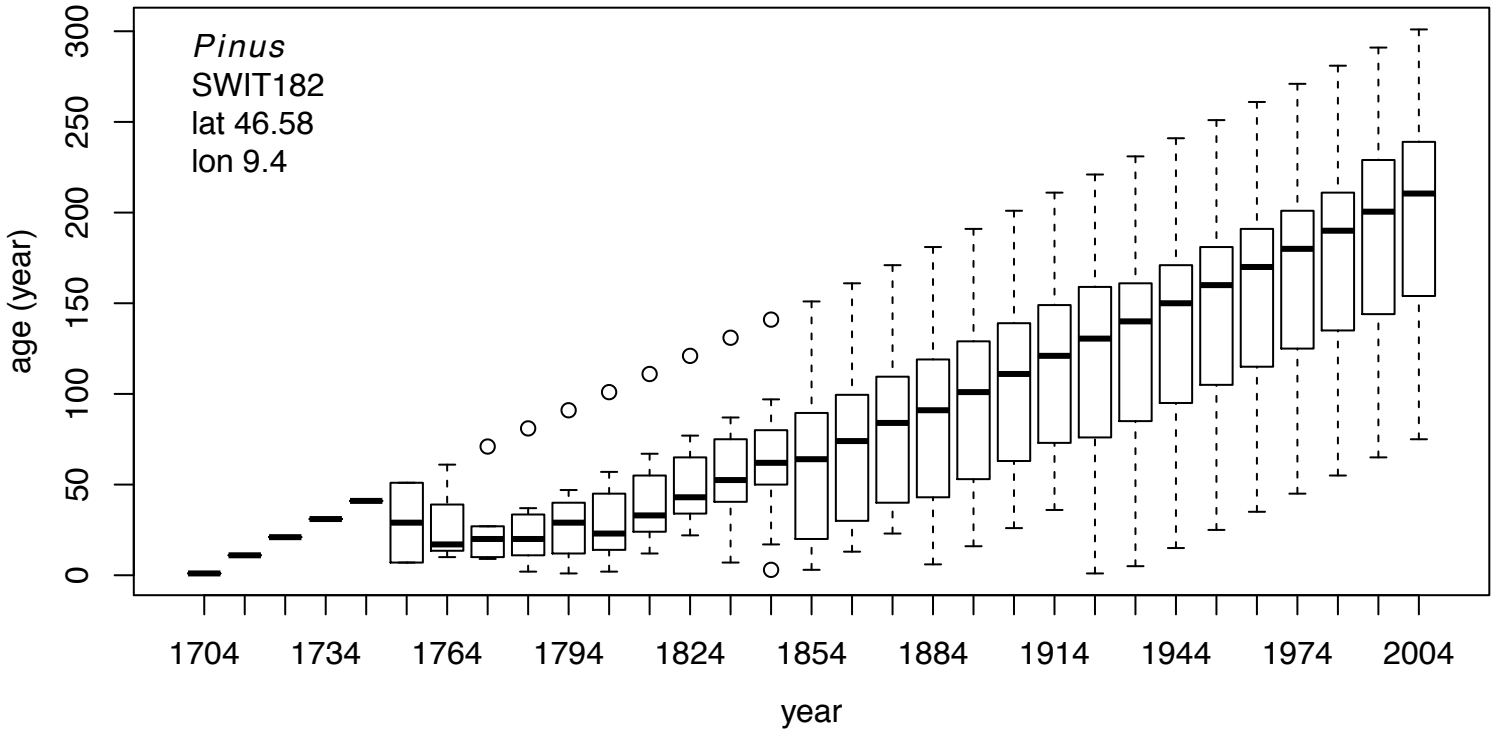
100
120
1878
1898
1918
1938
1958
1978
1998
year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SWIT182
lat 46.58
lon 9.4
age (year)
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300
1704
1734
1764
1794
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1854
1884
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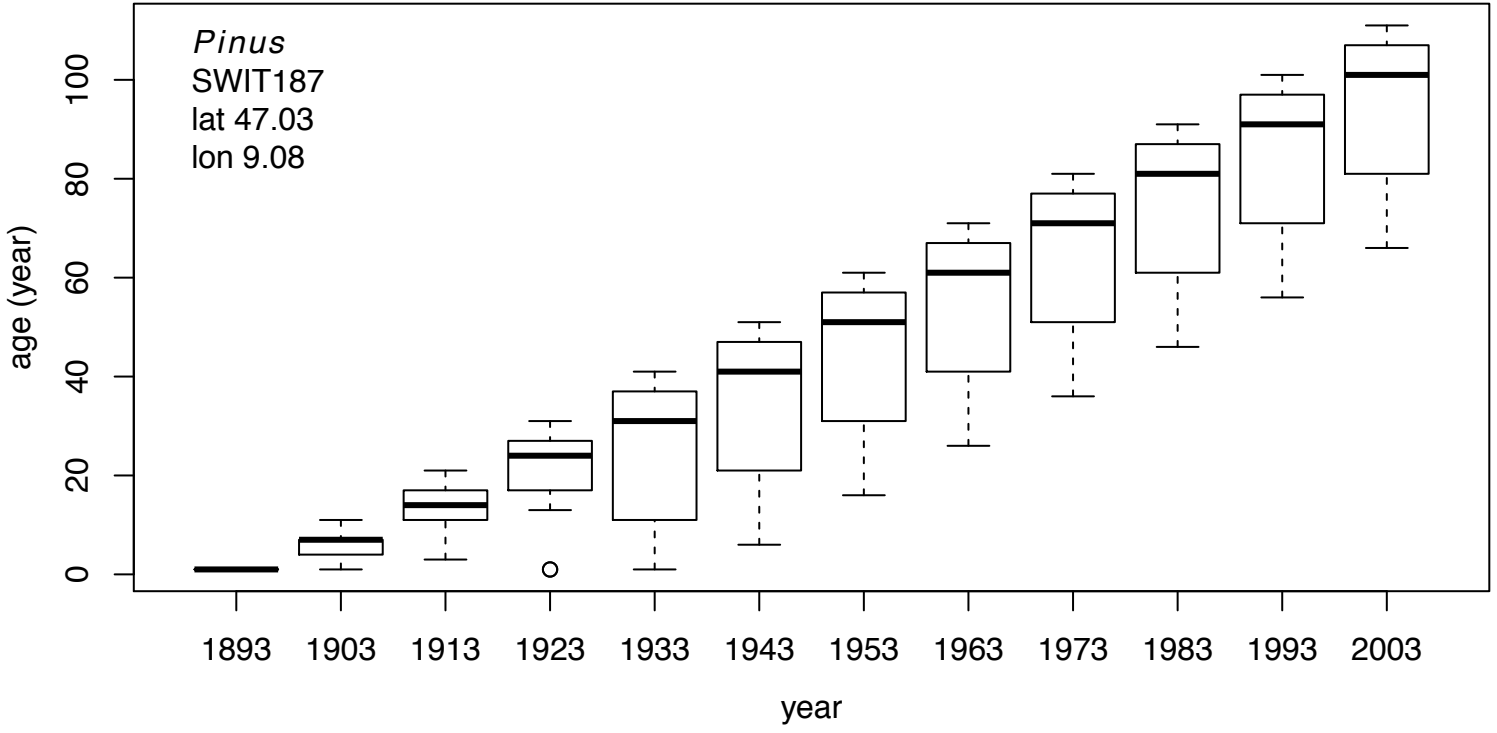
1944
1974
2004
year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SWIT187
lat 47.03
lon 9.08
age (year)
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1923
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1943
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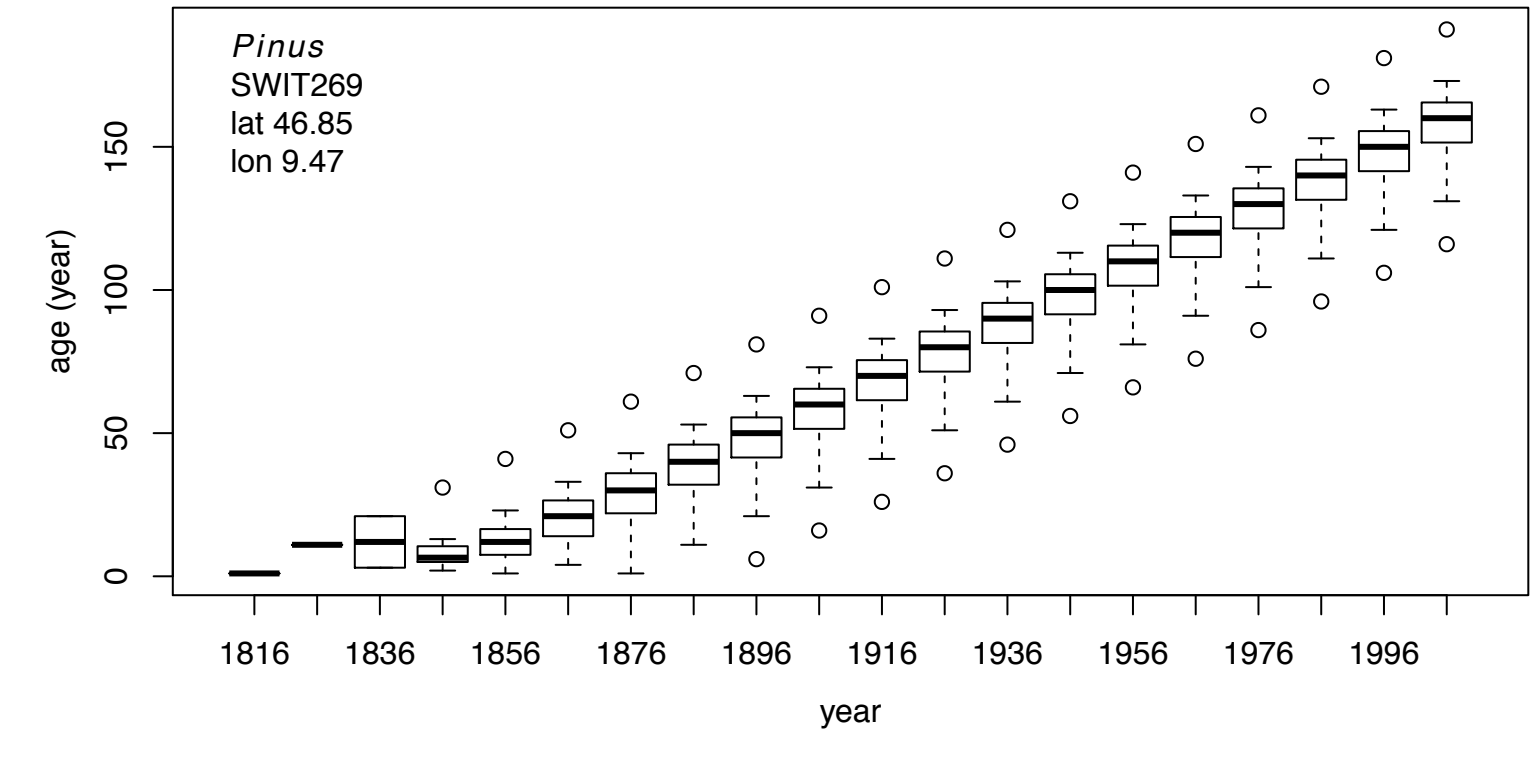
1983
1993
2003
year


Pinus
SWIT269
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1856
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1896
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1996
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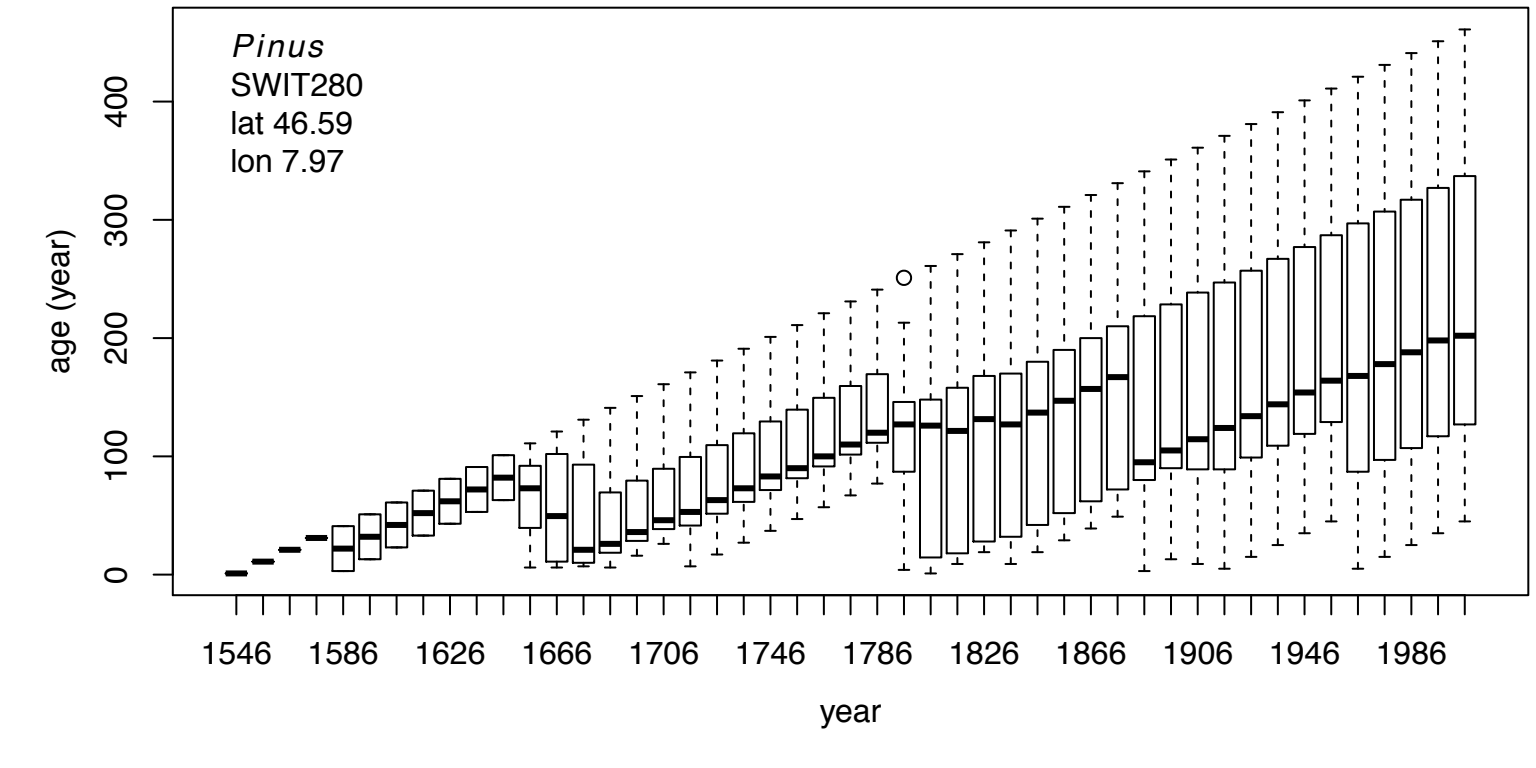
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SWIT280
lat 46.59
lon 7.97
age (year)
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1586
1626
1666
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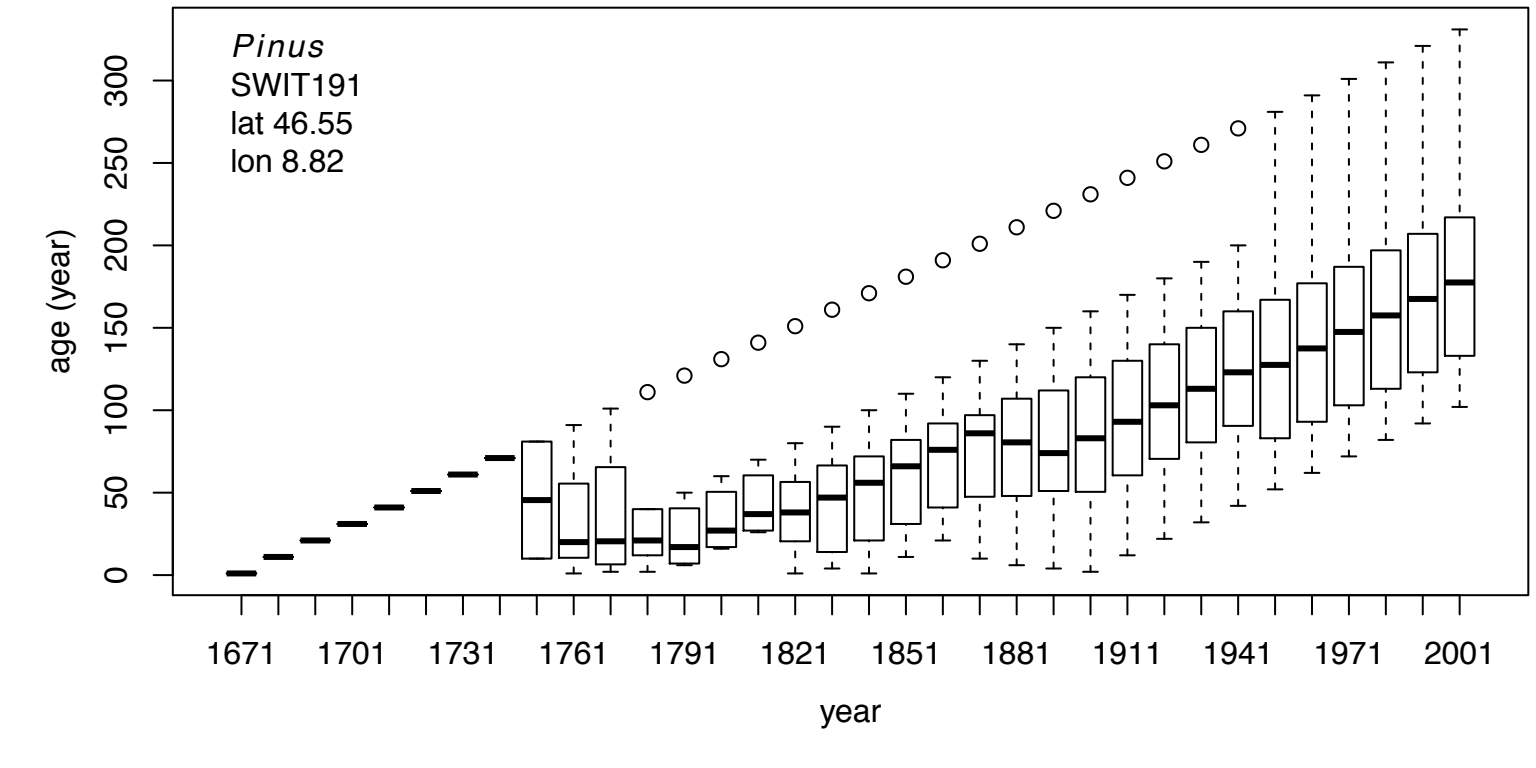
1746
1786
1826
1866
1906
1946
1986
year


Pinus
SWIT191
lat 46.55
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1851
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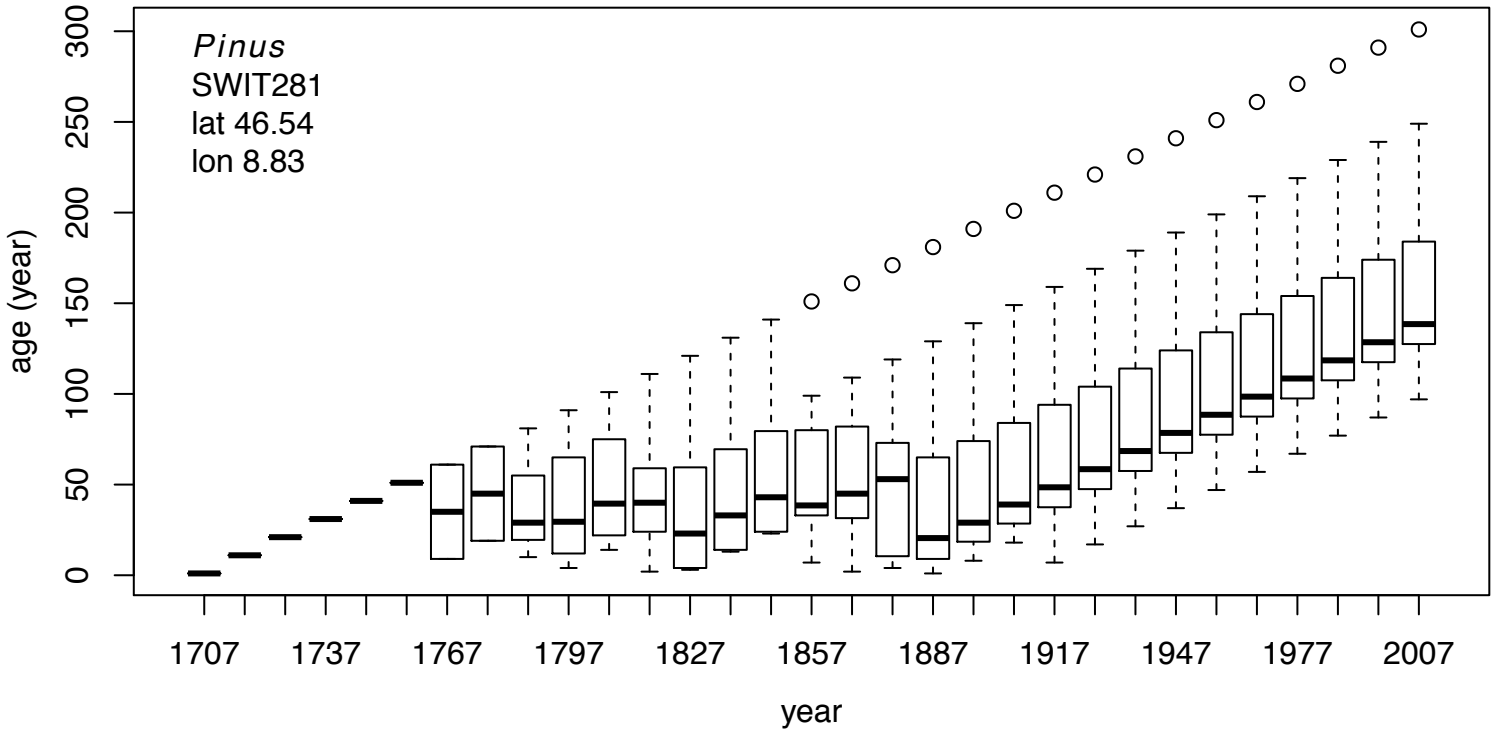
1941
1971
2001
year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SWIT281
lat 46.54
lon 8.83
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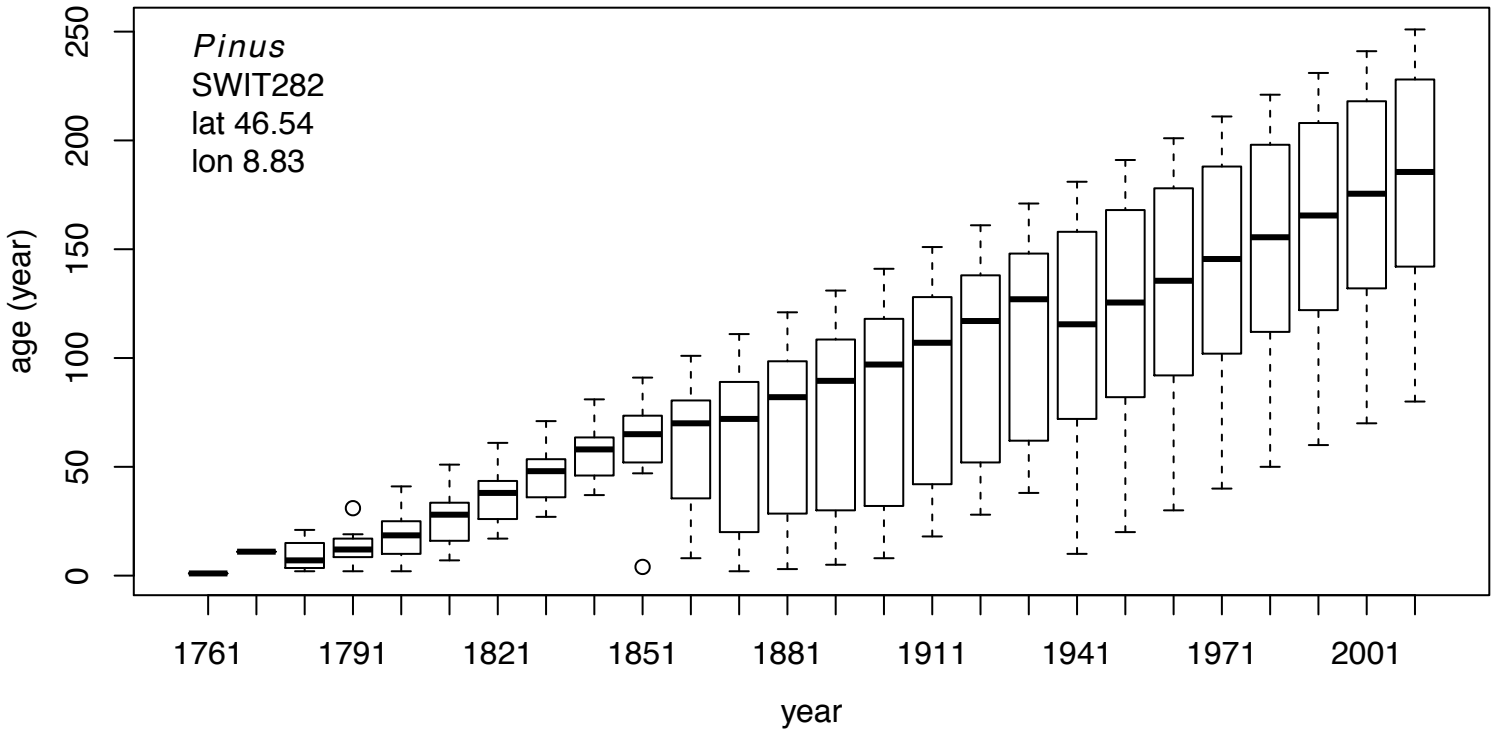
1947
1977
2007
year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SWIT282
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lon 8.83
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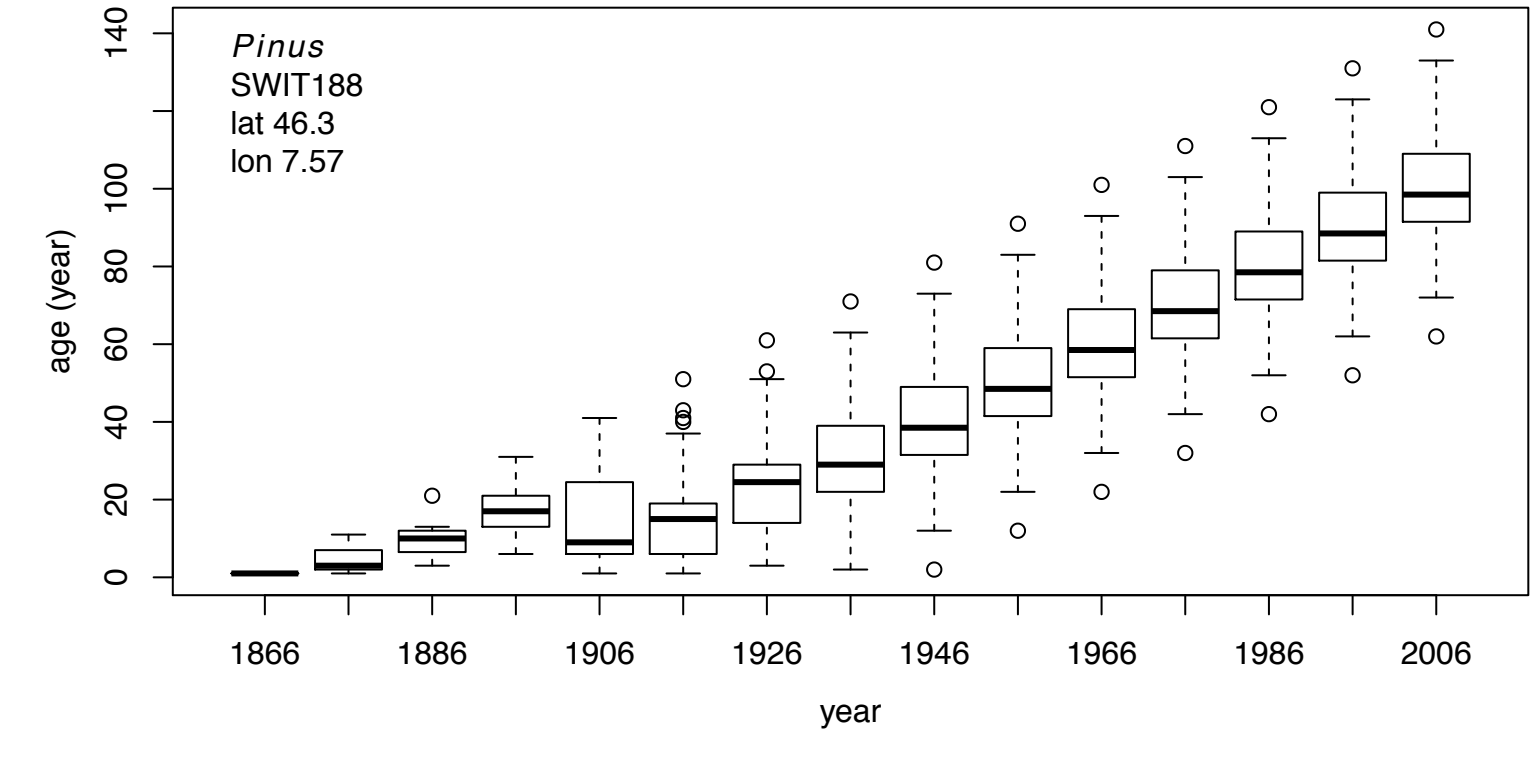
2001
year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SWIT188
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lon 7.57
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1966
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2006
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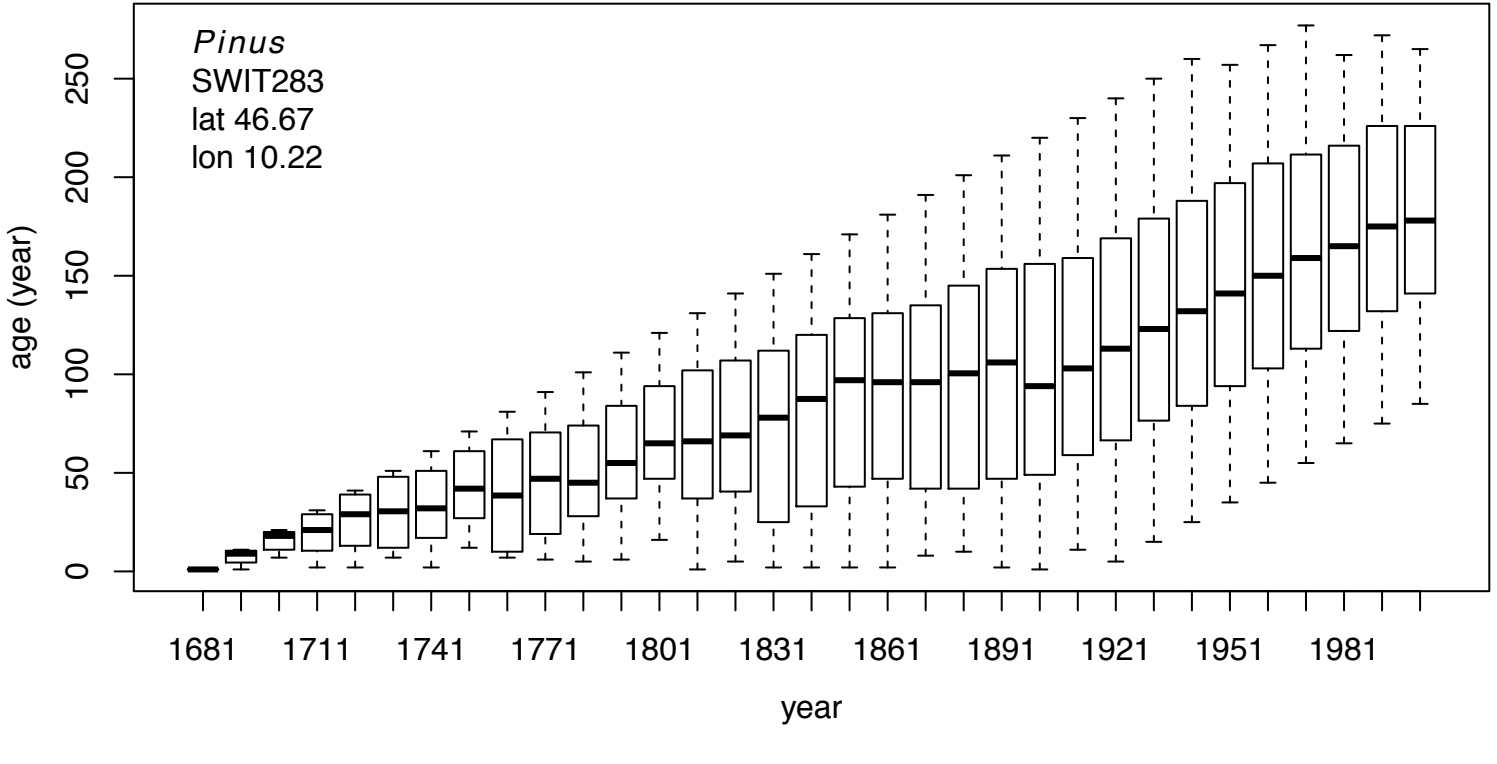
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SWIT283
lat 46.67
lon 10.22
age (year)
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1981
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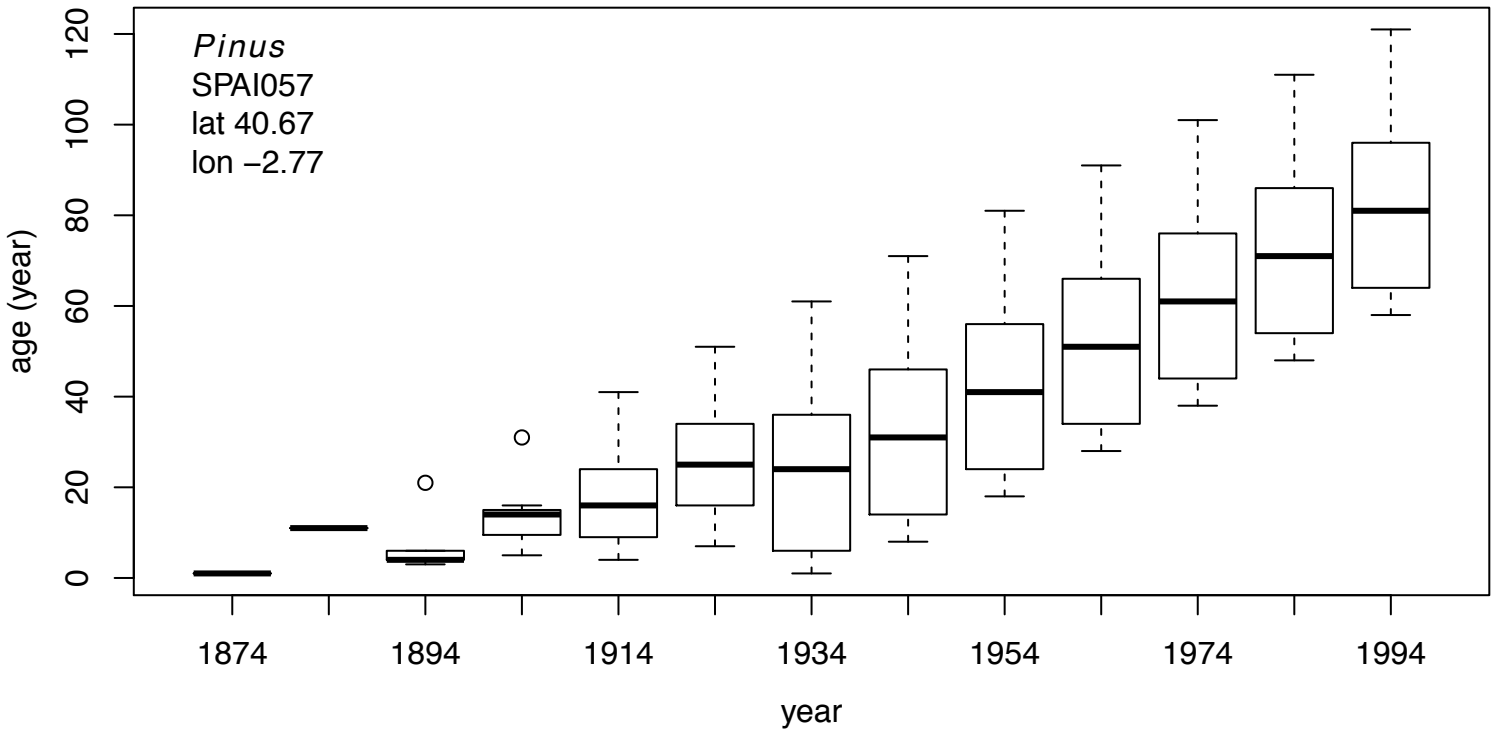
Pinus
SPAI057
lat 40.67
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120
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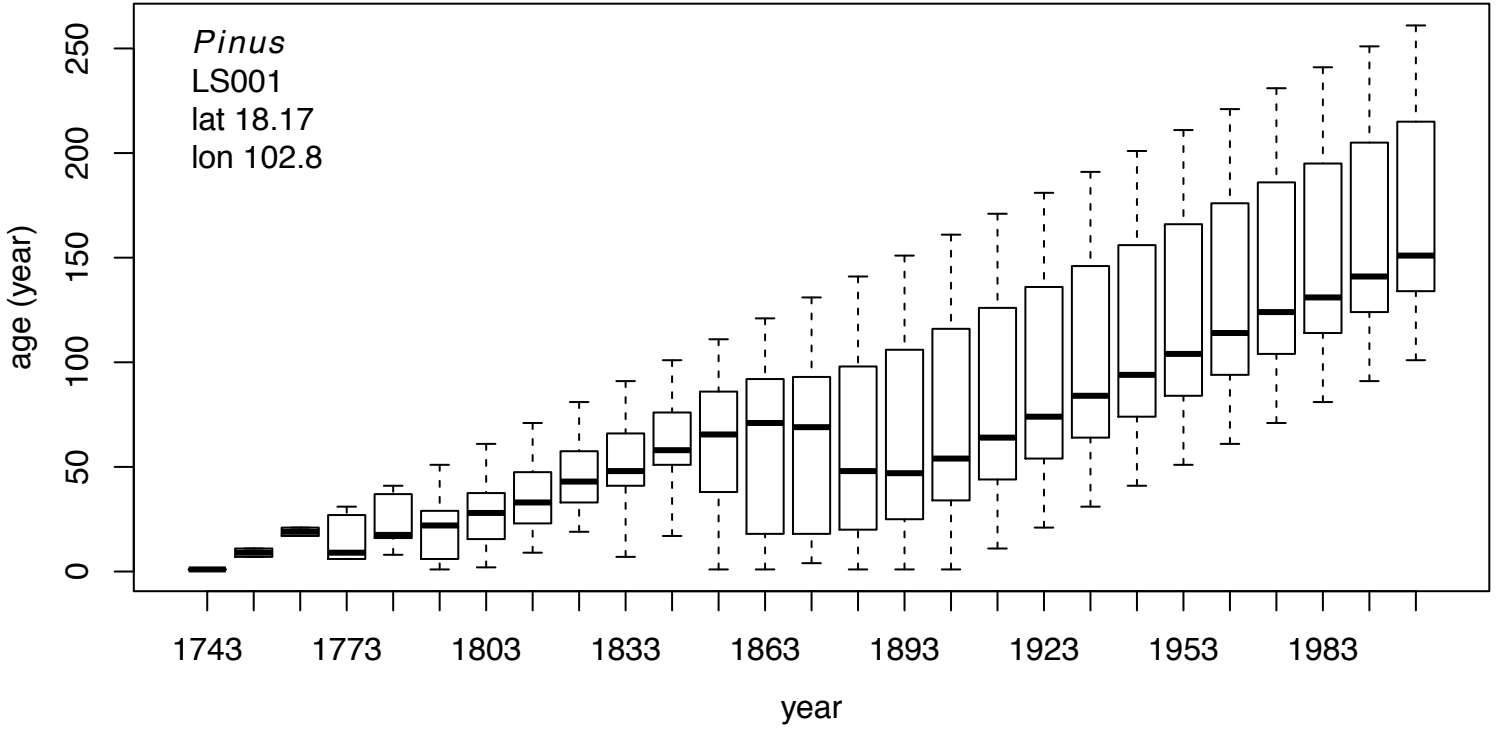
1954
1974
1994
year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LS001
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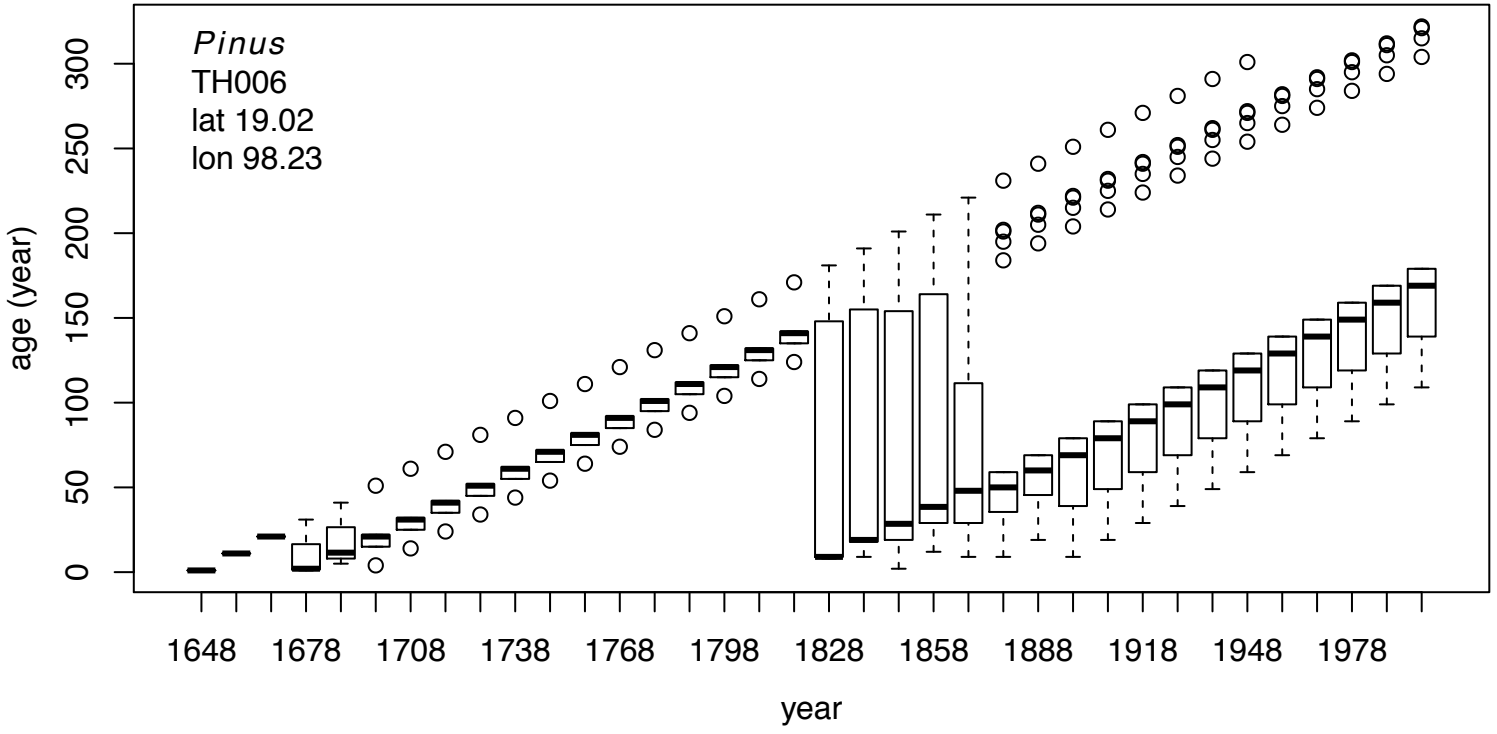
1953
1983
year


Pinus
TH006
lat 19.02
lon 98.23
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1978
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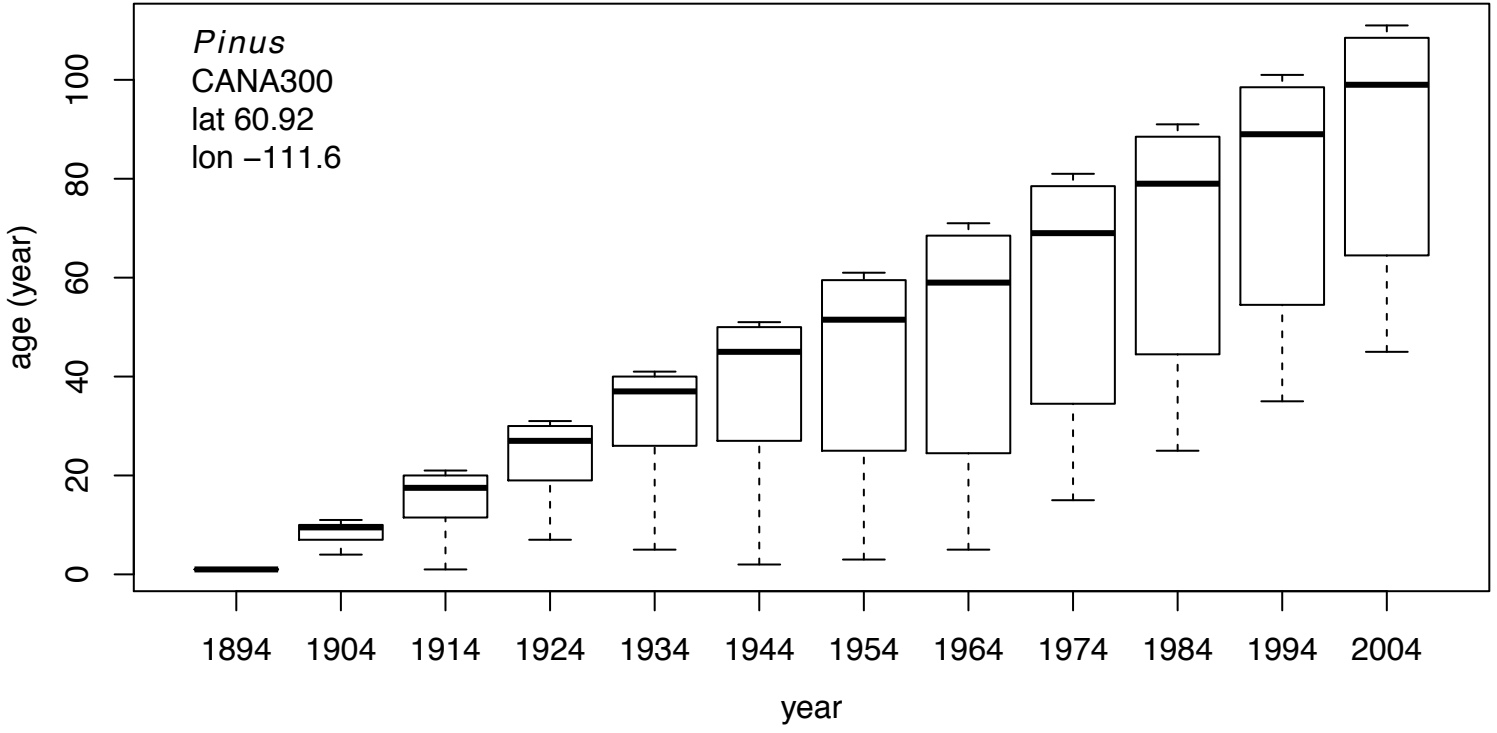
Pinus
CANA300
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1984
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2004
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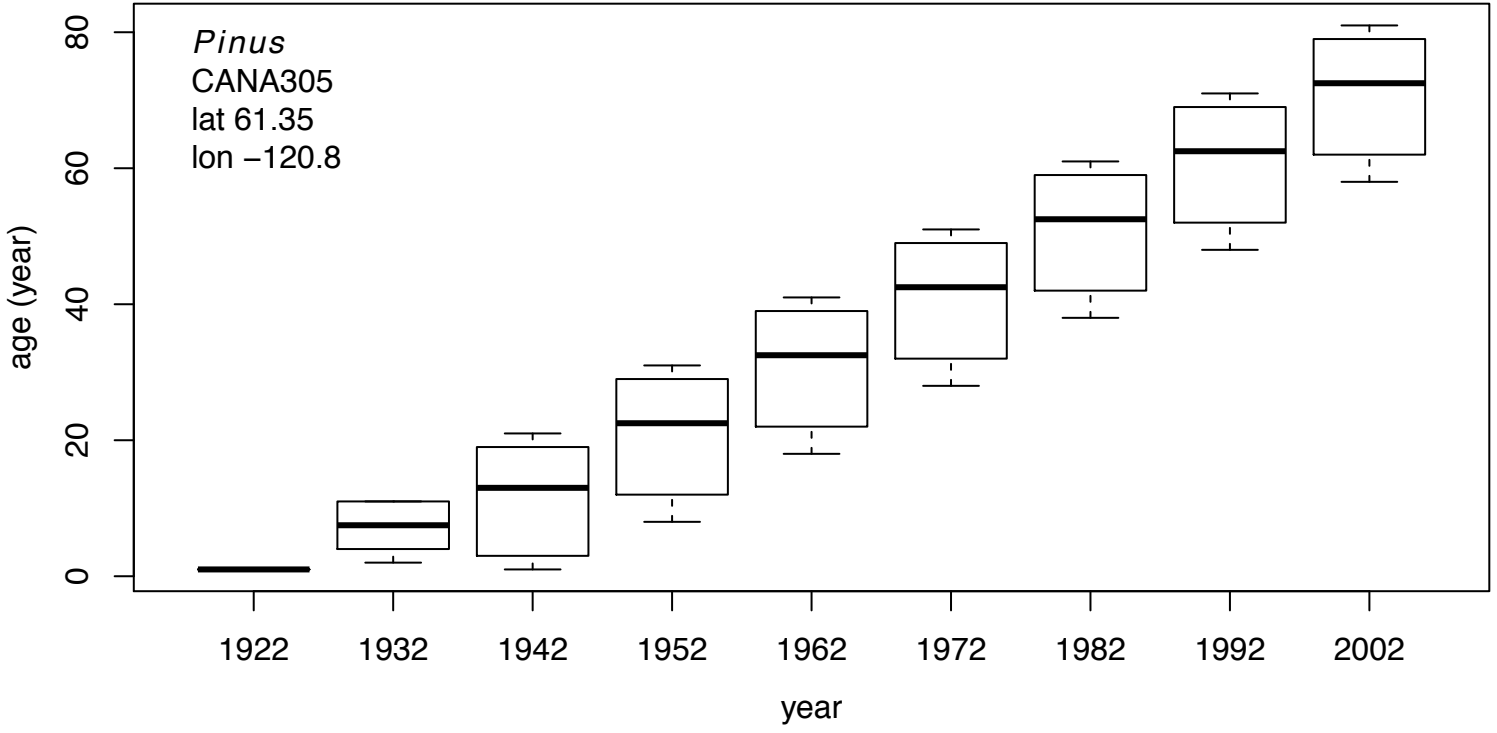
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1932
1942
1952
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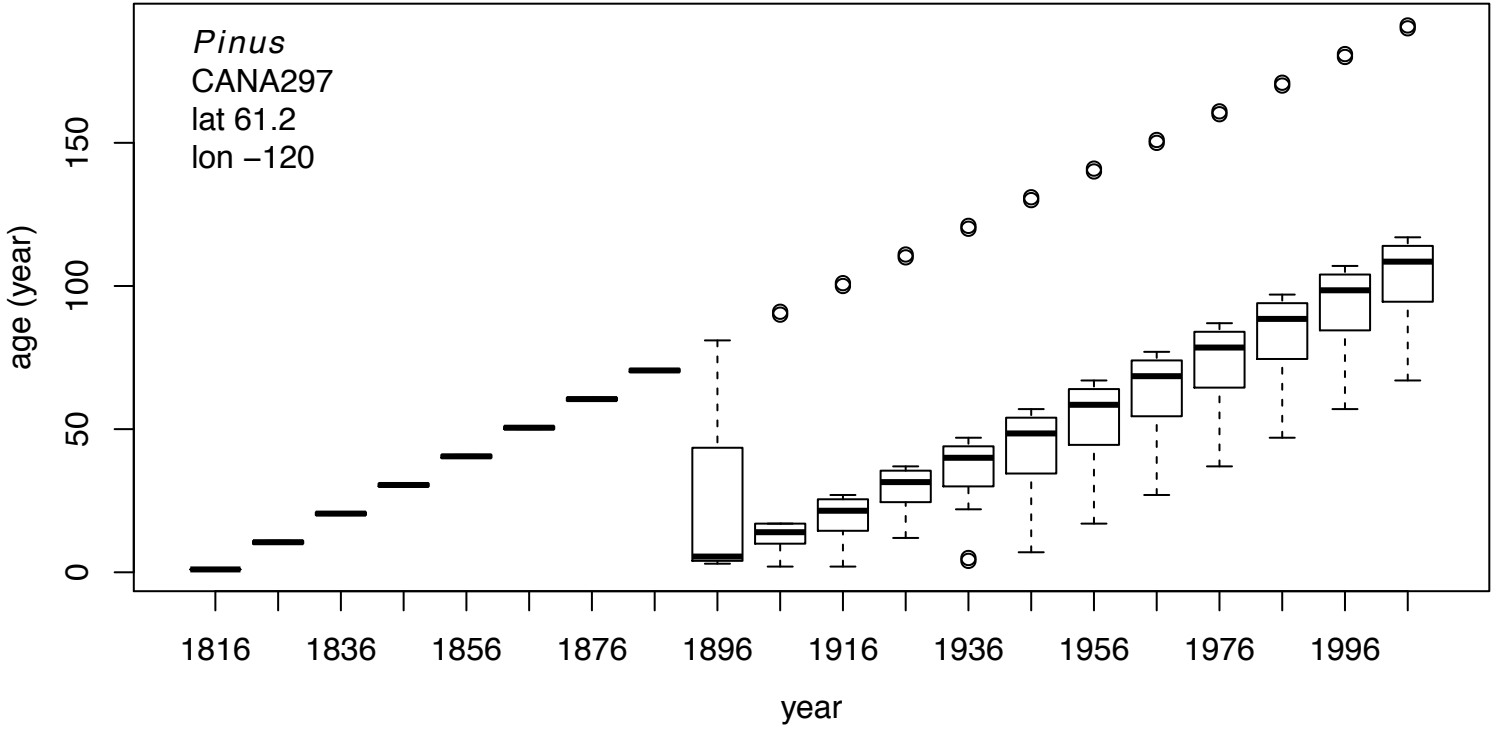
1982
1992
2002
year


Pinus
CANA297
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1896
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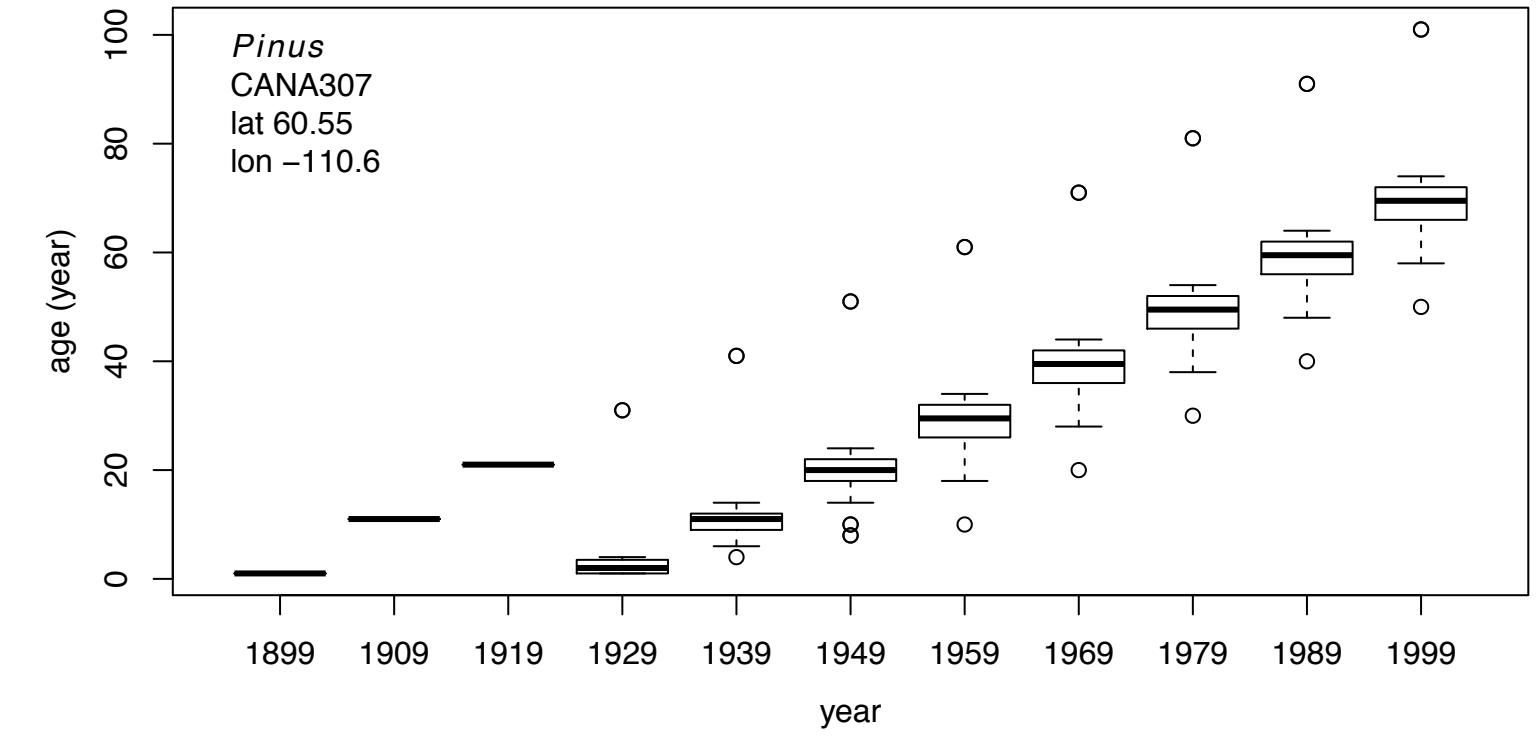
1956
1976
1996
year


Pinus
CANA307
lat 60.55
lon −110.6
age (year)
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1939
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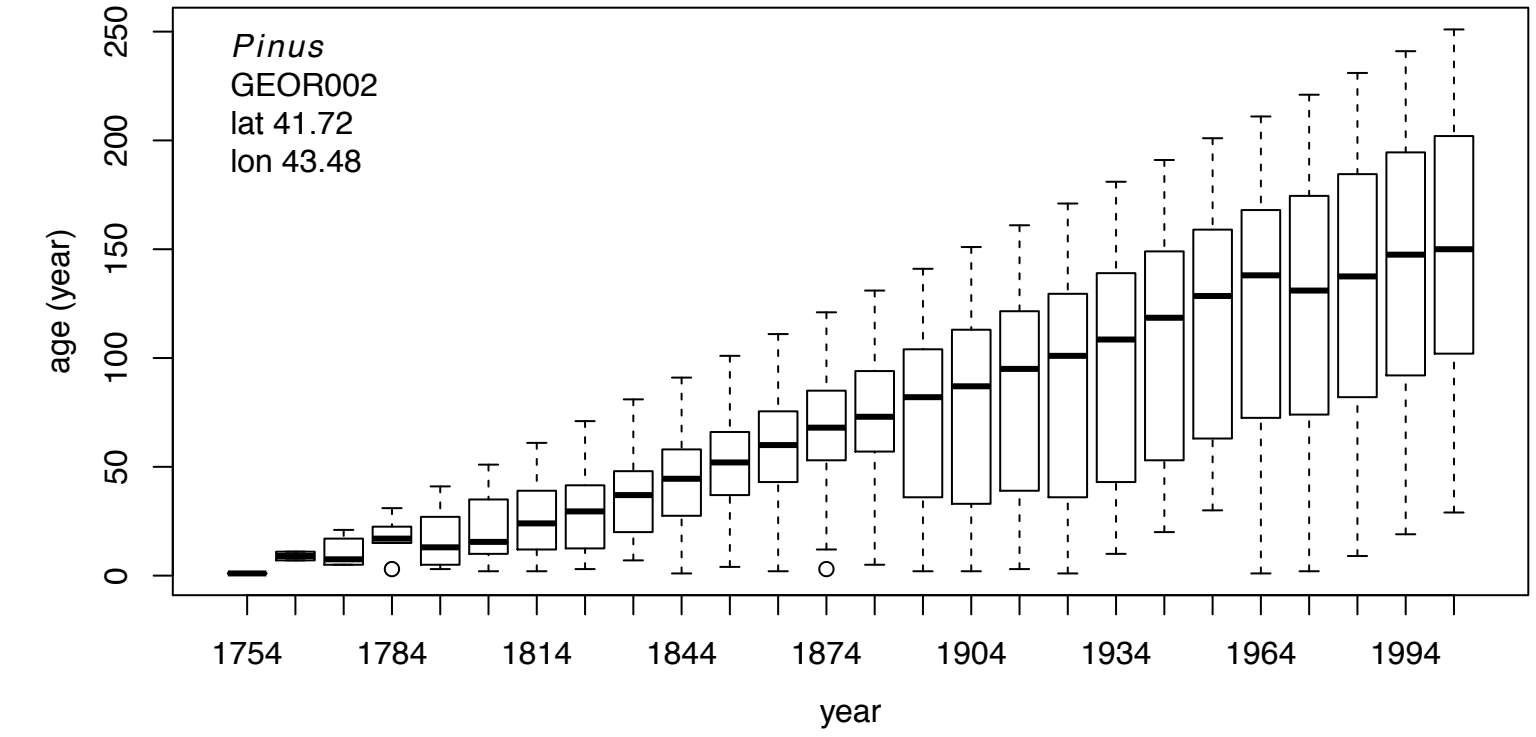
1979
1989
1999
year


Pinus
GEOR002
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lon 43.48
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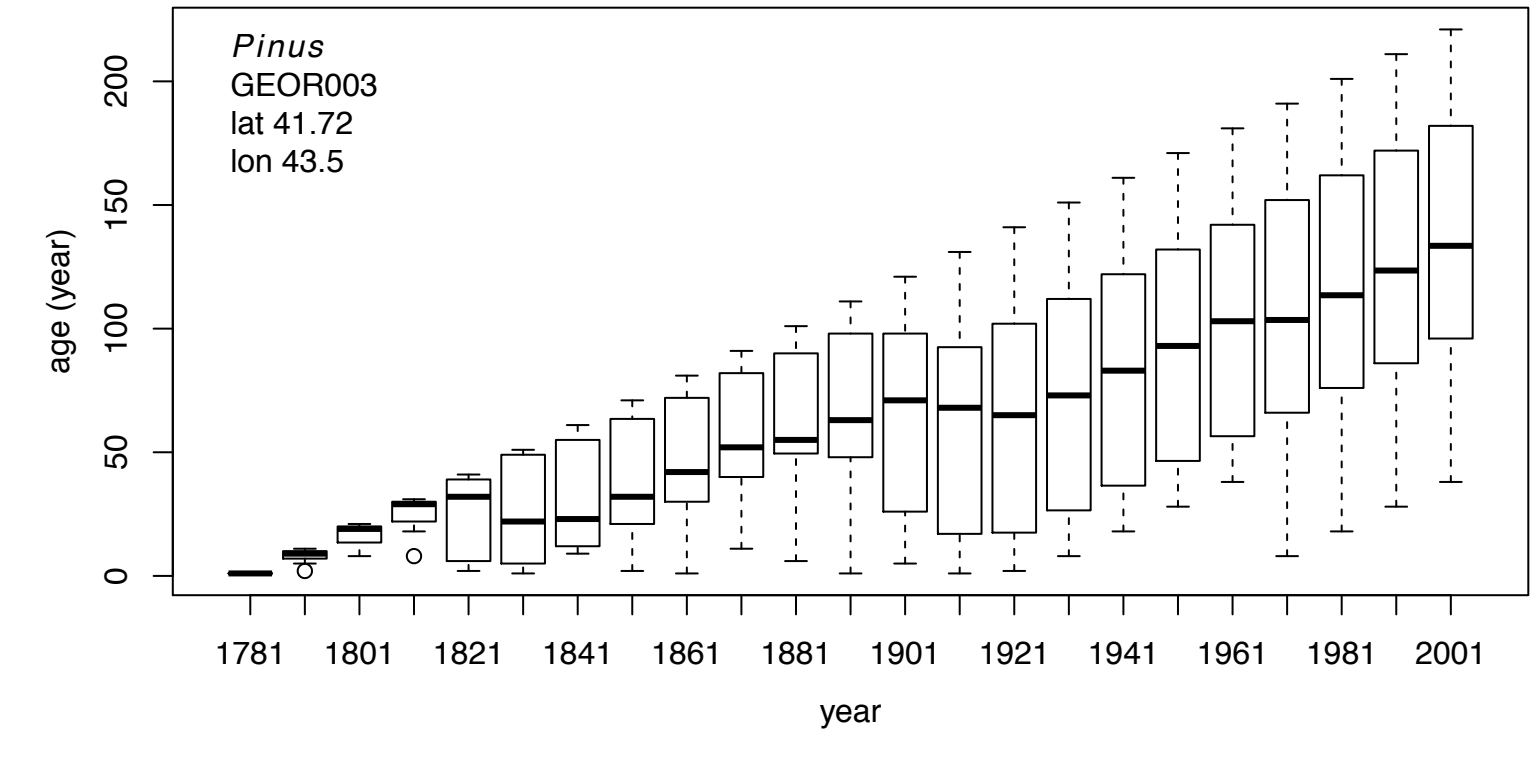
1964
1994
year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GEOR003
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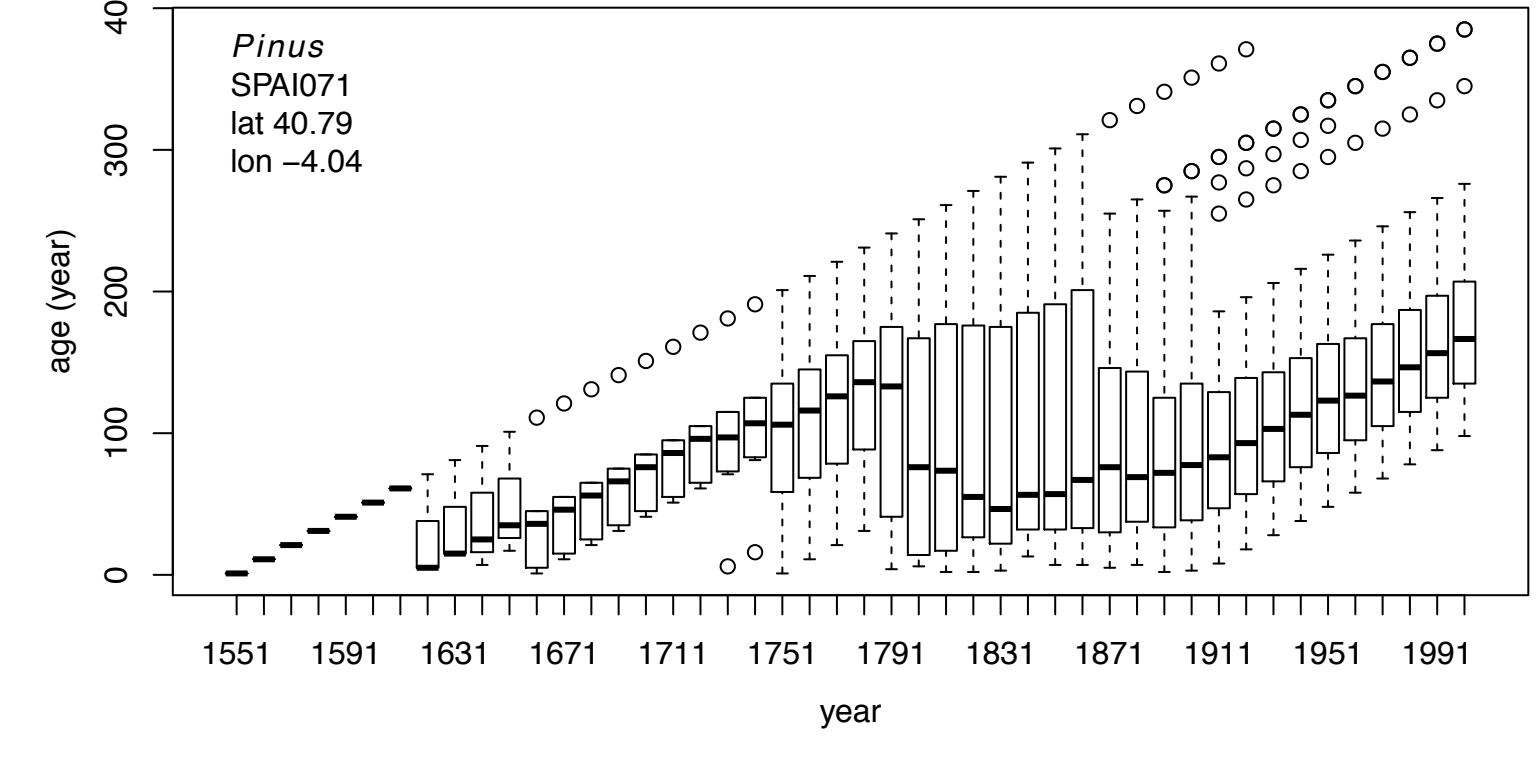
1961
1981
2001
year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SPAI071
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lon −4.04
age (year)
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1591
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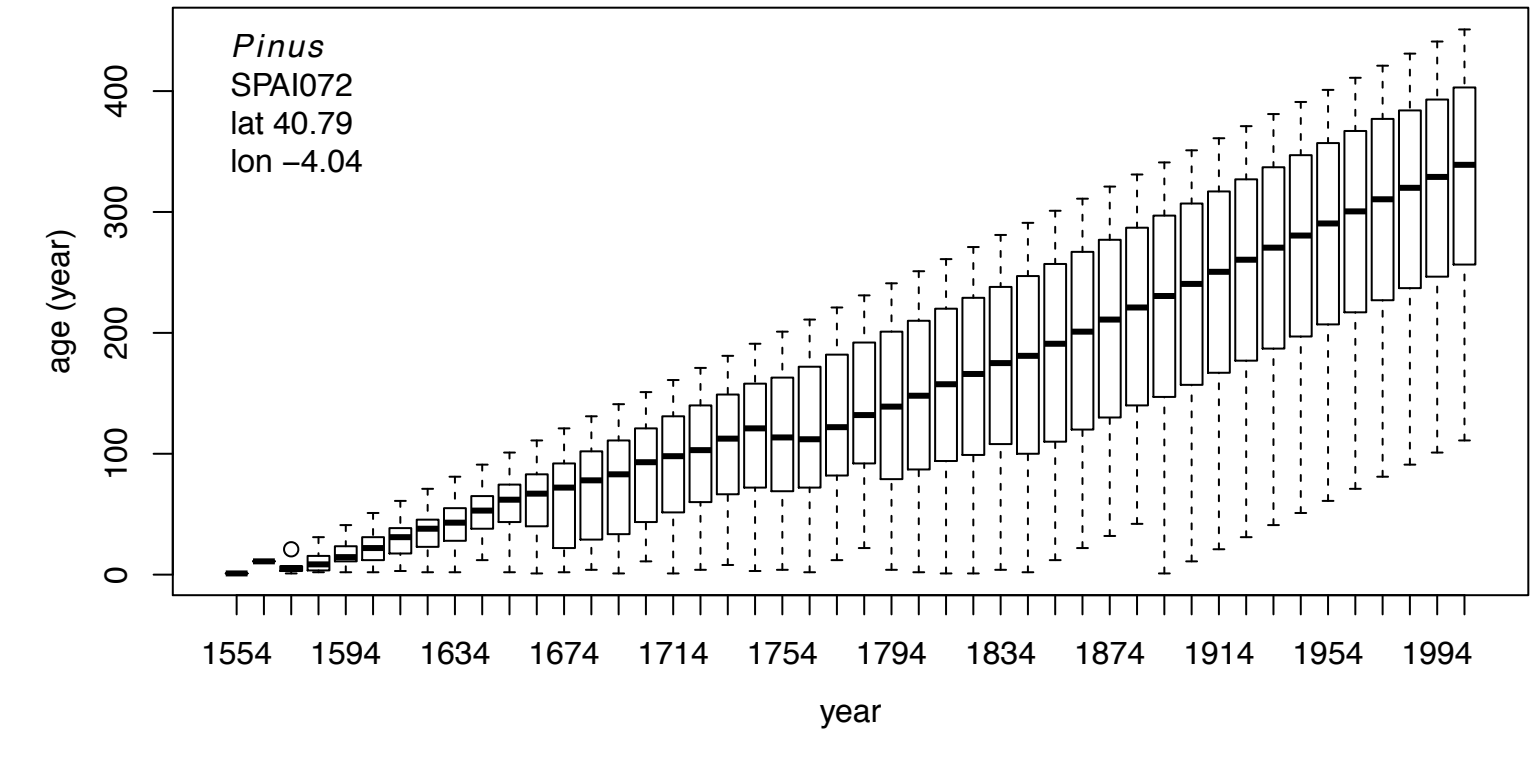
1791
1831
1871
1911
1951
1991
year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lon −4.04
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1594
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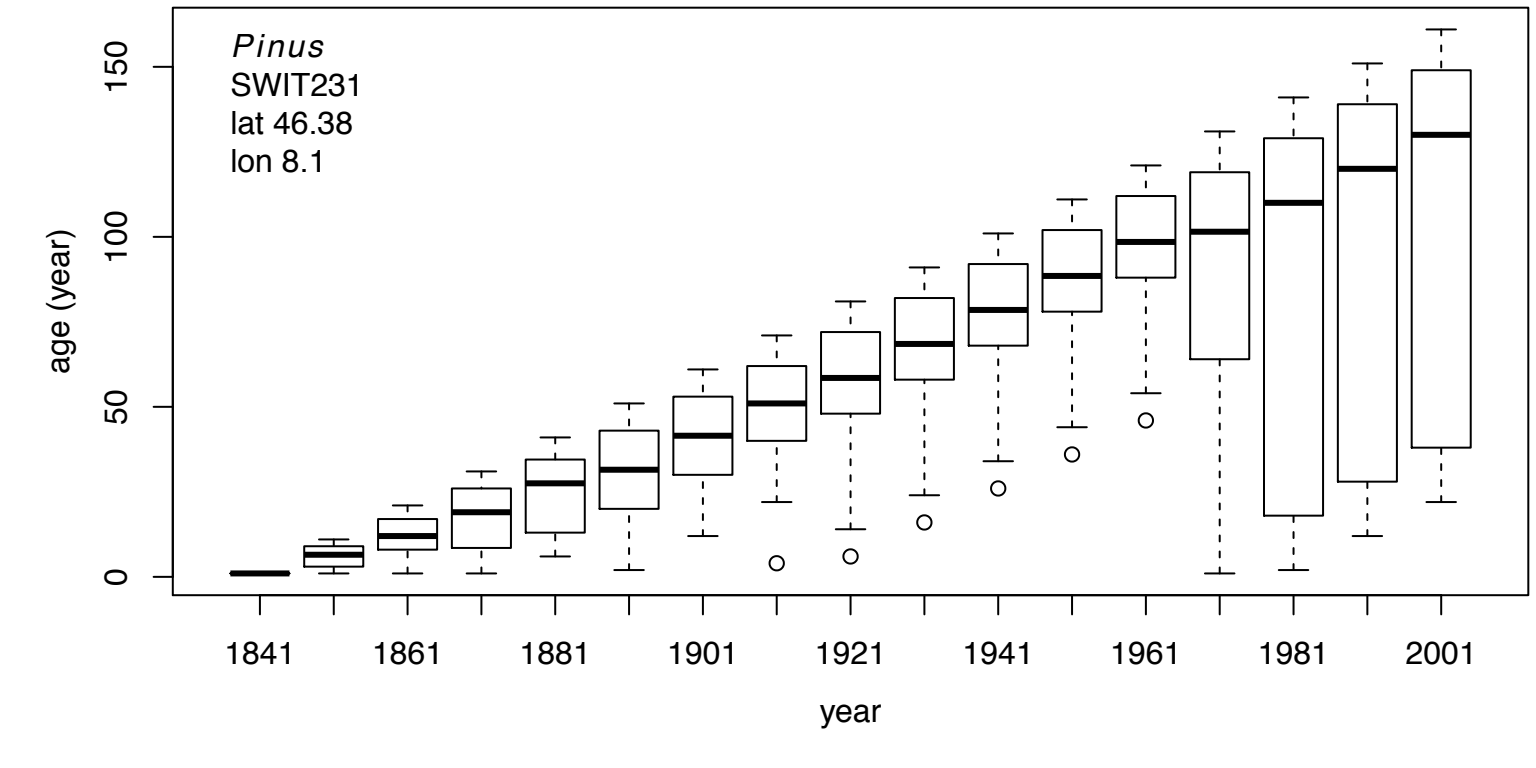
1914
1954
1994
year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SWIT231
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100
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1841
1861
1881
1901
1921
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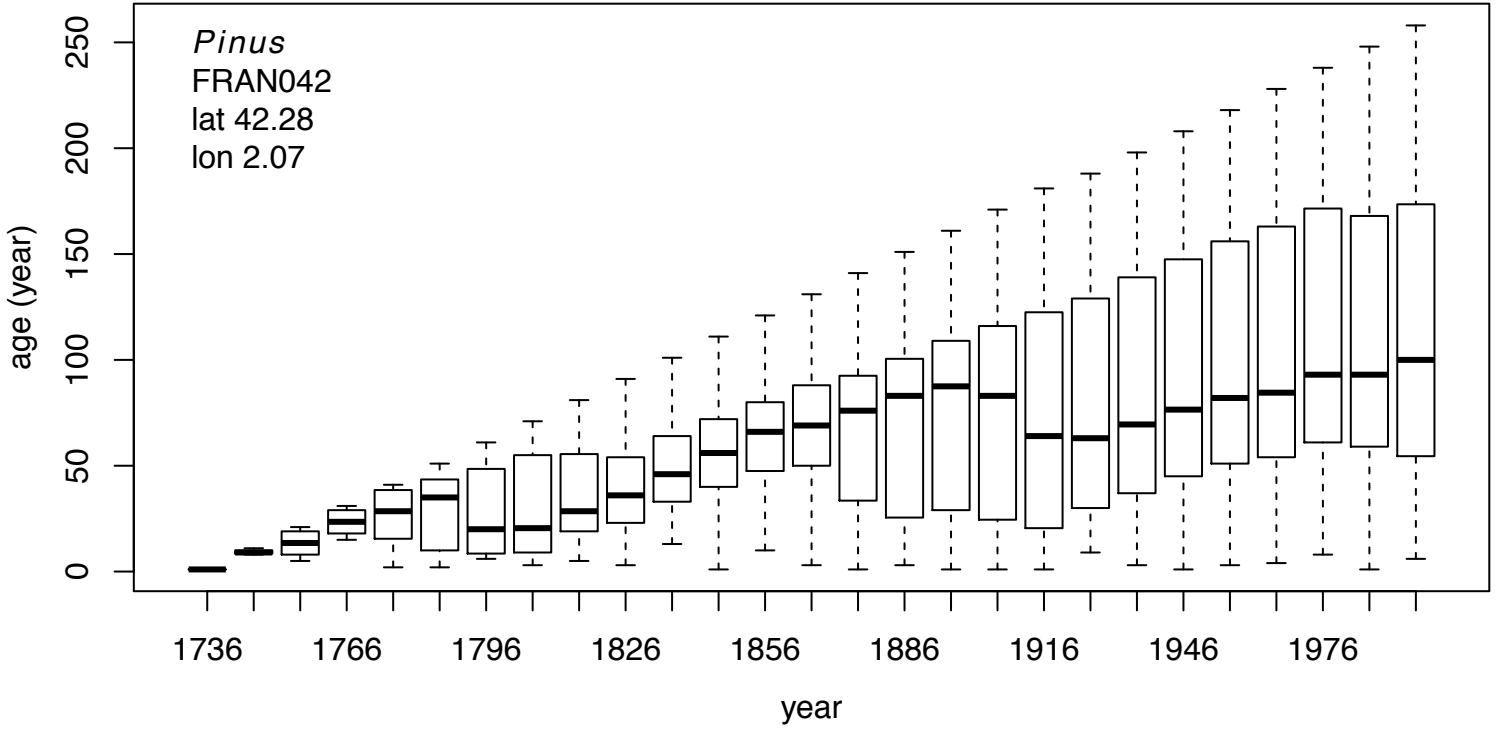
1961
1981
2001
year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FRAN042
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lon 2.07
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1826
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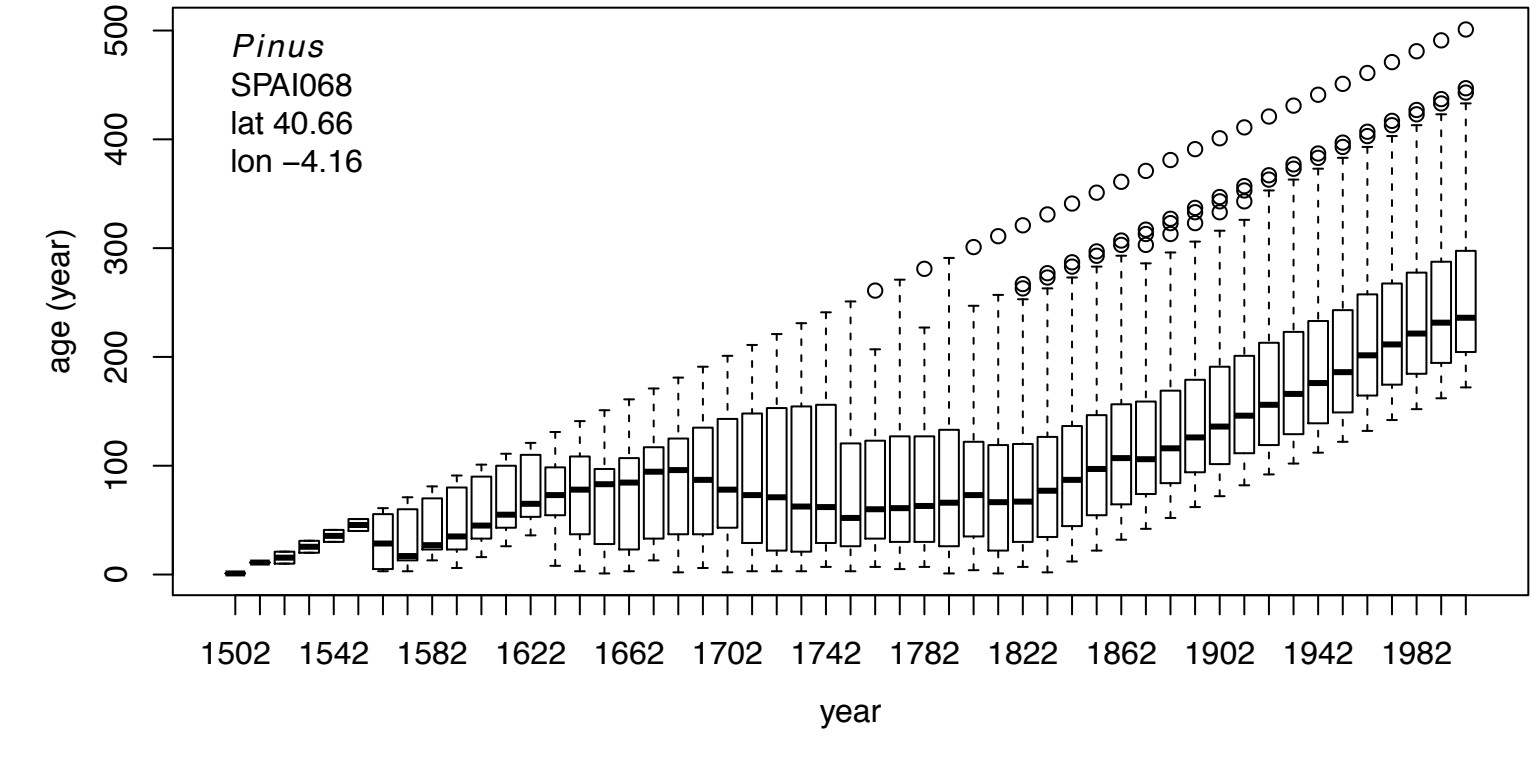
1946
1976
year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SPAI068
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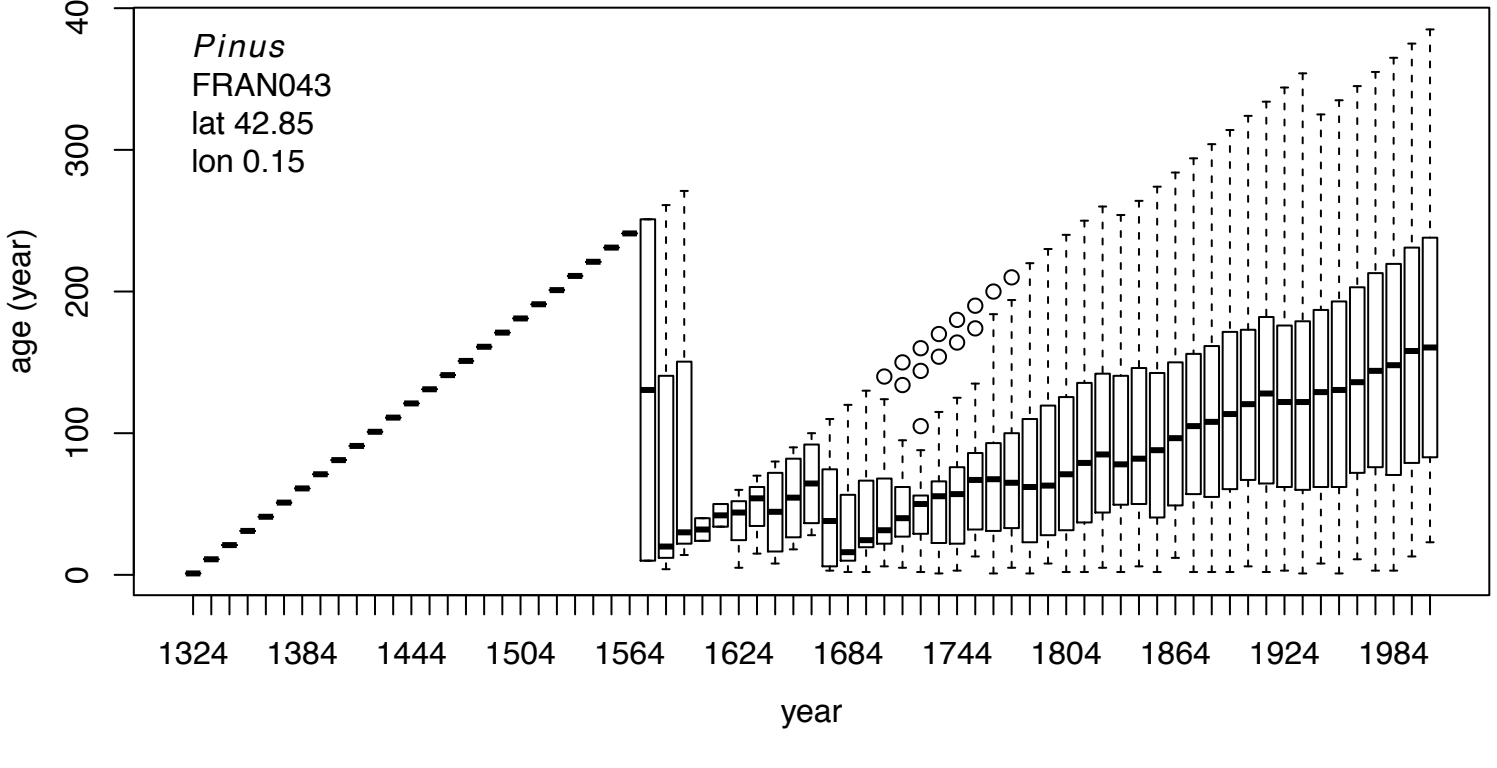
1942
1982
year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1924
1984
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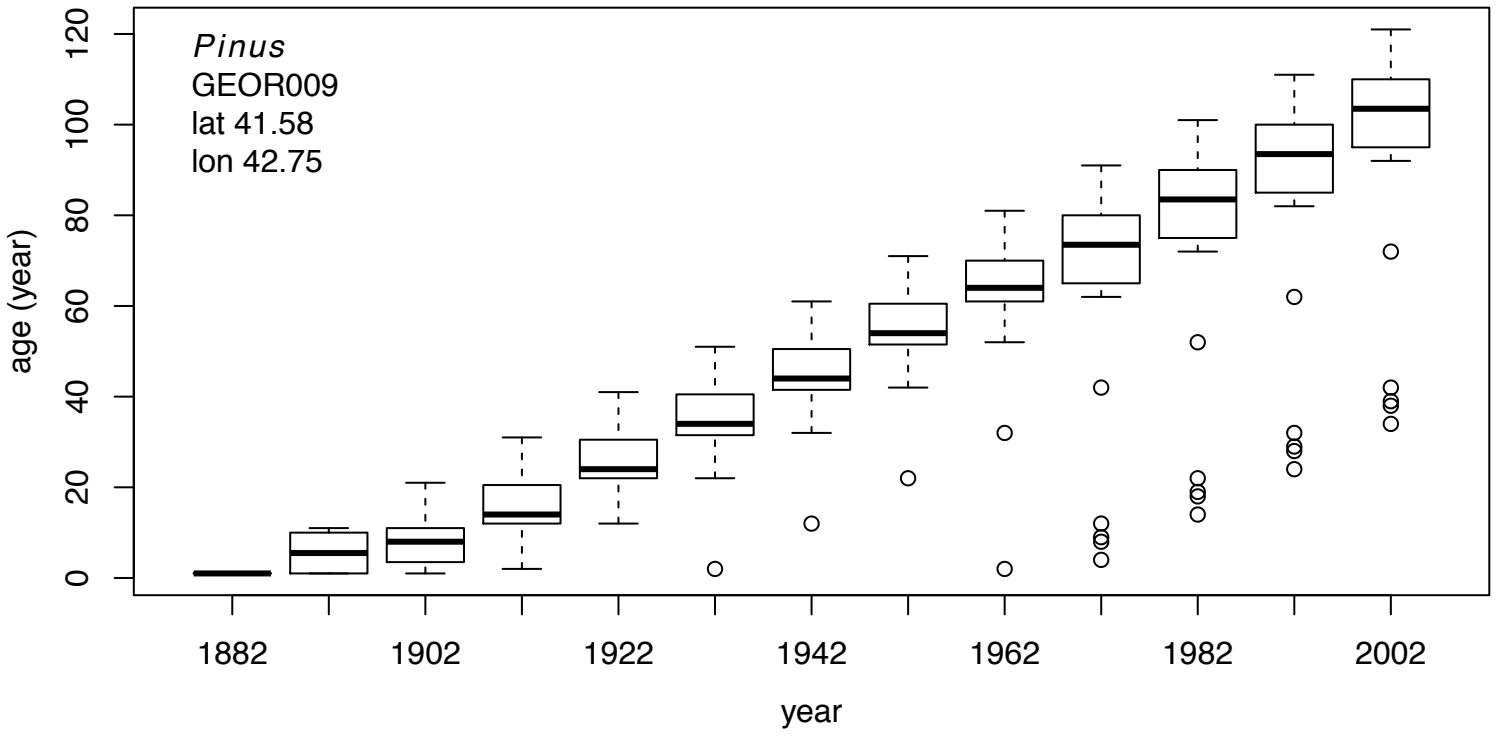
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GEOR009
lat 41.58
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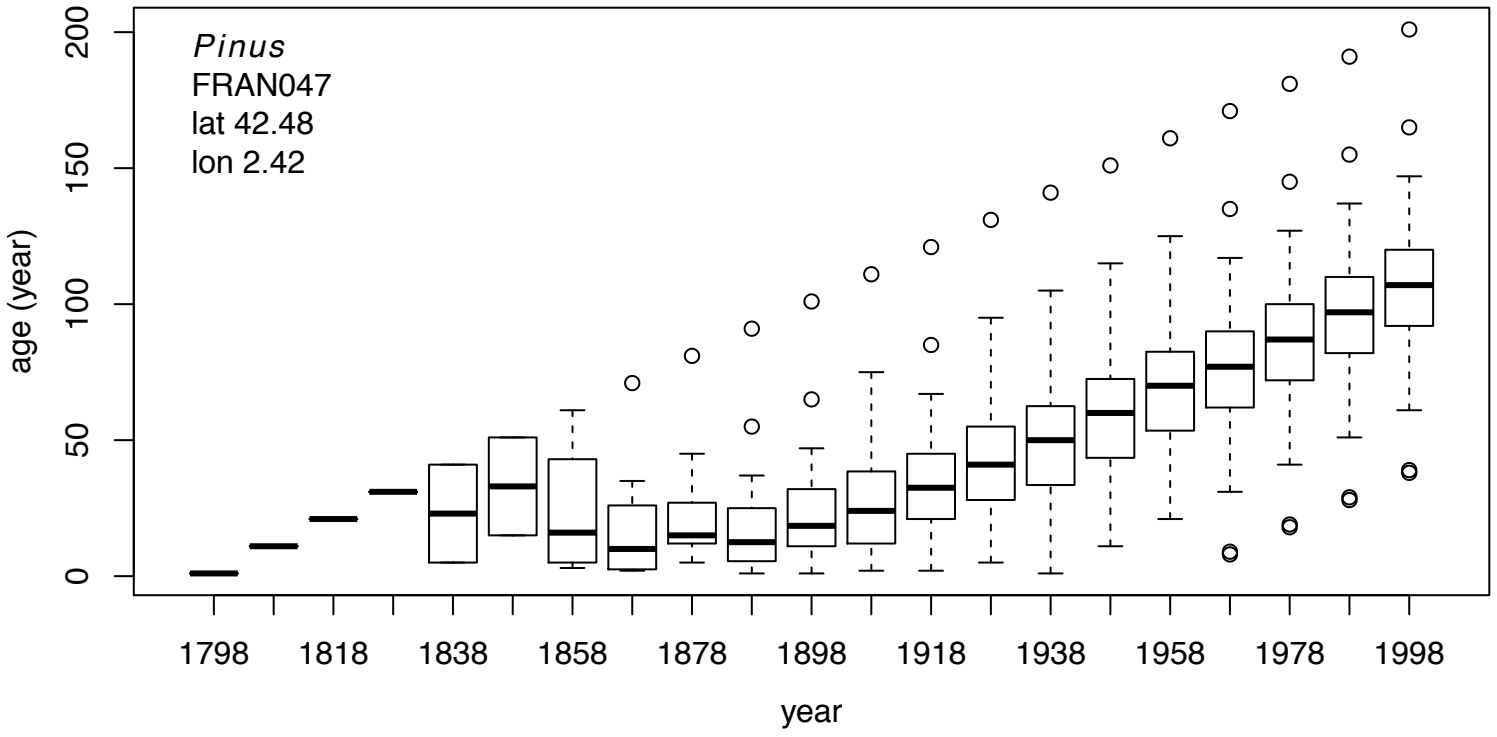
1962
1982
2002
year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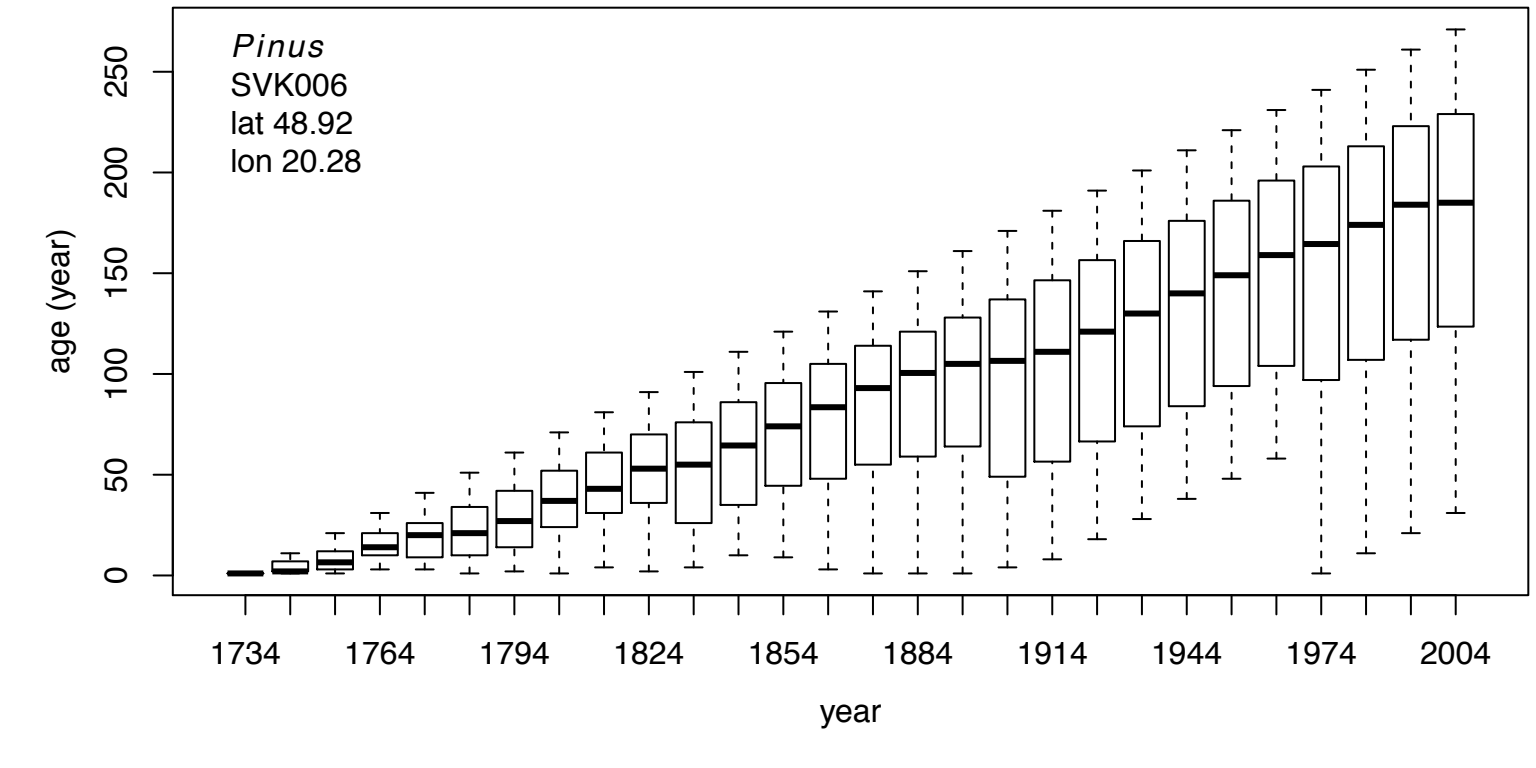
1958
1978
1998
year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SVK006
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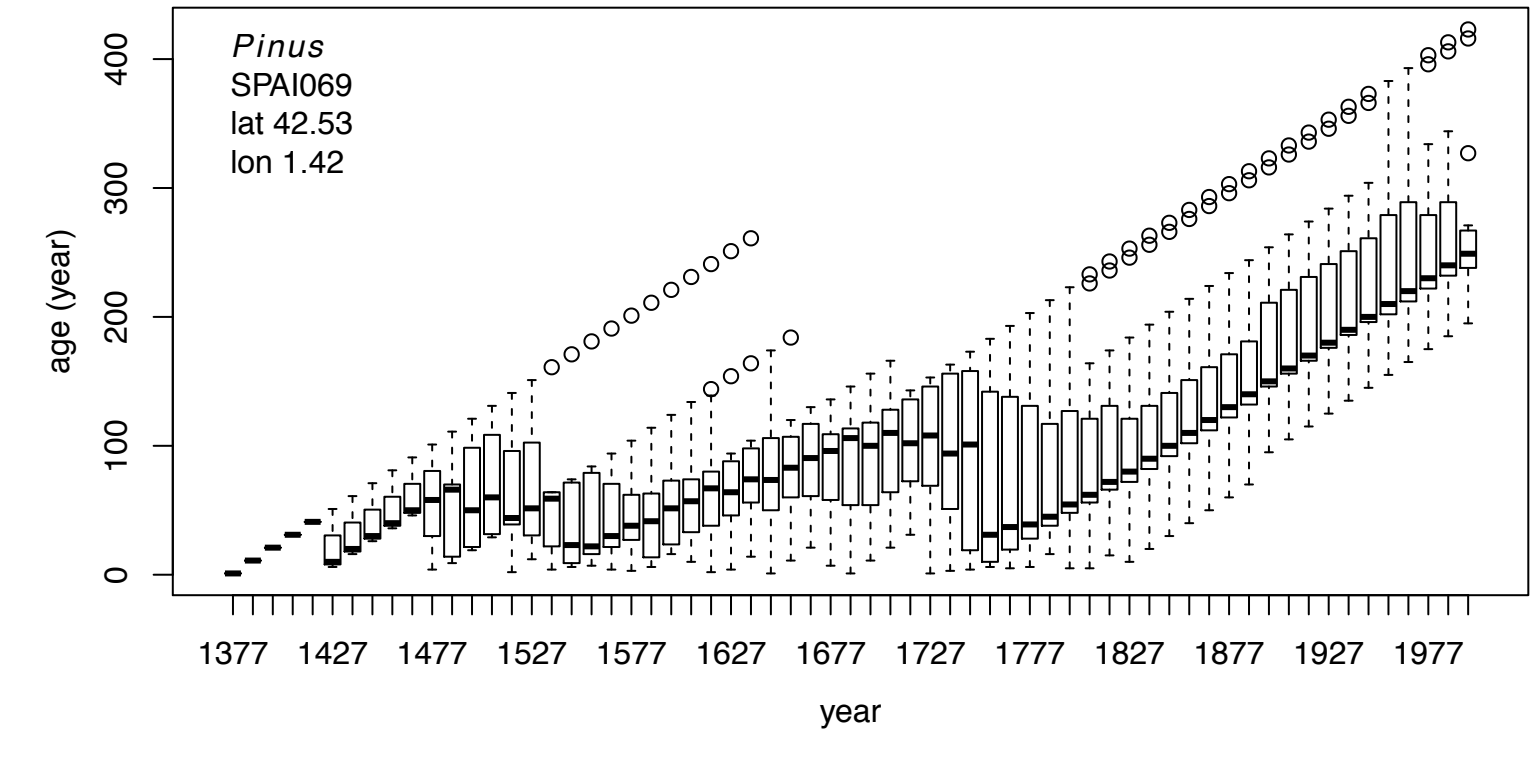
2004
year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SPAI069
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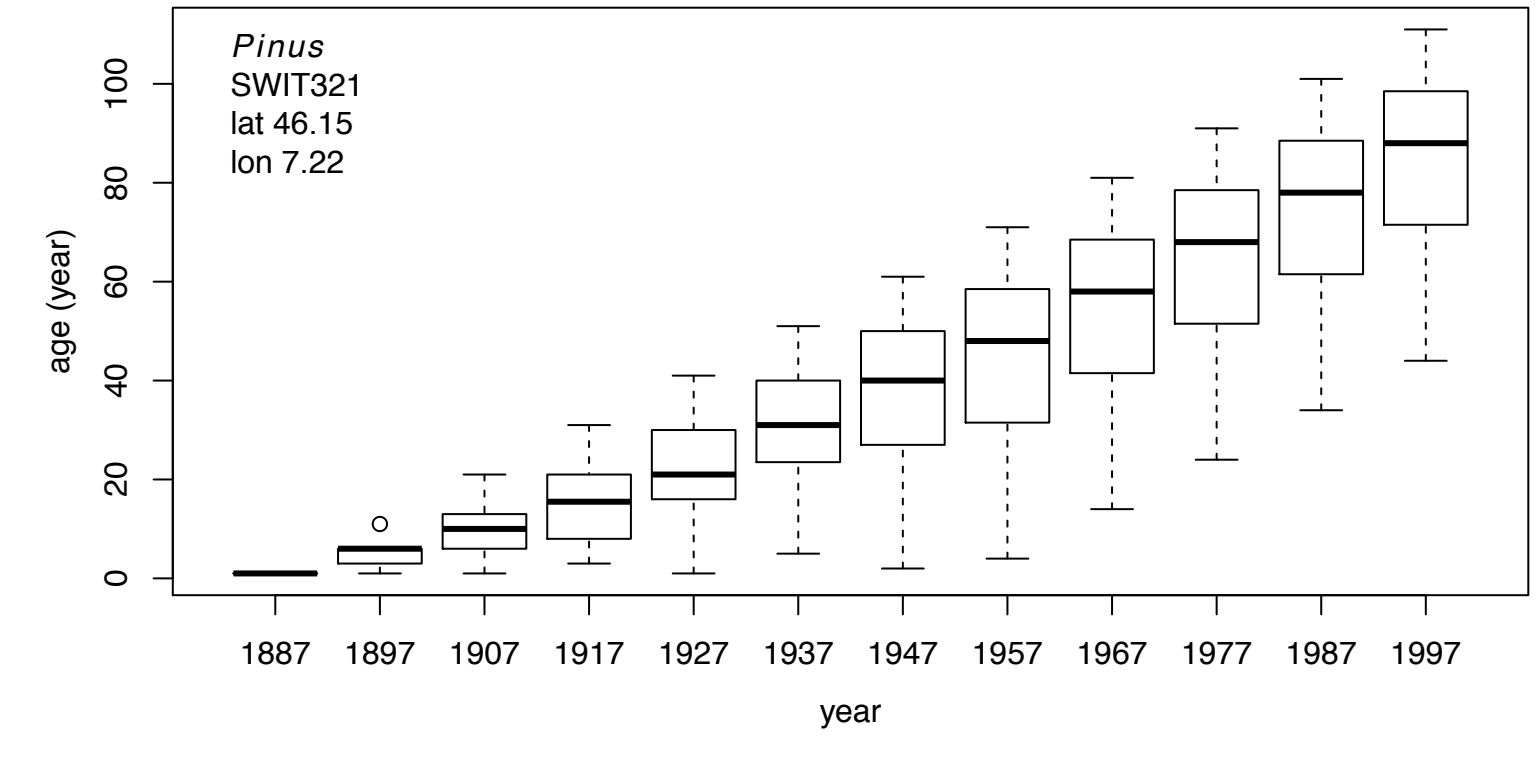
1927
1977
year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1907
1917
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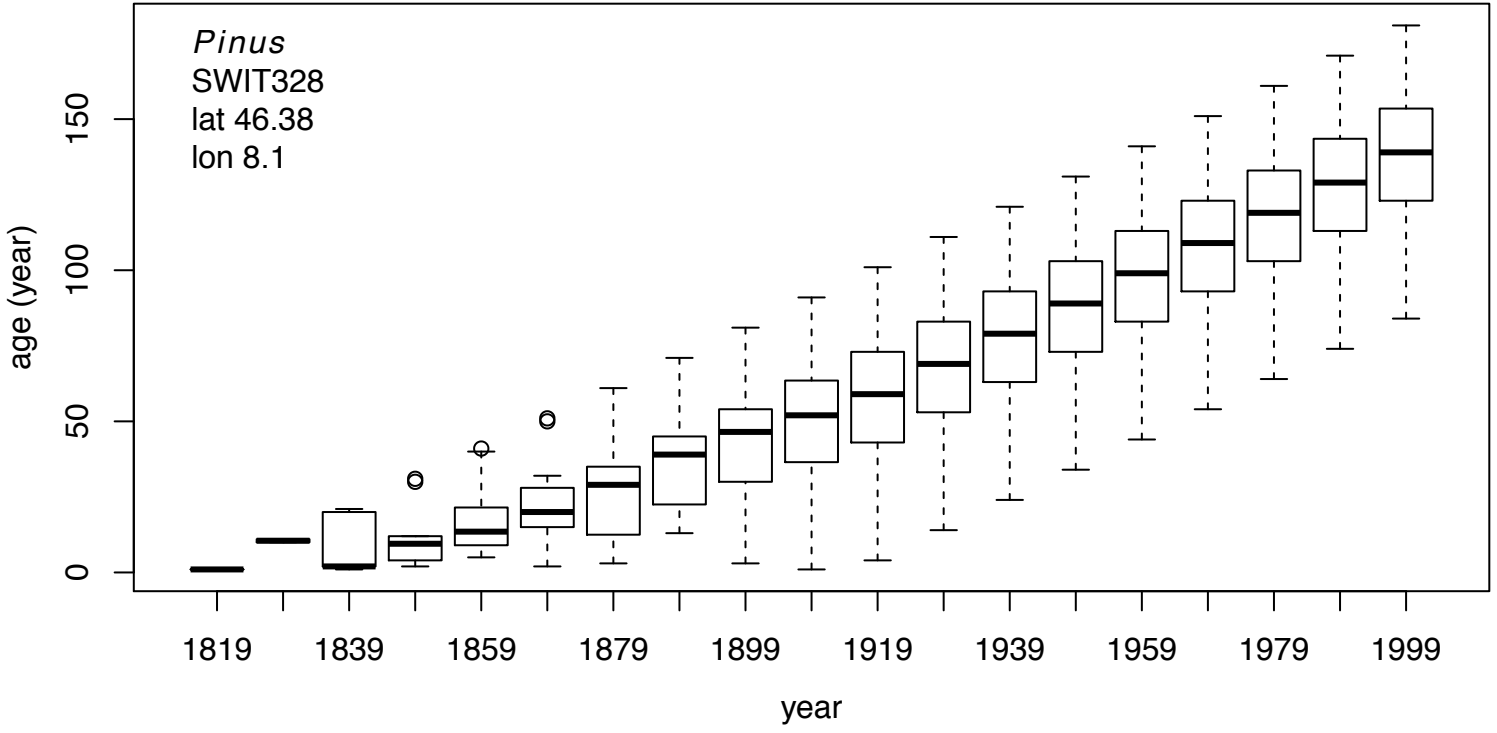
1937
1947
1957
1967
1977
1987
1997
year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SWIT328
lat 46.38
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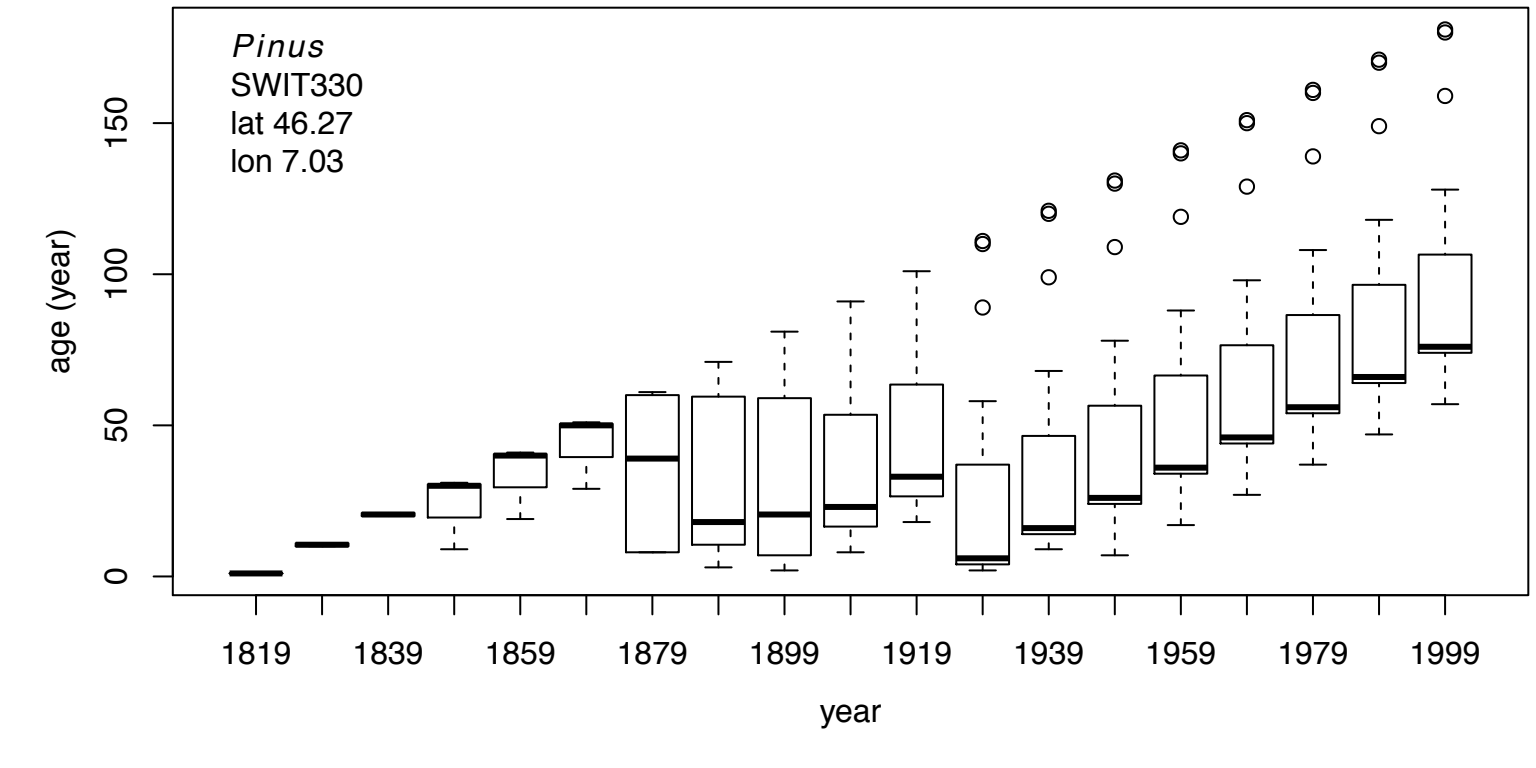
1839
1859
1879
1899
1919
1939
1959
1979
1999
year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SWIT330
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1819
1839
1859
1879
1899
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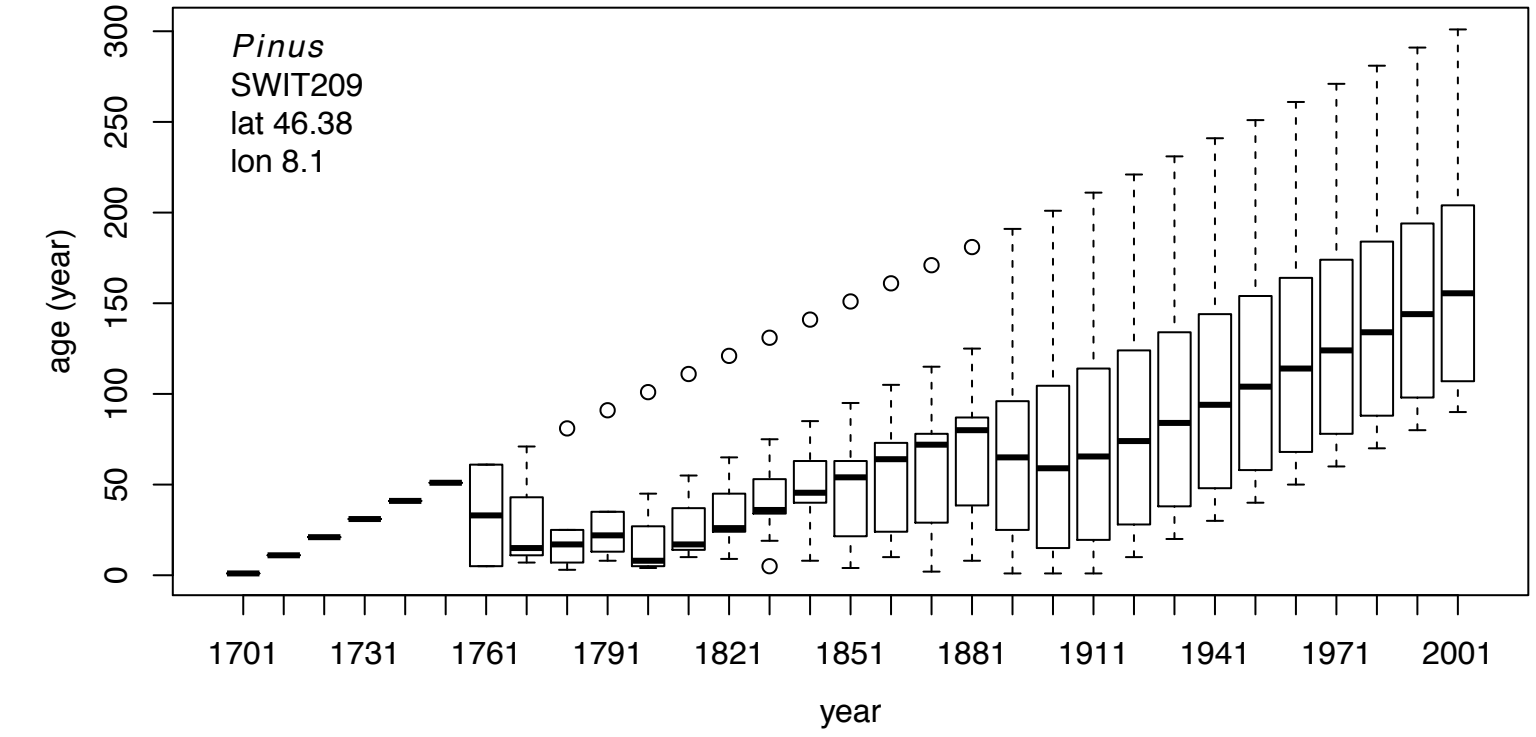
1959
1979
1999
year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lat 46.38
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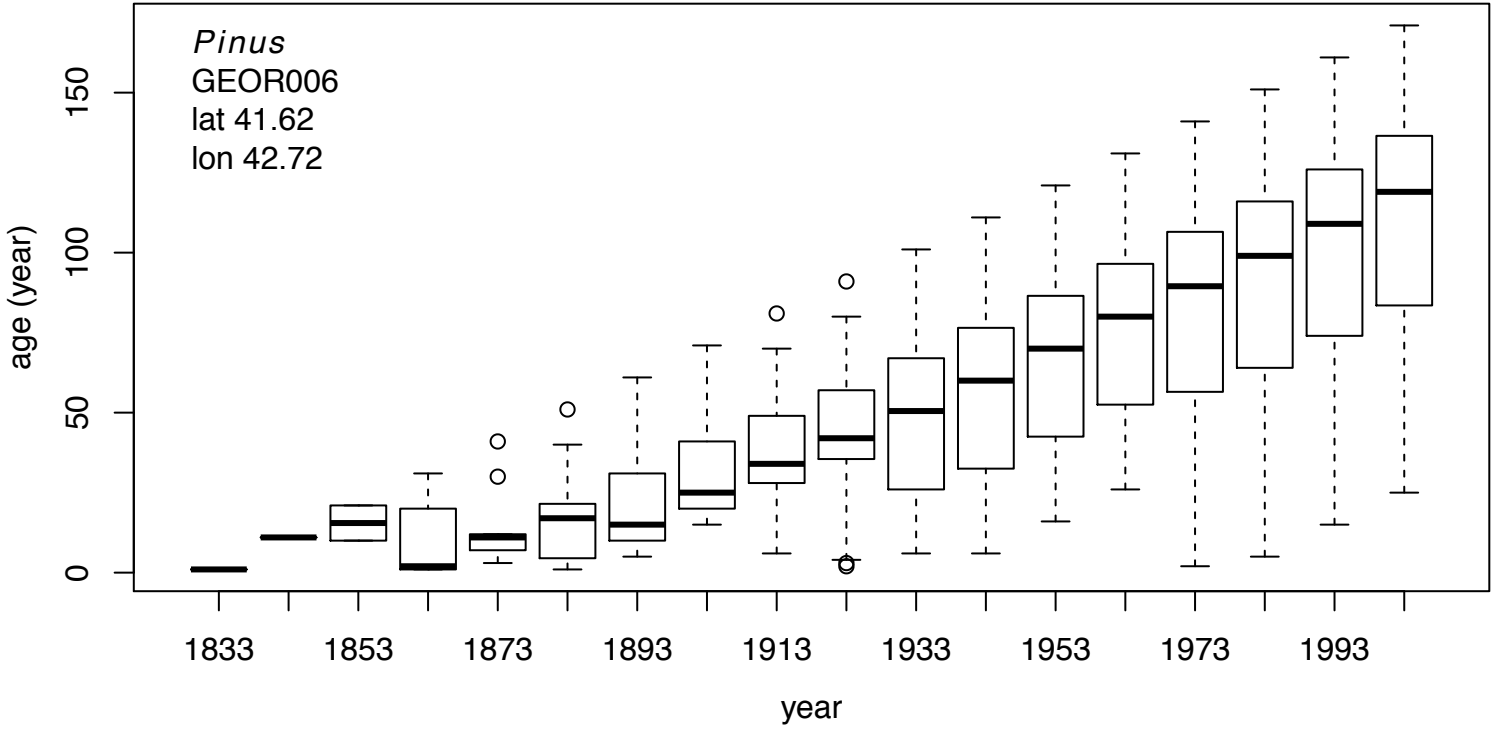
1941
1971
2001
year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lat 41.62
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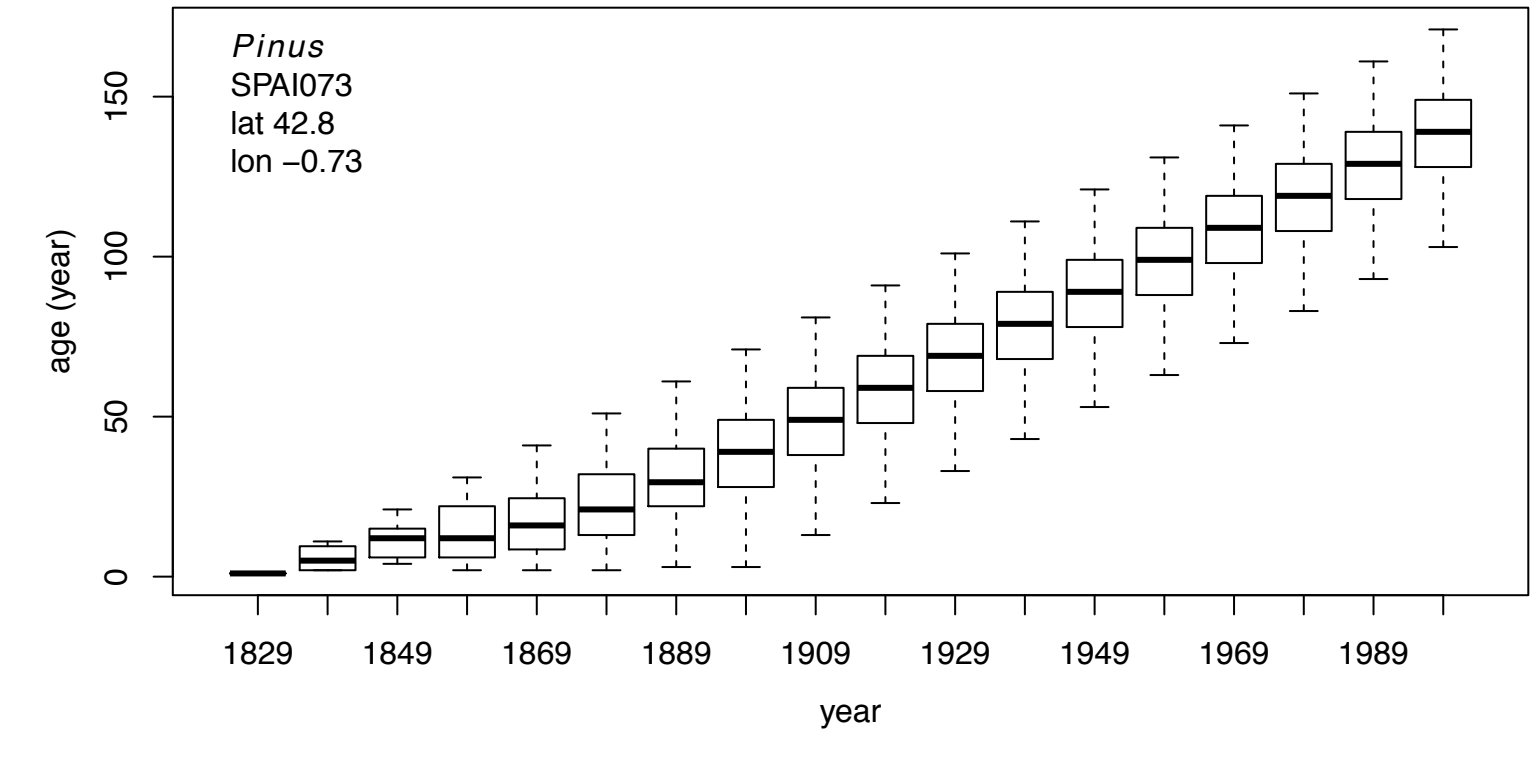
1833
1853
1873
1893
1913
1933
1953
1973
1993
year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SPAI073
lat 42.8
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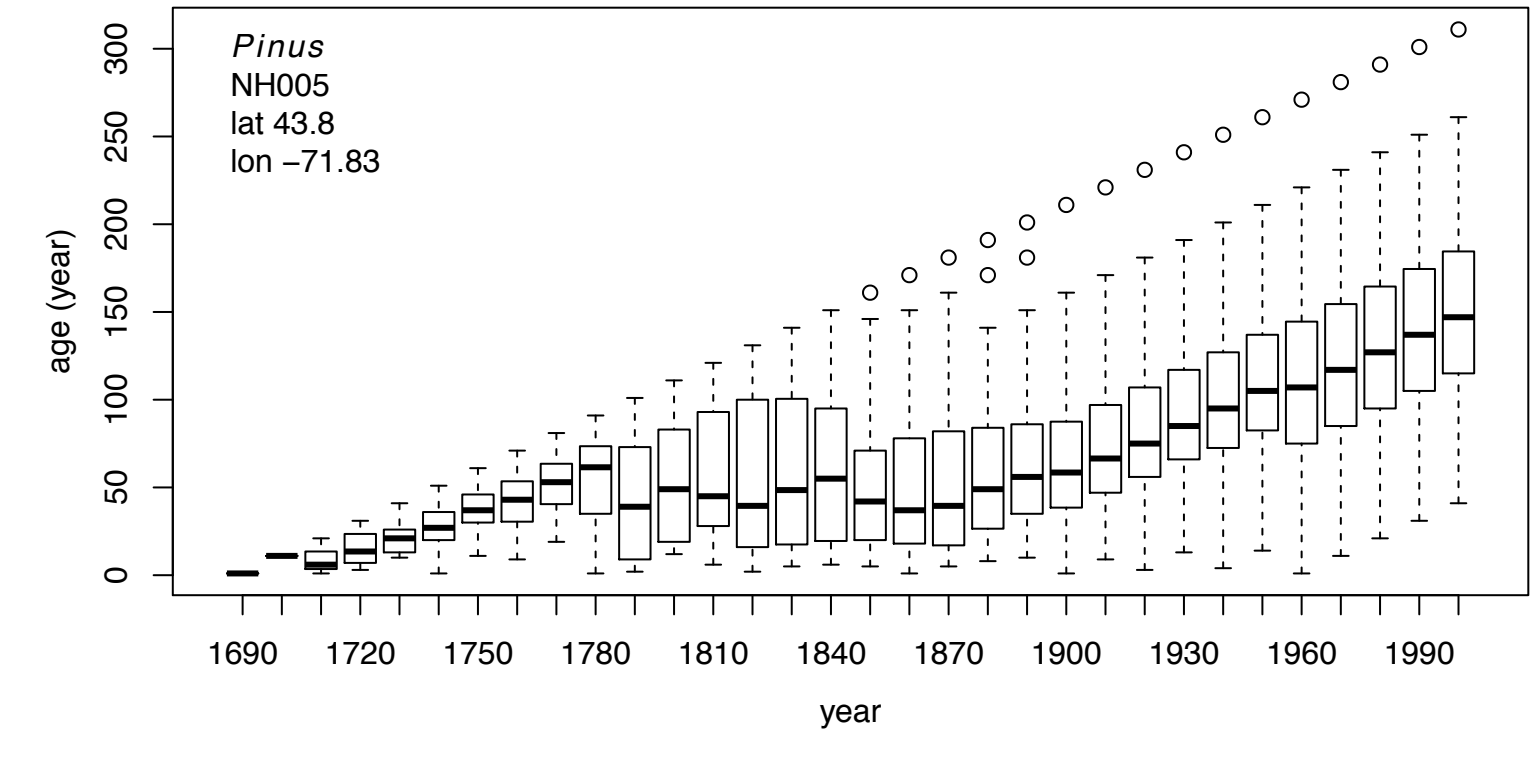
150
1829
1849
1869
1889
1909
1929
1949
1969
1989
year


Pinus
NH005
lat 43.8
lon −71.83
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300
1690
1720
1750
1780
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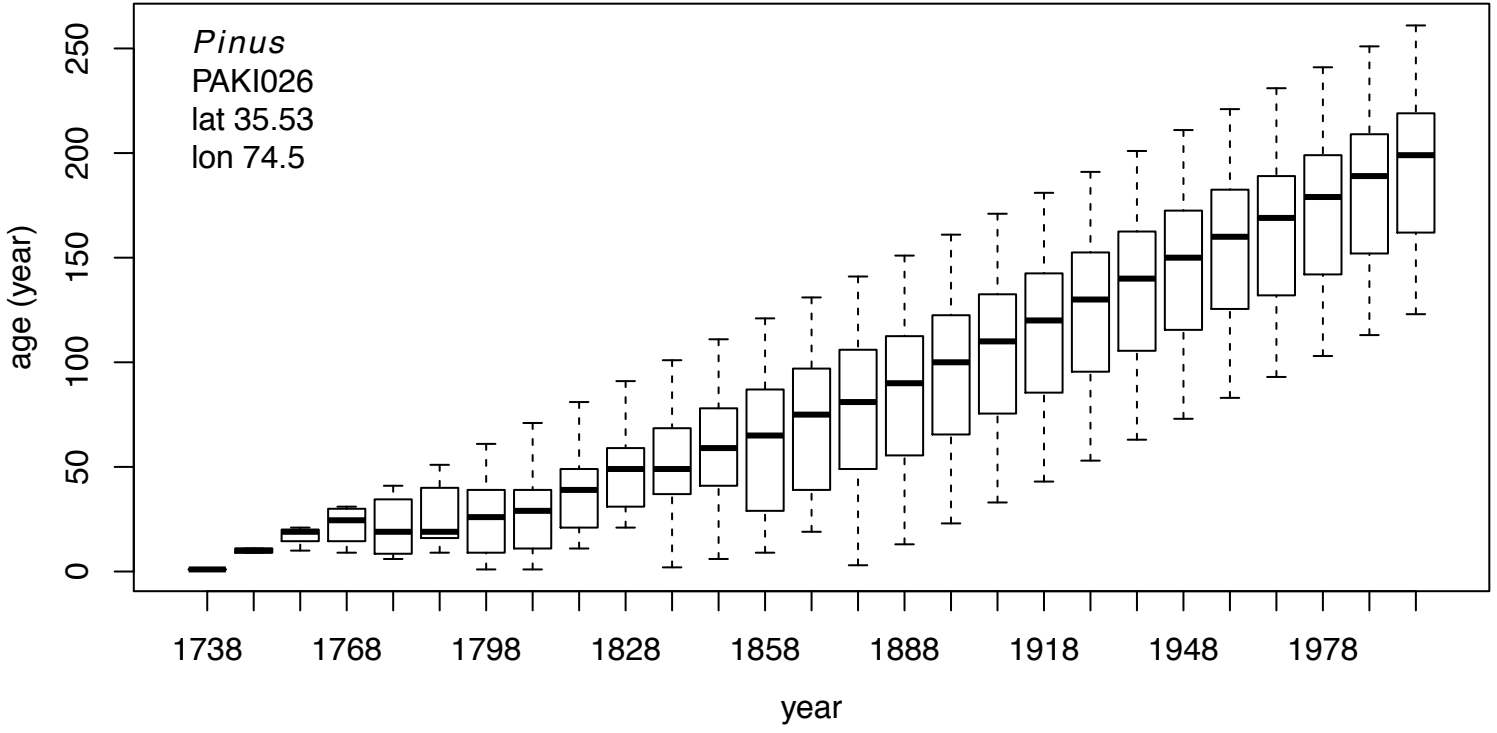
1840
1870
1900
1930
1960
1990
year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PAKI026
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lon 74.5
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250
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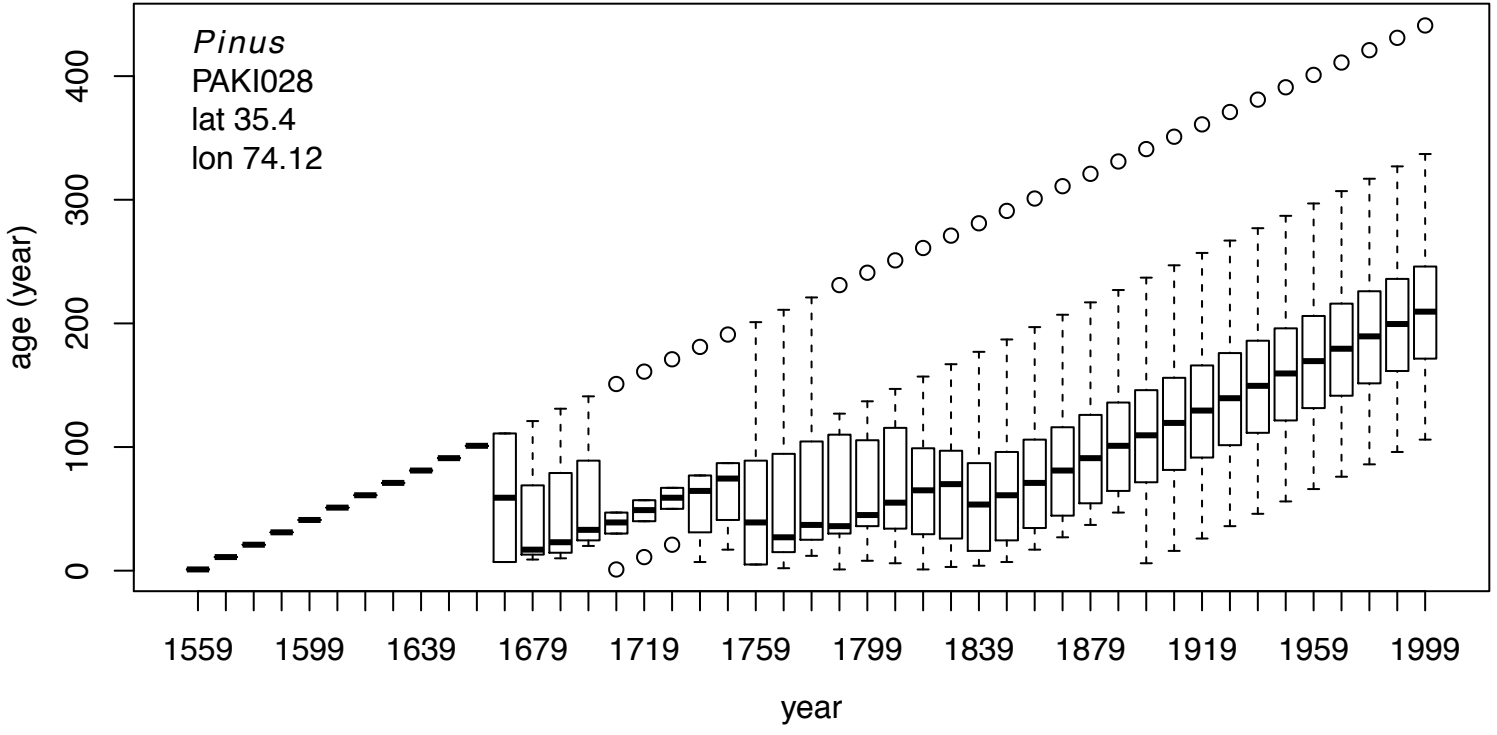
1768
1798
1828
1858
1888
1918
1948
1978
year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PAKI028
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1599
1639
1679
1719
1759
1799
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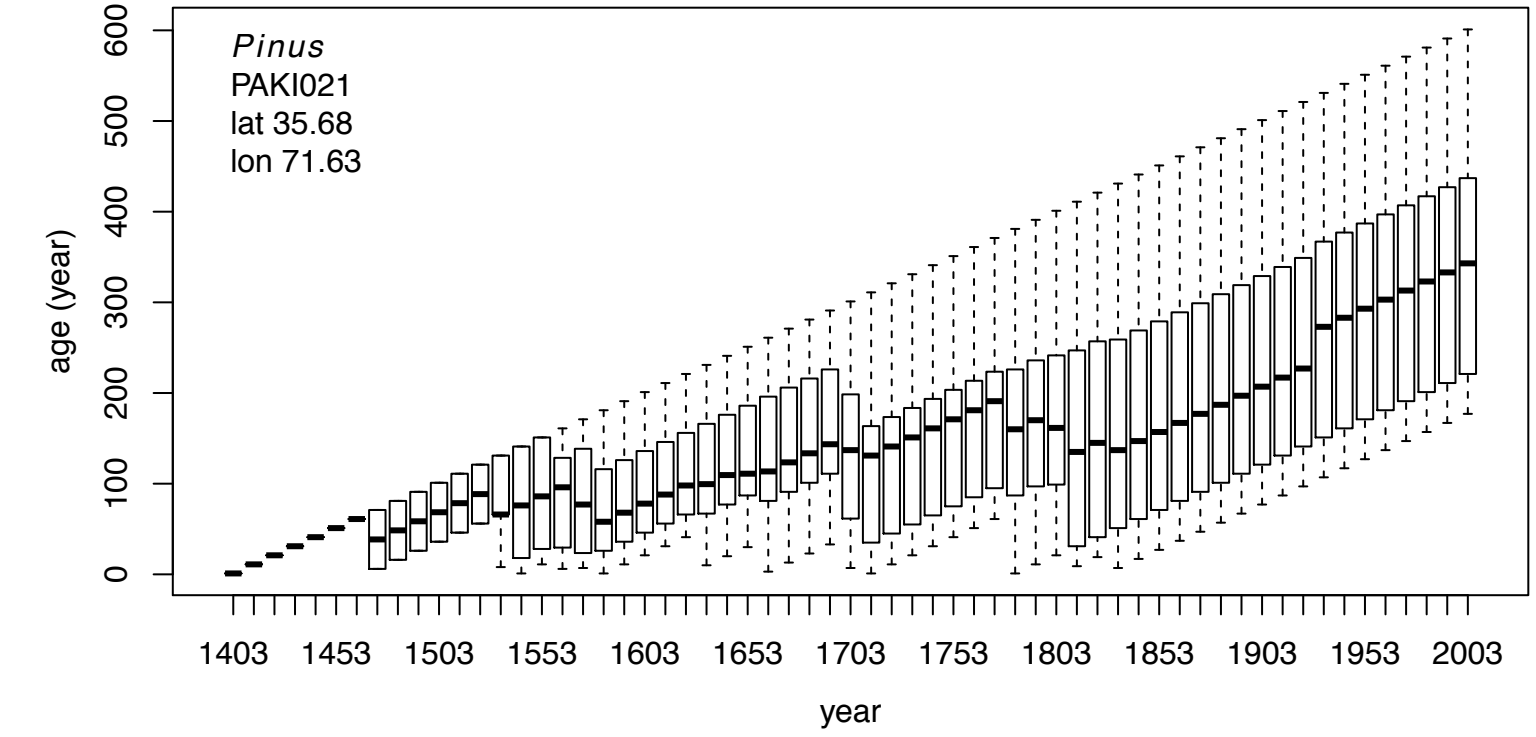
1879
1919
1959
1999
year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PAKI021
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lon 71.63
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300
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600
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1453
1503
1553
1603
1653
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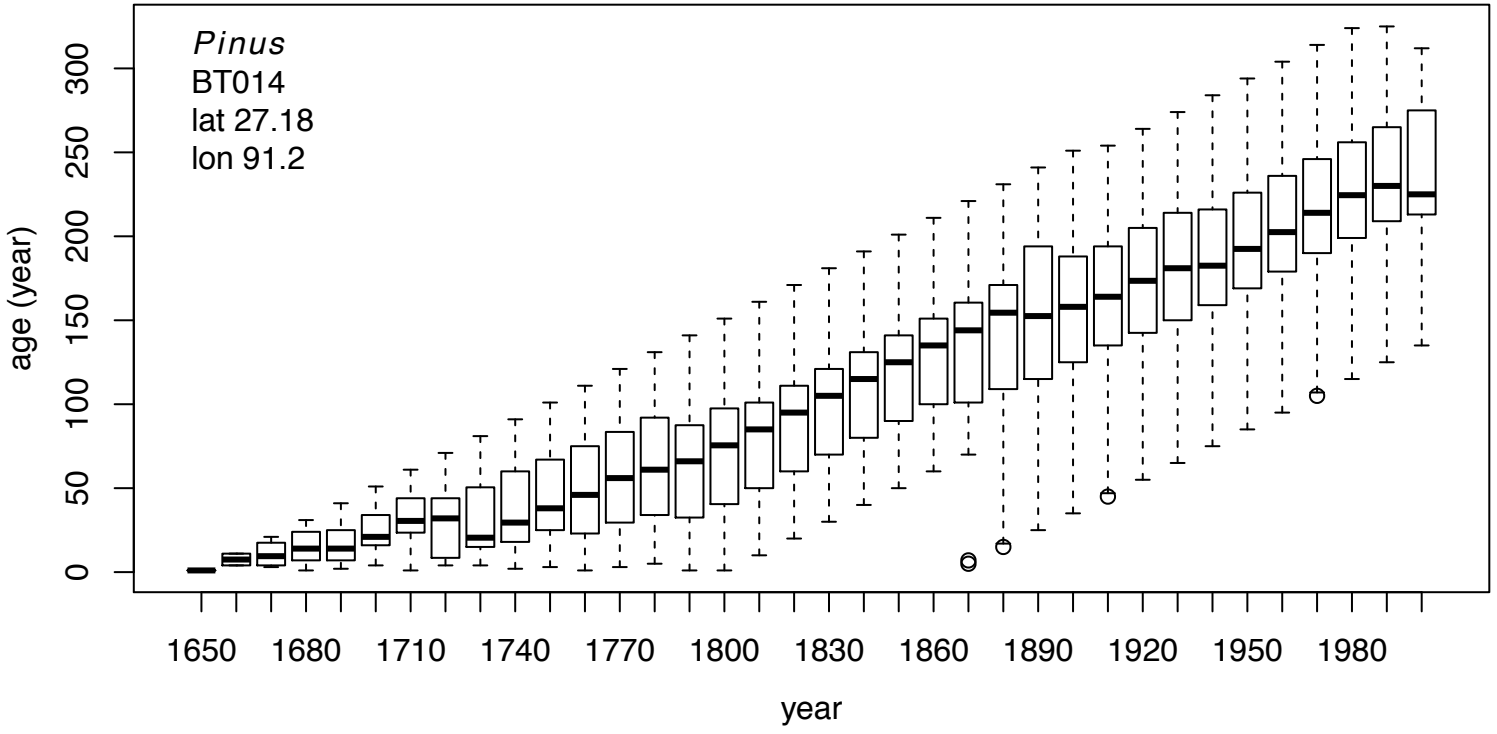
1753
1803
1853
1903
1953
2003
year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BT014
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1770
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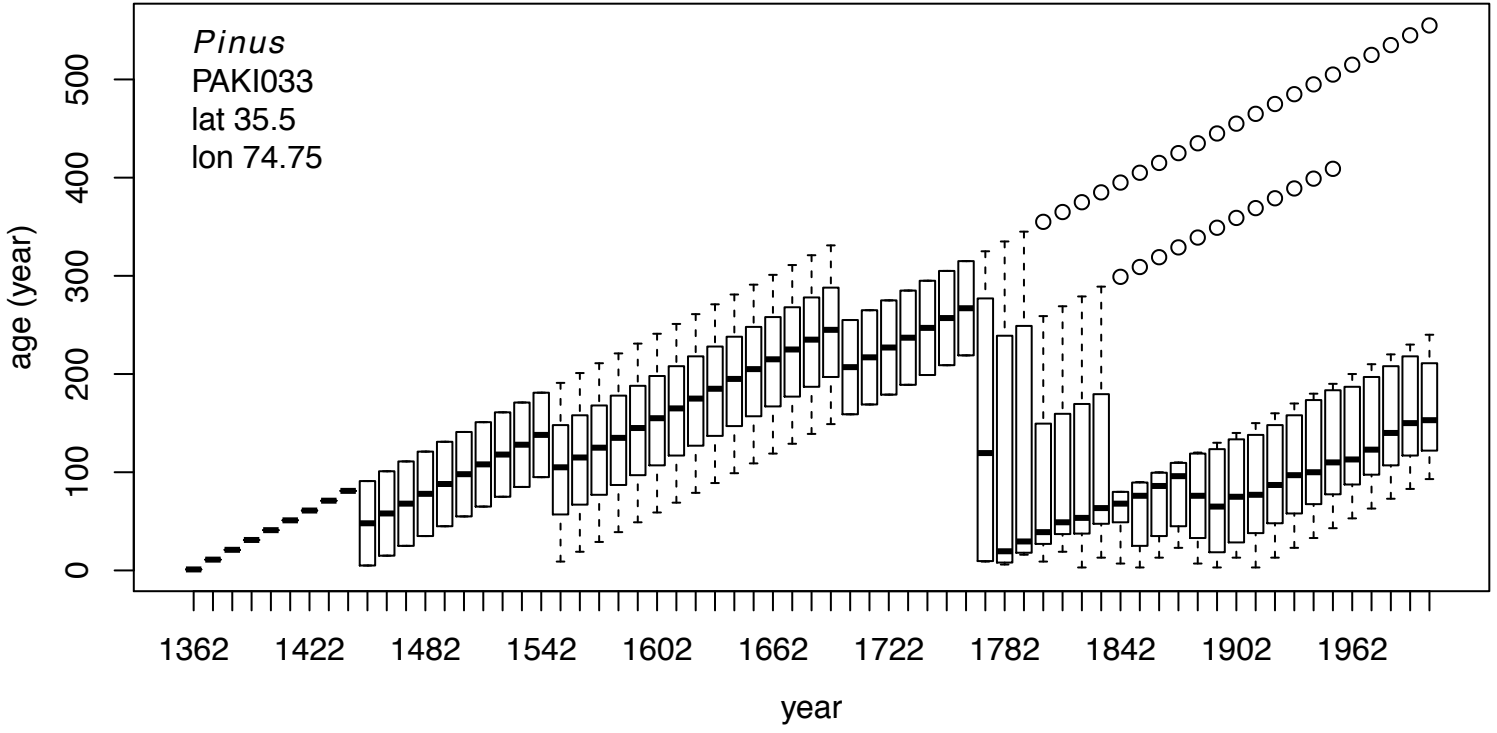
1830
1860
1890
1920
1950
1980
year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PAKI033
lat 35.5
lon 74.75
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1482
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1722
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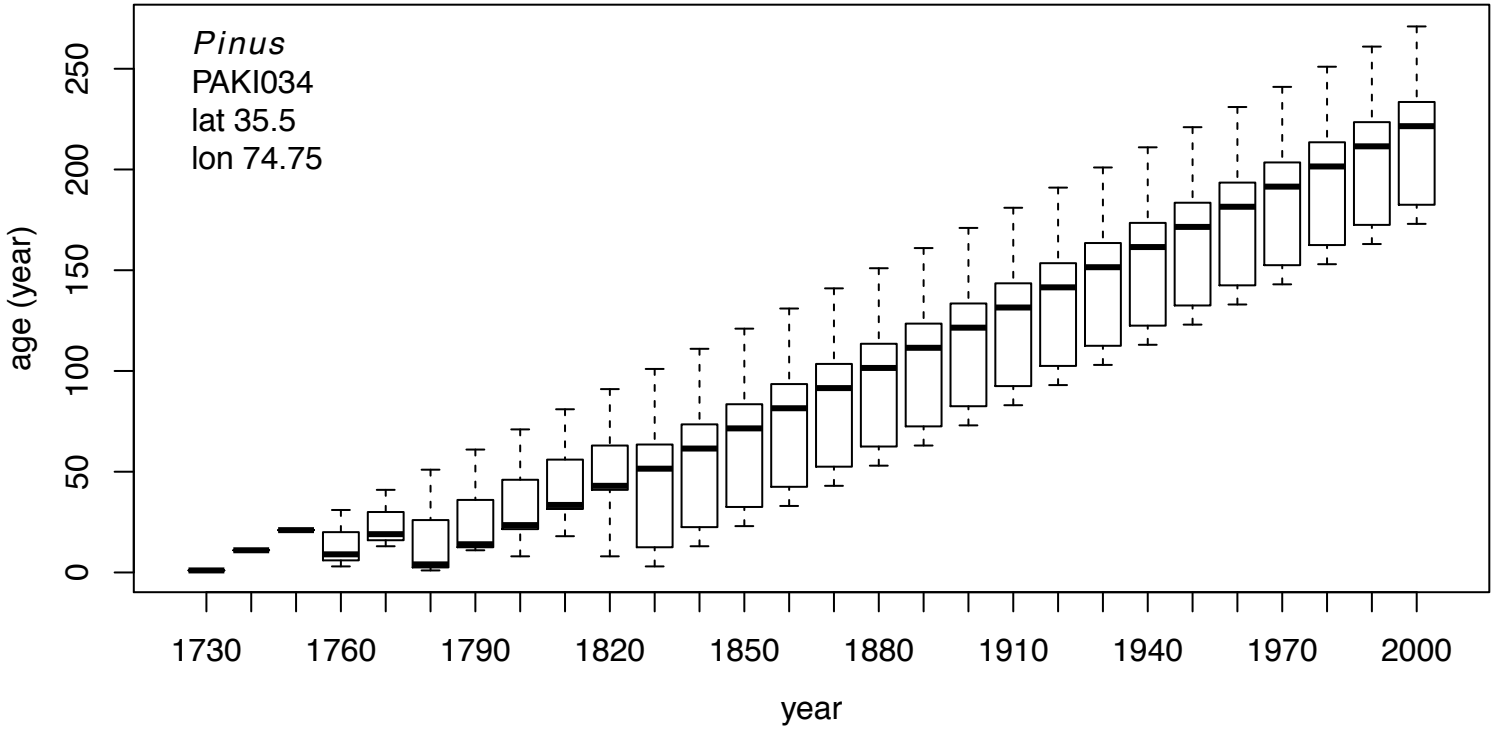
1842
1902
1962
year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1760
1790
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1850
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1940
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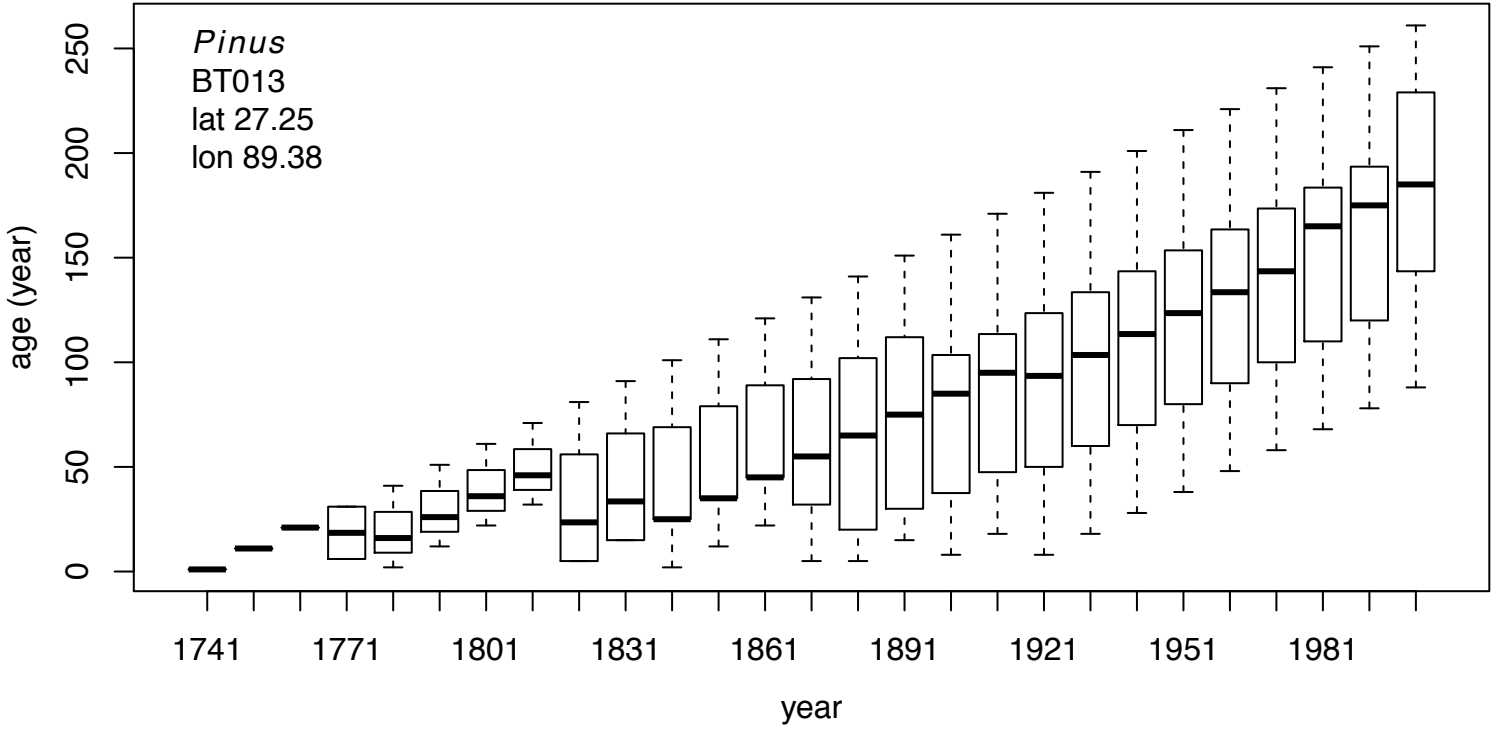
2000
year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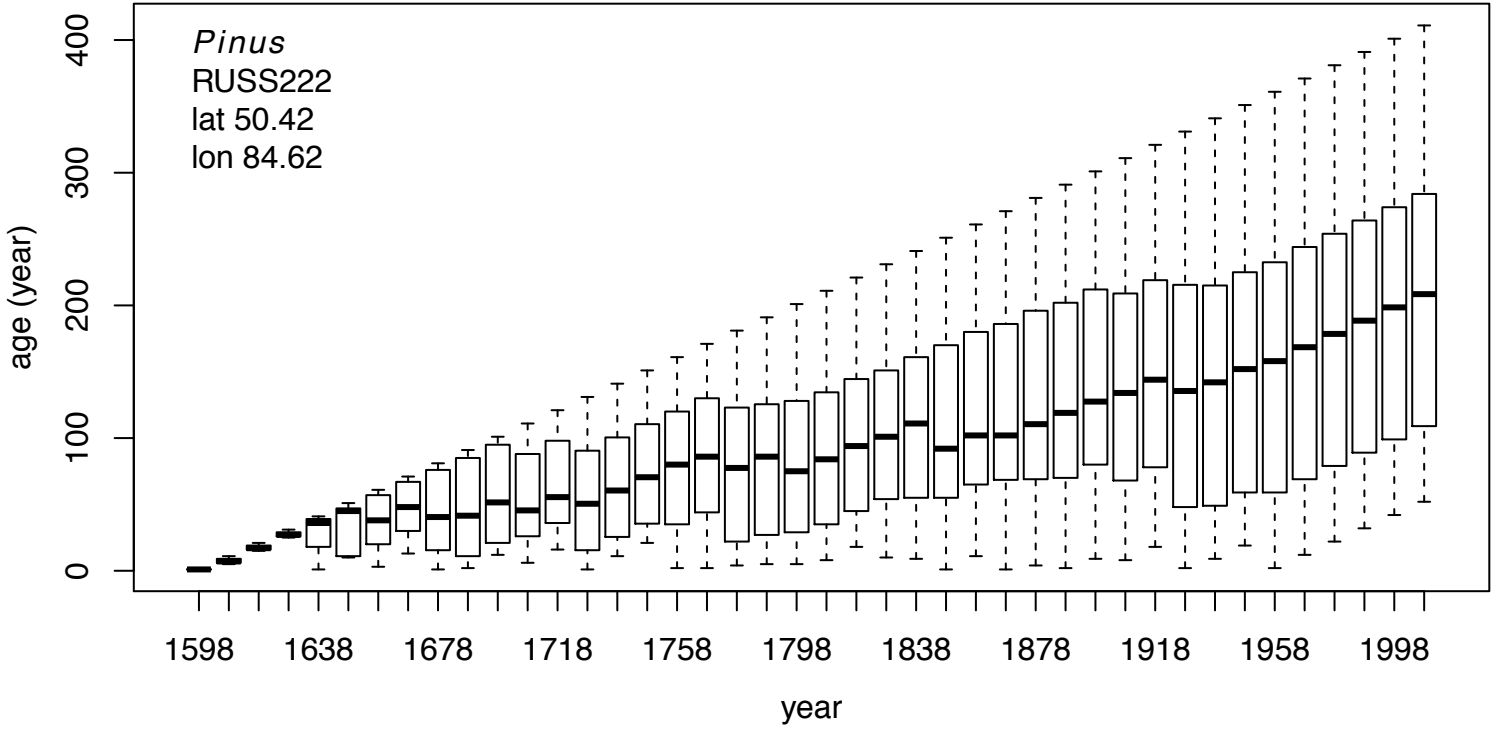
1981
year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RUSS222
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1678
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1798
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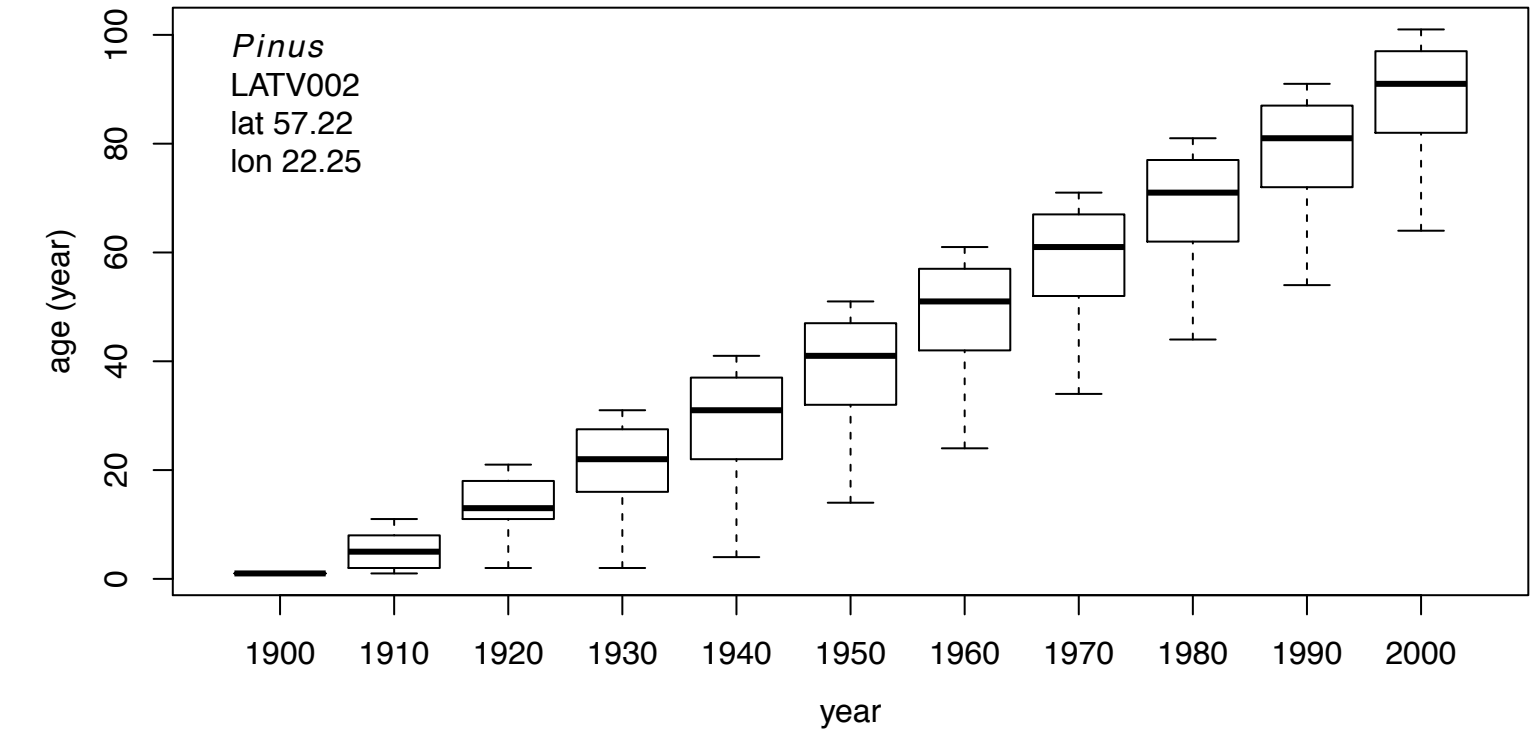
1918
1958
1998
year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LATV002
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lon 22.25
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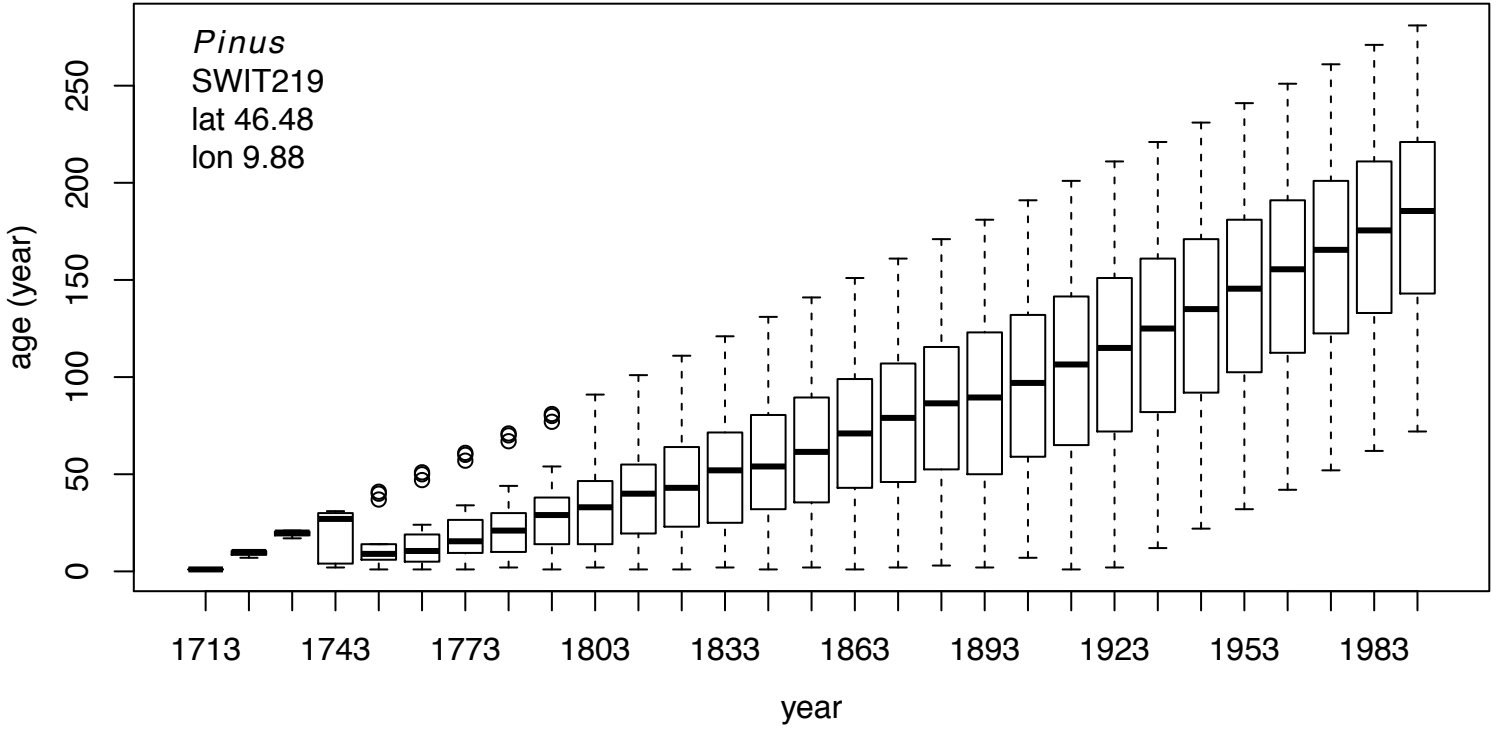
1980
1990
2000
year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1743
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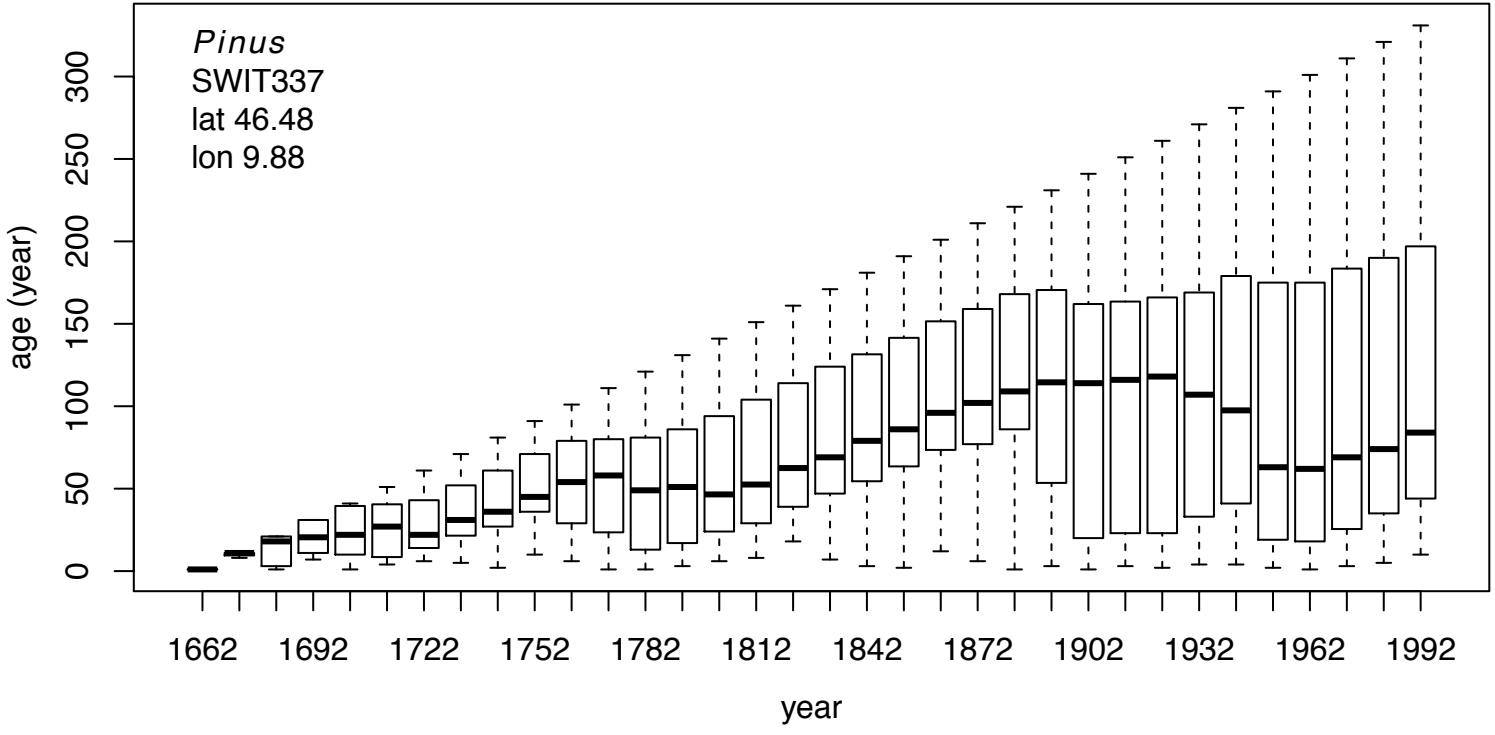
1923
1953
1983
year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1842
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1932
1962
1992
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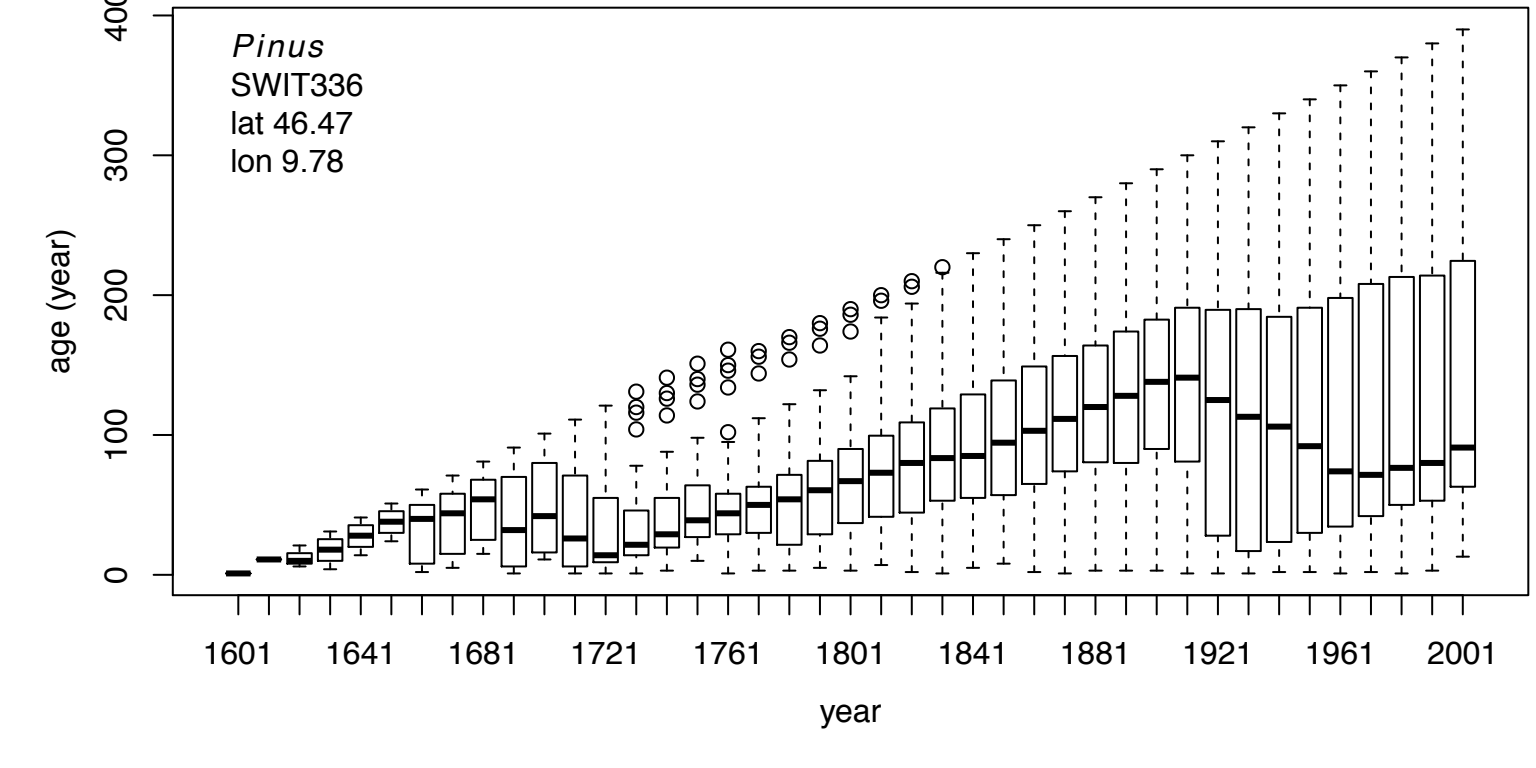
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1921
1961
2001
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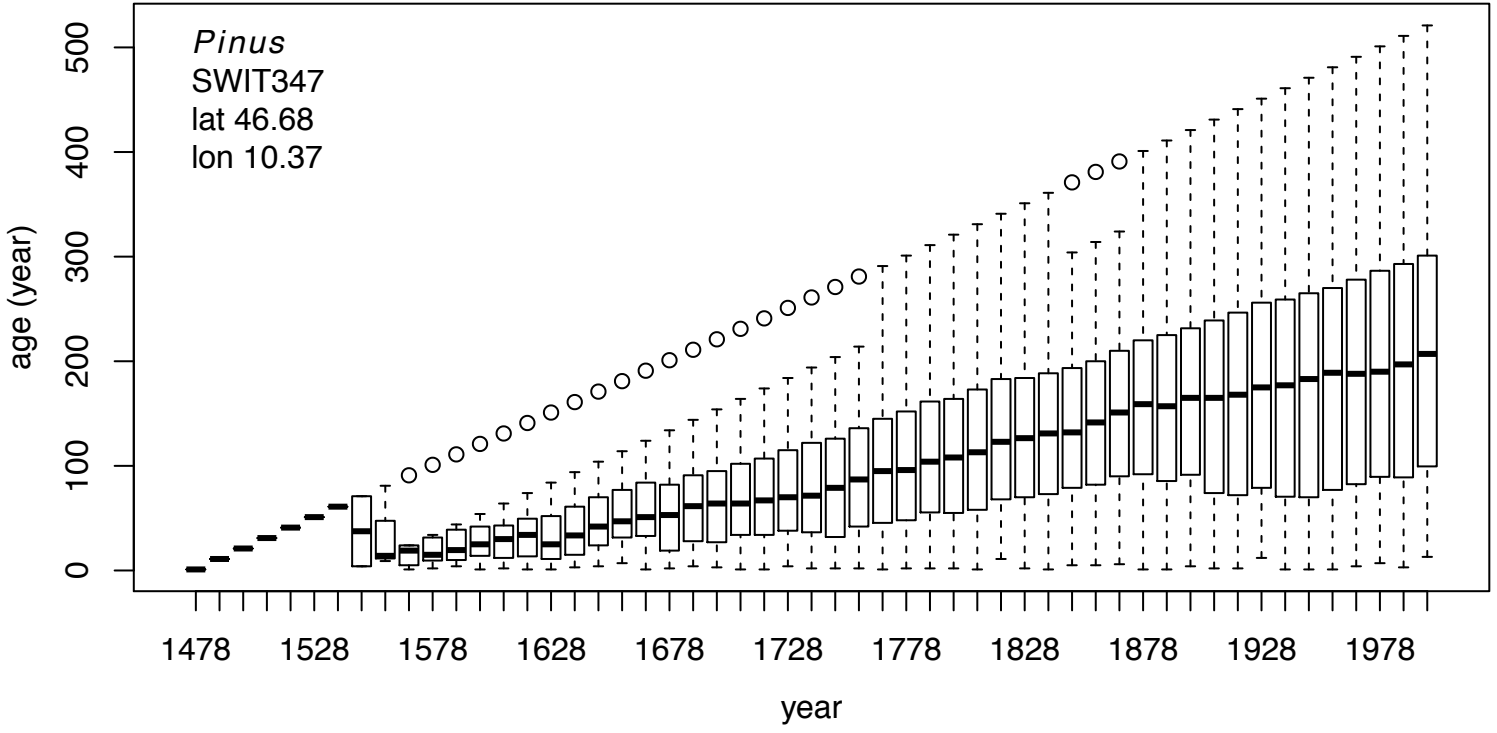
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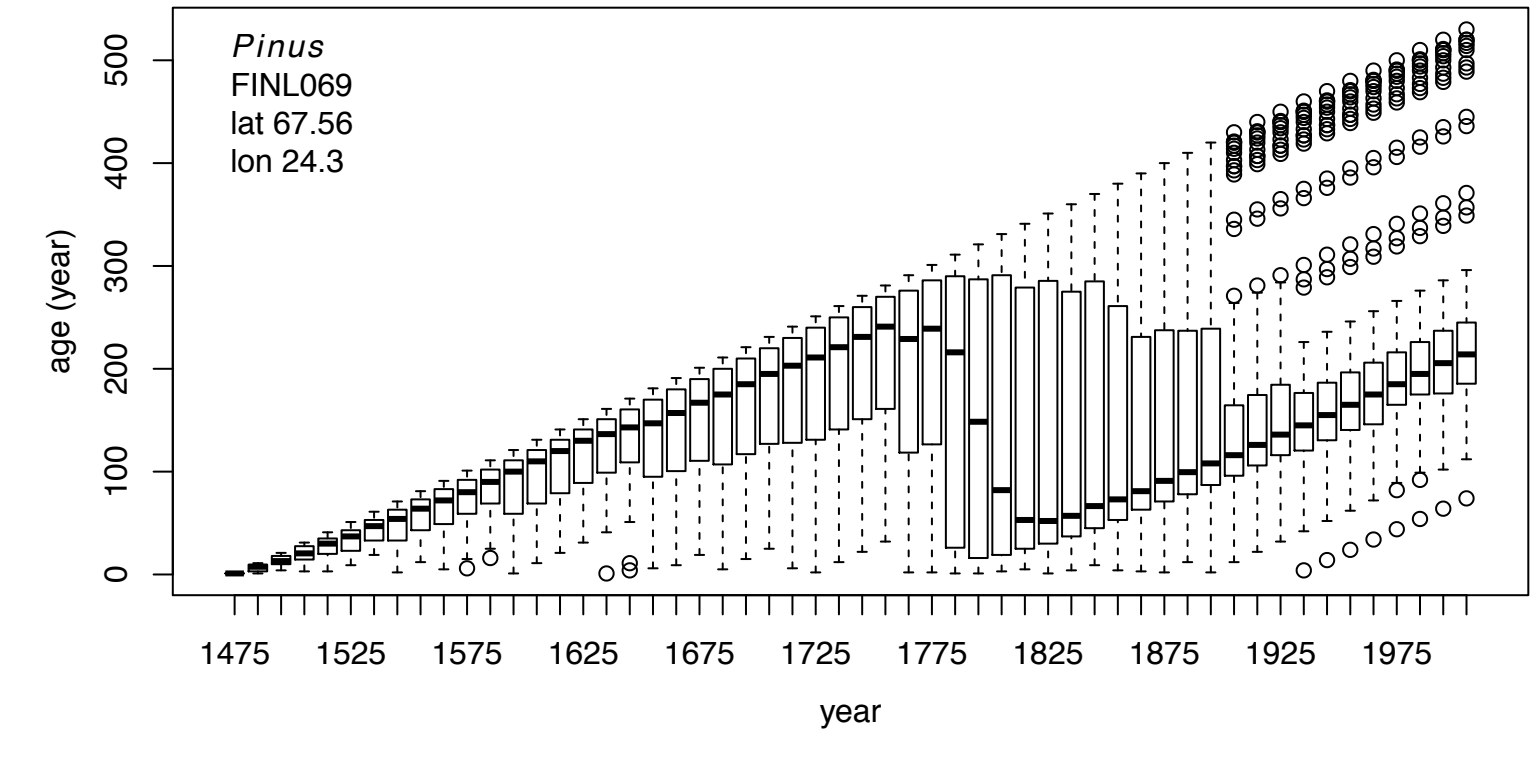
1978
year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1975
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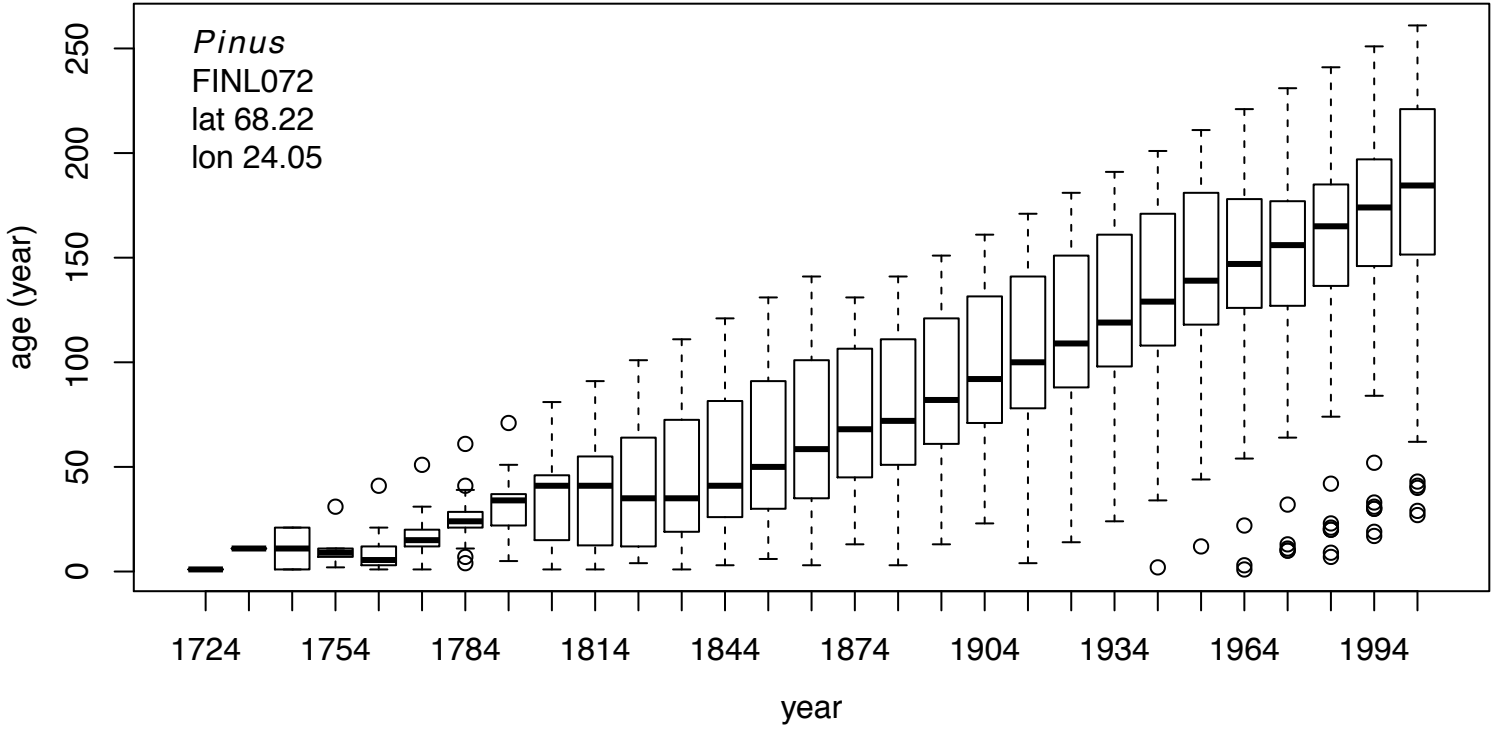
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1994
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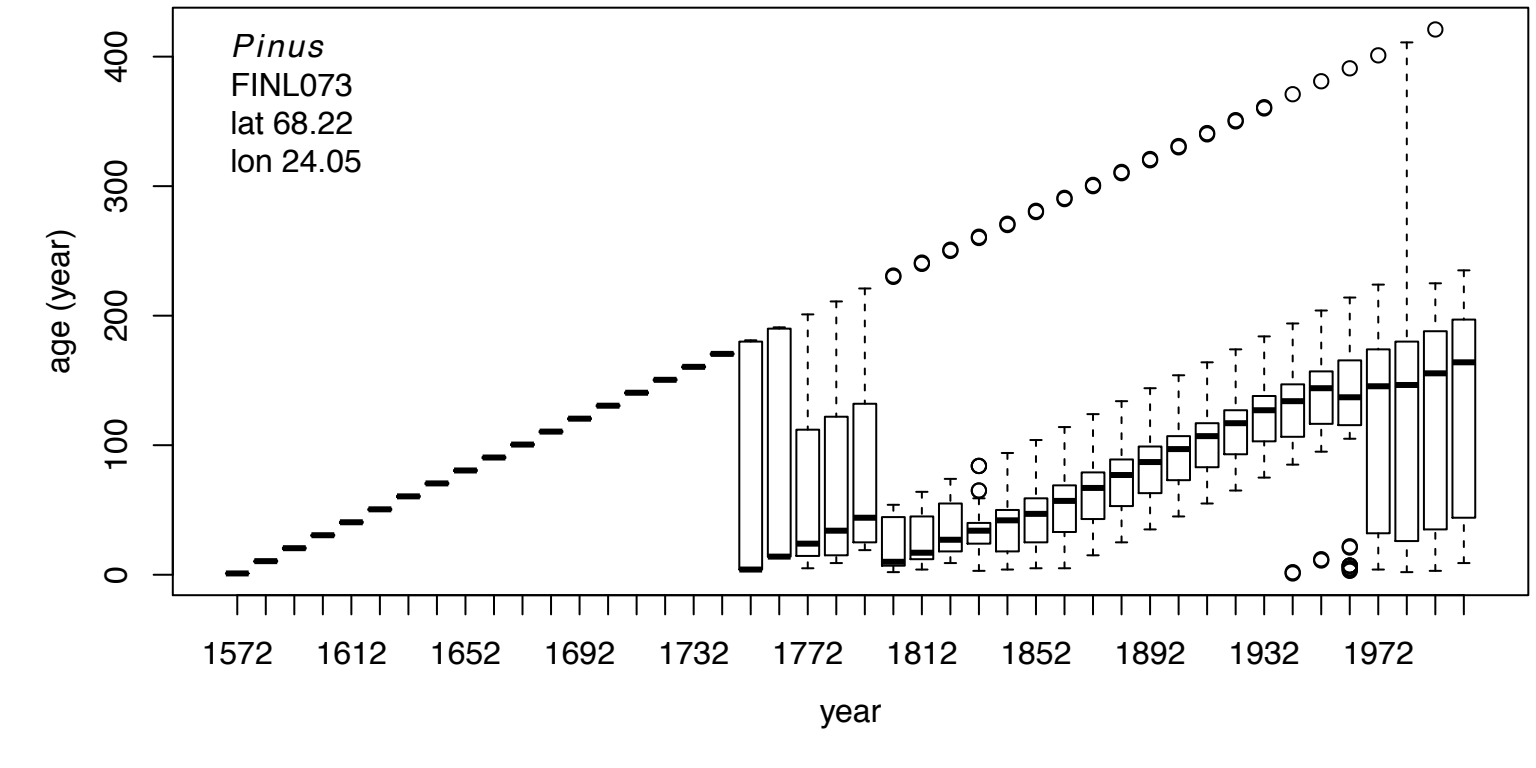
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1892
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1972
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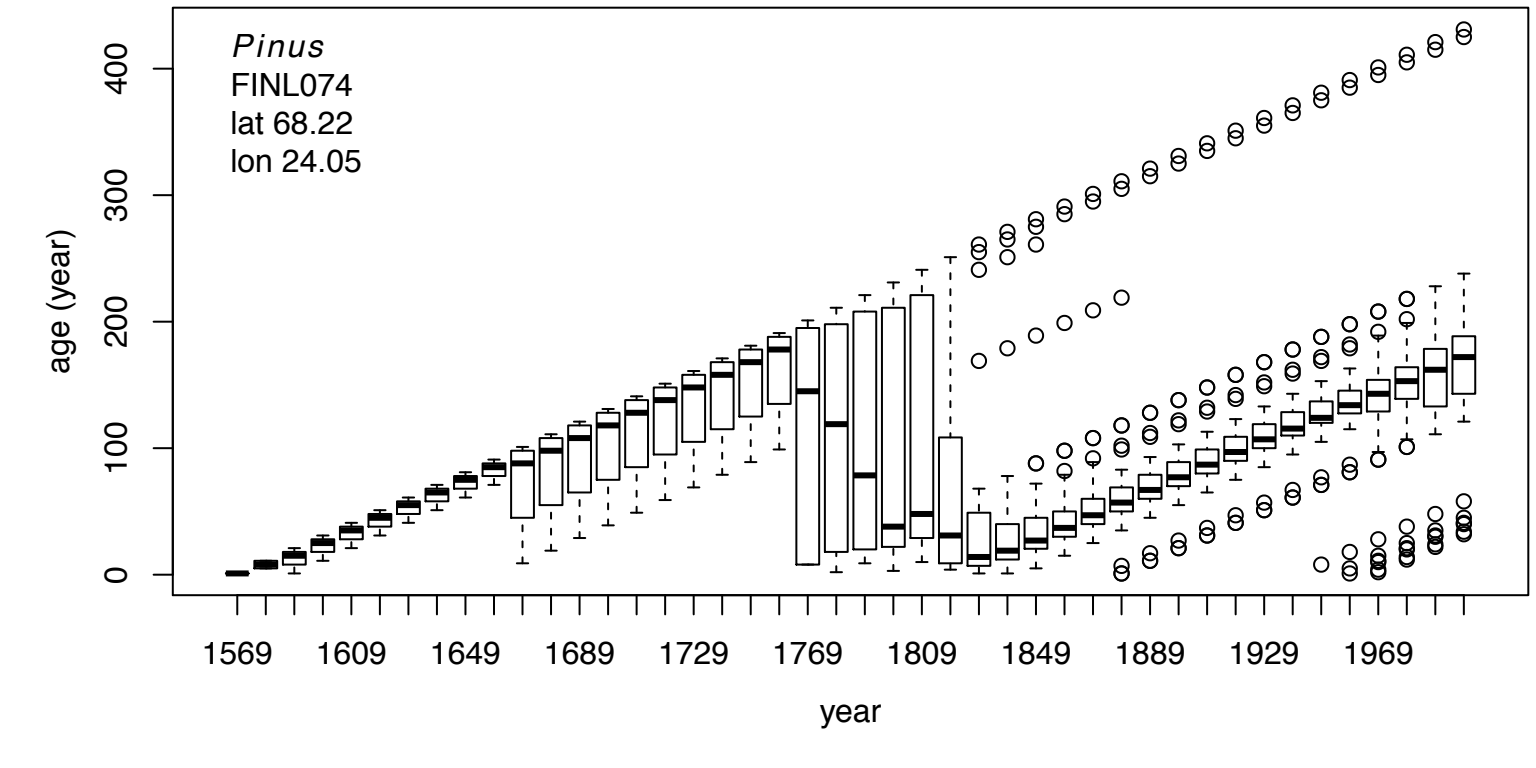
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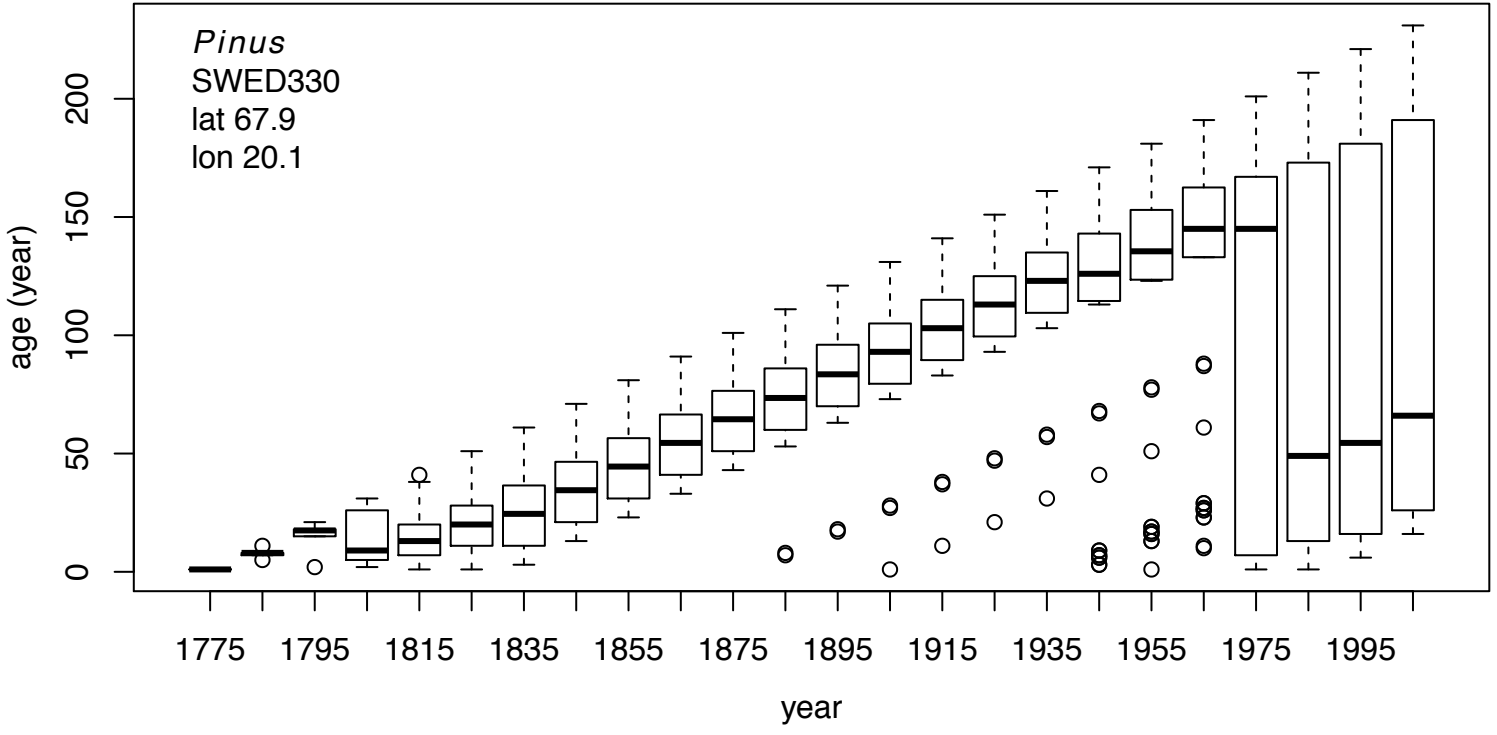
1969
year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1895
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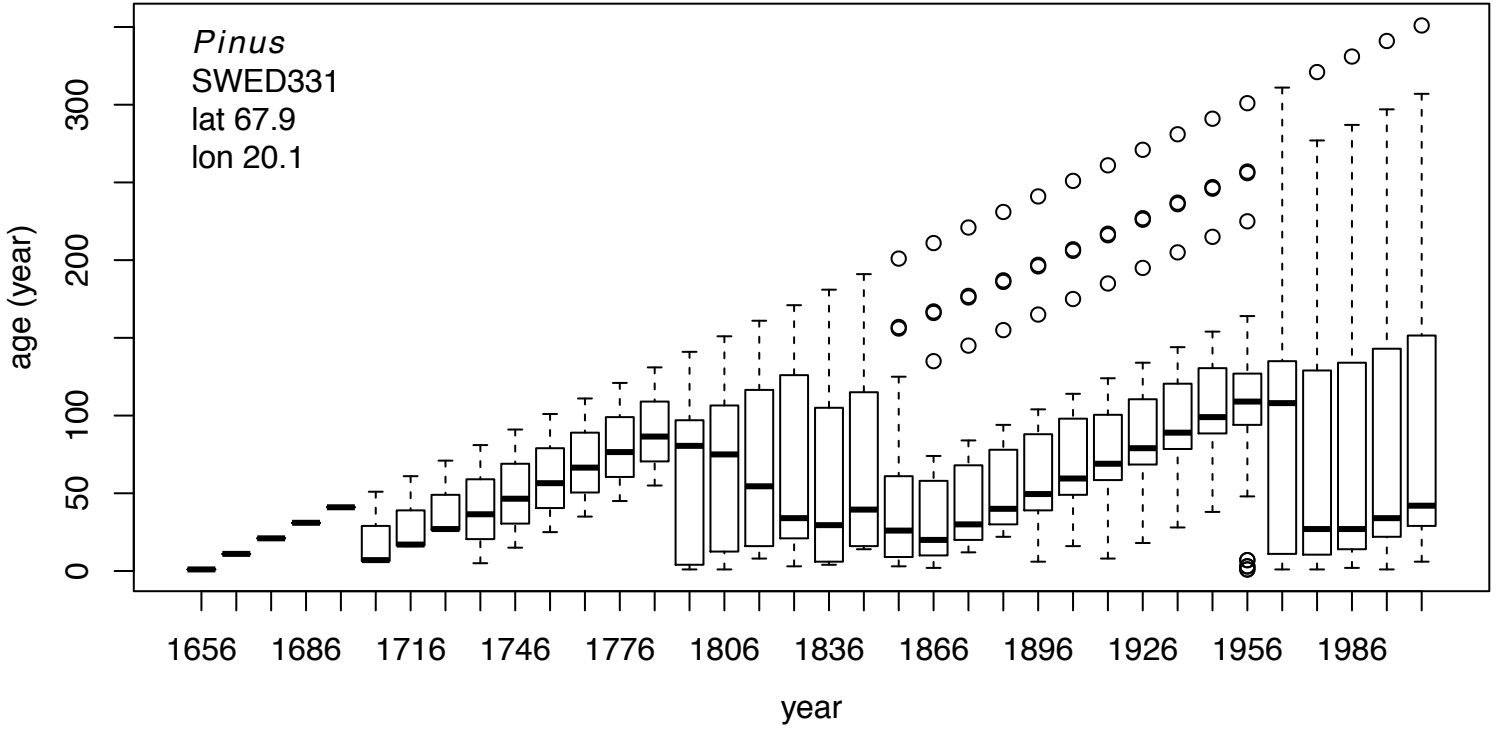
1955
1975
1995
year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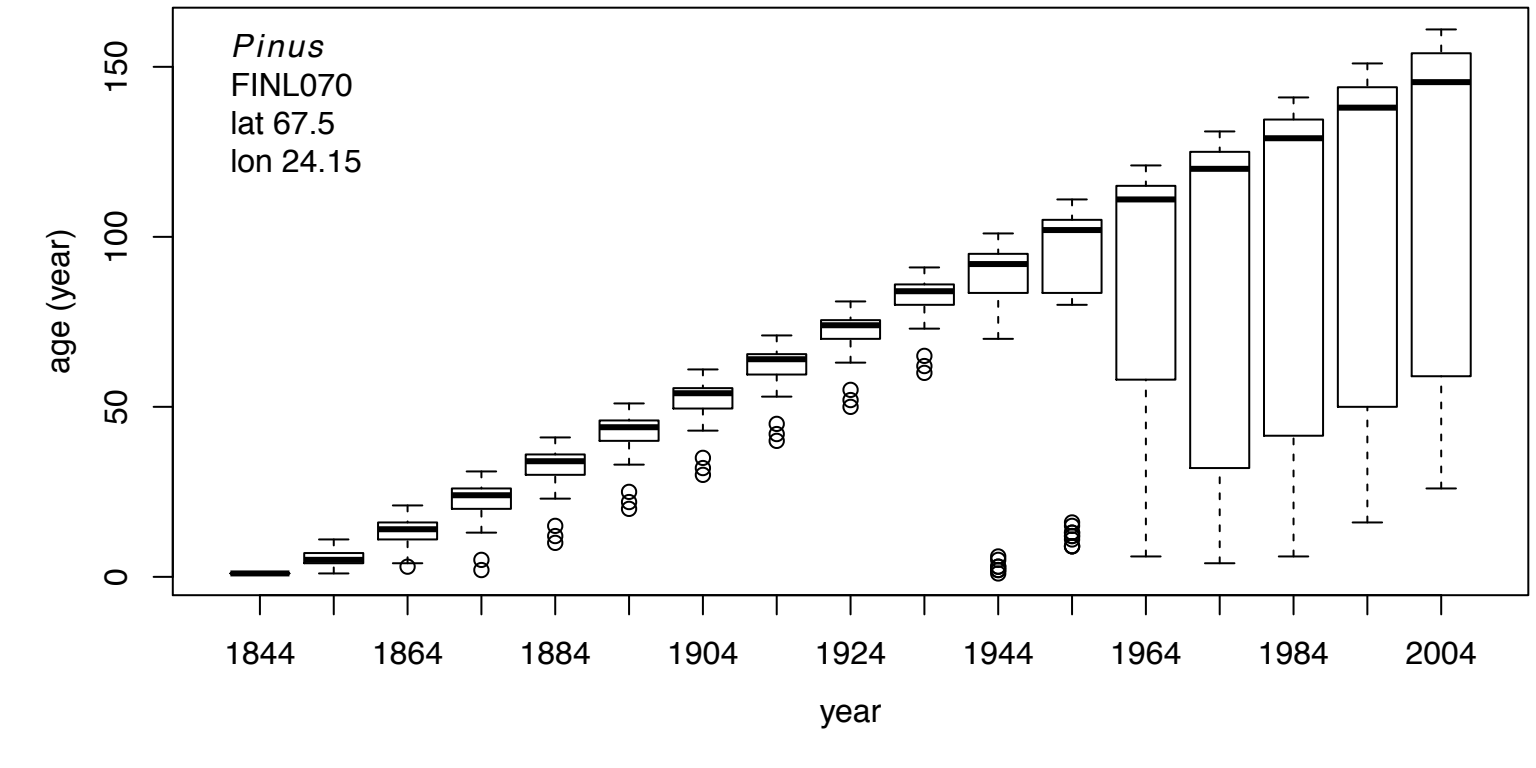
1956
1986
year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FINL070
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1904
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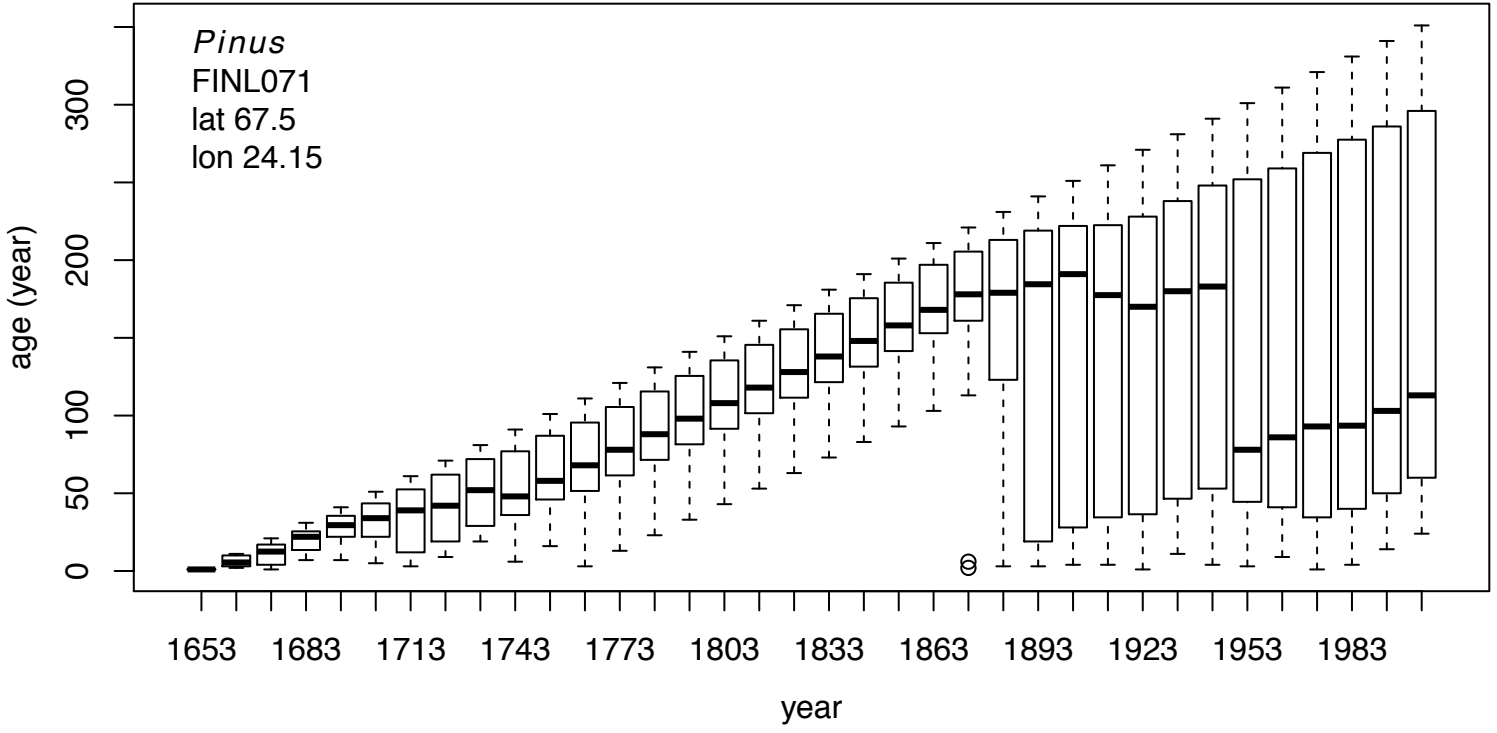
1964
1984
2004
year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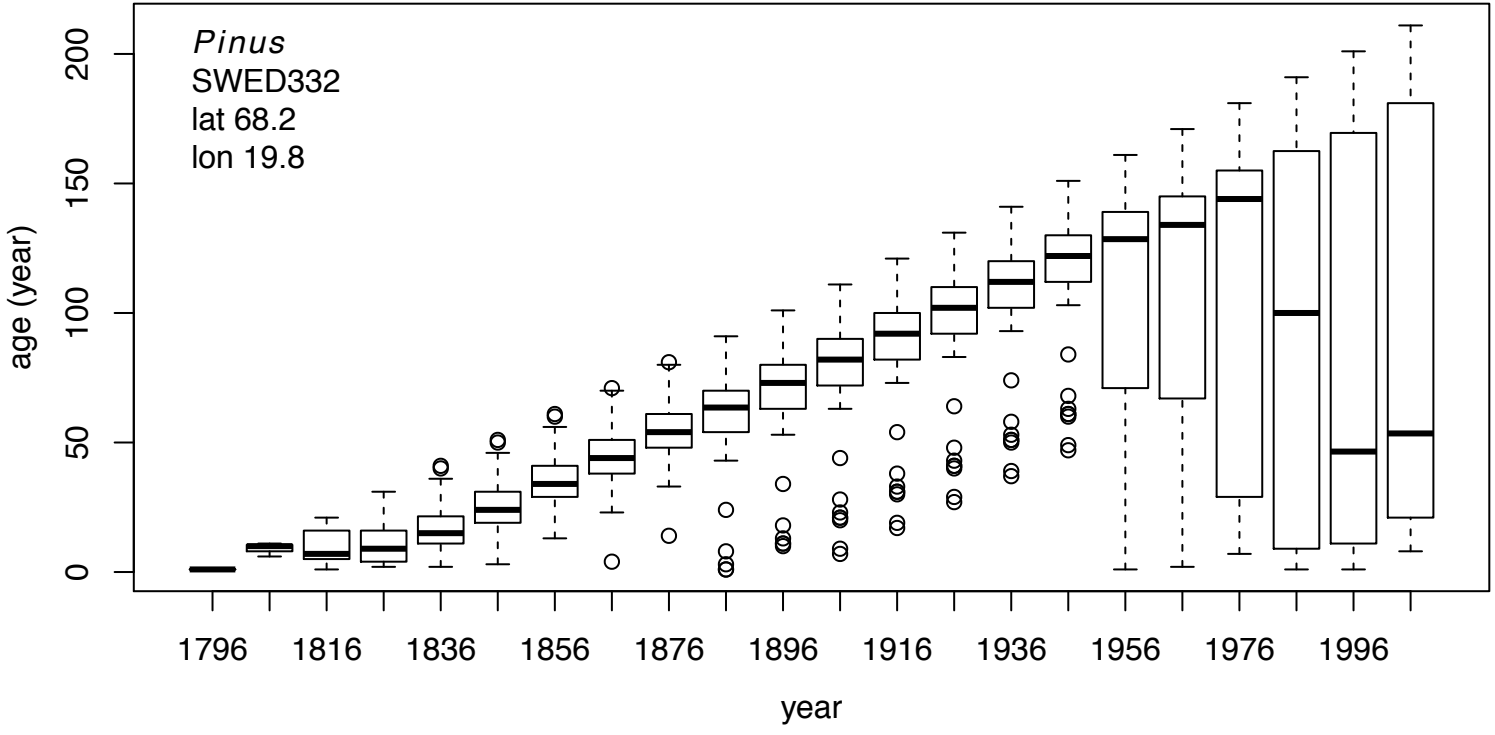
1923
1953
1983
year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SWED332
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age (year)
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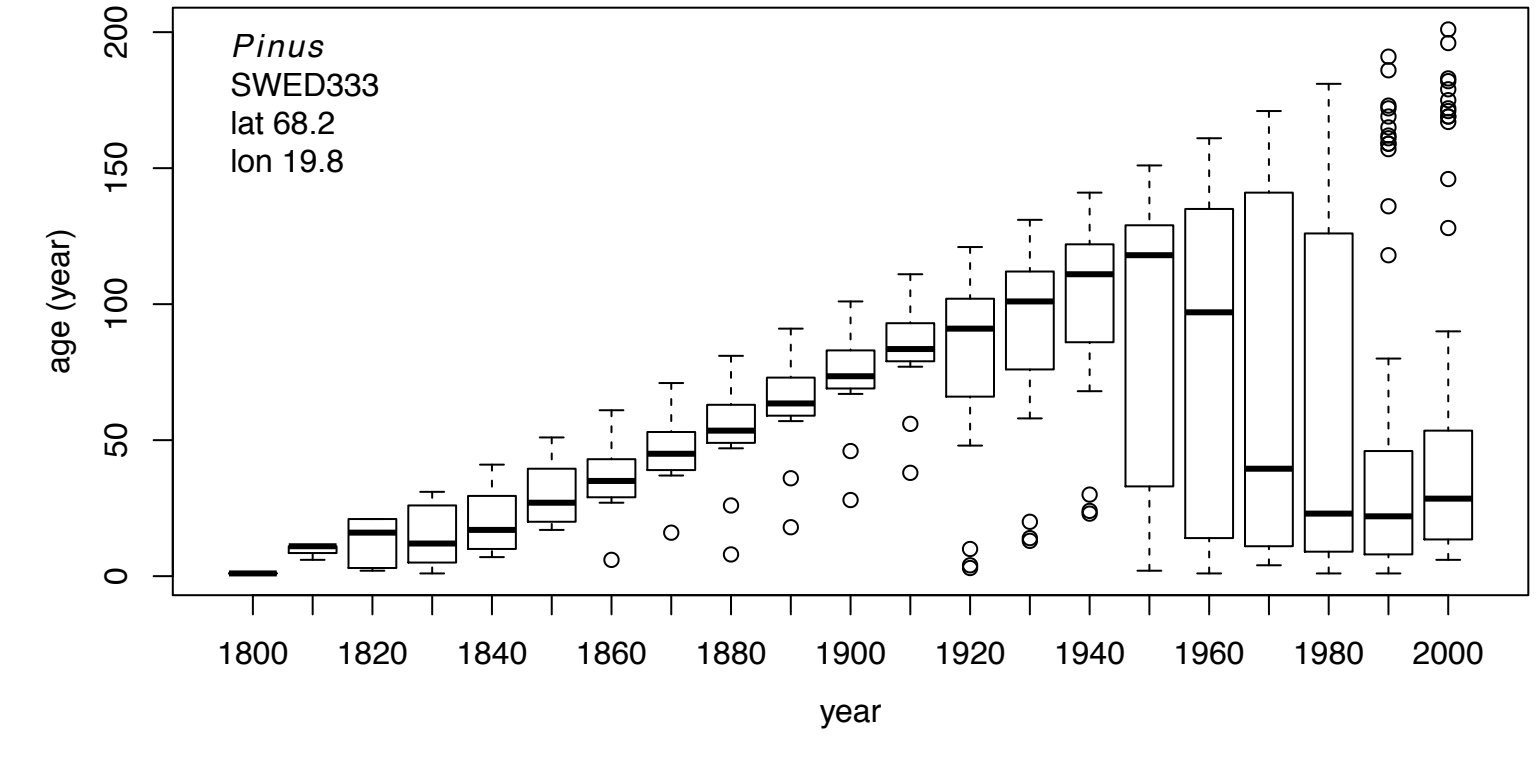
1796
1816
1836
1856
1876
1896
1916
1936
1956
1976
1996
year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SWED333
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lon 19.8
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1960
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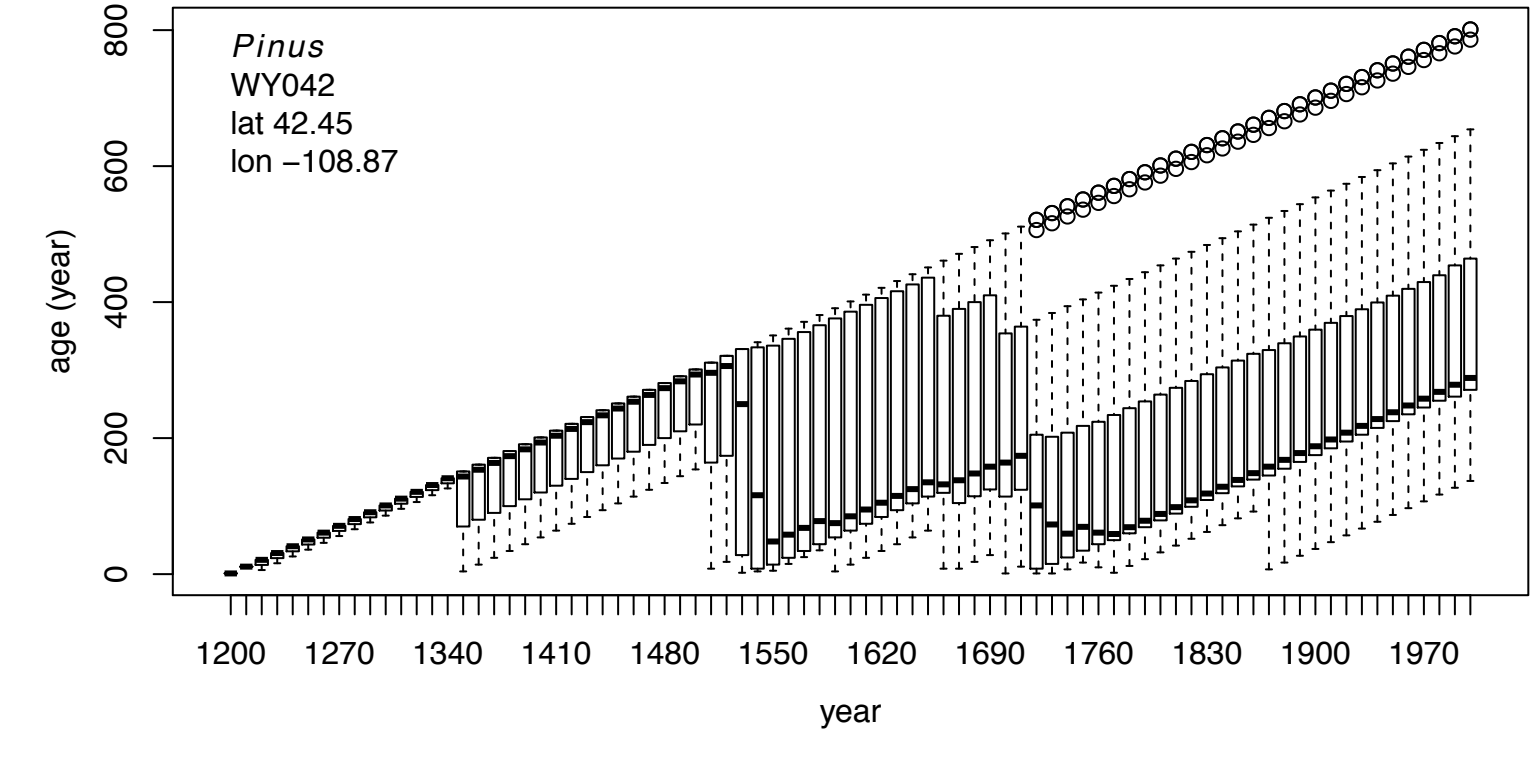
2000
year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WY042
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lon −108.87
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1970
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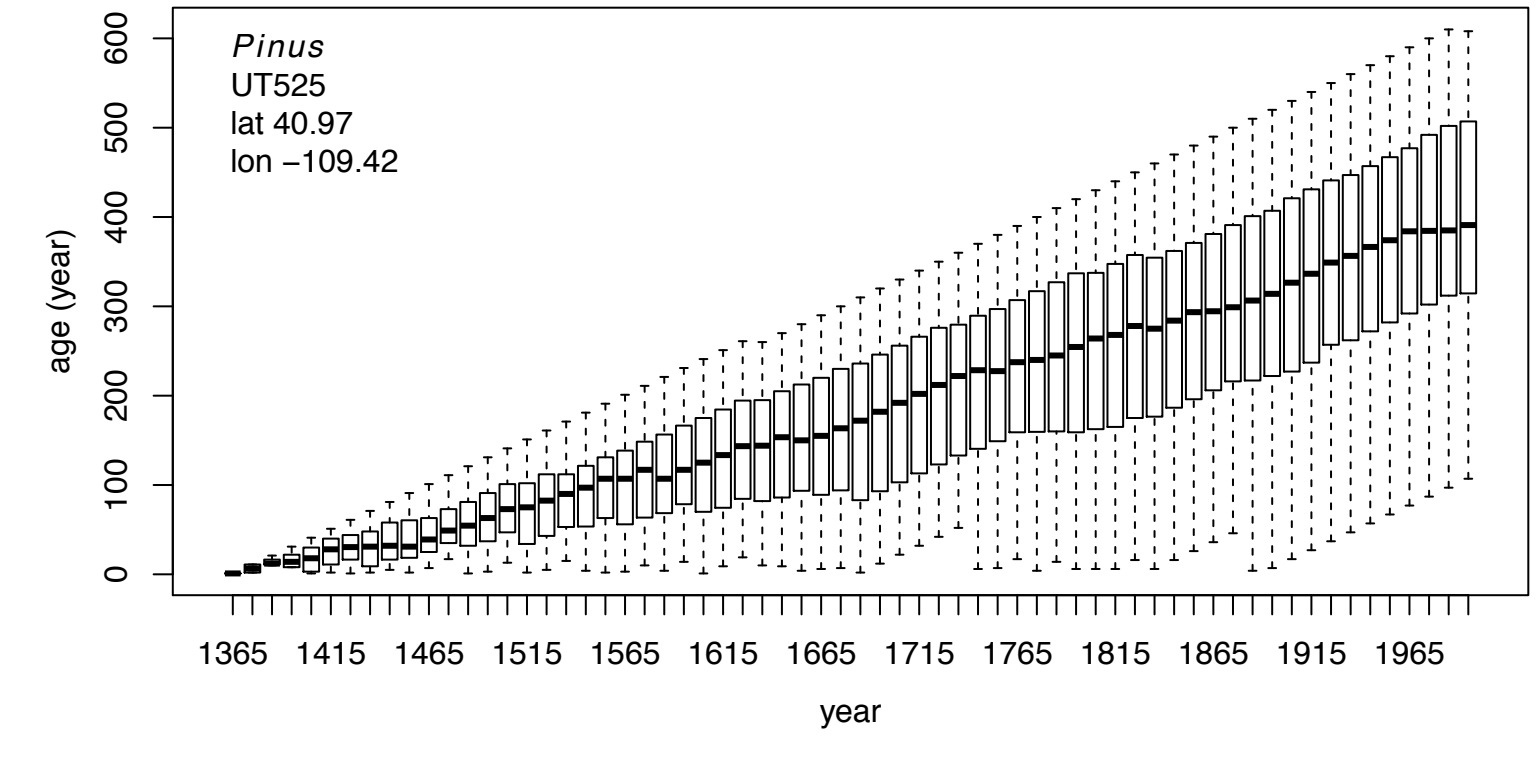
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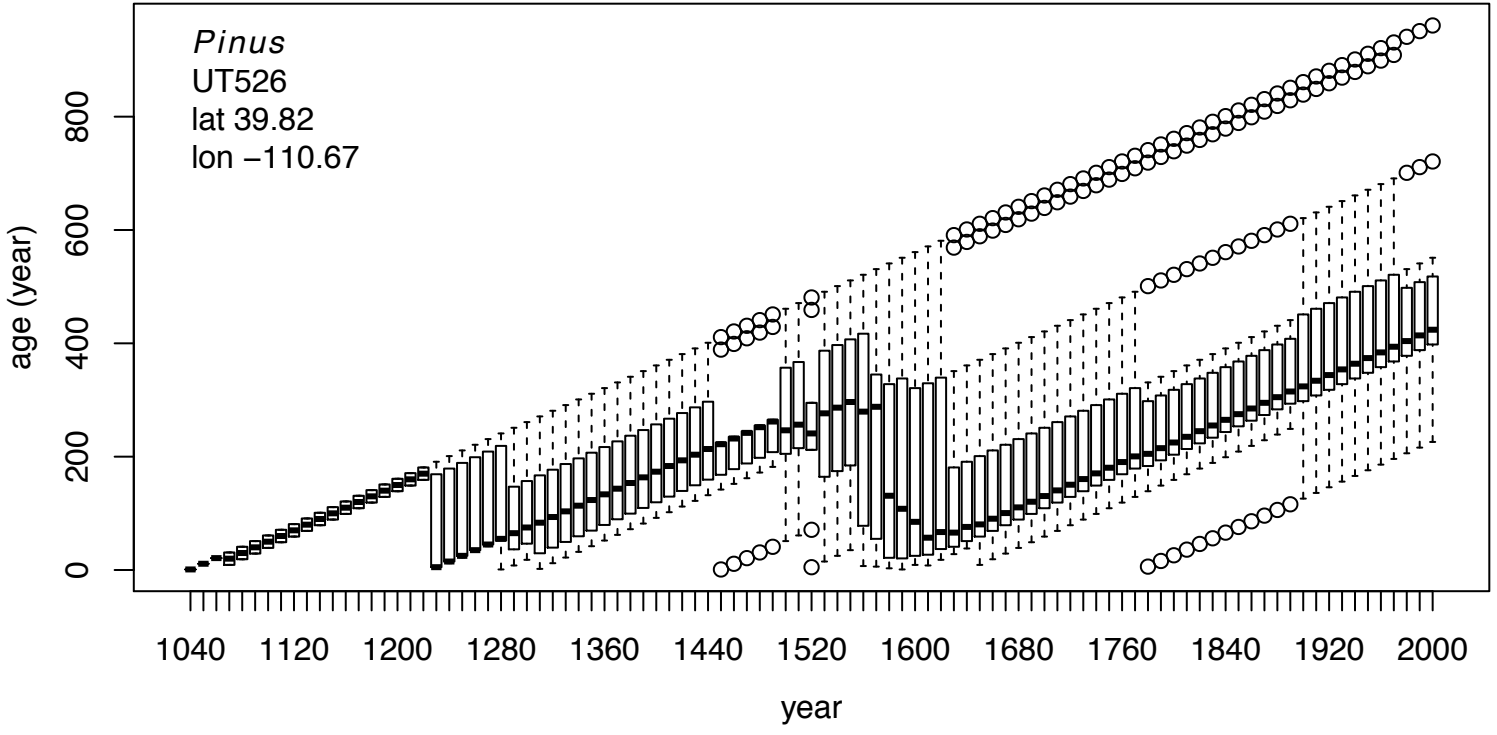
1915
1965
year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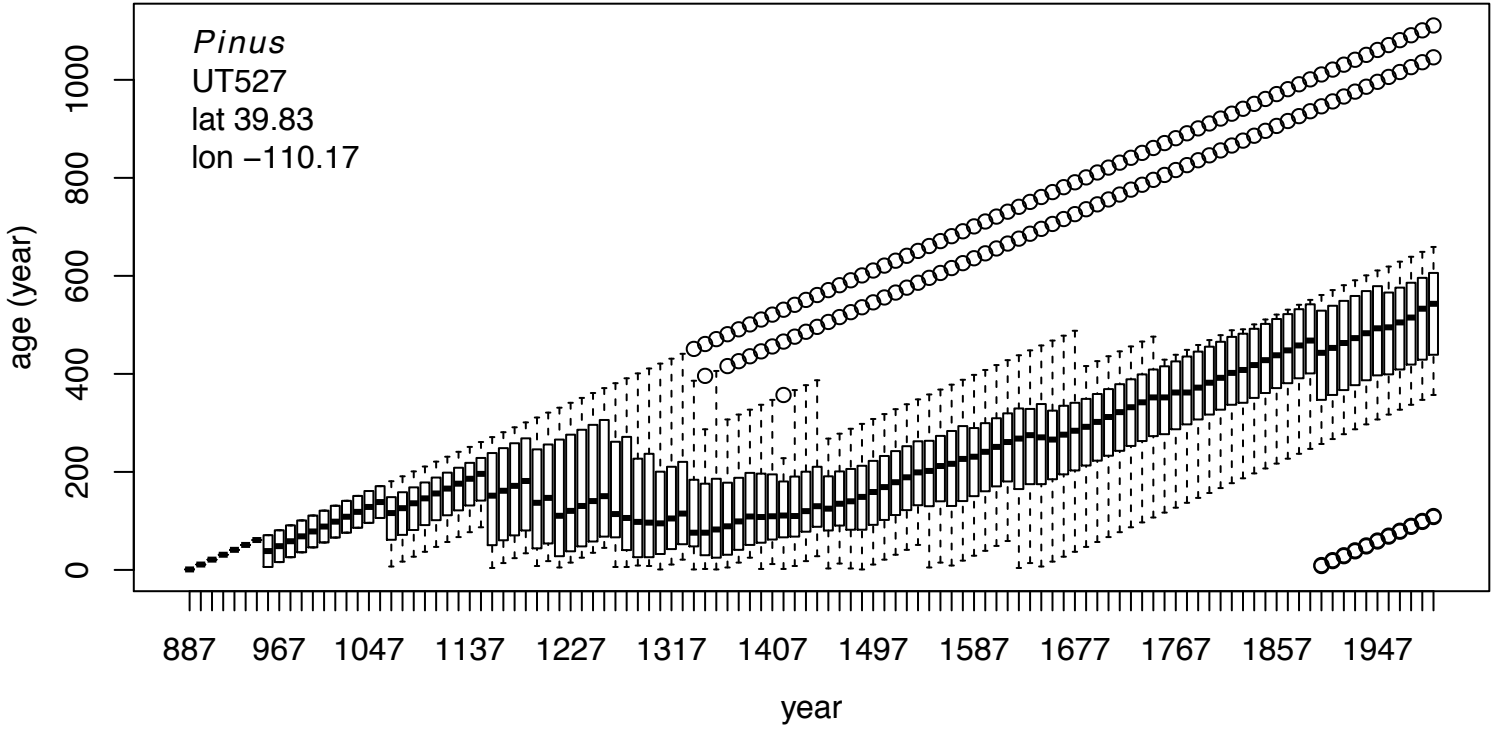
1920
2000
year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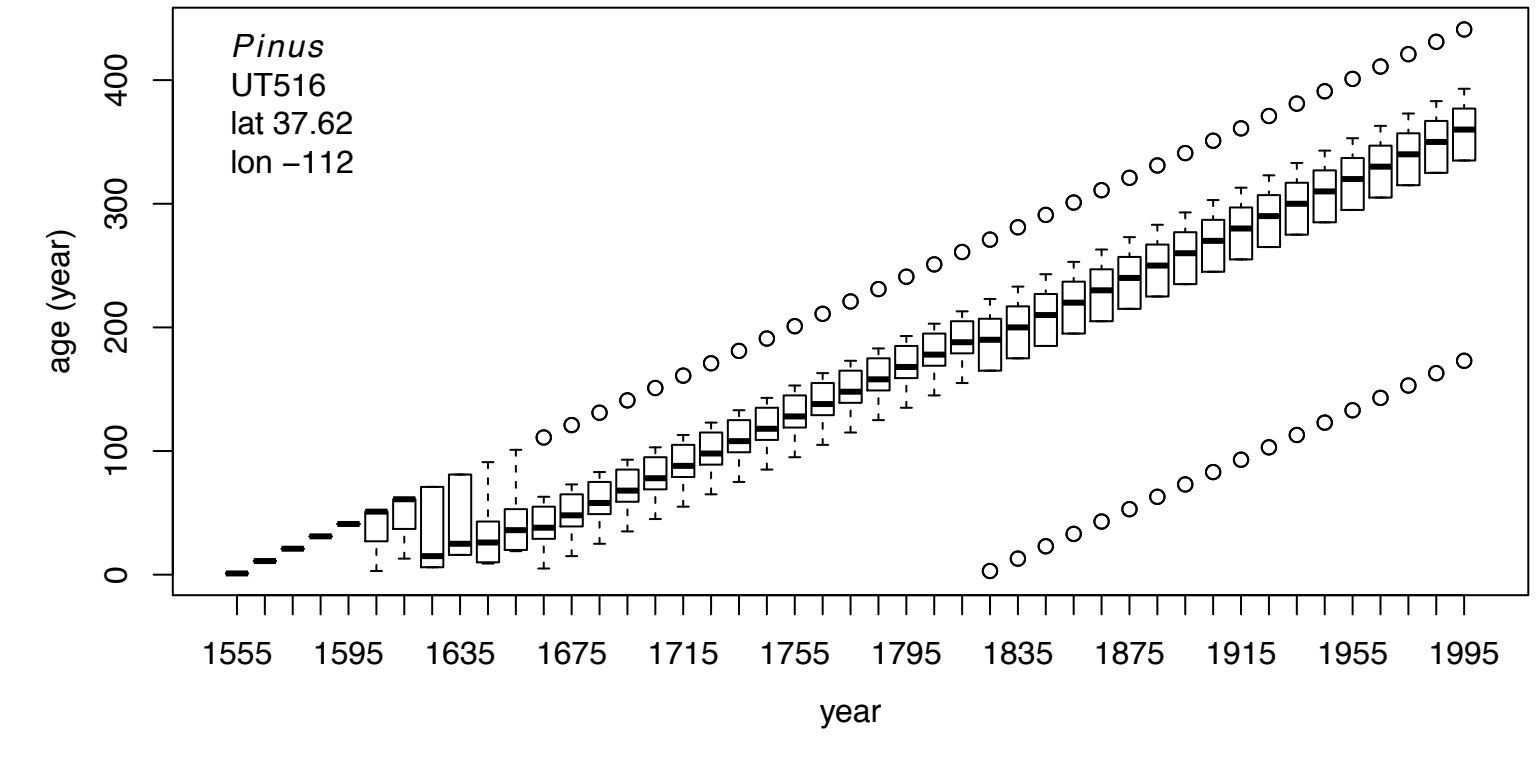
1947
year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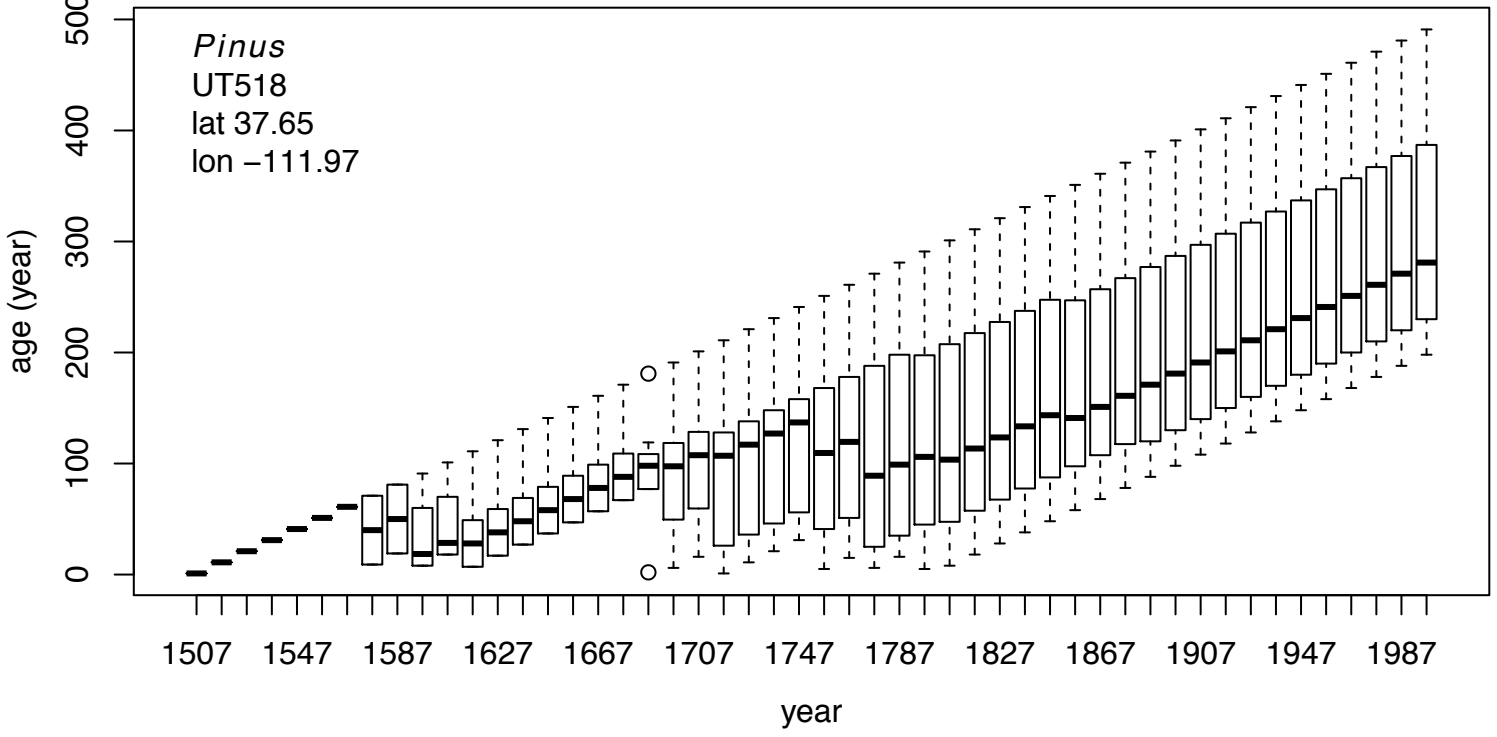
1995
year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UT518
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lon −111.97
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1587
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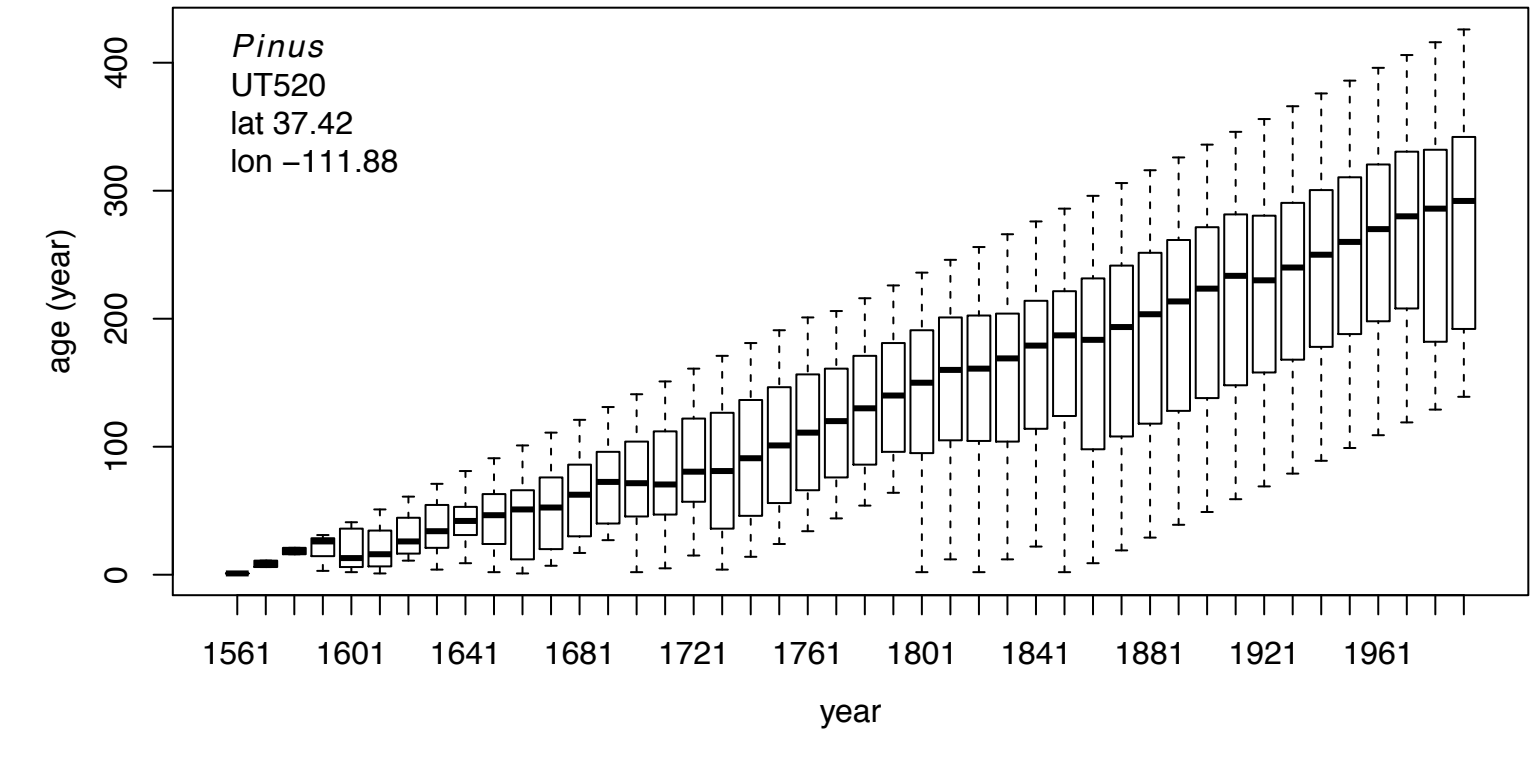
1987
year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UT520
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1641
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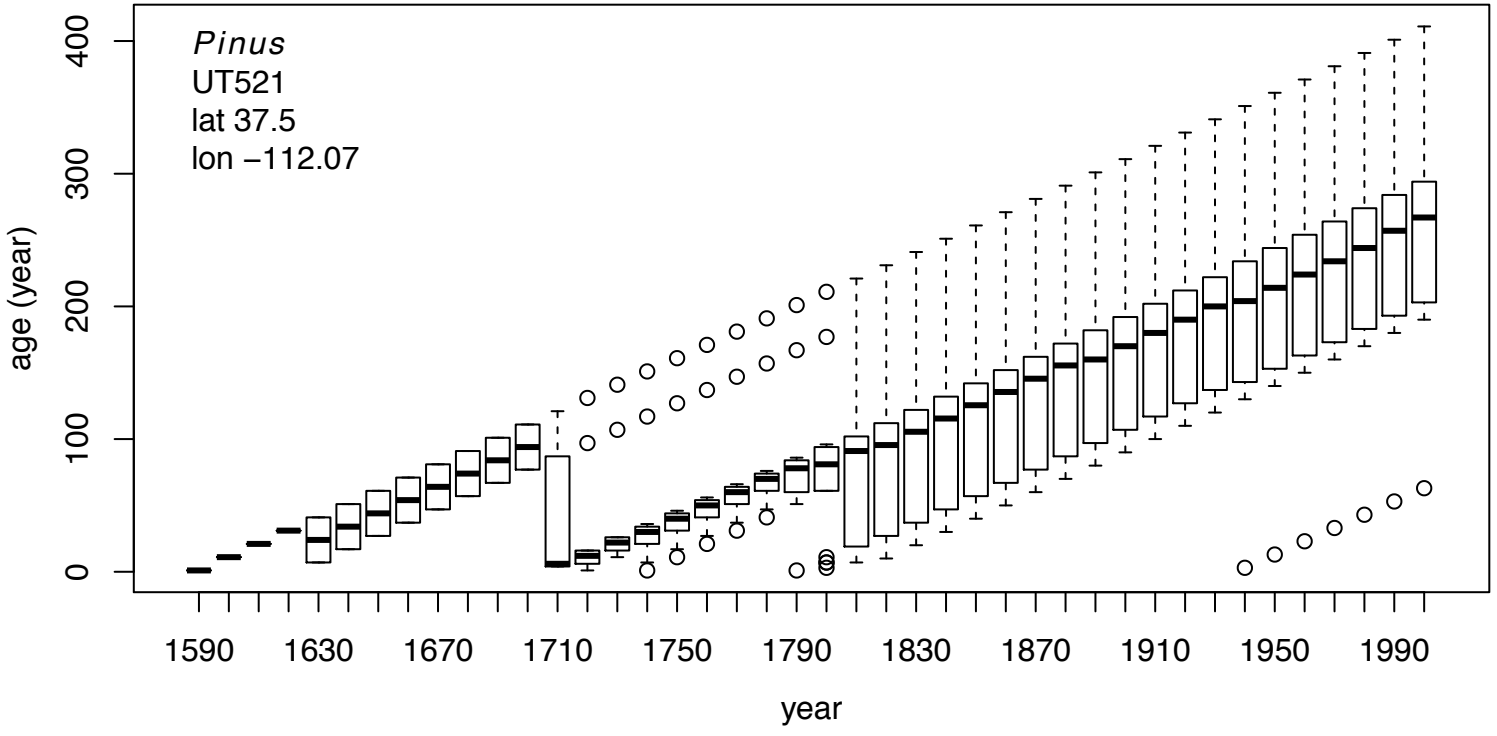
1921
1961
year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lon −112.07
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1910
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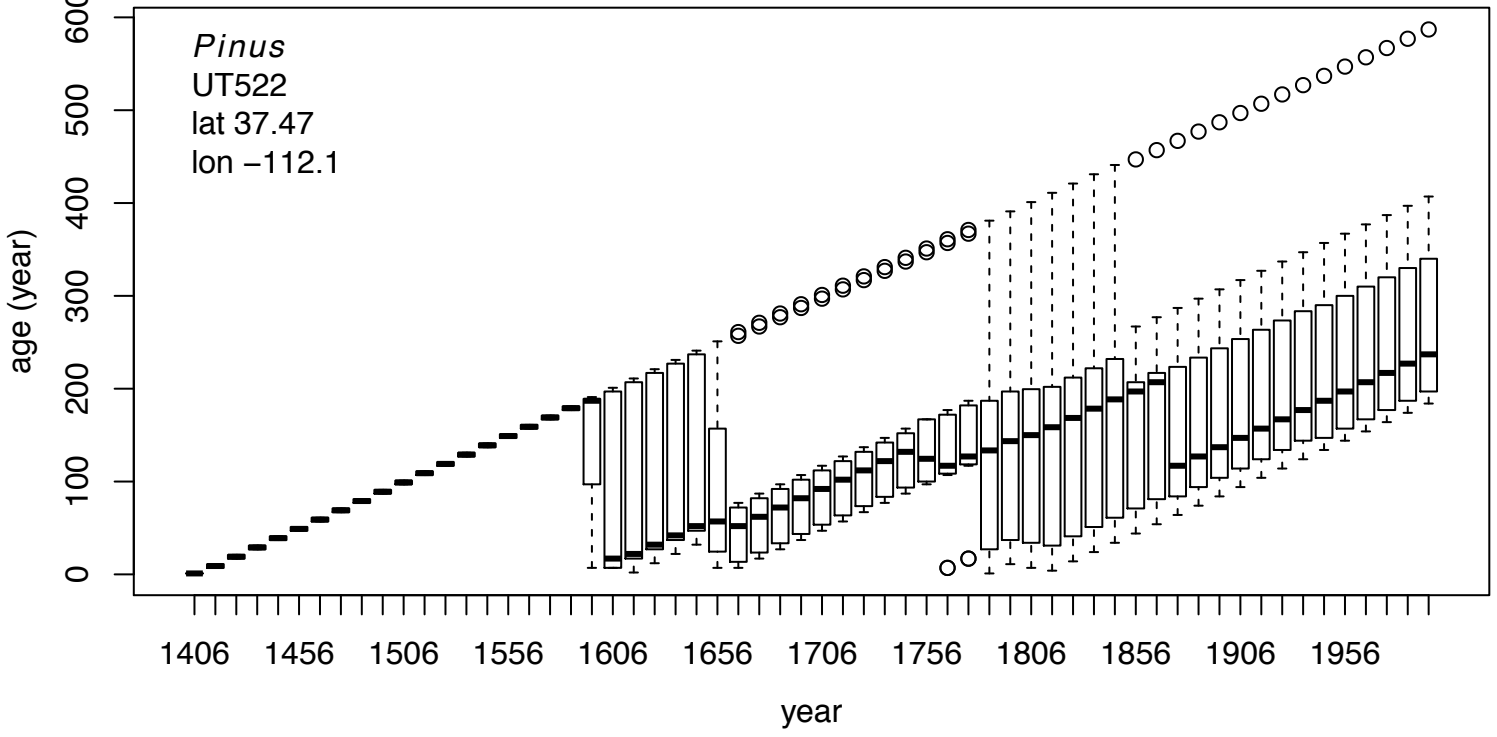
1990
year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UT522
lat 37.47
lon −112.1
age (year)
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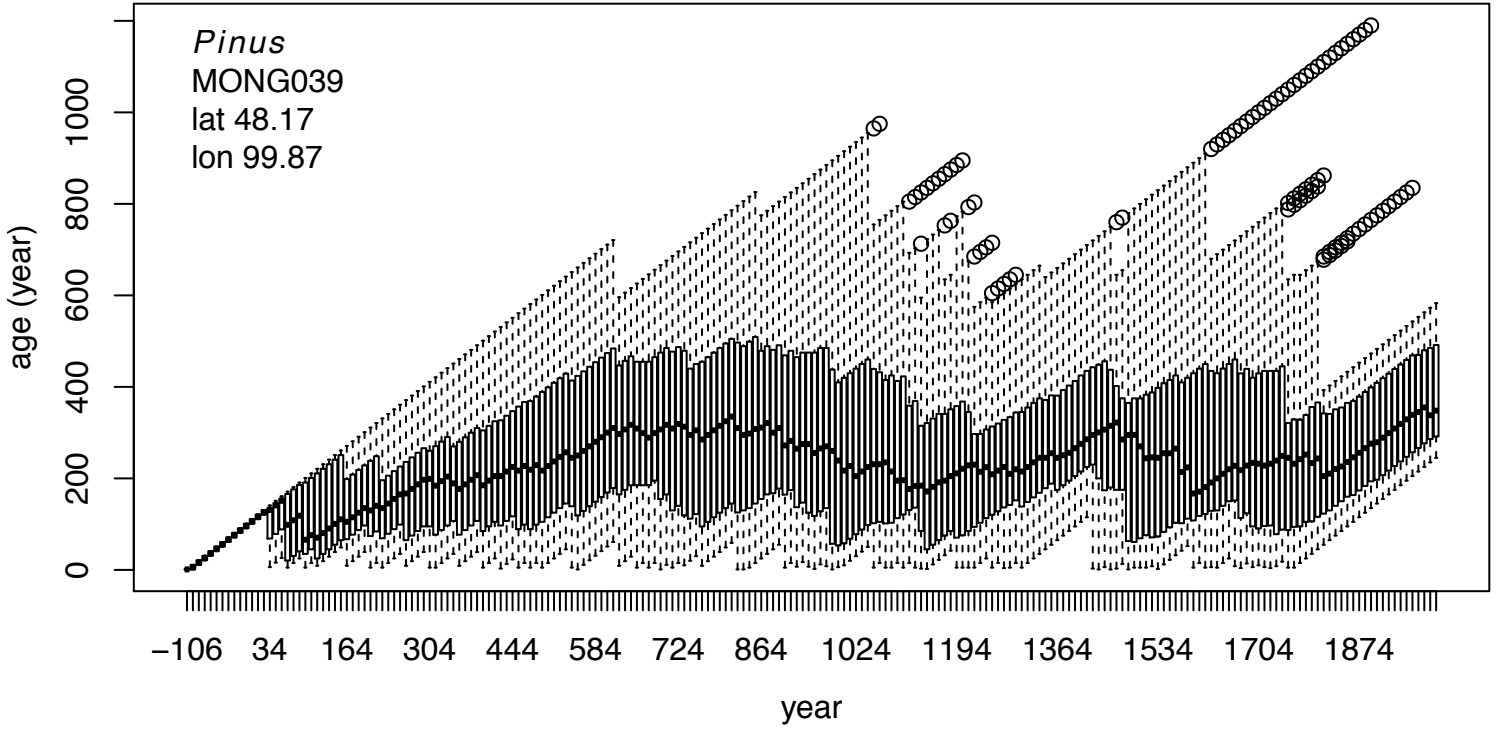
1856
1906
1956
year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lat 48.17
lon 99.87
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400
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1000
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164
304
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584
724
864
1024
1194
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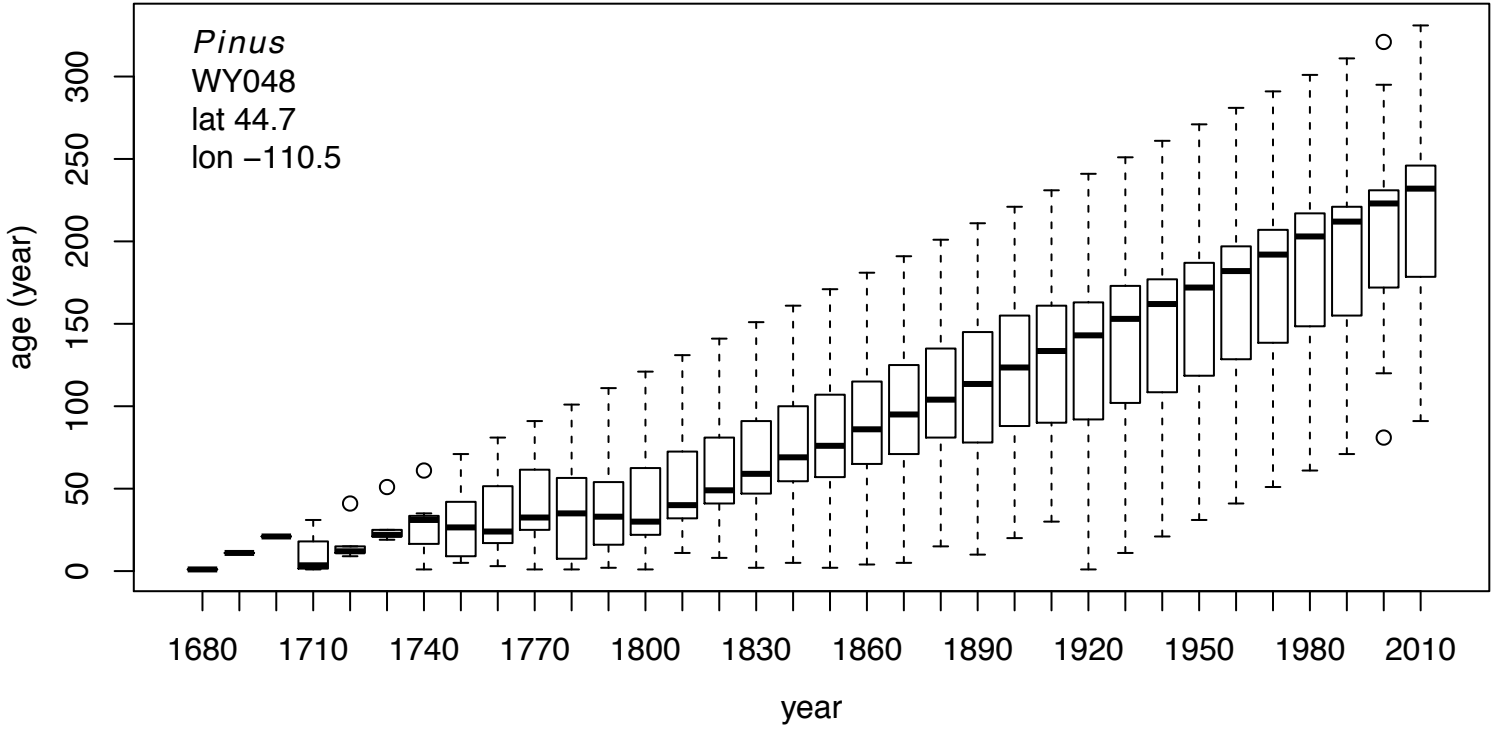
1704
1874
year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lon −110.5
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1680
1710
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1770
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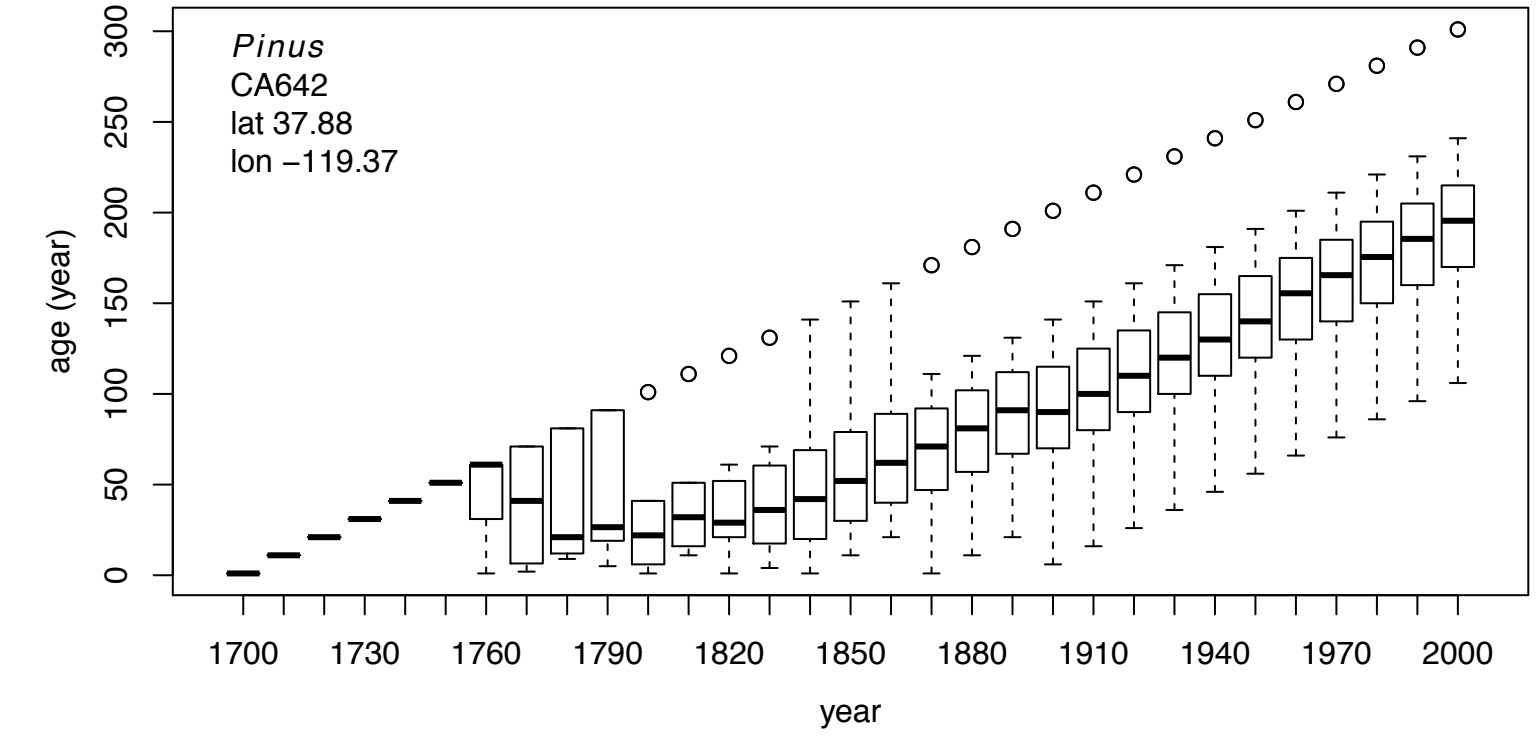
1860
1890
1920
1950
1980
2010
year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CA642
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lon −119.37
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1850
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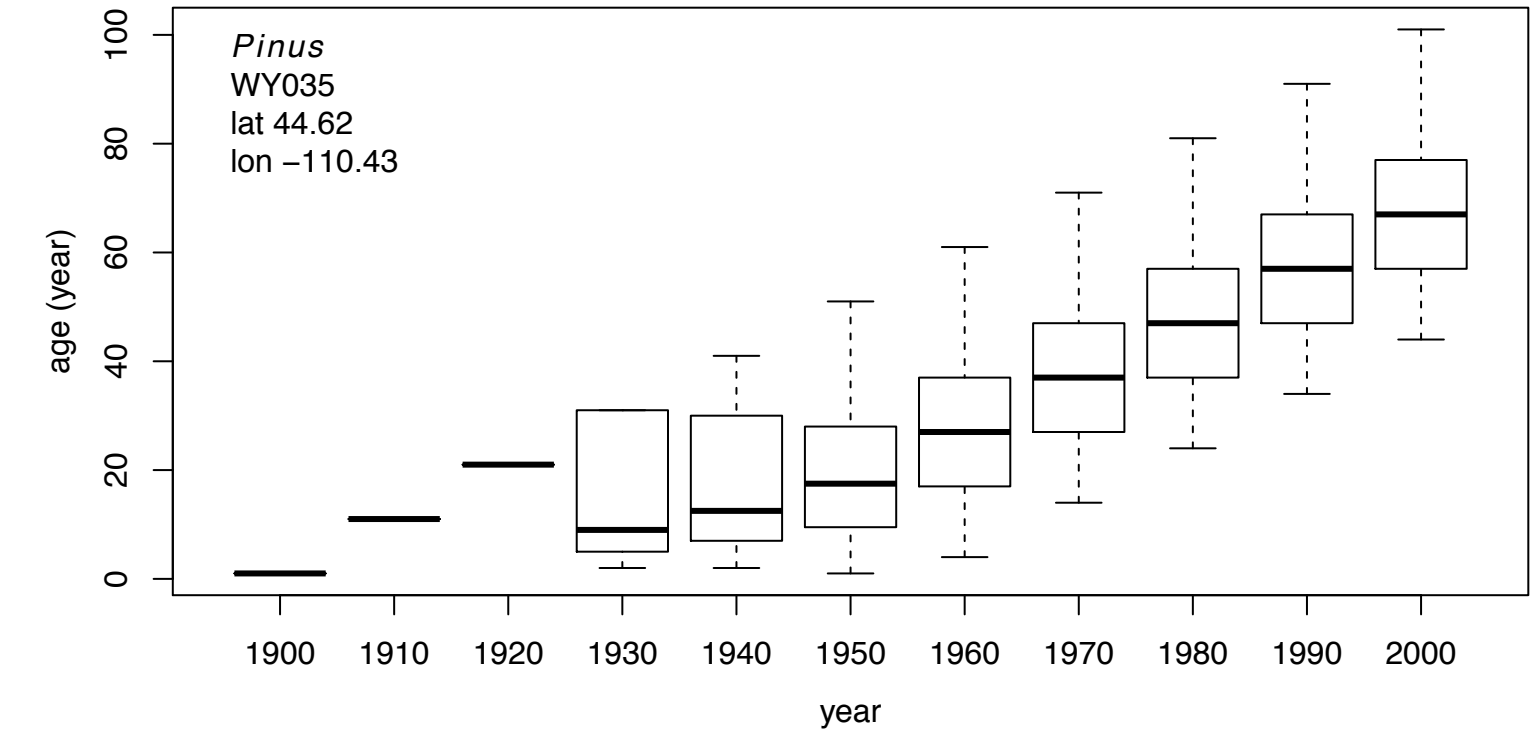
1910
1940
1970
2000
year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WY035
lat 44.62
lon −110.43
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1910
1920
1930
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1960
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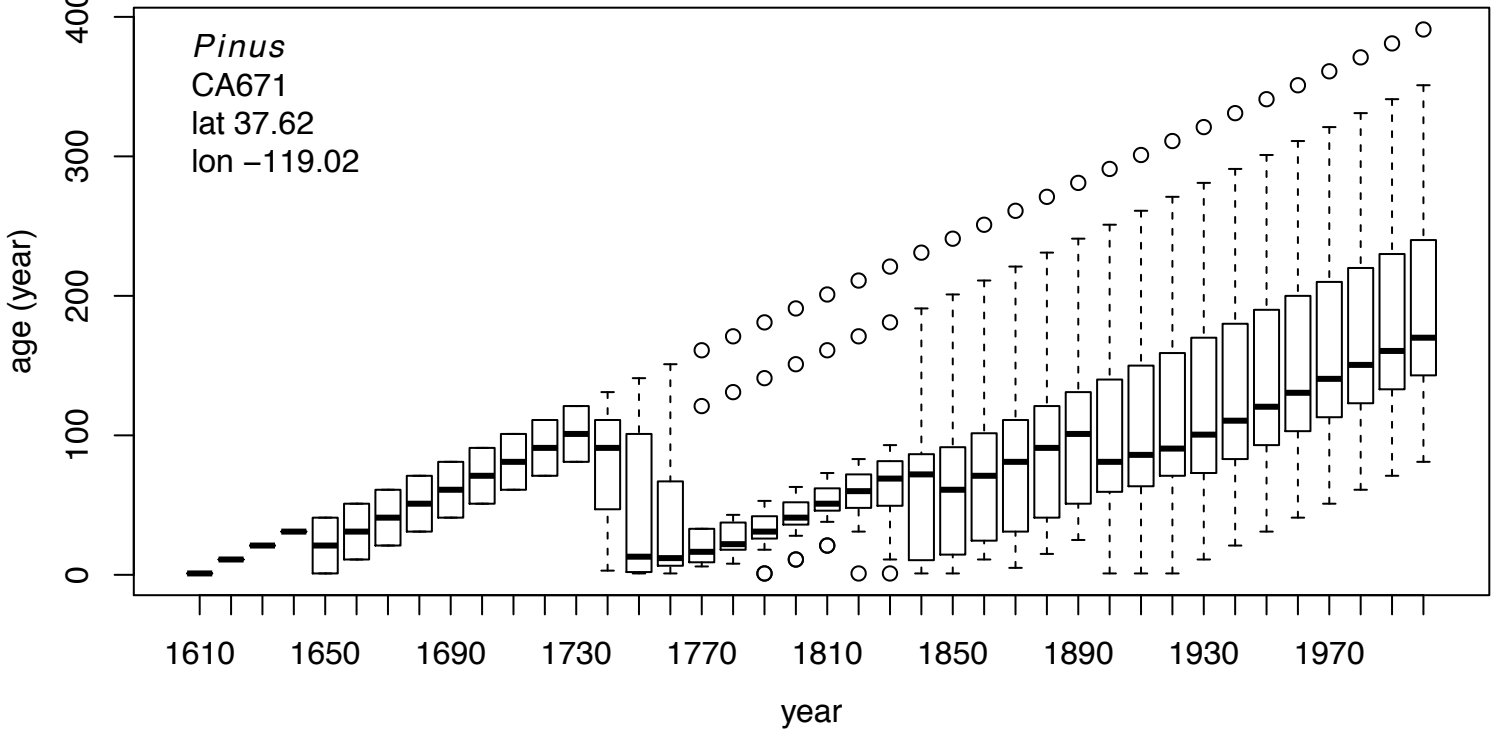
1980
1990
2000
year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CA671
lat 37.62
lon −119.02
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1650
1690
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1770
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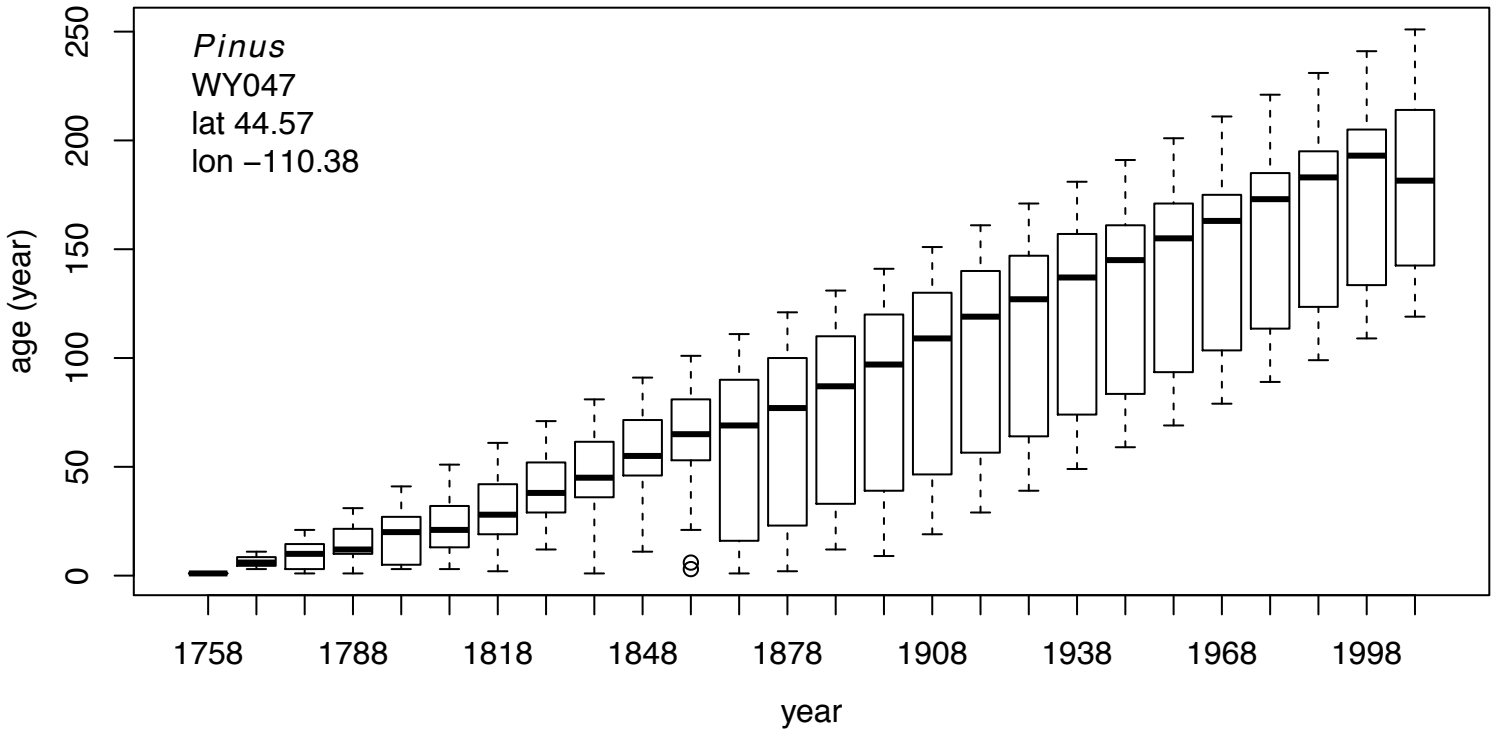
1850
1890
1930
1970
year


Pinus
WY047
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lon −110.38
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1788
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1938
1968
1998
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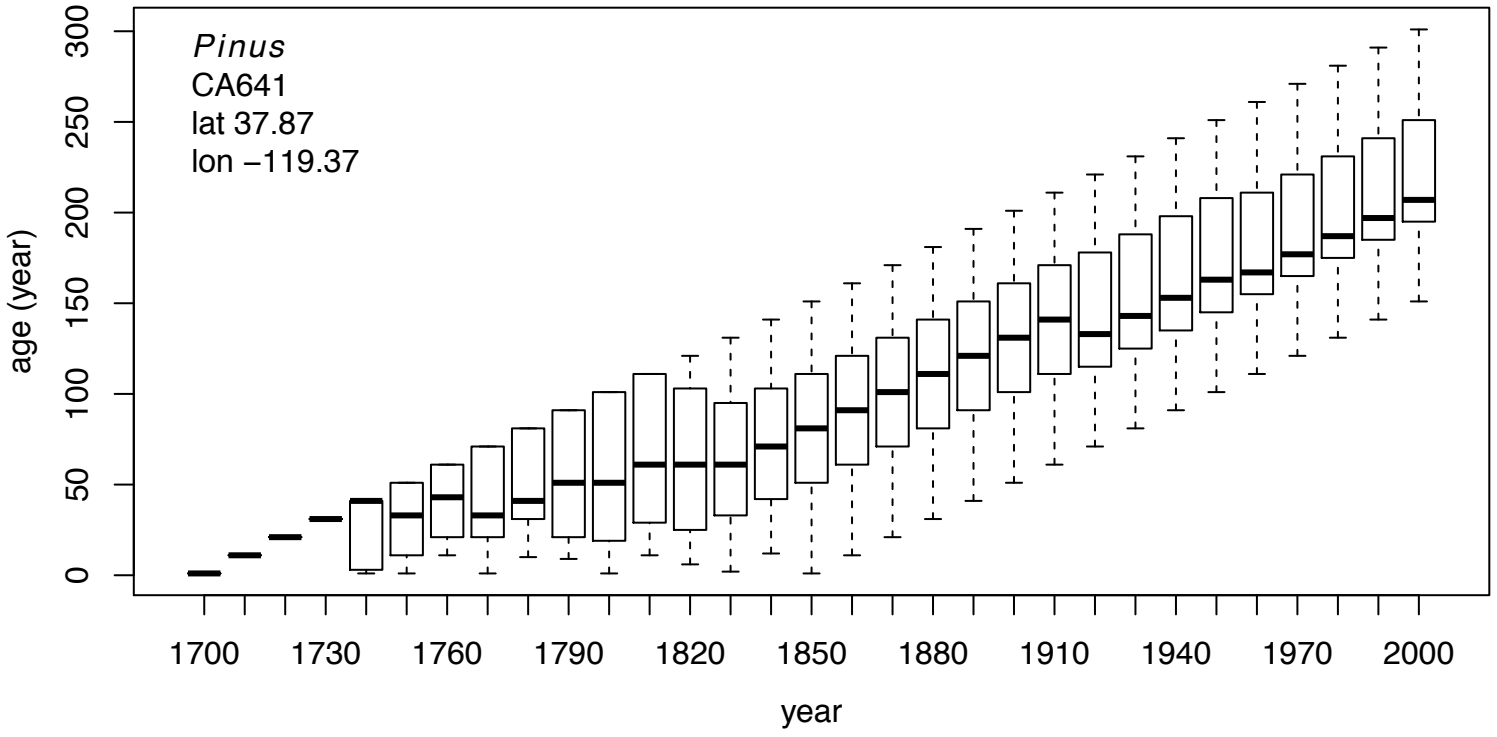
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lon −119.37
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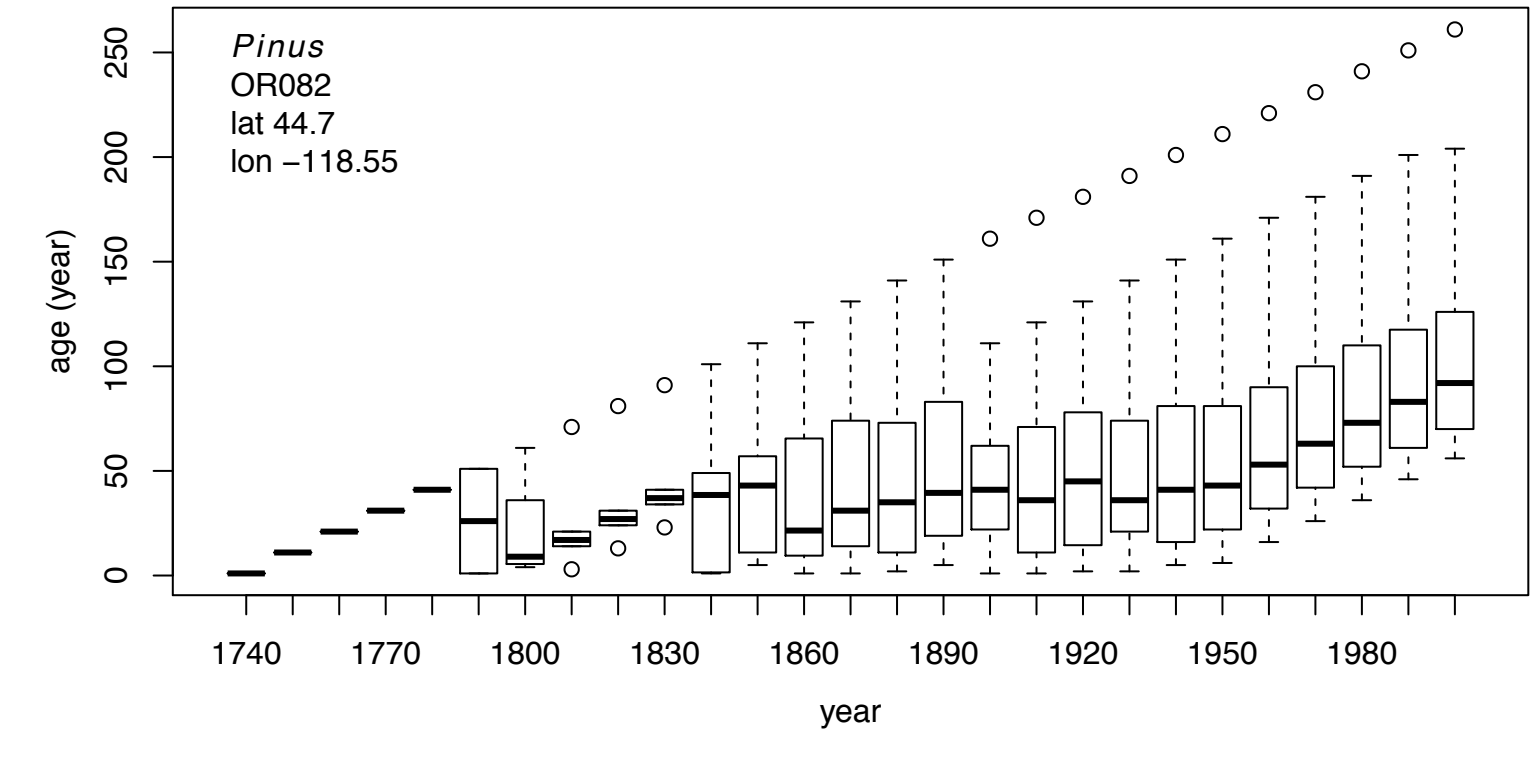
2000
year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OR082
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lon −118.55
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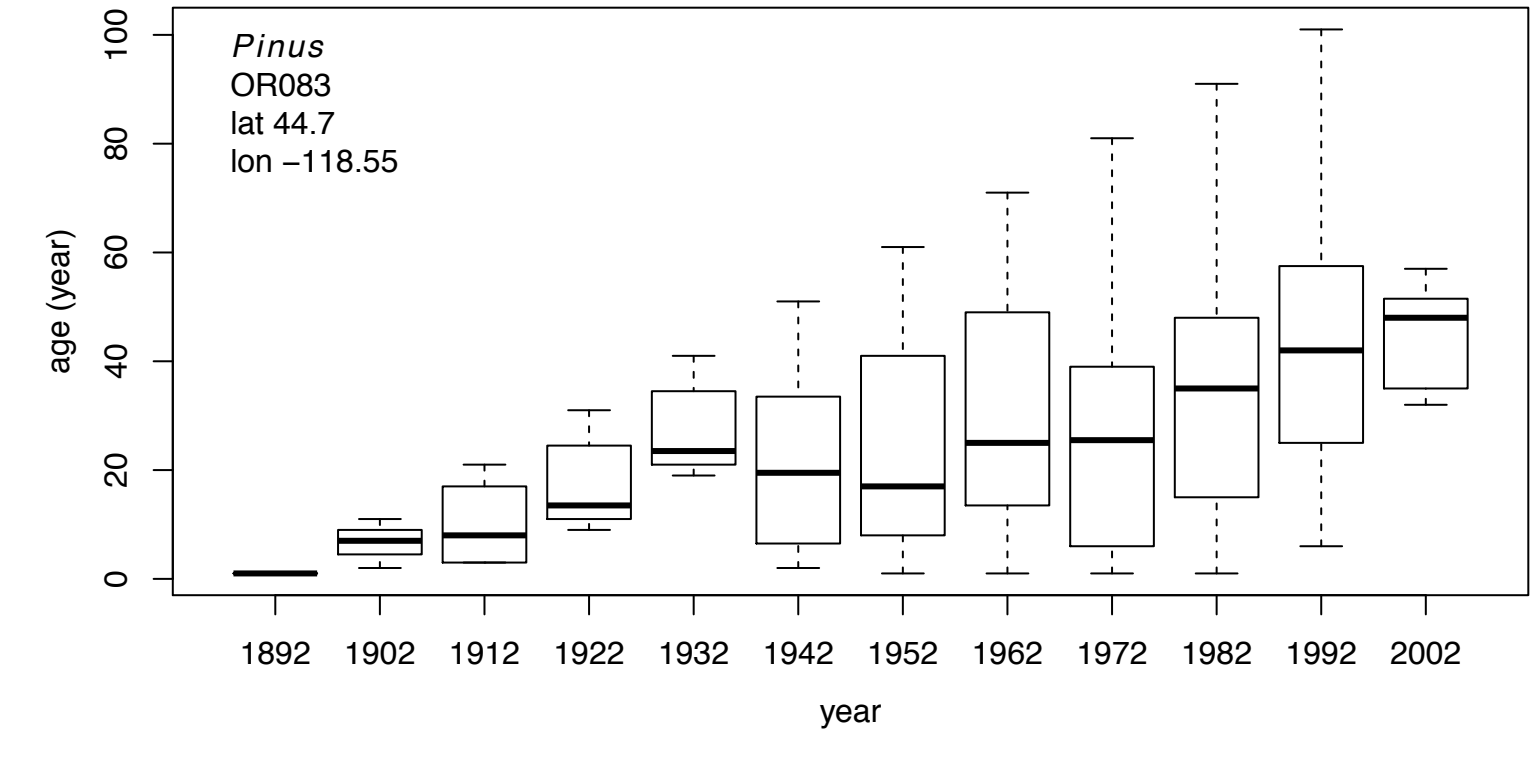
1920
1950
1980
year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OR083
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lon −118.55
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1912
1922
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1942
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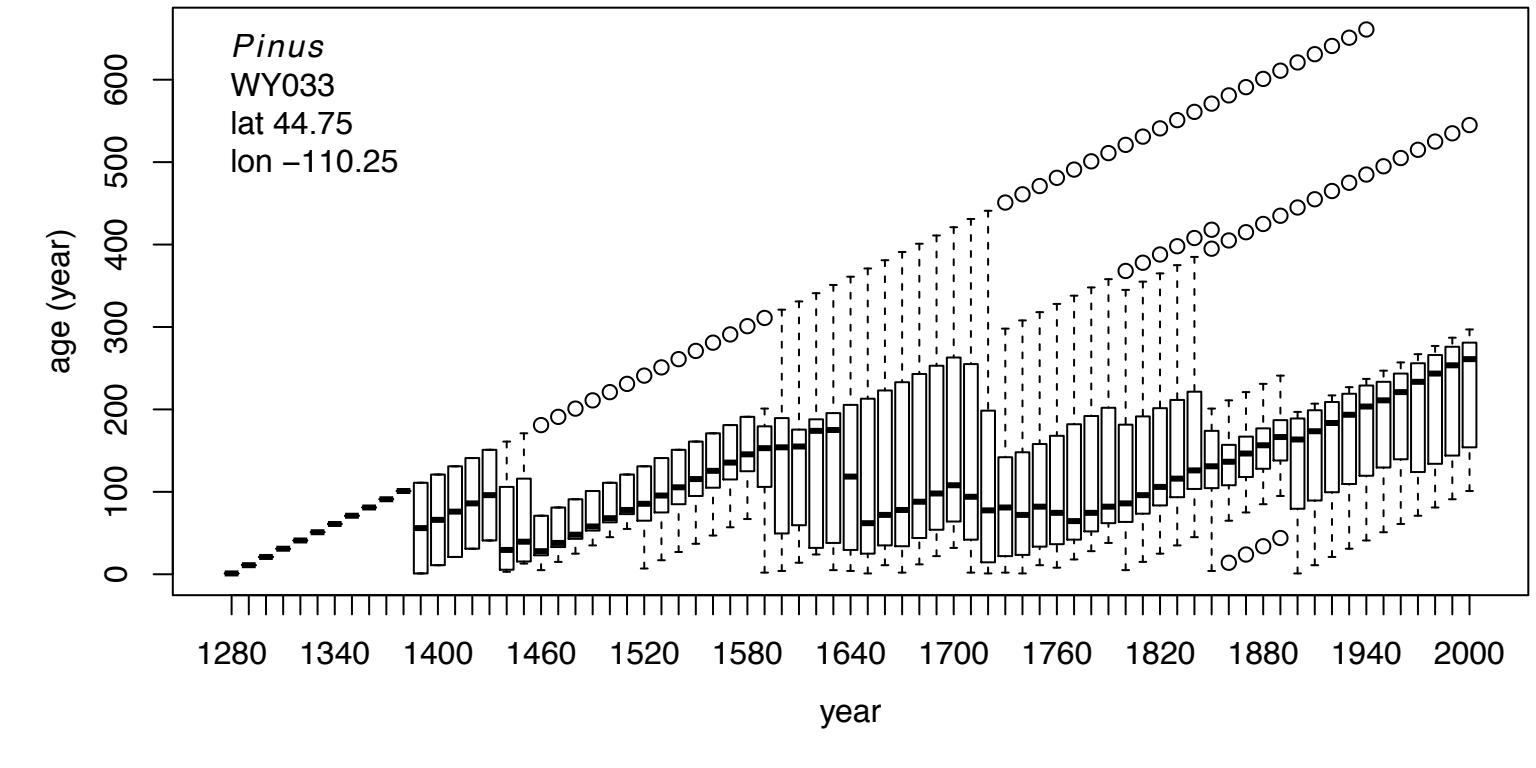
1962
1972
1982
1992
2002
year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lon −110.25
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1880
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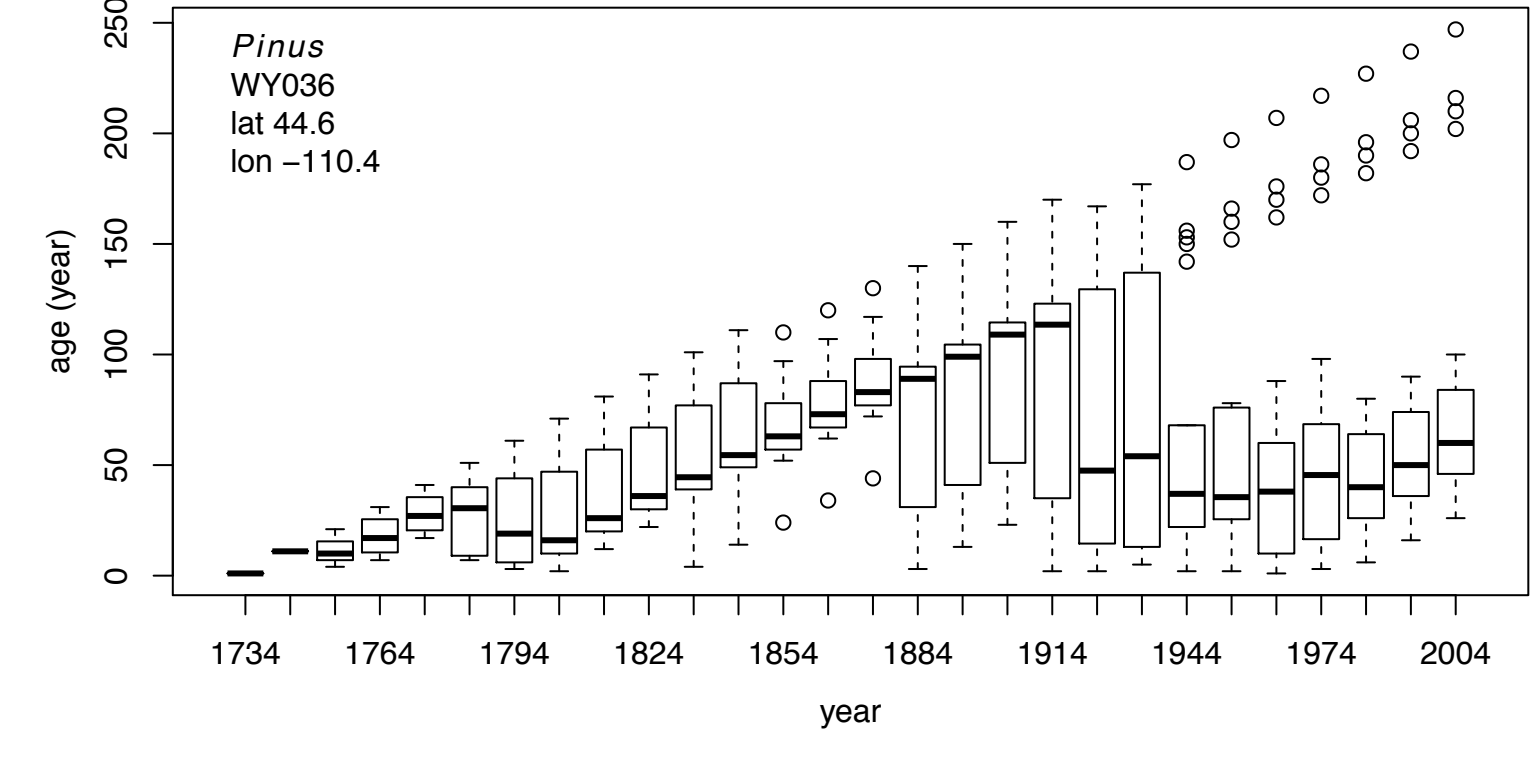
2000
year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lon −110.4
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2004
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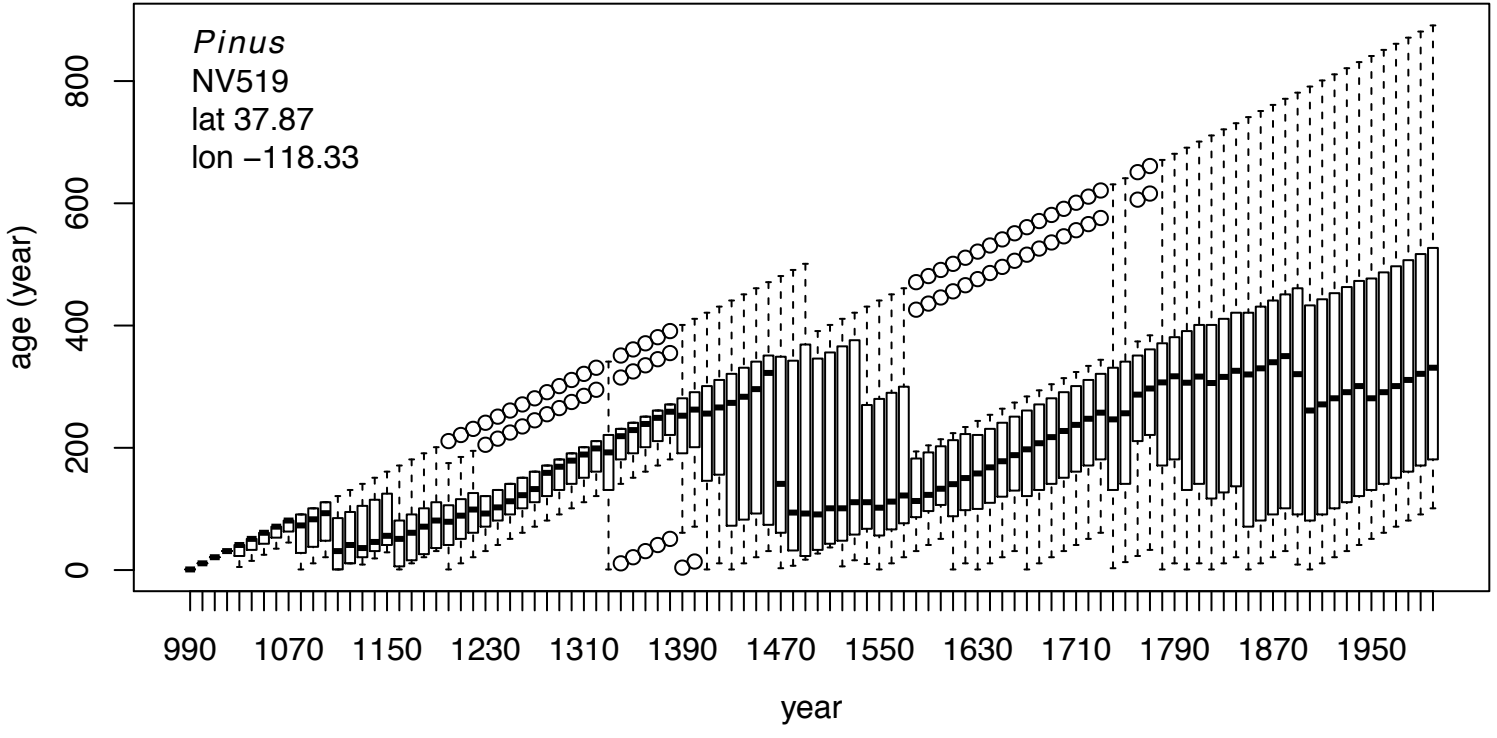
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lon −118.33
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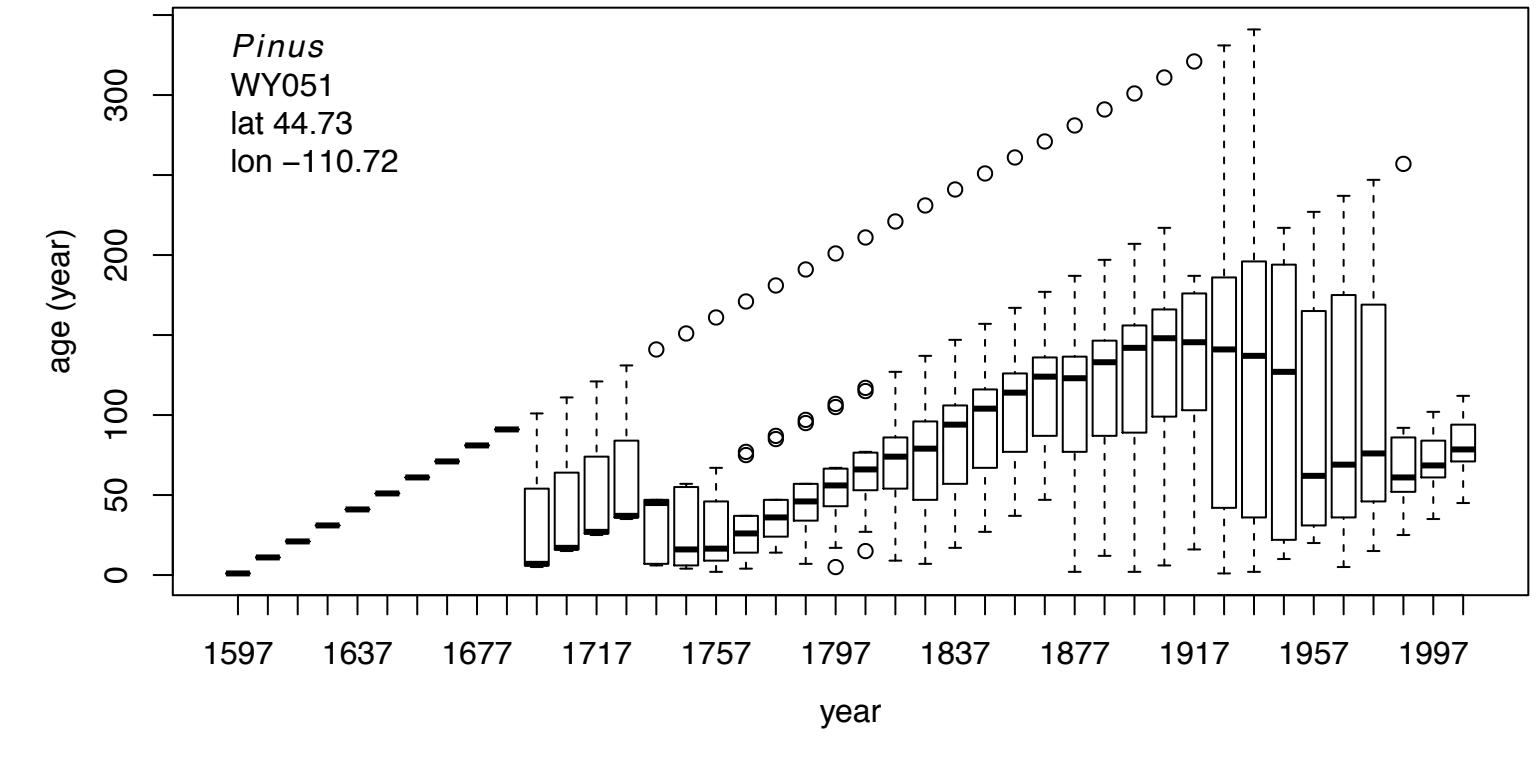
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1997
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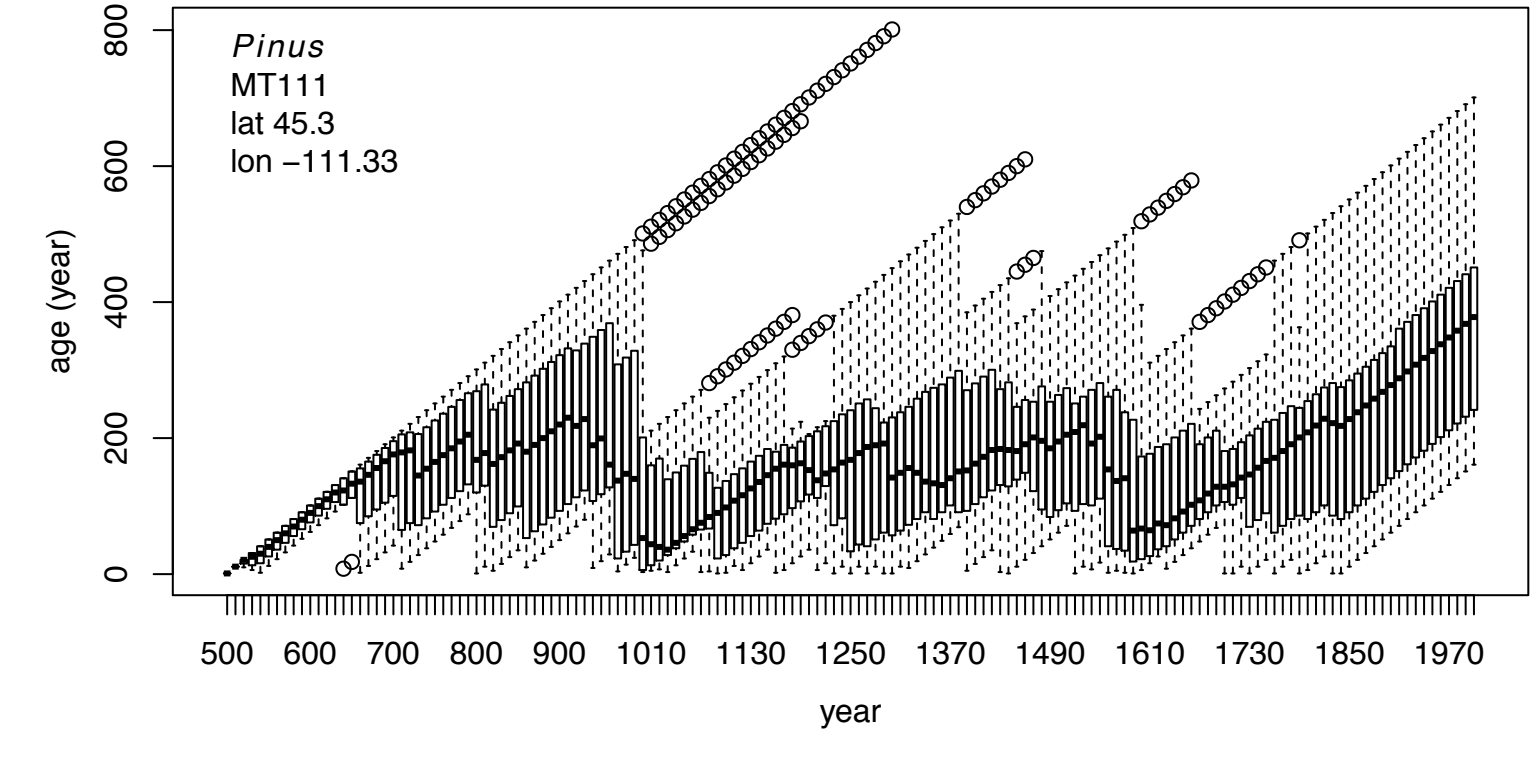
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lon −111.33
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800
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1970
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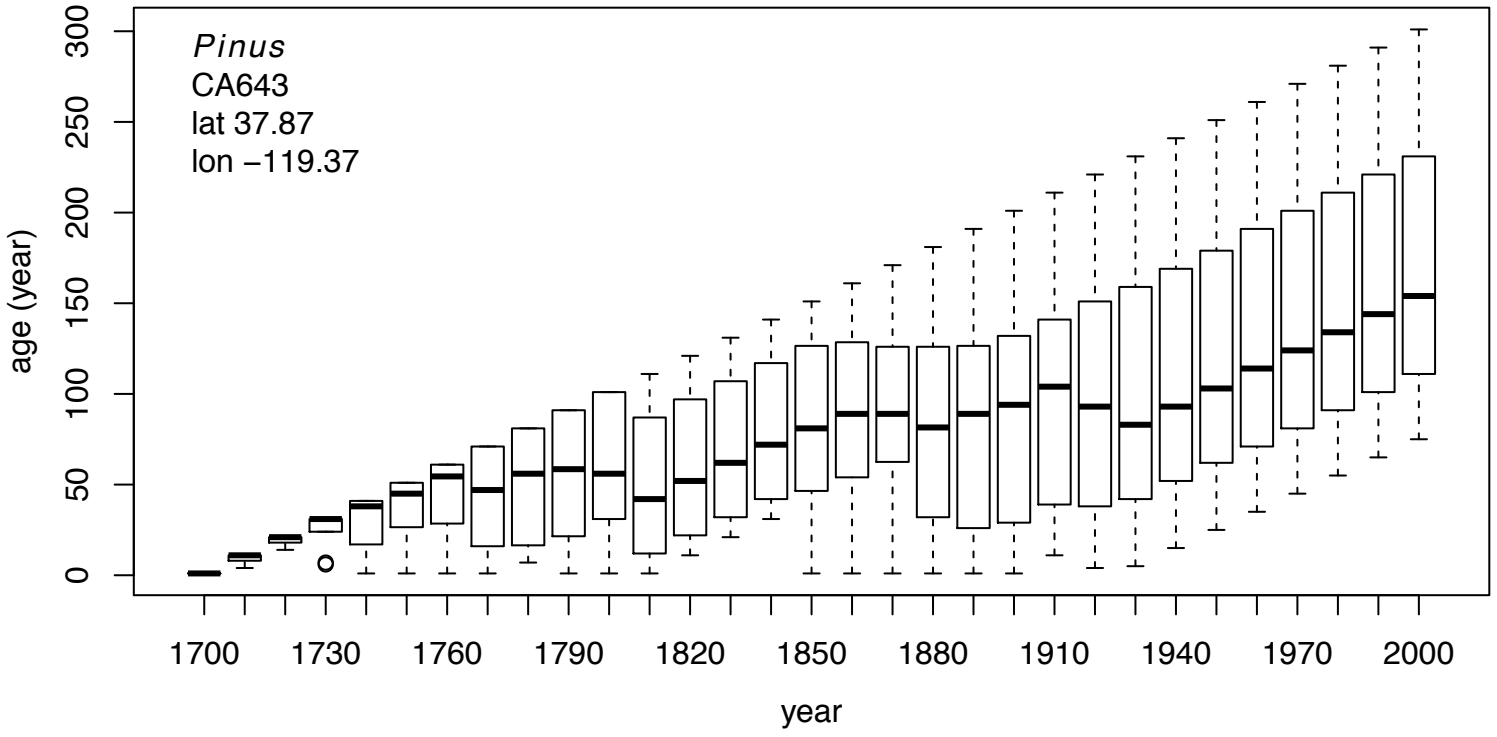
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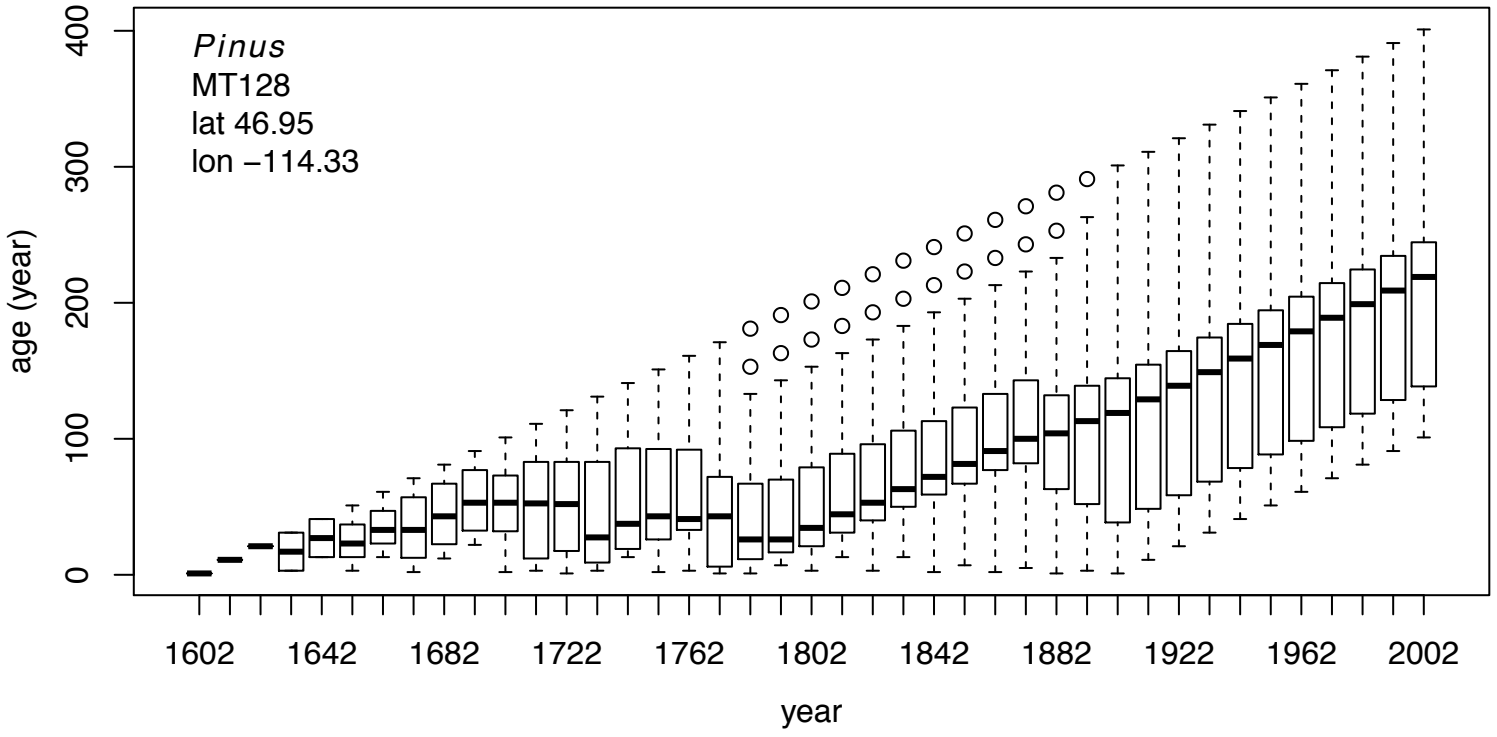
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2002
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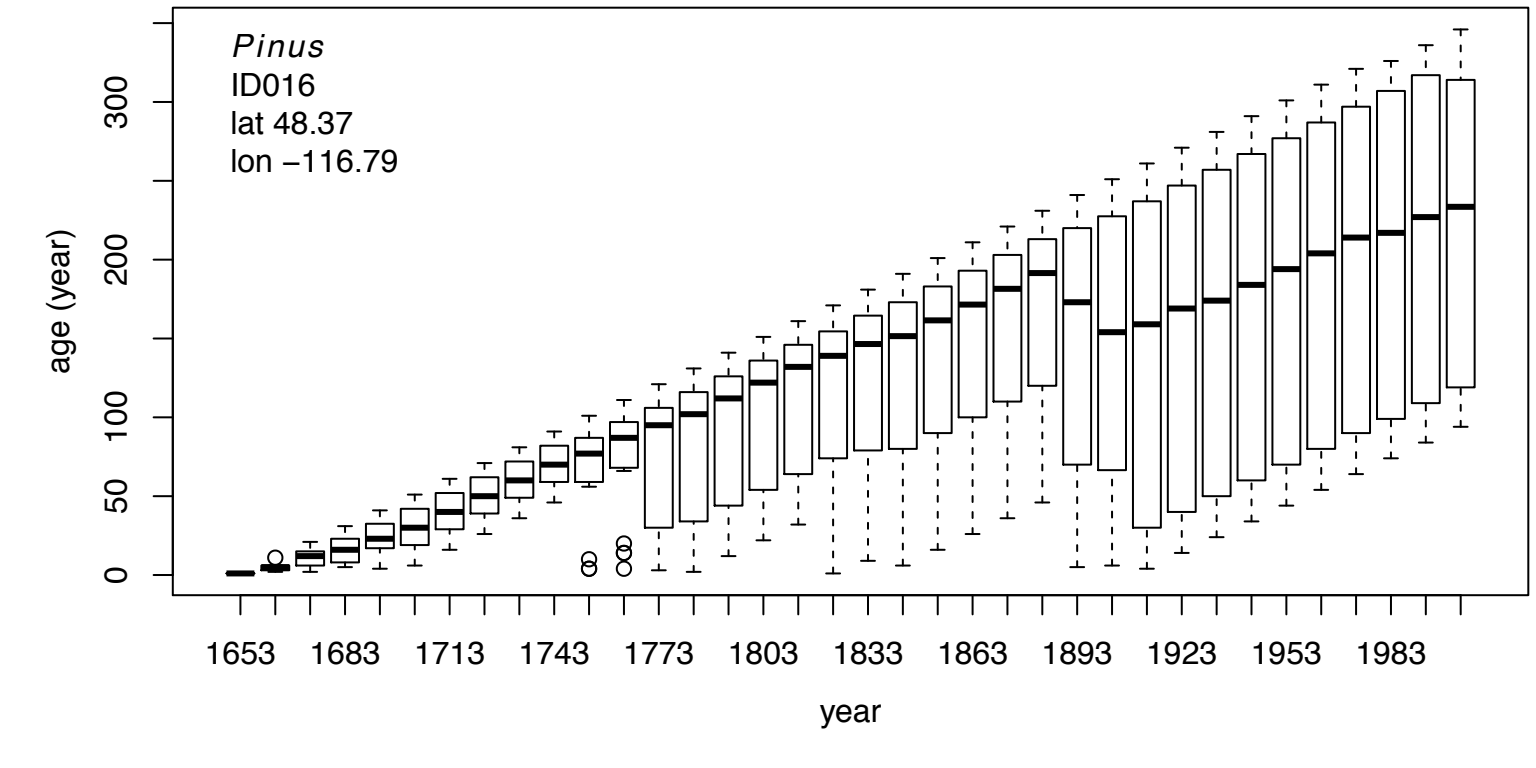
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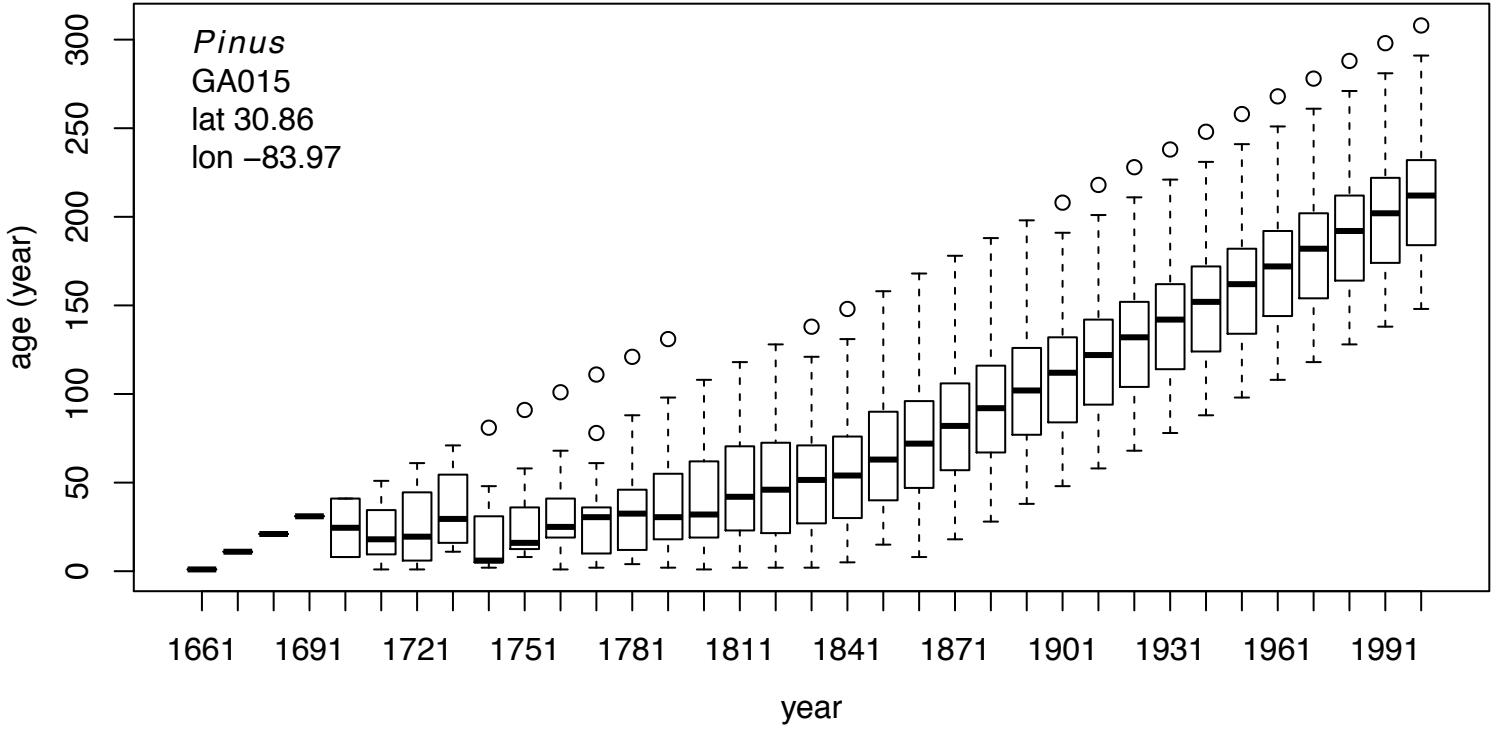
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1991
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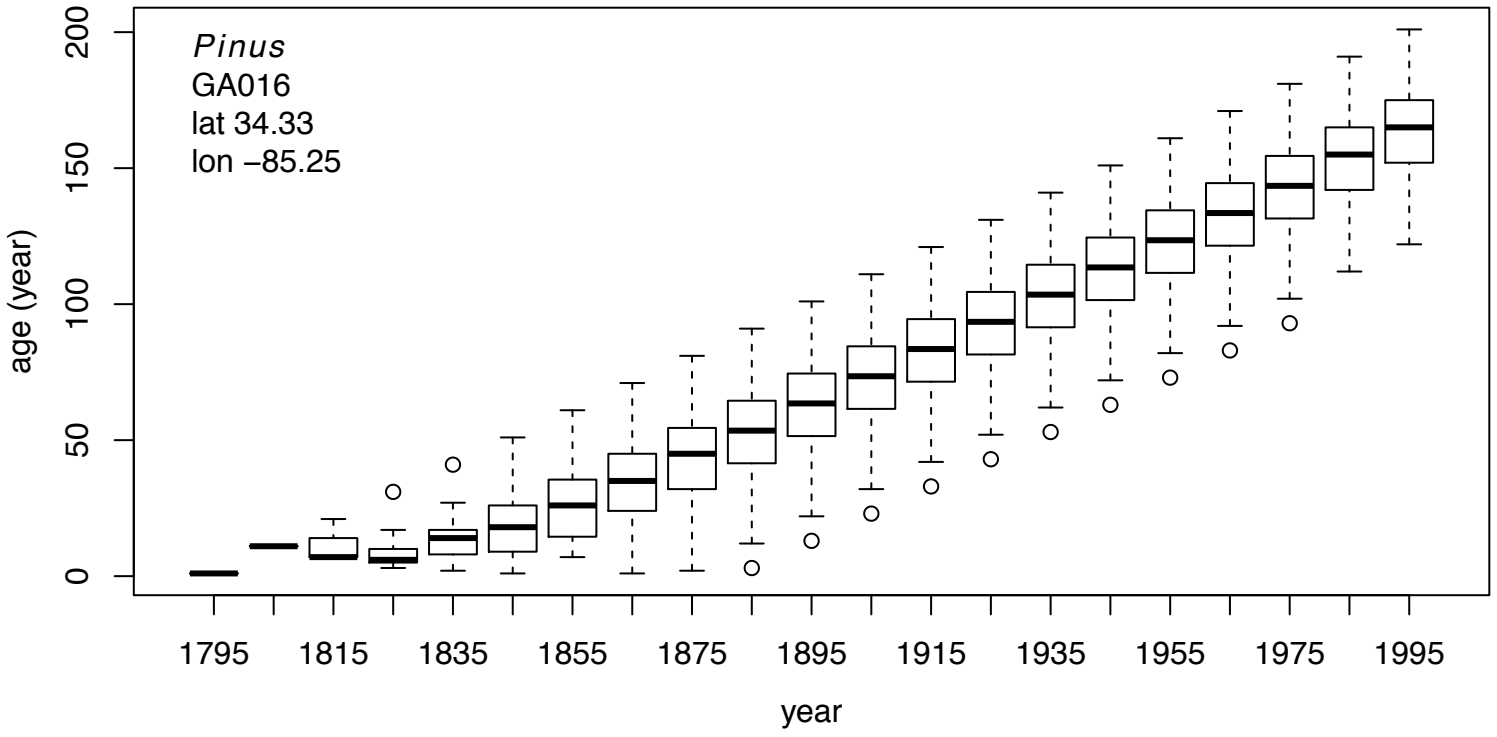
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lon −85.25
age (year)
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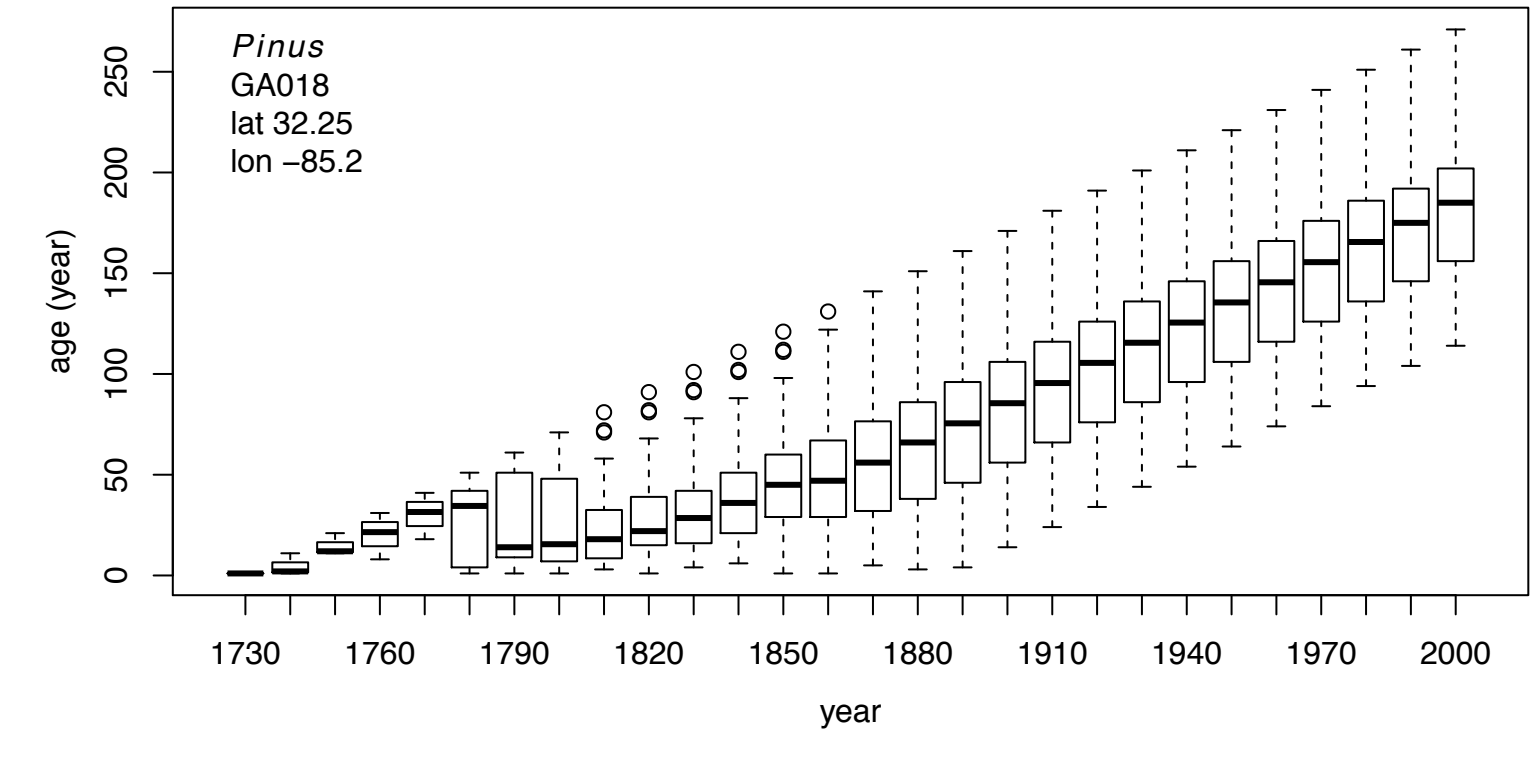
1935
1955
1975
1995
year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GA018
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lon −85.2
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2000
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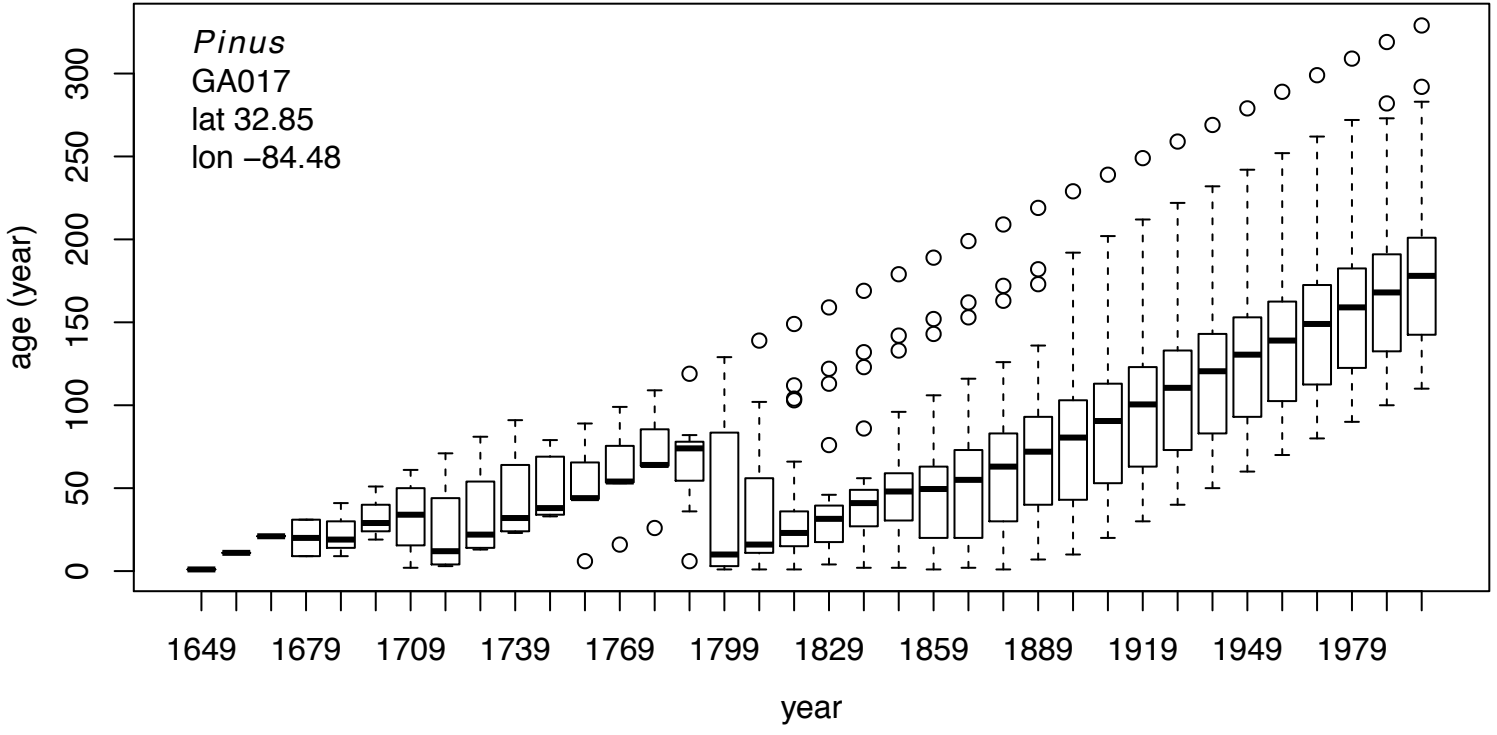
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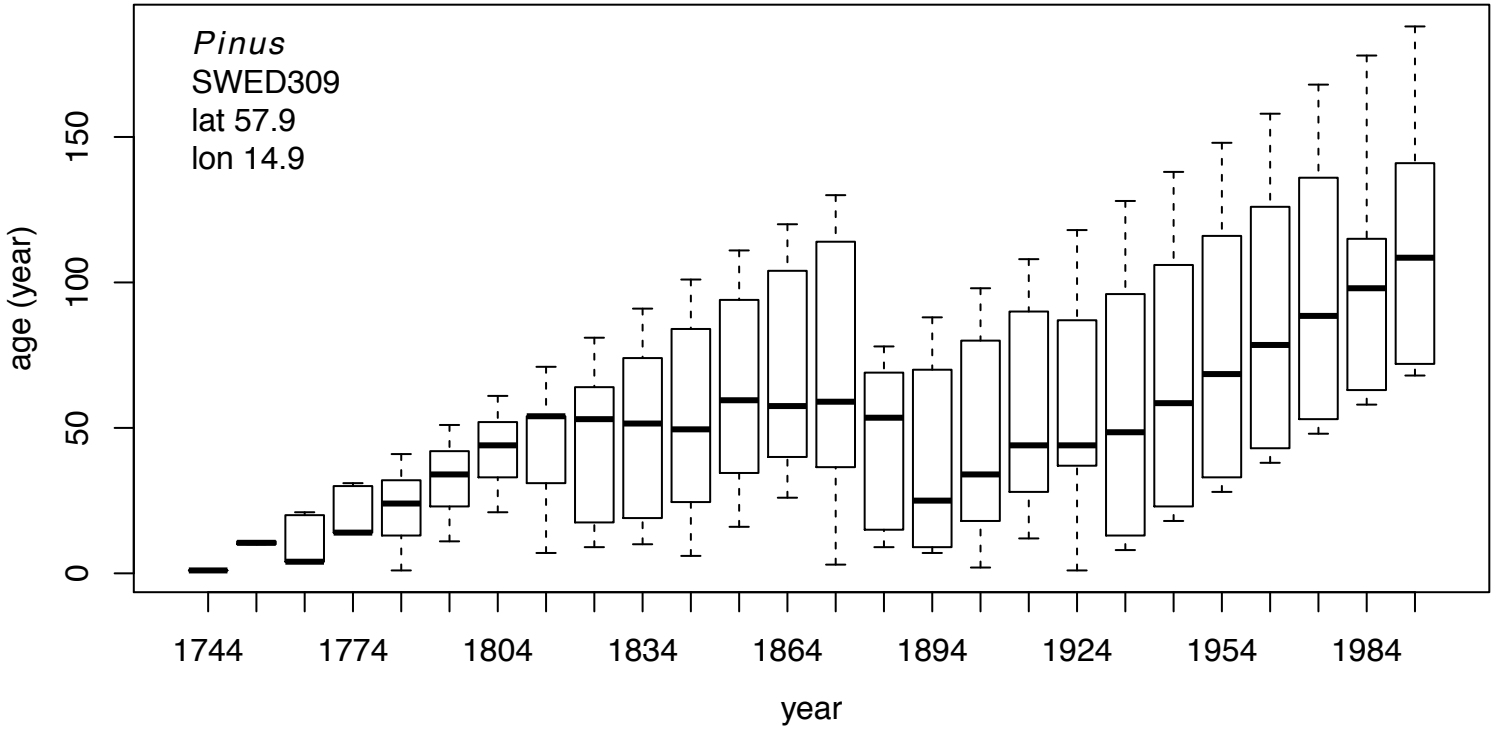
1979
year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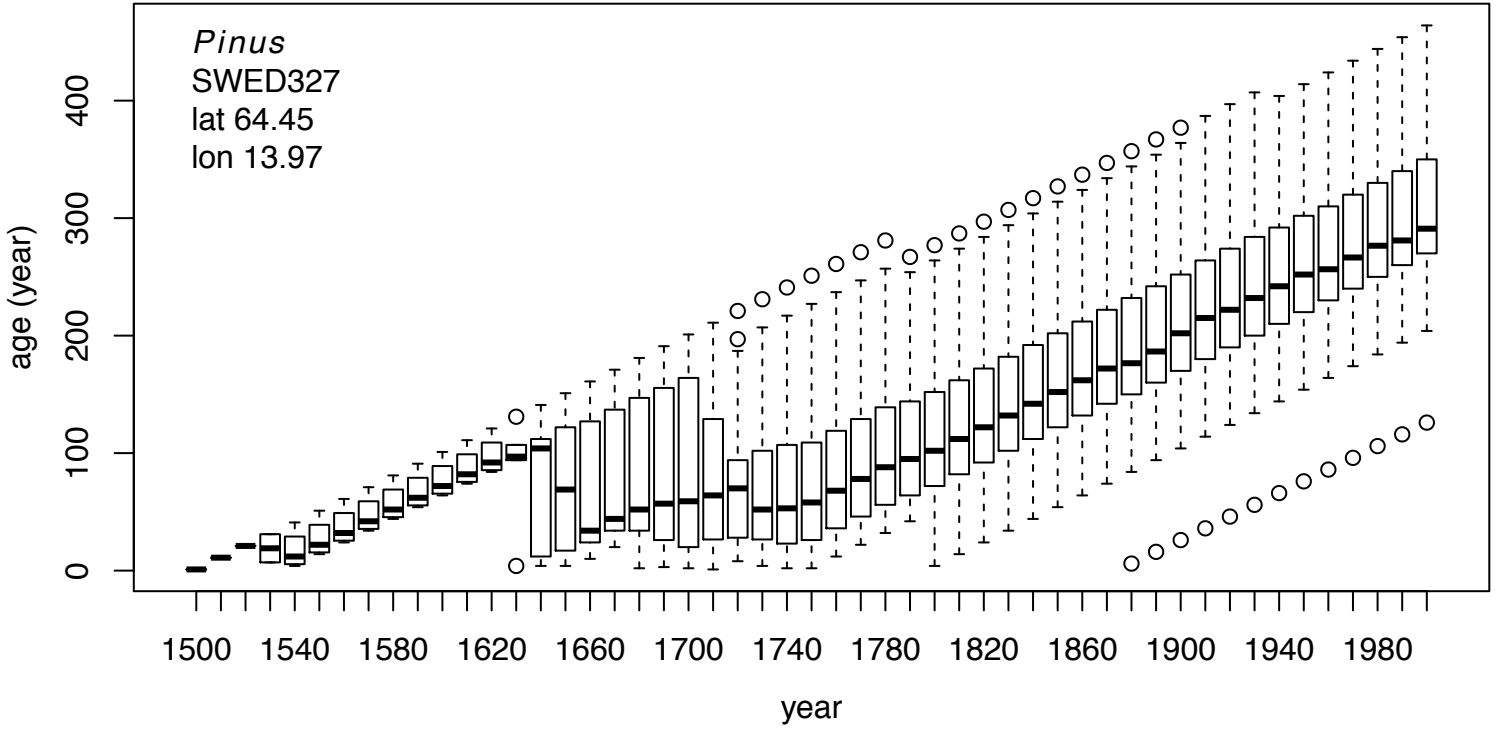
1984
year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SWED327
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lon 13.97
age (year)
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1780
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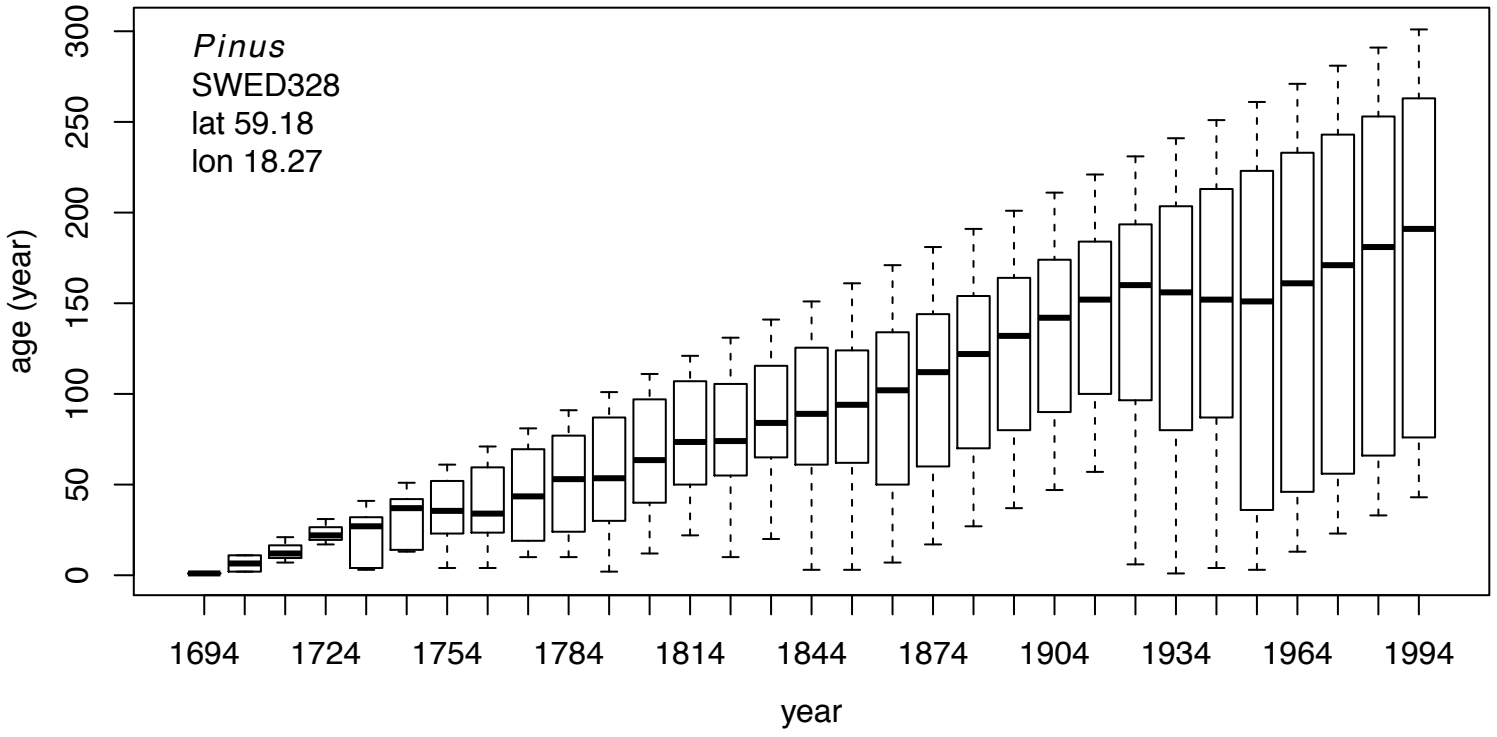
1900
1940
1980
year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SWED328
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lon 18.27
age (year)
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1844
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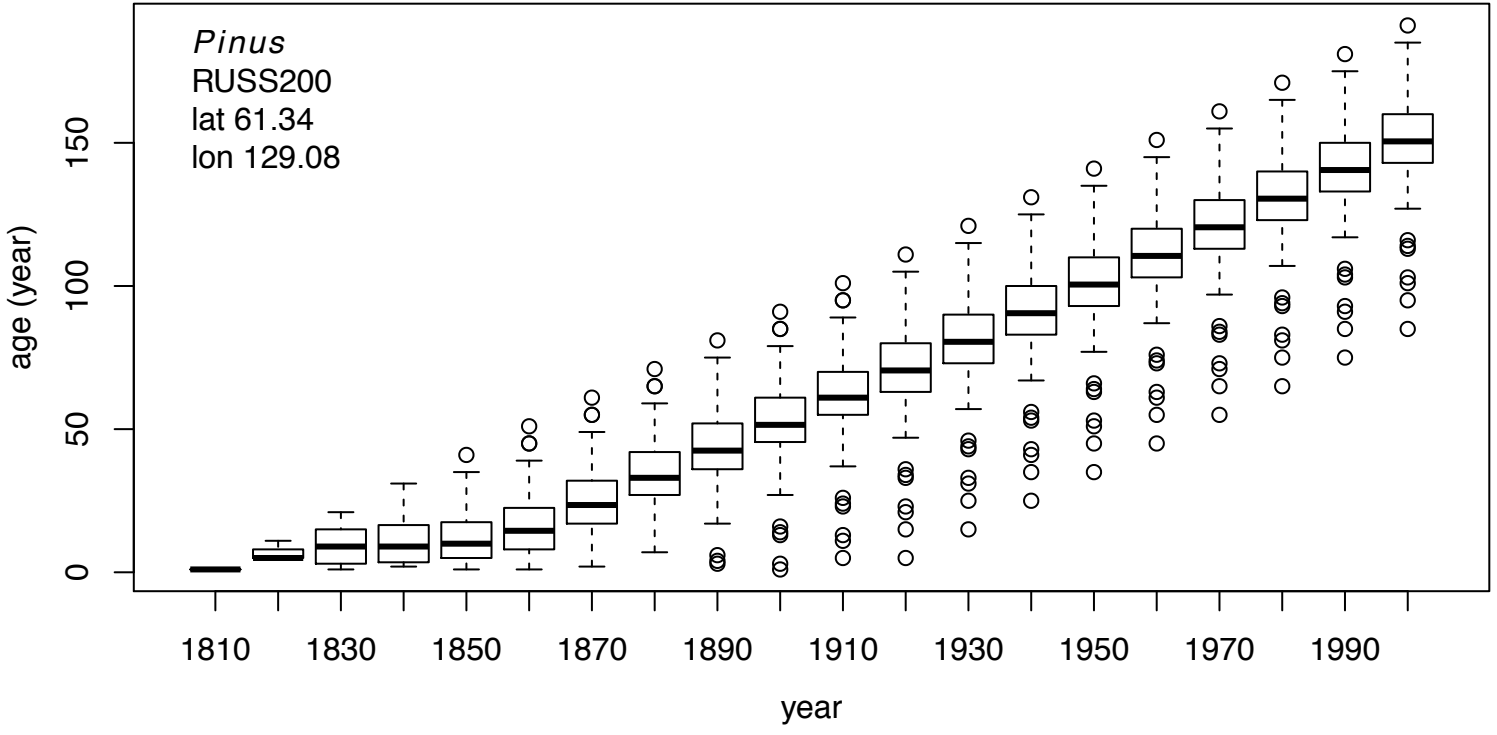
1904
1934
1964
1994
year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lon 129.08
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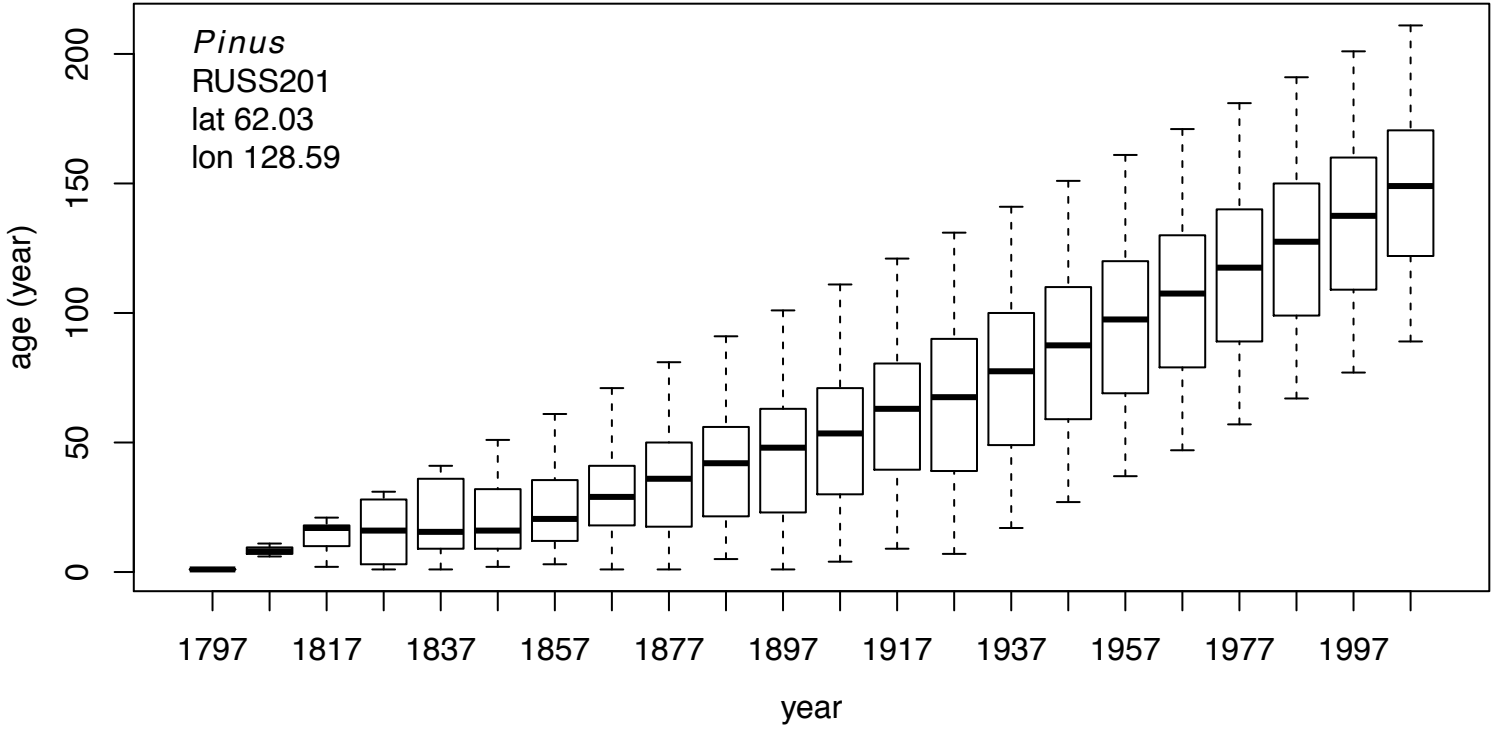
150
1810
1830
1850
1870
1890
1910
1930
1950
1970
1990
year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RUSS201
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lon 128.59
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1957
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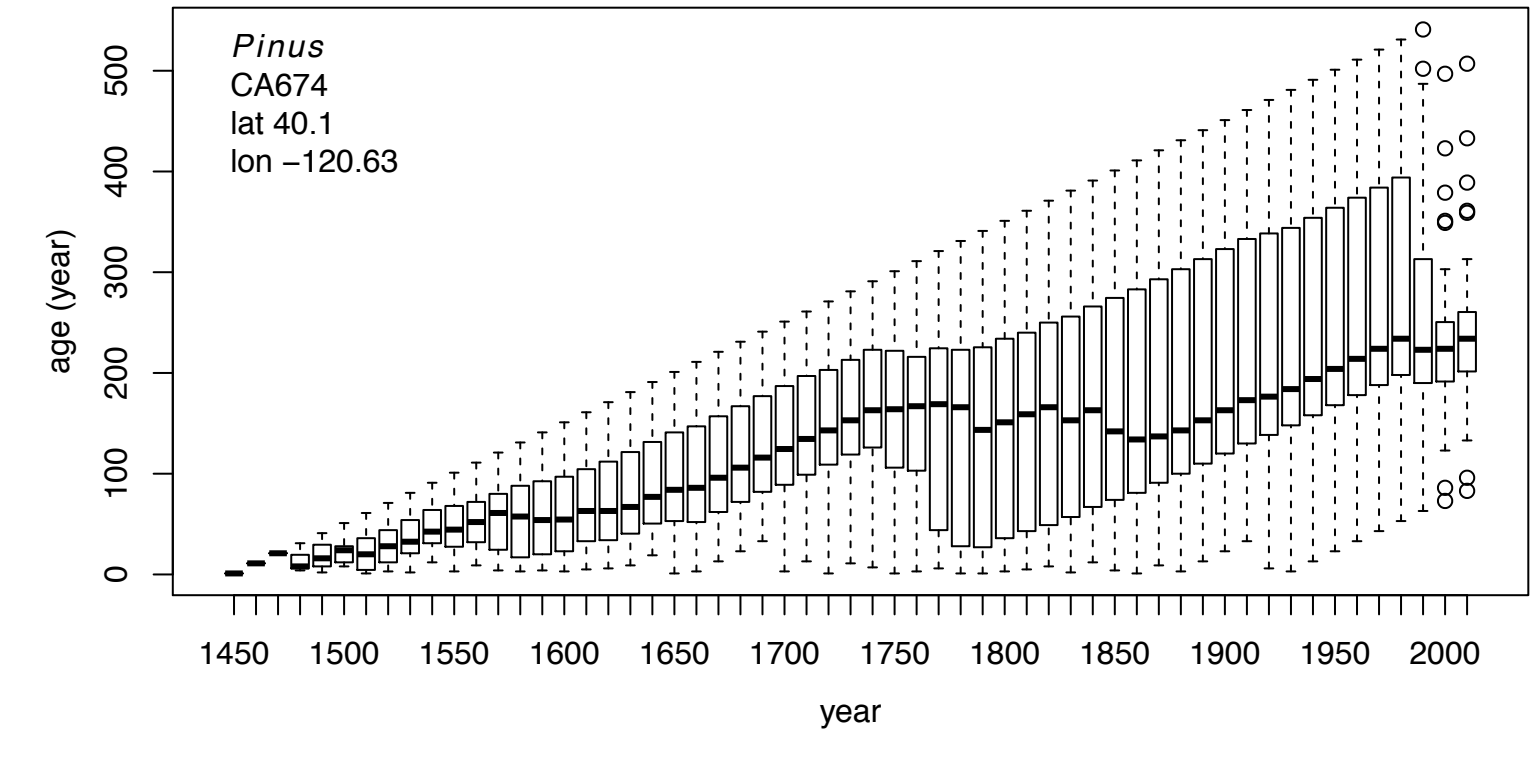
1997
year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CA674
lat 40.1
lon −120.63
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2000
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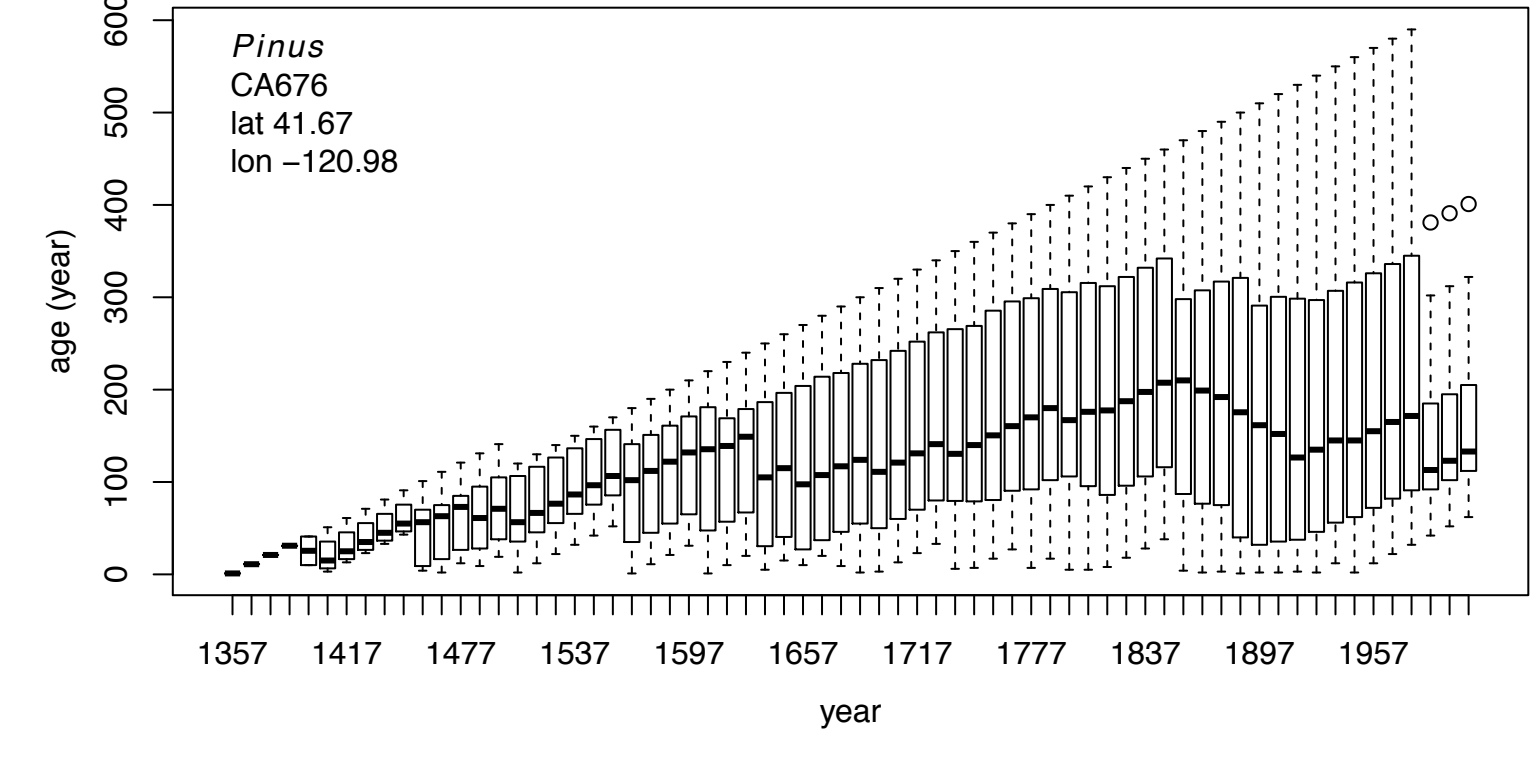
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CA676
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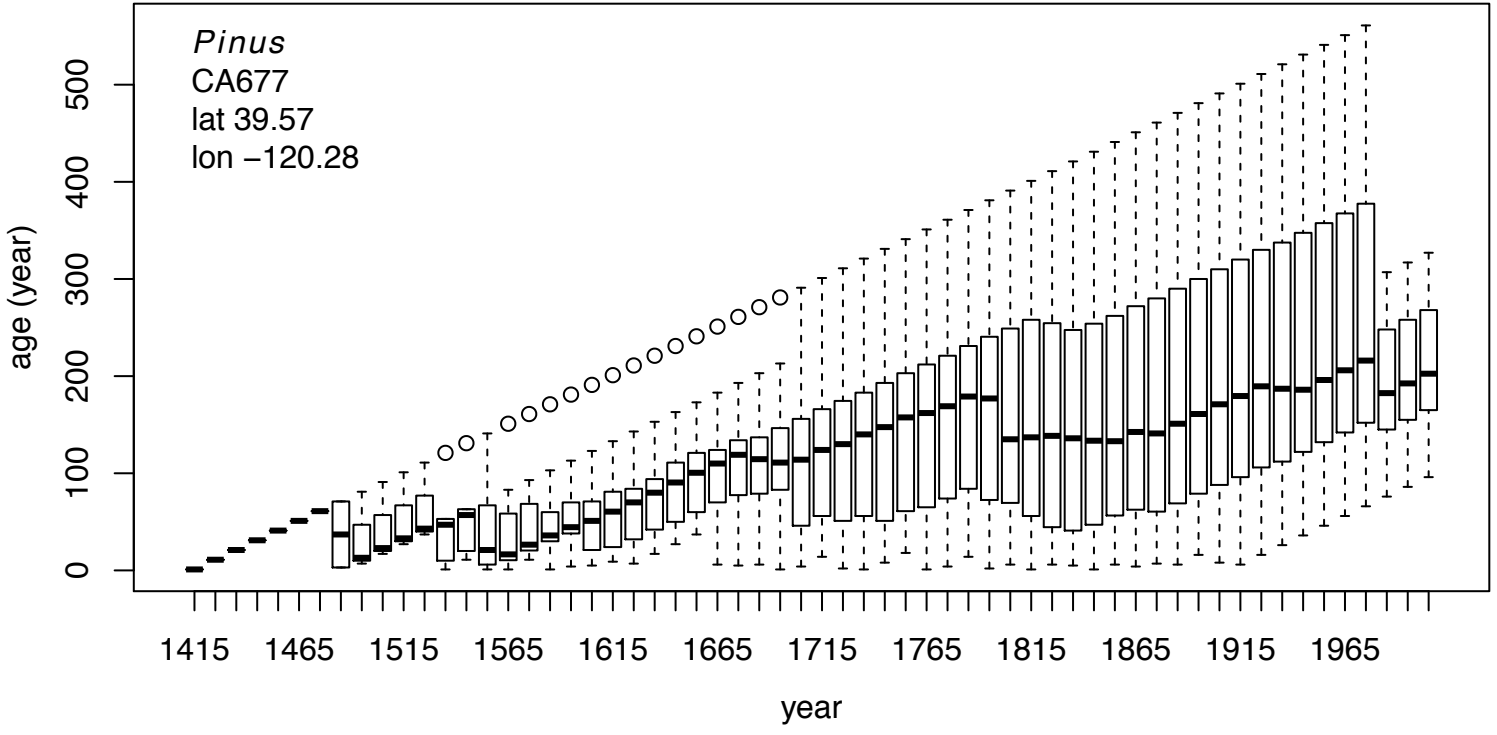
1897
1957
year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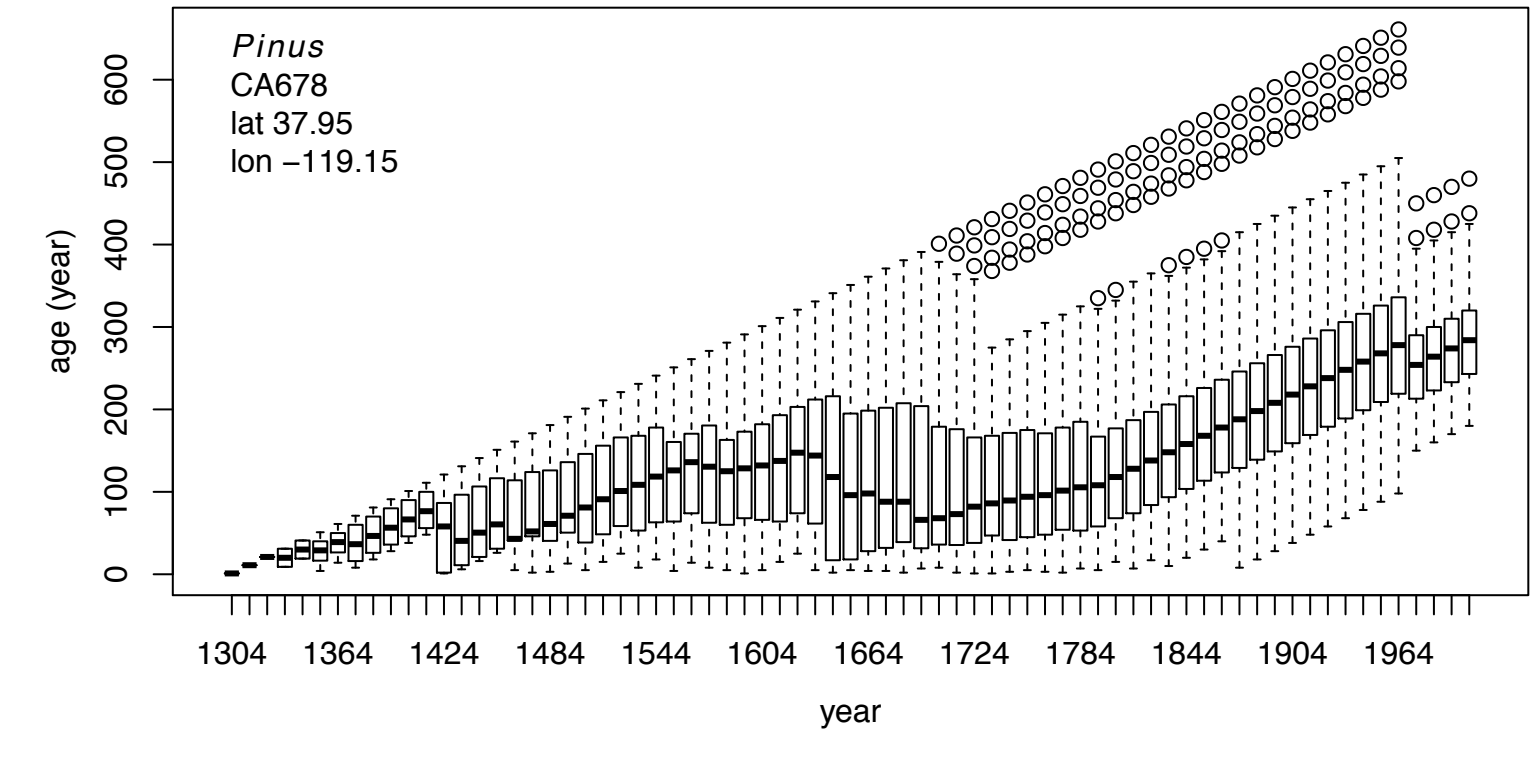
1915
1965
year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CA678
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lon −119.15
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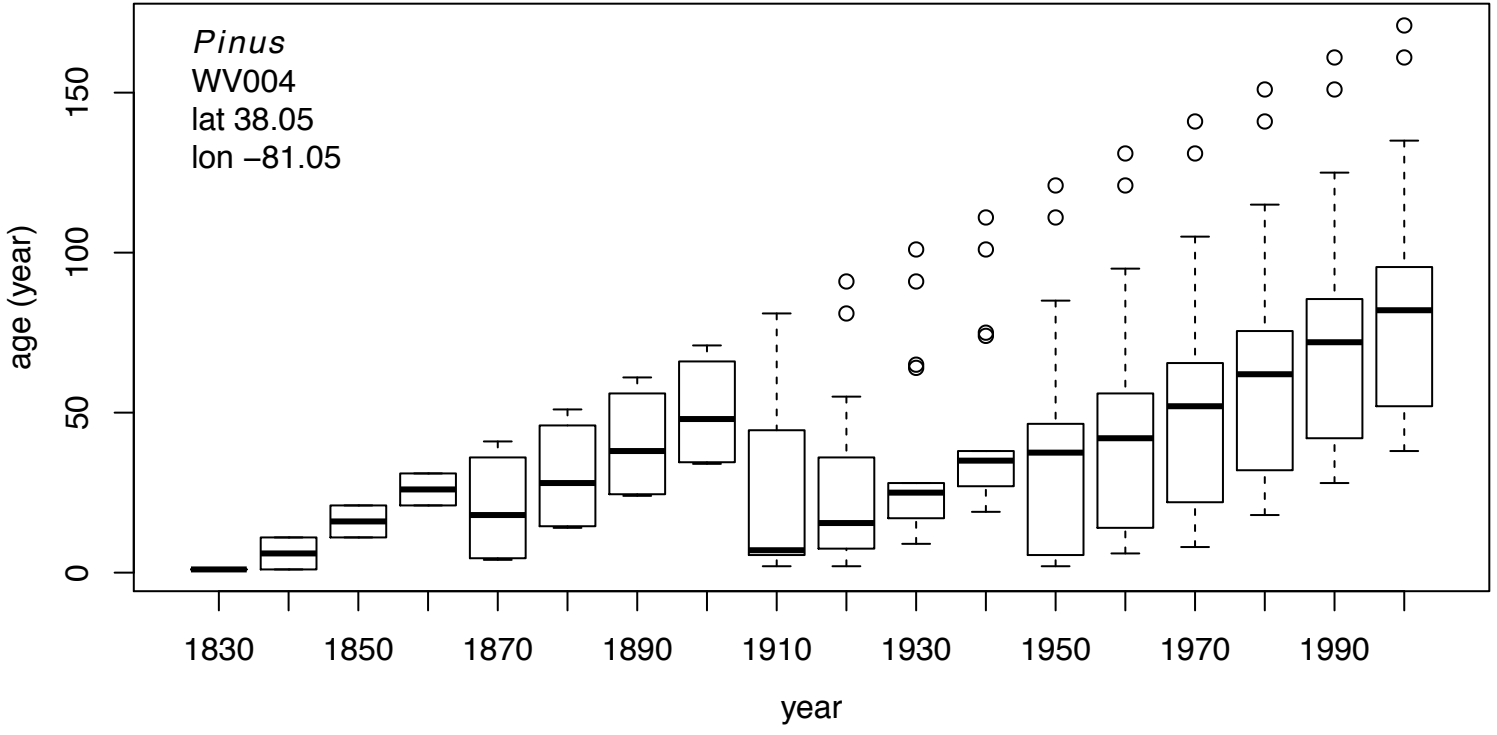
1964
year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WV004
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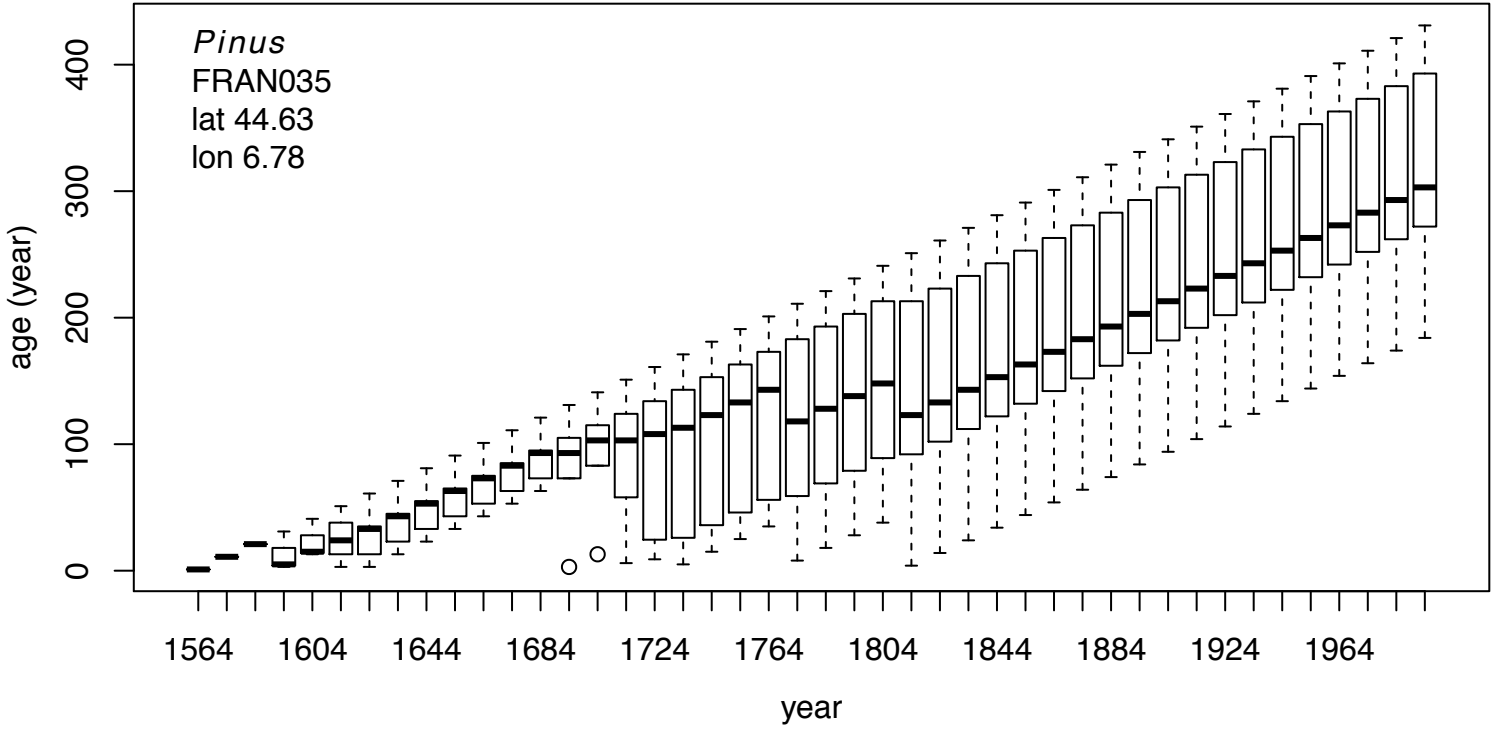
1970
1990
year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FRAN035
lat 44.63
lon 6.78
age (year)
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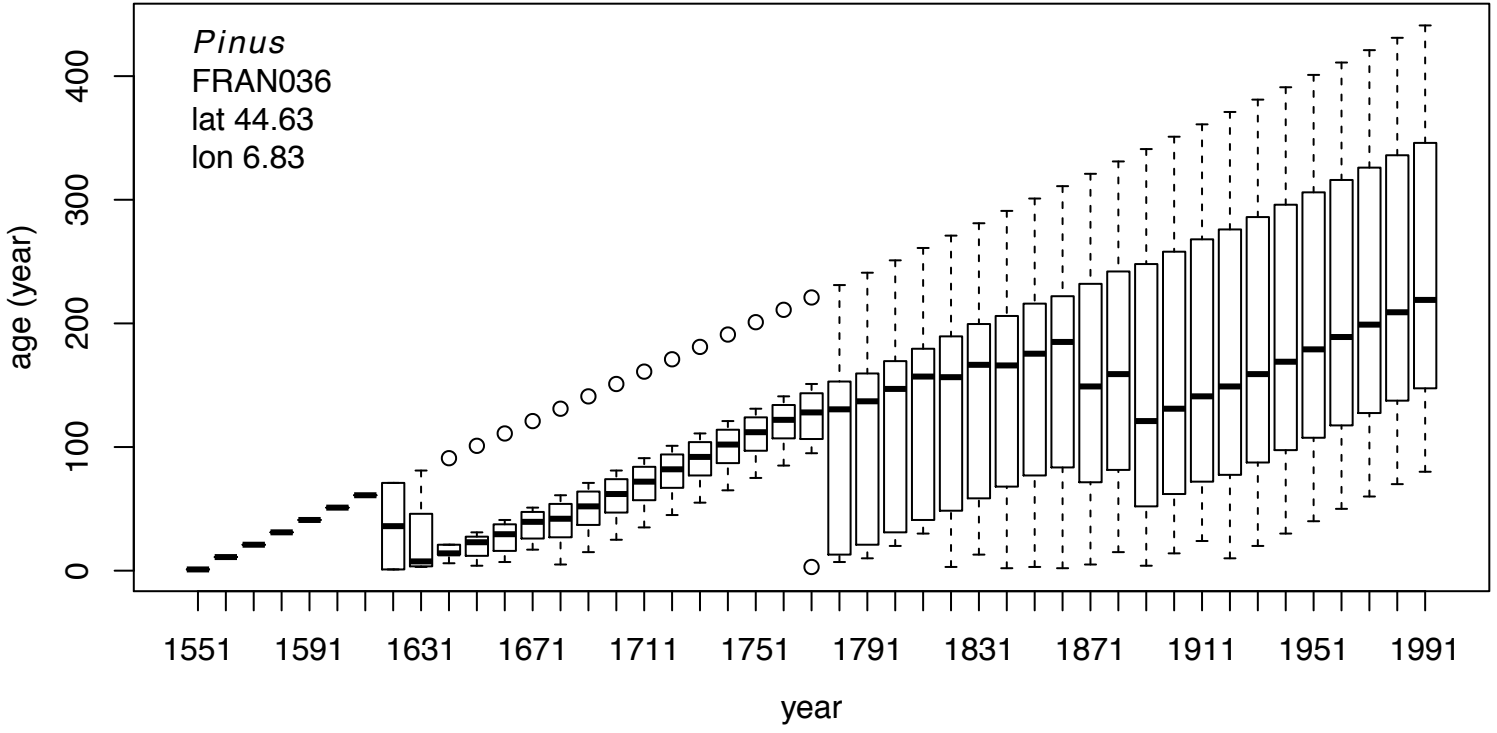
1924
1964
year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FRAN036
lat 44.63
lon 6.83
age (year)
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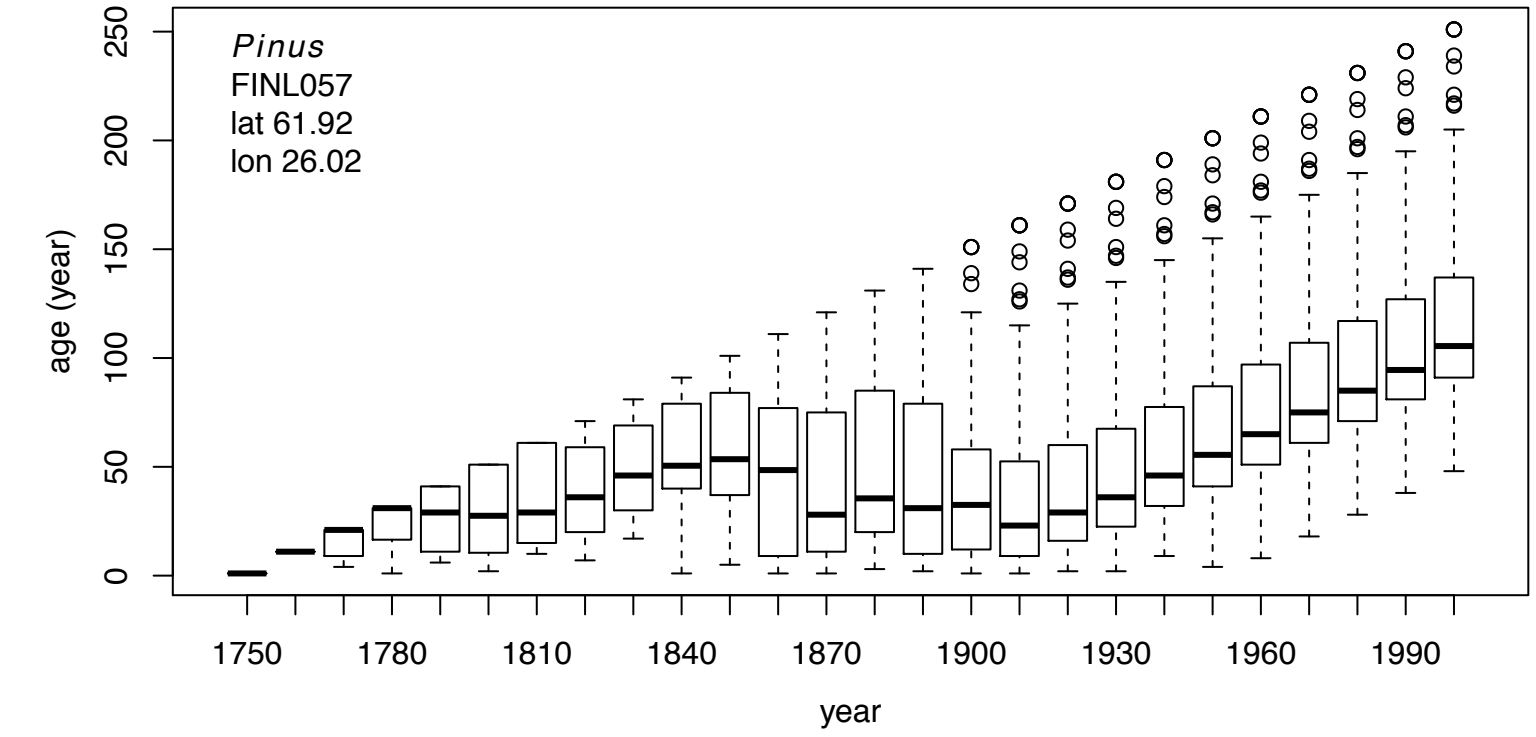
1911
1951
1991
year


Pinus
FINL057
lat 61.92
lon 26.02
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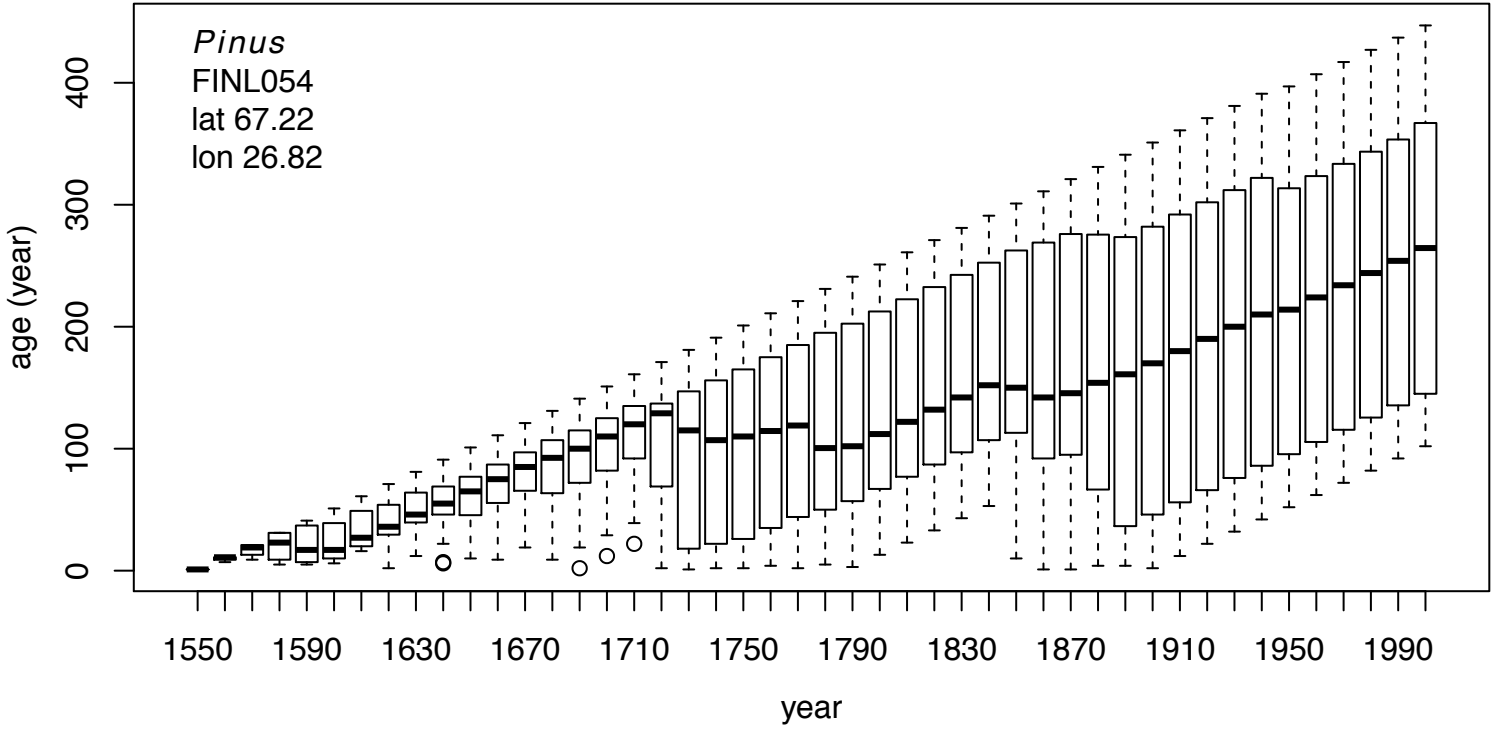
1930
1960
1990
year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FINL054
lat 67.22
lon 26.82
age (year)
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1590
1630
1670
1710
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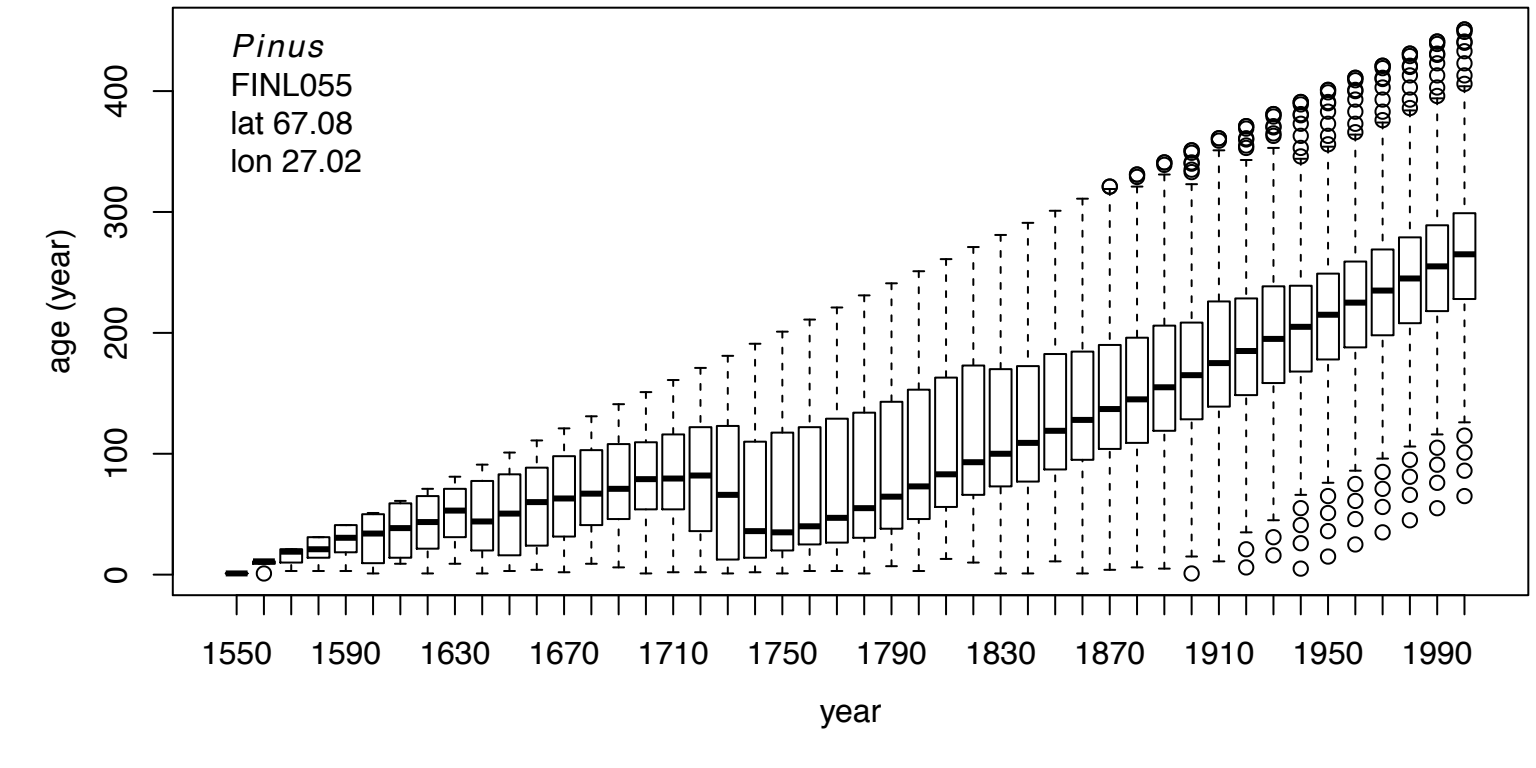
1790
1830
1870
1910
1950
1990
year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FINL055
lat 67.08
lon 27.02
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1790
1830
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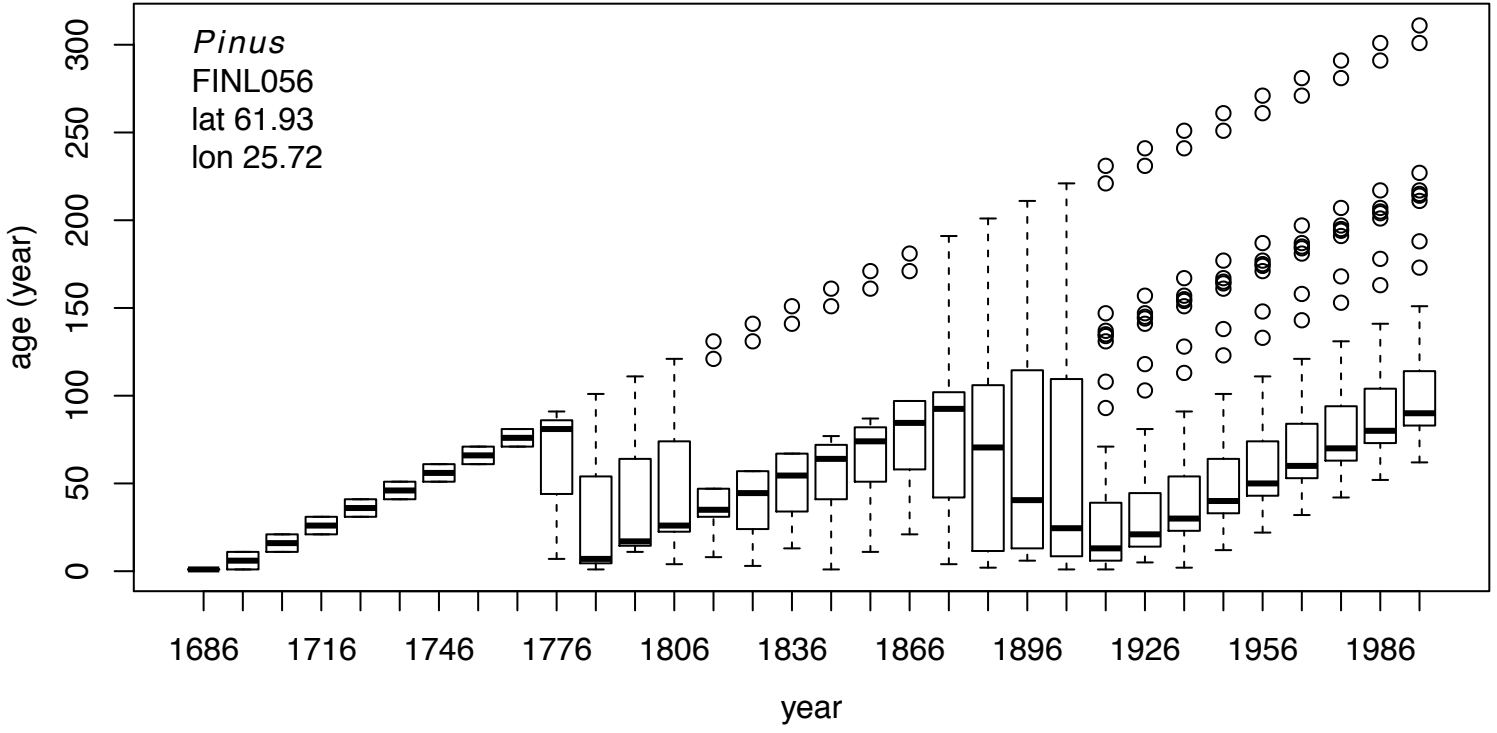
1910
1950
1990
year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FINL056
lat 61.93
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age (year)
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300
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1836
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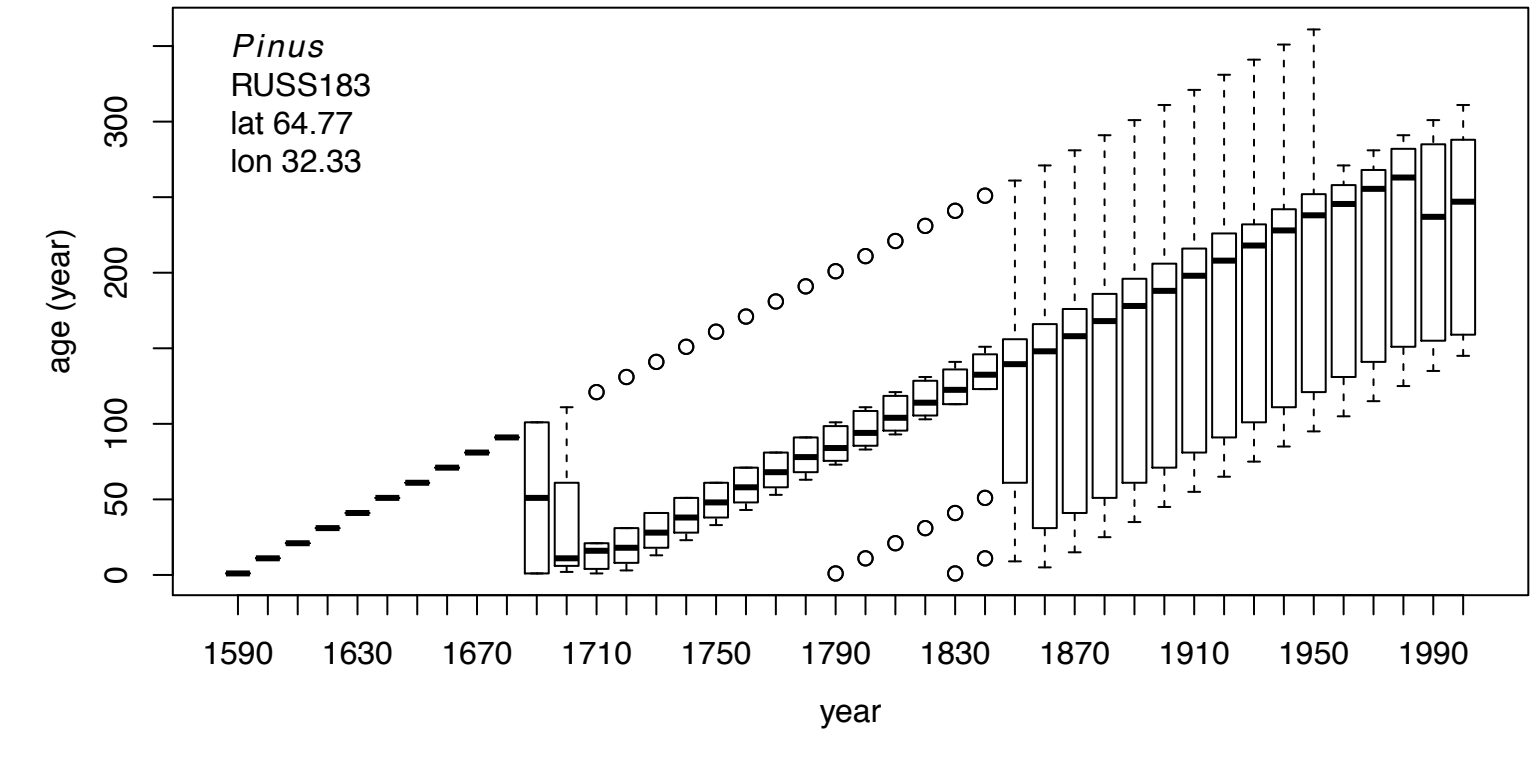
1956
1986
year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RUSS183
lat 64.77
lon 32.33
age (year)
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1670
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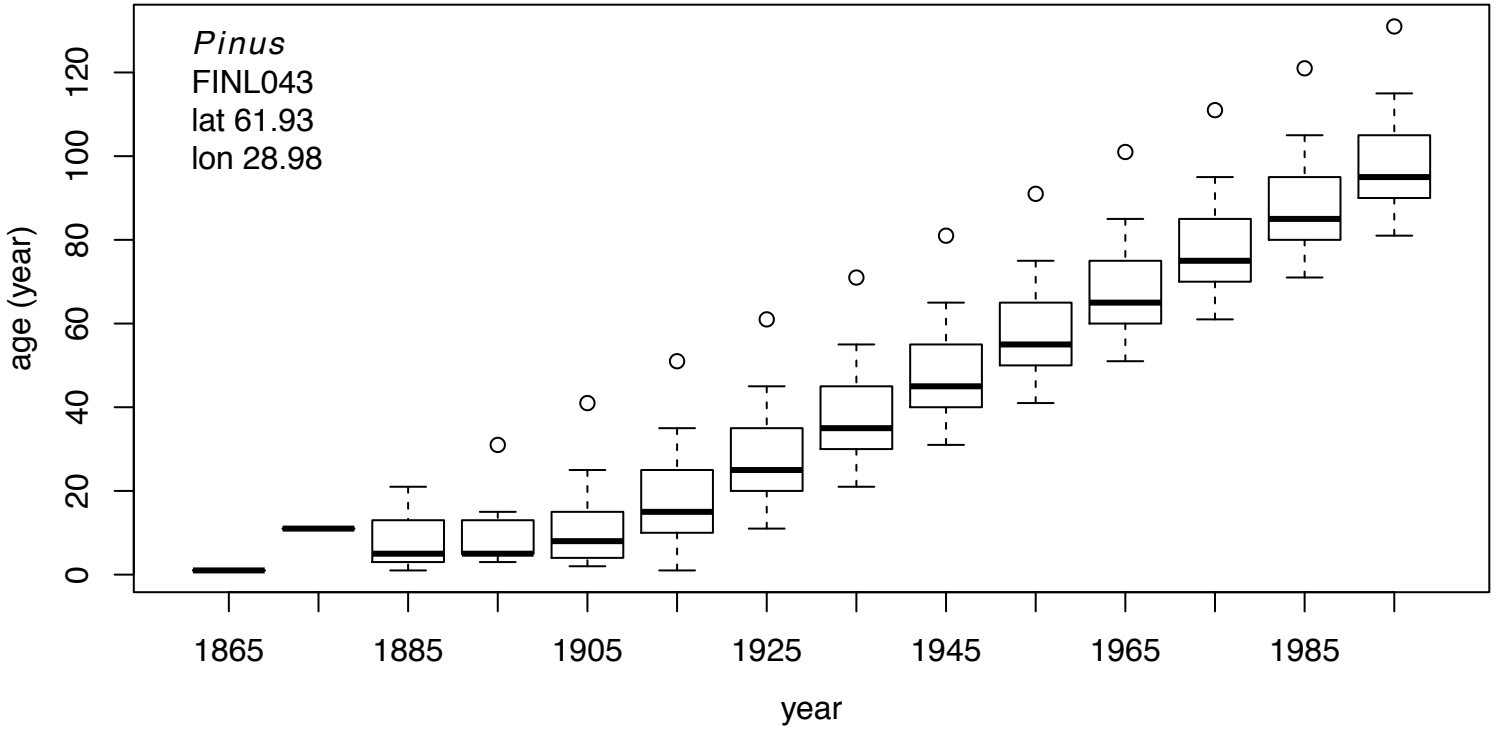
1910
1950
1990
year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FINL043
lat 61.93
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100
120
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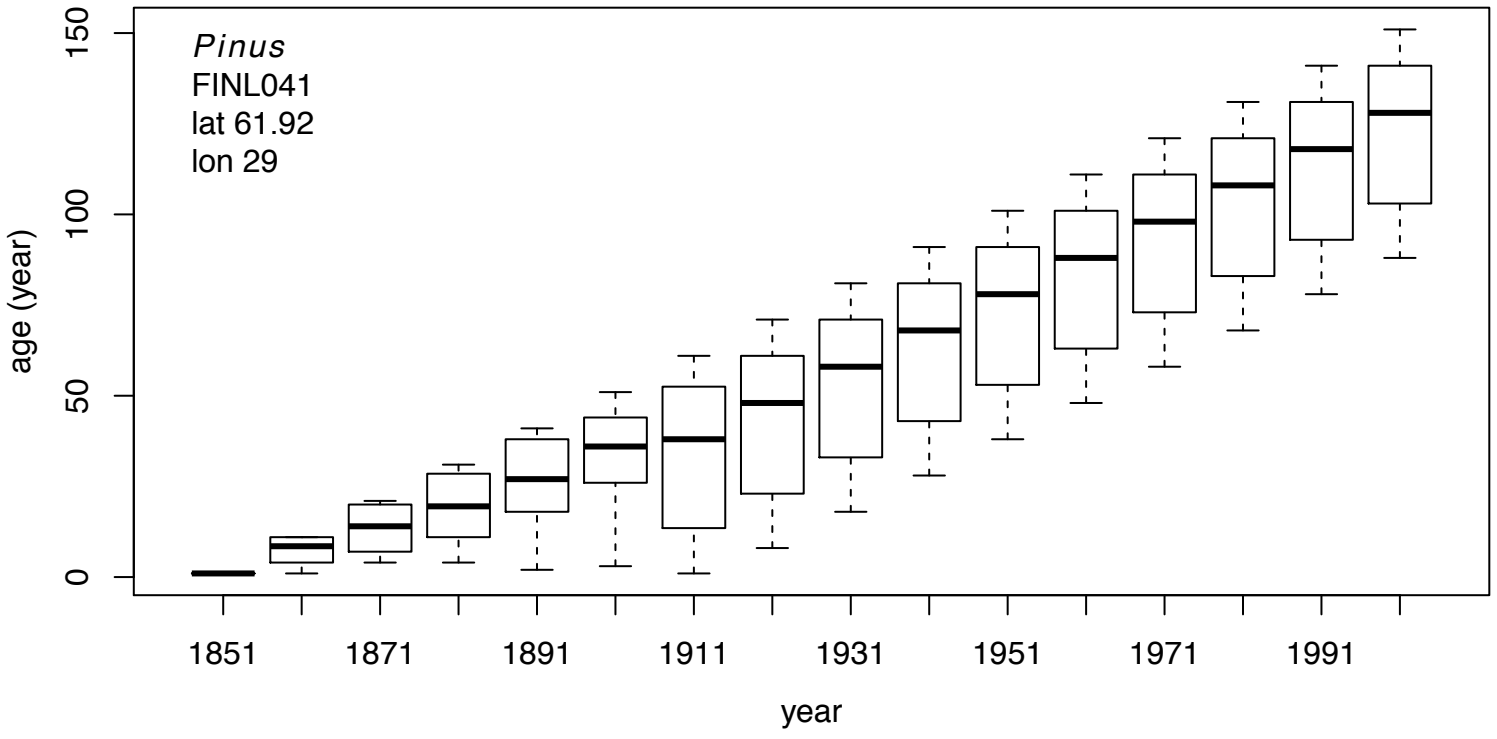
1885
1905
1925
1945
1965
1985
year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FINL041
lat 61.92
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age (year)
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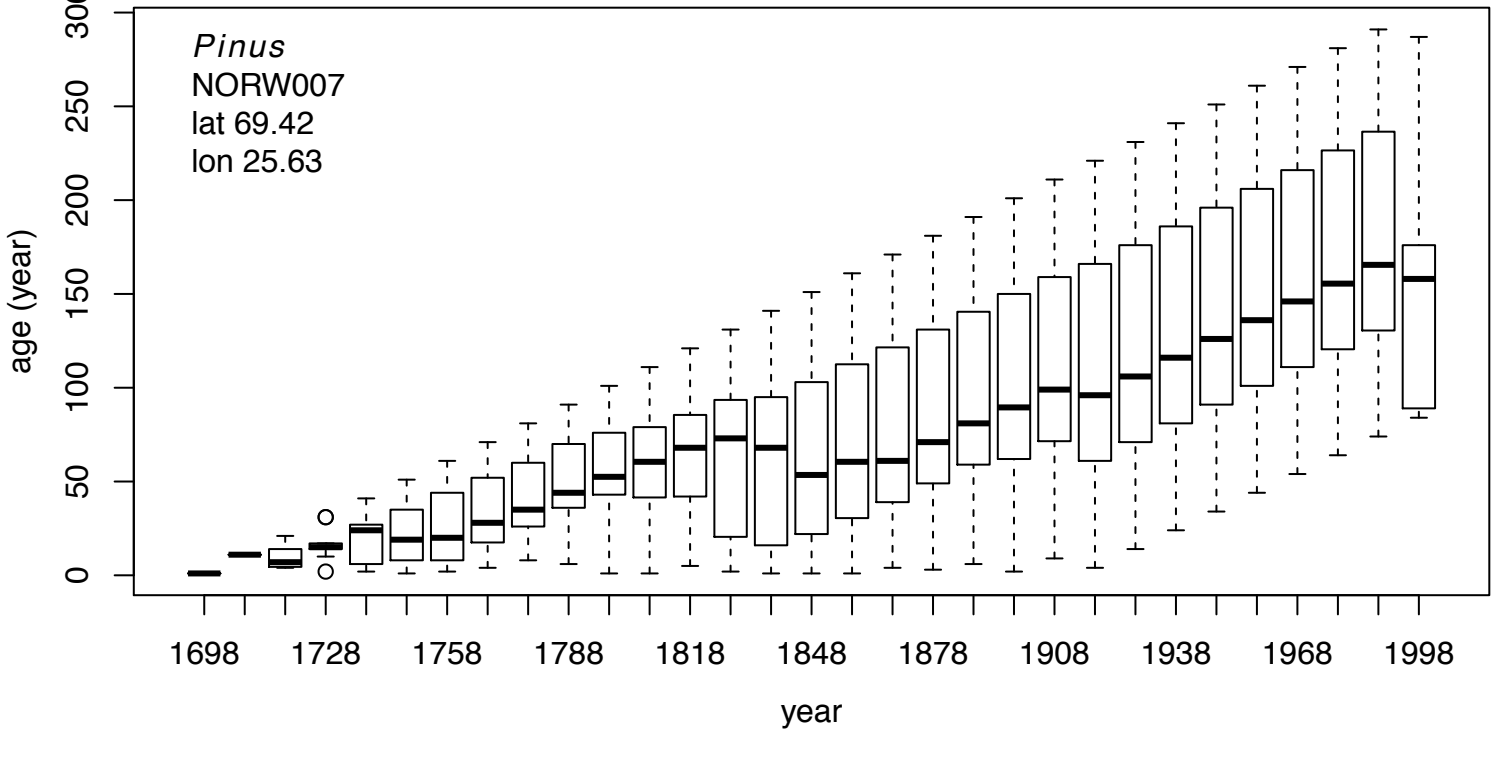
1851
1871
1891
1911
1931
1951
1971
1991
year


Pinus
NORW007
lat 69.42
lon 25.63
age (year)
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300
1698
1728
1758
1788
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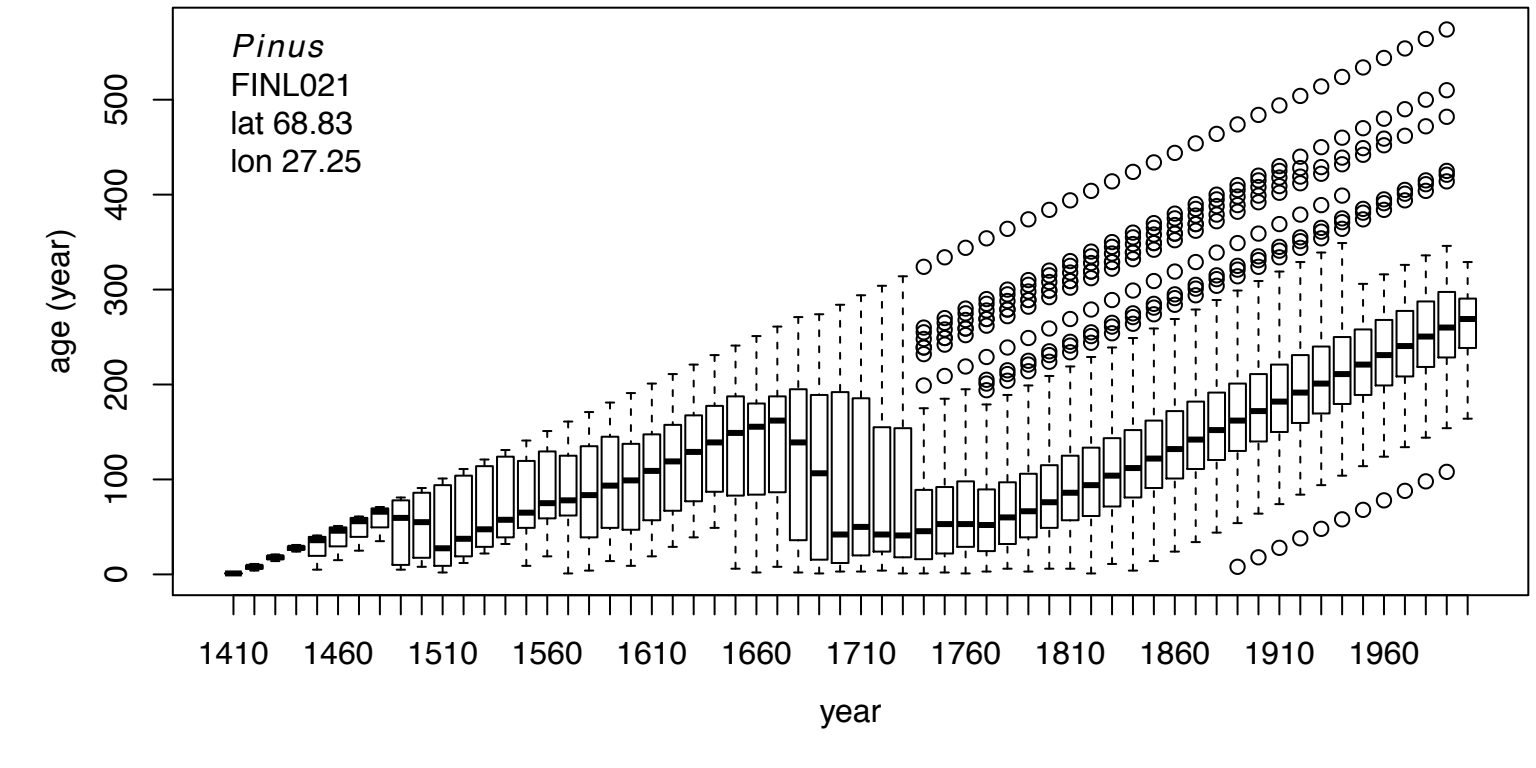
1848
1878
1908
1938
1968
1998
year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FINL021
lat 68.83
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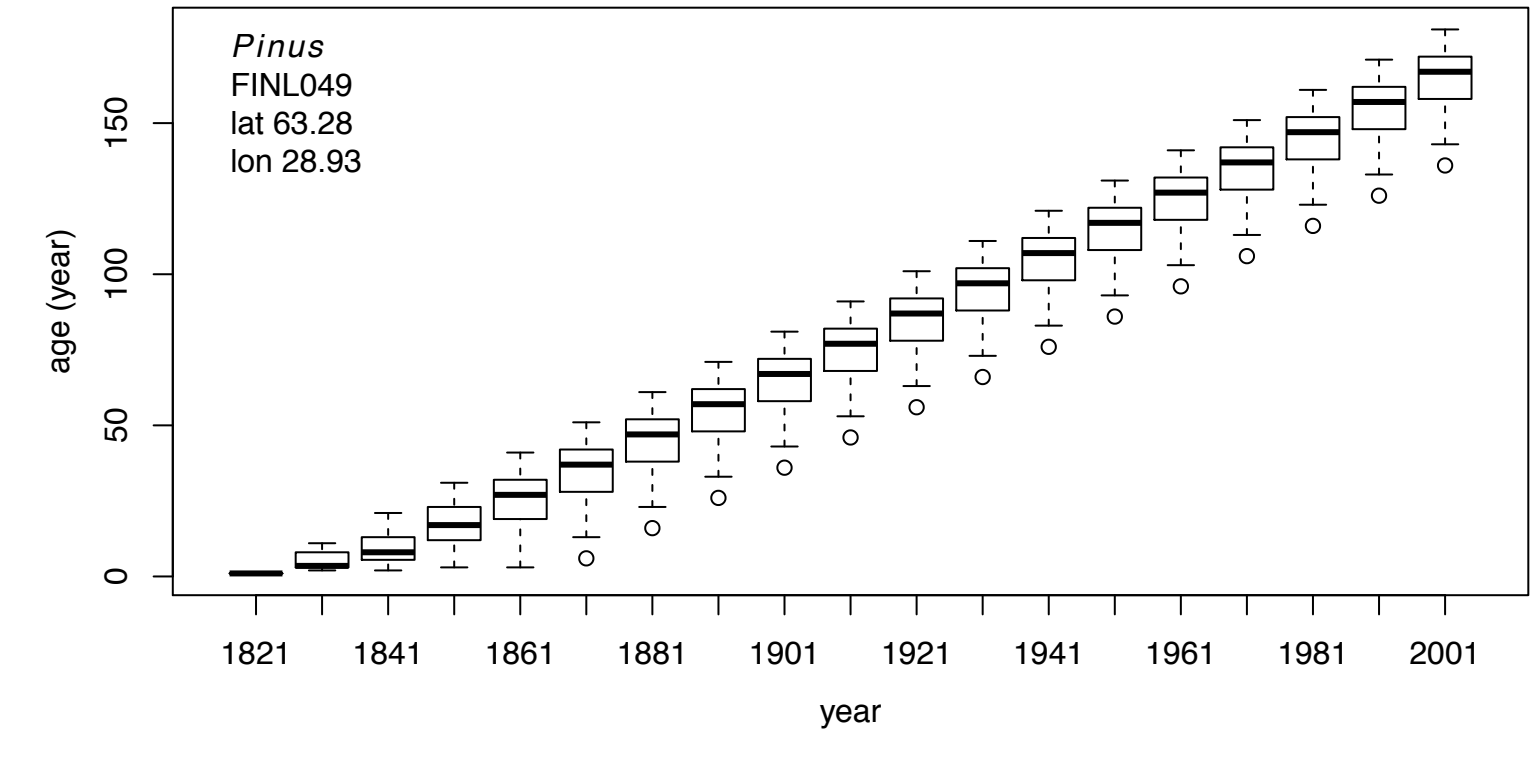
1860
1910
1960
year


Pinus
FINL049
lat 63.28
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age (year)
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1861
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1901
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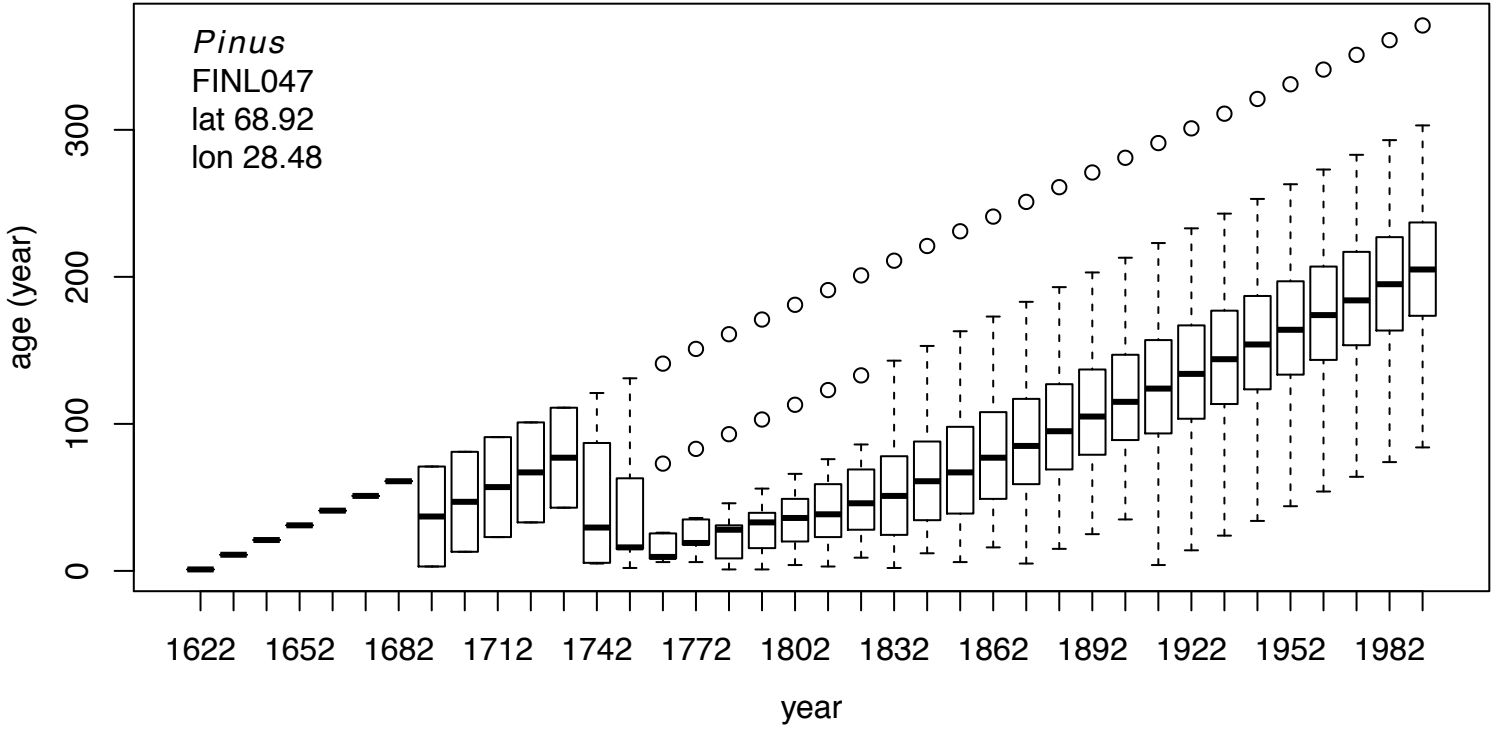
1961
1981
2001
year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1682
1712
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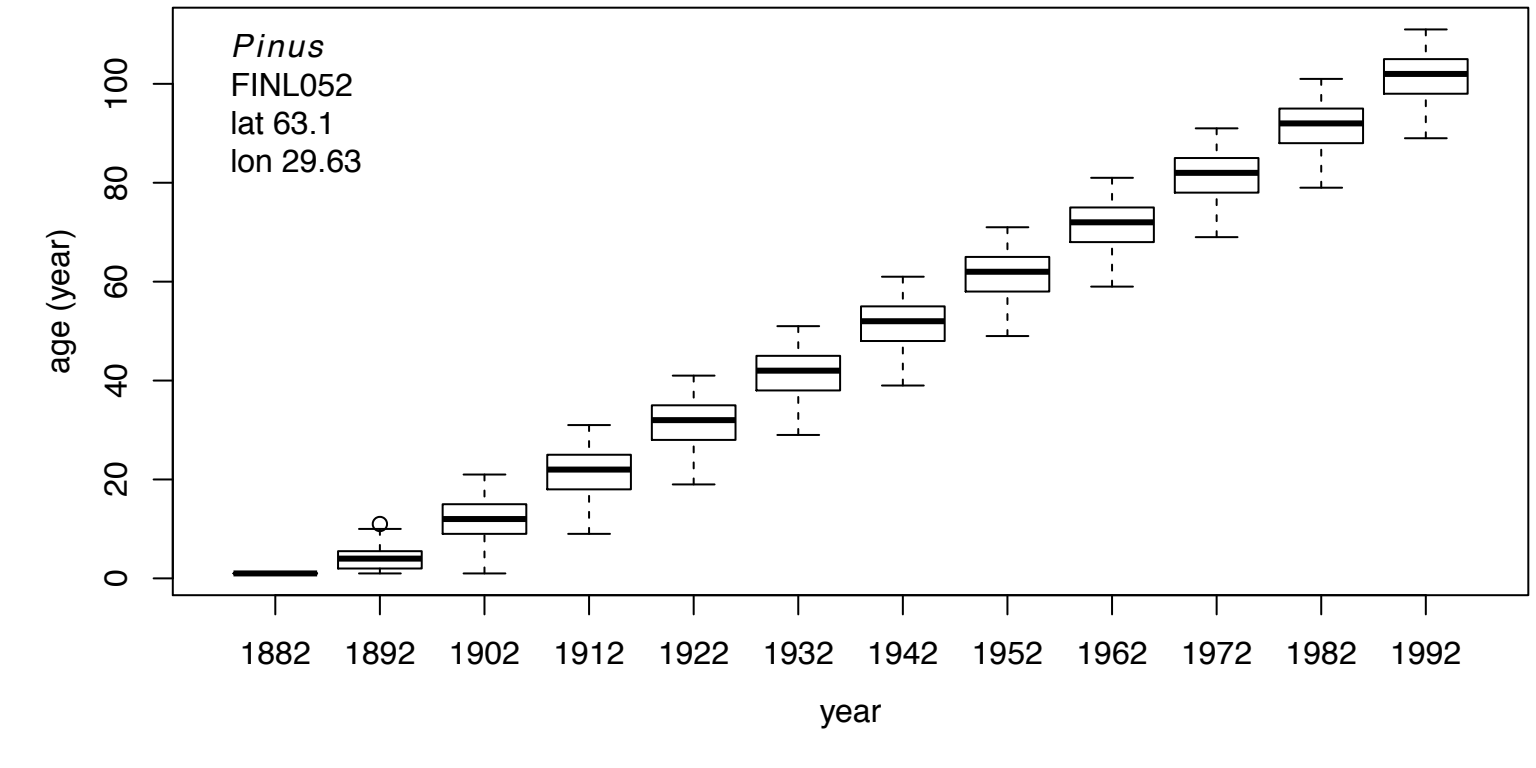
1832
1862
1892
1922
1952
1982
year


Pinus
FINL052
lat 63.1
lon 29.63
age (year)
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1882
1892
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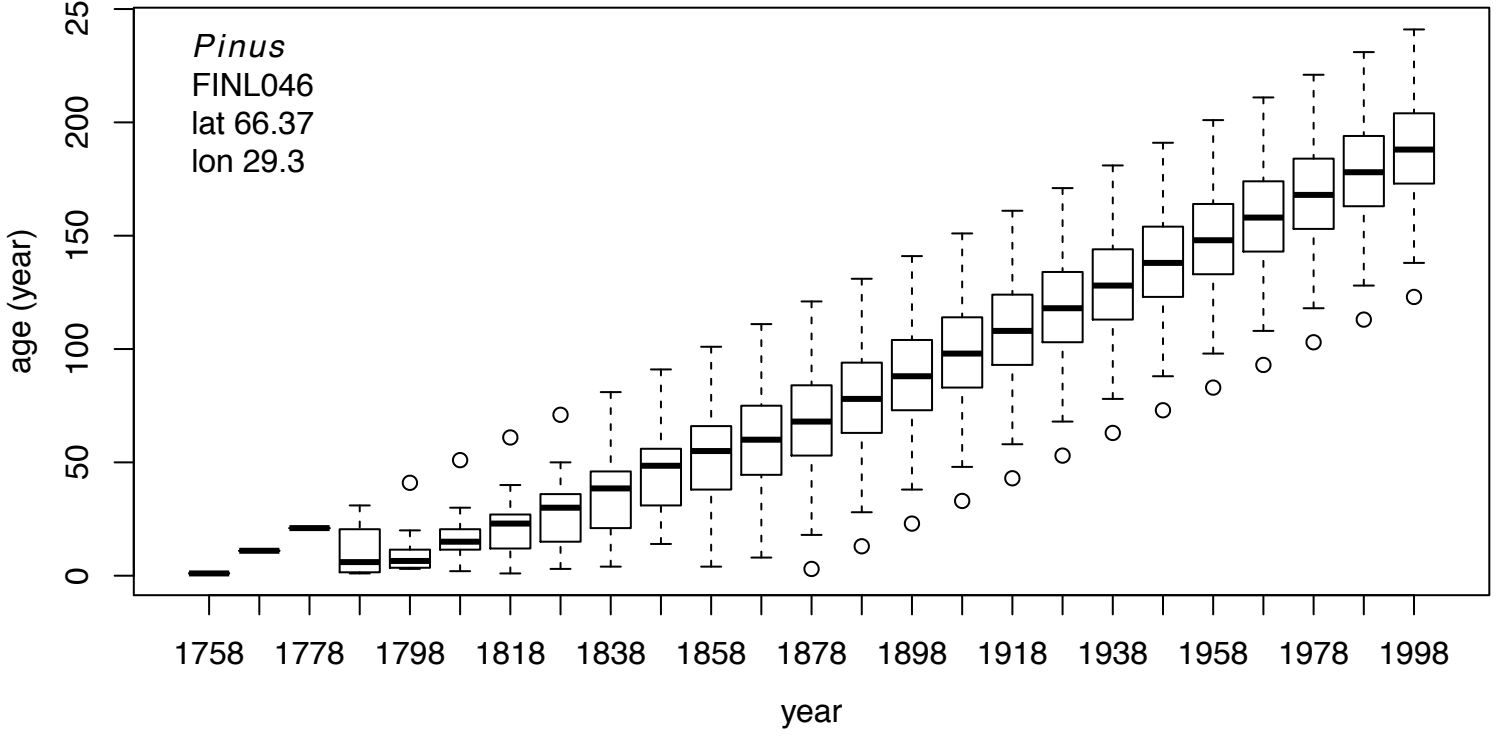
1972
1982
1992
year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FINL046
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lon 29.3
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1958
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1998
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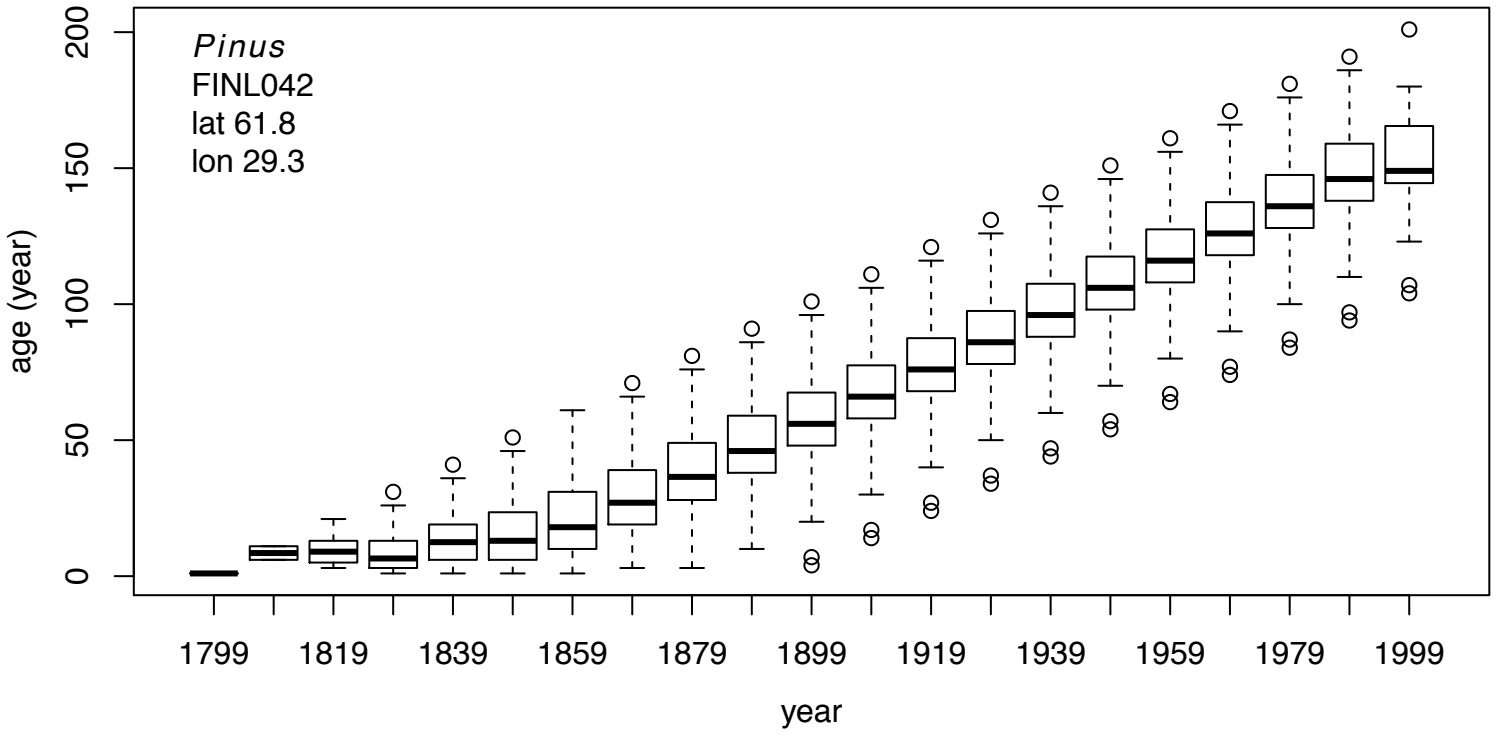
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FINL042
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1899
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1959
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1999
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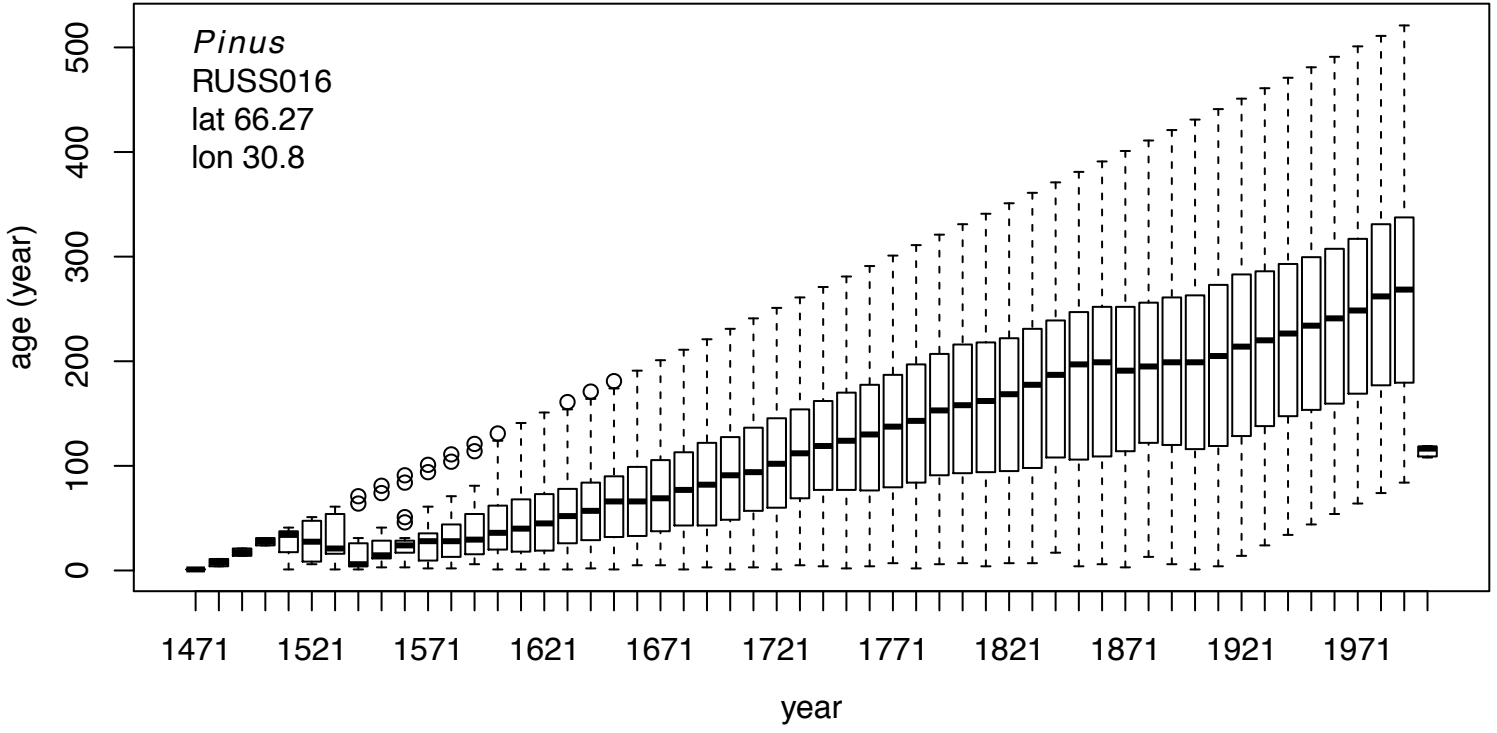
Pinus
RUSS016
lat 66.27
lon 30.8
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1971
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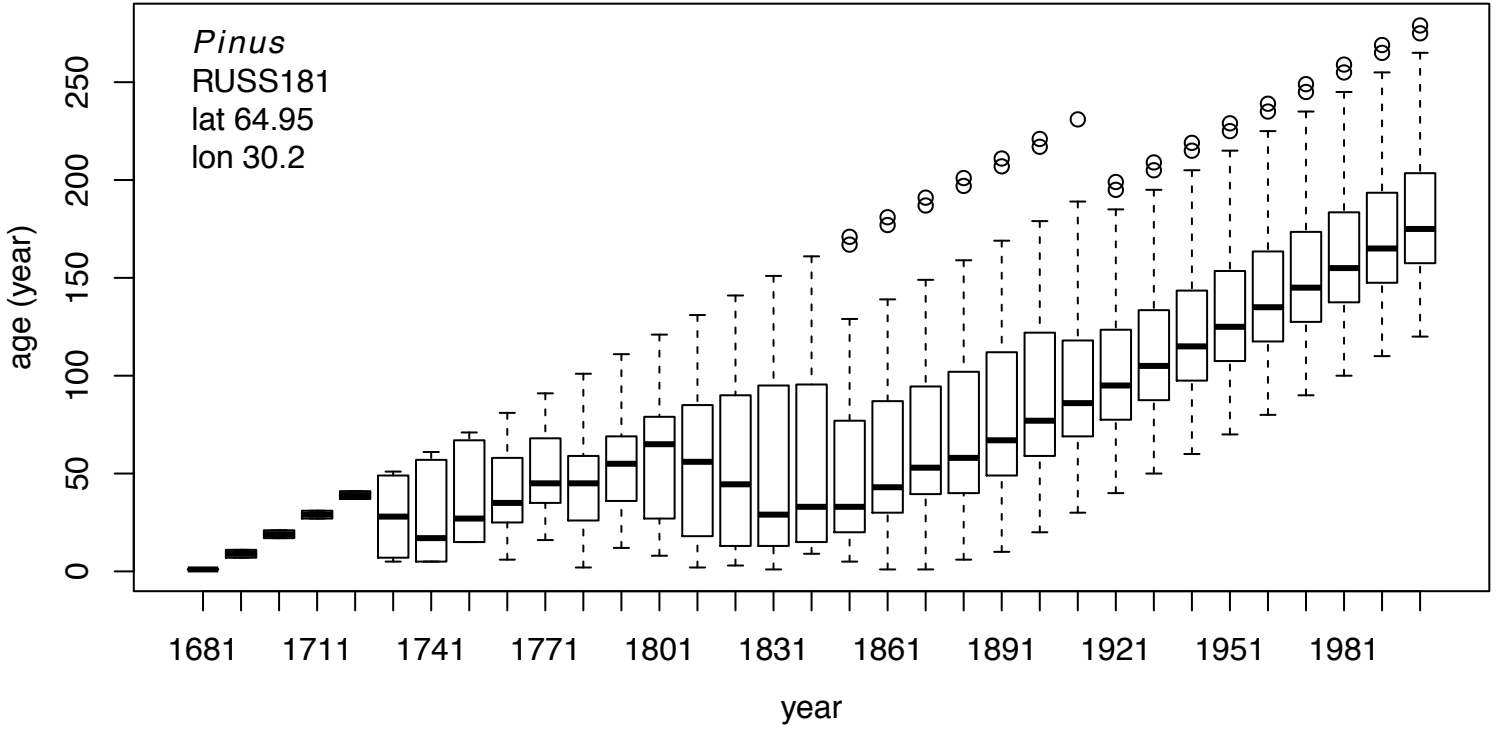
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RUSS181
lat 64.95
lon 30.2
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1981
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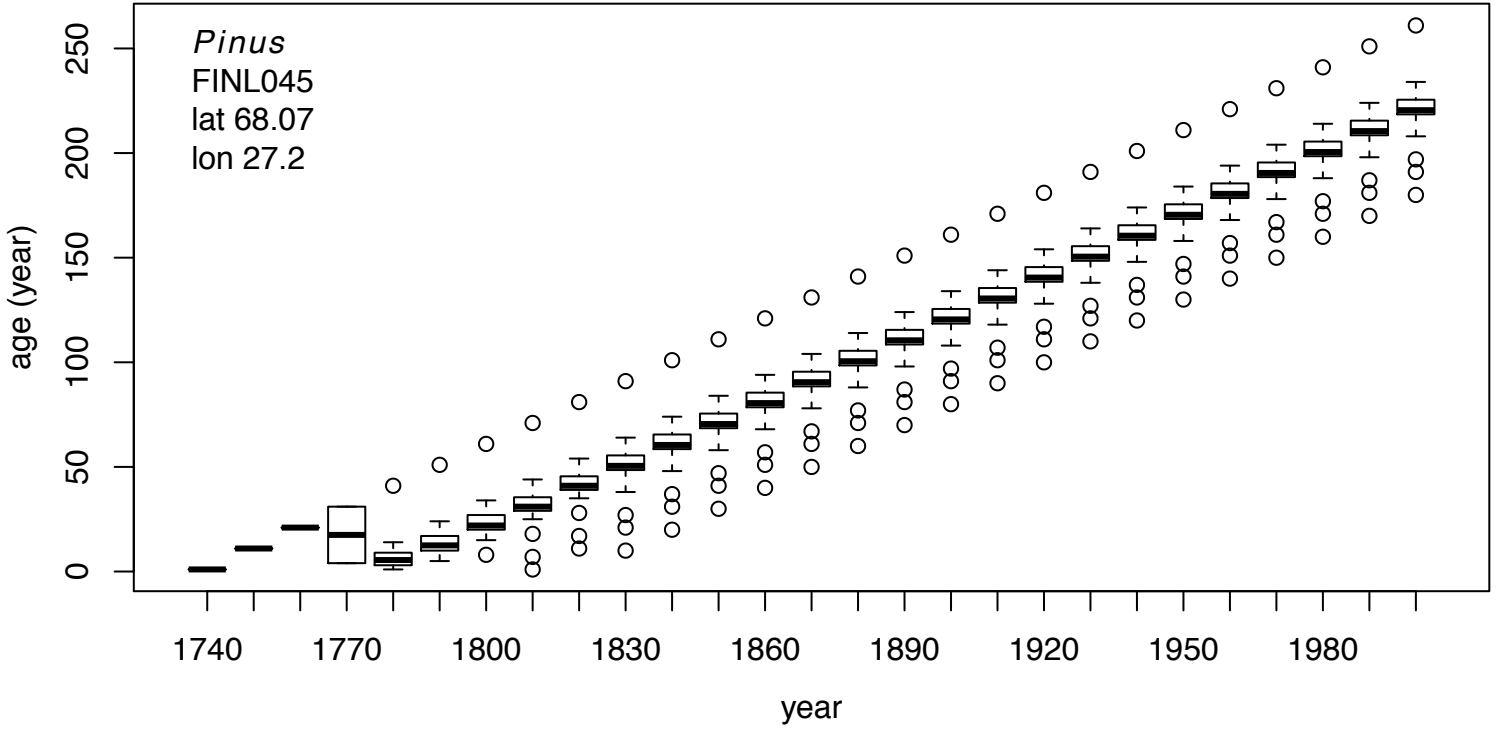
Pinus
FINL045
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lon 27.2
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1980
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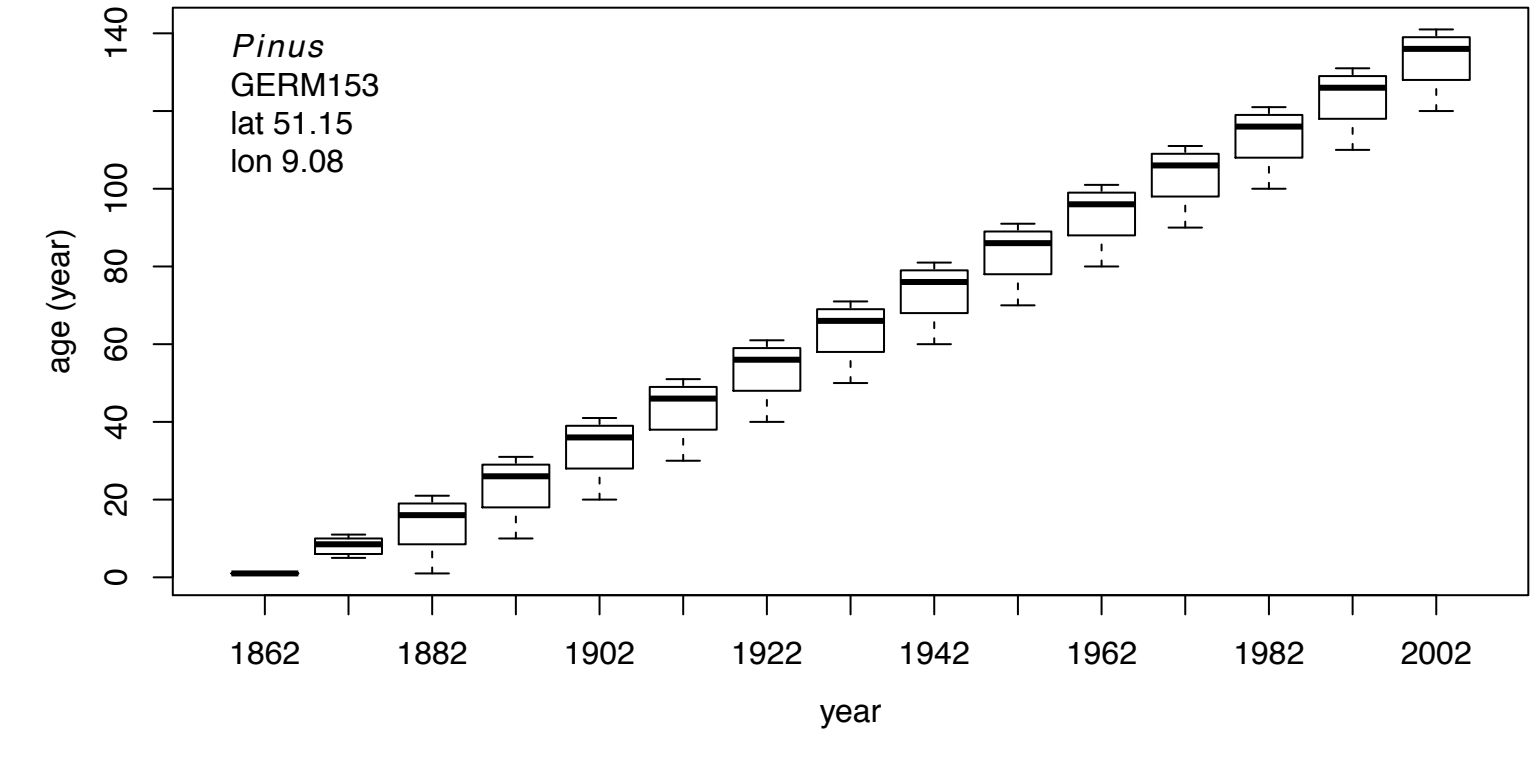
Pinus
GERM153
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lon 9.08
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2002
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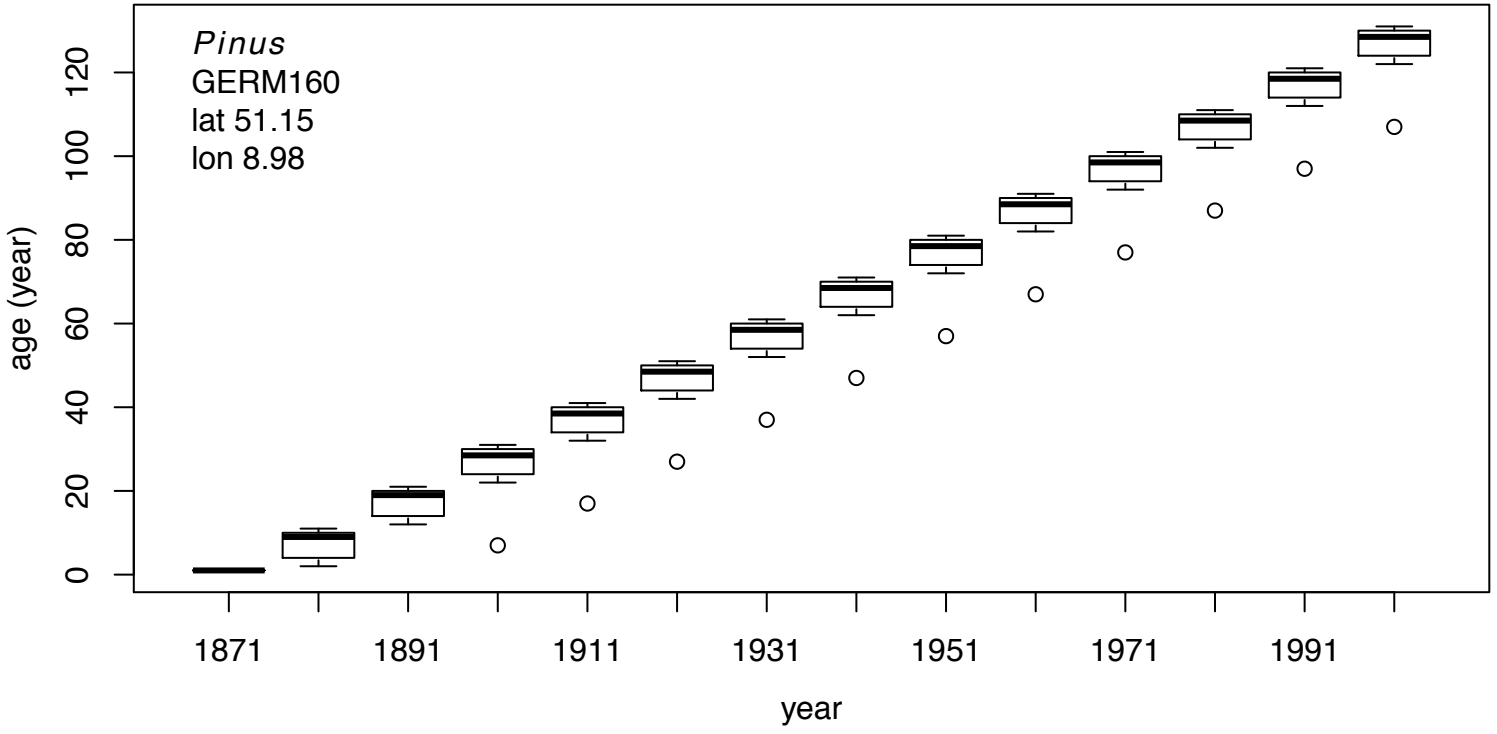
Pinus
GERM160
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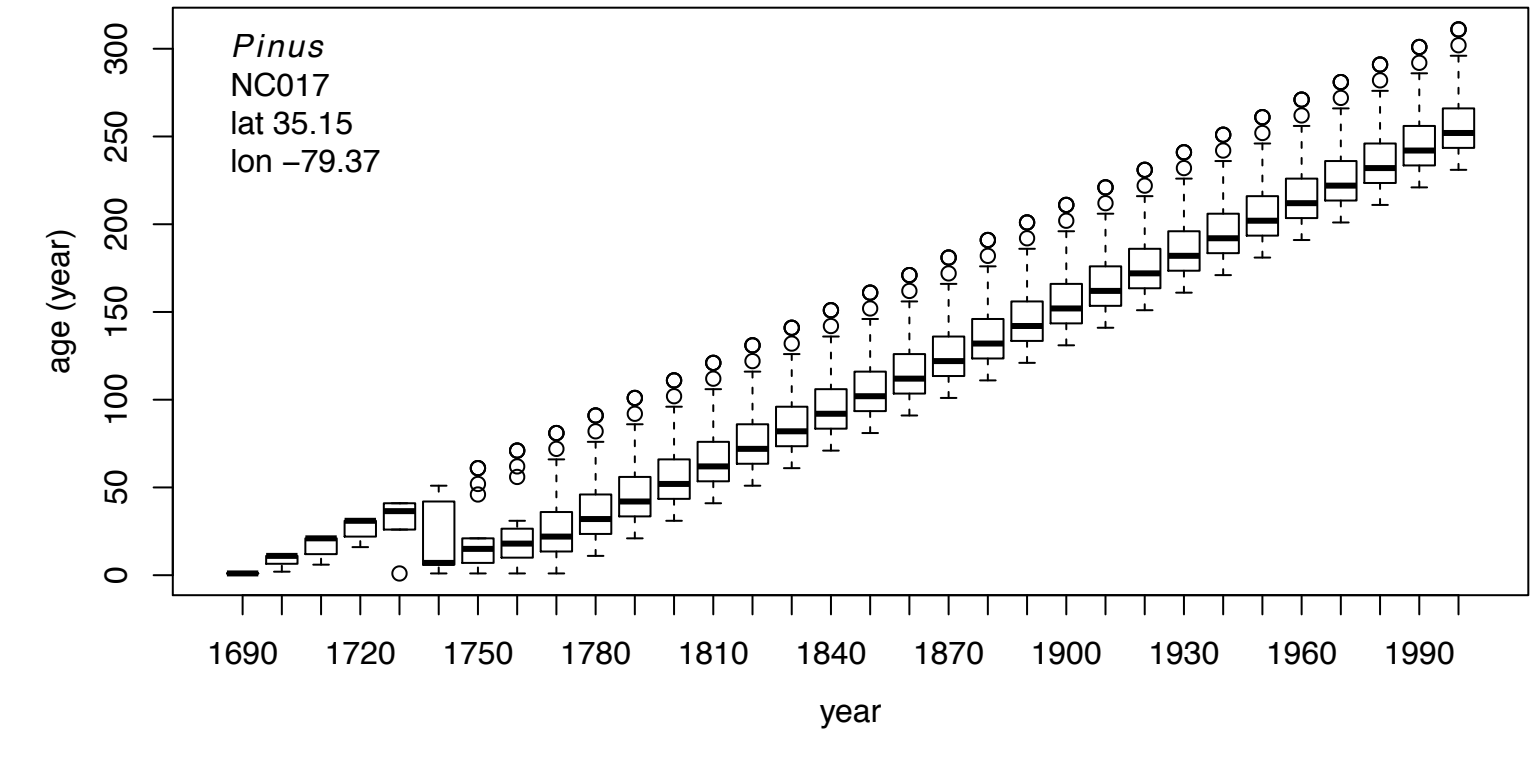
1991
year


Pinus
NC017
lat 35.15
lon −79.37
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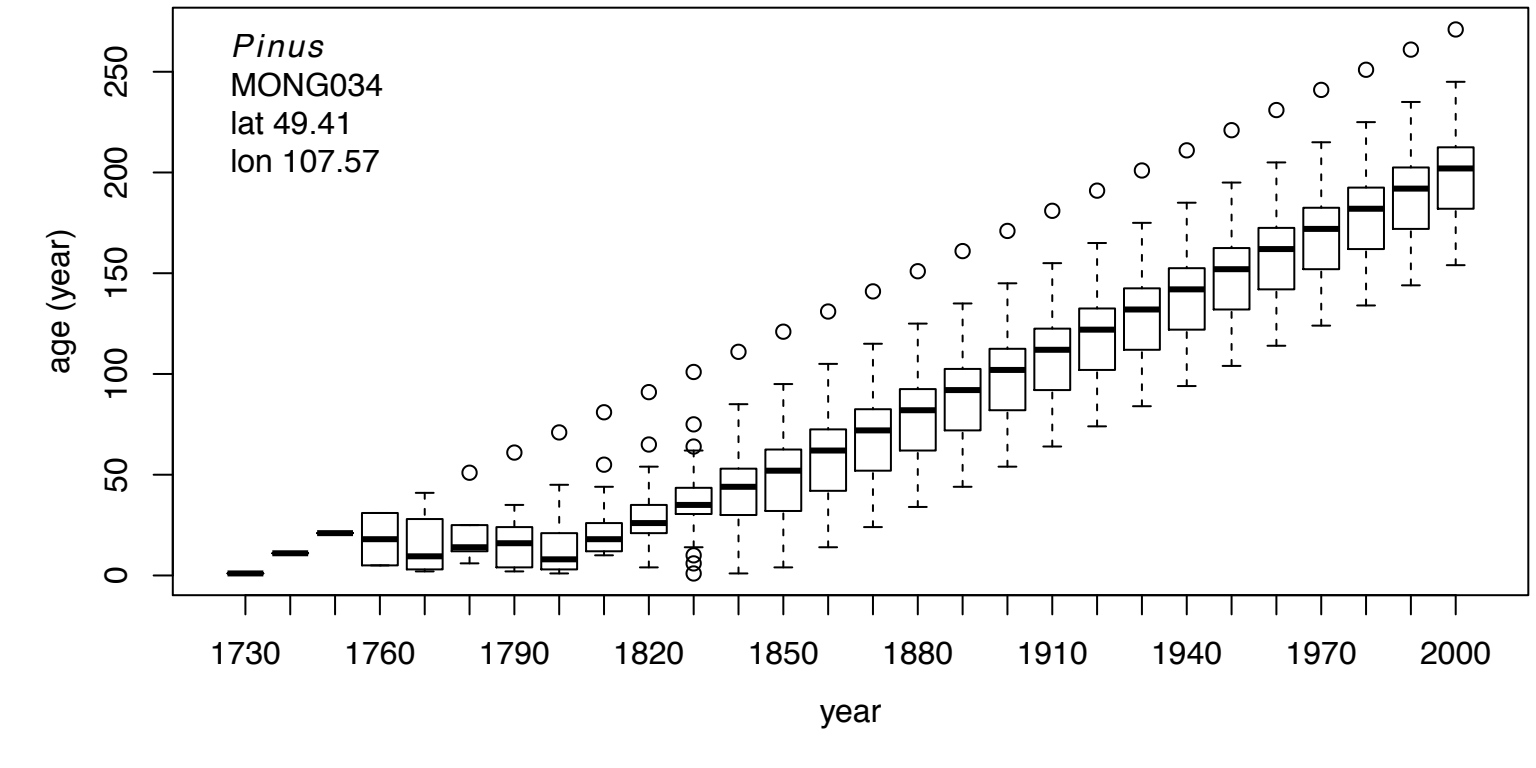
1990
year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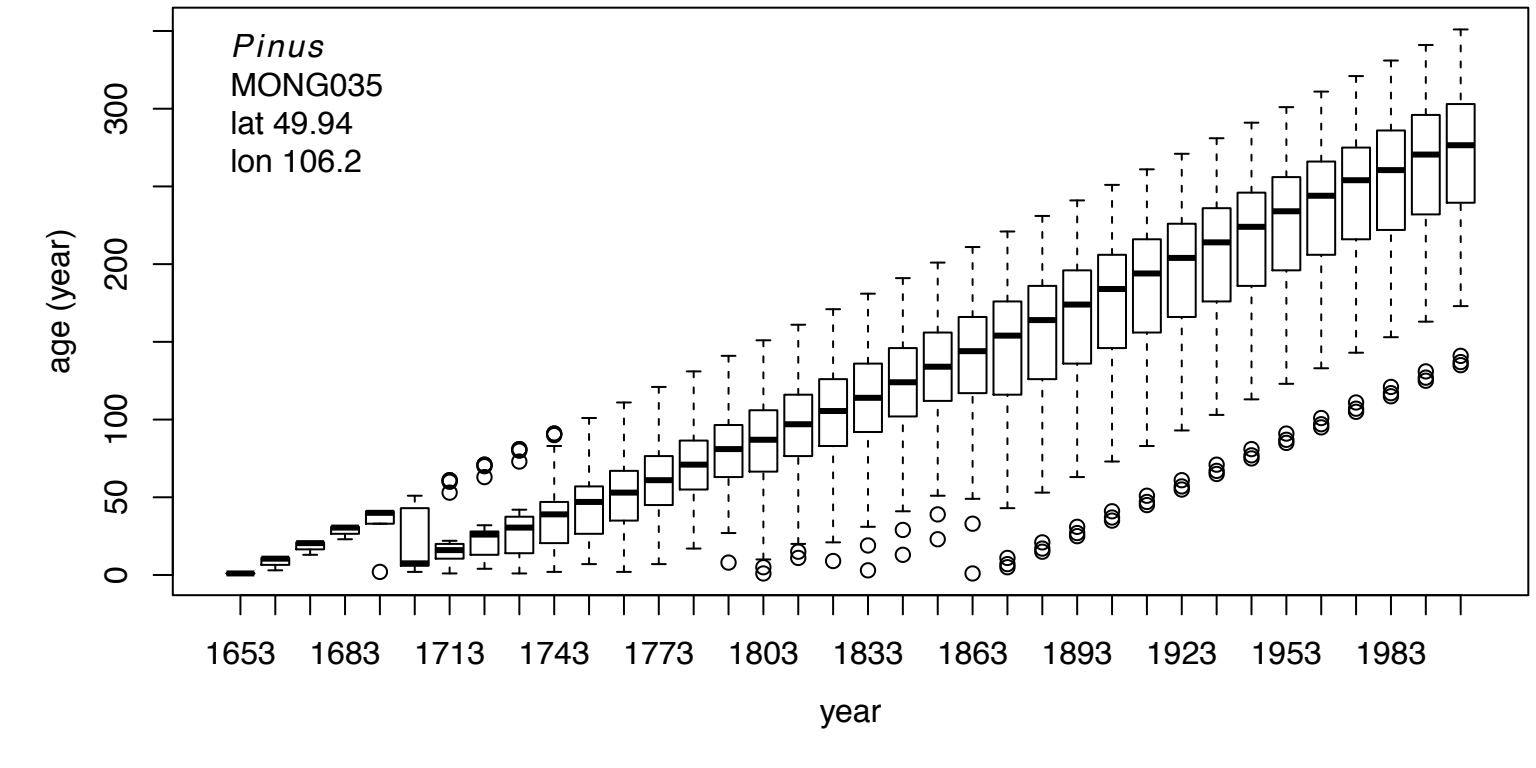
1970
2000
year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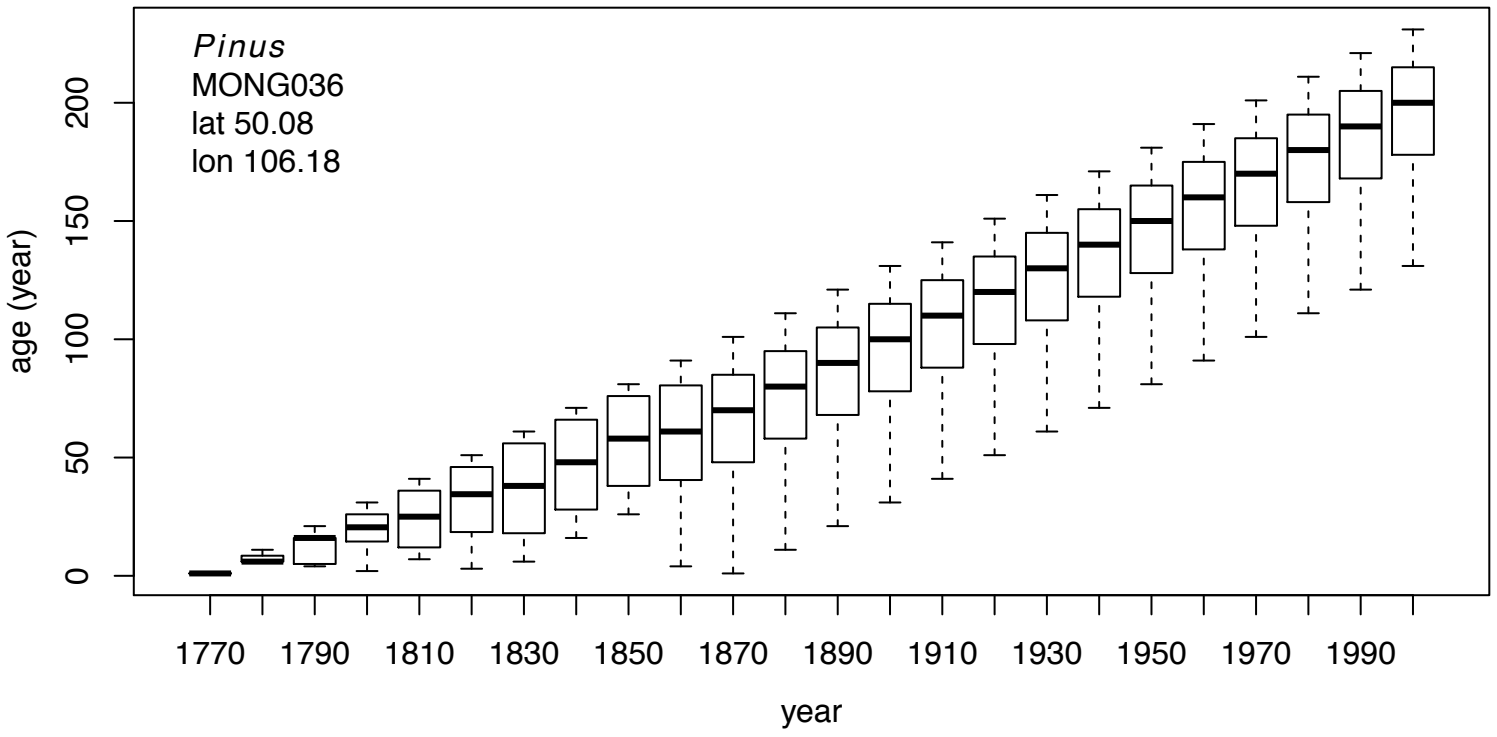
1983
year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lon 106.18
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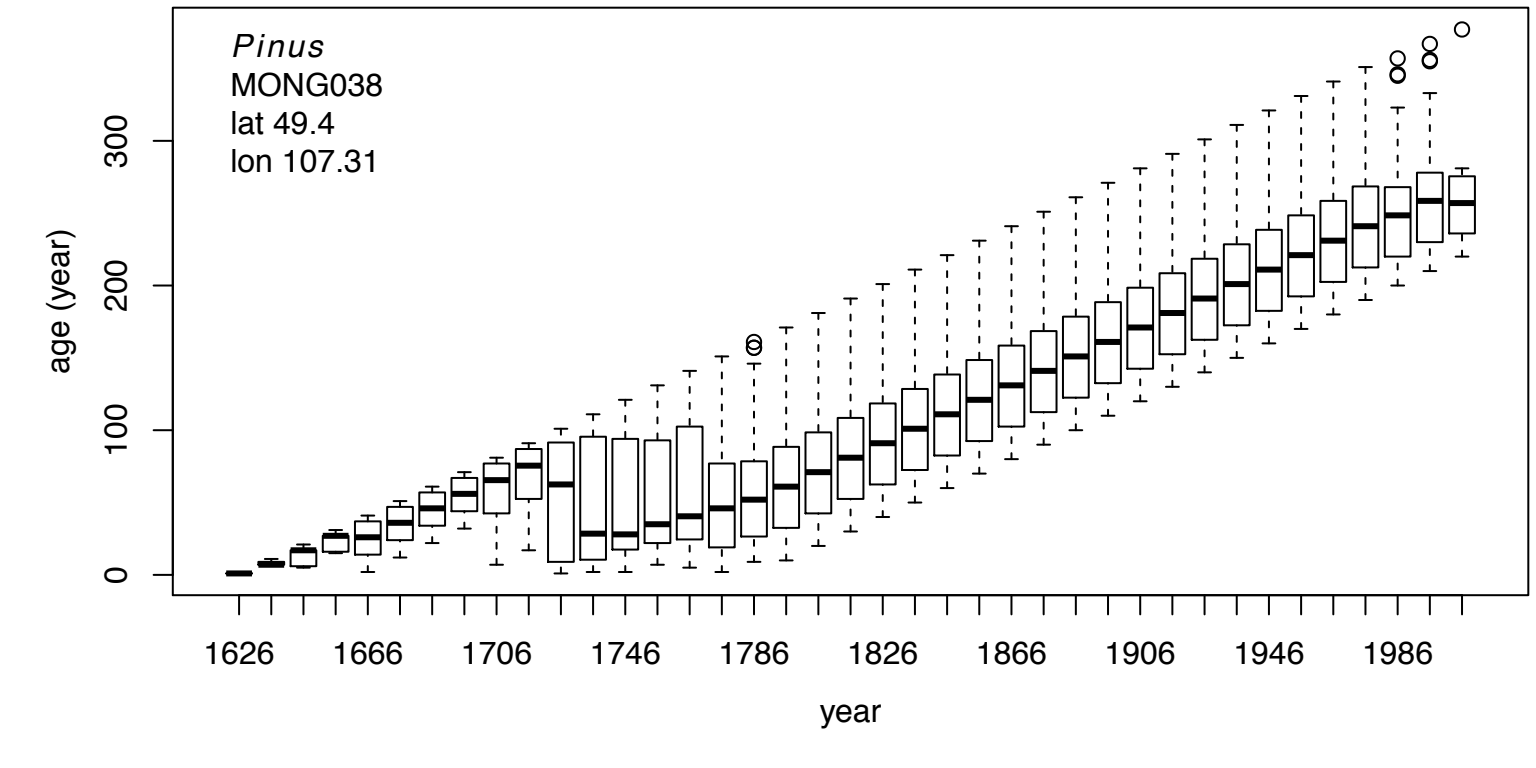
1970
1990
year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1986
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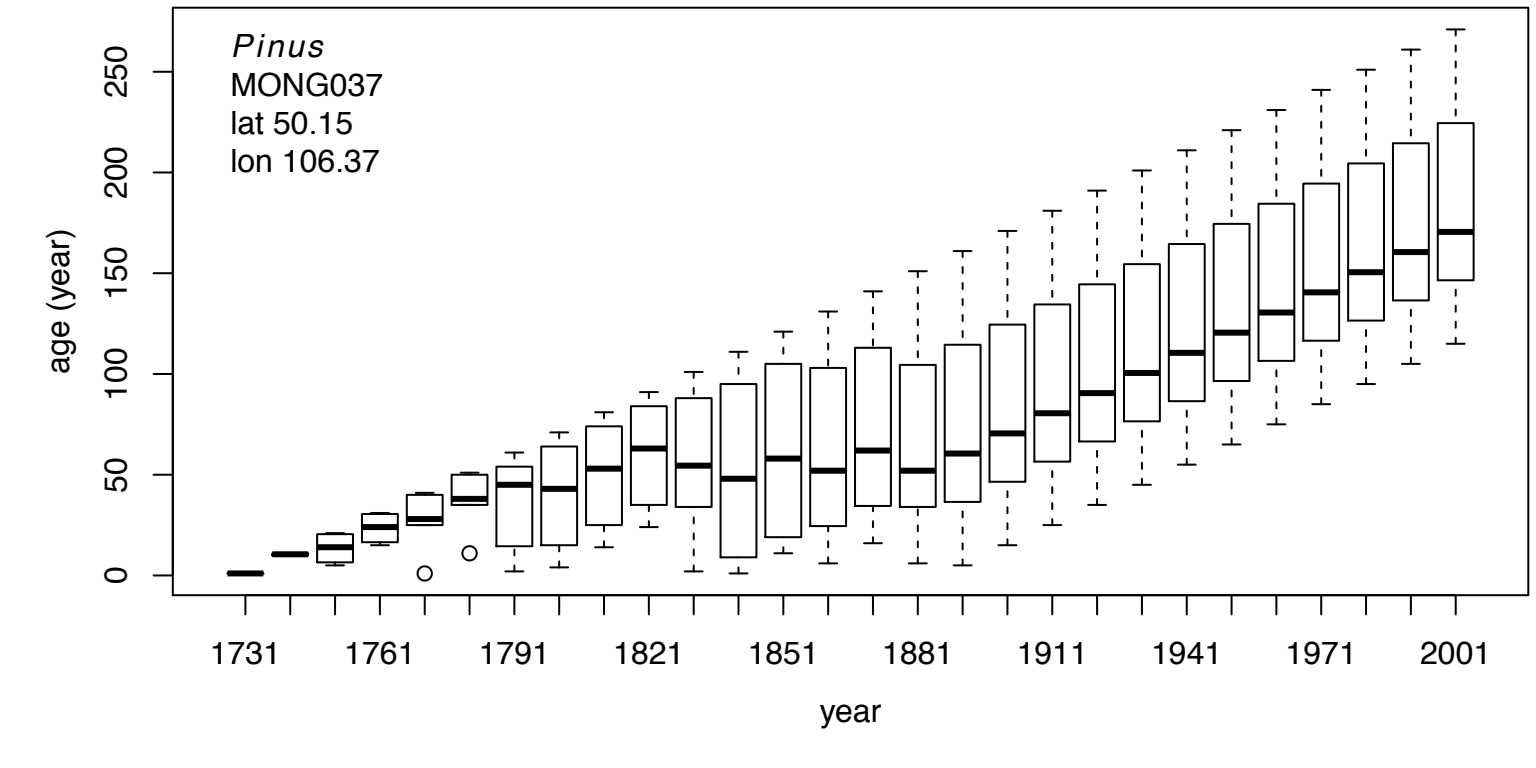
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MONG037
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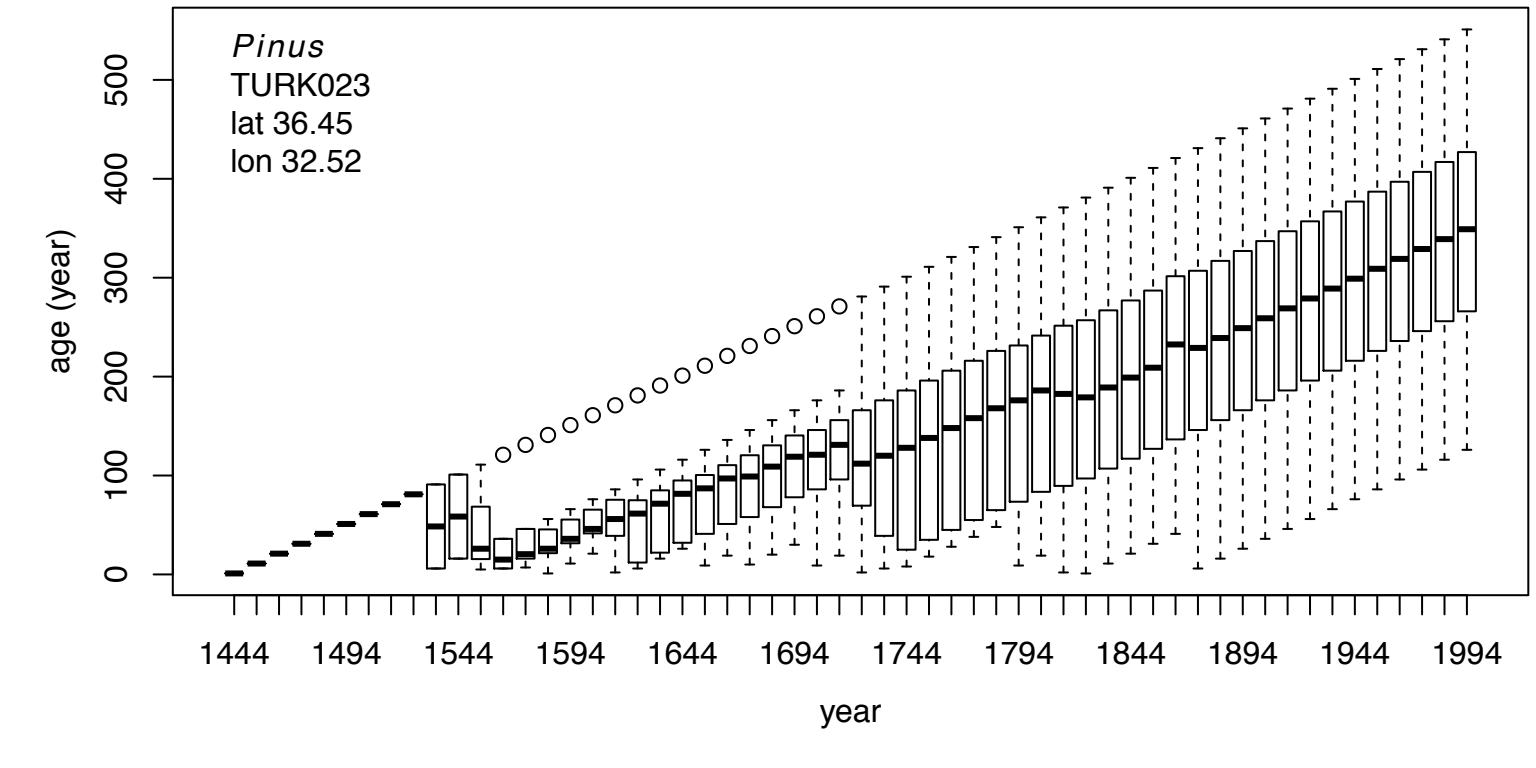
2001
year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TURK023
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lon 32.52
age (year)
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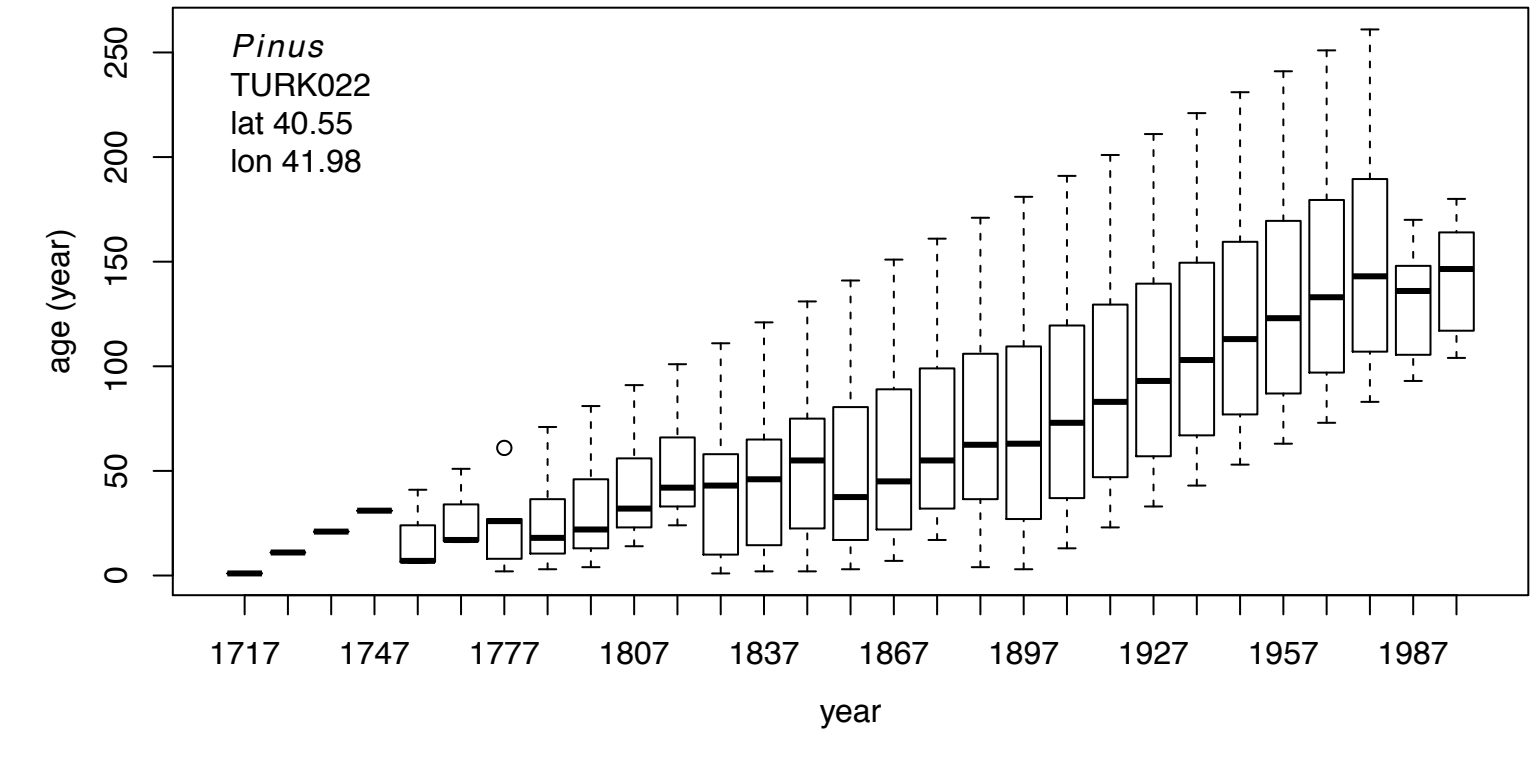
1894
1944
1994
year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TURK022
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lon 41.98
age (year)
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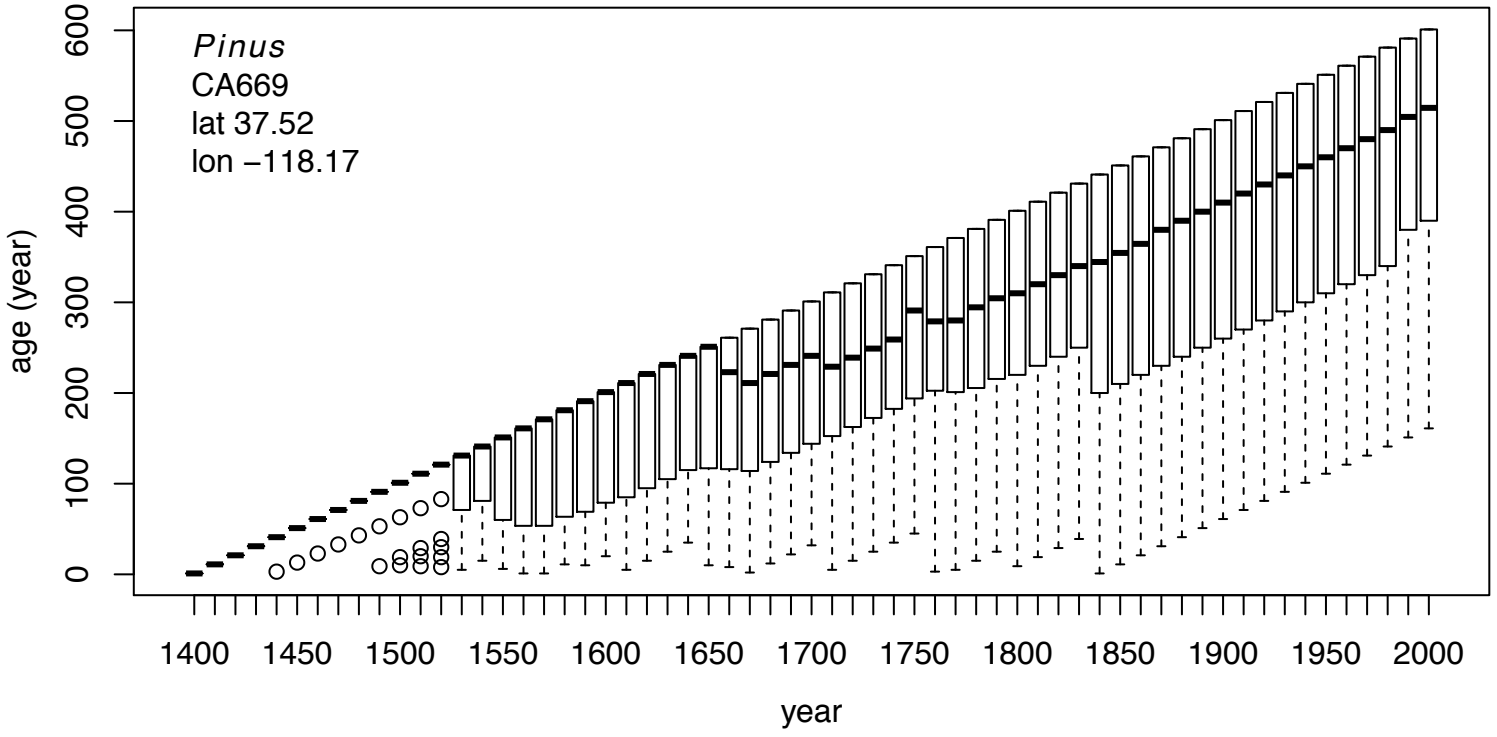
1957
1987
year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CA669
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lon −118.17
age (year)
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1450
1500
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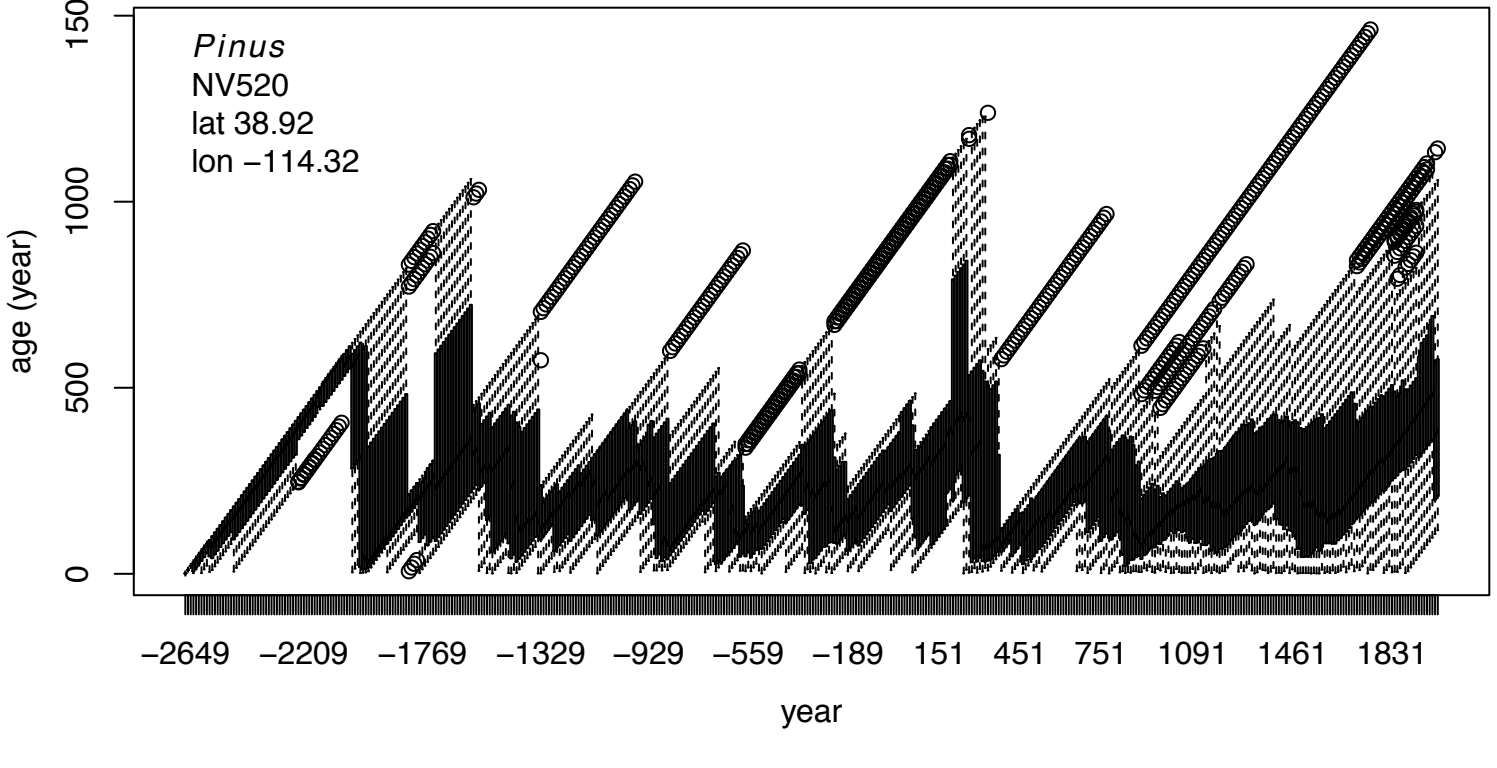
1600
1650
1700
1750
1800
1850
1900
1950
2000
year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NV520
lat 38.92
lon −114.32
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−1769
−1329
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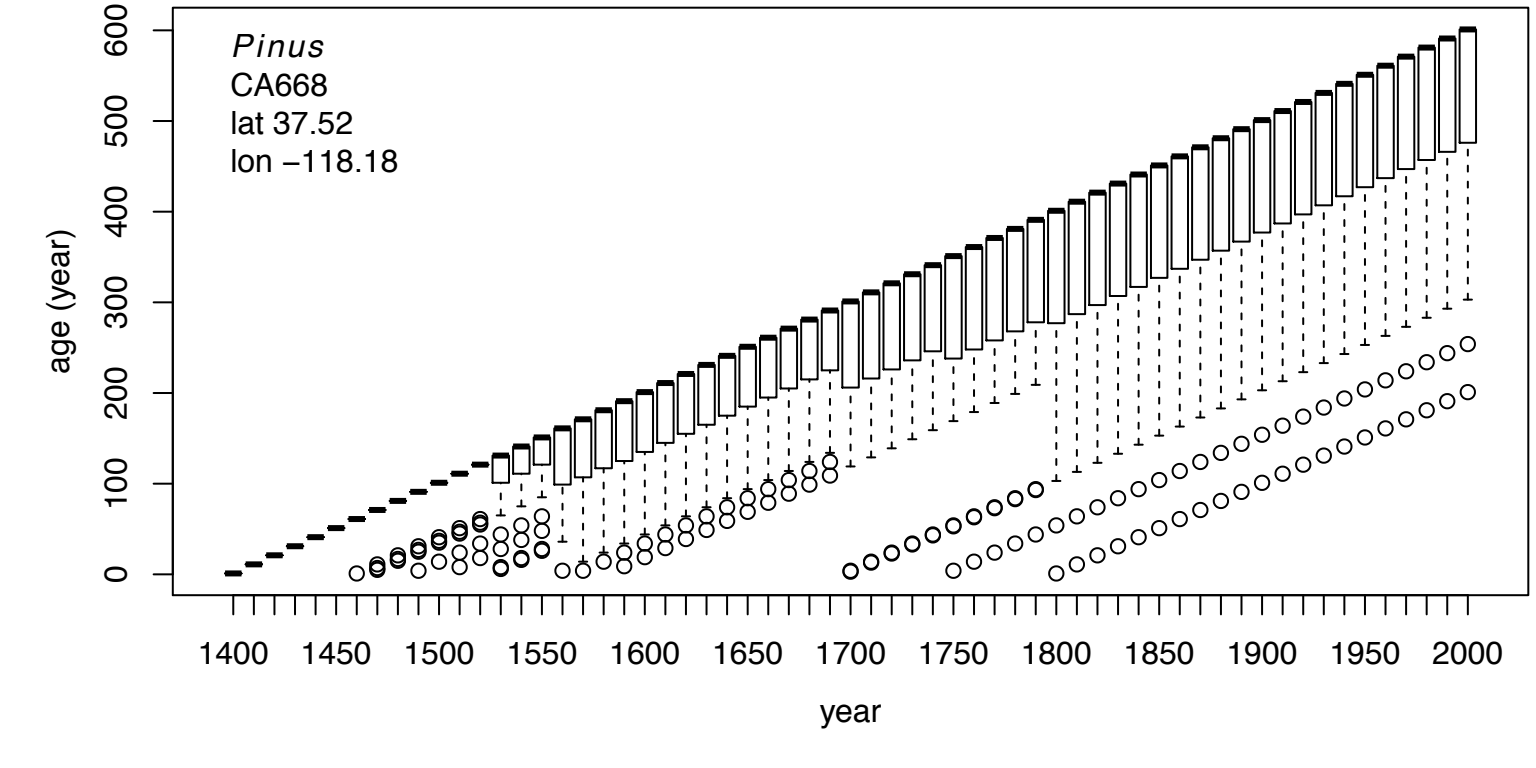
−189
151
451
751
1091
1461
1831
year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CA668
lat 37.52
lon −118.18
age (year)
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1450
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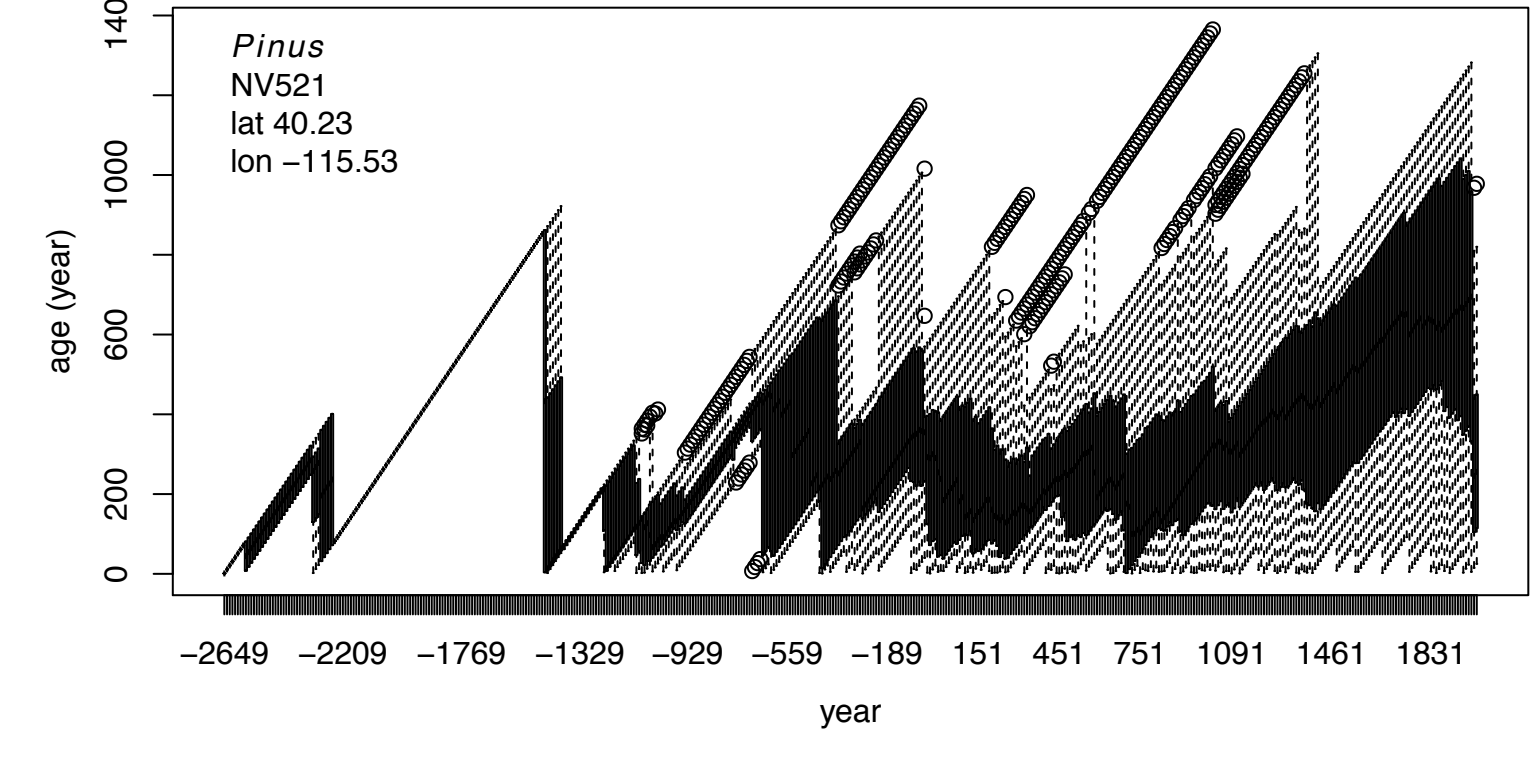
1750
1800
1850
1900
1950
2000
year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NV521
lat 40.23
lon −115.53
age (year)
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1000
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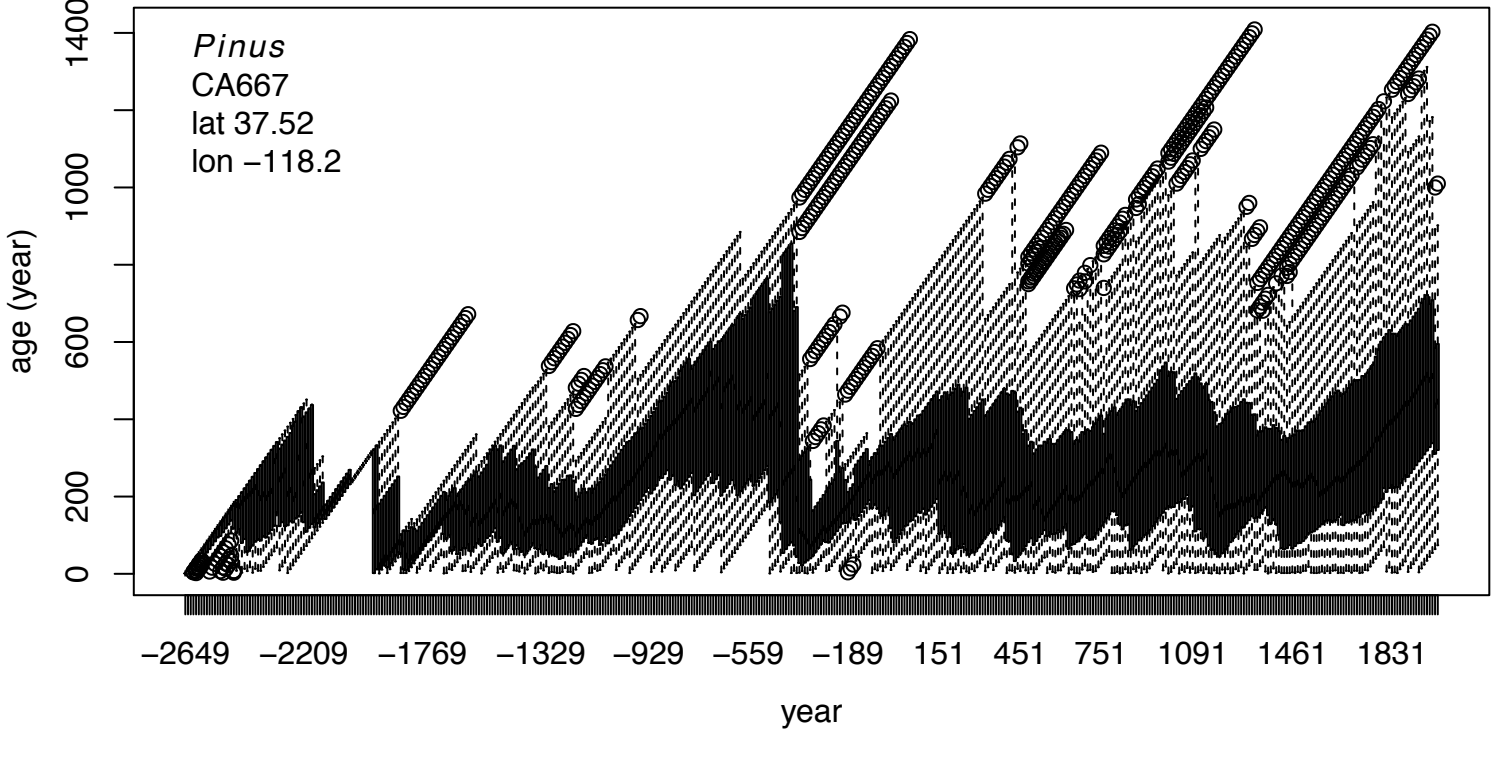
151
451
751
1091
1461
1831
year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CA667
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age (year)
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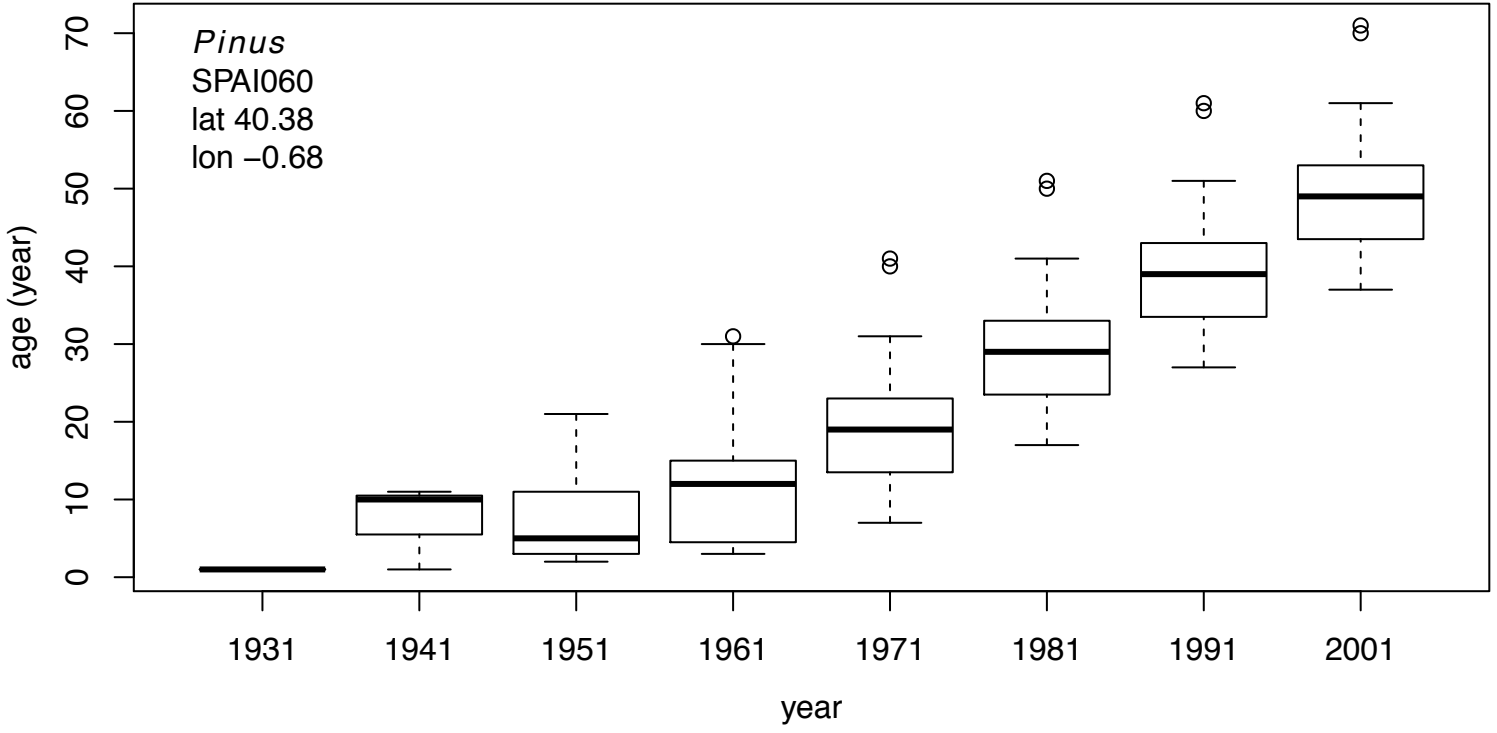
1461
1831
year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SPAI060
lat 40.38
lon −0.68
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1931
1941
1951
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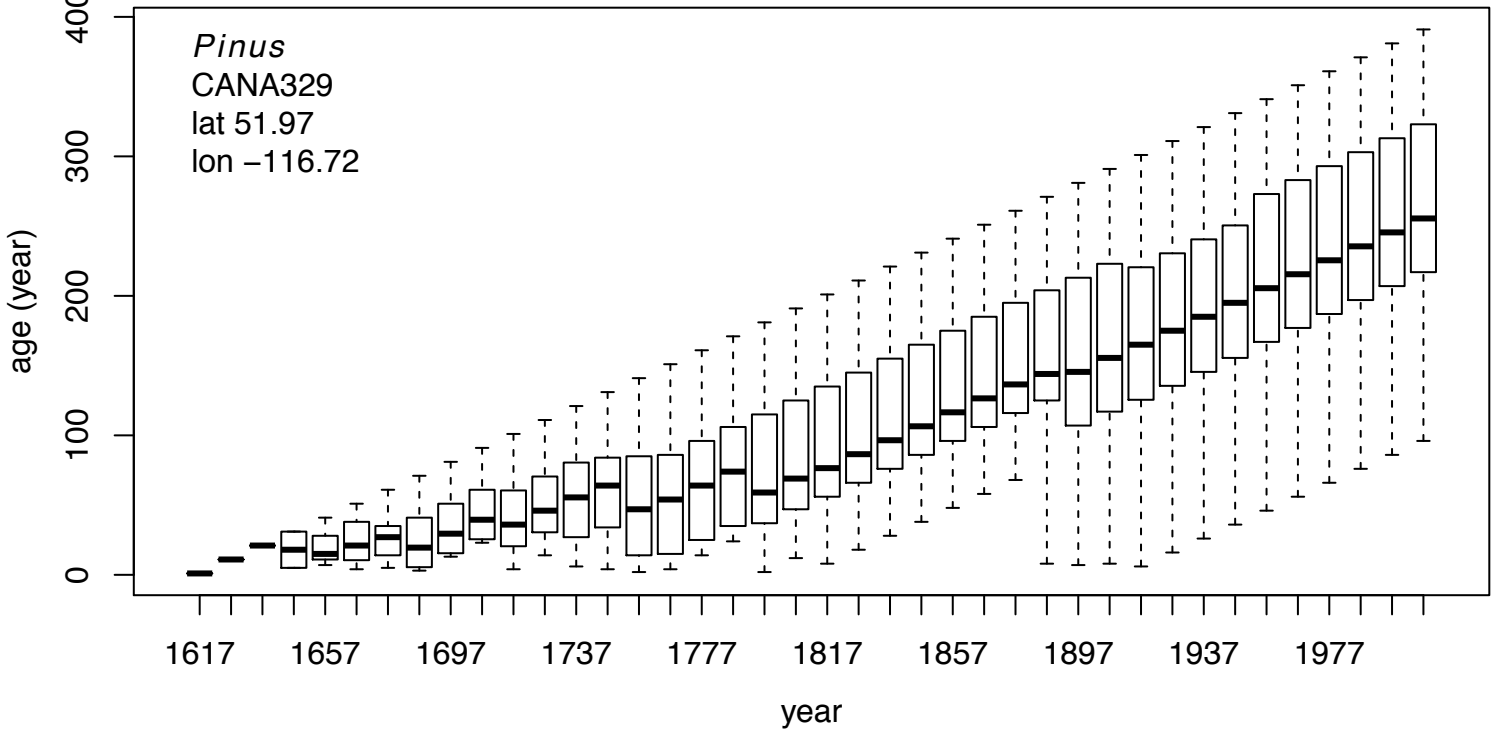
1981
1991
2001
year


Pinus
CANA329
lat 51.97
lon −116.72
age (year)
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1657
1697
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1777
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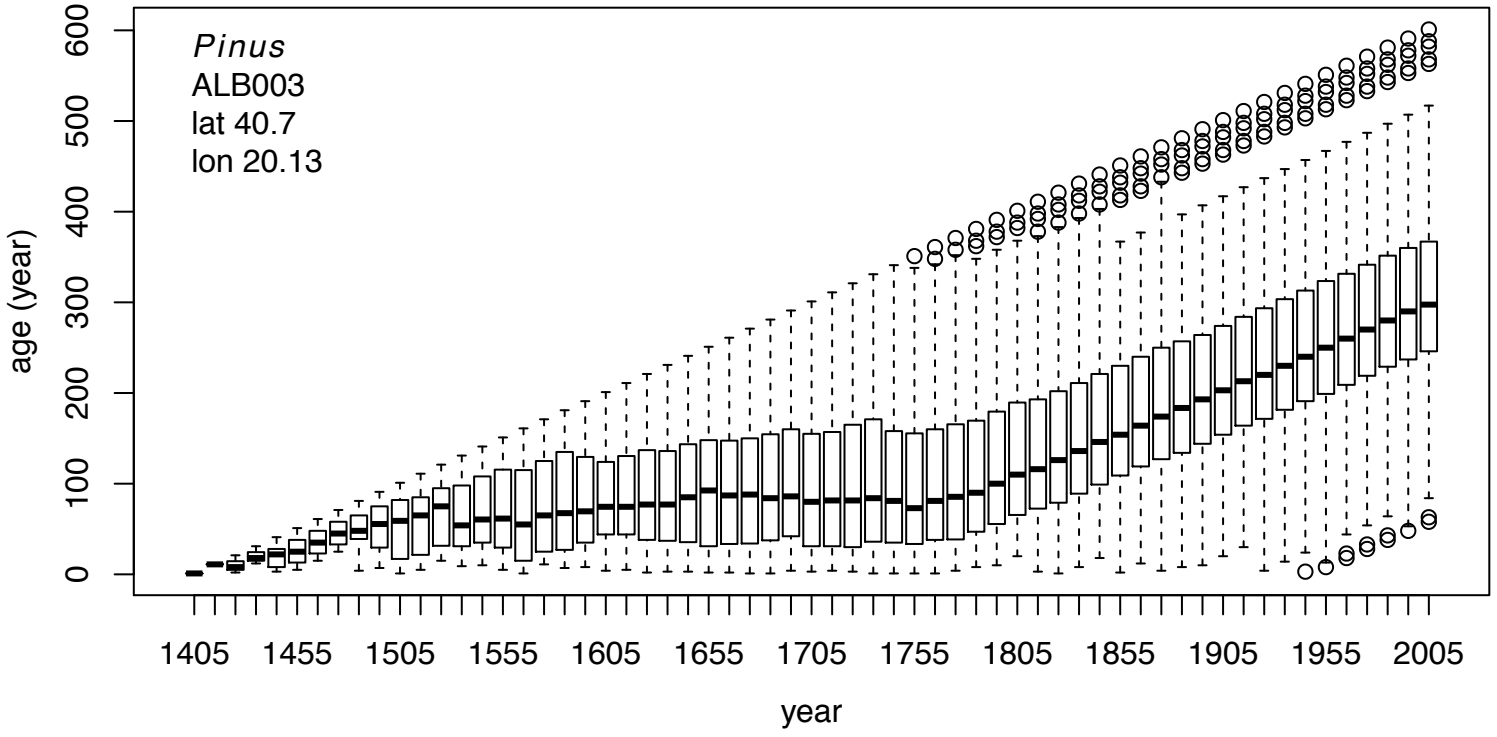
1857
1897
1937
1977
year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ALB003
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lon 20.13
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300
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1455
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1605
1655
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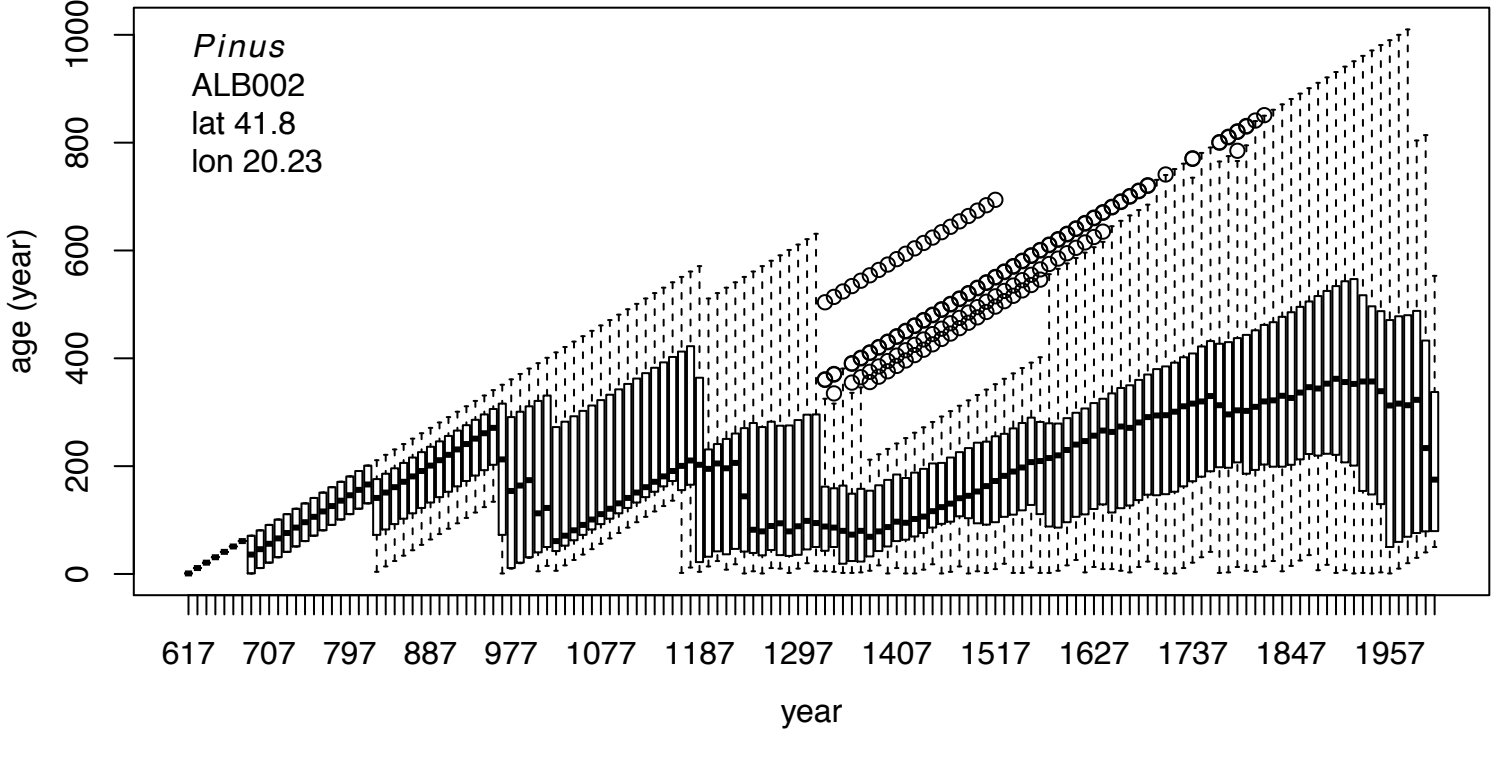
1755
1805
1855
1905
1955
2005
year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ALB002
lat 41.8
lon 20.23
age (year)
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200
400
600
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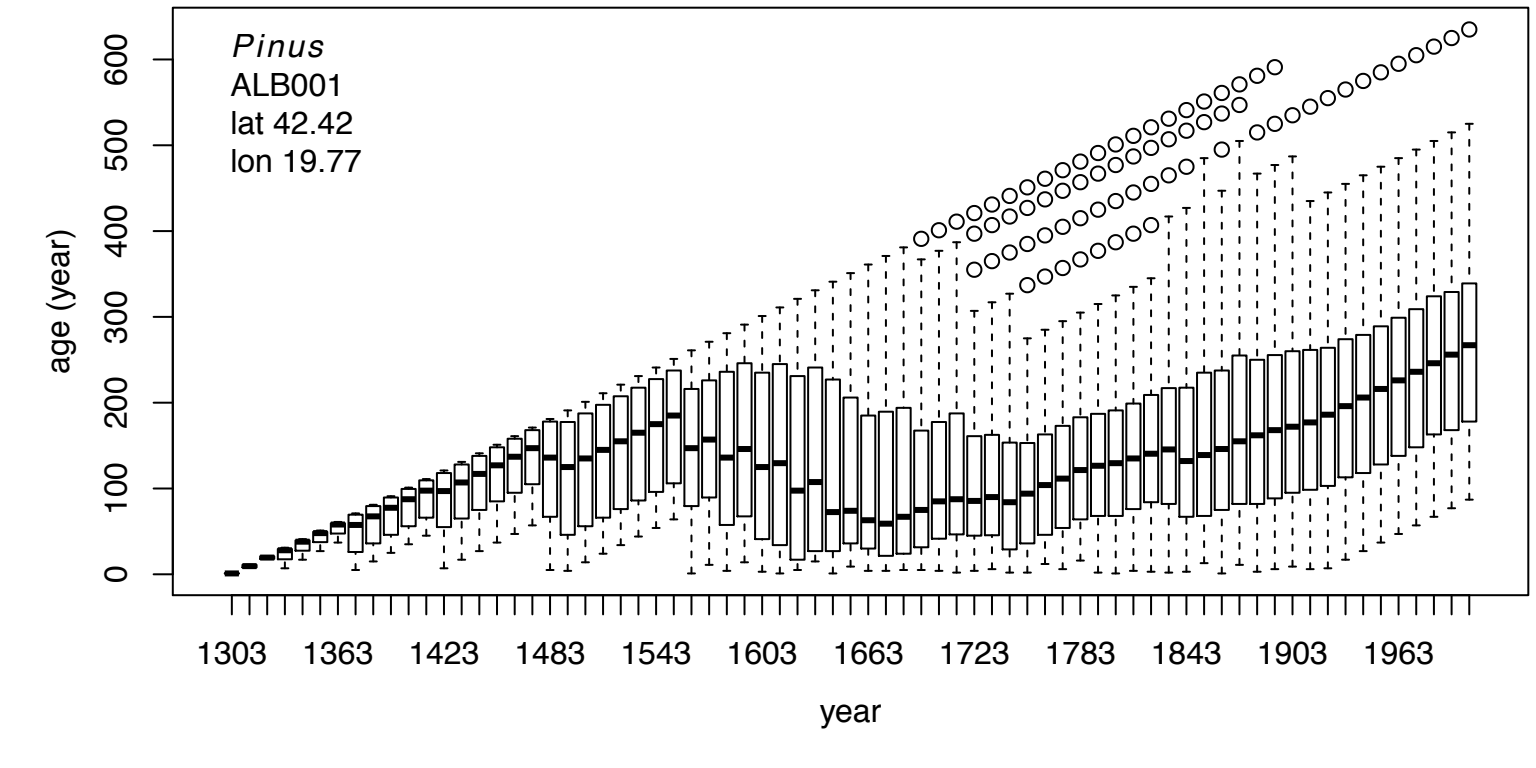
797
887
977
1077
1187
1297
1407
1517
1627
1737
1847
1957
year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ALB001
lat 42.42
lon 19.77
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1663
1723
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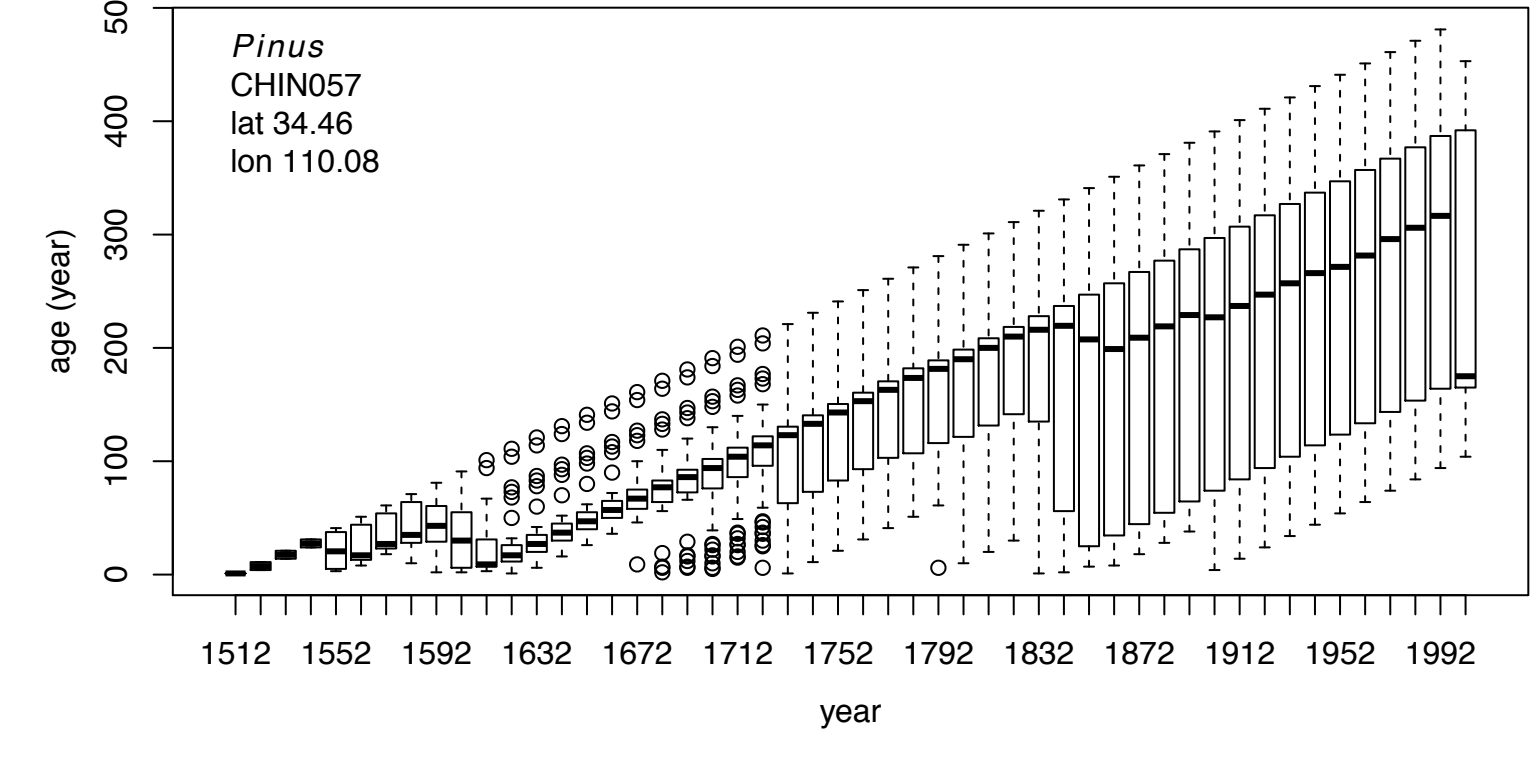
1903
1963
year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CHIN057
lat 34.46
lon 110.08
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100
200
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500
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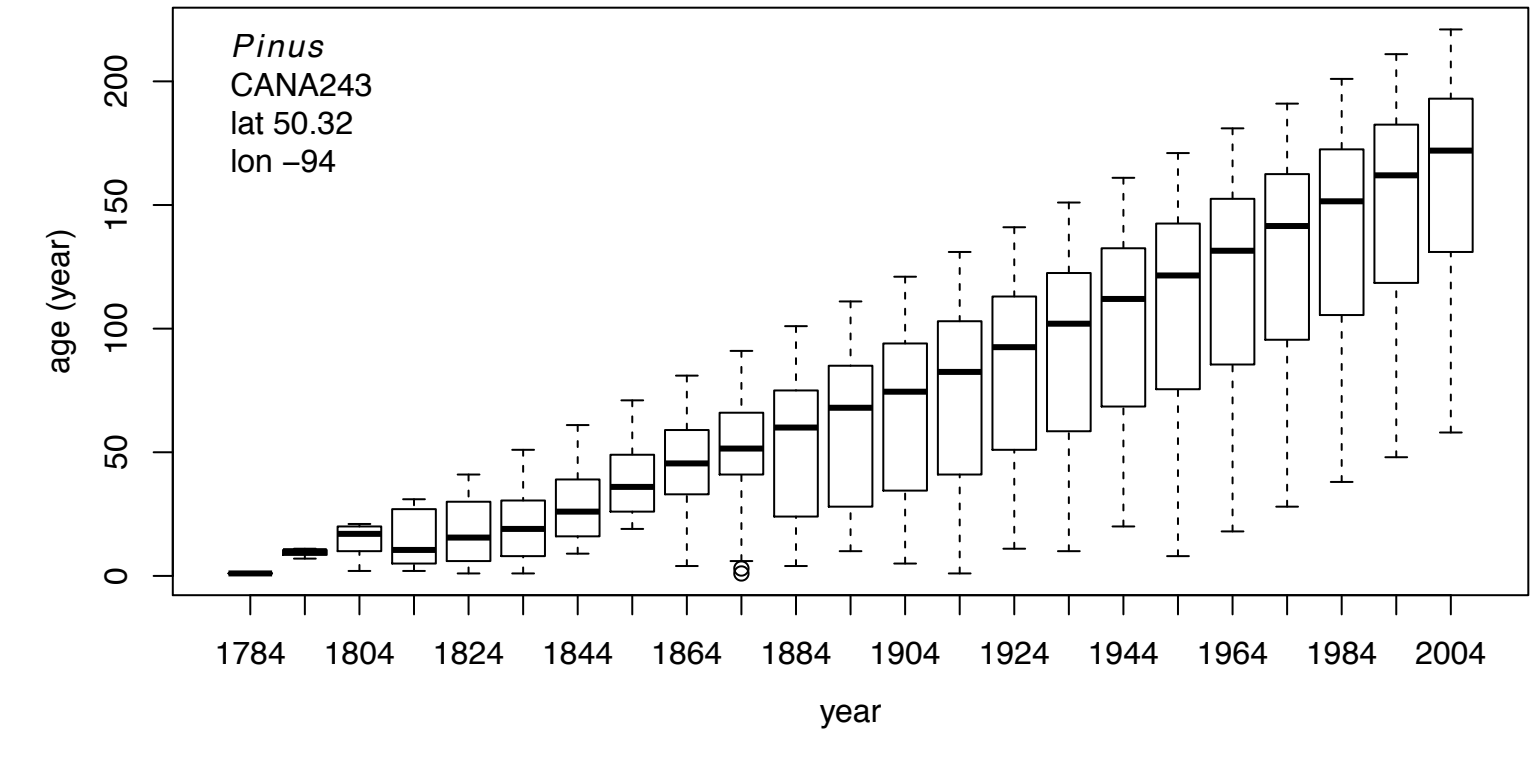
1552
1592
1632
1672
1712
1752
1792
1832
1872
1912
1952
1992
year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CANA243
lat 50.32
lon –94
age (year)
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200
1784
1804
1824
1844
1864
1884
1904
1924
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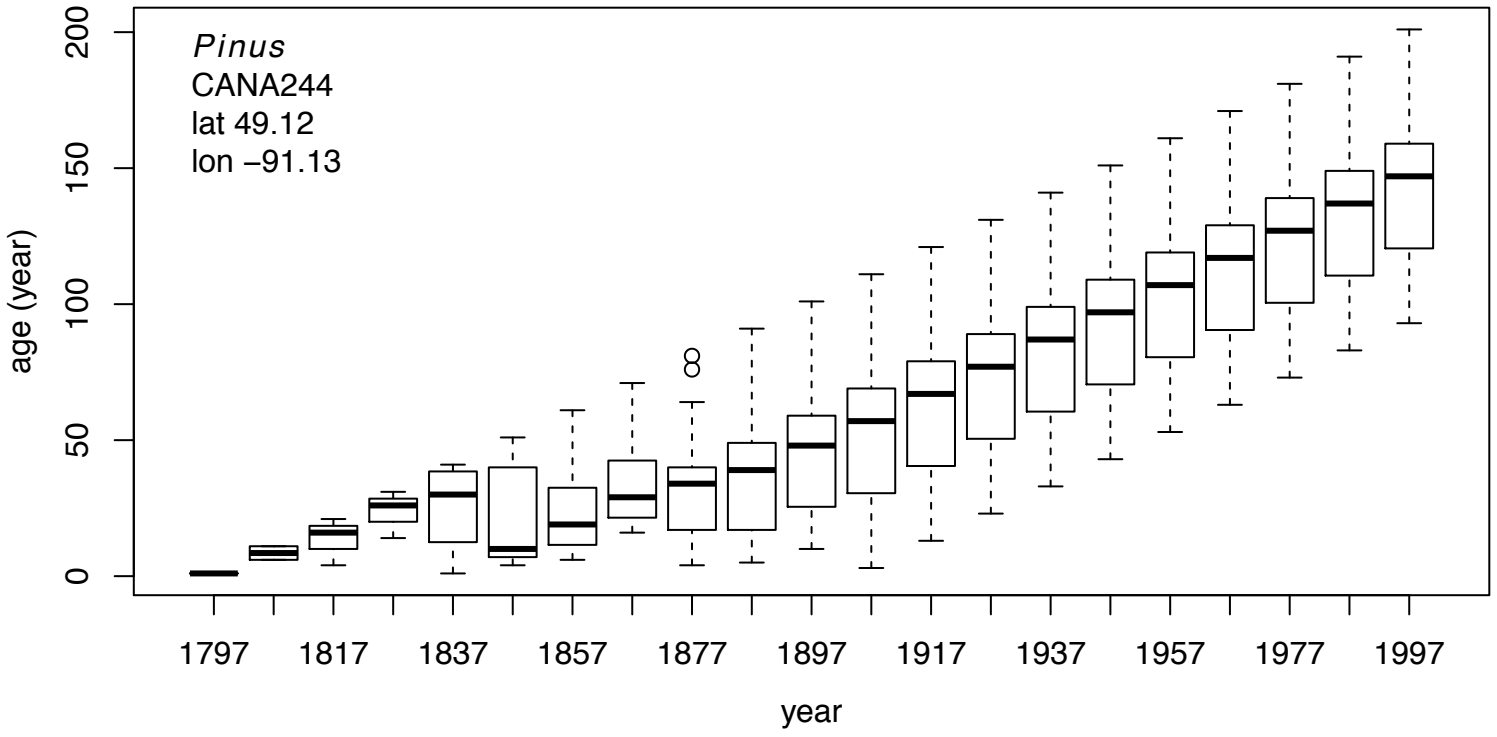
1964
1984
2004
year


Pinus
CANA244
lat 49.12
lon –91.13
age (year)
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200
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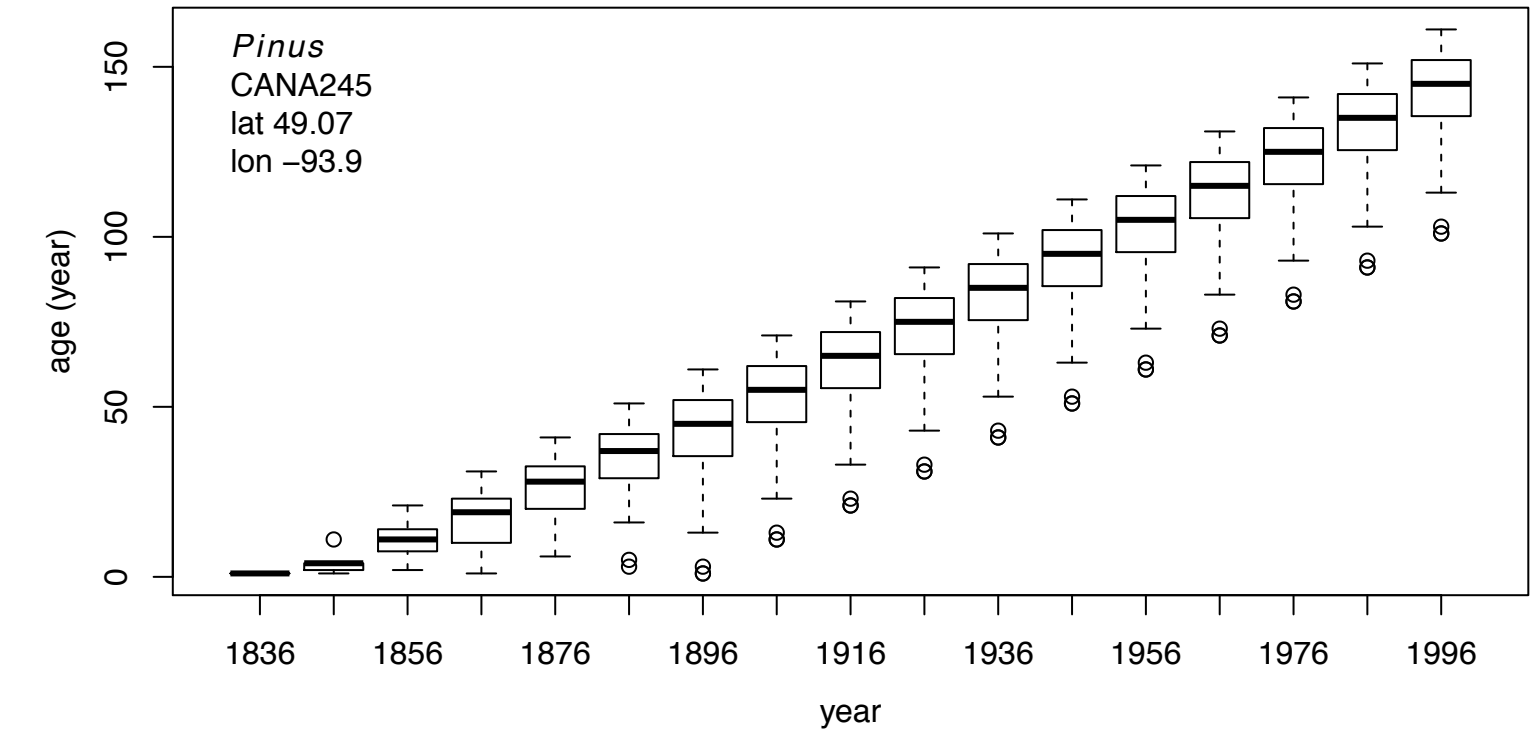
1817
1837
1857
1877
1897
1917
1937
1957
1977
1997
year


Pinus
CANA245
lat 49.07
lon −93.9
age (year)
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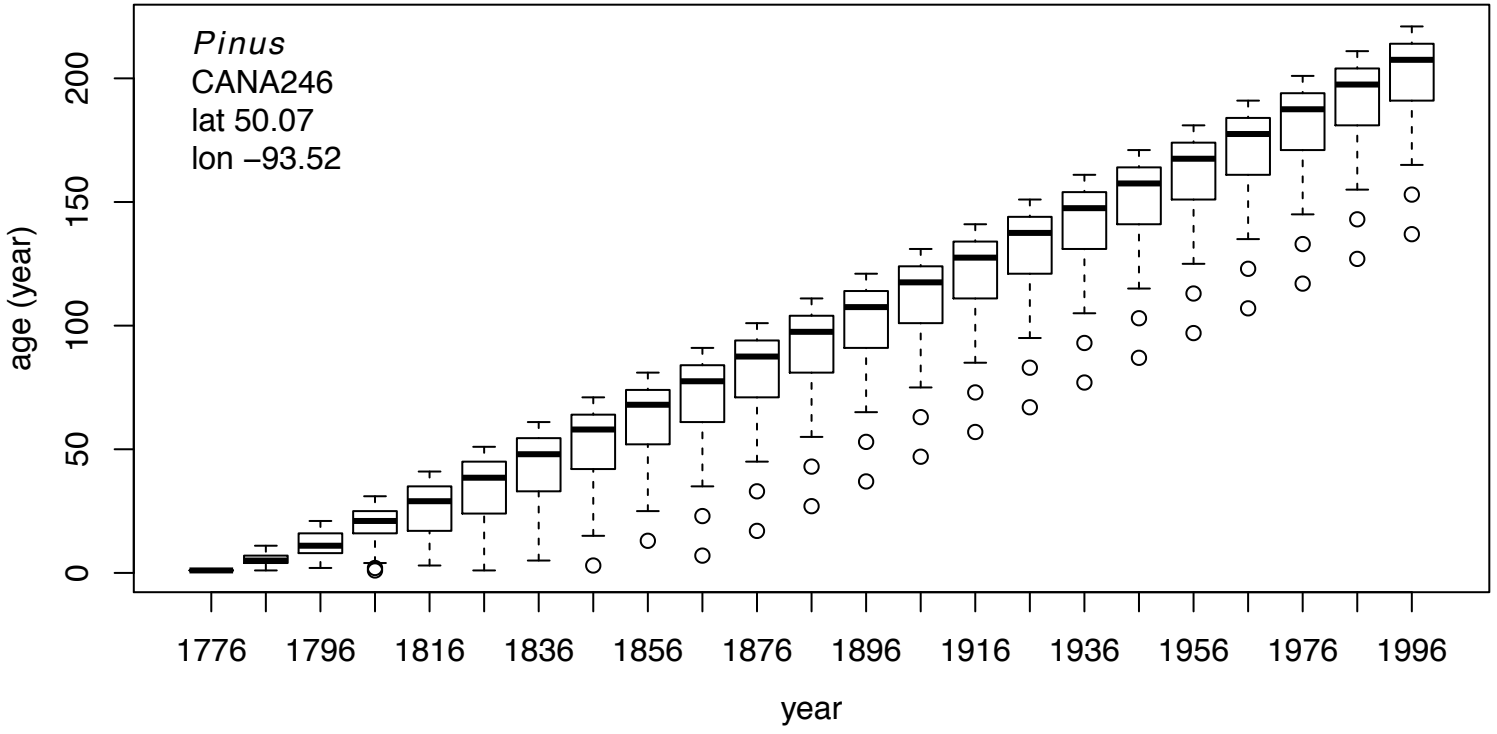
150
1836
1856
1876
1896
1916
1936
1956
1976
1996
year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CANA246
lat 50.07
lon −93.52
age (year)
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1776
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1816
1836
1856
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1956
1976
1996
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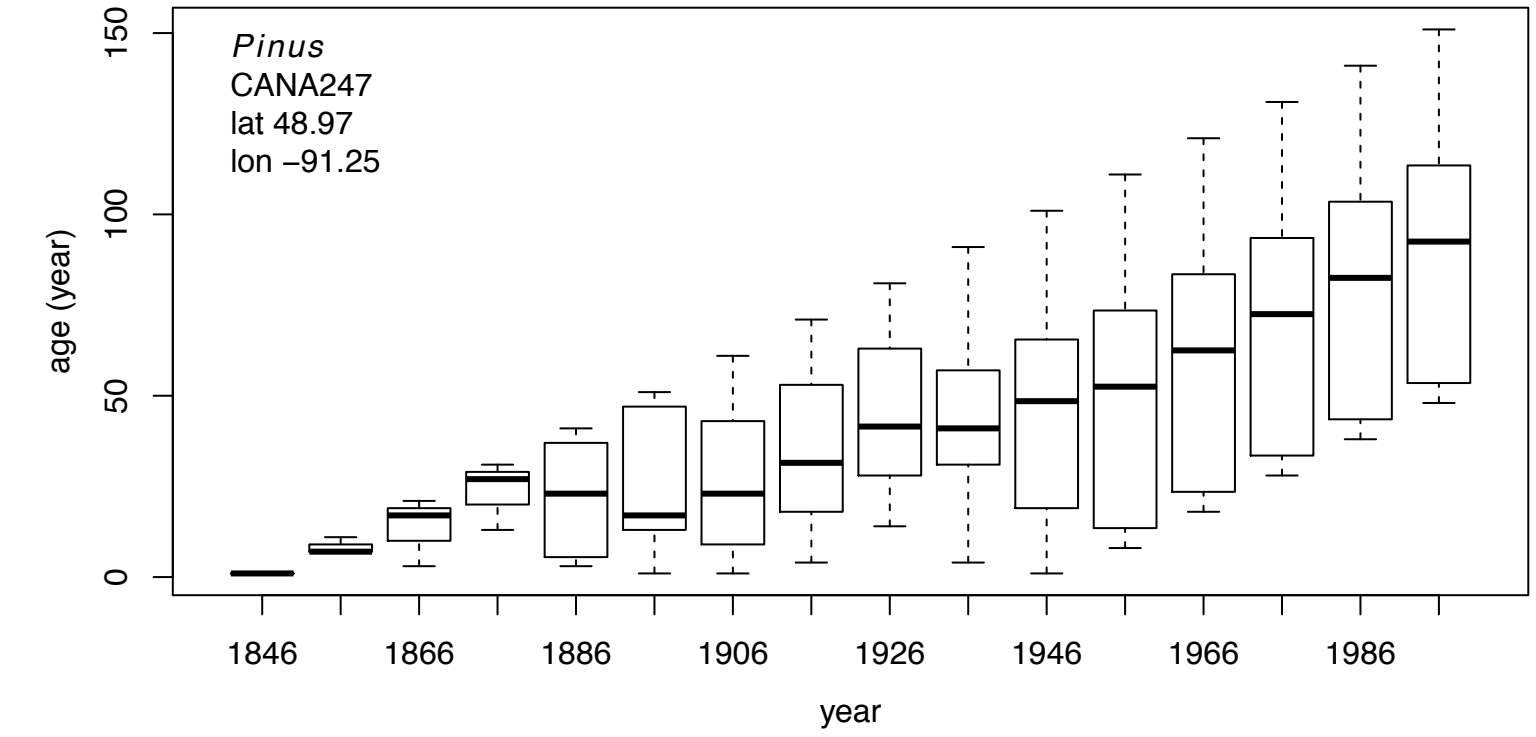
Pinus
CANA247
lat 48.97
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age (year)
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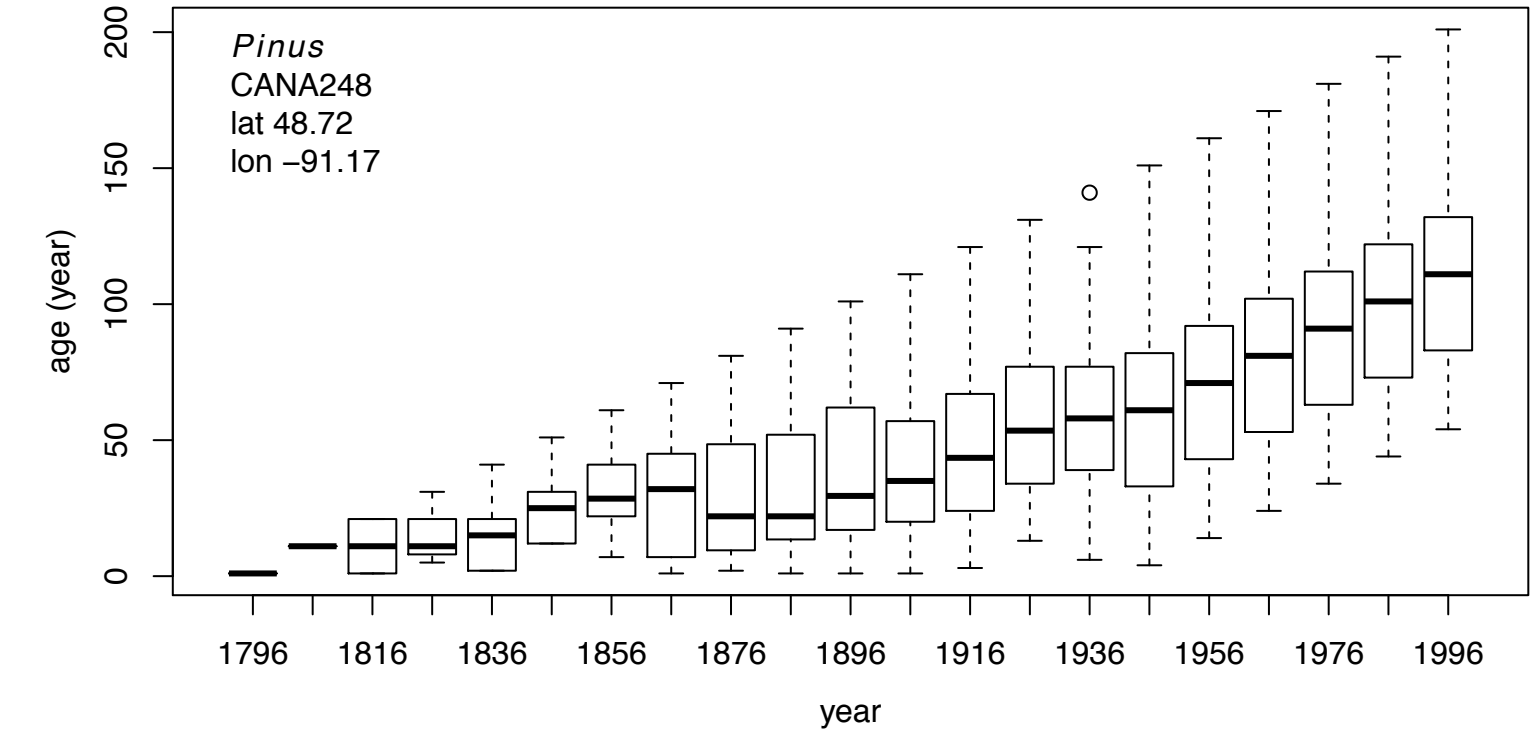
1846
1866
1886
1906
1926
1946
1966
1986
year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CANA248
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age (year)
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1796
1816
1836
1856
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1956
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1996
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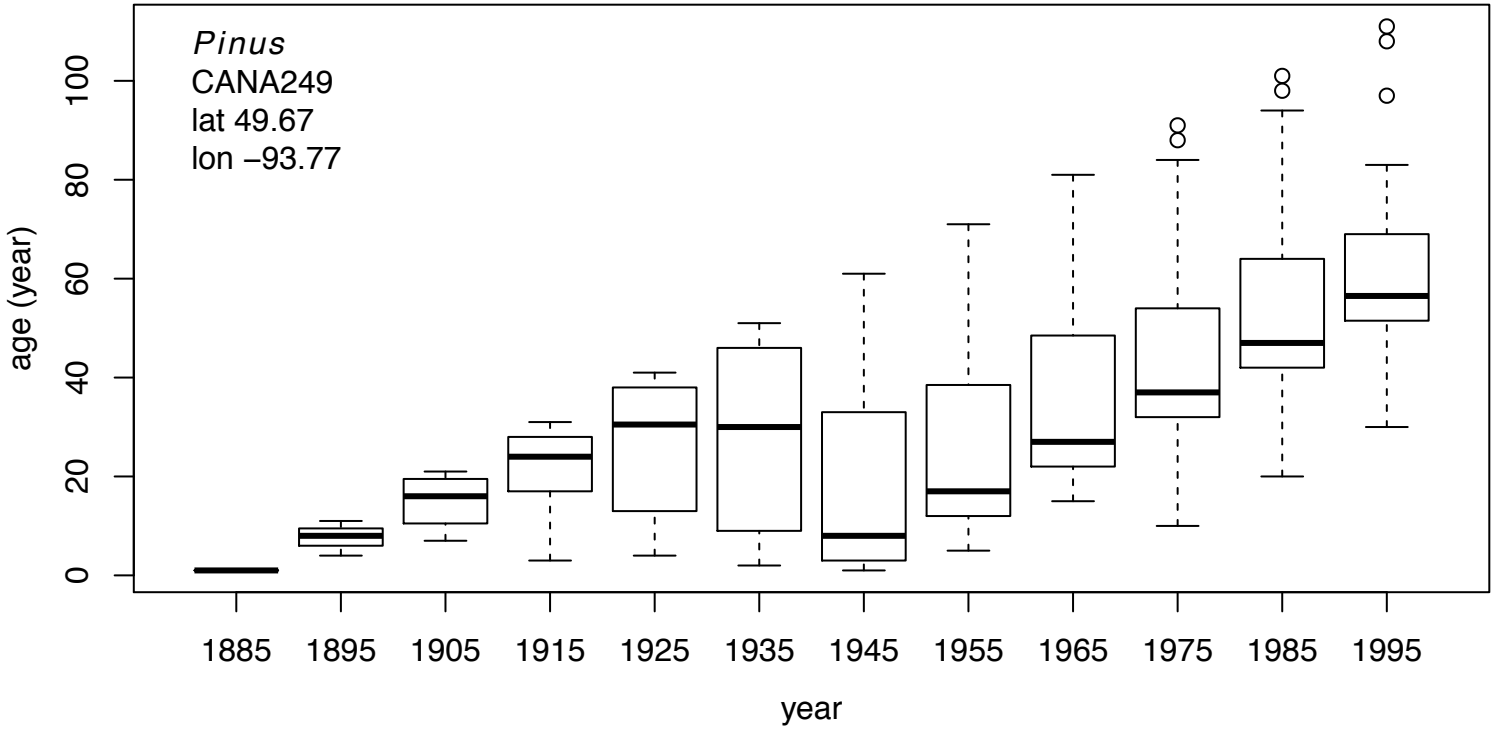
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CANA249
lat 49.67
lon −93.77
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1885
1895
1905
1915
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1935
1945
1955
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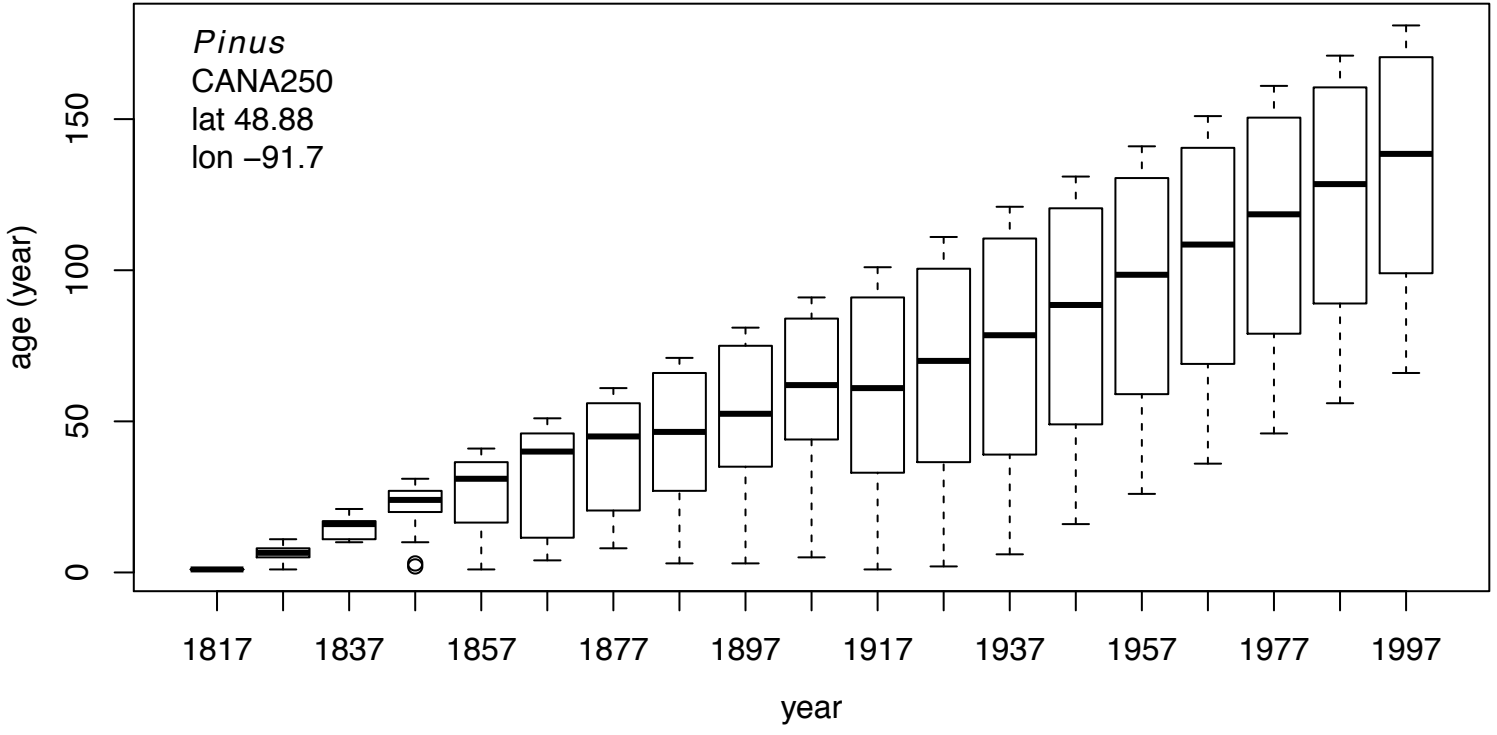
1975
1985
1995
year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CANA250
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lon −91.7
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1857
1877
1897
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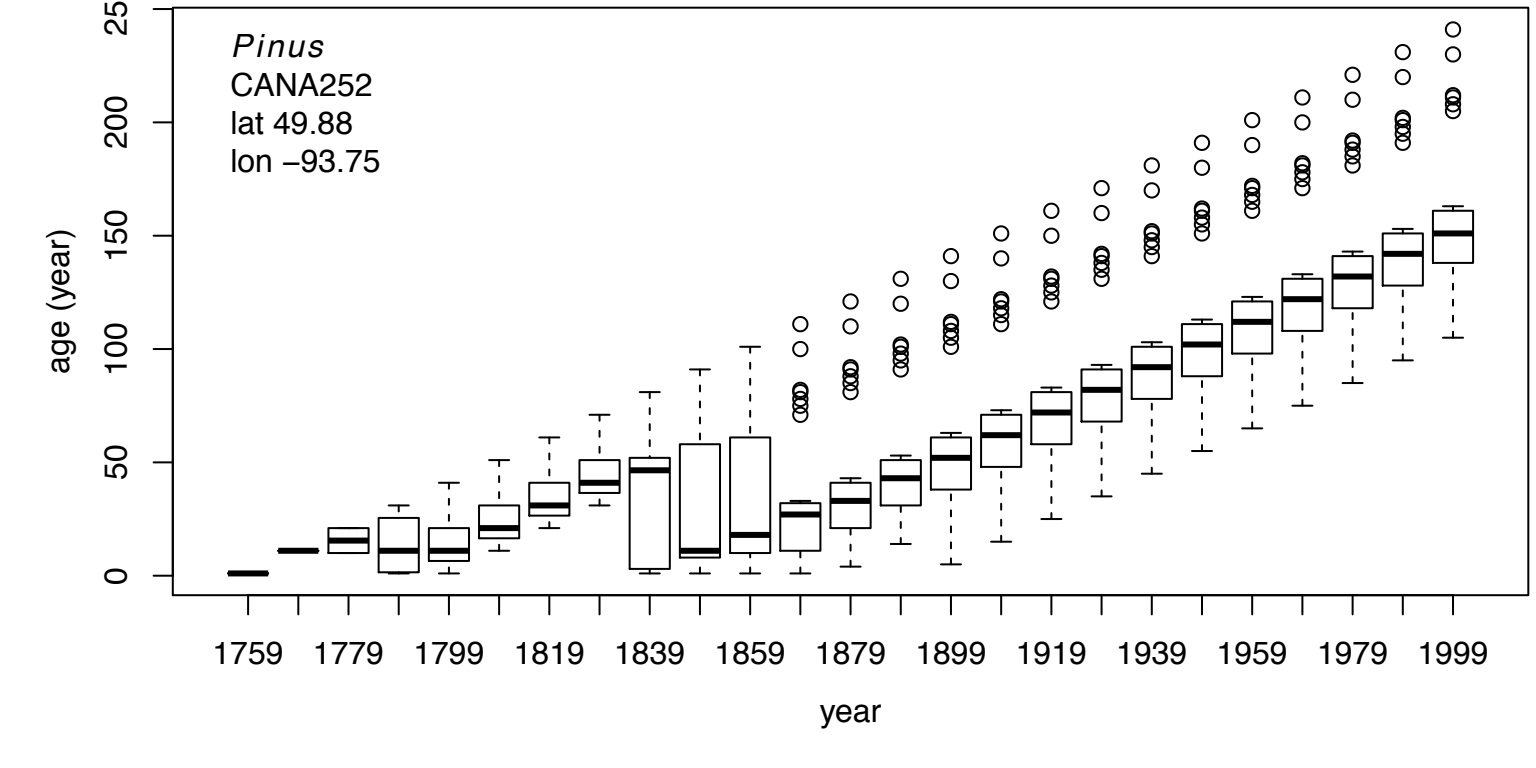
1957
1977
1997
year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1779
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1819
1839
1859
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1899
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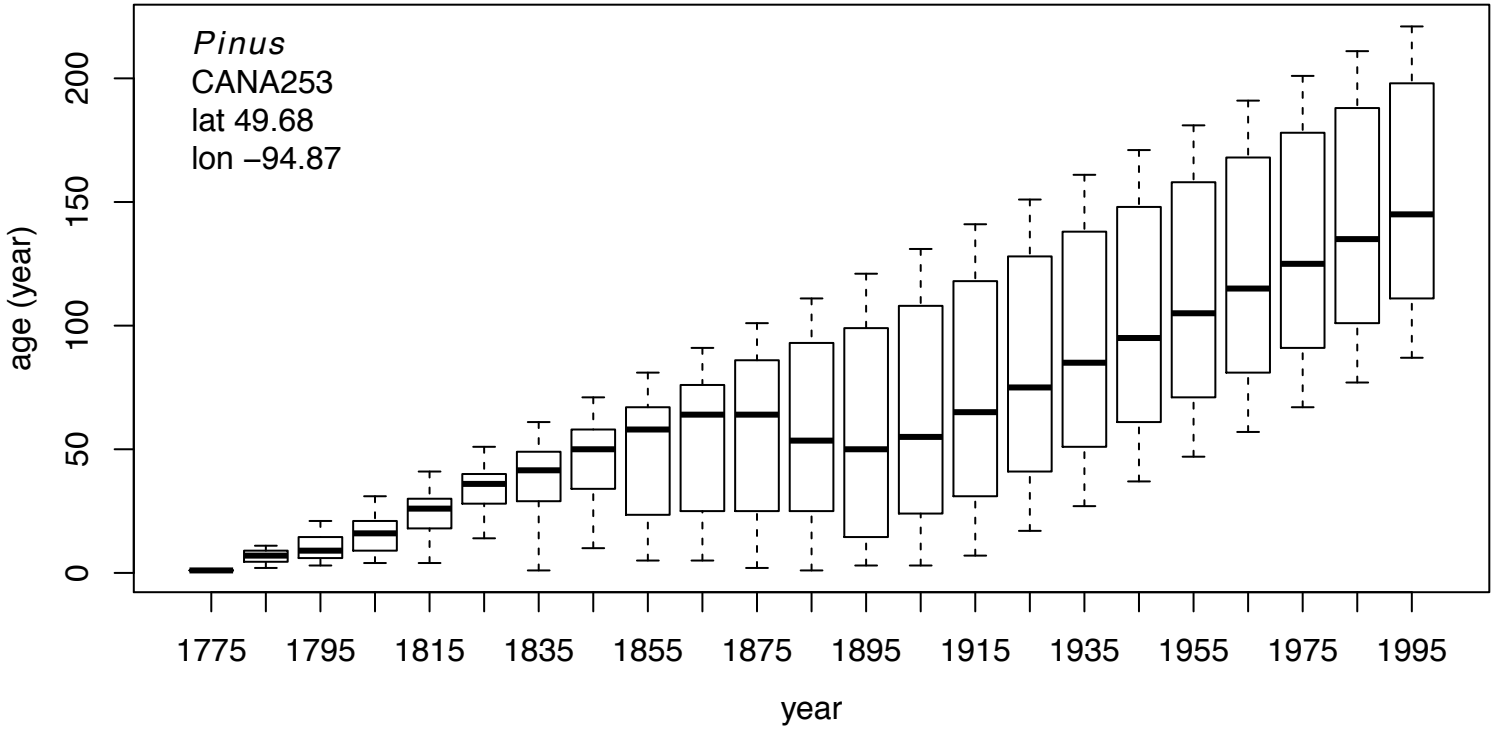
1959
1979
1999
year


Pinus
CANA253
lat 49.68
lon −94.87
age (year)
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1815
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1895
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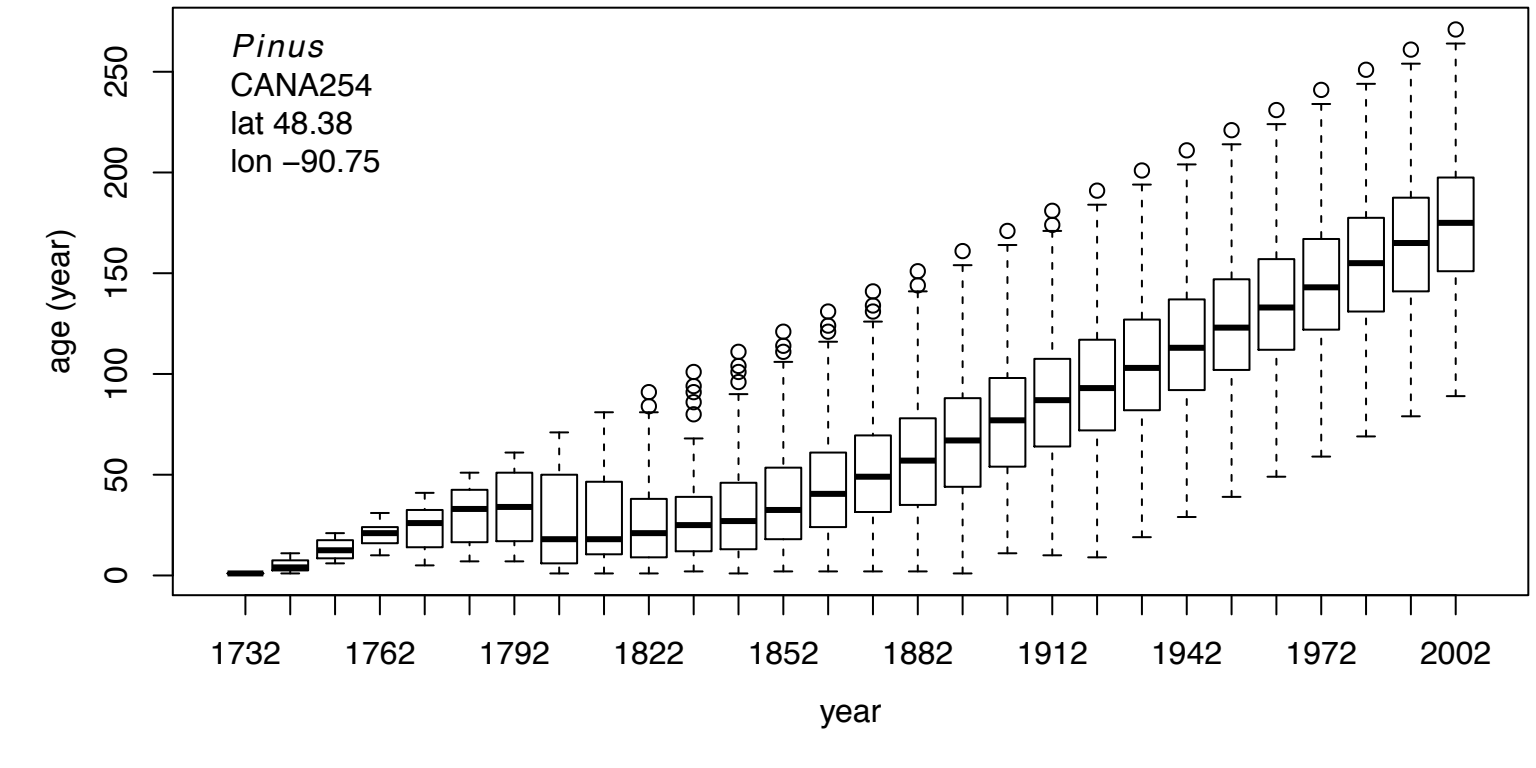
1955
1975
1995
year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CANA254
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lon −90.75
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2002
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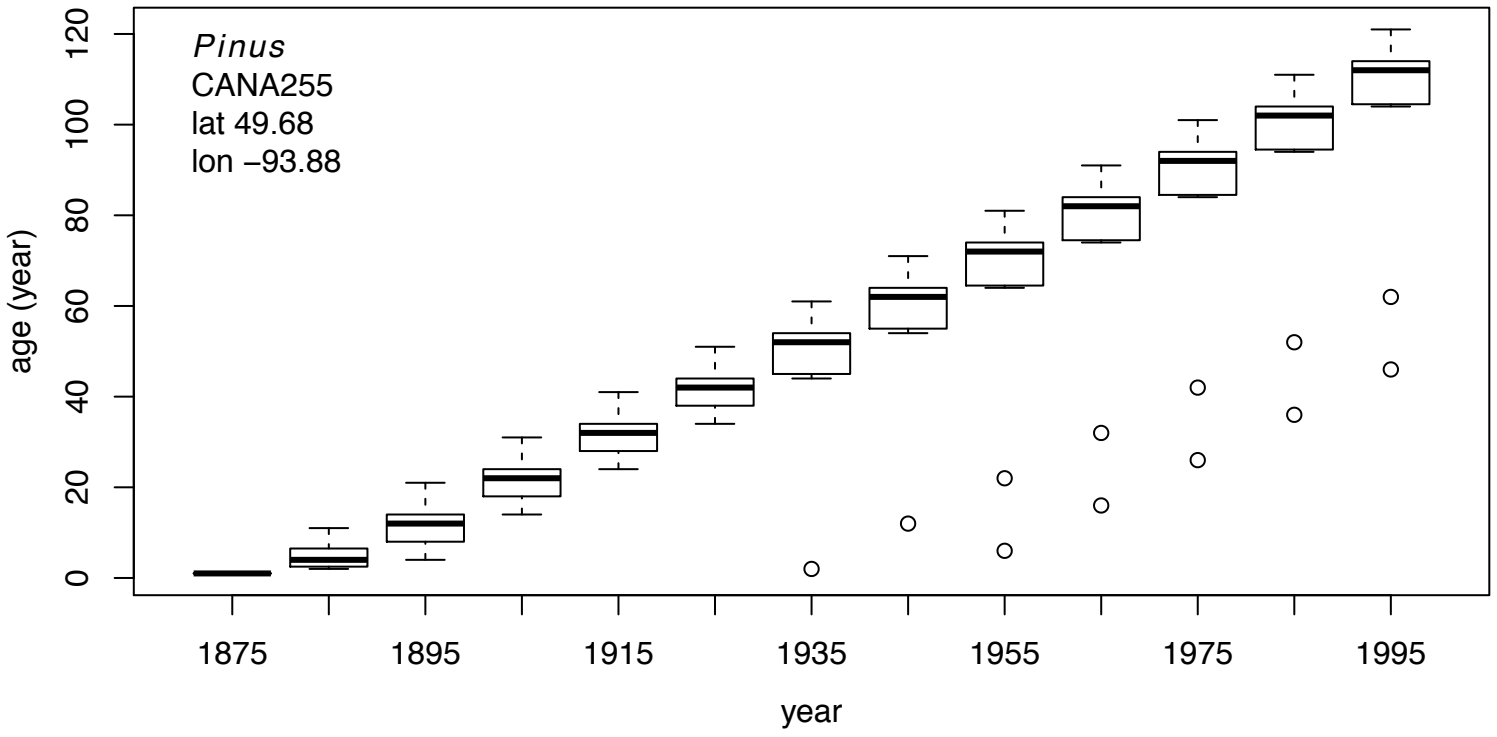
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1995
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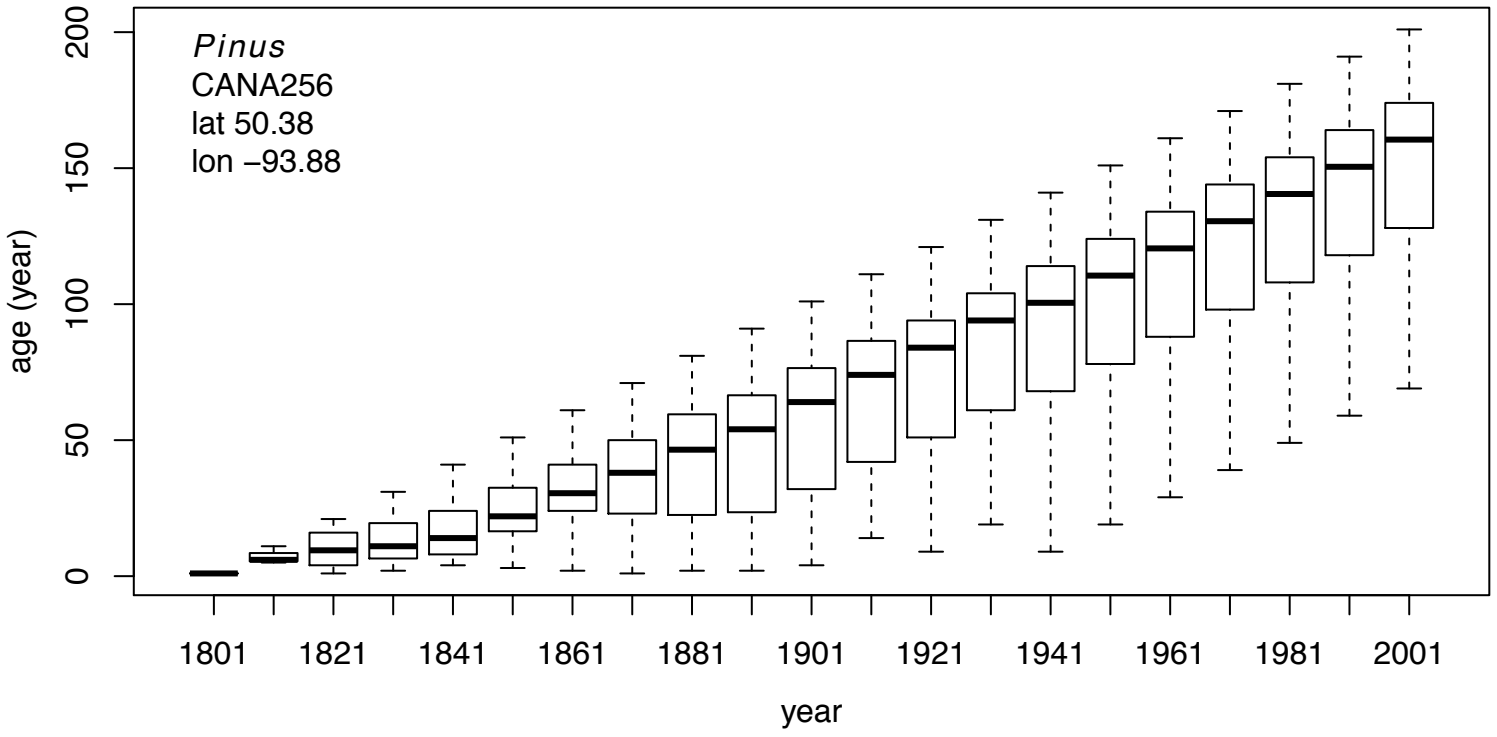
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1961
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2001
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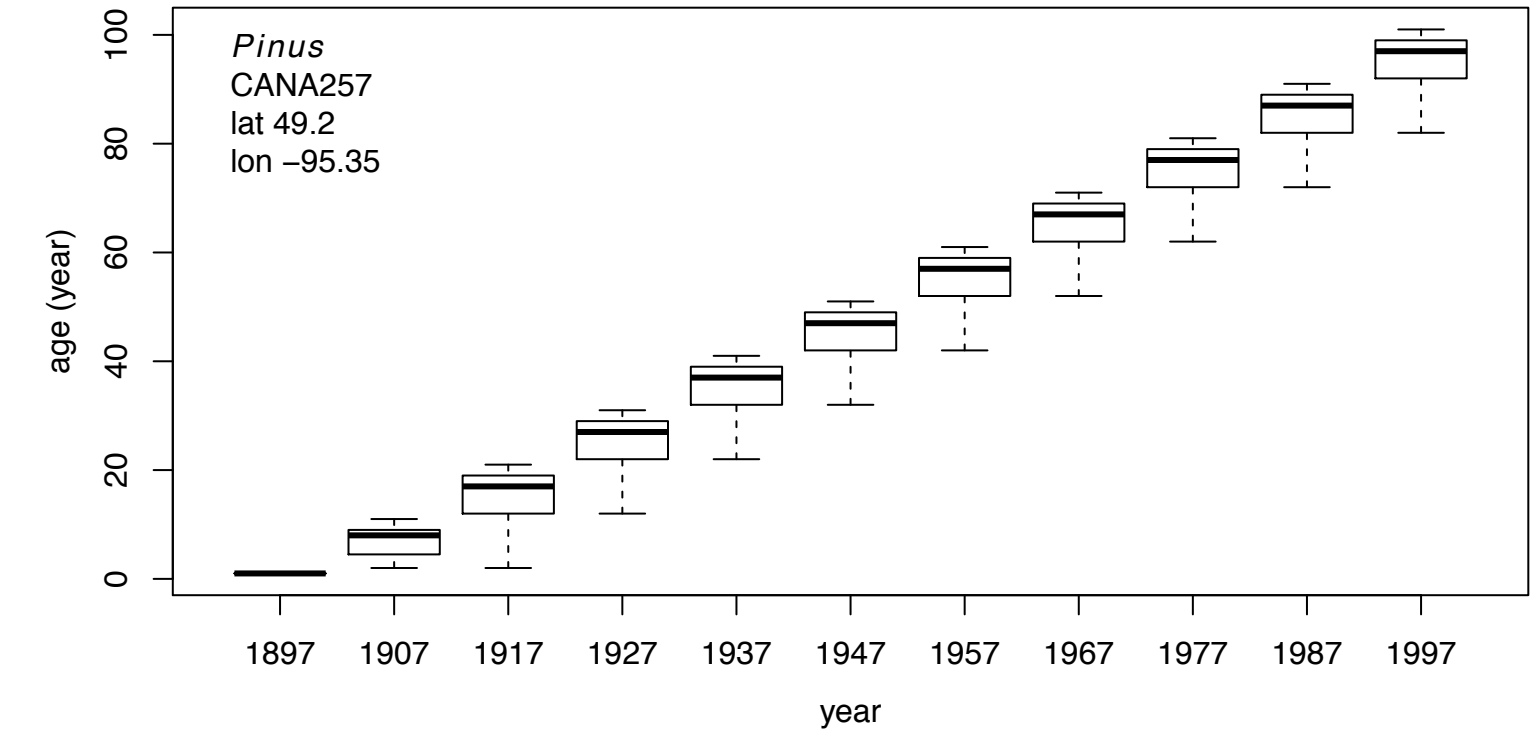
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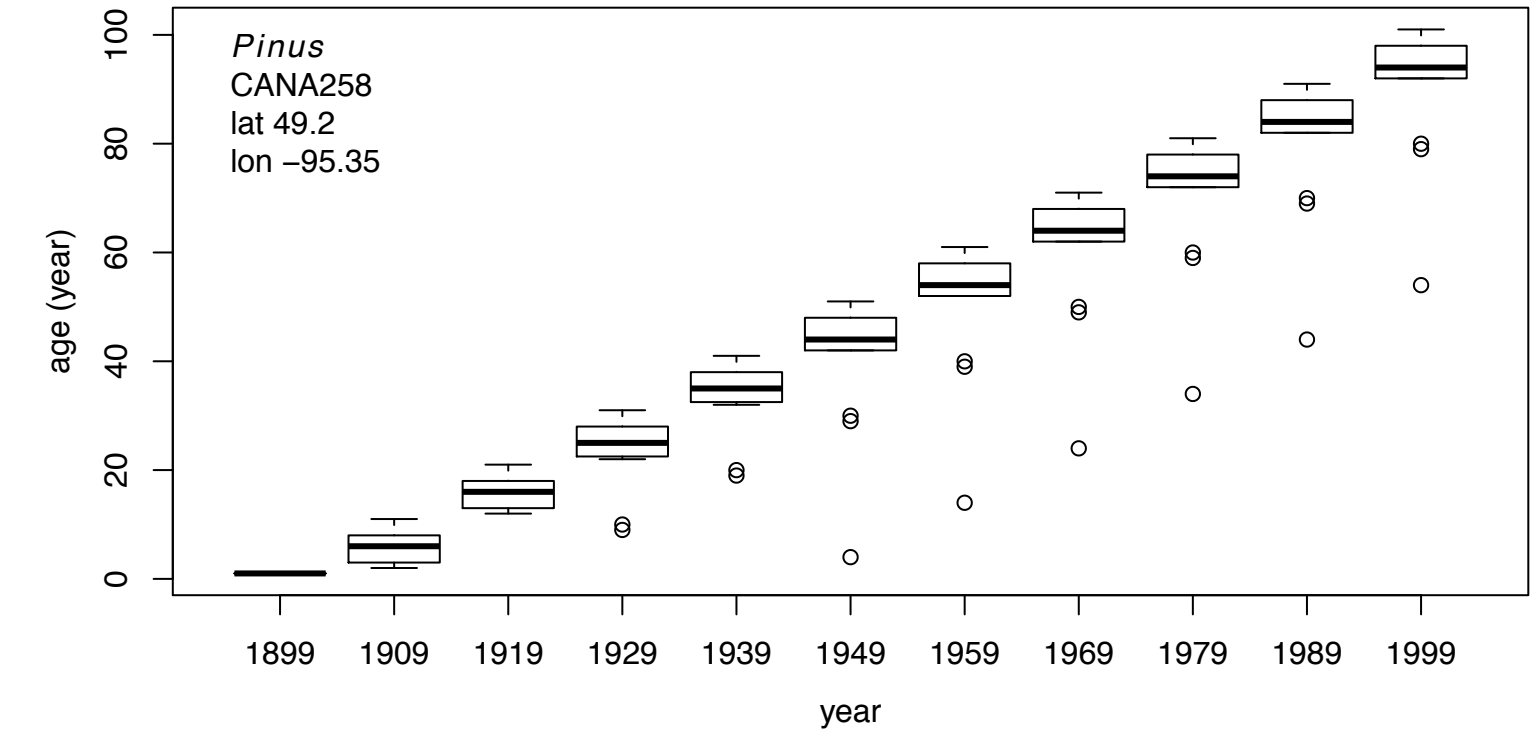
1997
year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CANA258
lat 49.2
lon −95.35
age (year)
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1979
1989
1999
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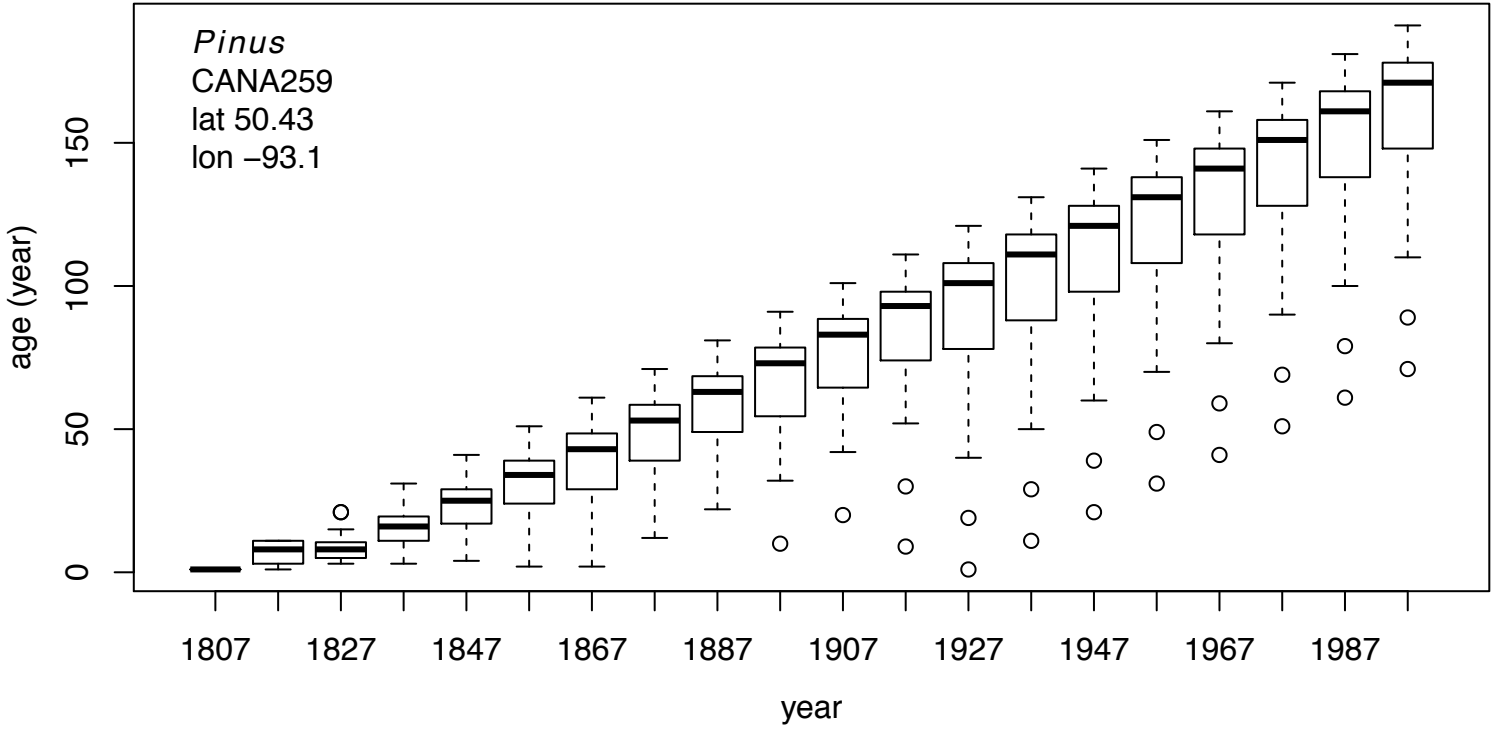
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CANA259
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1827
1847
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1987
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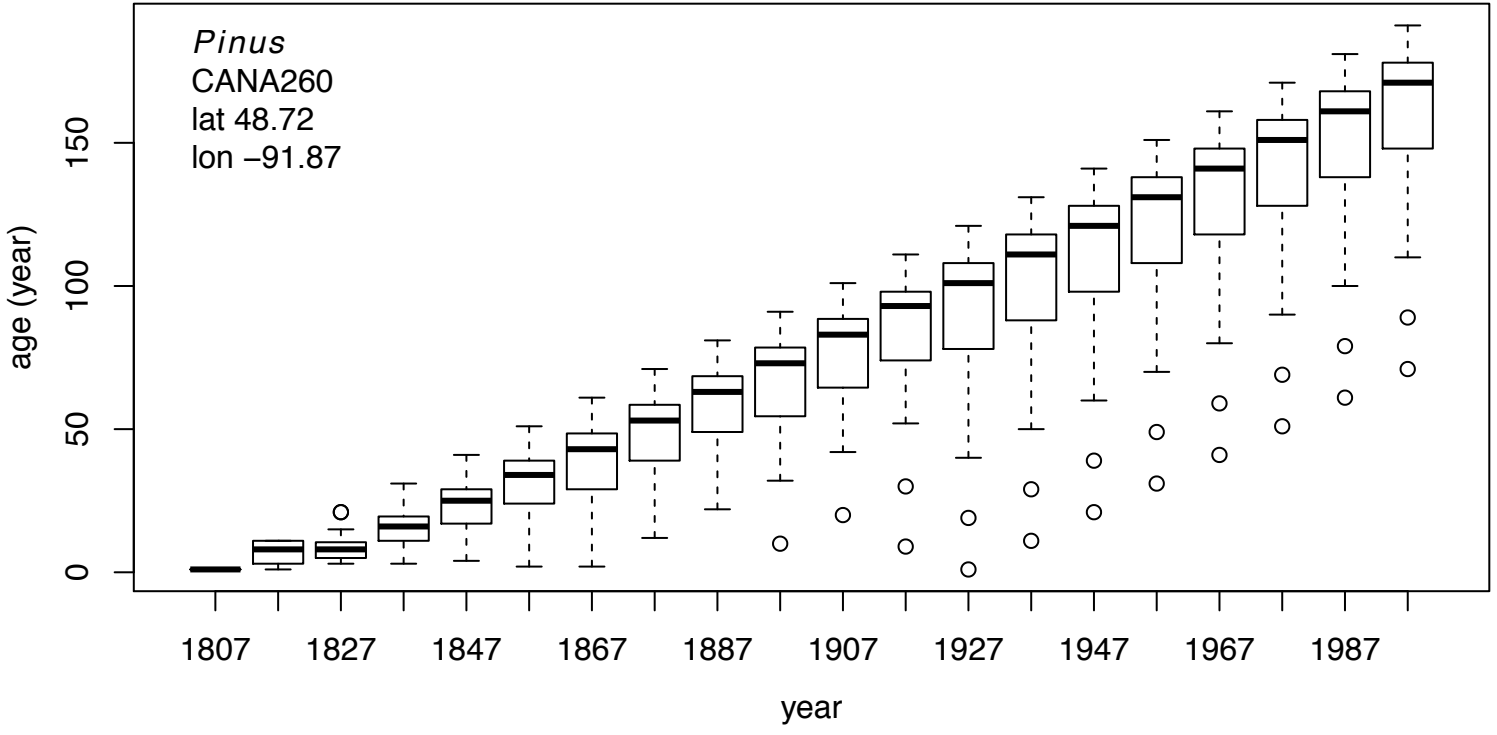
Pinus
CANA260
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1827
1847
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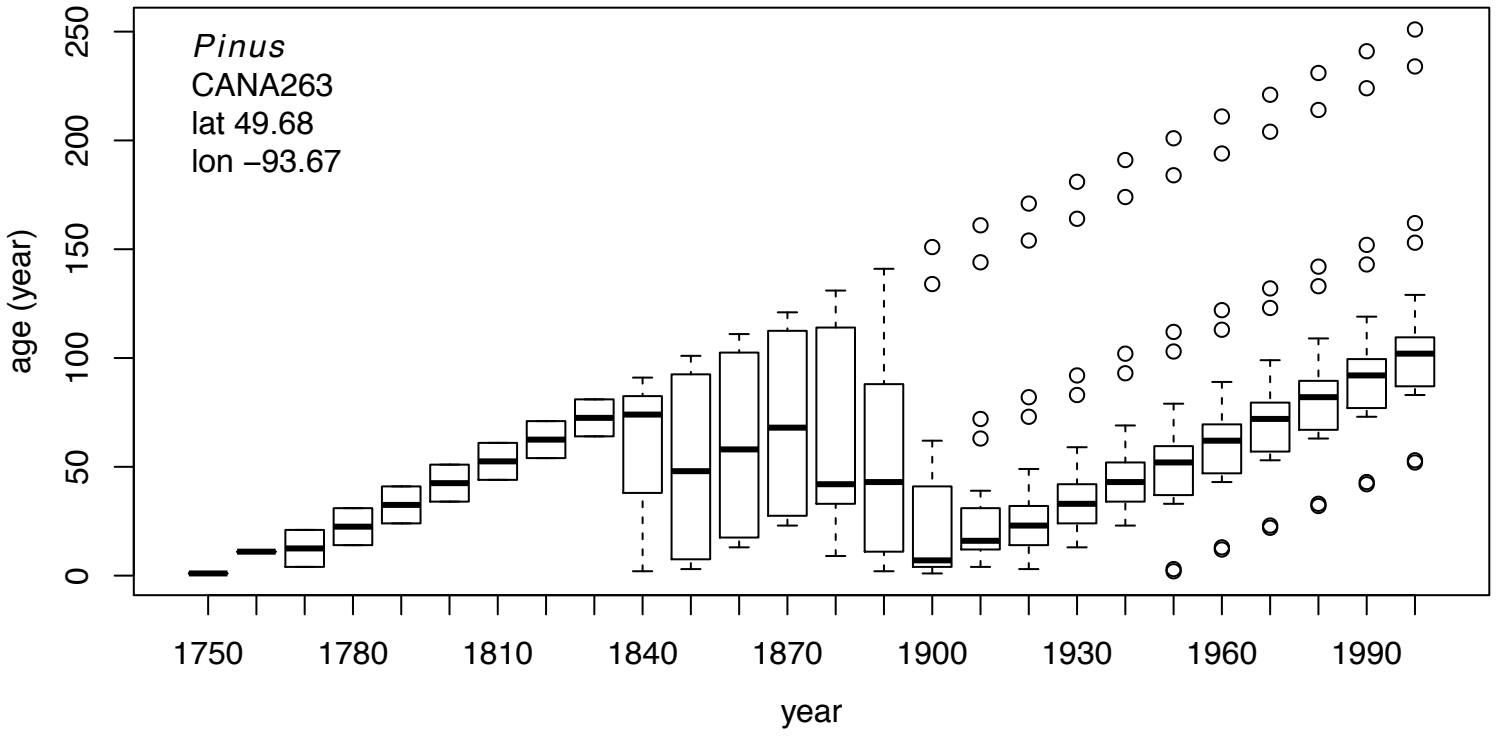
1947
1967
1987
year


Pinus
CANA263
lat 49.68
lon −93.67
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1780
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1840
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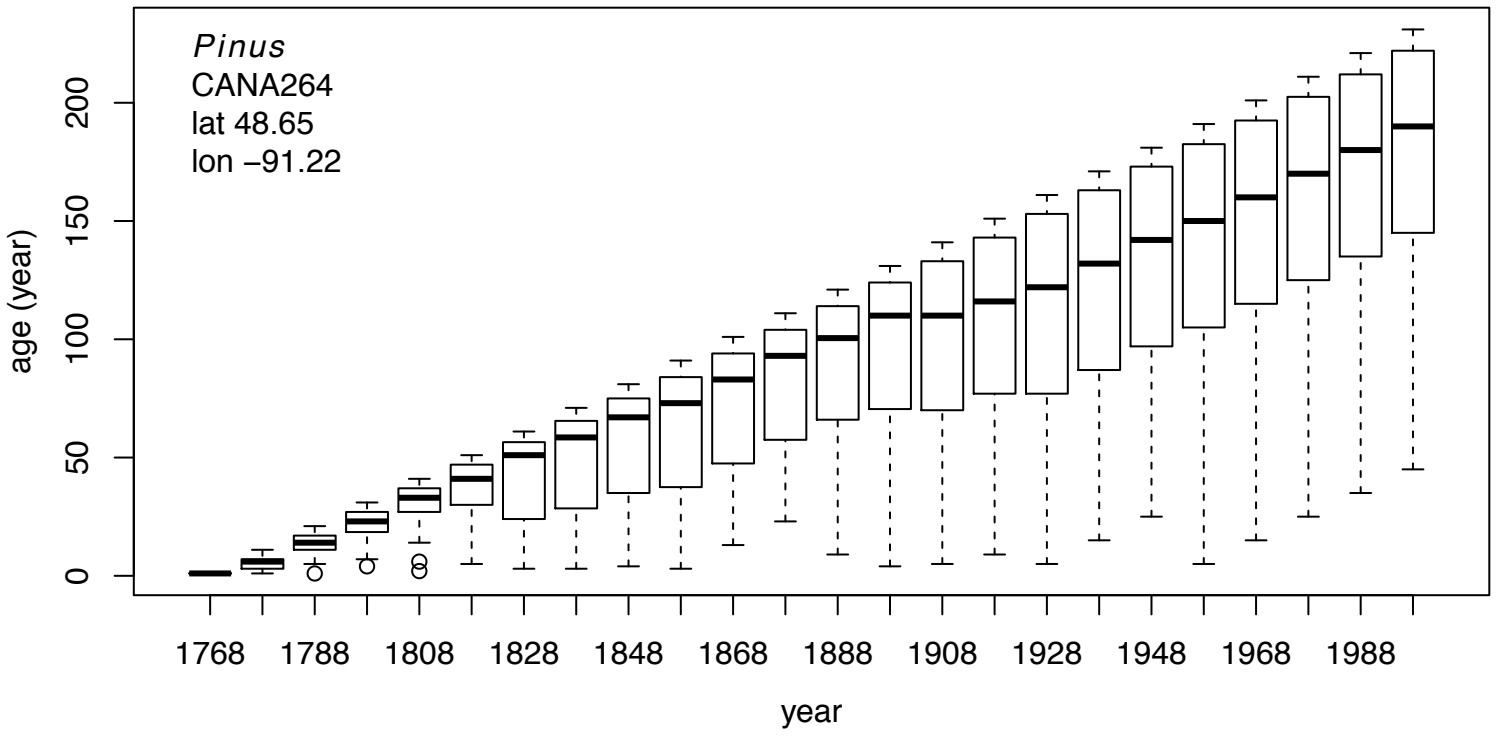
1930
1960
1990
year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CANA264
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1788
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1828
1848
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1888
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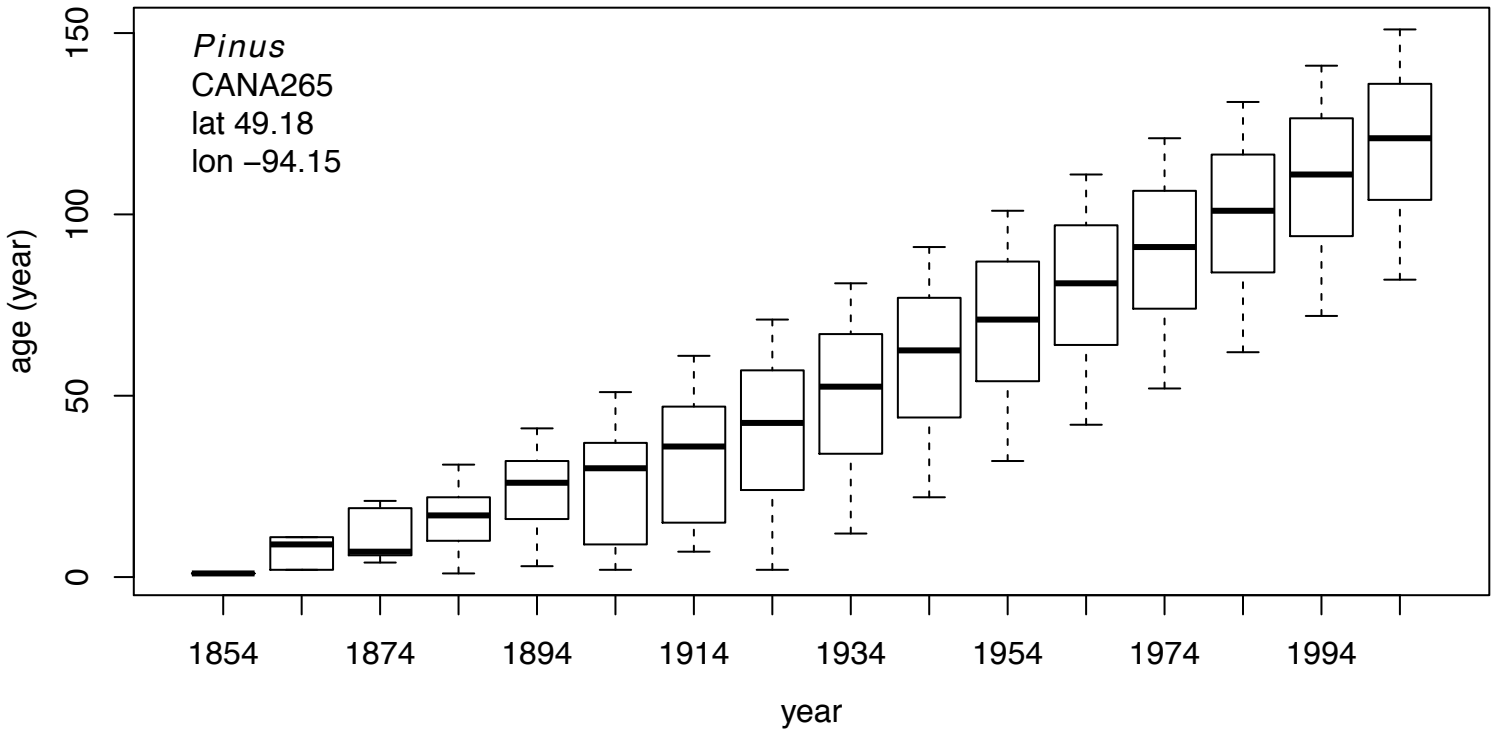
1948
1968
1988
year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CANA265
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age (year)
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1894
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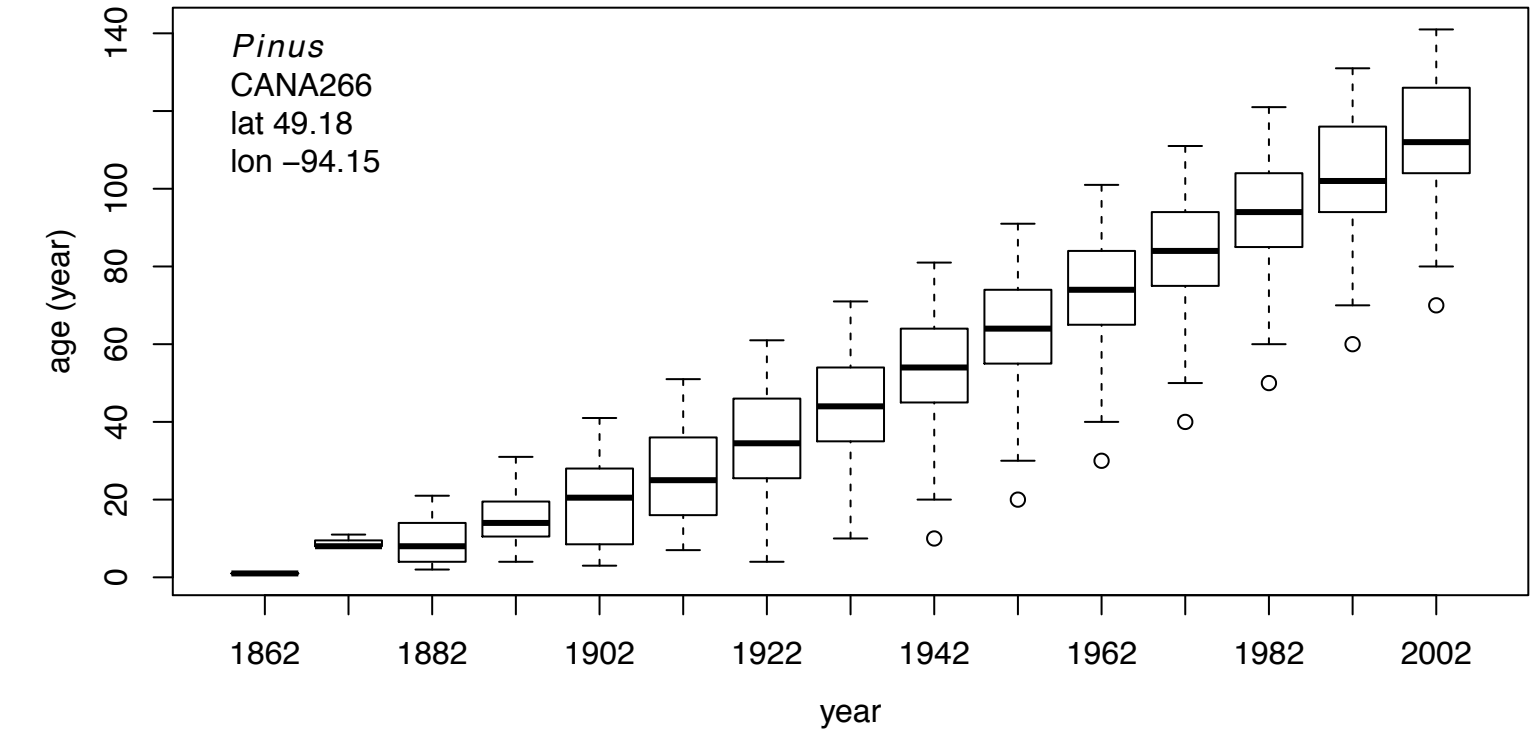
1954
1974
1994
year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CANA266
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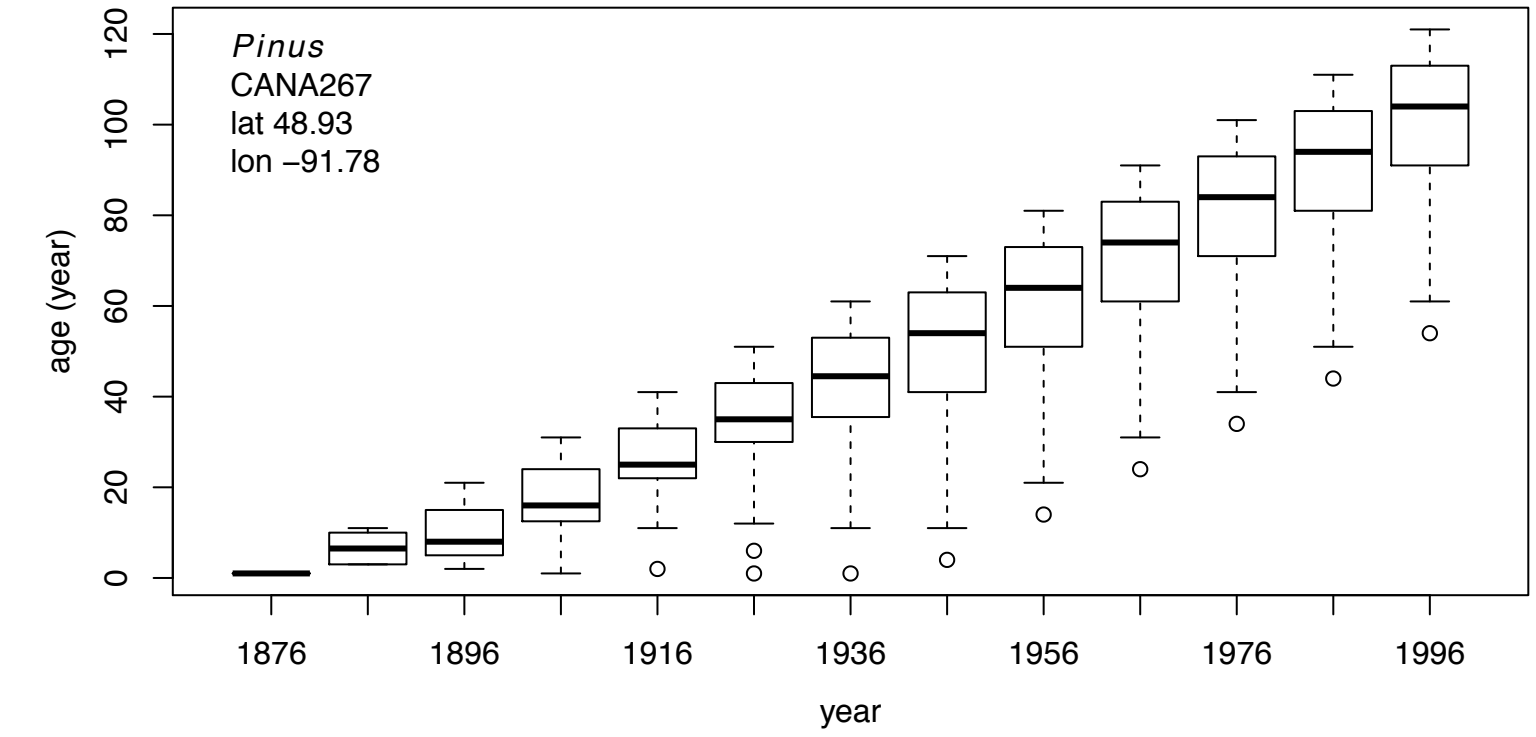
1962
1982
2002
year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CANA267
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1896
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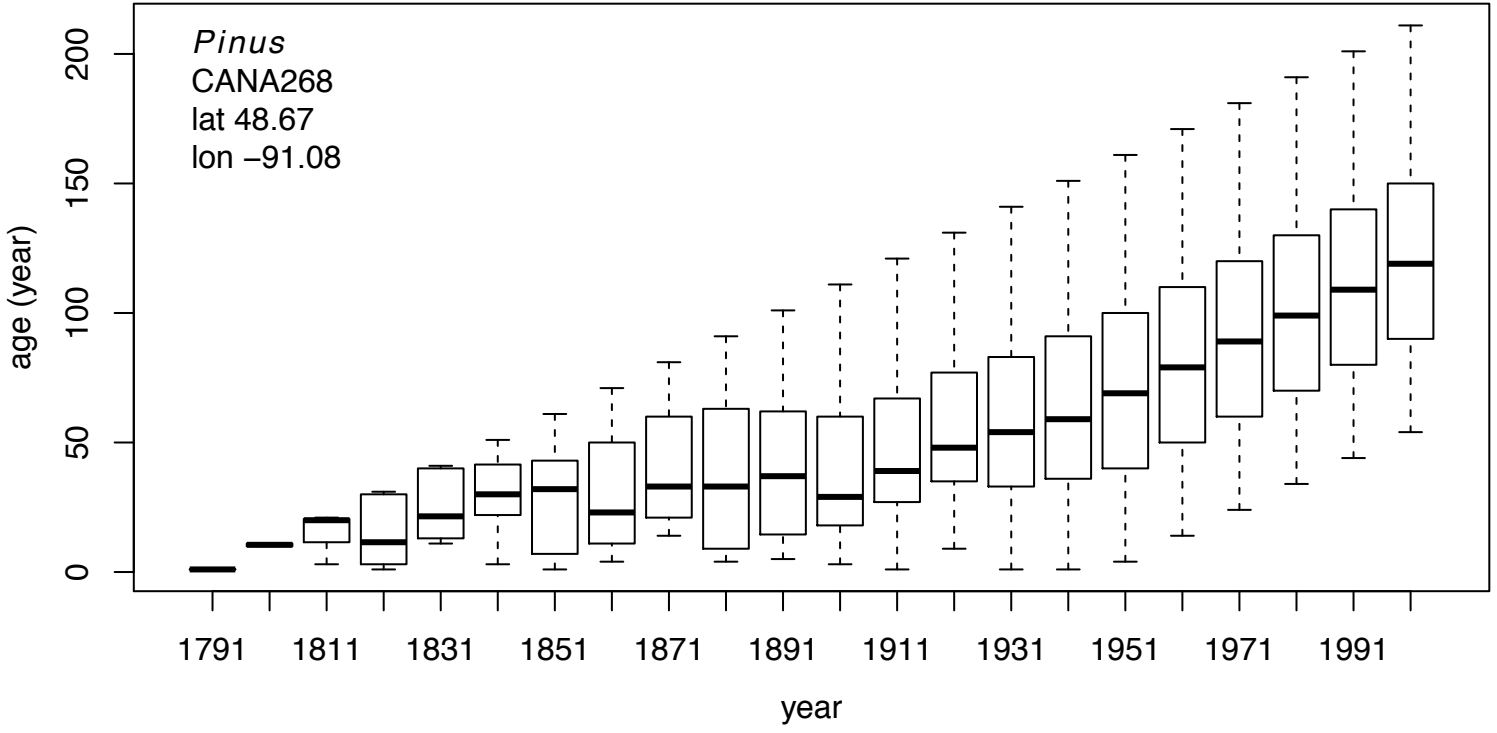
1936
1956
1976
1996
year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CANA268
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age (year)
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1891
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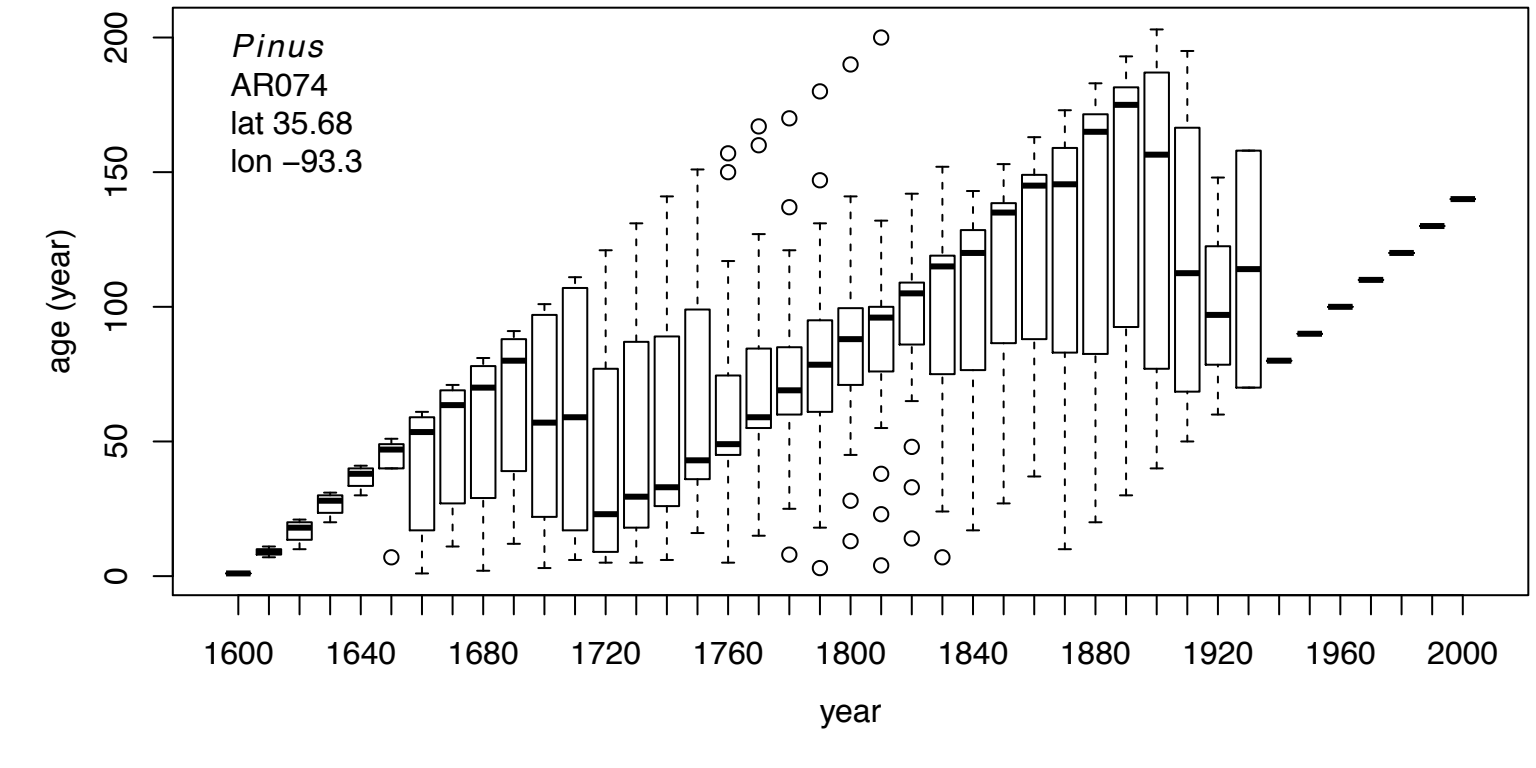
1931
1951
1971
1991
year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AR074
lat 35.68
lon −93.3
age (year)
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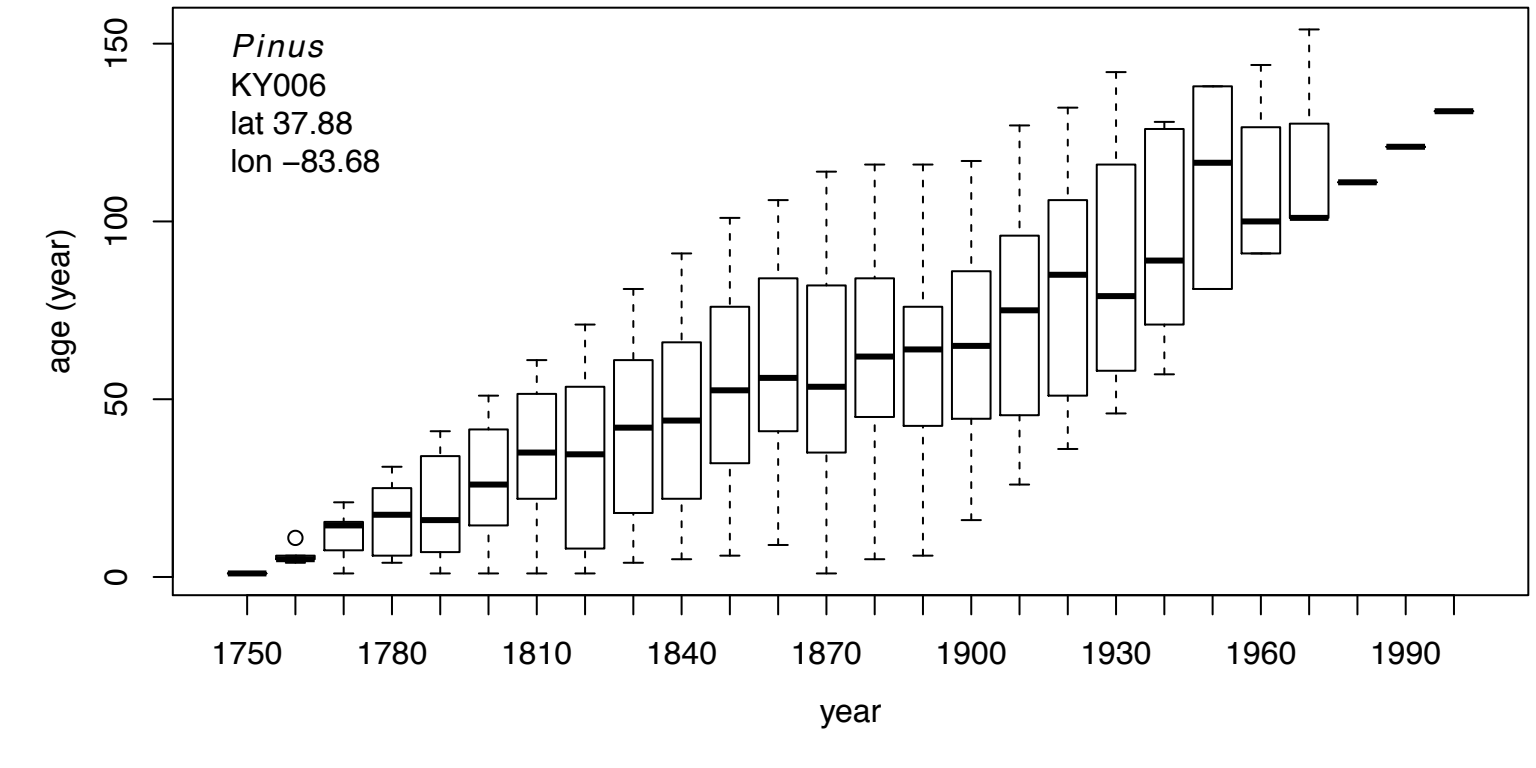
1920
1960
2000
year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KY006
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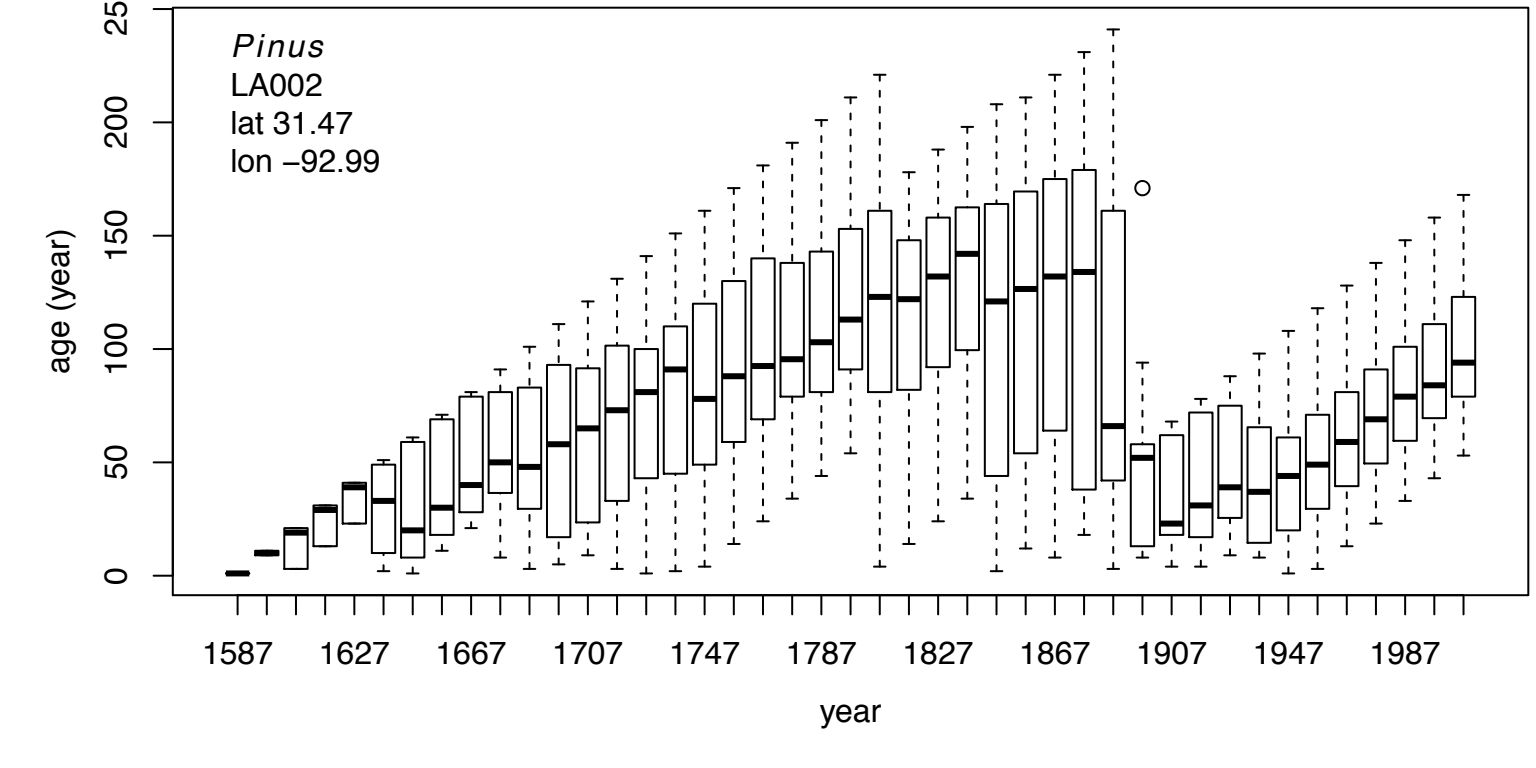
1930
1960
1990
year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age (year)
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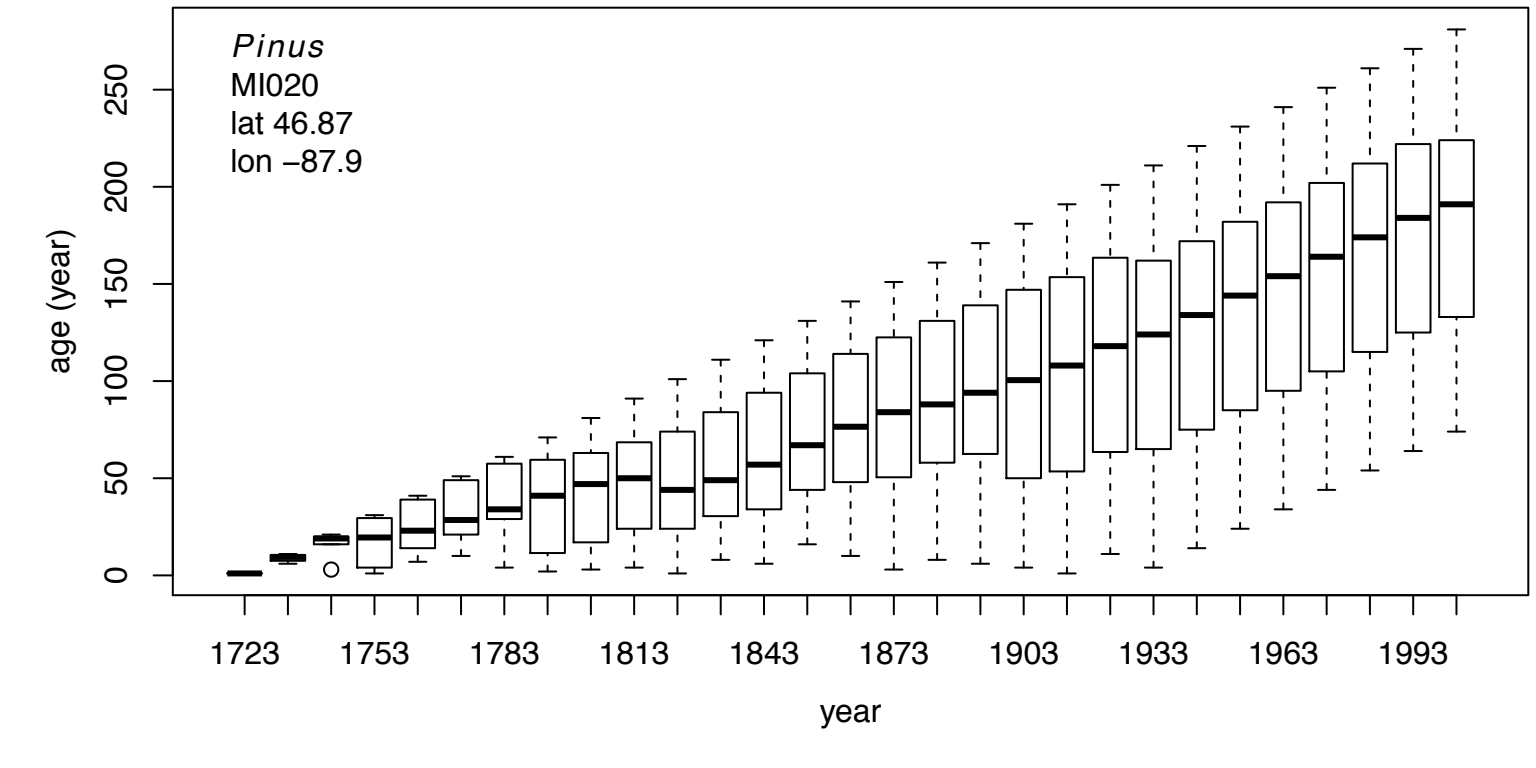
250
1587
1627
1667
1707
1747
1787
1827
1867
1907
1947
1987
year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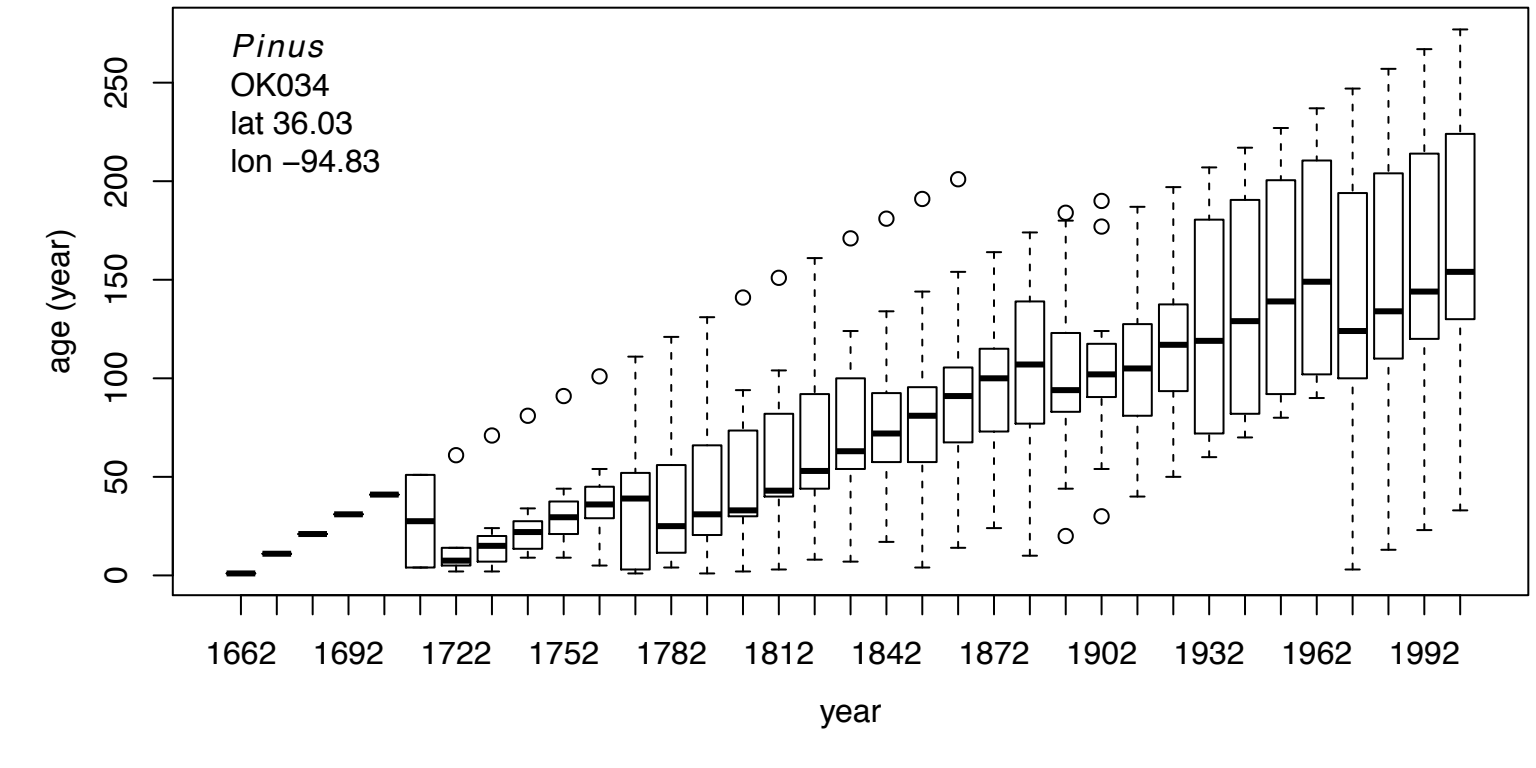
1963
1993
year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OK034
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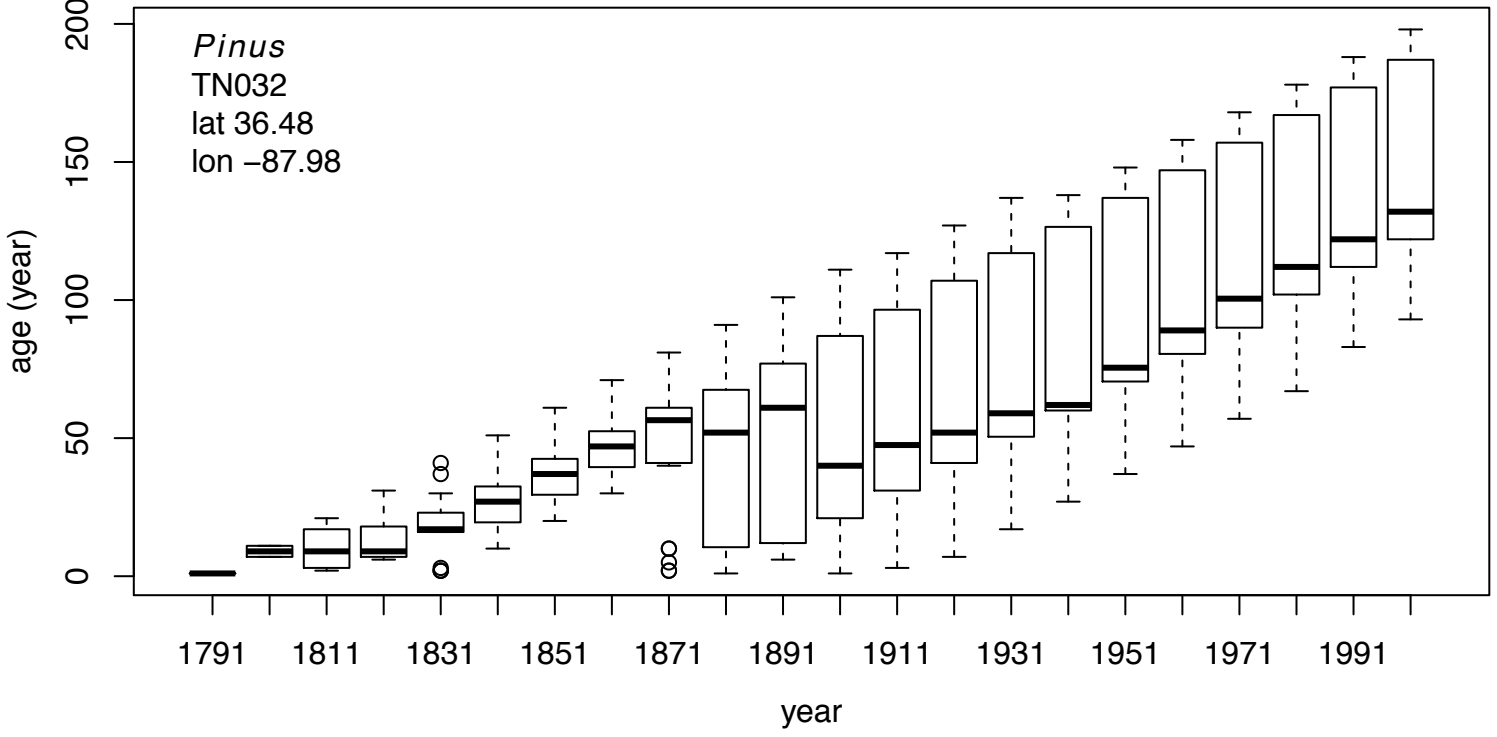
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1951
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1991
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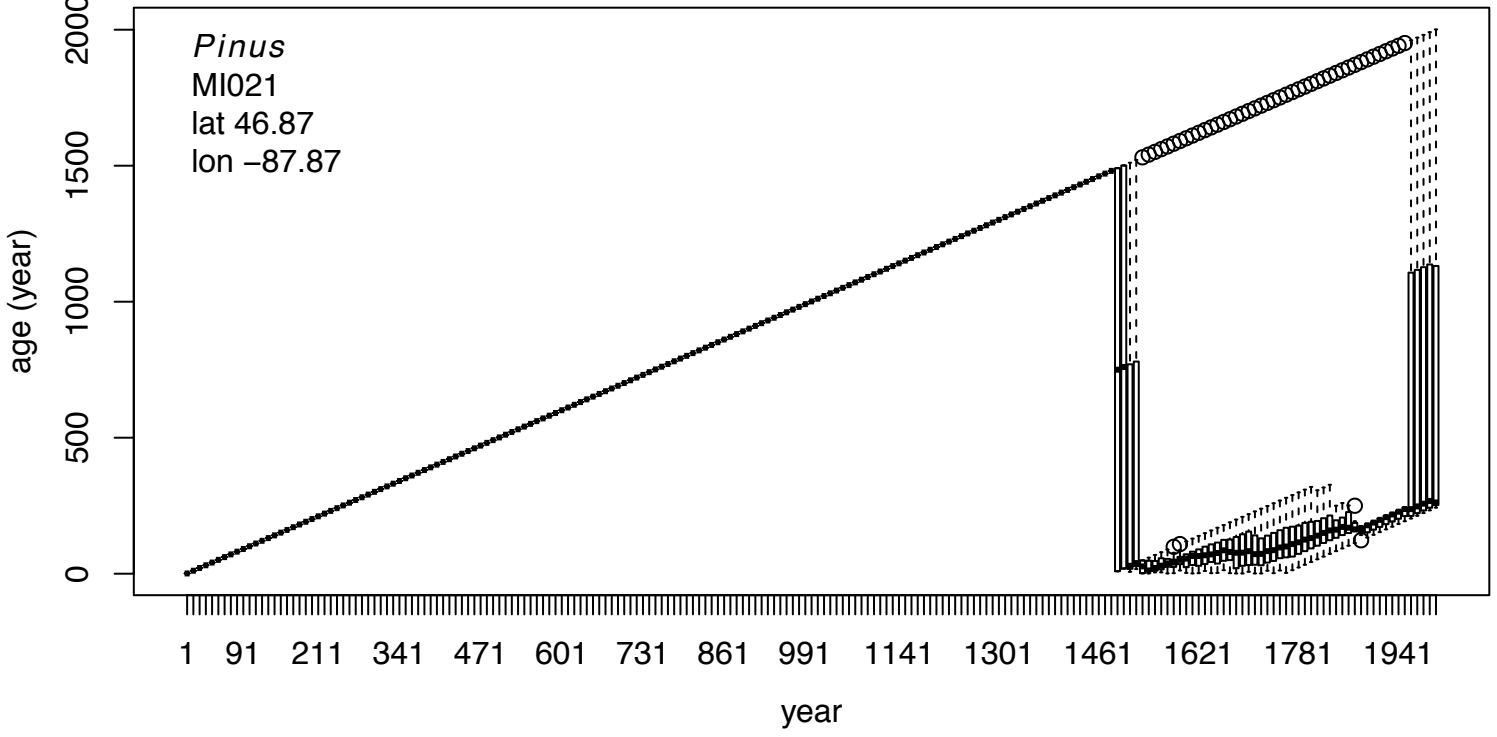
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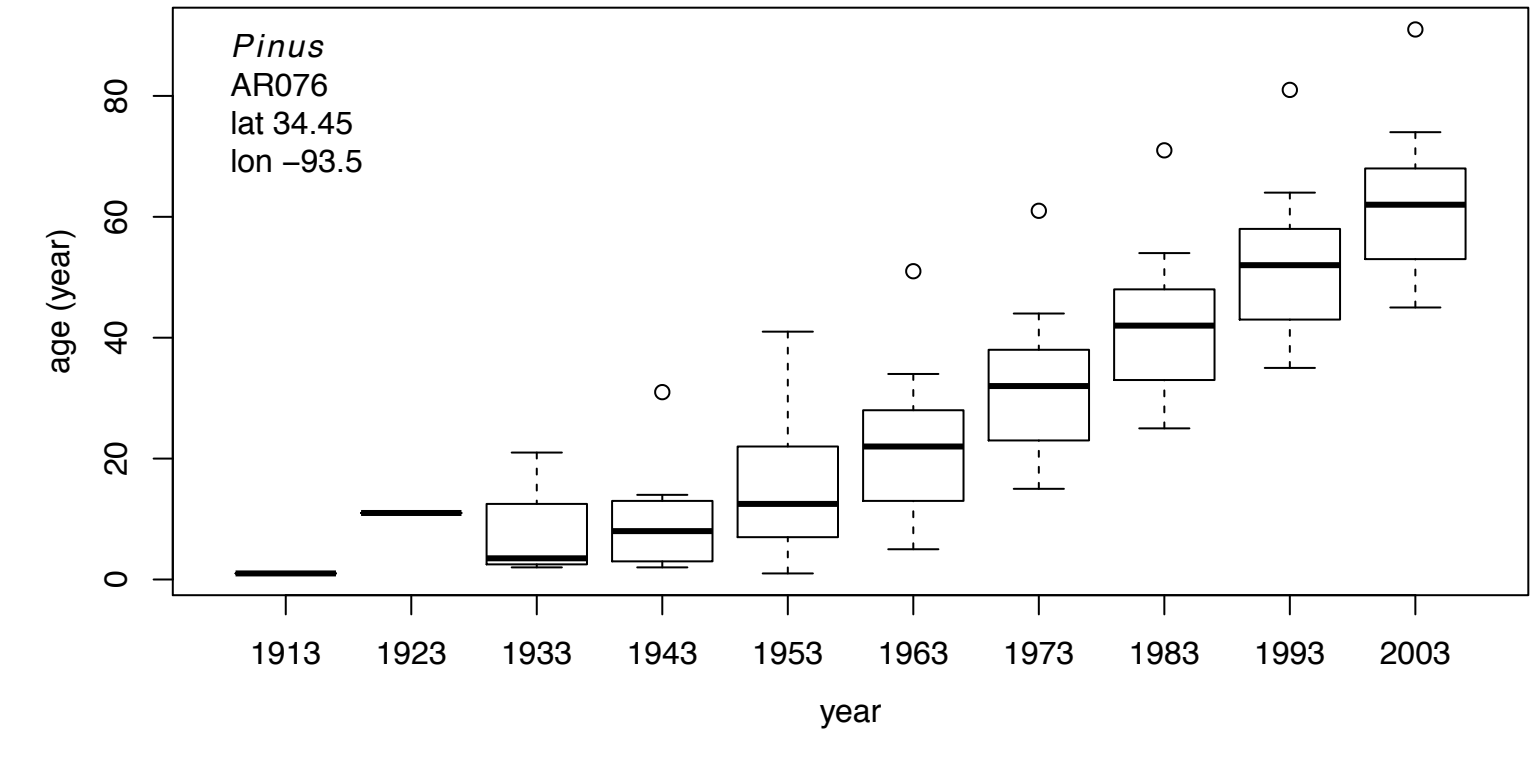
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2003
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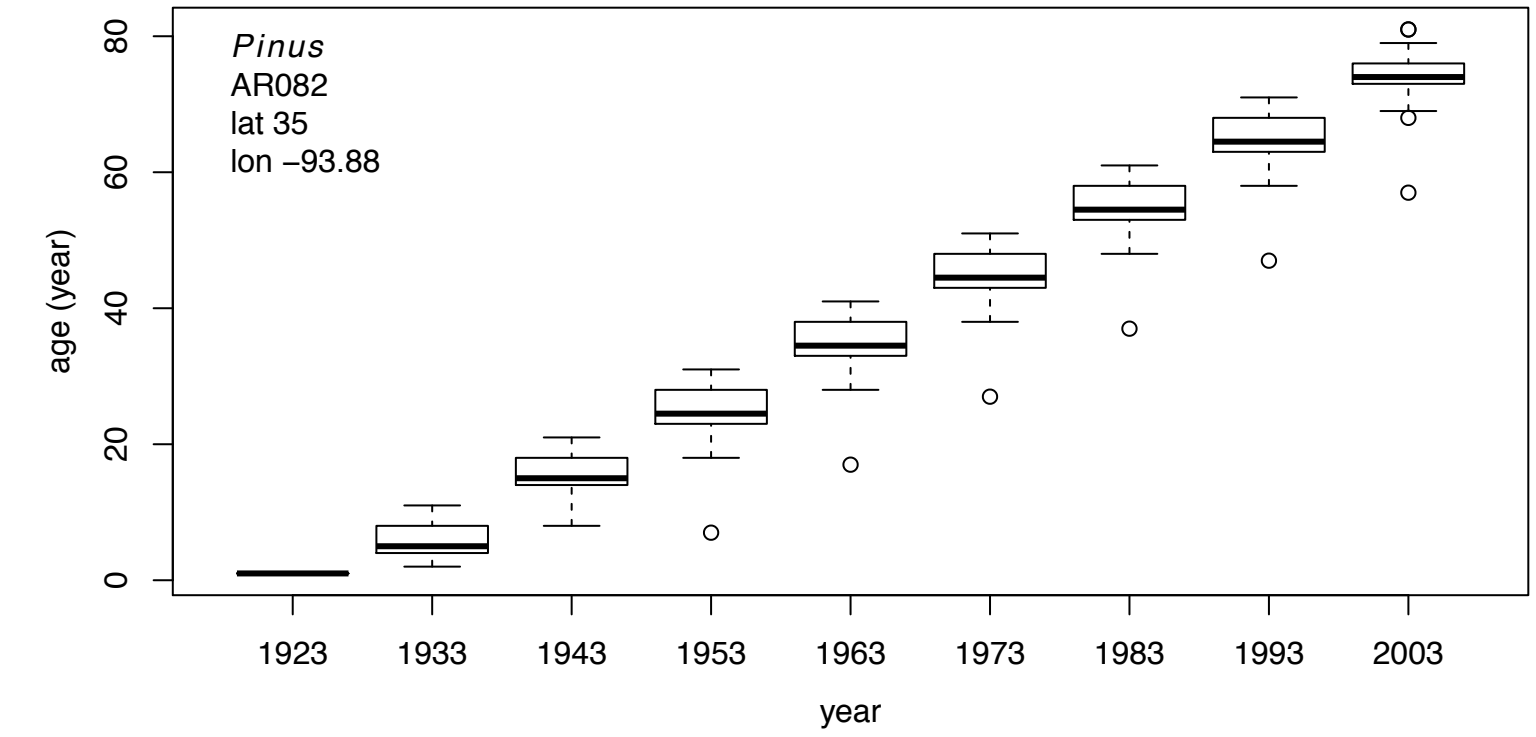
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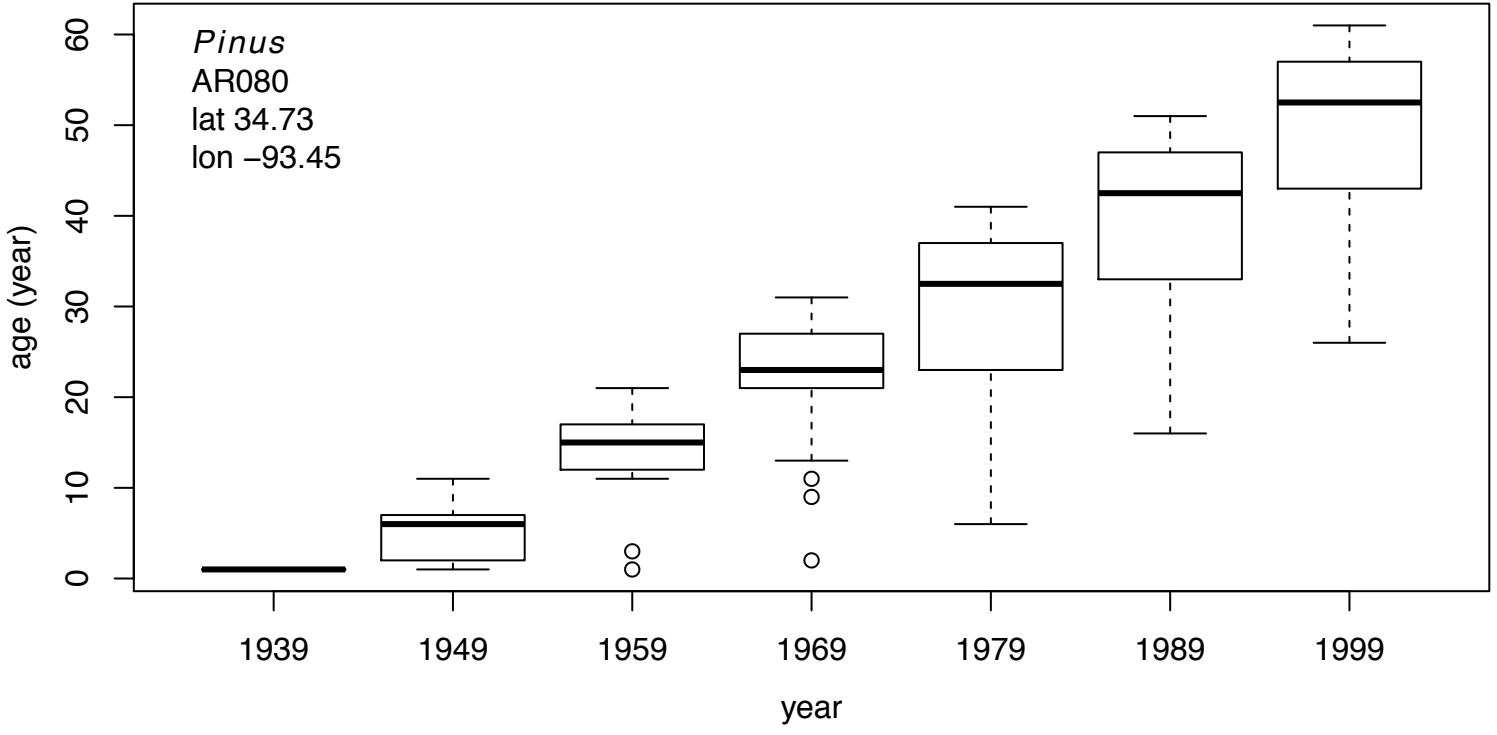
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1979
1989
1999
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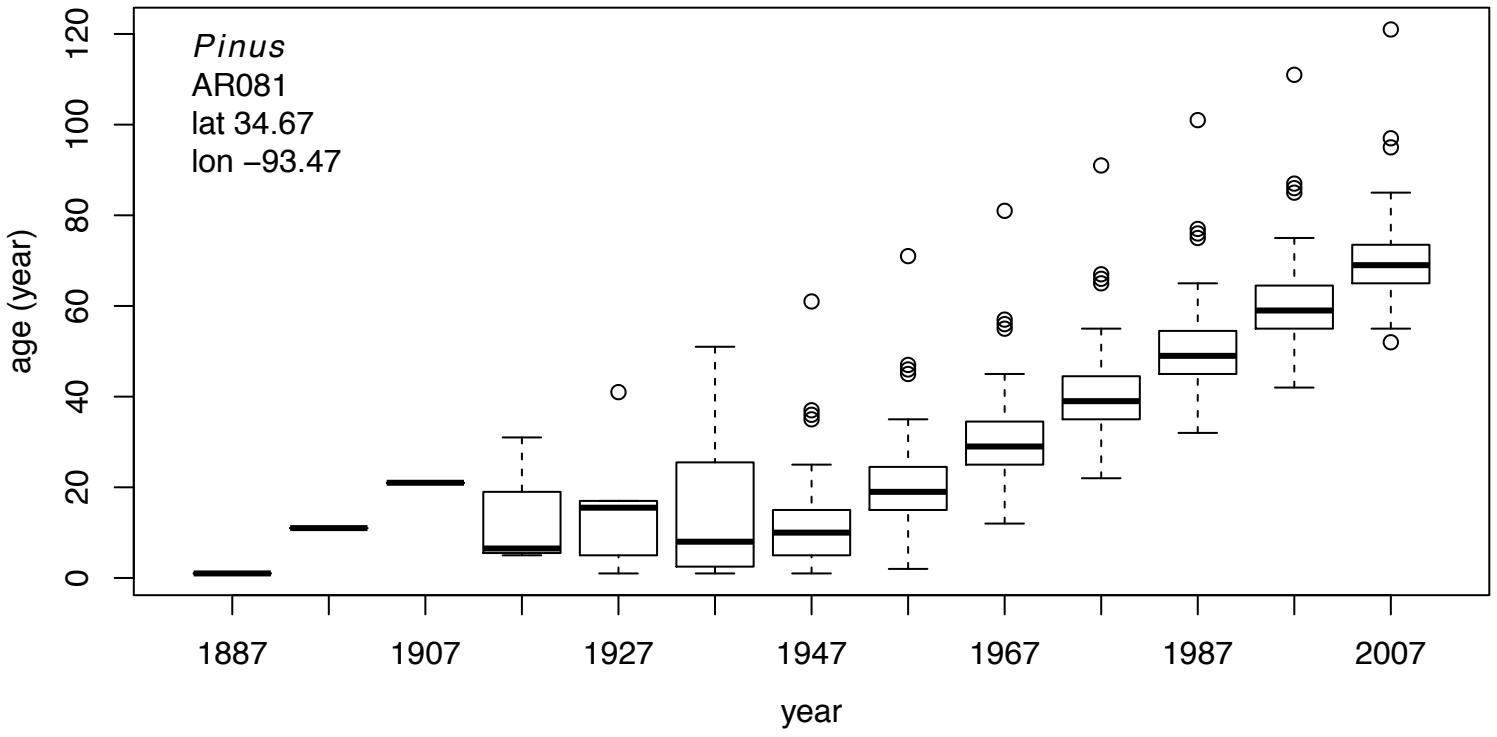
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120
1887
1907
1927
1947
1967
1987
2007
year

Pinus
UT535
lat 40.57
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age (year)
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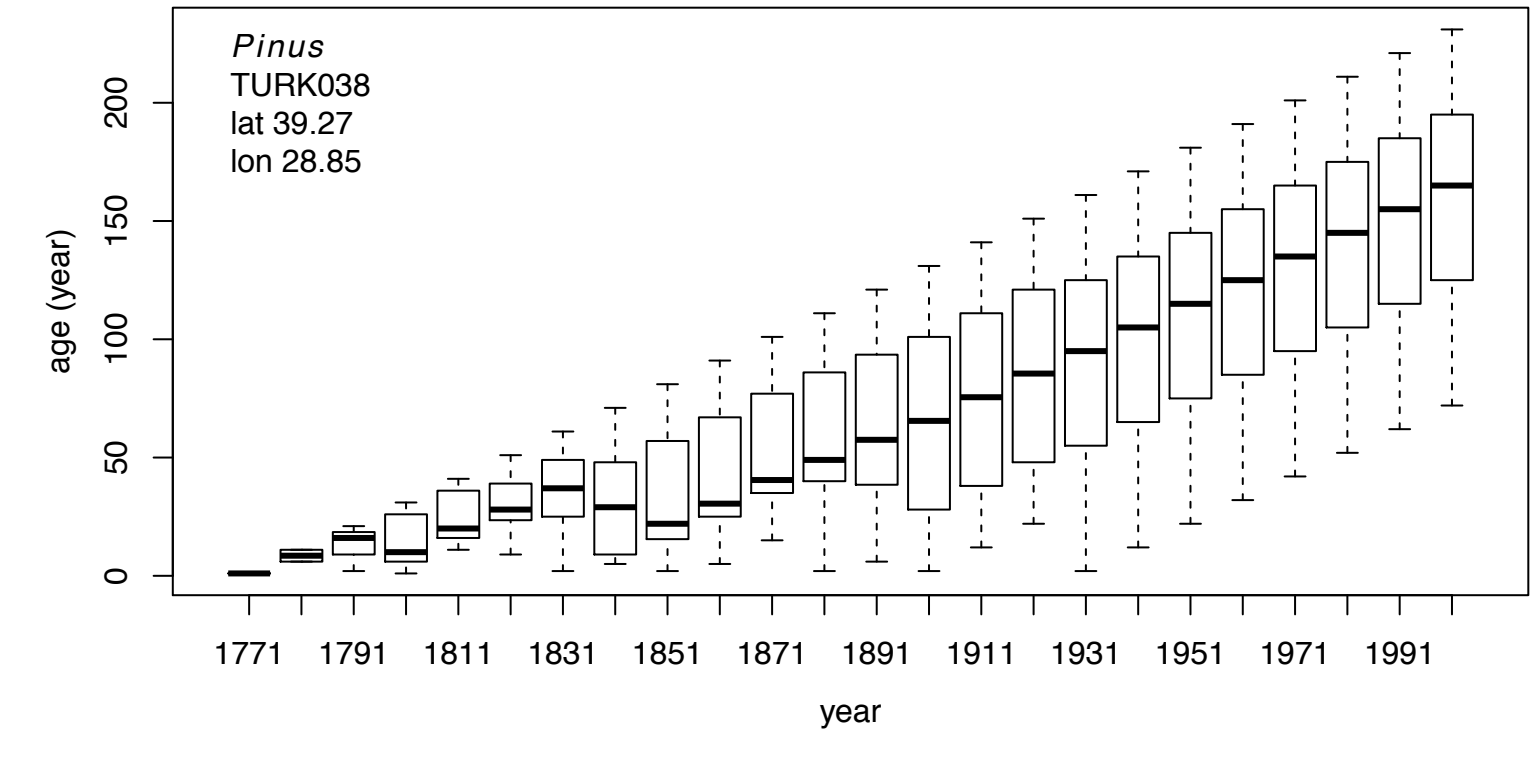
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1991
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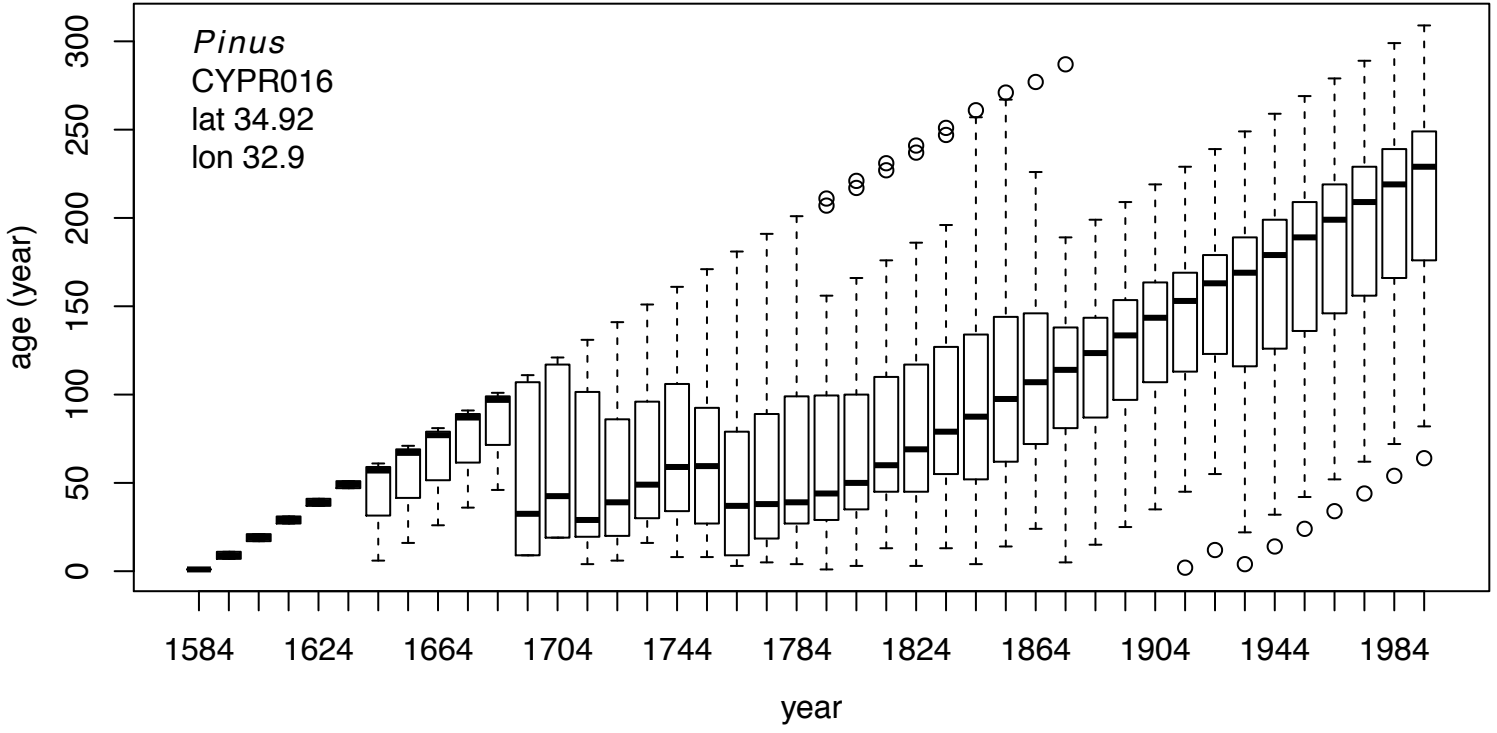
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1944
1984
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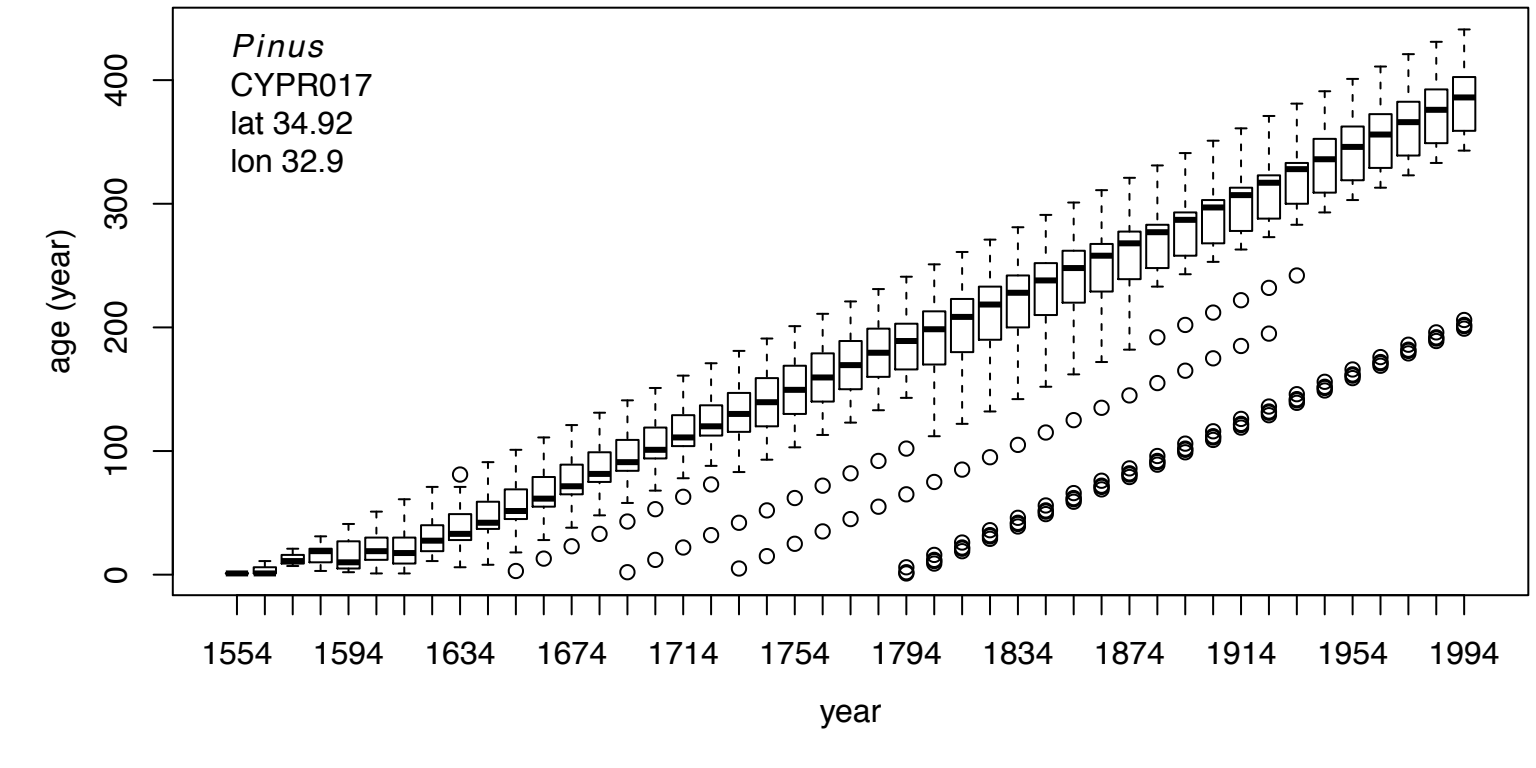
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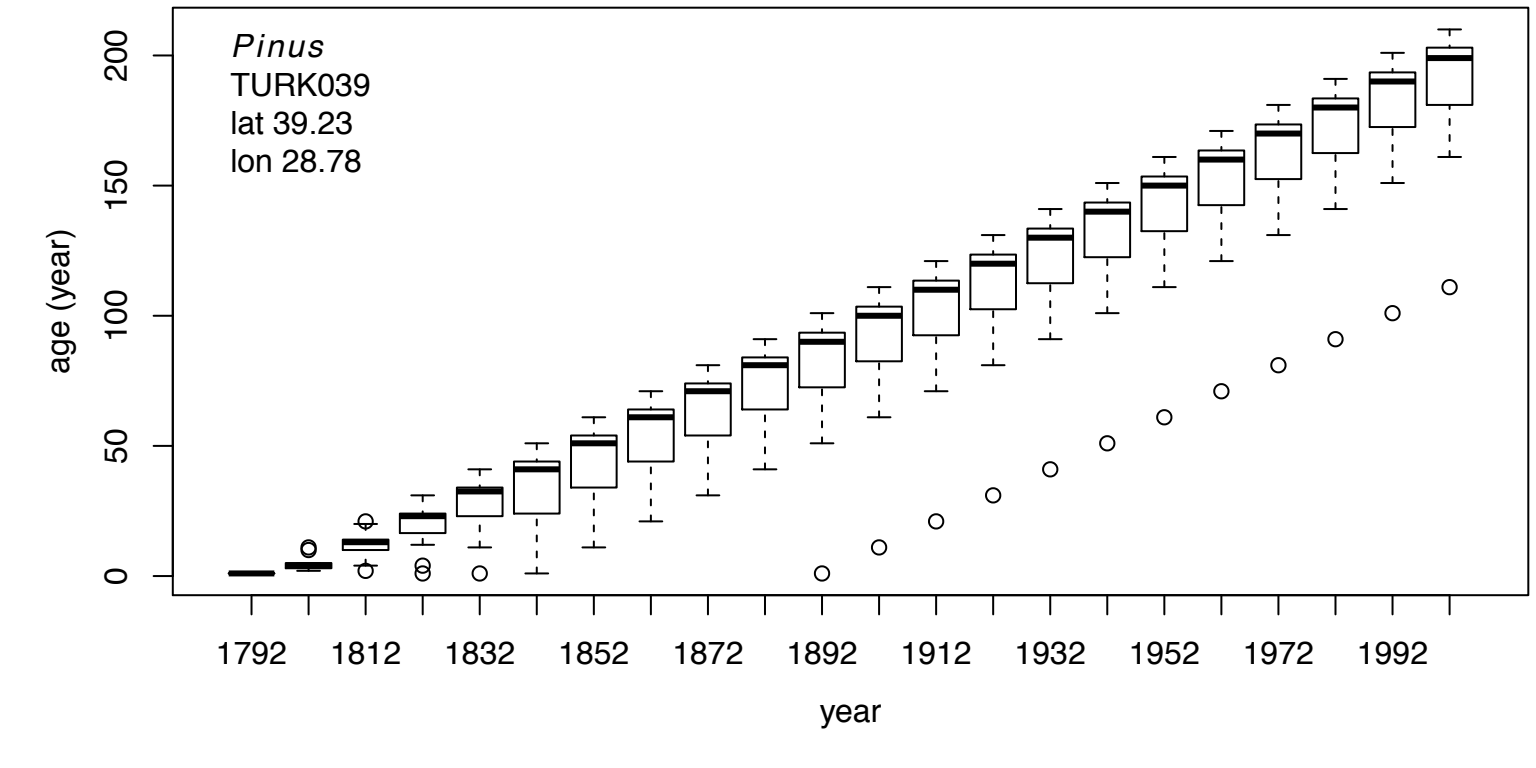
1794
1834
1874
1914
1954
1994
year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lon 28.78
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1812
1832
1852
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1892
1912
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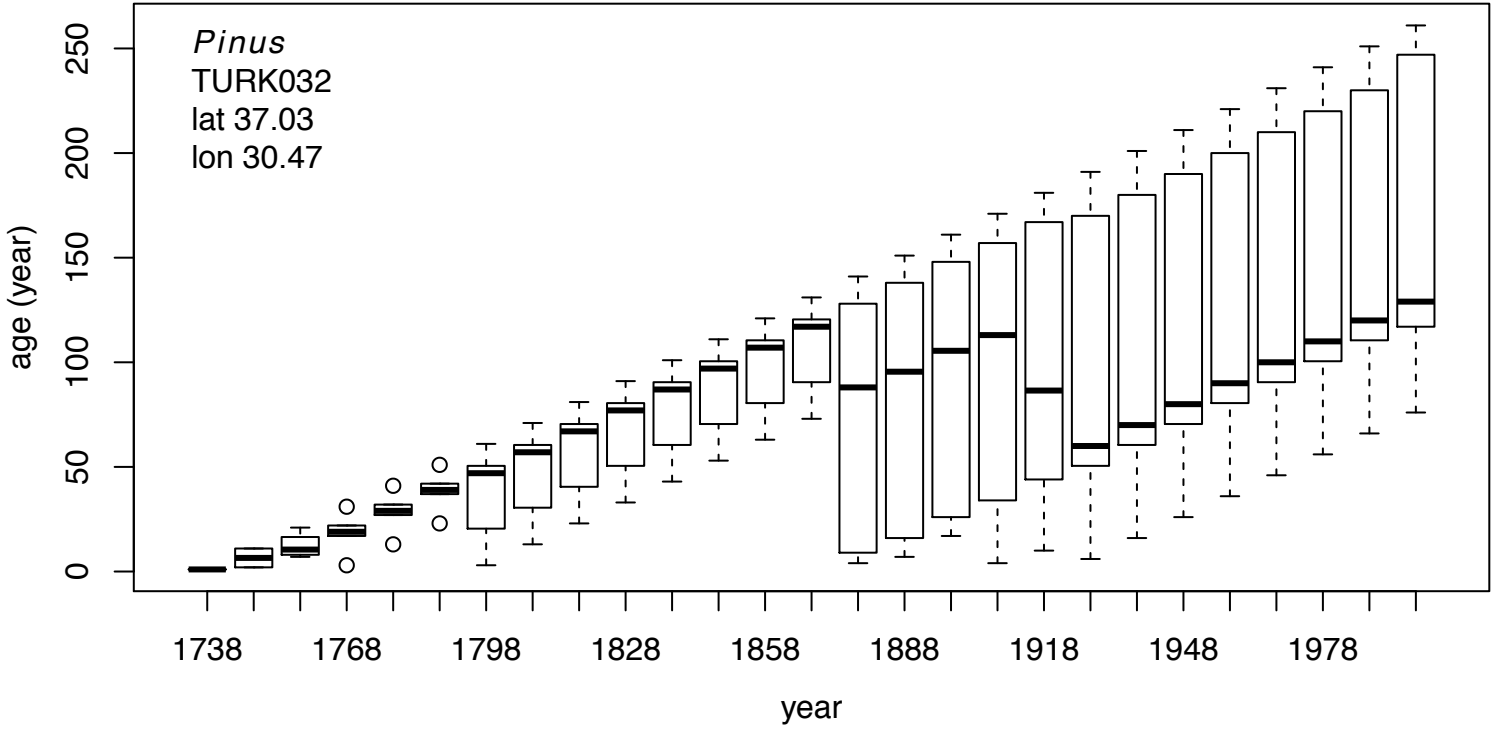
1952
1972
1992
year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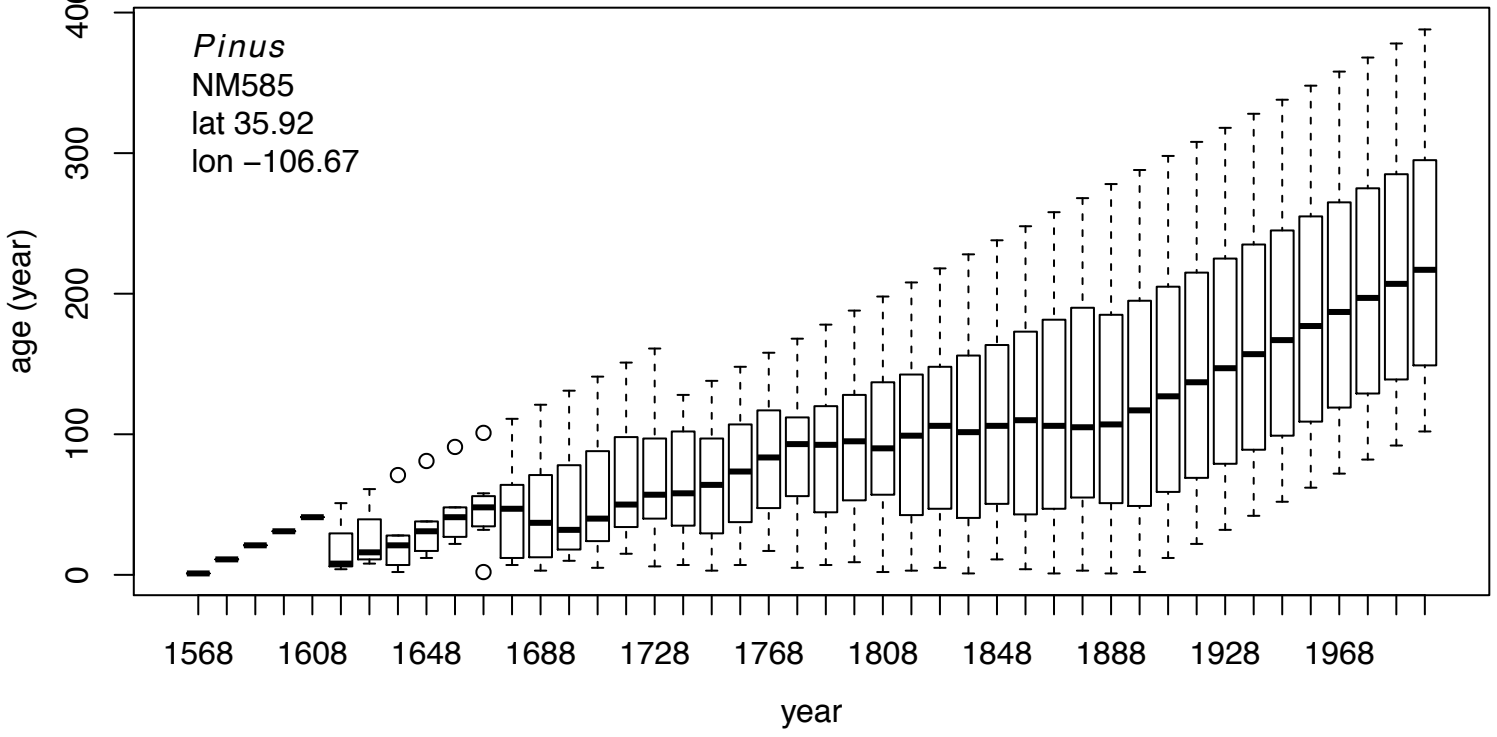
1918
1948
1978
year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NM585
lat 35.92
lon −106.67
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1608
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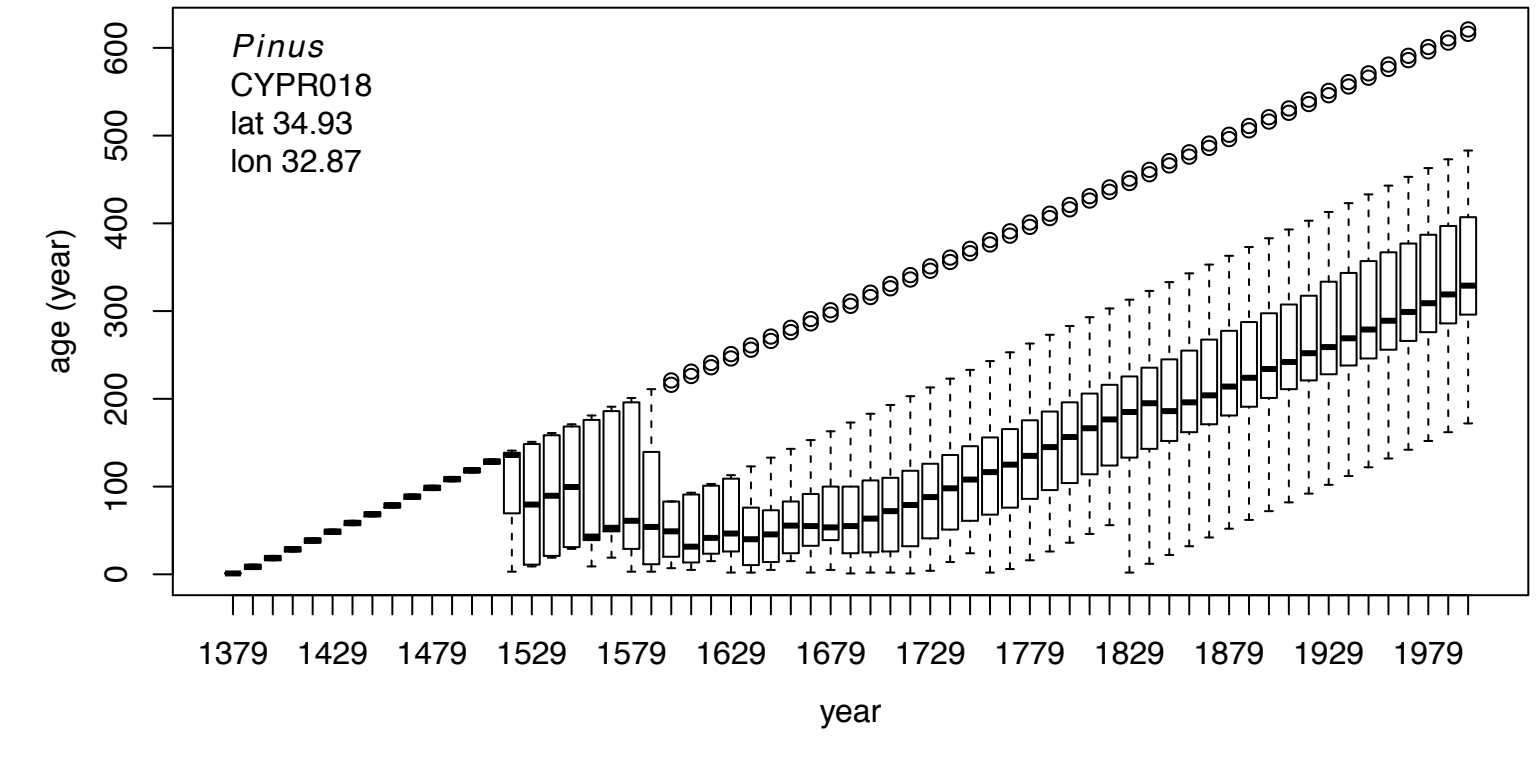
1728
1768
1808
1848
1888
1928
1968
year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CYPR018
lat 34.93
lon 32.87
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300
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1929
1979
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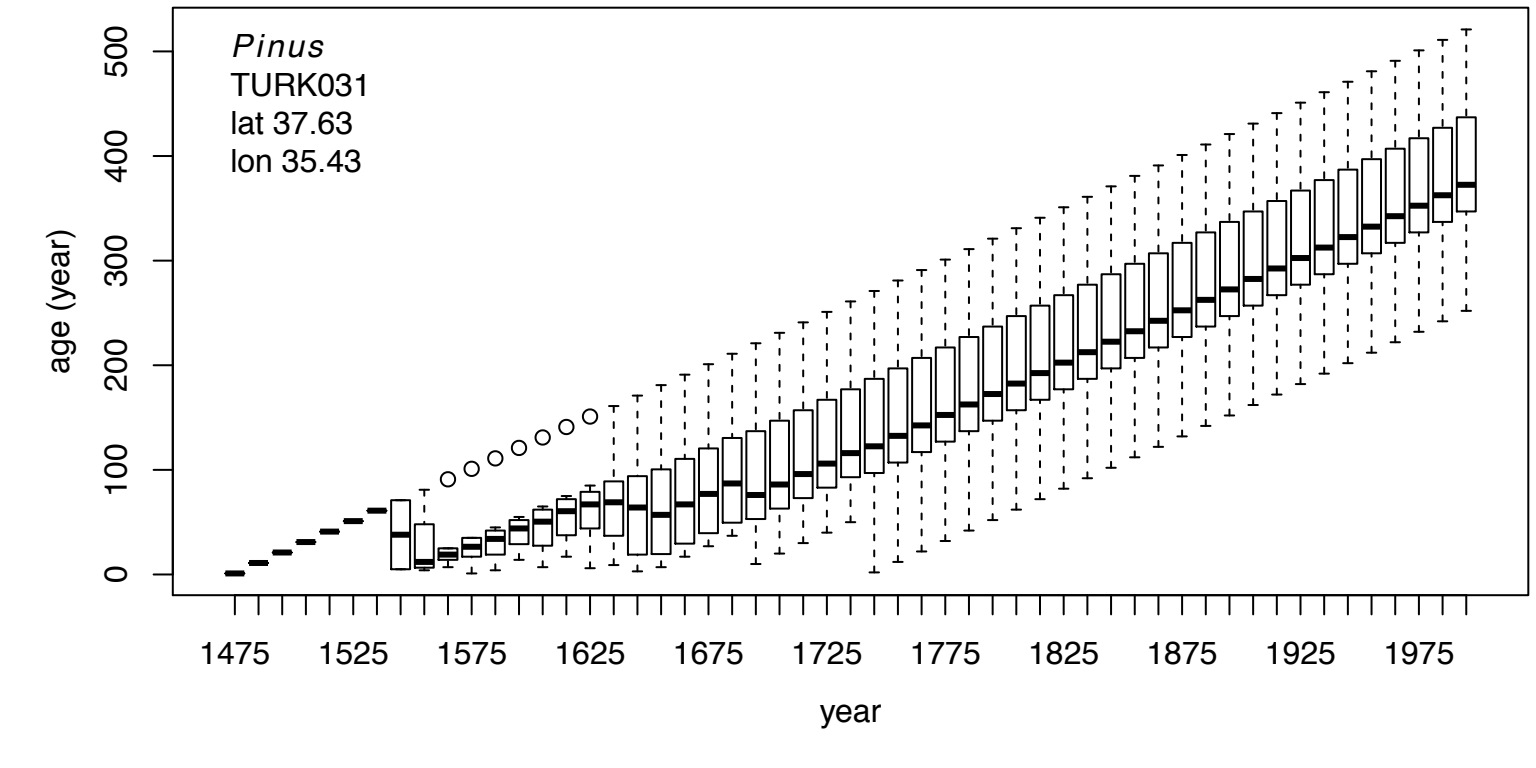
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1525
1575
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1775
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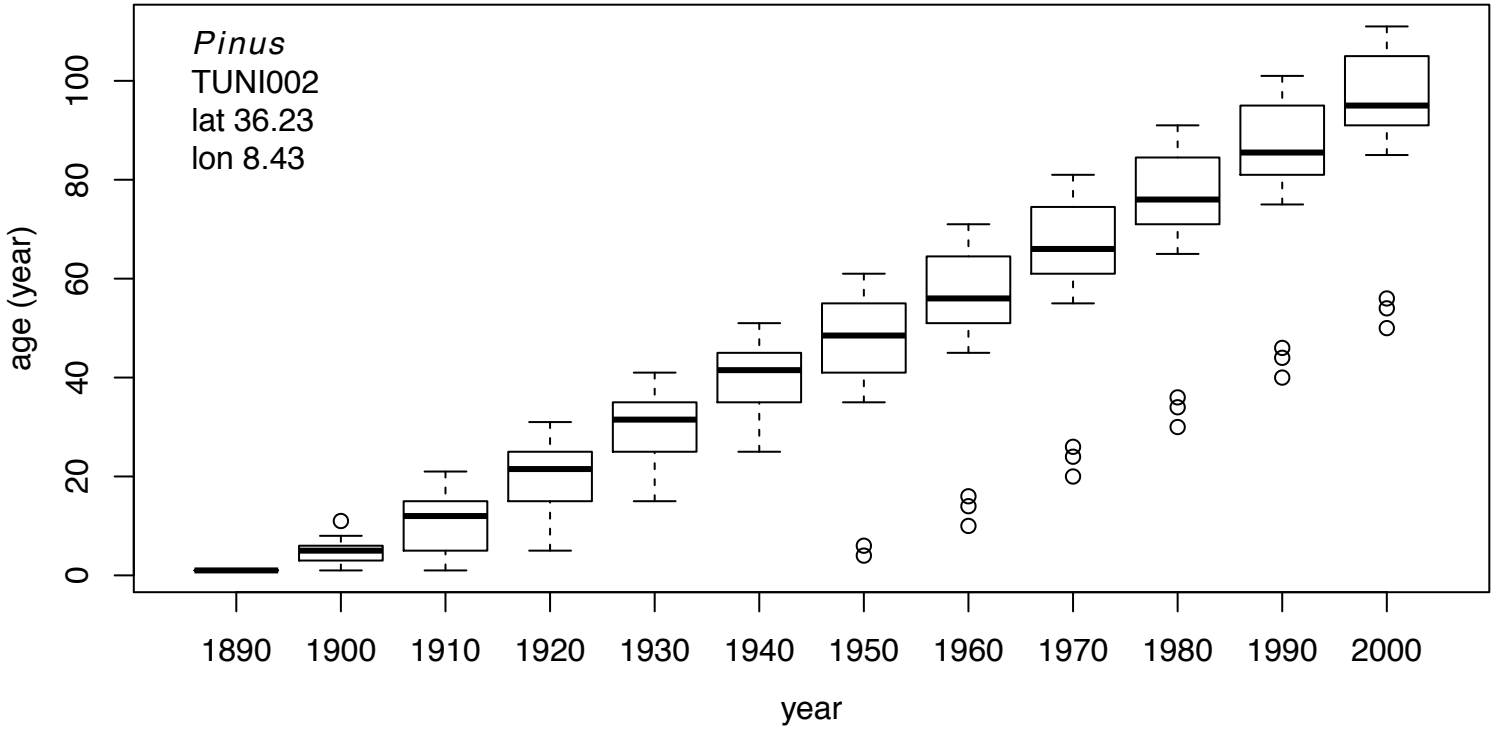
1875
1925
1975
year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TUNI002
lat 36.23
lon 8.43
age (year)
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100
1890
1900
1910
1920
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1940
1950
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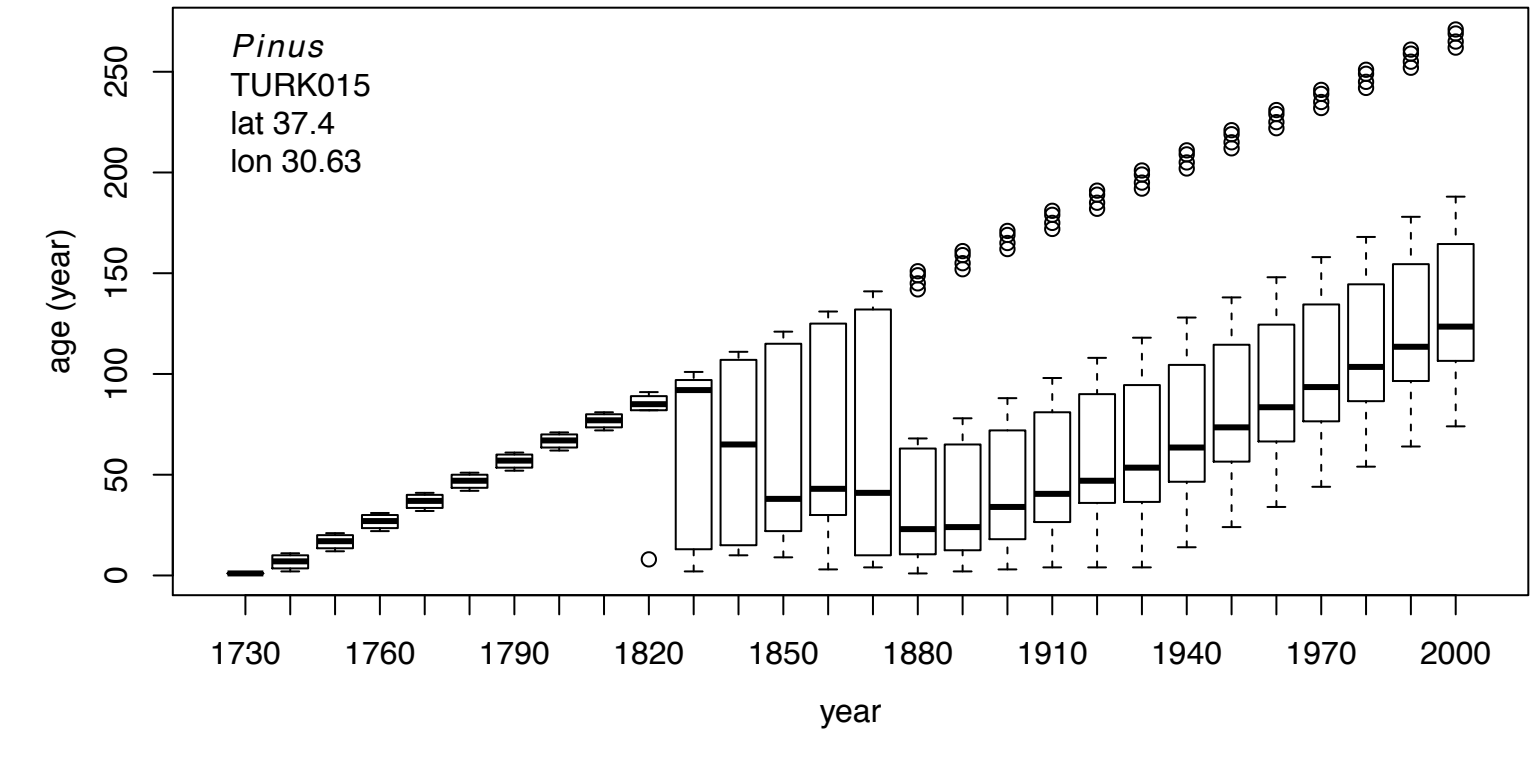
1970
1980
1990
2000
year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TURK015
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1790
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1850
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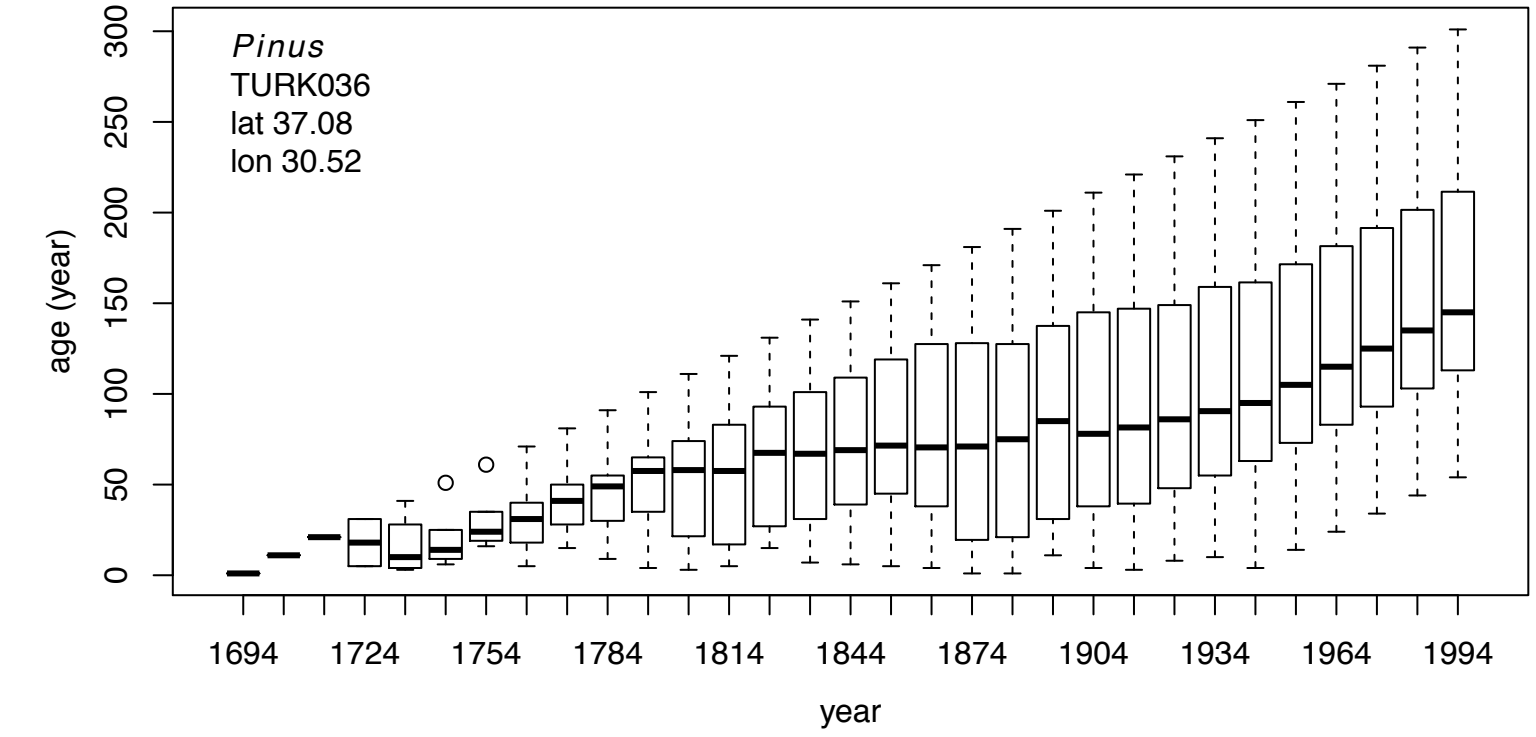
1940
1970
2000
year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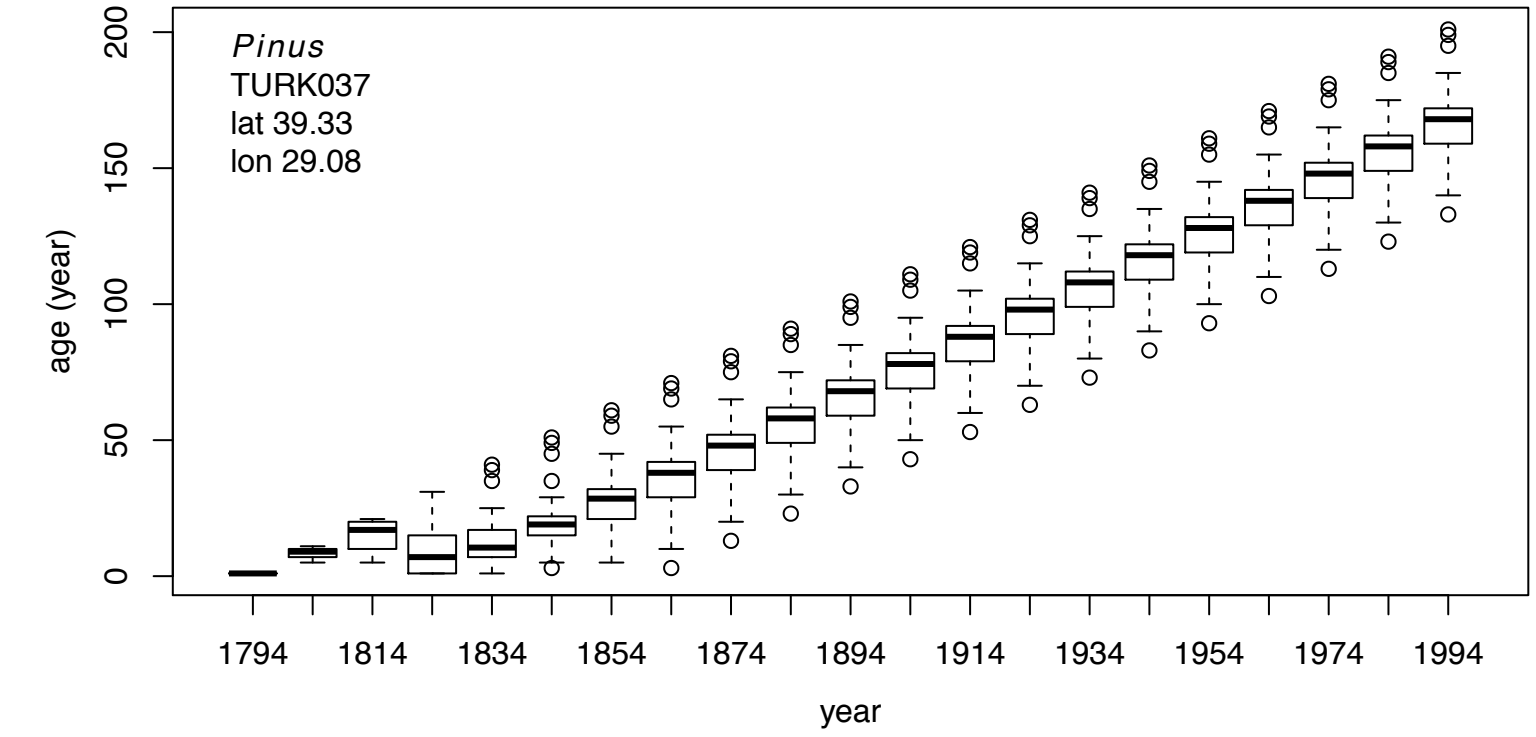
1934
1964
1994
year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TURK037
lat 39.33
lon 29.08
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1814
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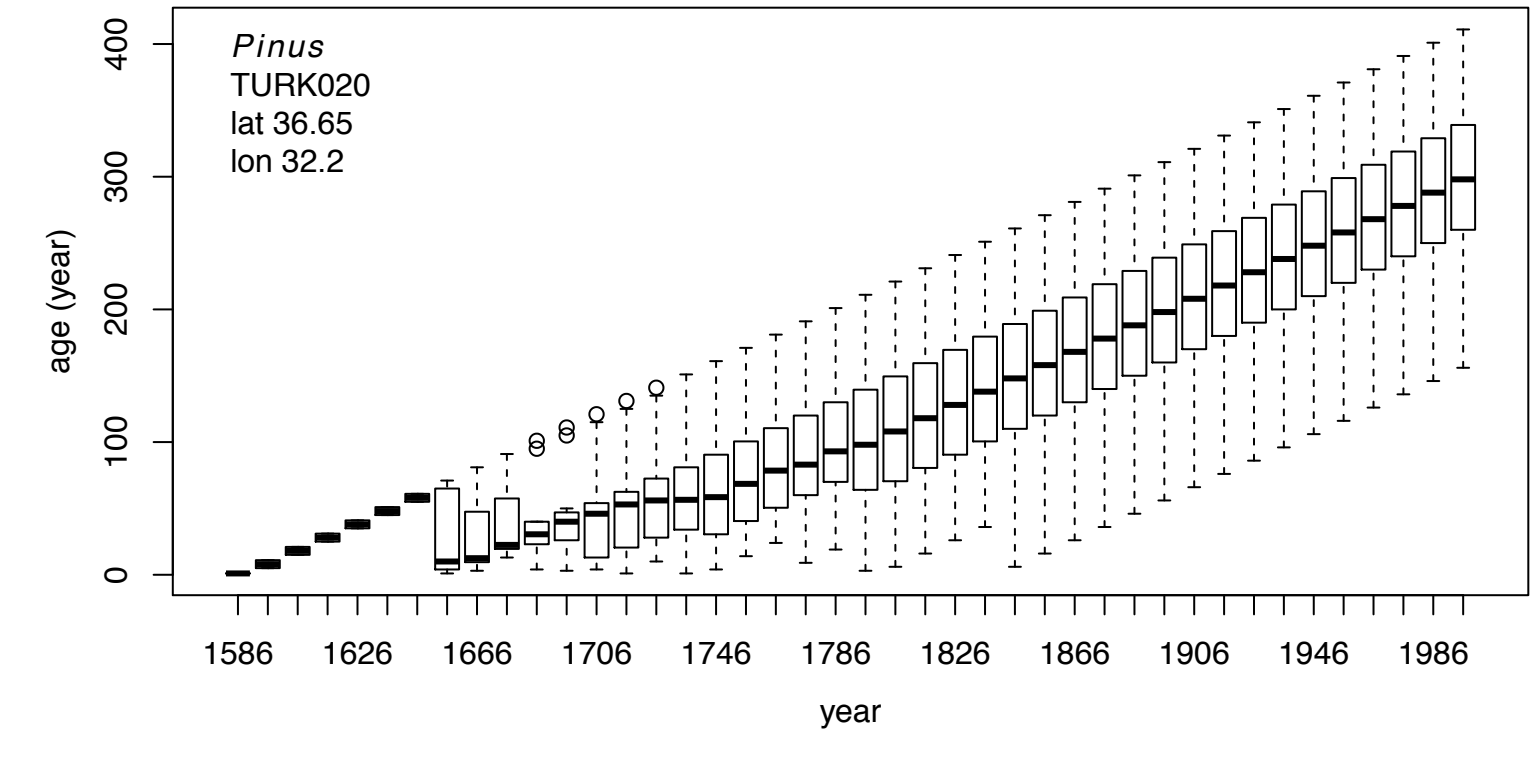
1954
1974
1994
year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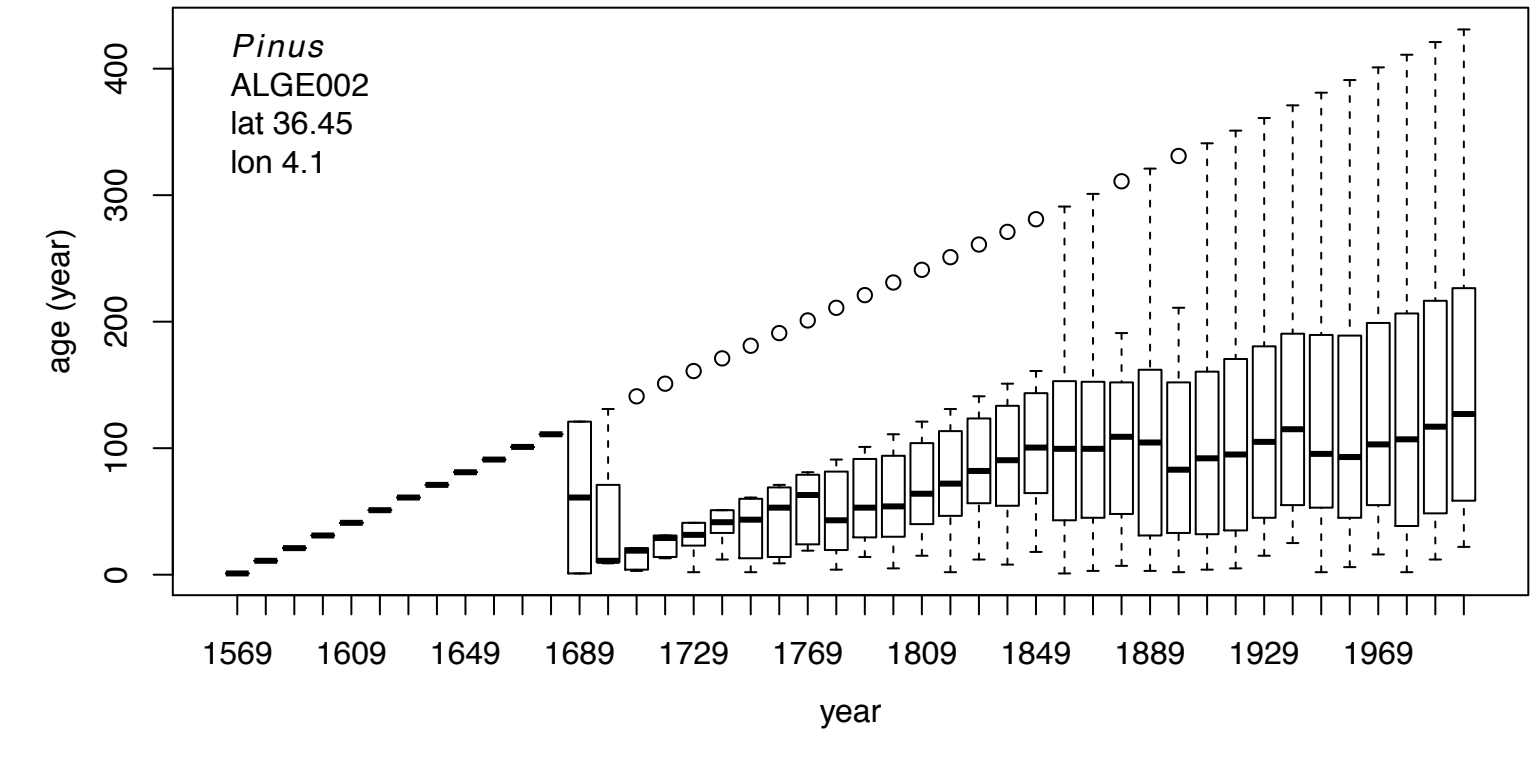
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1929
1969
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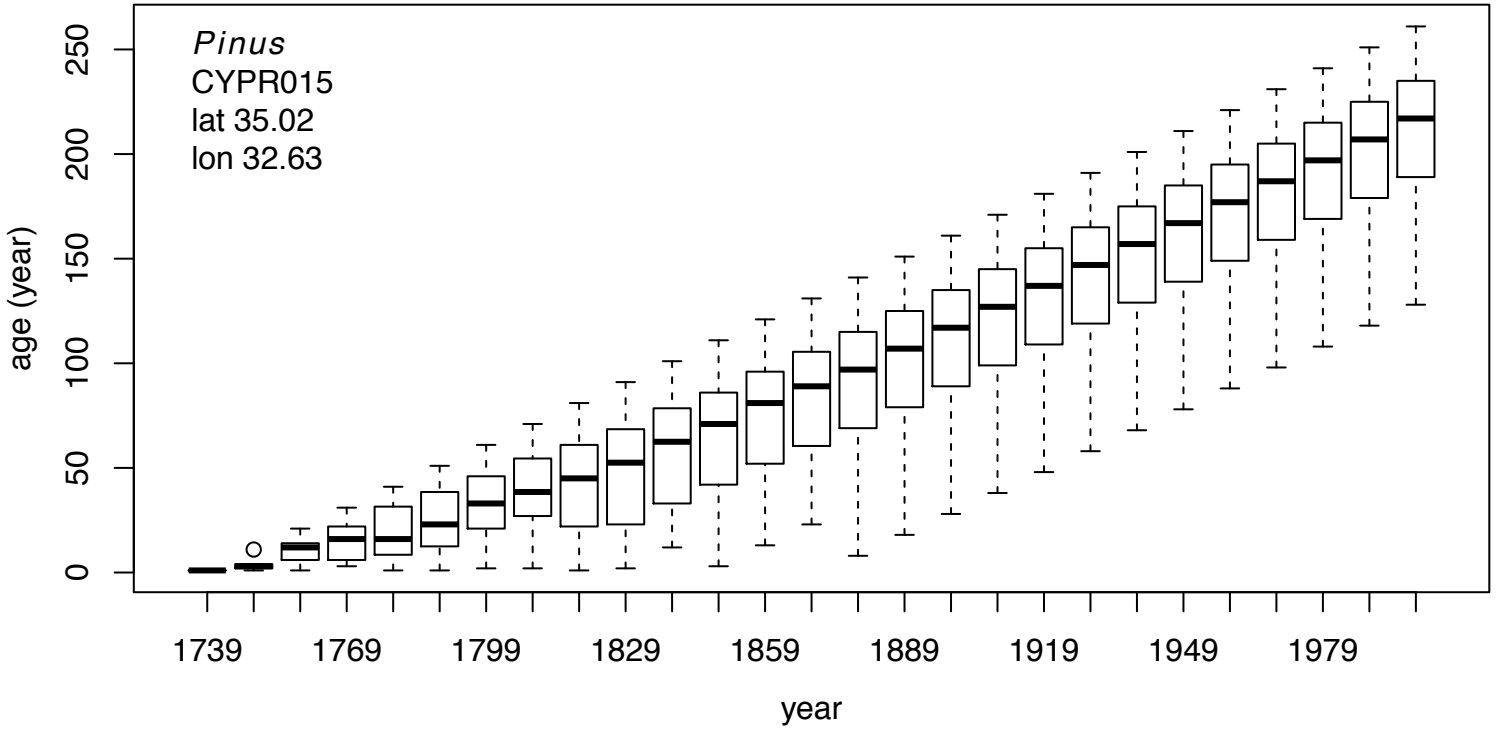
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CYPR015
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lon 32.63
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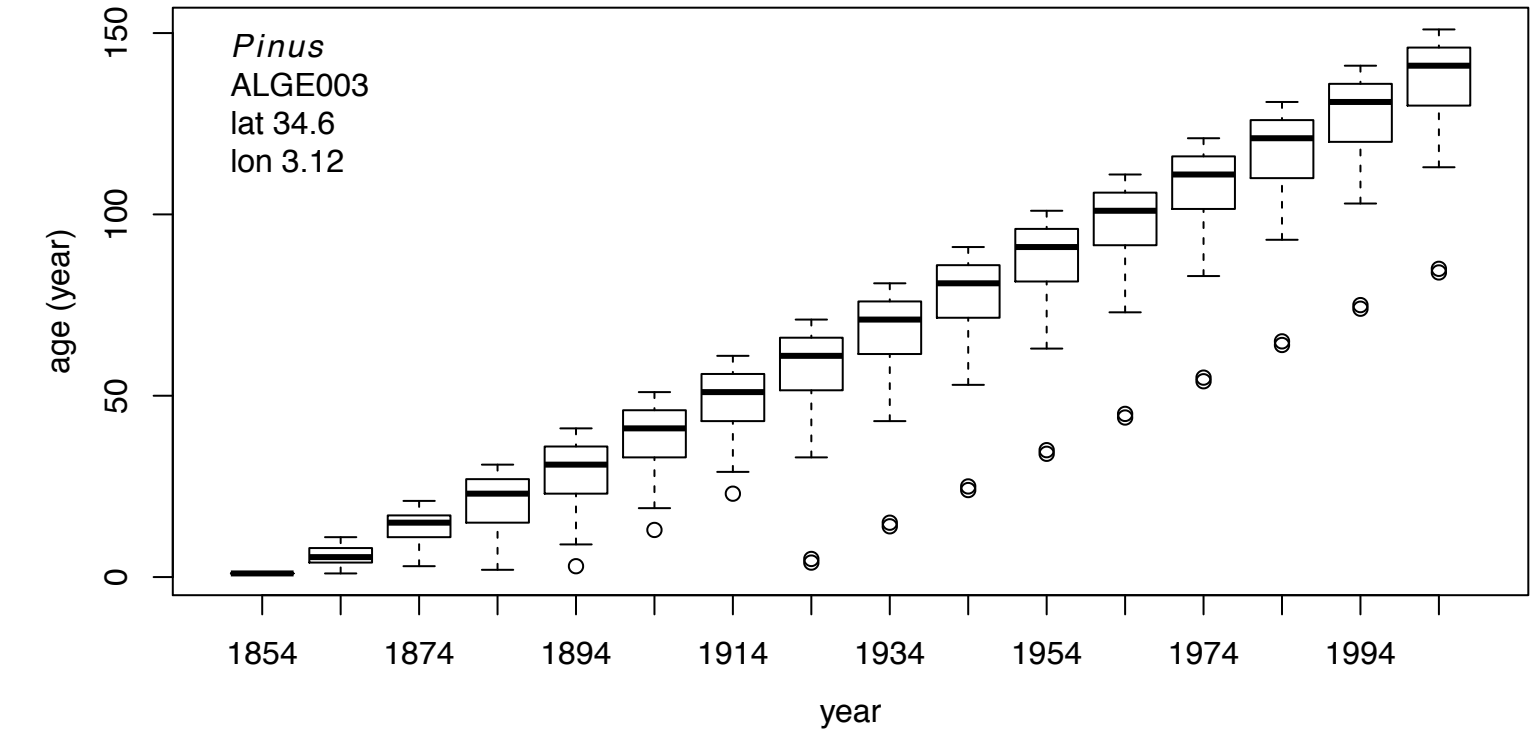
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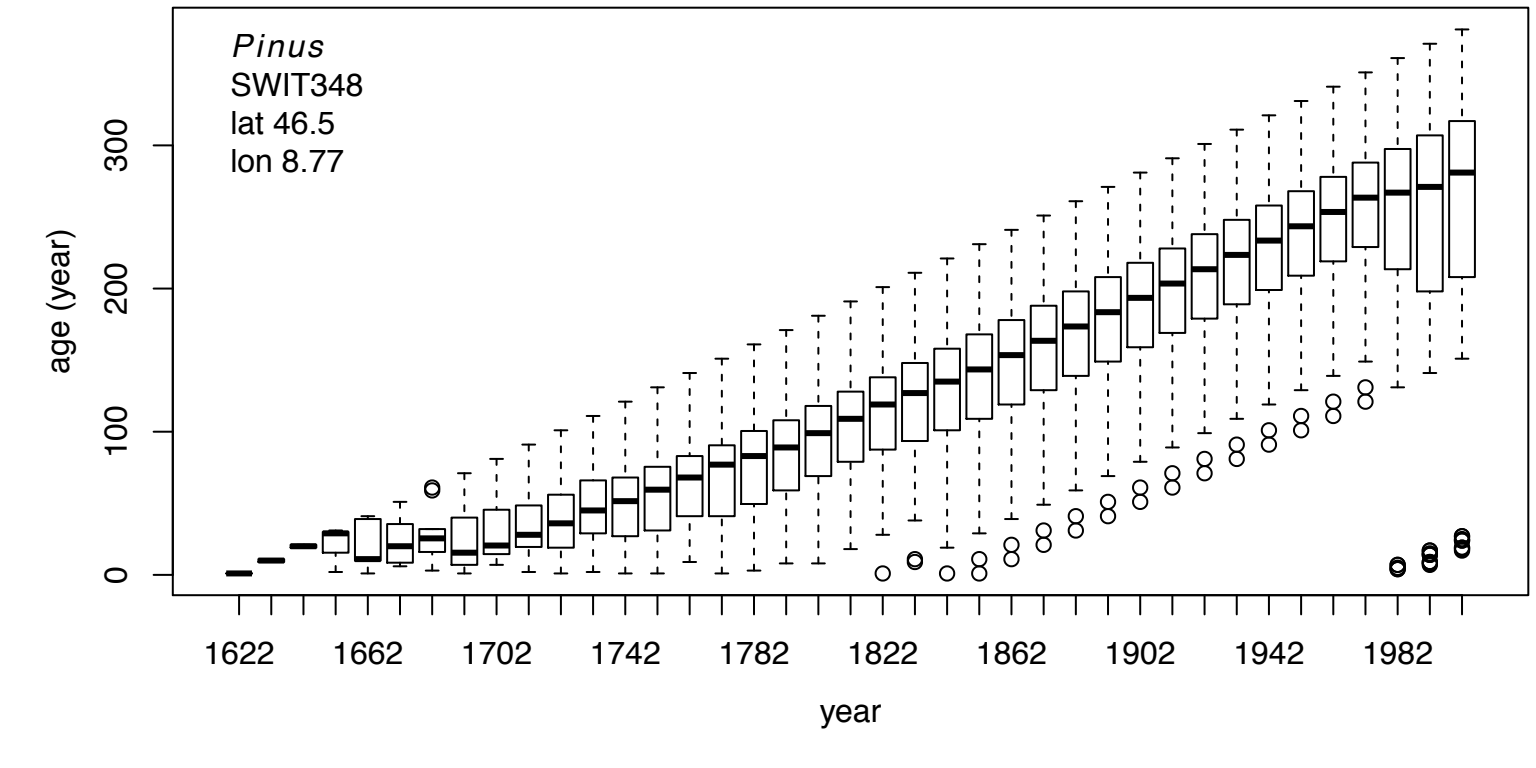
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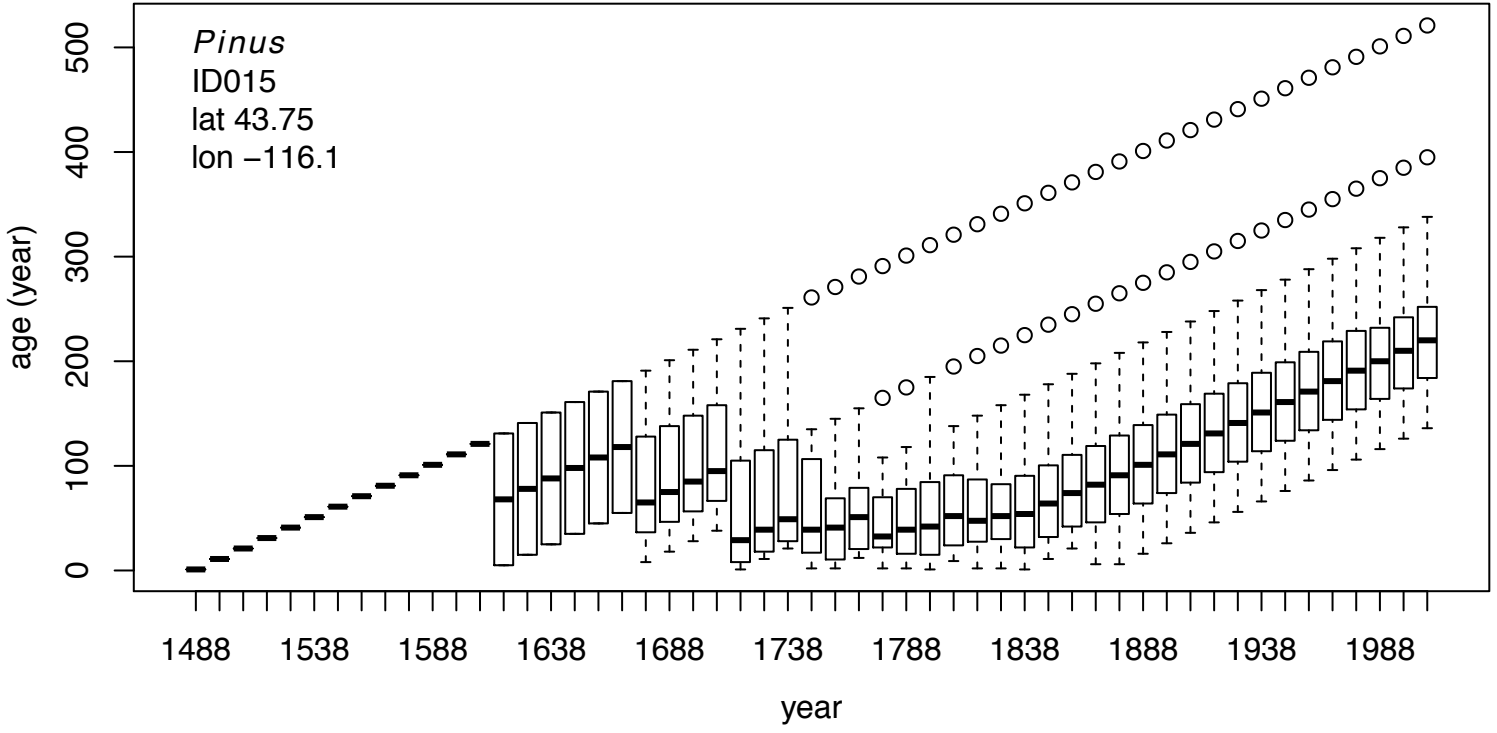
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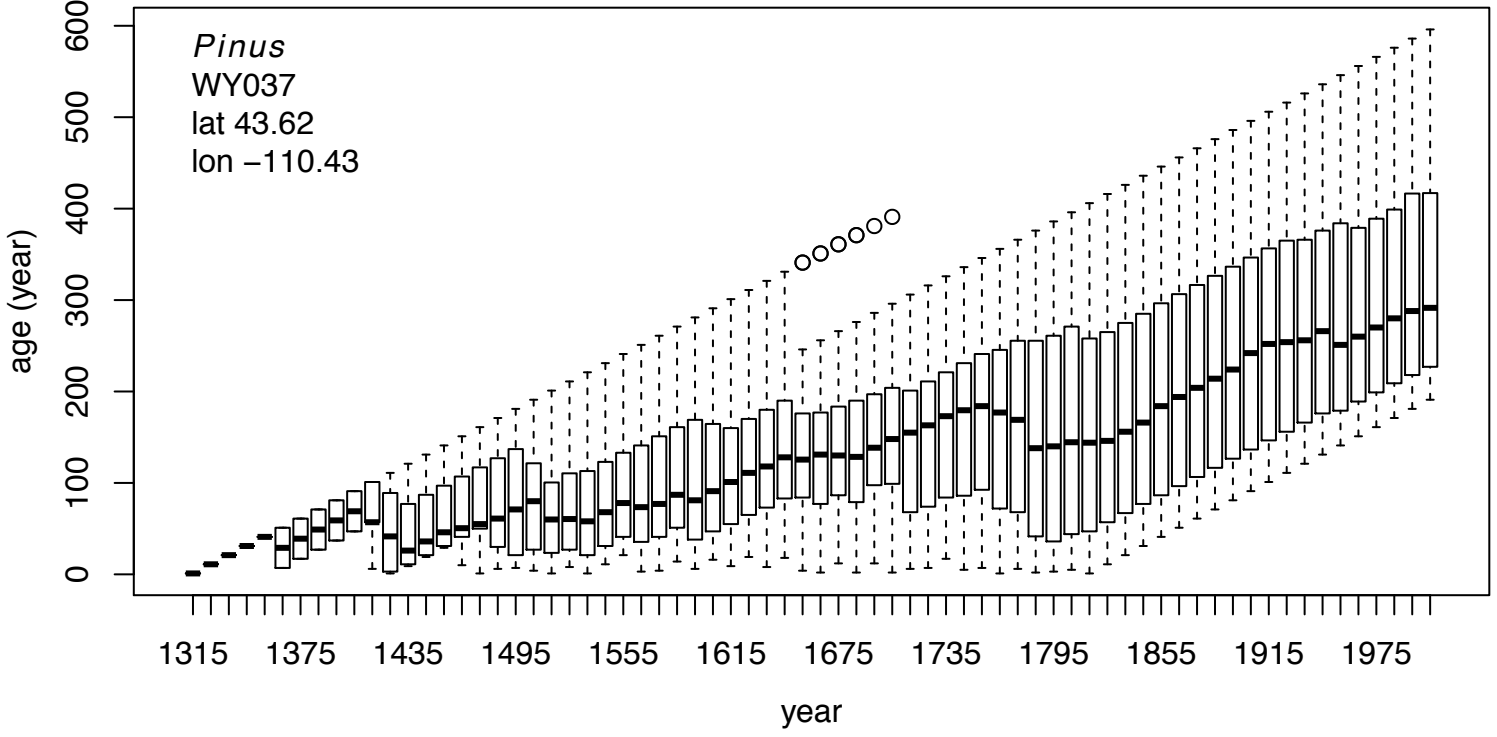
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1975
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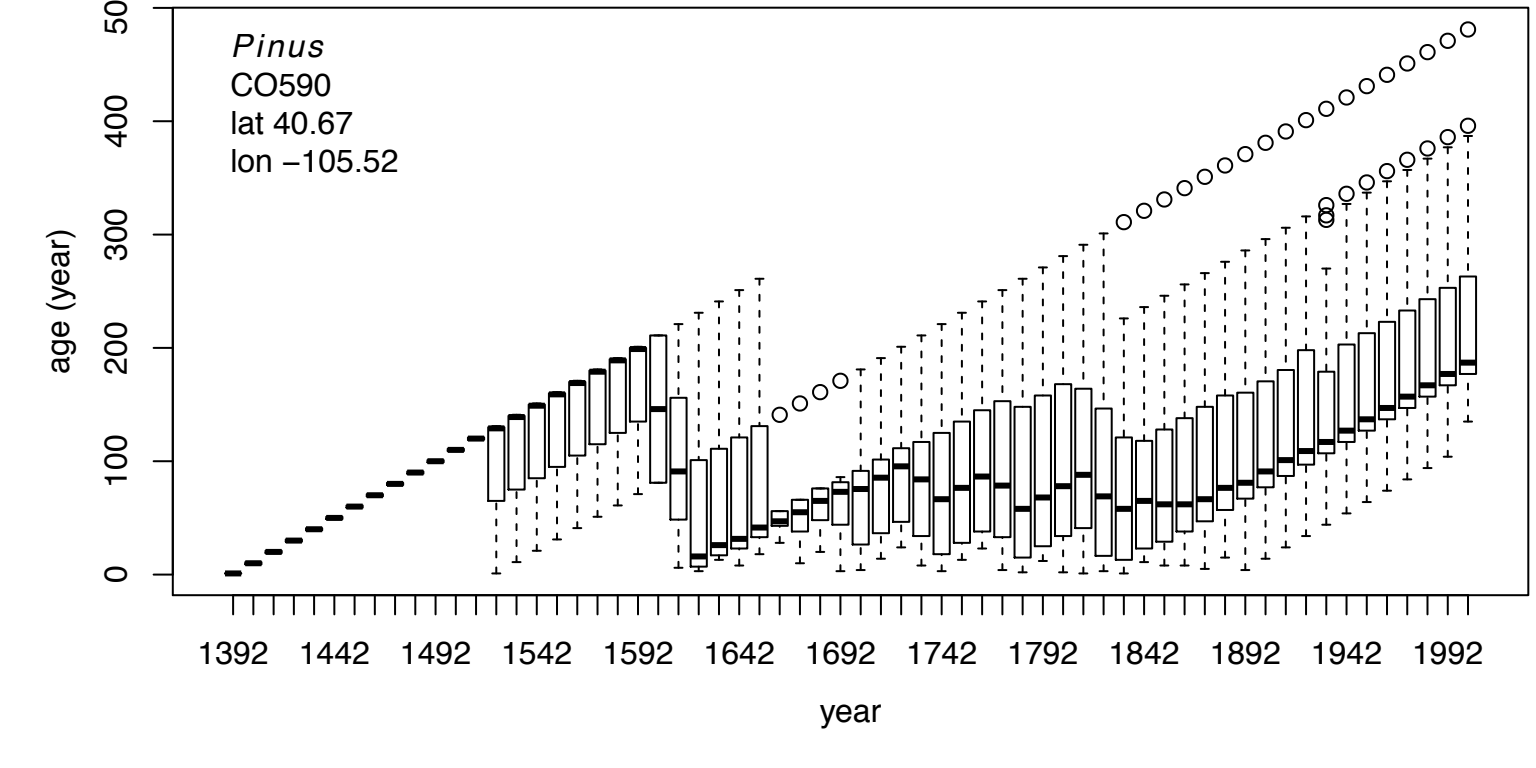
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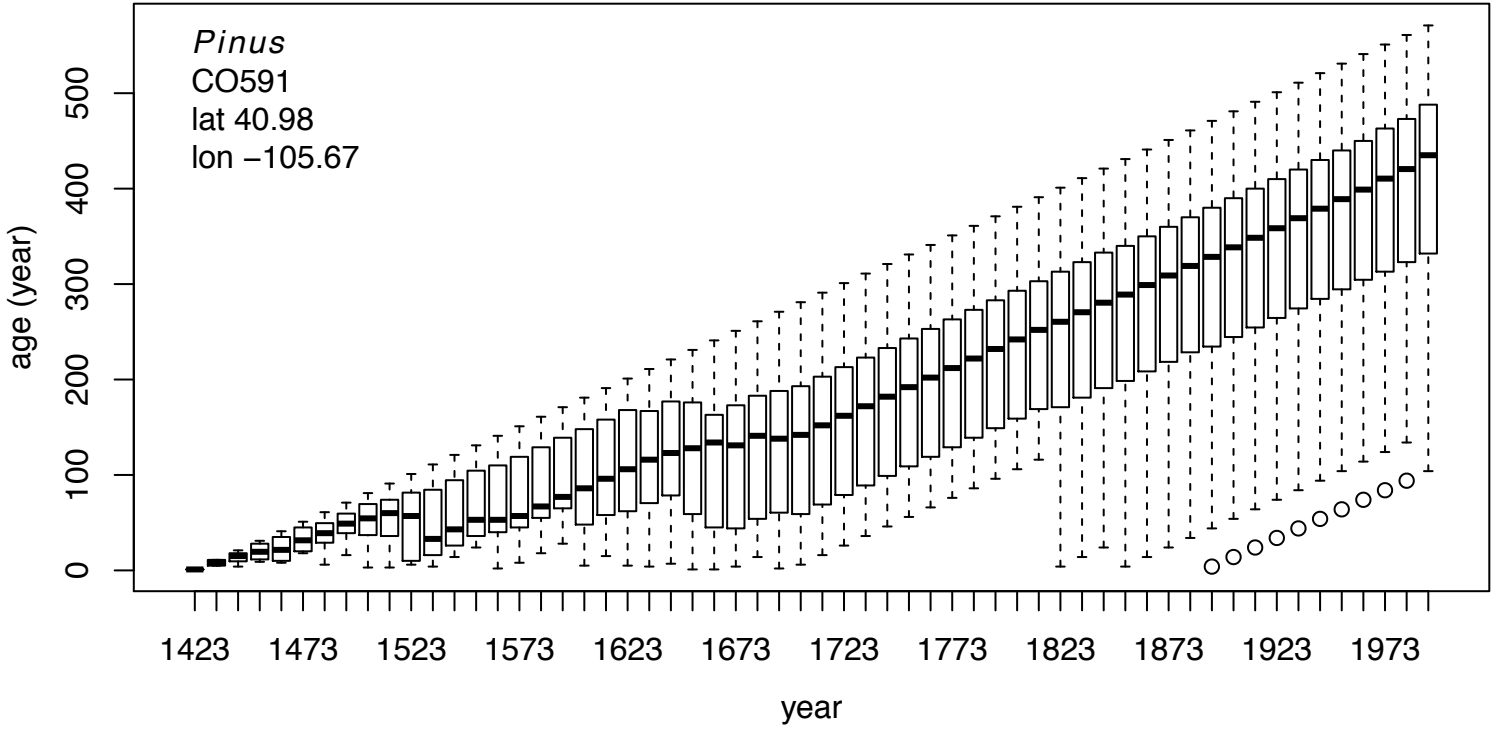
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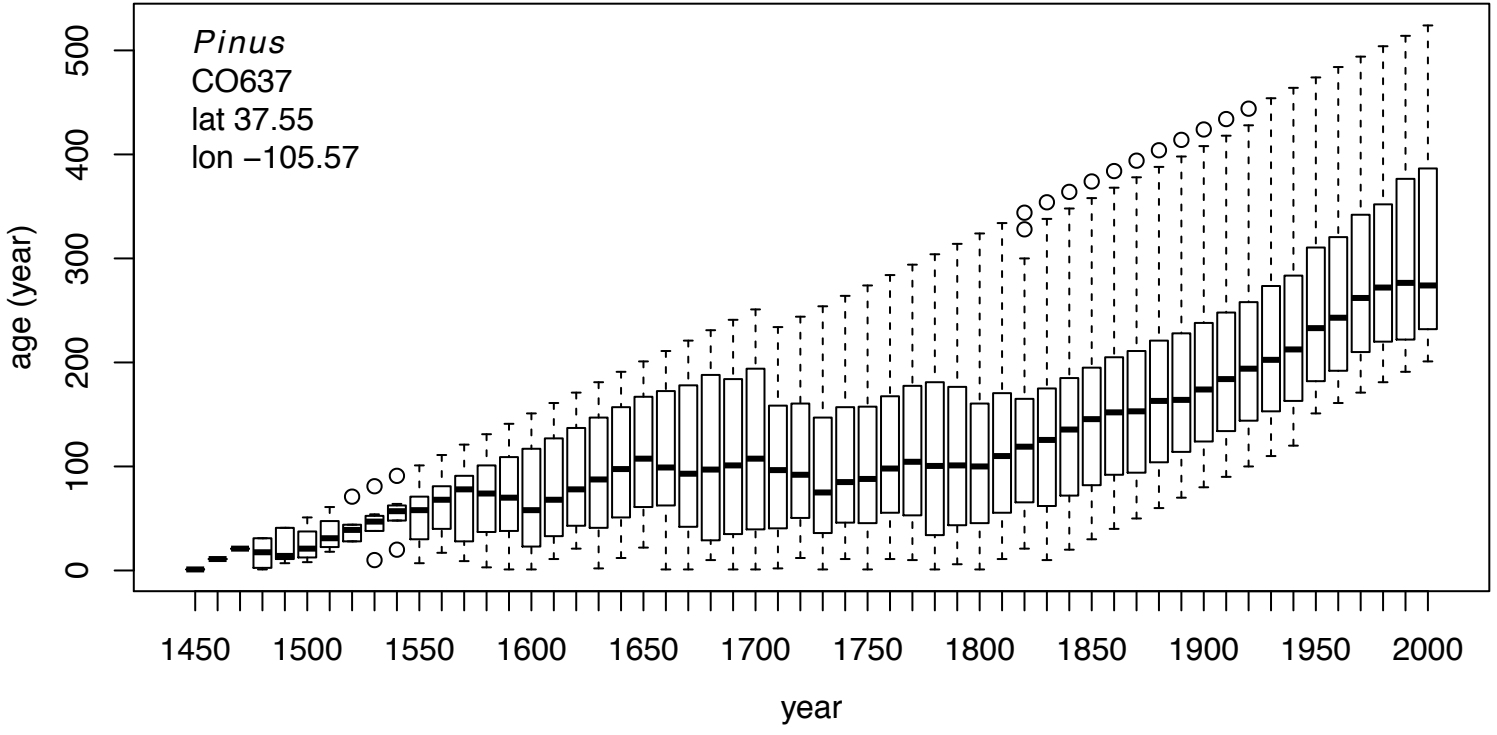
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2000
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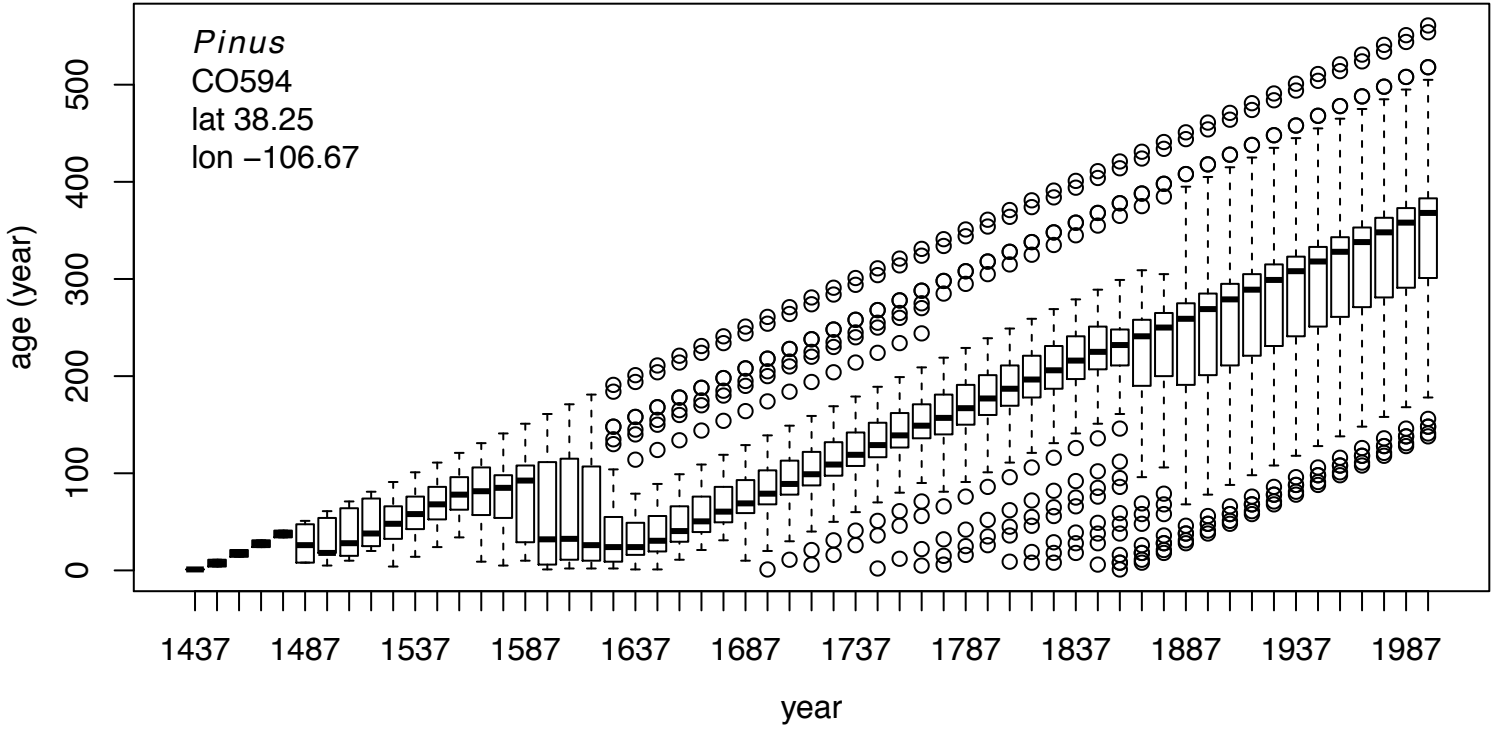
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1987
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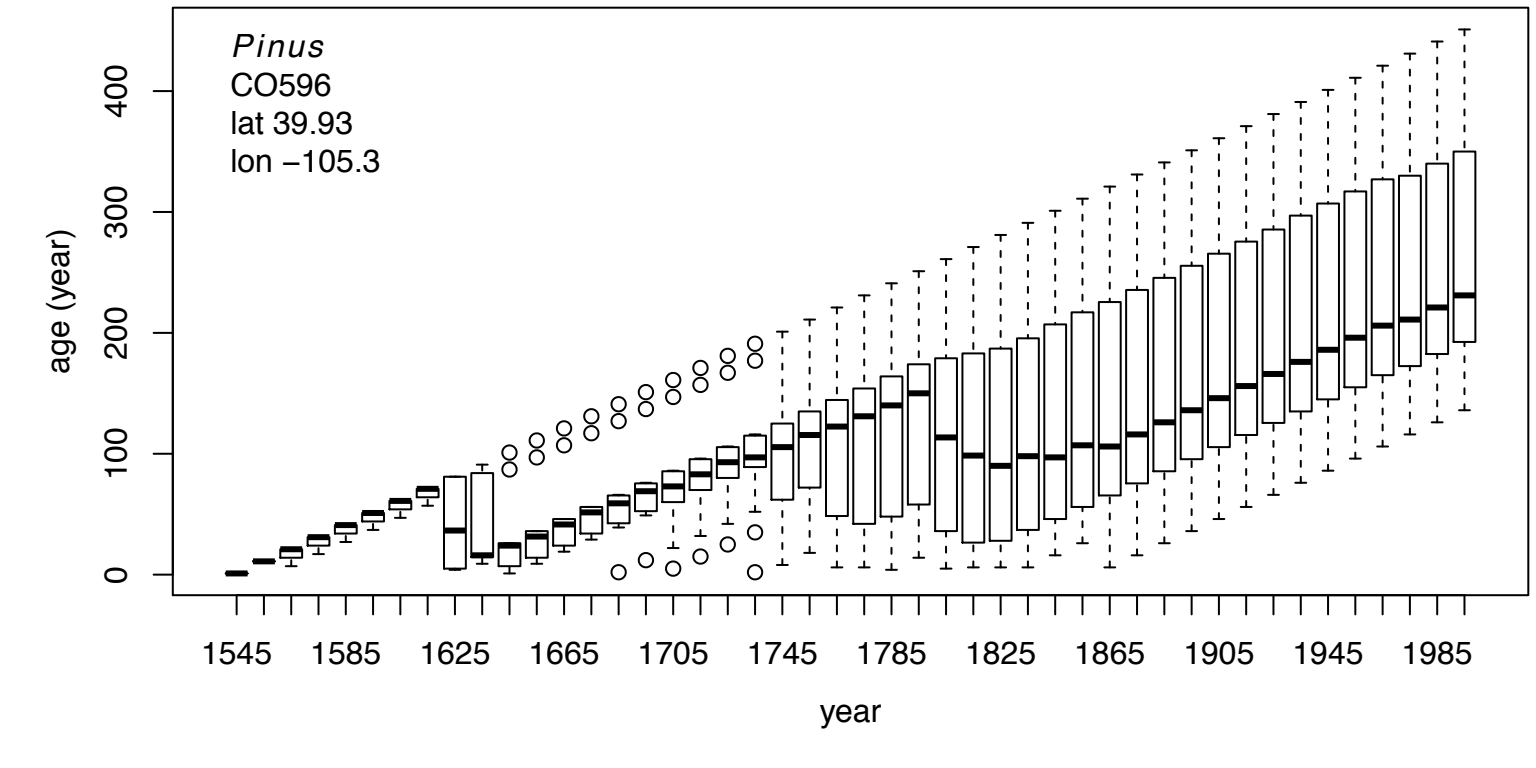
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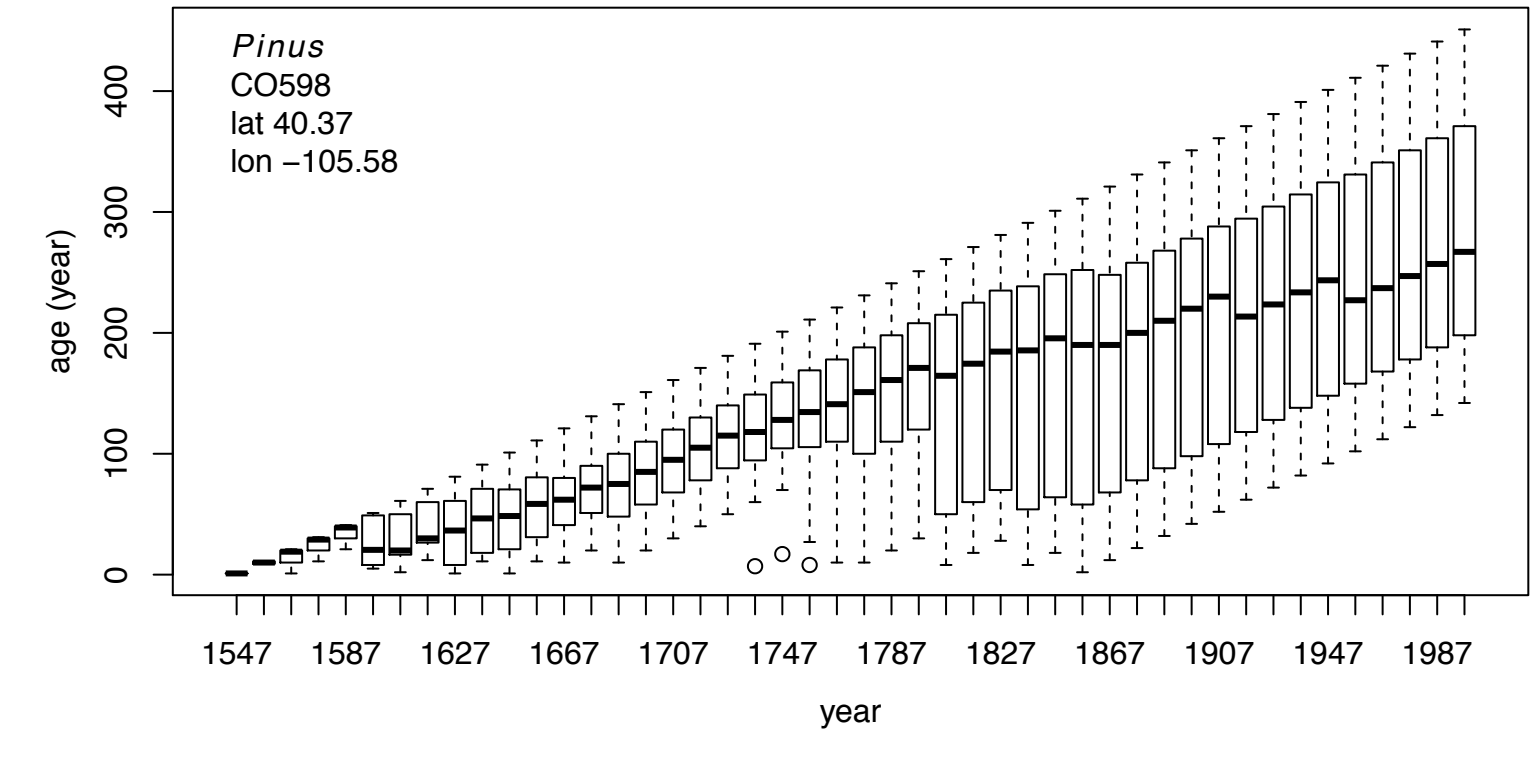
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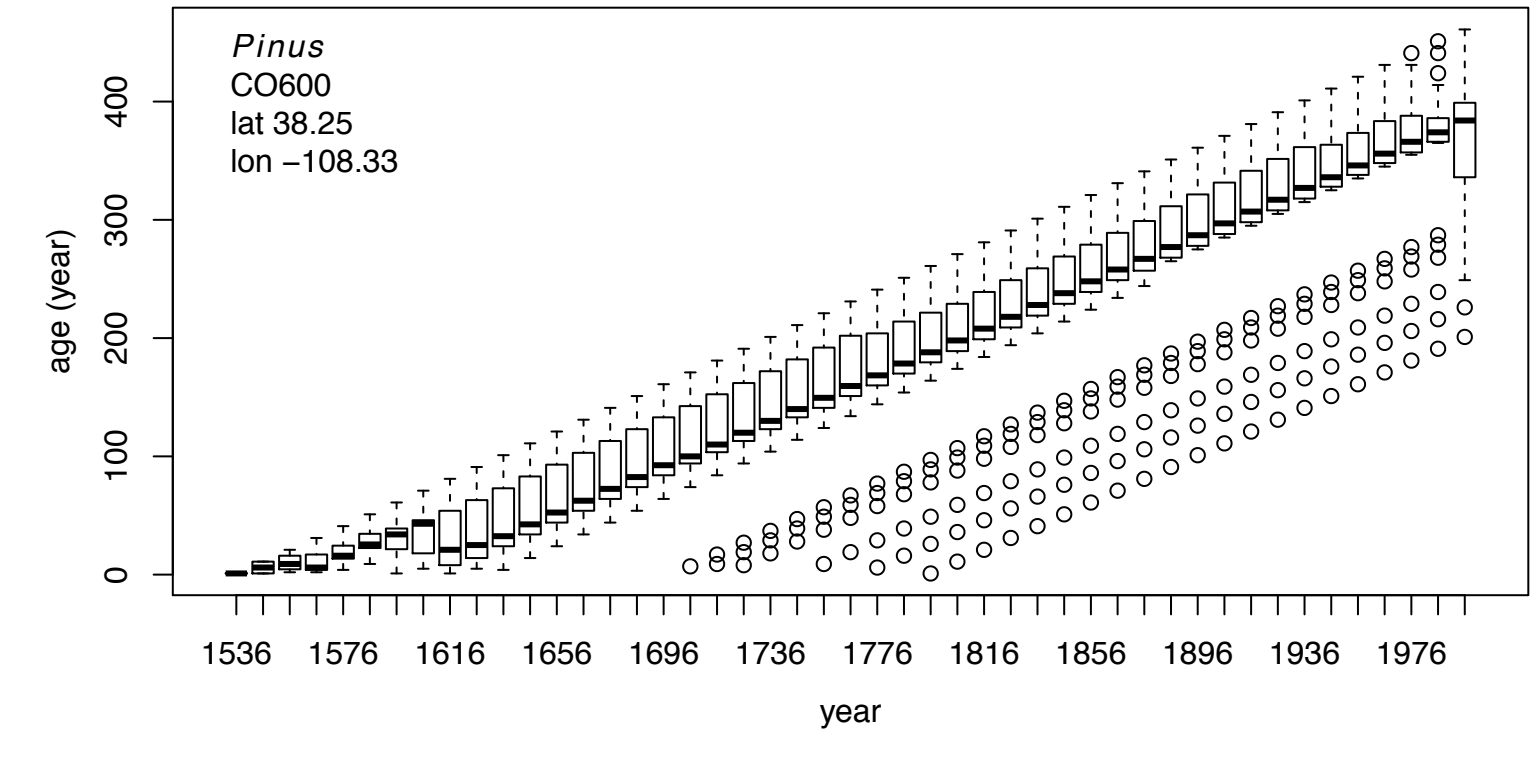
1987
year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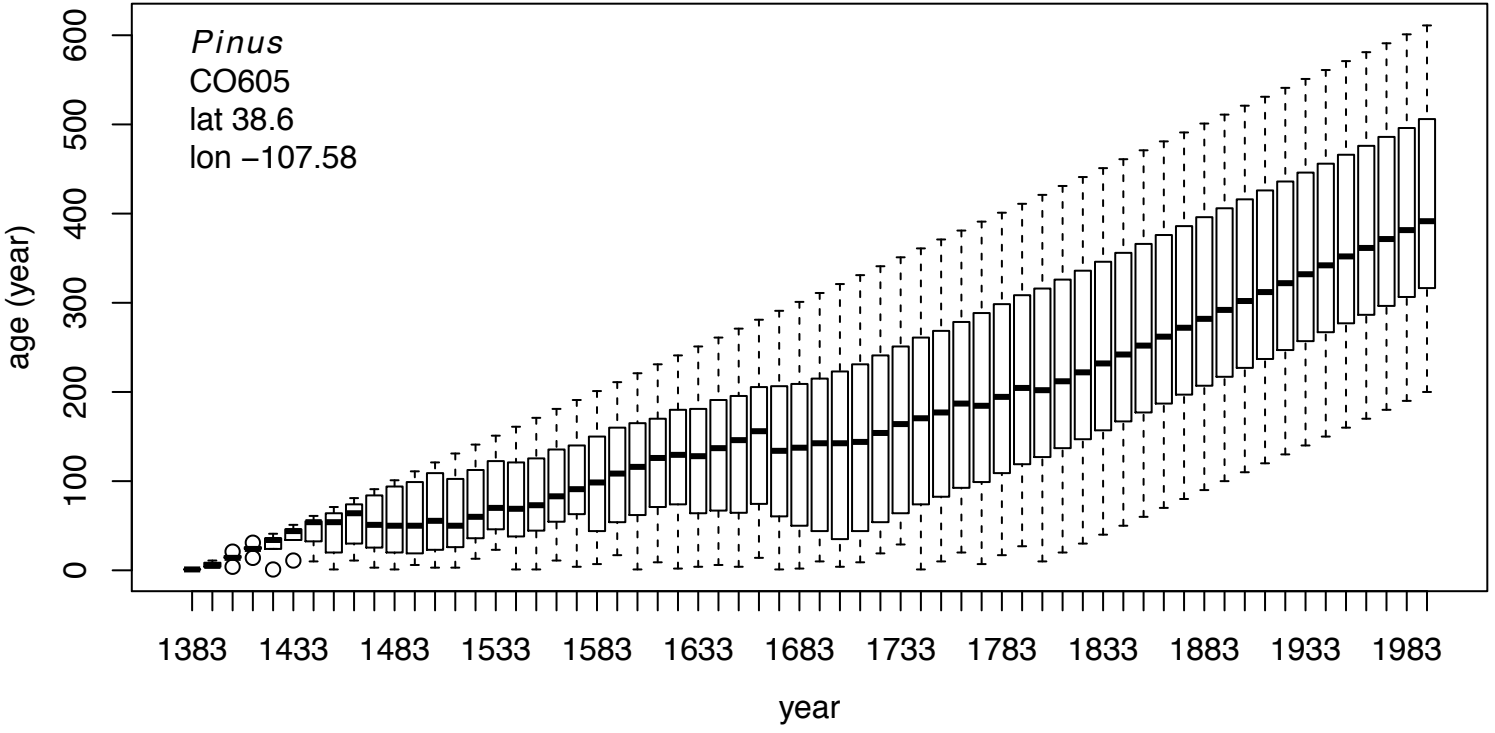
1976
year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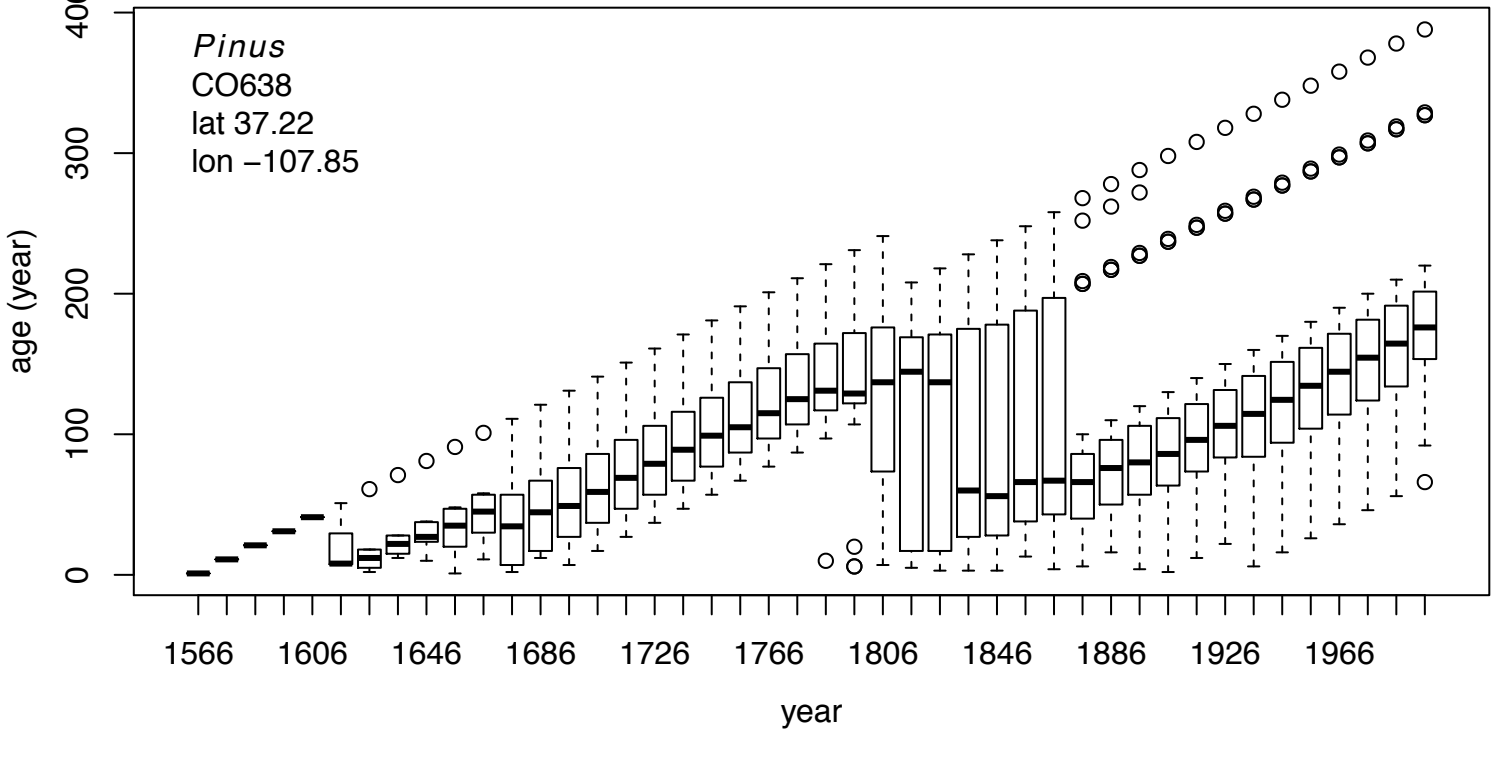
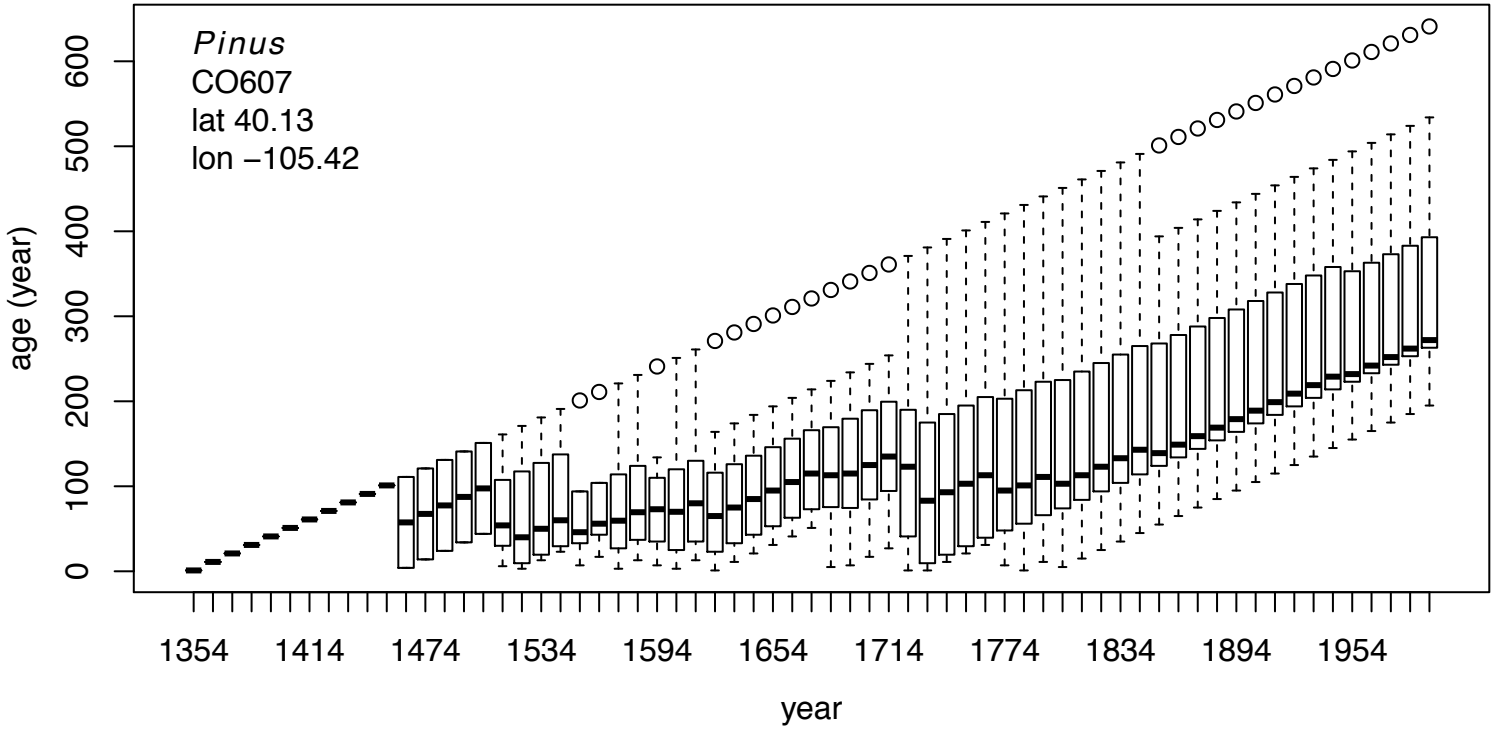
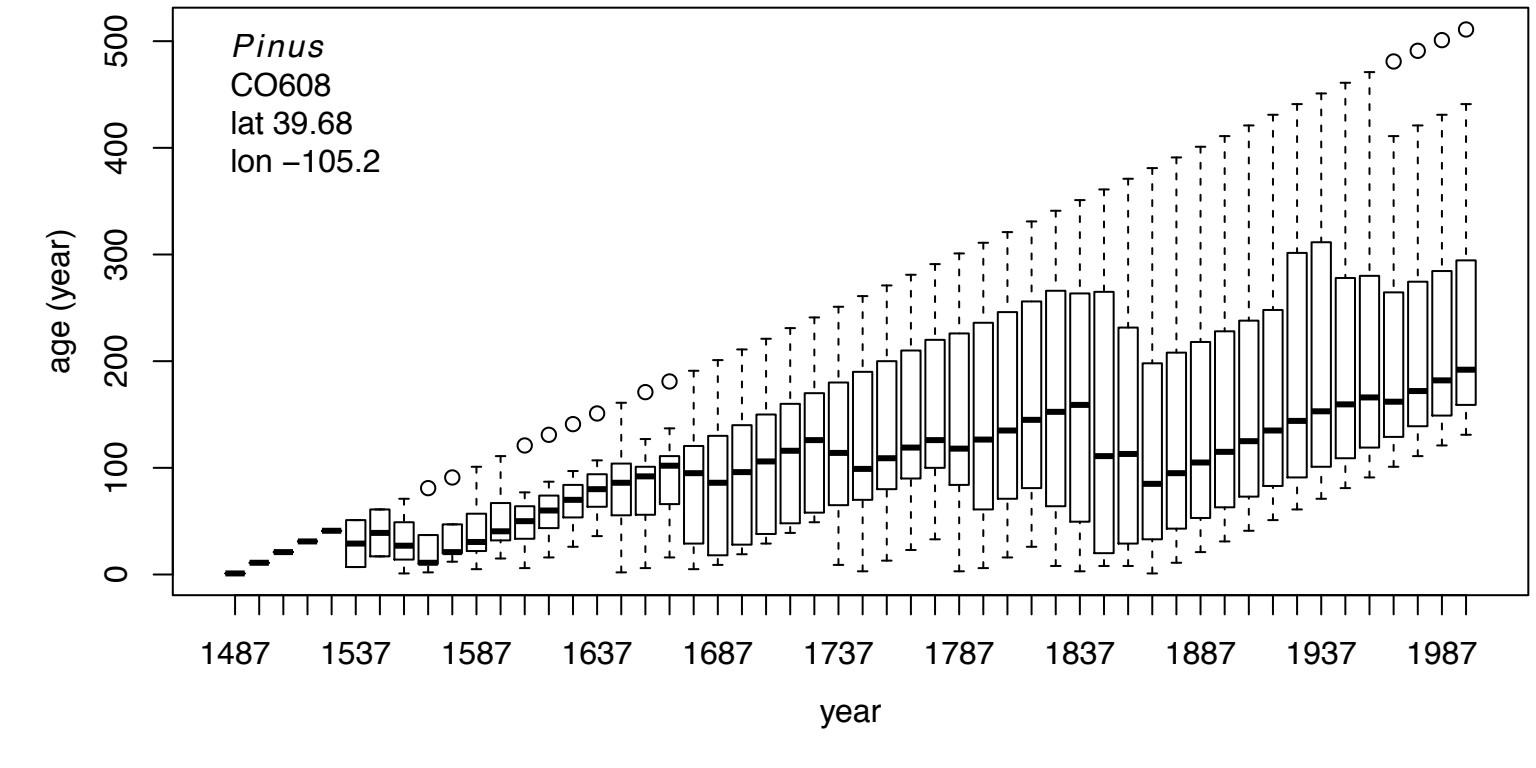
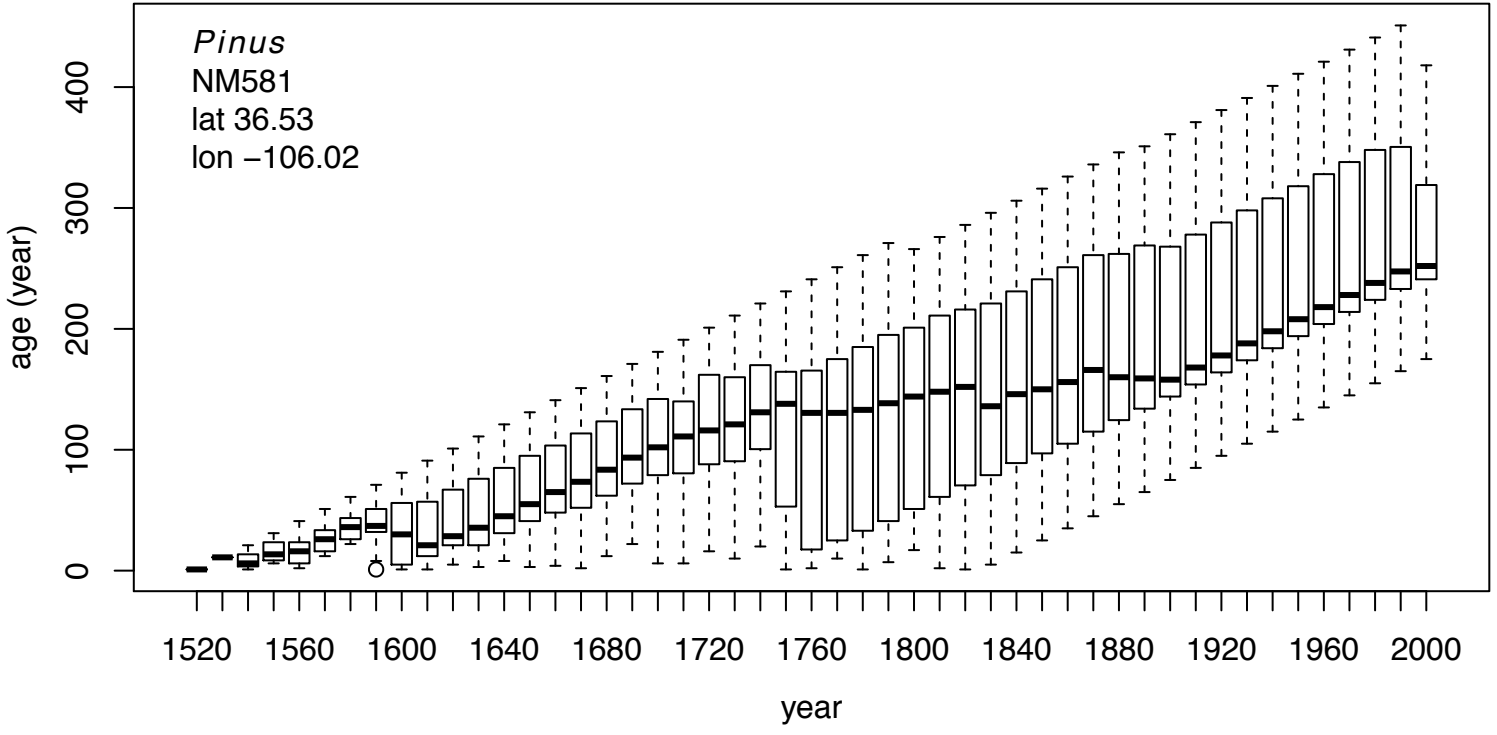
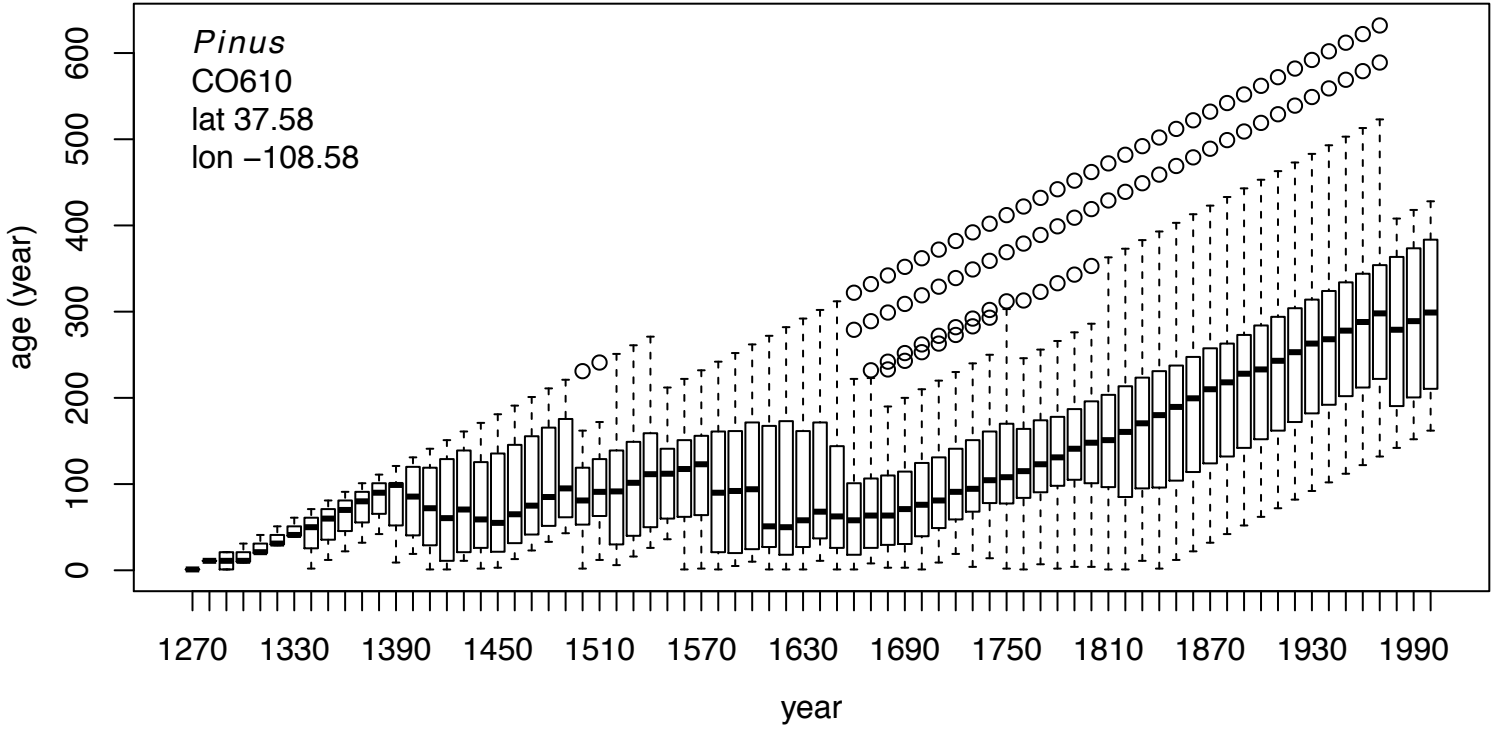
1983
year

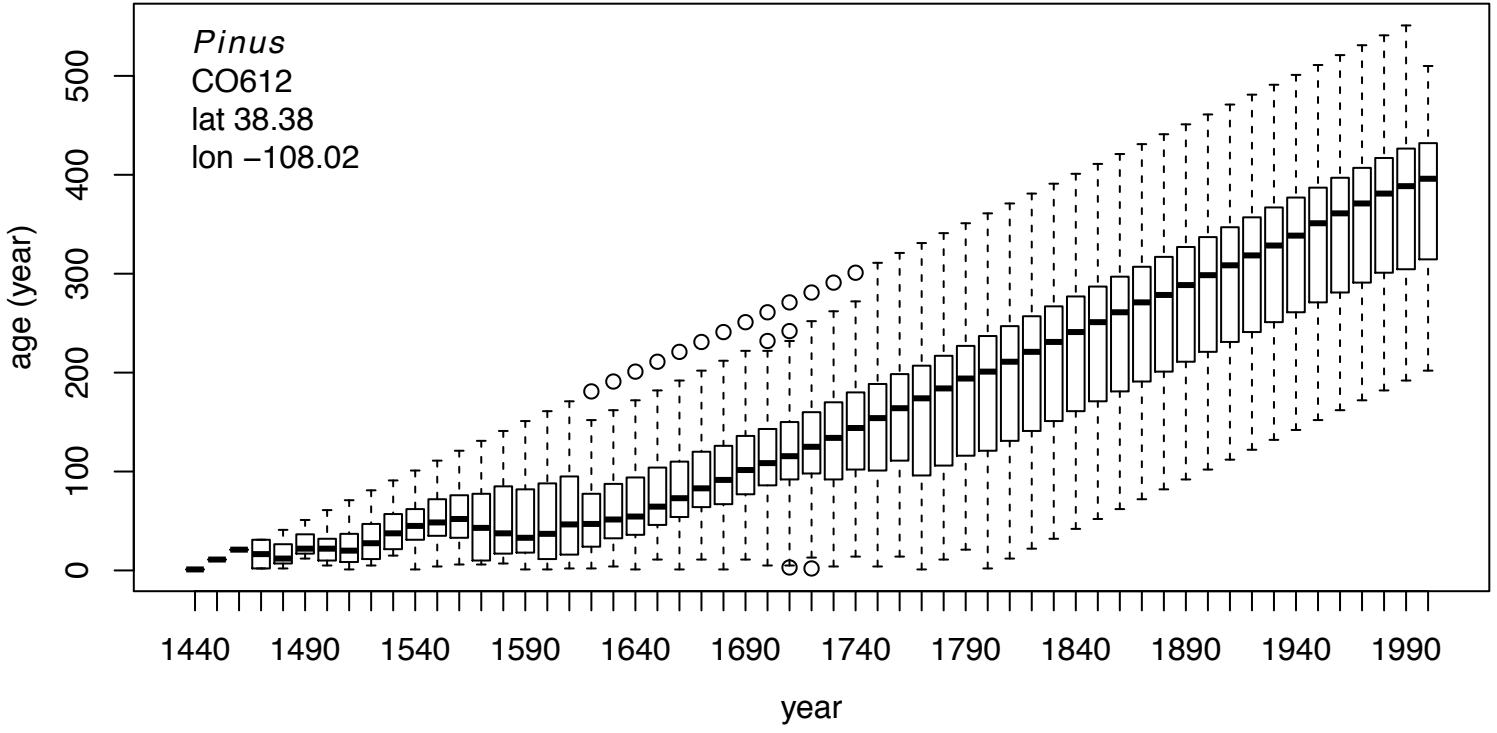

Pinus
CO638
lat 37.22
lon −107.85
age (year)
0
100
200
300
400
1566
1606
1646
1686
1726
1766
1806
1846
1886
1926
1966
year

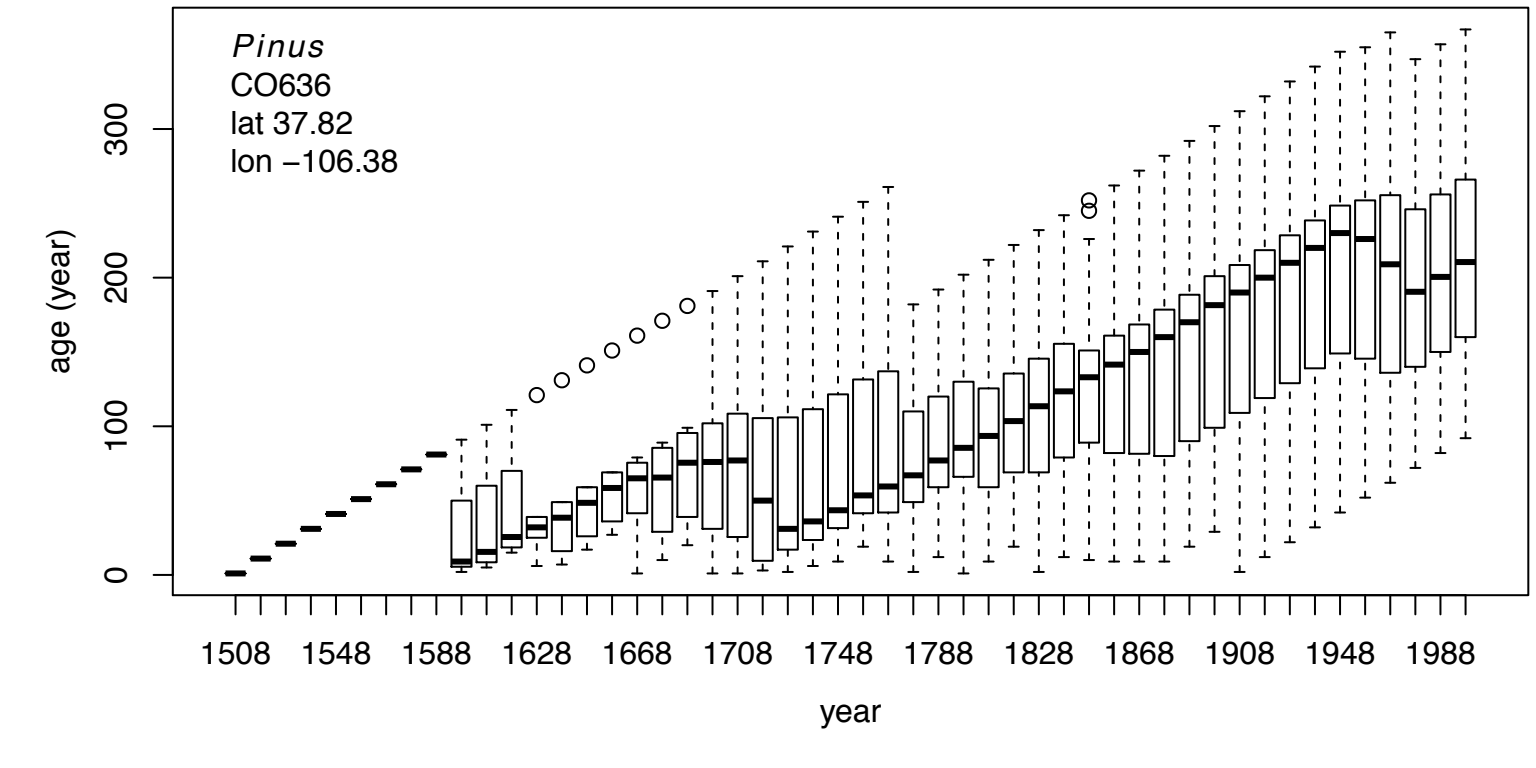

Pinus
CO607
lat 40.13
lon −105.42
age (year)
0
100
200
300
400
500
600
1354
1414
1474
1534
1594
1654
1714
1774
1834
1894
1954
year

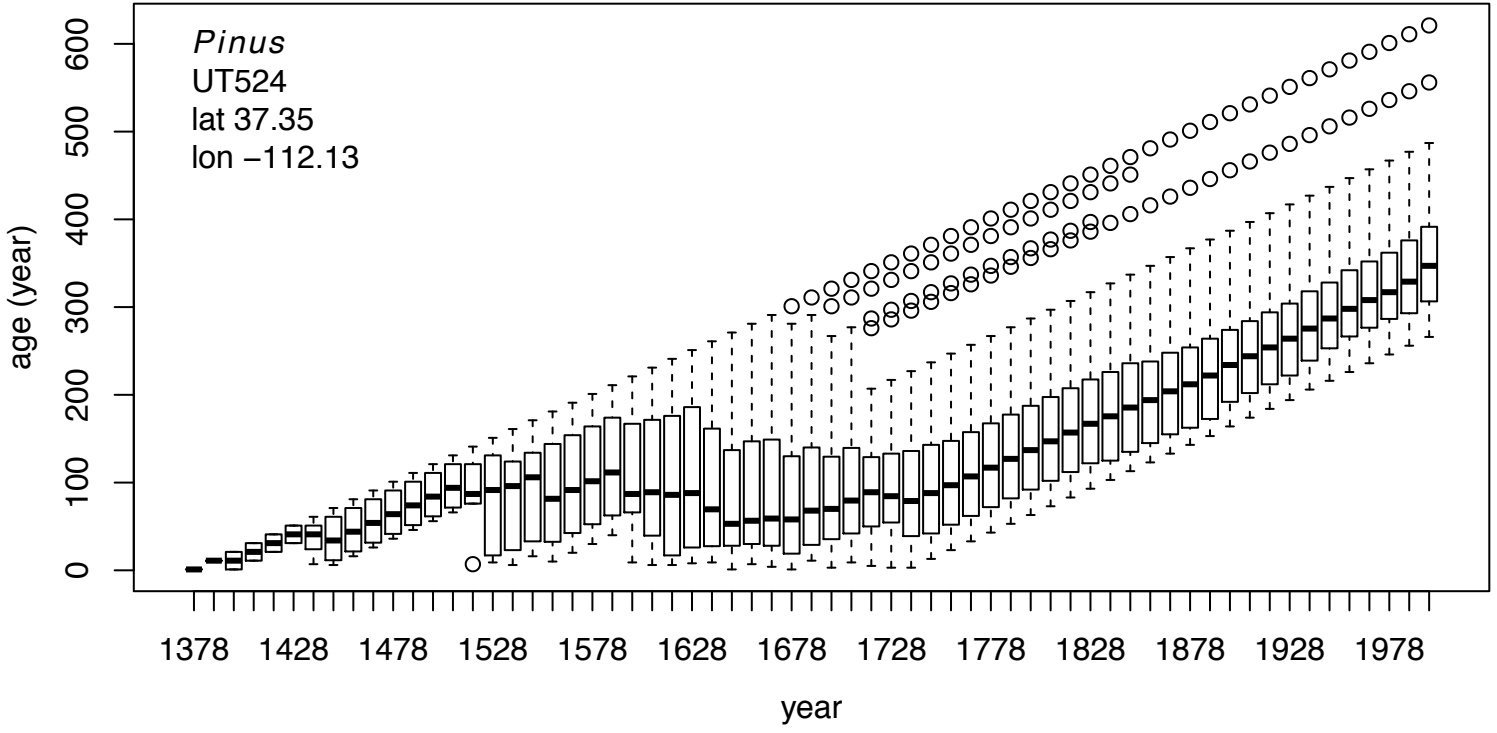

Pinus
CO608
lat 39.68
lon −105.2
age (year)
0
100
200
300
400
500
1487
1537
1587
1637
1687
1737
1787
1837
1887
1937
1987
year

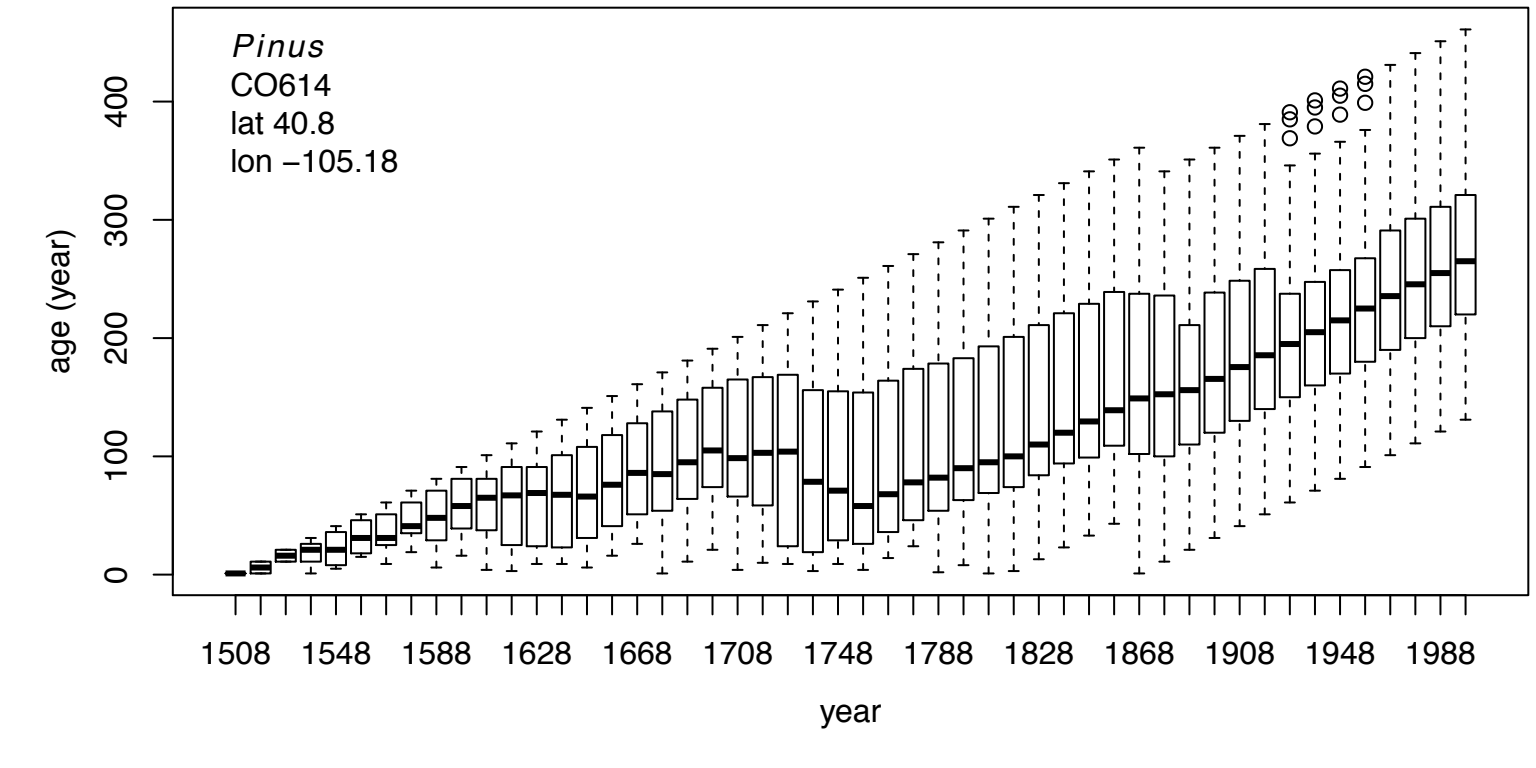

Pinus
NM581
lat 36.53
lon −106.02
age (year)
0
100
200
300
400
1520
1560
1600
1640
1680
1720
1760
1800
1840
1880
1920
1960
2000
year

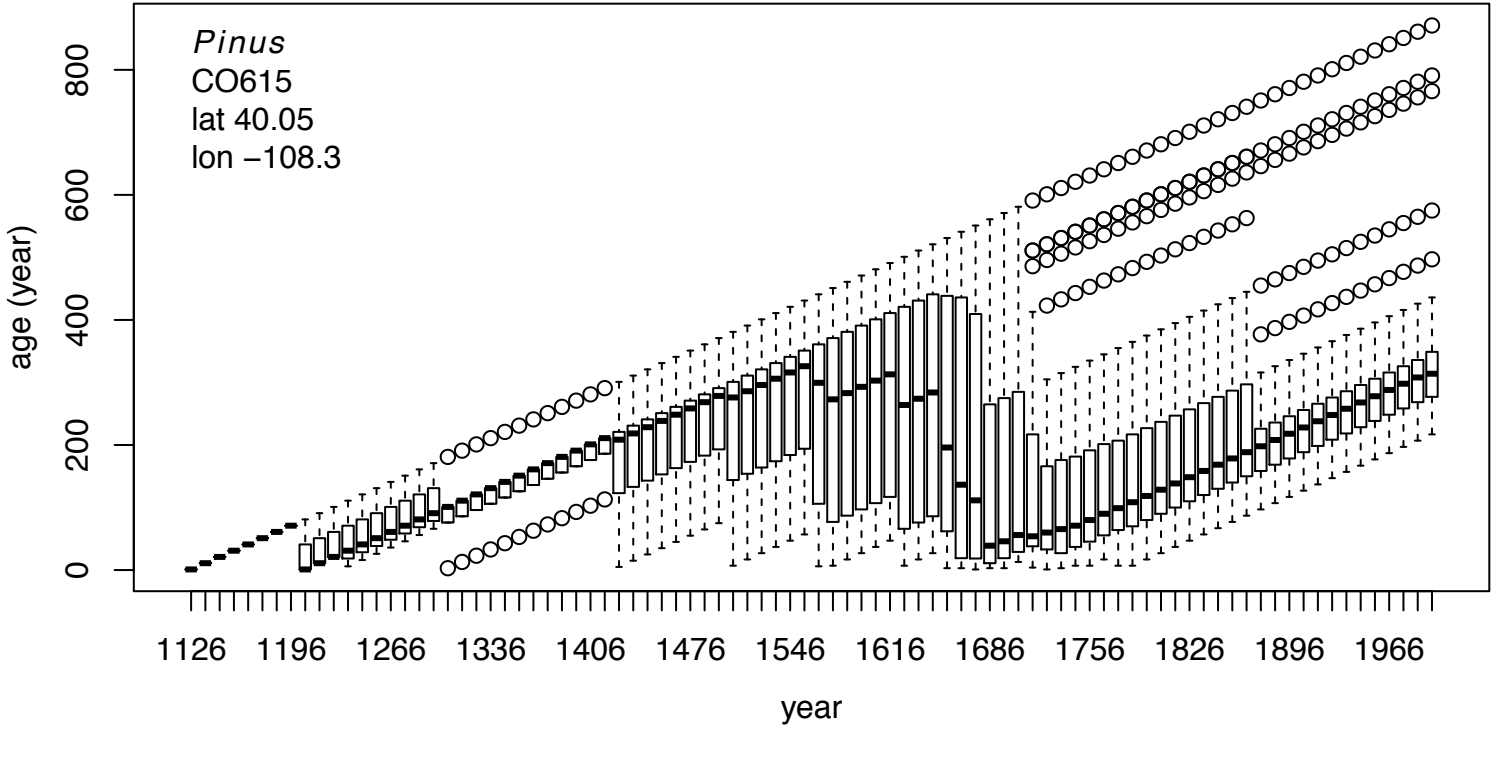

Pinus
CO610
lat 37.58
lon −108.58
age (year)
0
100
200
300
400
500
600
1270
1330
1390
1450
1510
1570
1630
1690
1750
1810
1870
1930
1990
year

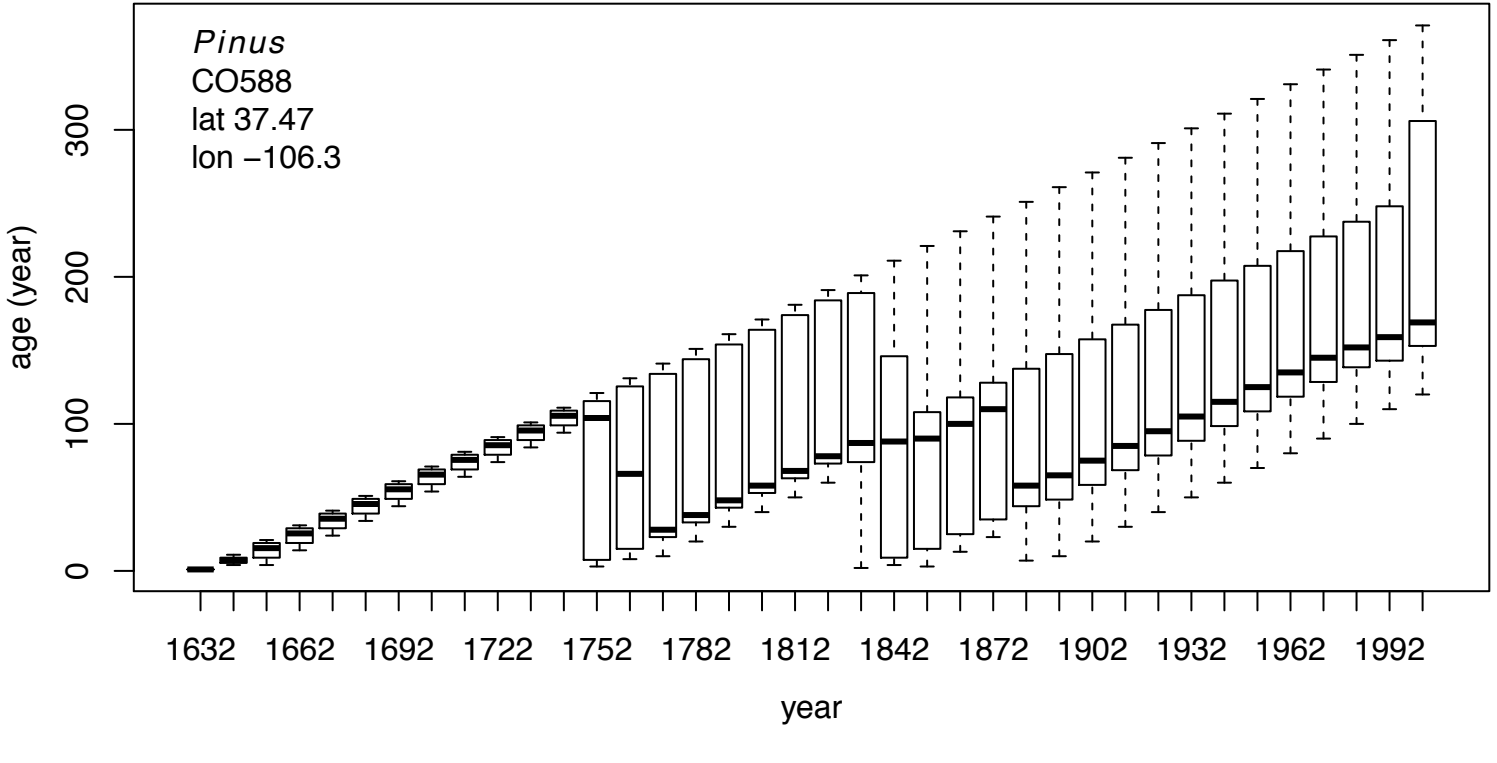

Pinus
CO612
lat 38.38
lon −108.02
age (year)
0
100
200
300
400
500
1440
1490
1540
1590
1640
1690
1740
1790
1840
1890
1940
1990
year

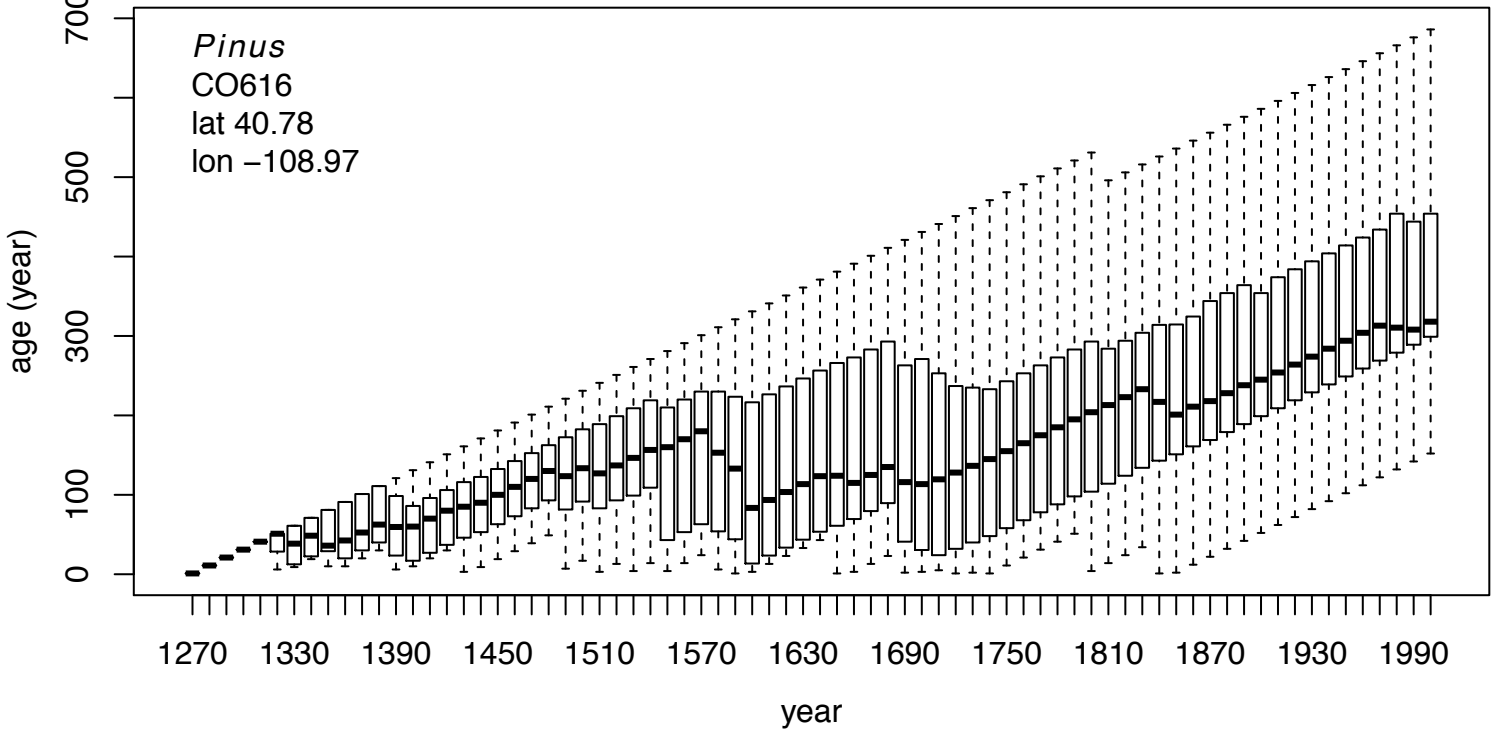

Pinus
CO636
lat 37.82
lon −106.38
age (year)
0
100
200
300
1508
1548
1588
1628
1668
1708
1748
1788
1828
1868
1908
1948
1988
year

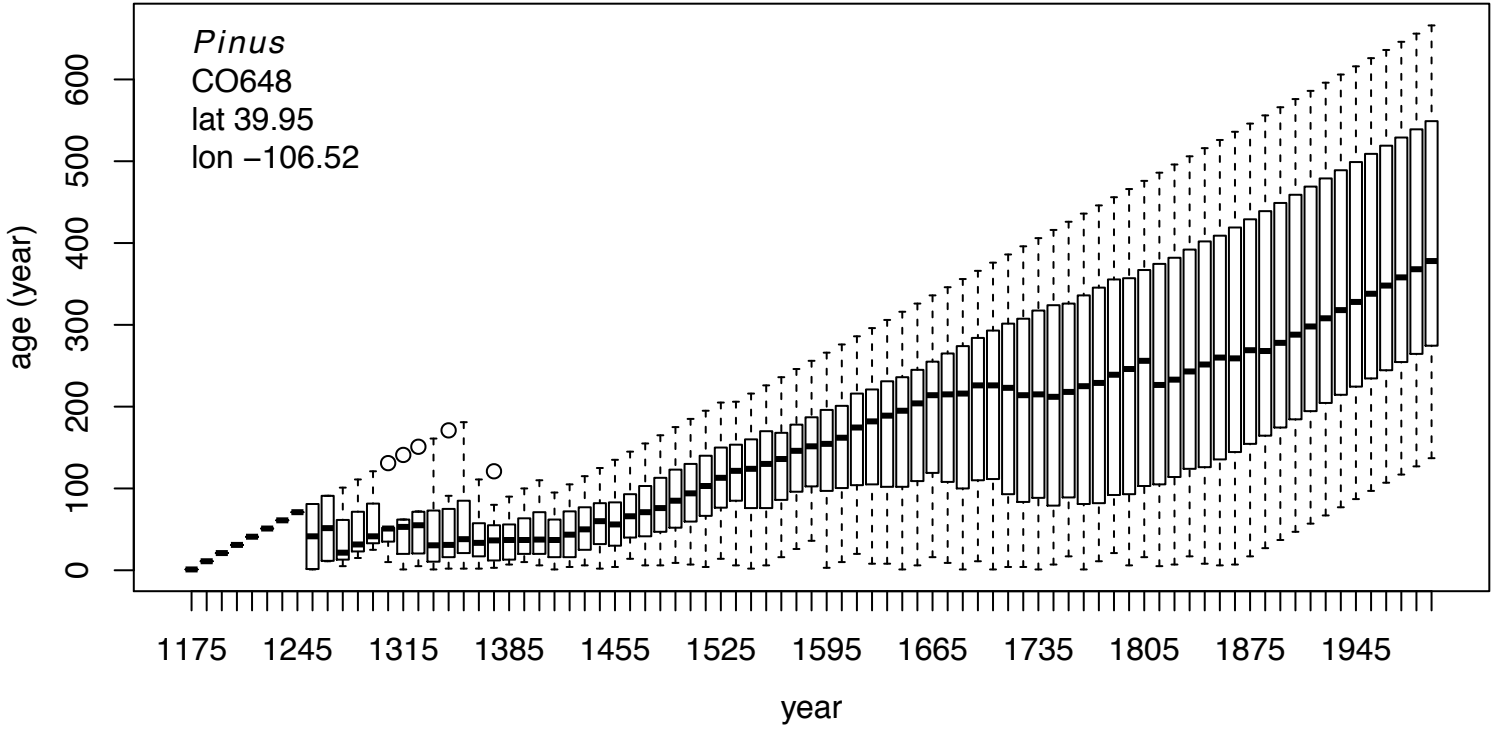

Pinus
UT524
lat 37.35
lon −112.13
age (year)
0
100
200
300
400
500
600
1378
1428
1478
1528
1578
1628
1678
1728
1778
1828
1878
1928
1978
year

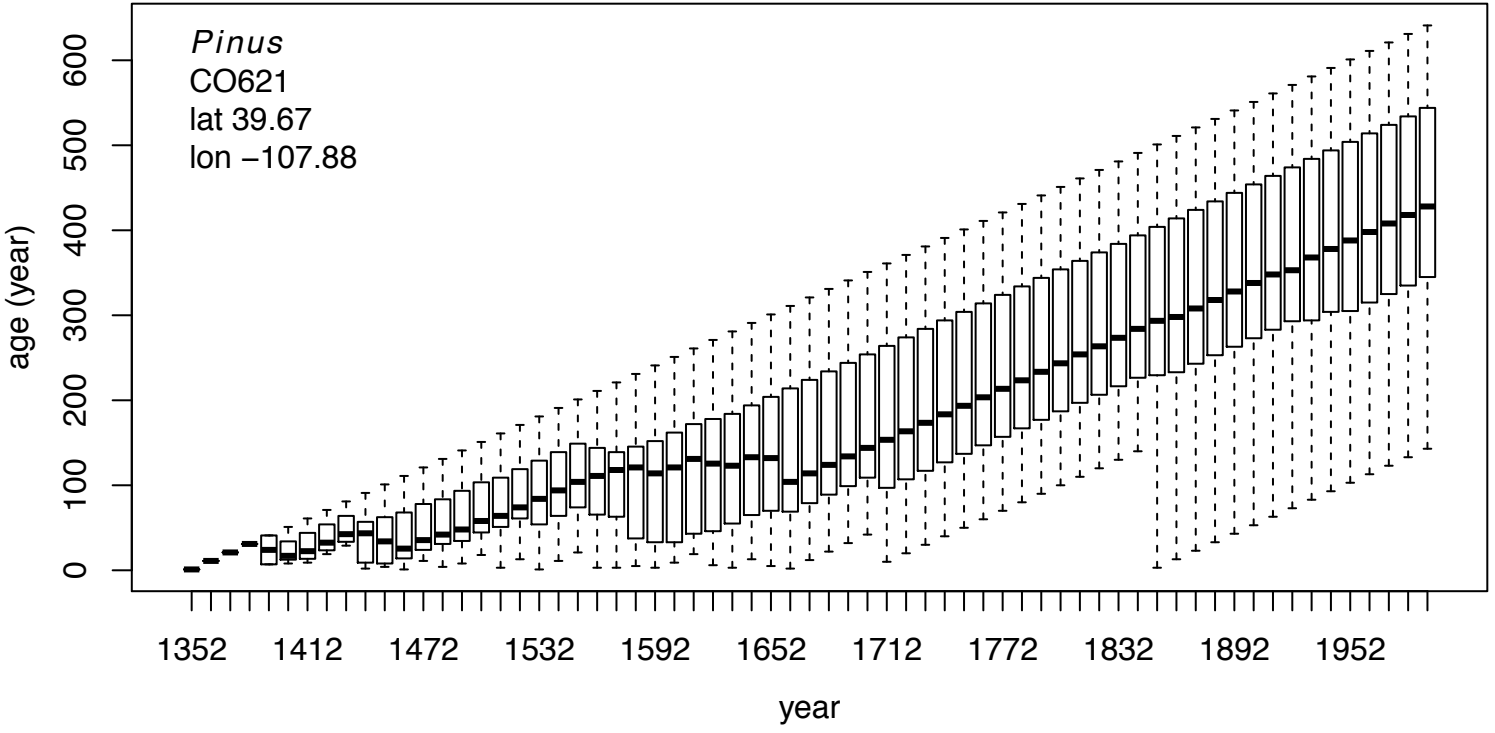

Pinus
CO614
lat 40.8
lon −105.18
age (year)
0
100
200
300
400
1508
1548
1588
1628
1668
1708
1748
1788
1828
1868
1908
1948
1988
year

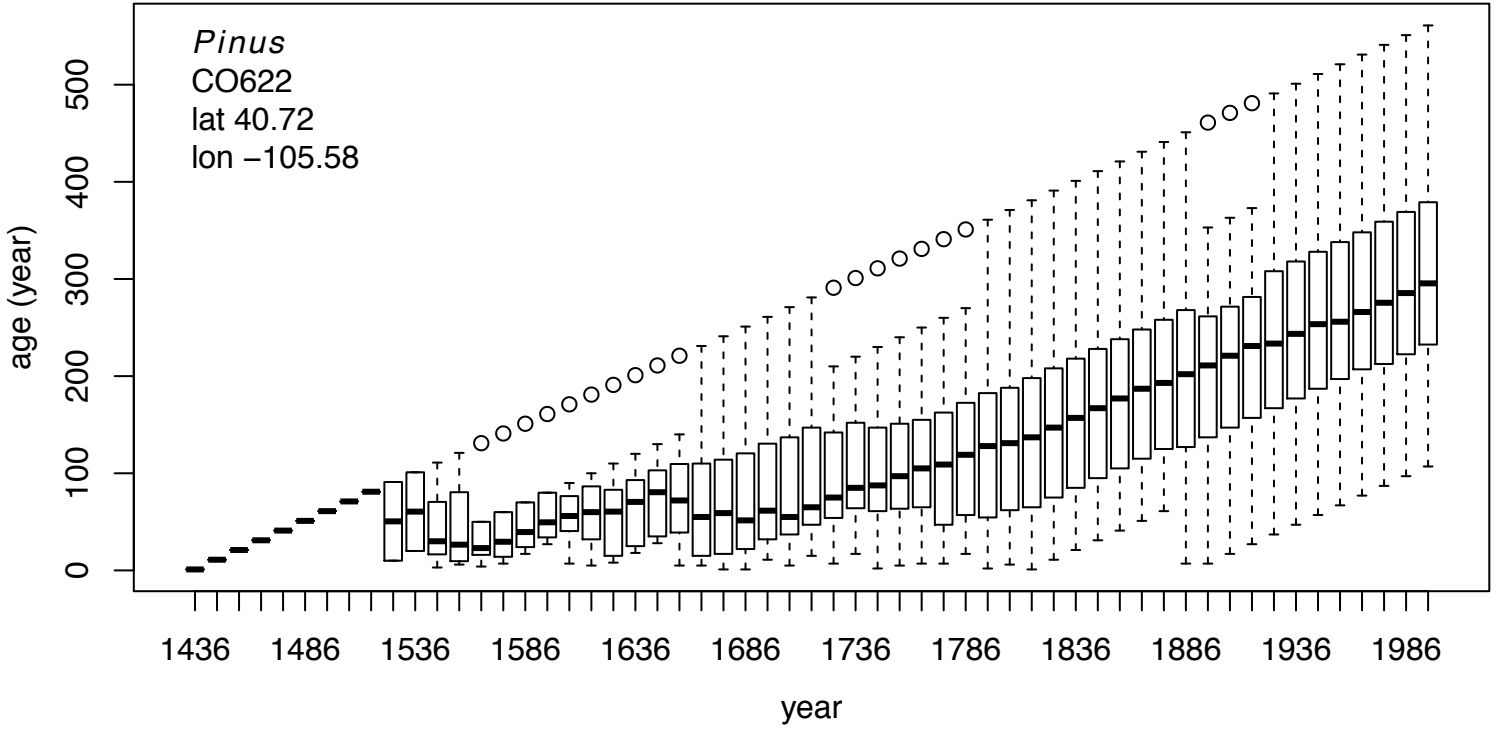

Pinus
CO615
lat 40.05
lon −108.3
age (year)
0
200
400
600
800
1126
1196
1266
1336
1406
1476
1546
1616
1686
1756
1826
1896
1966
year

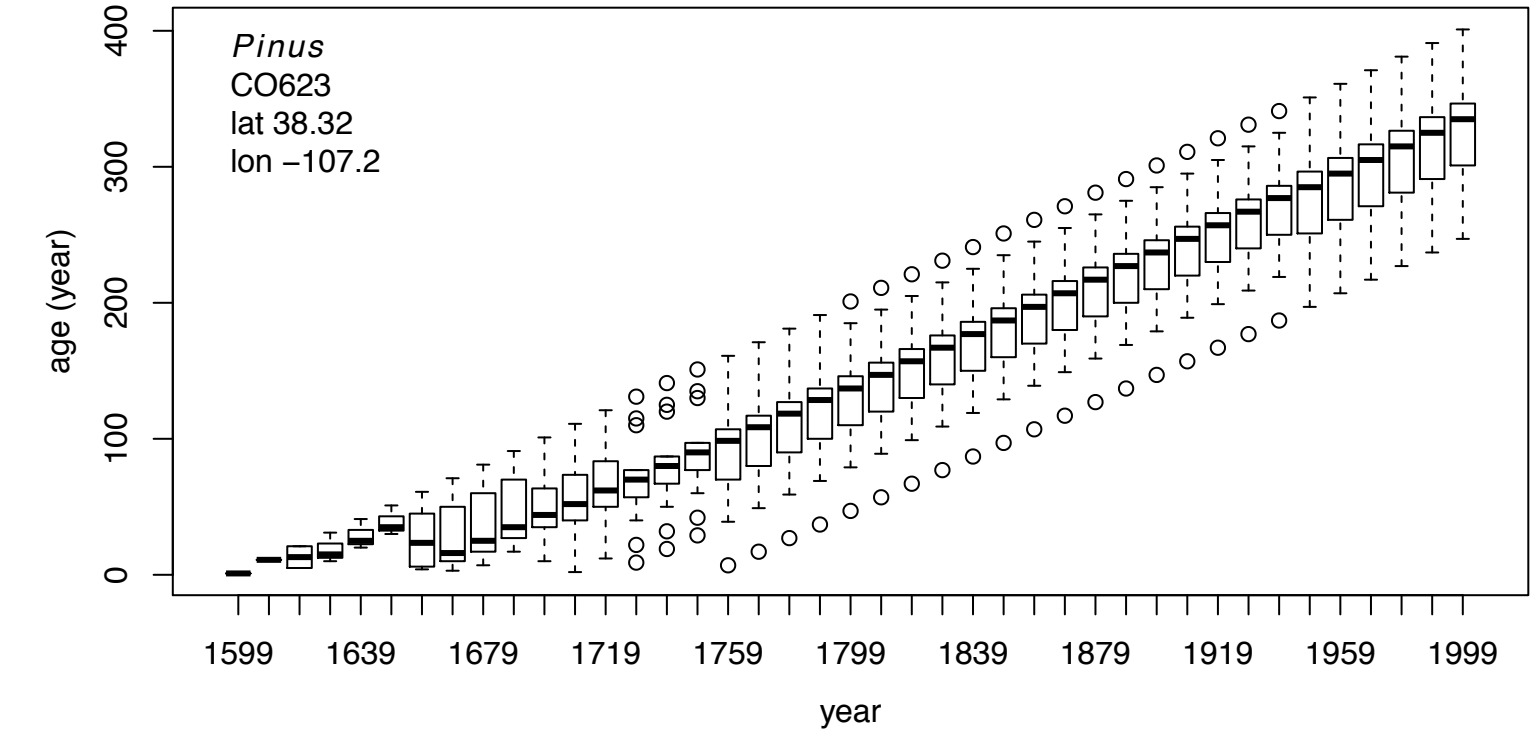

Pinus
CO588
lat 37.47
lon −106.3
age (year)
0
100
200
300
1632
1662
1692
1722
1752
1782
1812
1842
1872
1902
1932
1962
1992
year

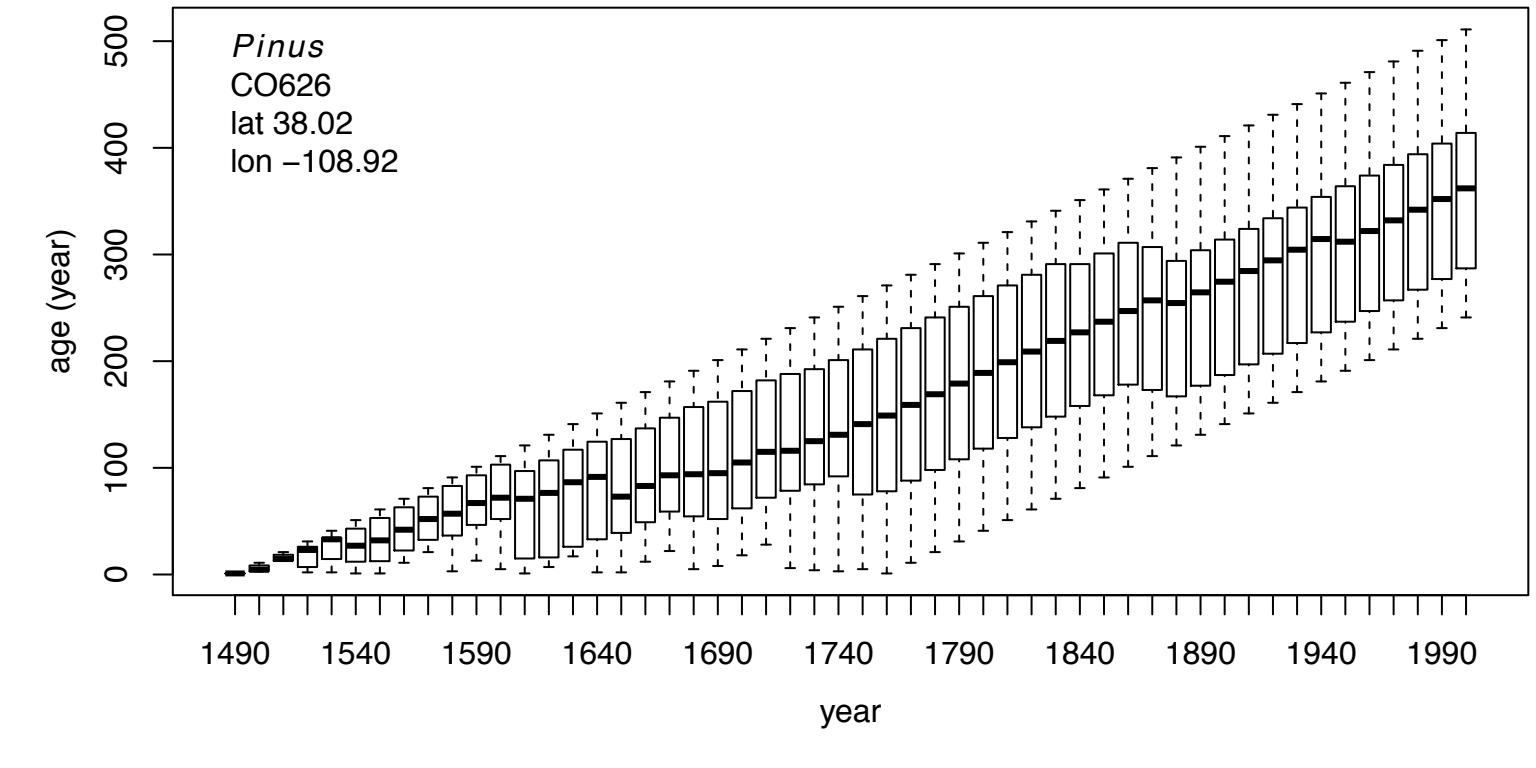

Pinus
CO616
lat 40.78
lon −108.97
age (year)
0
100
300
500
700
1270
1330
1390
1450
1510
1570
1630
1690
1750
1810
1870
1930
1990
year

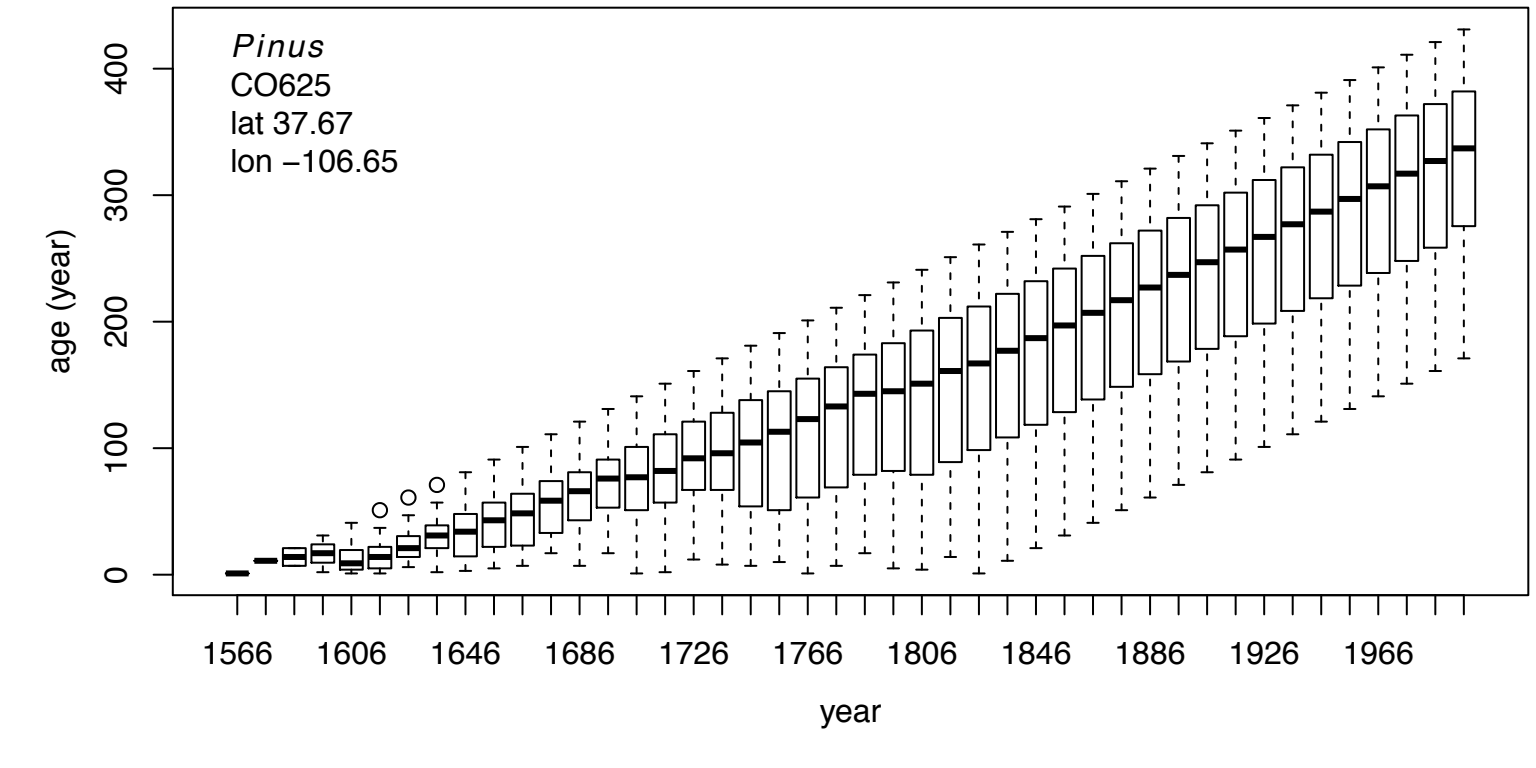

Pinus
CO648
lat 39.95
lon −106.52
age (year)
0
100
200
300
400
500
600
1175
1245
1315
1385
1455
1525
1595
1665
1735
1805
1875
1945
year

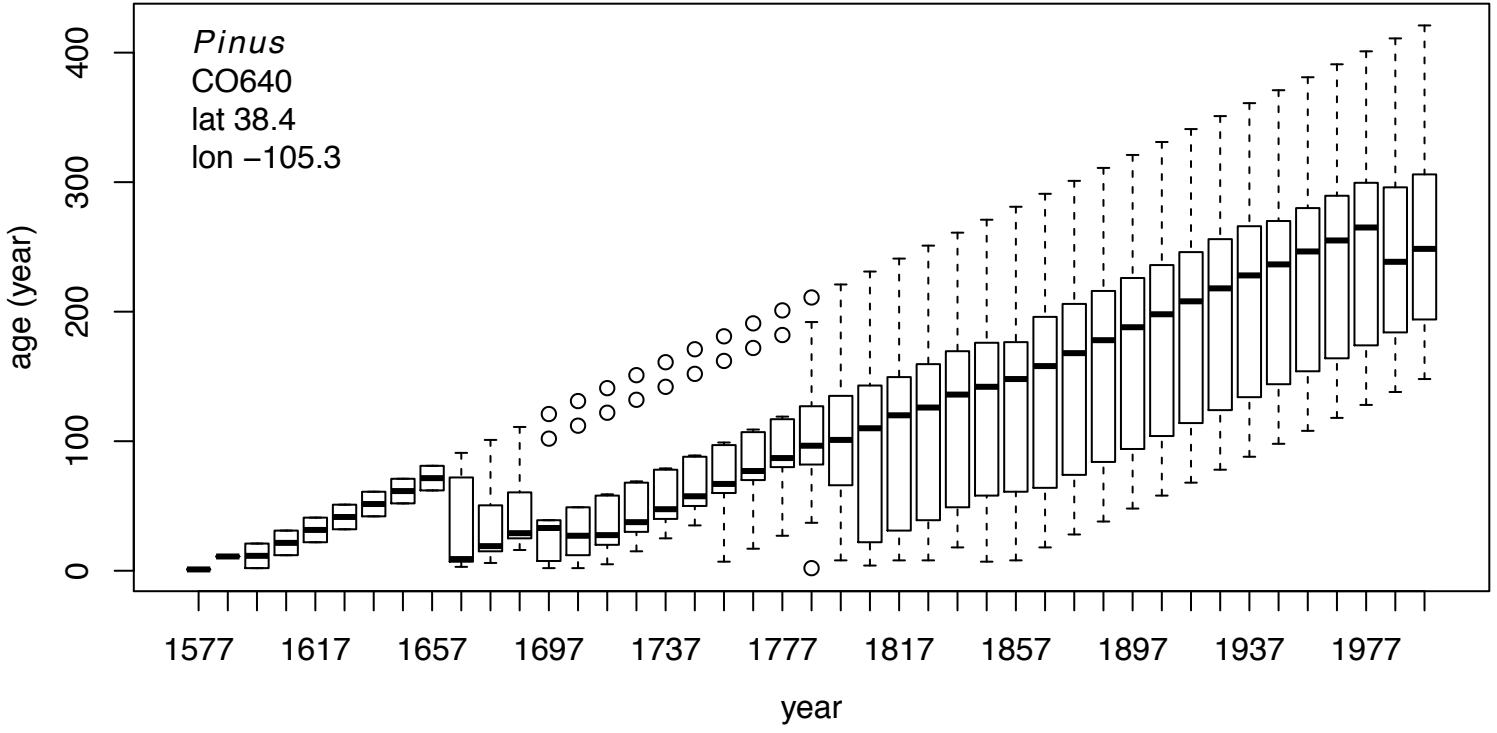

Pinus
CO621
lat 39.67
lon −107.88
age (year)
0
100
200
300
400
500
600
1352
1412
1472
1532
1592
1652
1712
1772
1832
1892
1952
year

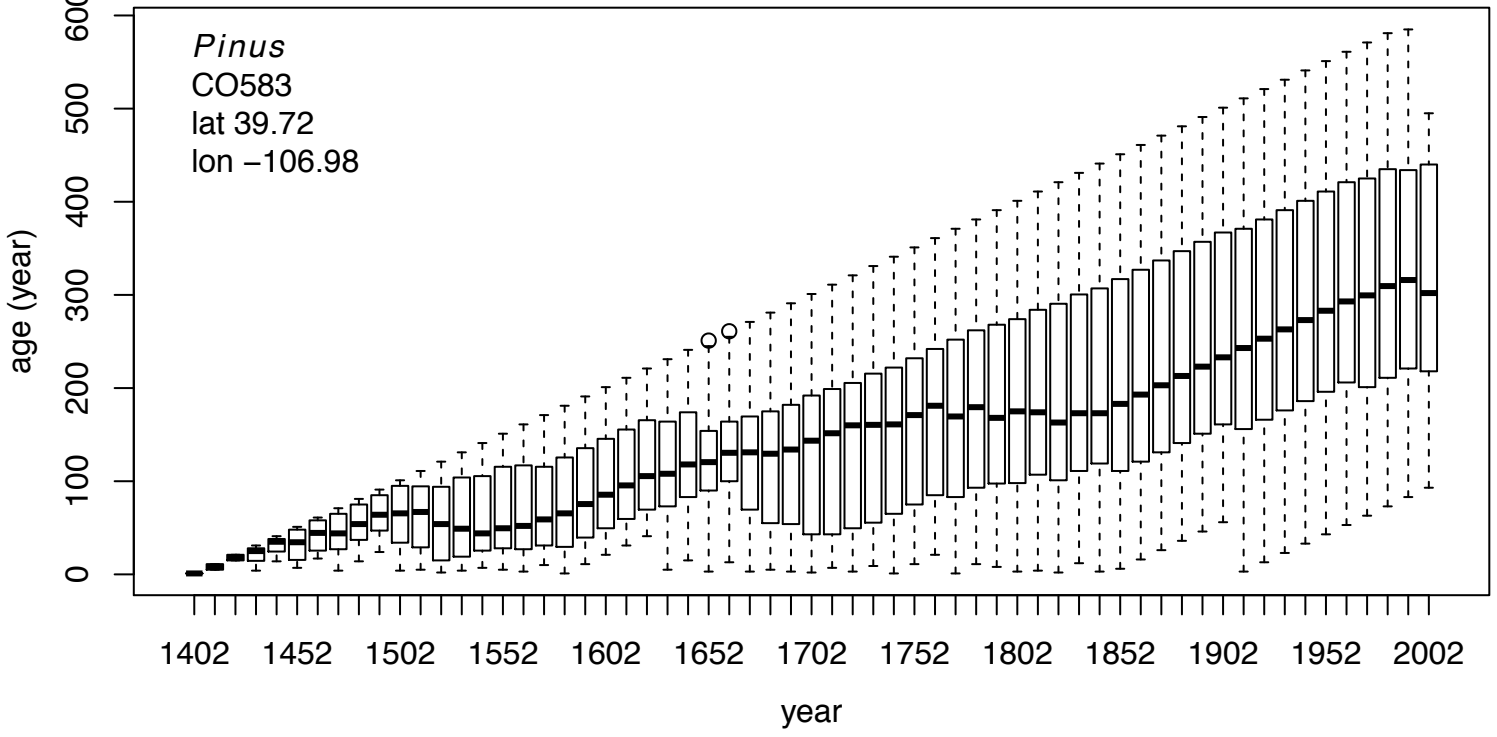

Pinus
CO622
lat 40.72
lon −105.58
age (year)
0
100
200
300
400
500
1436
1486
1536
1586
1636
1686
1736
1786
1836
1886
1936
1986
year

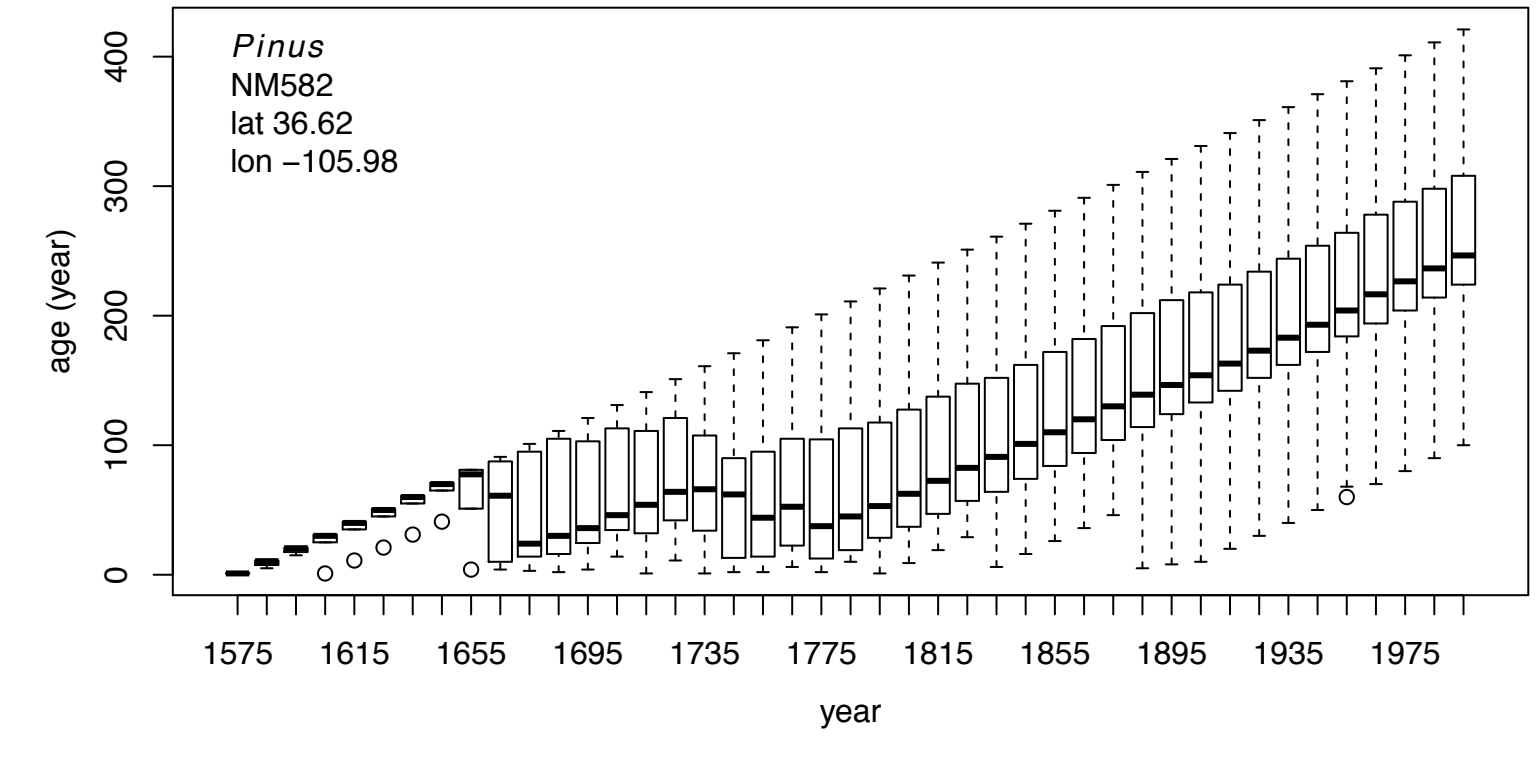

Pinus
CO623
lat 38.32
lon −107.2
age (year)
0
100
200
300
400
1599
1639
1679
1719
1759
1799
1839
1879
1919
1959
1999
year

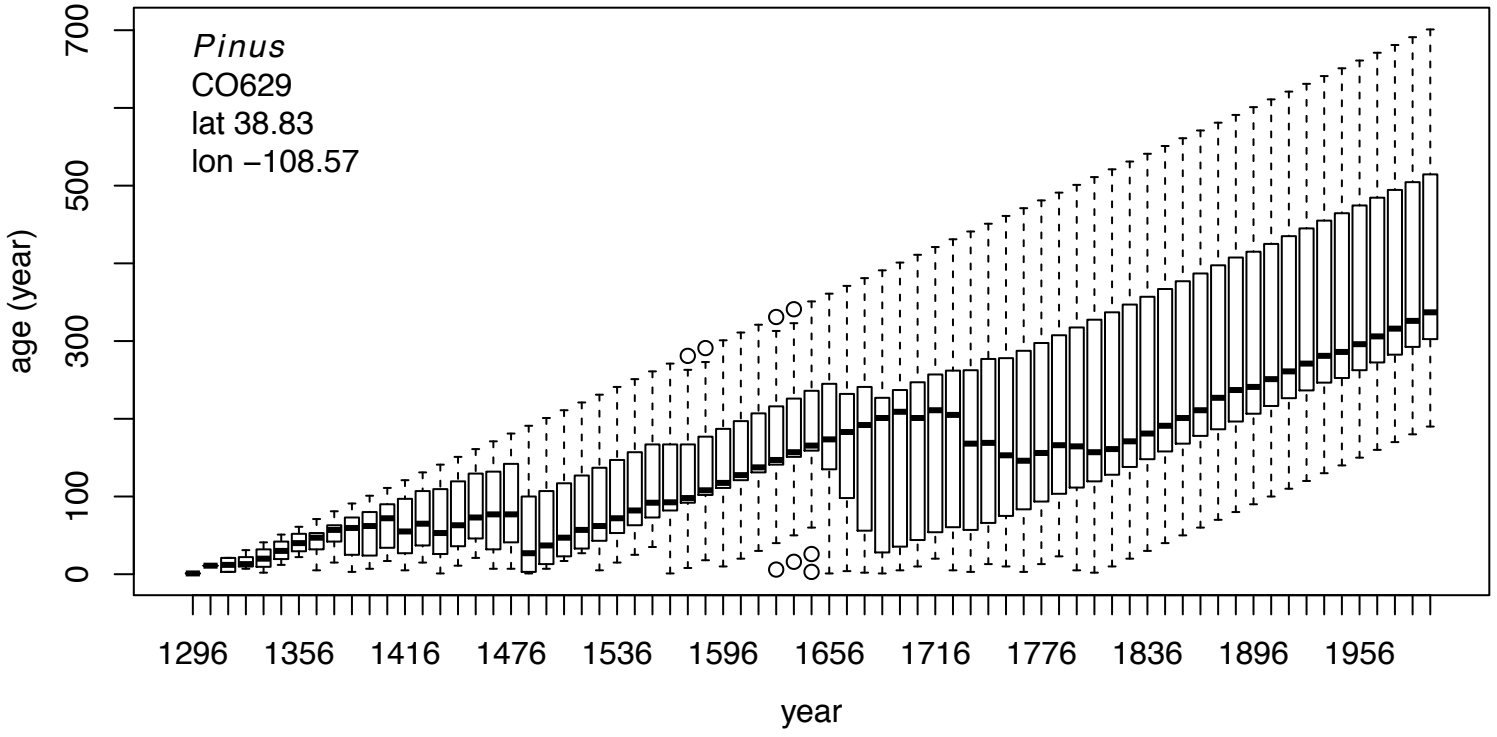

Pinus
CO626
lat 38.02
lon −108.92
age (year)
0
100
200
300
400
500
1490
1540
1590
1640
1690
1740
1790
1840
1890
1940
1990
year

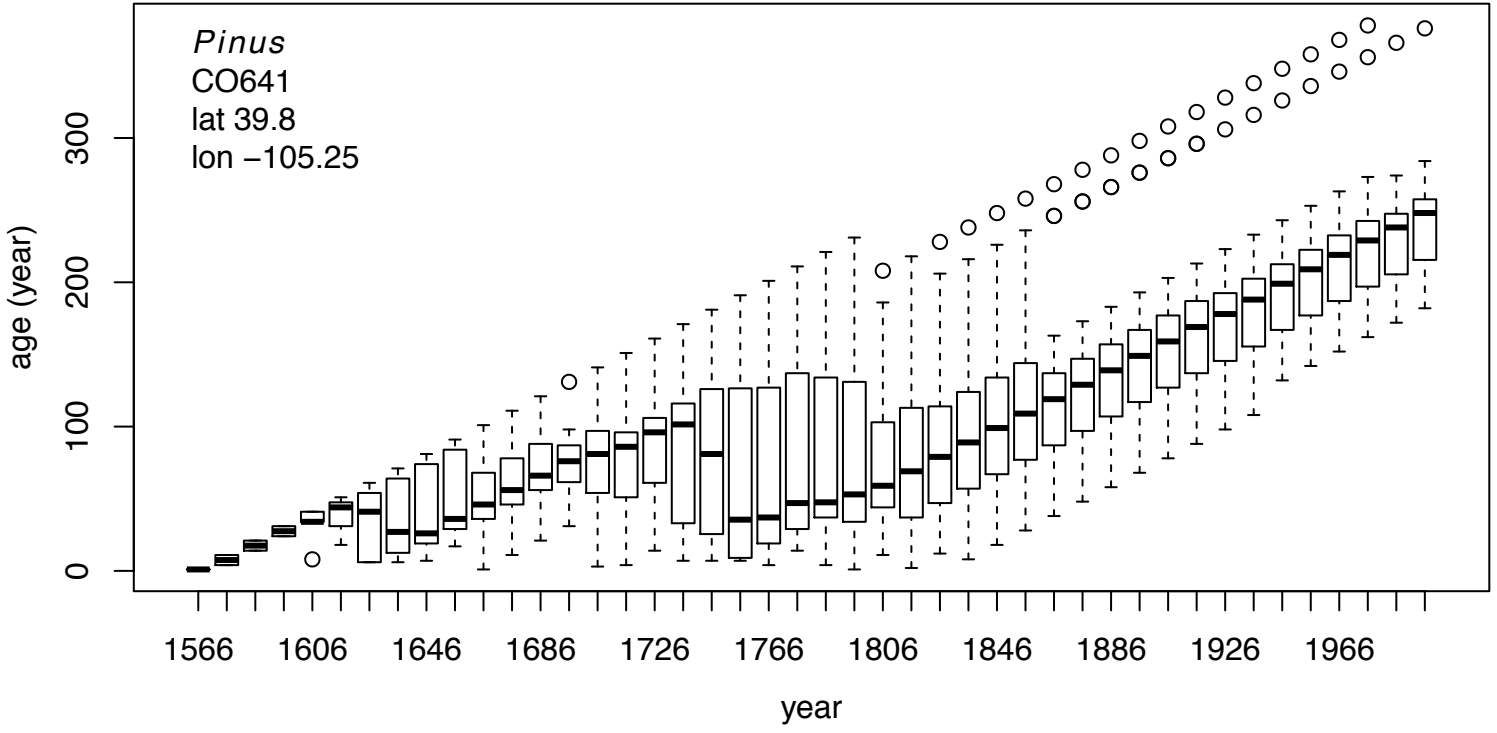

Pinus
CO625
lat 37.67
lon −106.65
age (year)
0
100
200
300
400
1566
1606
1646
1686
1726
1766
1806
1846
1886
1926
1966
year

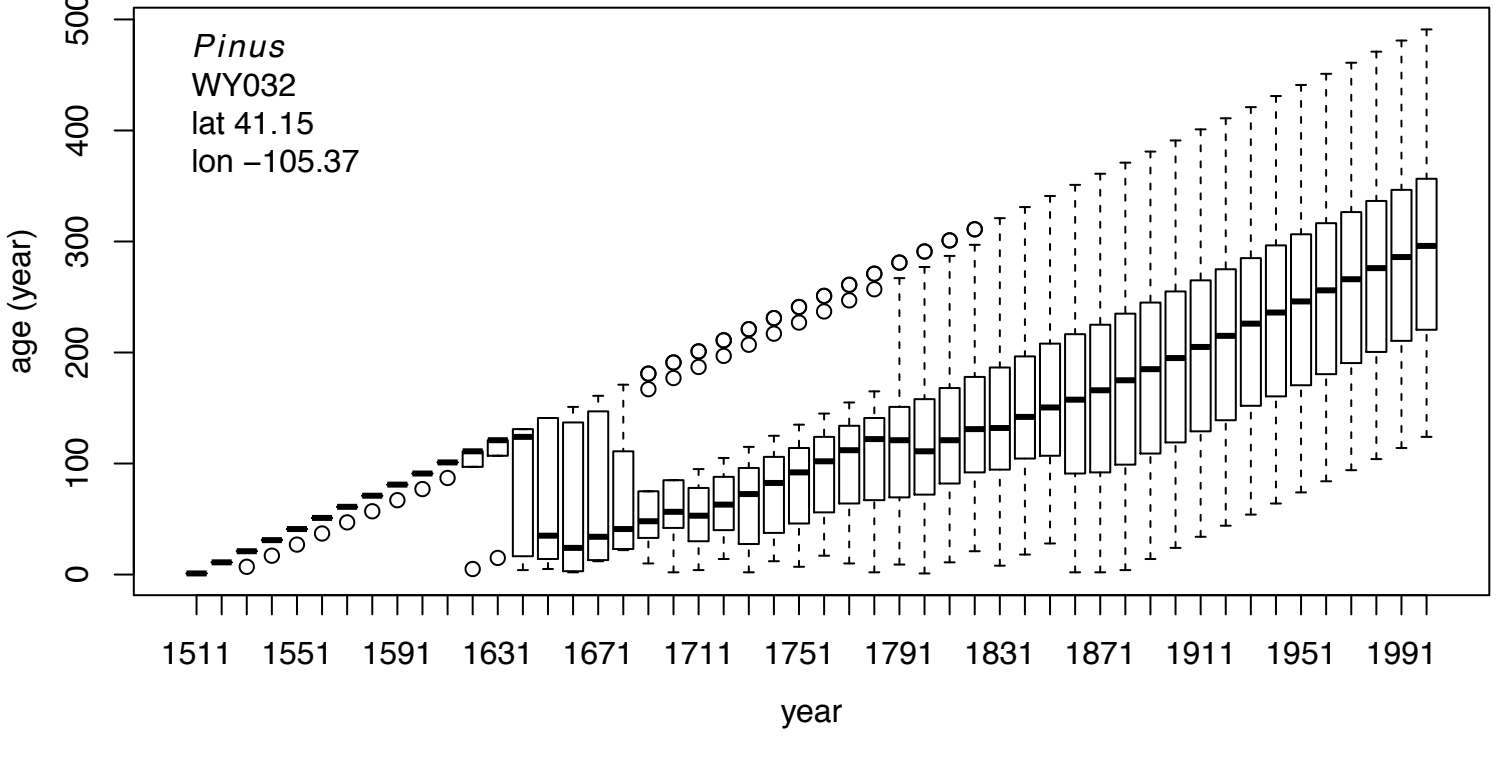

Pinus
CO640
lat 38.4
lon −105.3
age (year)
0
100
200
300
400
1577
1617
1657
1697
1737
1777
1817
1857
1897
1937
1977
year

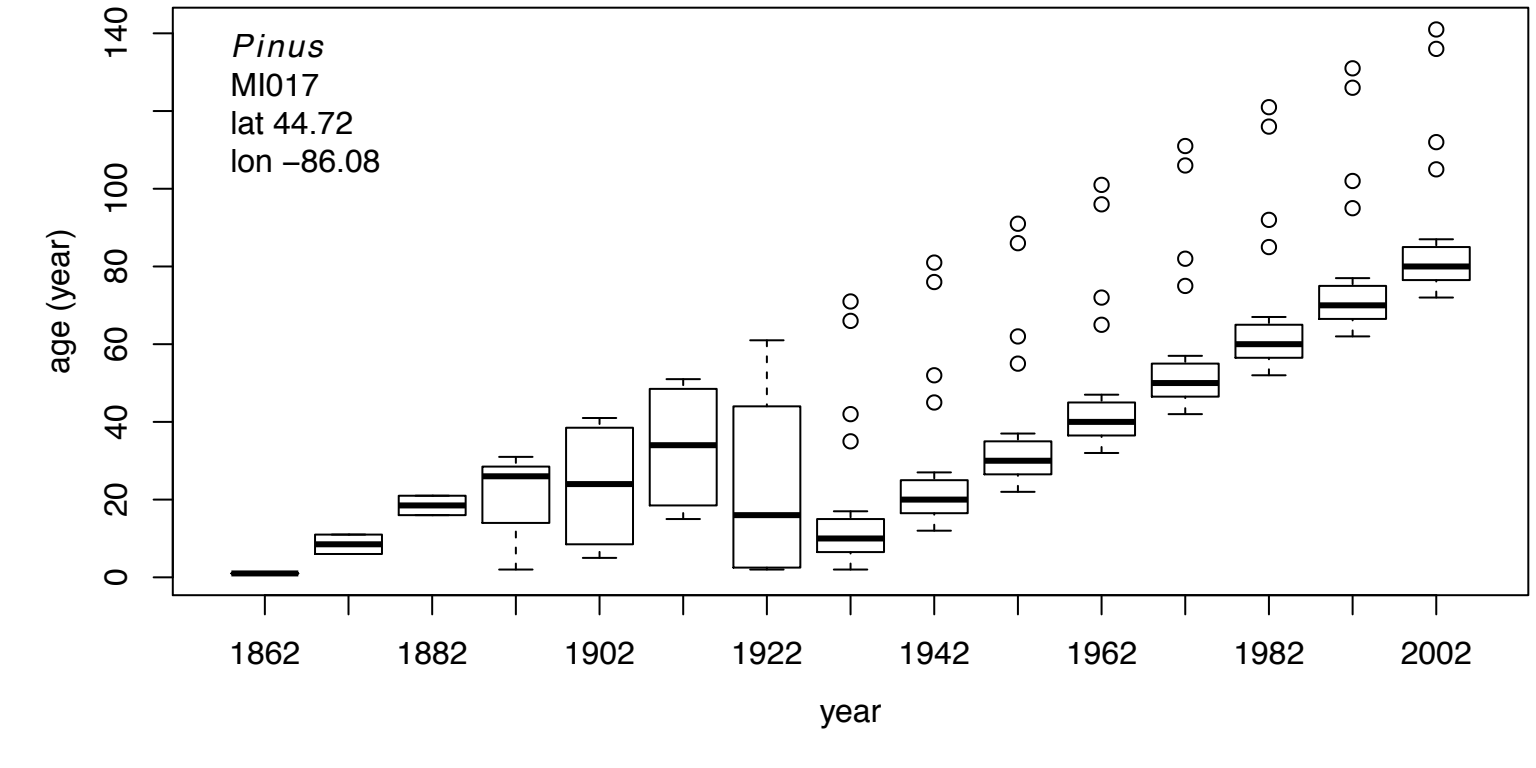

Pinus
CO583
lat 39.72
lon −106.98
age (year)
0
100
200
300
400
500
600
1402
1452
1502
1552
1602
1652
1702
1752
1802
1852
1902
1952
2002
year

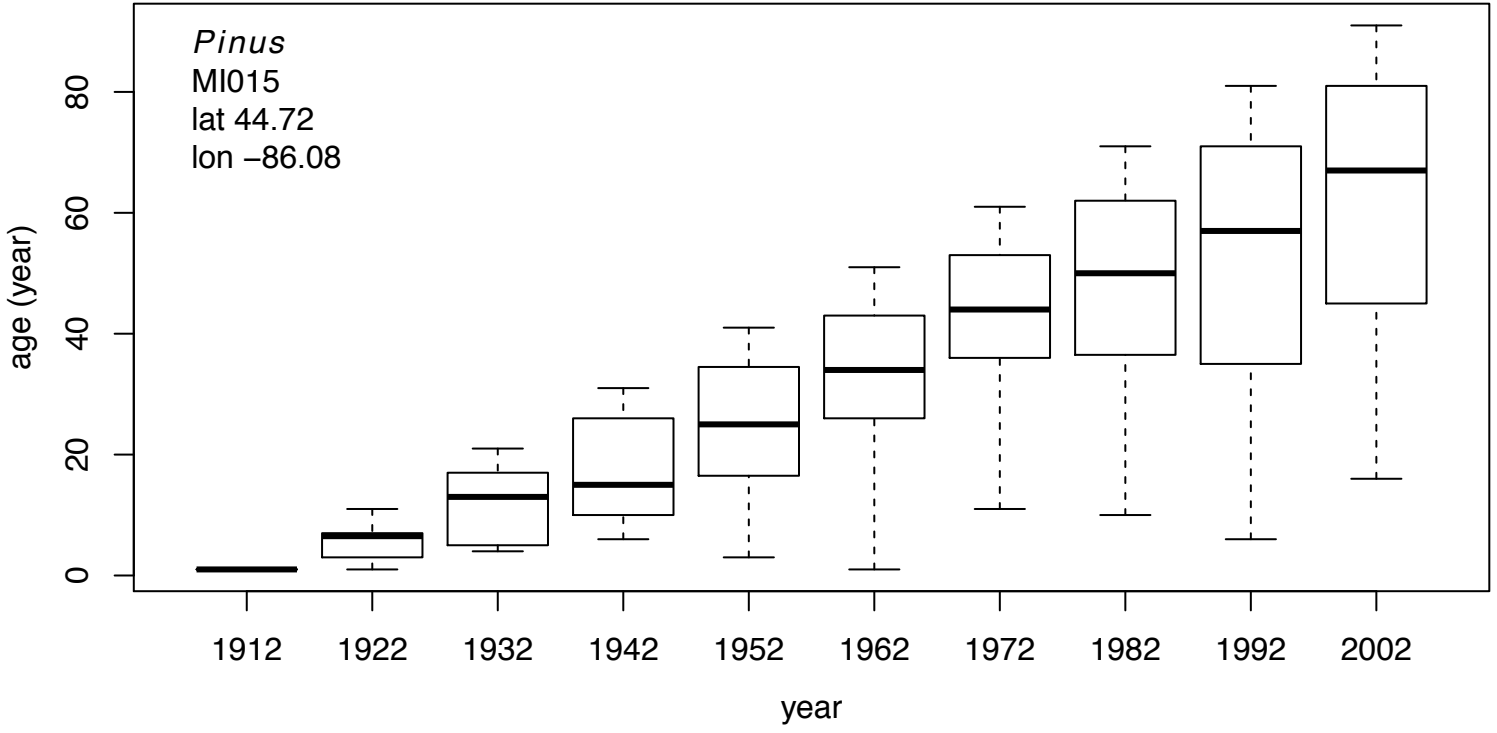

Pinus
NM582
lat 36.62
lon −105.98
age (year)
0
100
200
300
400
1575
1615
1655
1695
1735
1775
1815
1855
1895
1935
1975
year


Pinus
CO629
lat 38.83
lon −108.57
age (year)
0
100
300
500
700
1296
1356
1416
1476
1536
1596
1656
1716
1776
1836
1896
1956
year

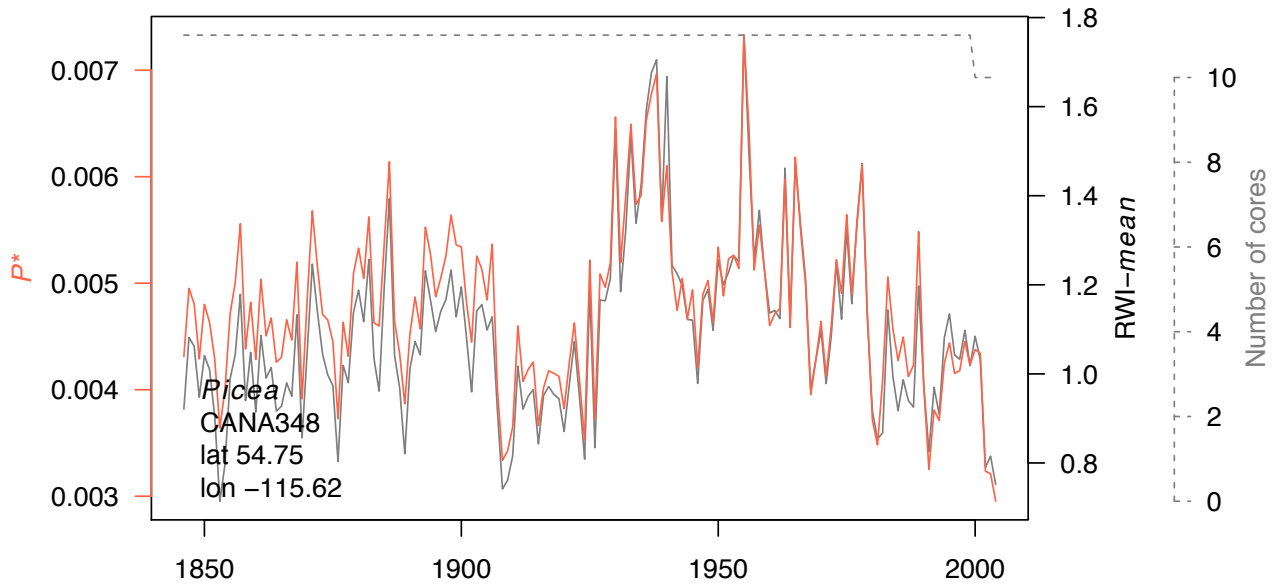

Pinus
CO641
lat 39.8
lon −105.25
age (year)
0
100
200
300
1566
1606
1646
1686
1726
1766
1806
1846
1886
1926
1966
year

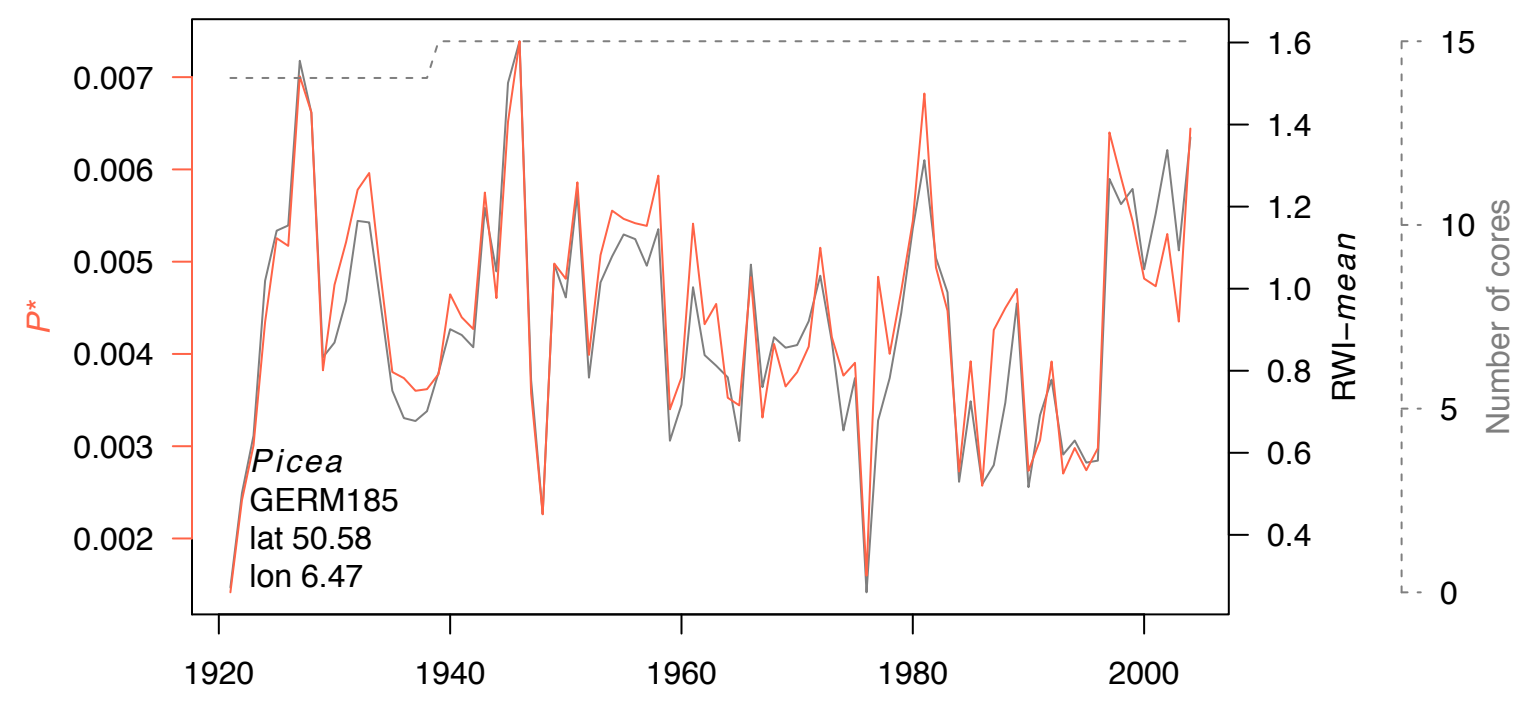

Pinus
WY032
lat 41.15
lon −105.37
age (year)
0
100
200
300
400
500
1511
1551
1591
1631
1671
1711
1751
1791
1831
1871
1911
1951
1991
year

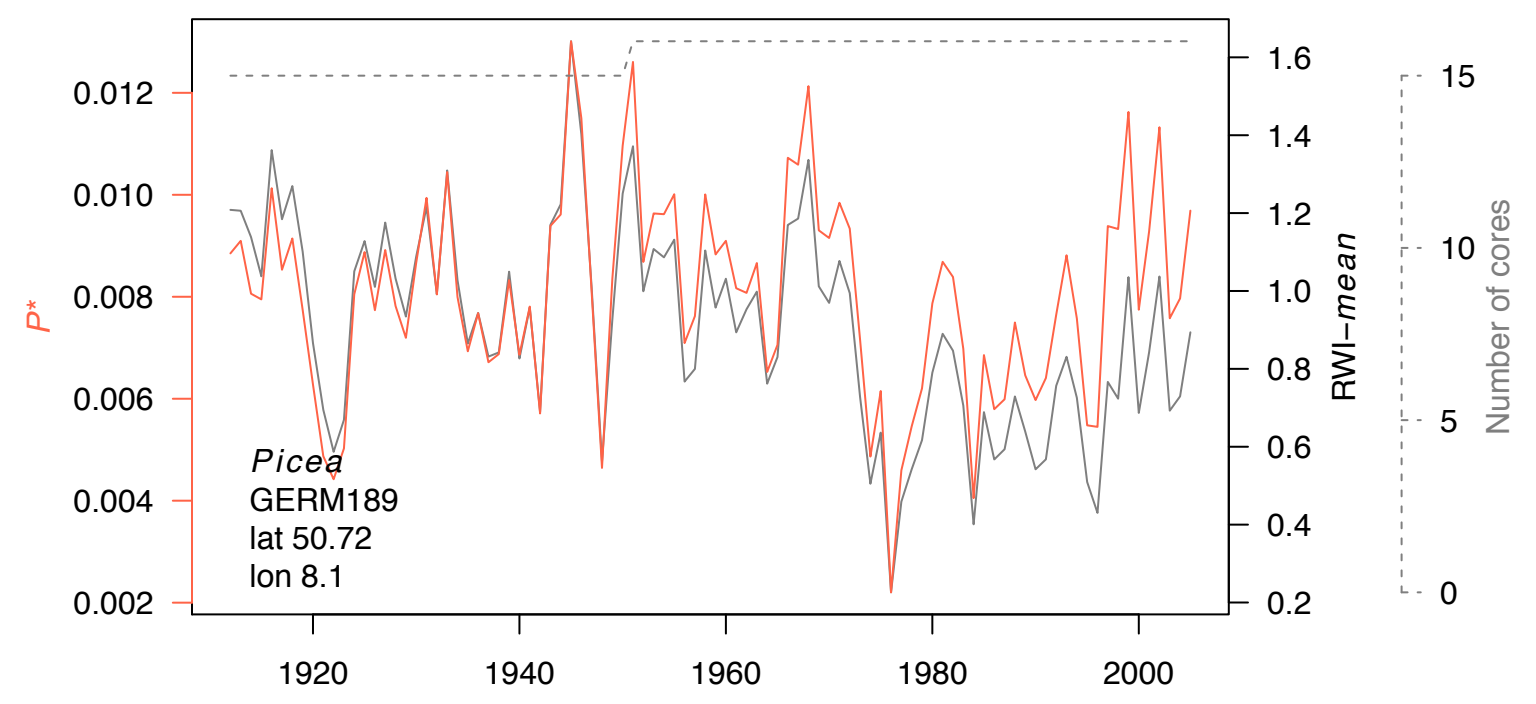

Pinus
MI017
lat 44.72
lon −86.08
age (year)
0
20
40
60
80
100
140
1862
1882
1902
1922
1942
1962
1982
2002
year

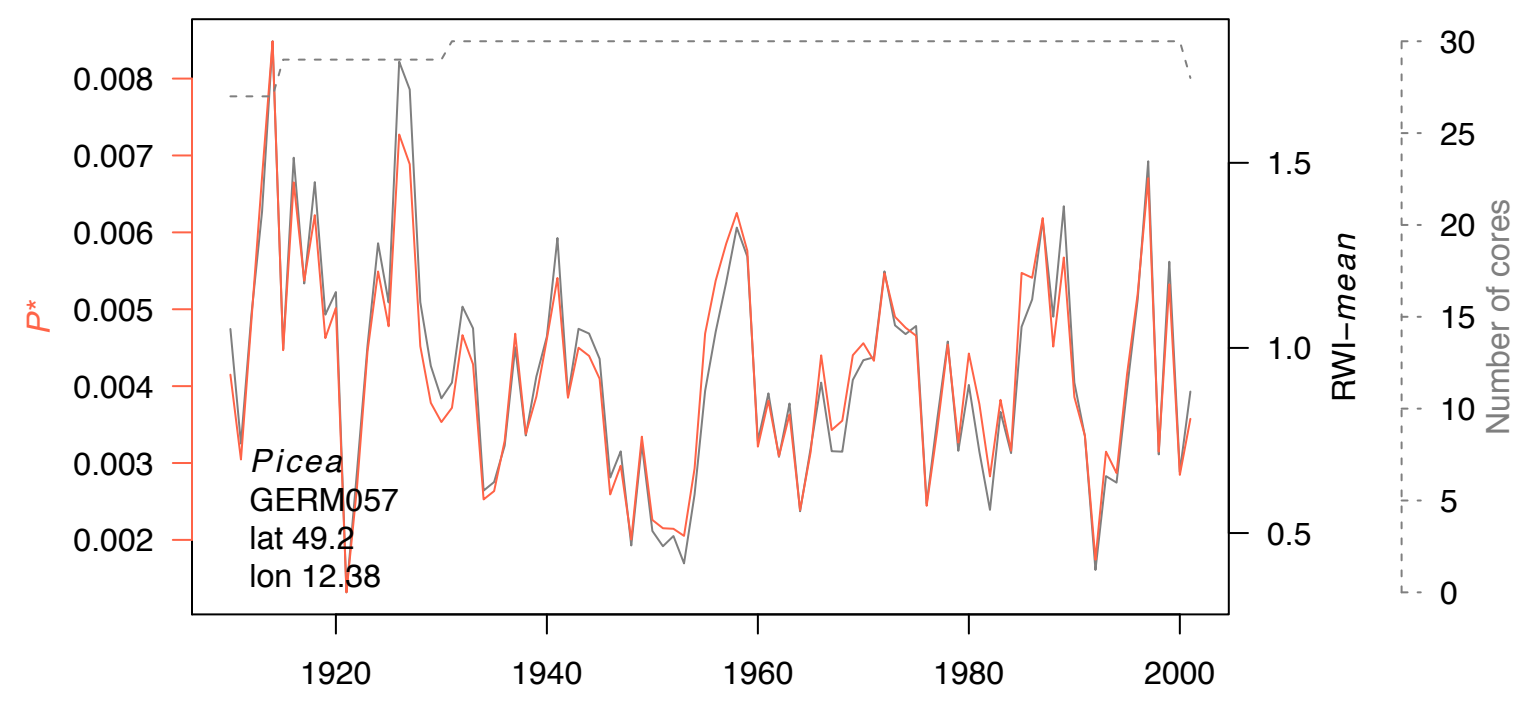

Pinus
MI015
lat 44.72
lon −86.08
age (year)
0
20
40
60
80
1912
1922
1932
1942
1952
1962
1972
1982
1992
2002
year

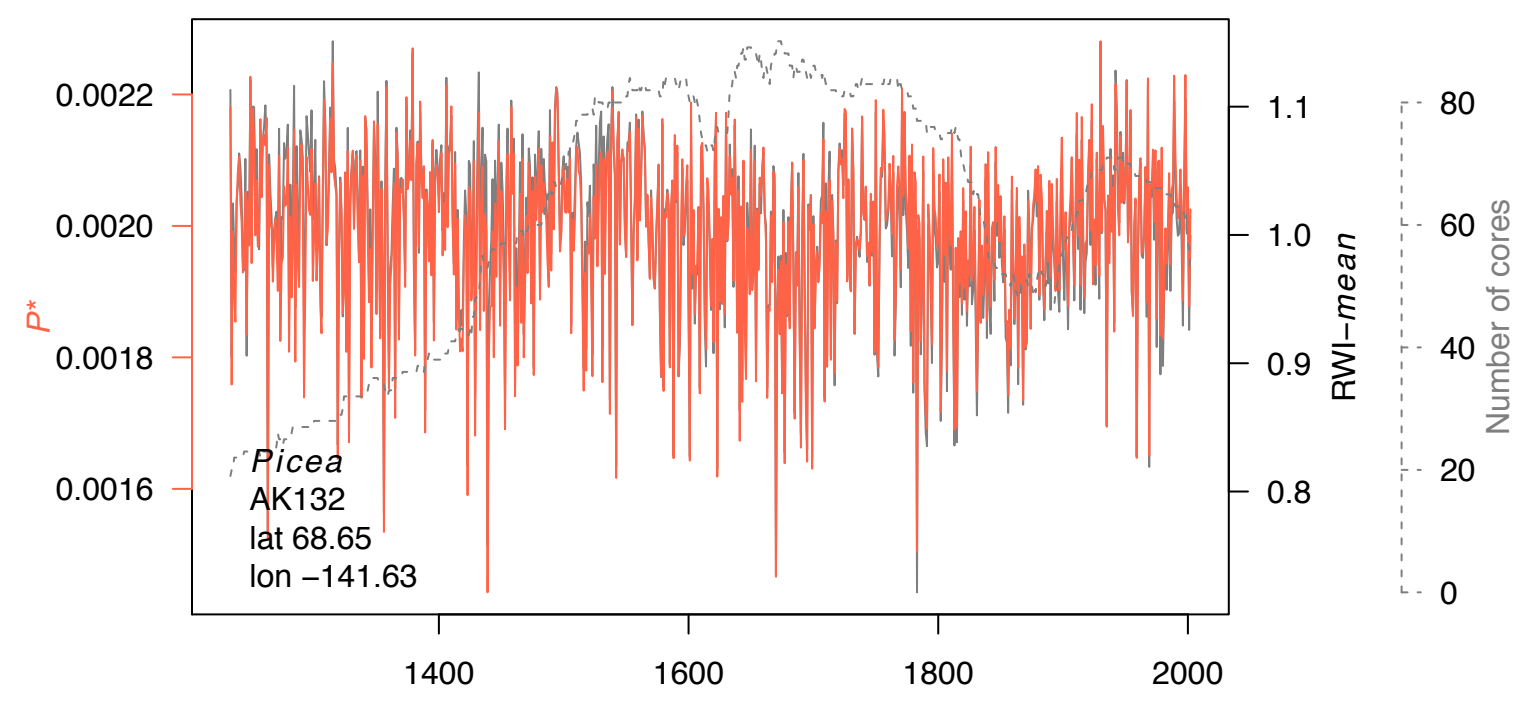
SI Figure 2: Comparison of *P** and the standardised bi-weighted mean of the raw ring width (*RWI-mean*) for all *Picea* and *Pinus* sites. The dotted line shows the number of cores contributing to the reconstructions through time.

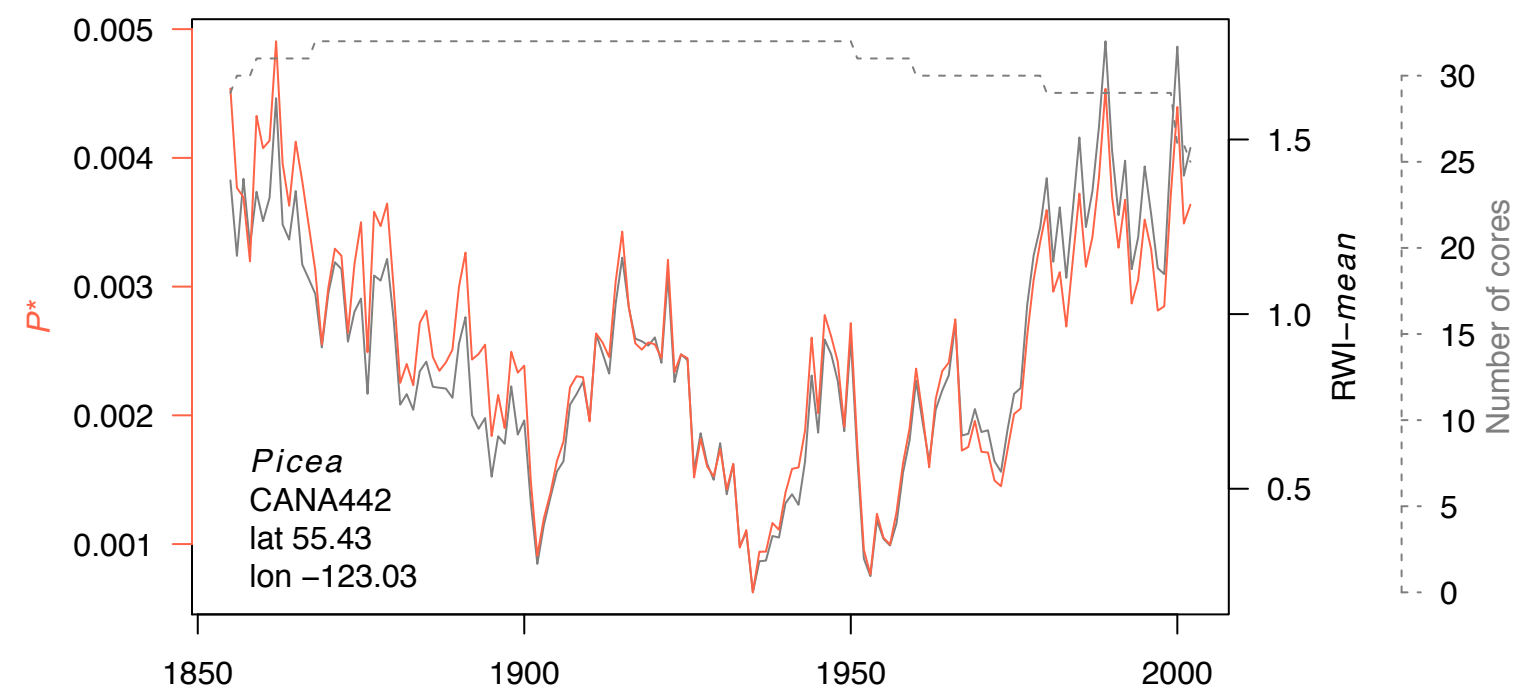


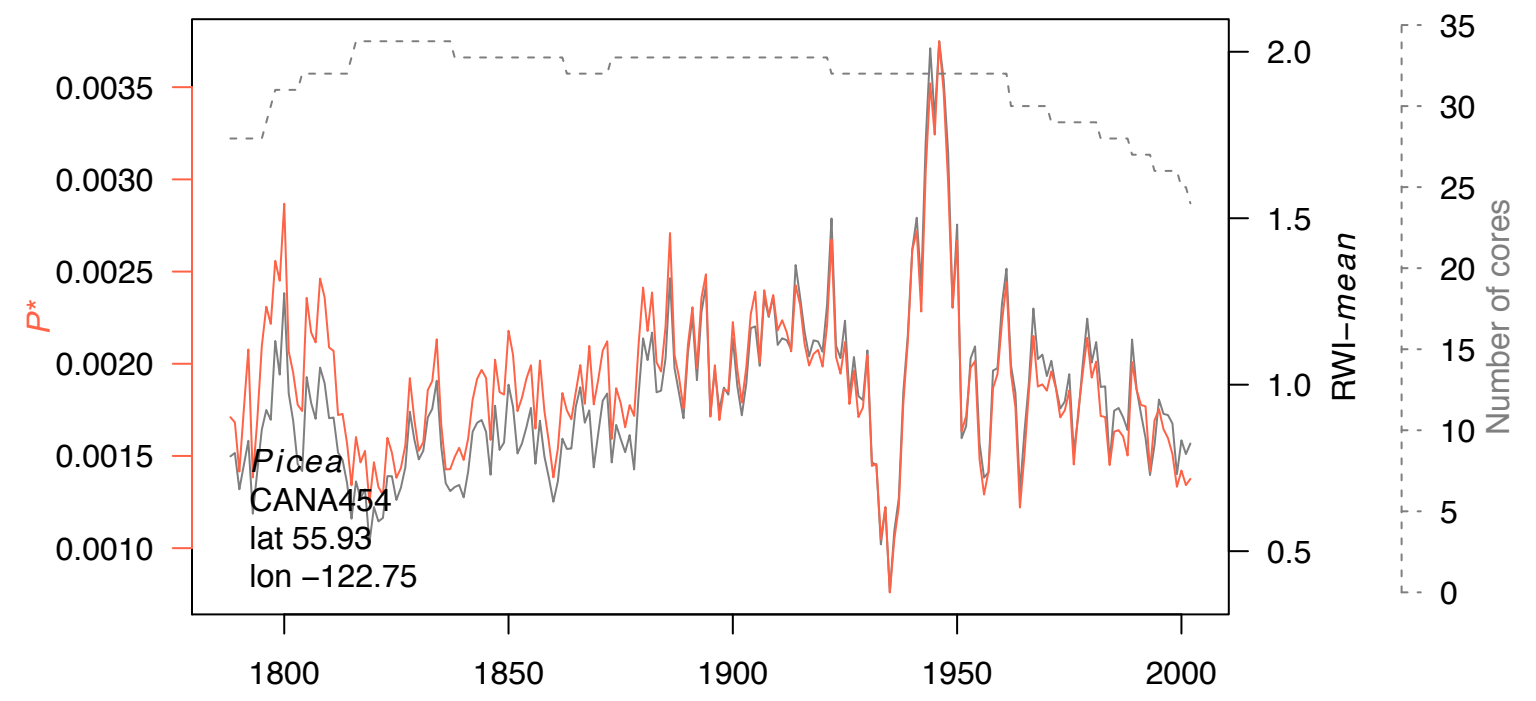

P*
0.007
0.006
0.005
0.004
0.003
0.002
Picea
GERM185
lat 50.58
lon 6.47
1.6
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
15
10
5
0
Number of cores
1920
1940
1960
1980
2000

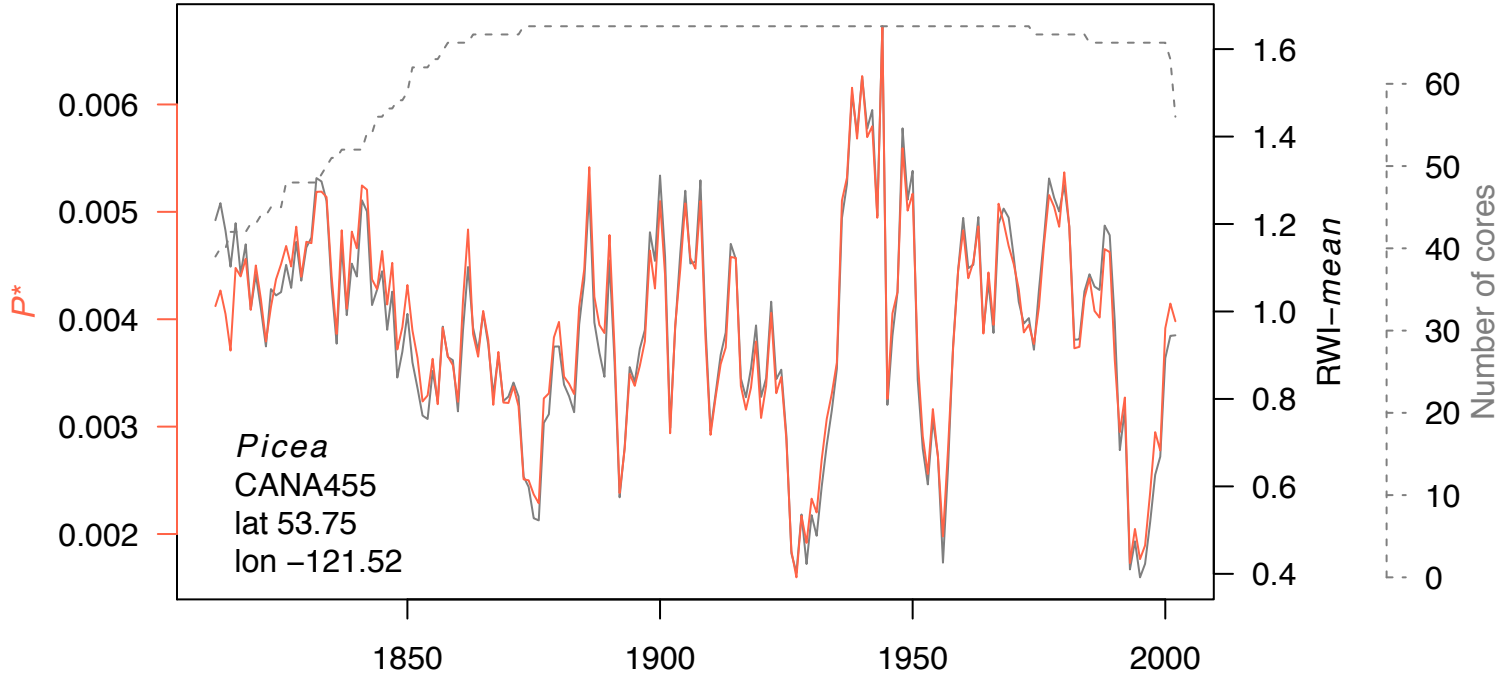

P*
0.012
0.010
0.008
0.006
0.004
0.002
Picea
GERM189
lat 50.72
lon 8.1
1920
1940
1960
1980
2000
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
RWI–mean
15
10
5
0
Number of cores

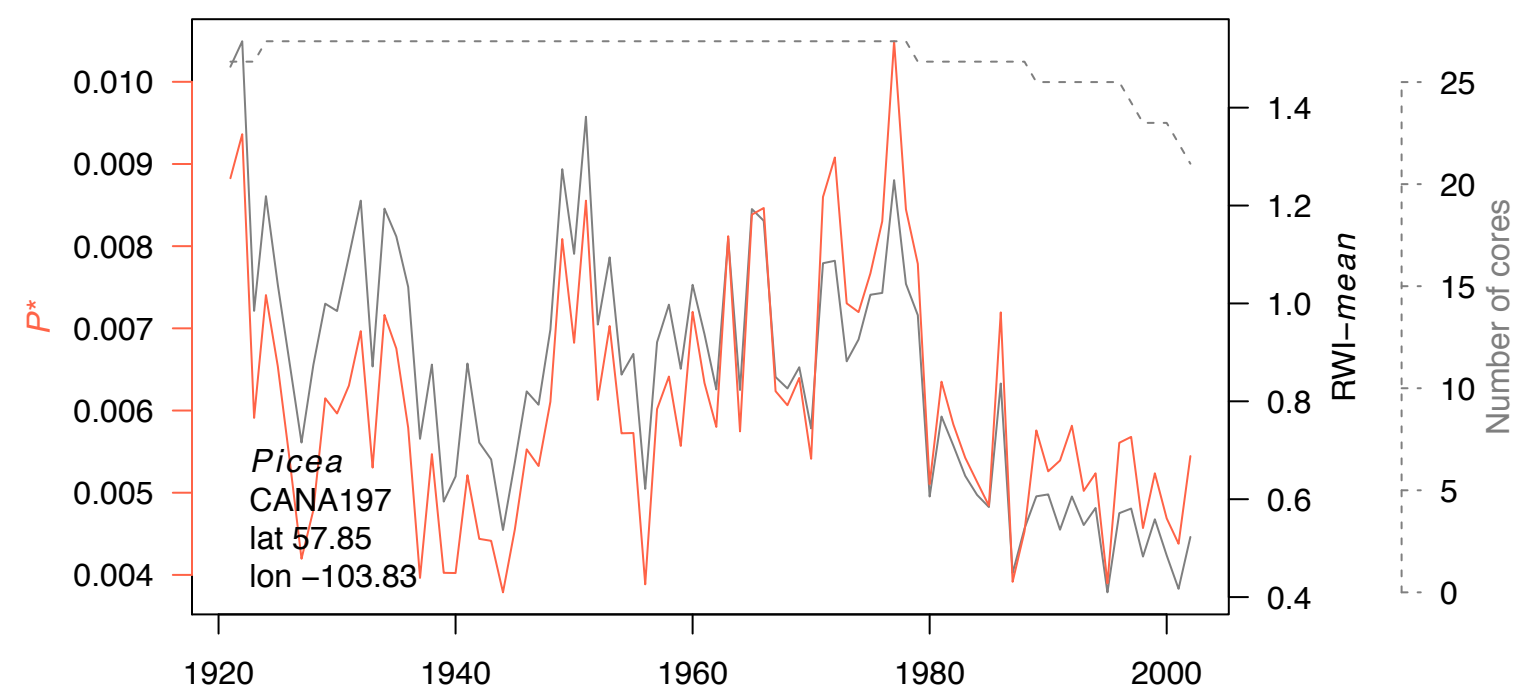

P*
0.008
0.007
0.006
0.005
0.004
0.003
0.002
Picea
GERM057
lat 49.2
lon 12.38
1920
1940
1960
1980
2000
RWI–mean
1.5
1.0
0.5
Number of cores
30
25
20
15
10
5
0

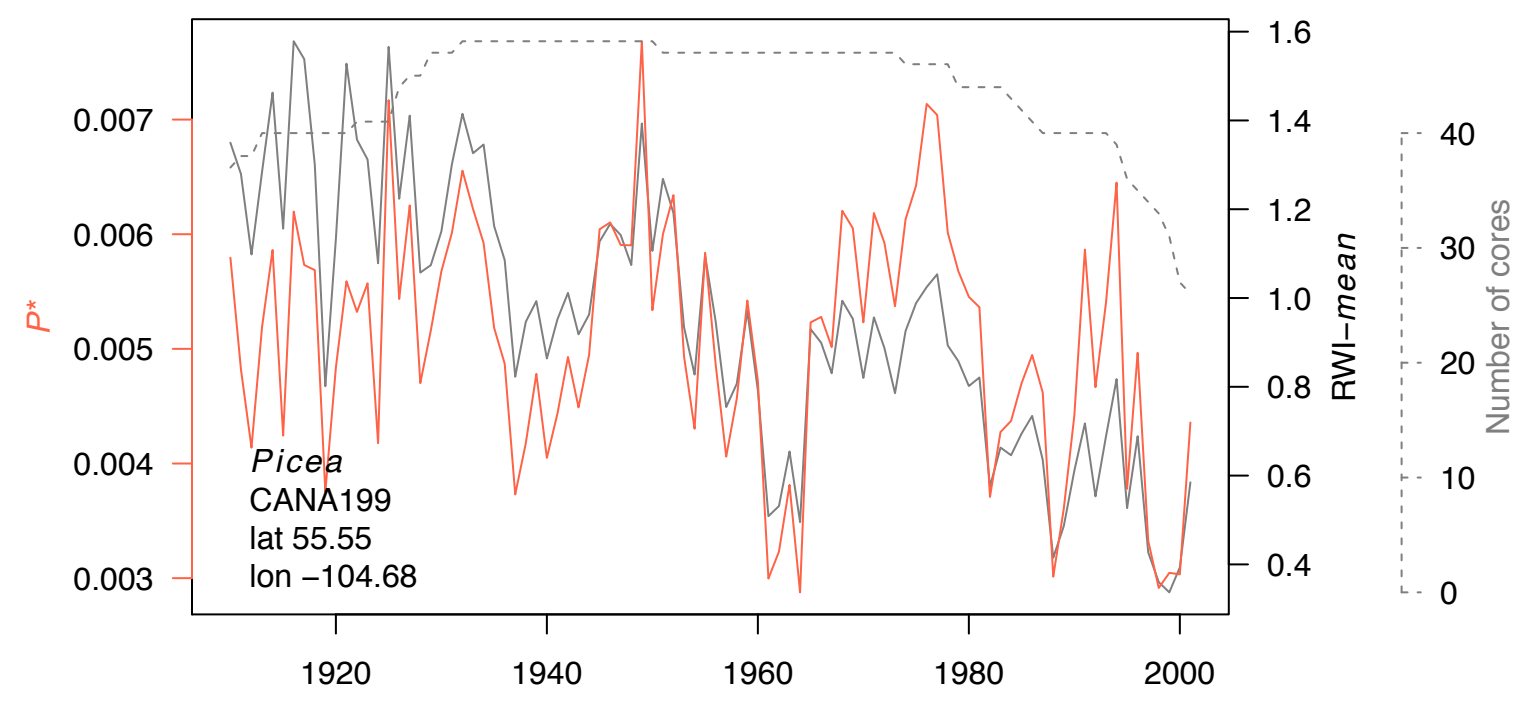

P*
0.0022
0.0020
0.0018
0.0016
RWI–mean
1.1
1.0
0.9
0.8
Number of cores
80
60
40
20
0
1400
1600
1800
2000
Picea
AK132
lat 68.65
lon –141.63

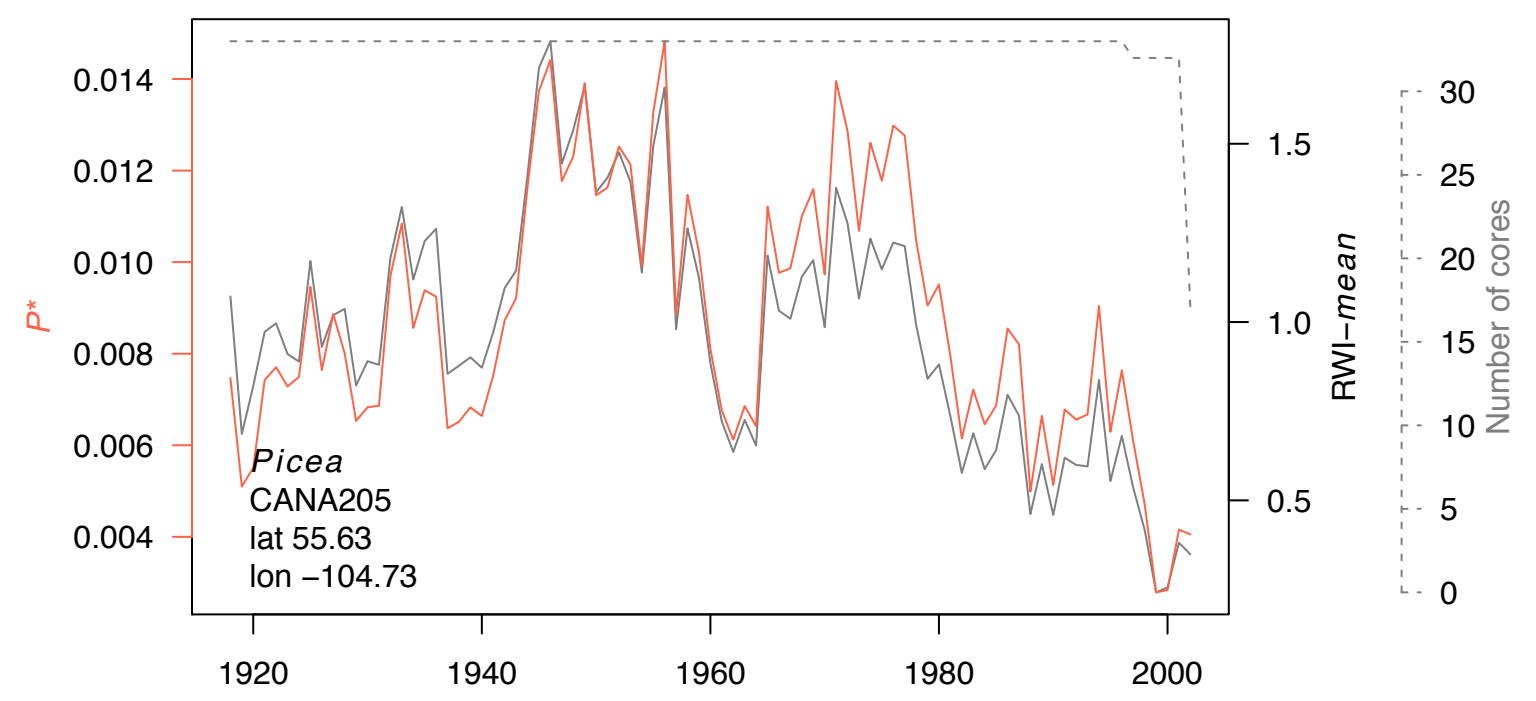

0.005
0.004
0.003
0.002
0.001
P*
Picea
CANA442
lat 55.43
lon −123.03
1850
1900
1950
2000
1.5
1.0
0.5
RWI–mean
30
25
20
15
10
5
0
Number of cores

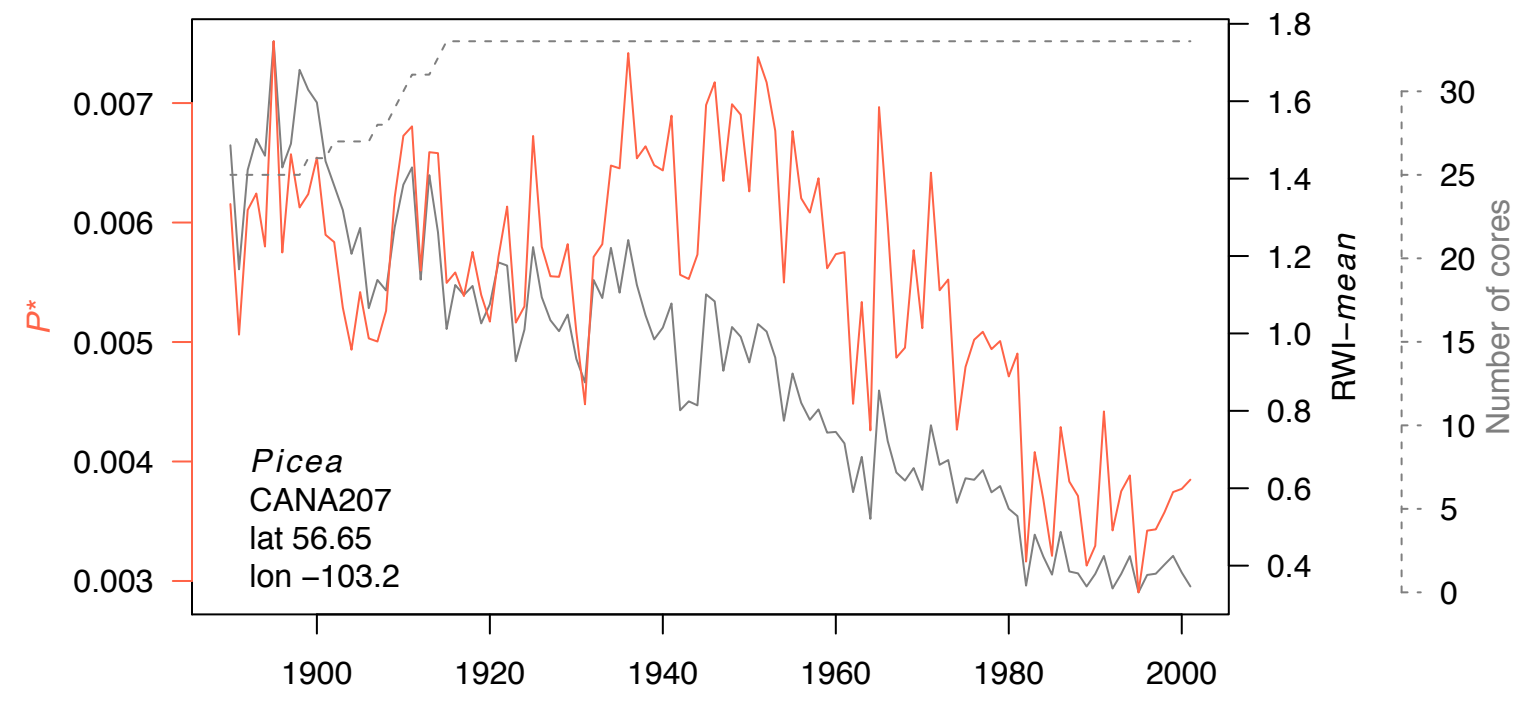

P*
0.0035
0.0030
0.0025
0.0020
0.0015
0.0010
Picea
CANA454
lat 55.93
lon −122.75
2.0
1.5
1.0
0.5
RWI–mean
35
30
25
20
15
10
5
0
Number of cores
1800
1850
1900
1950
2000

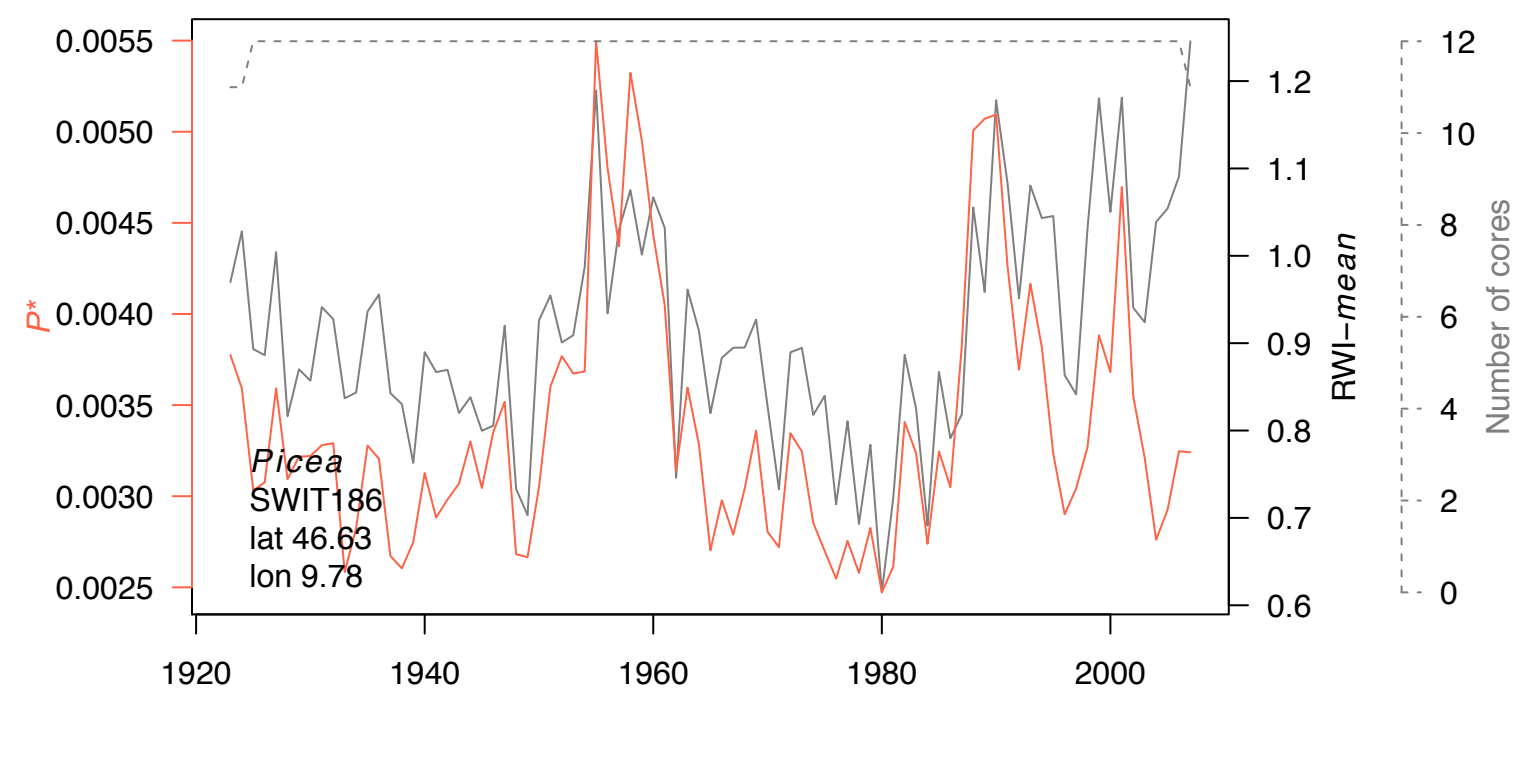

P*
0.006
0.005
0.004
0.003
0.002
Picea
CANA455
lat 53.75
lon −121.52
1850
1900
1950
2000
1.6
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
60
50
40
30
20
10
0
Number of cores

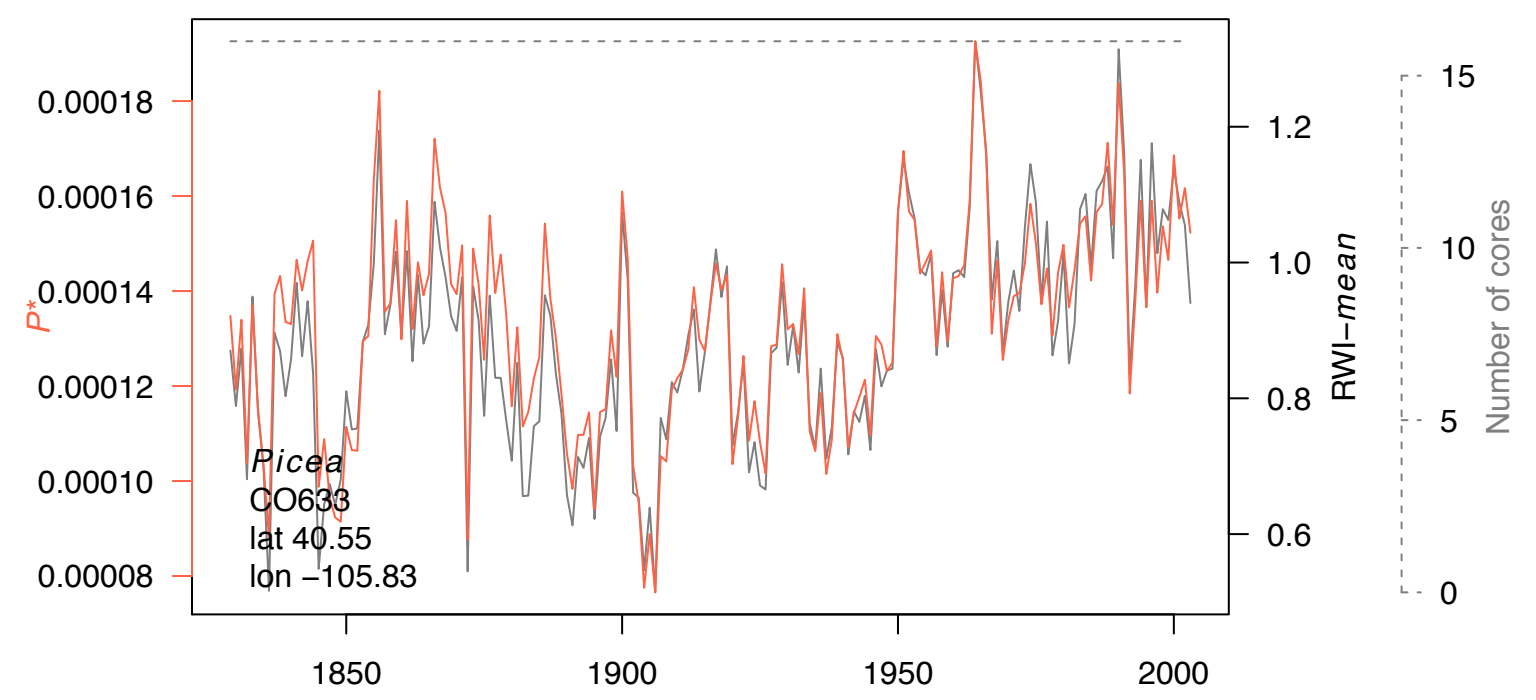

P*
0.010
0.009
0.008
0.007
0.006
0.005
0.004
Picea
CANA197
lat 57.85
lon −103.83
1920
1940
1960
1980
2000
RWI–mean
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
25
20
15
10
5
0

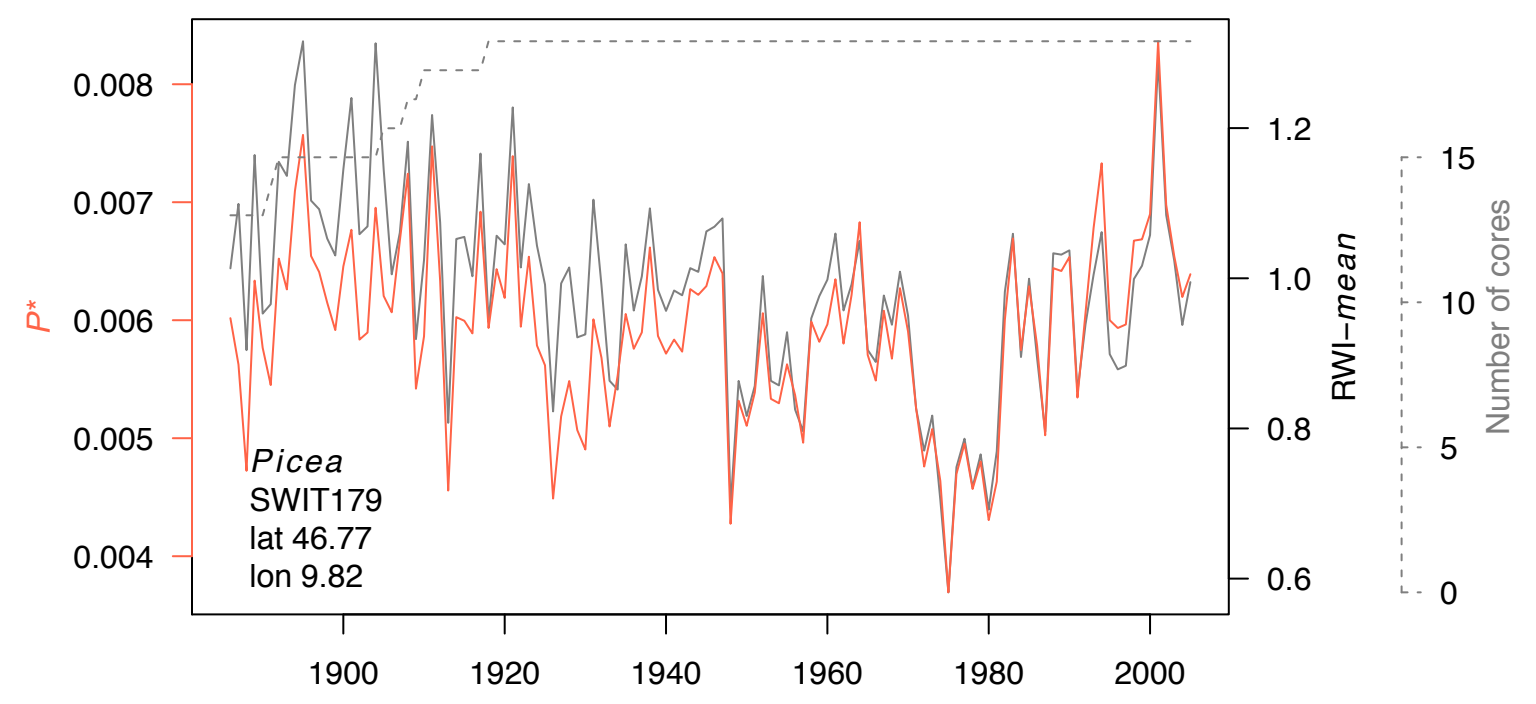

P*
0.007
0.006
0.005
0.004
0.003
Picea
CANA199
lat 55.55
lon −104.68
1920
1940
1960
1980
2000
1.6
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
40
30
20
10
0
Number of cores

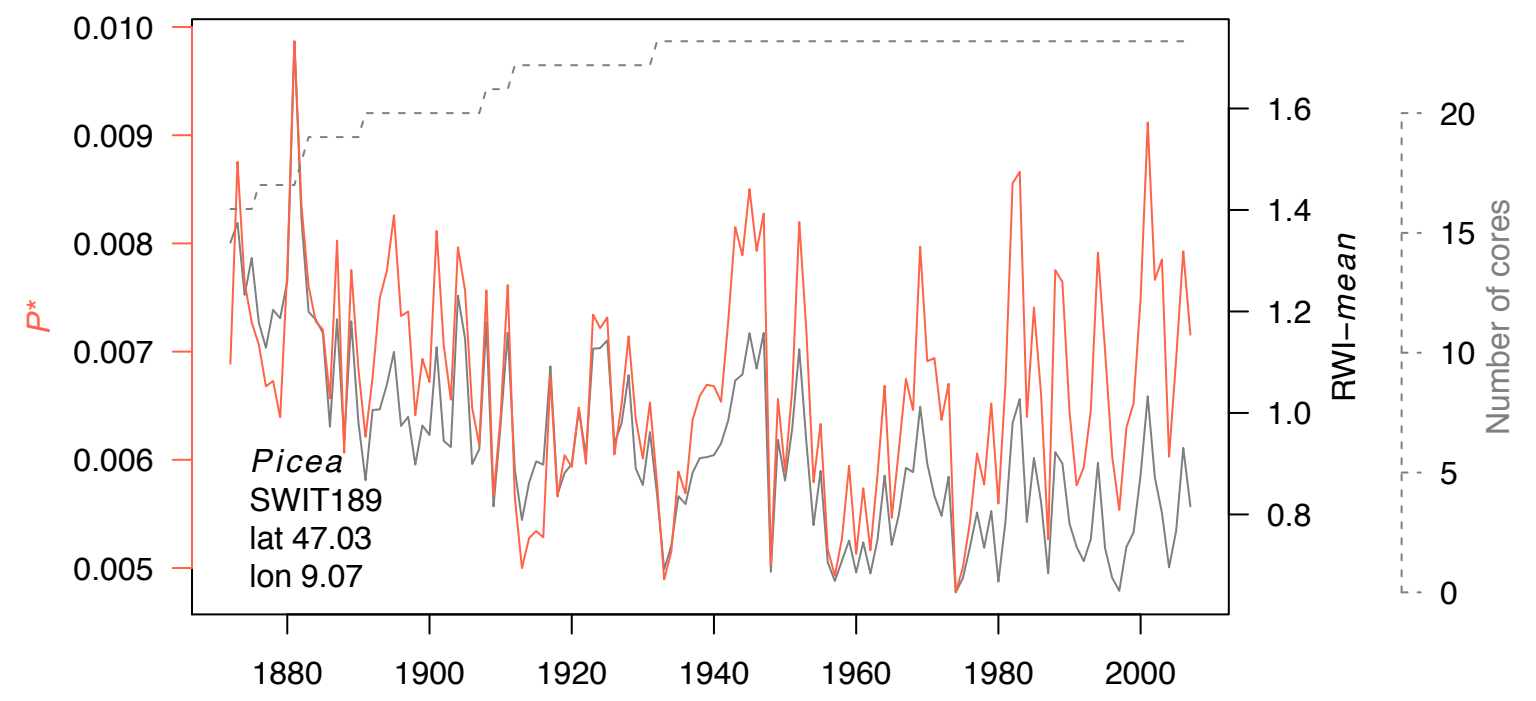

P*
0.014
0.012
0.010
0.008
0.006
0.004
RWI–mean
1.5
1.0
0.5
Number of cores
30
25
20
15
10
5
0
Picea
CANA205
lat 55.63
lon −104.73
1920
1940
1960
1980
2000

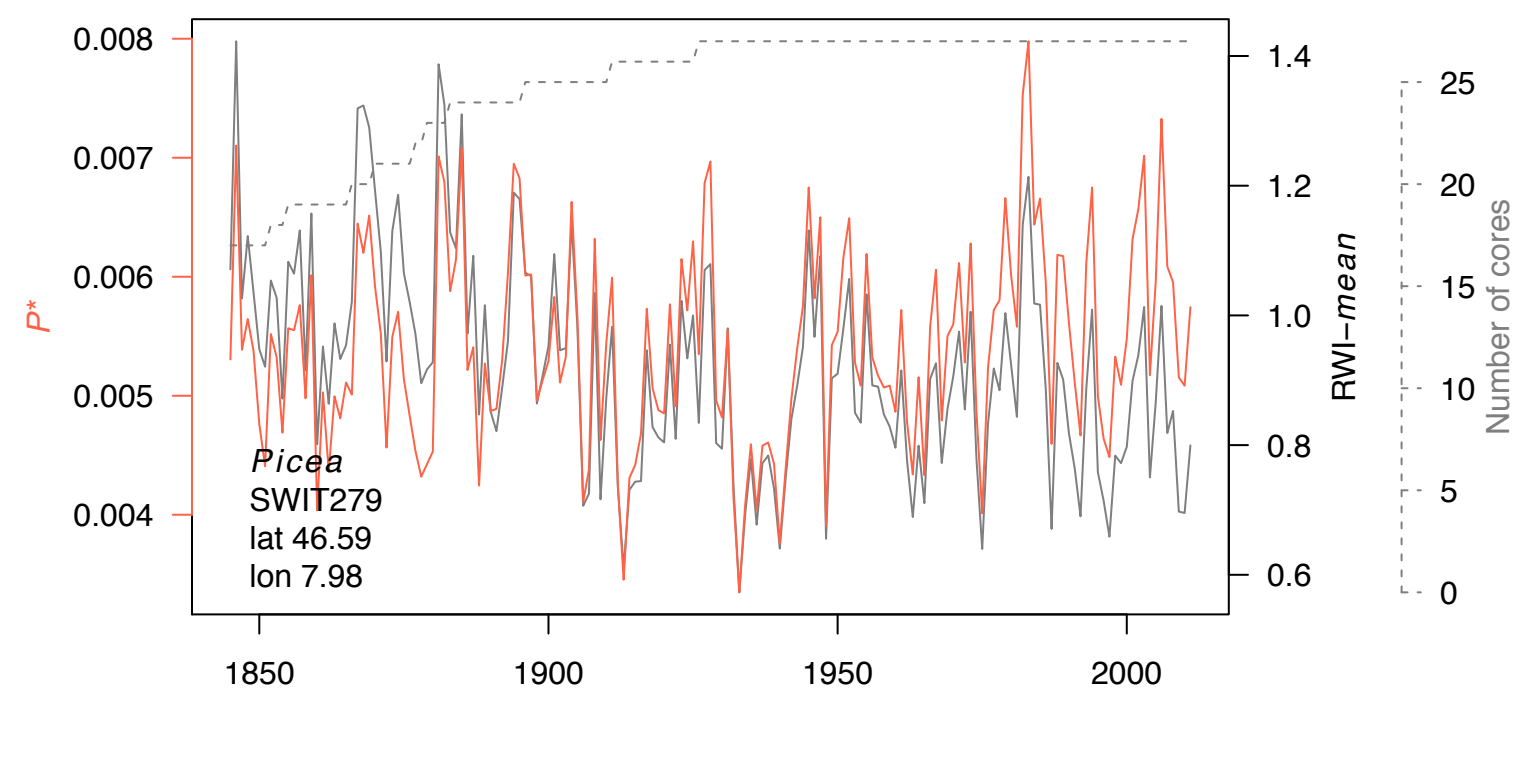

P*
0.007
0.006
0.005
0.004
0.003
Picea
CANA207
lat 56.65
lon −103.2
1900
1920
1940
1960
1980
2000
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
30
25
20
15
10
5
0
Number of cores

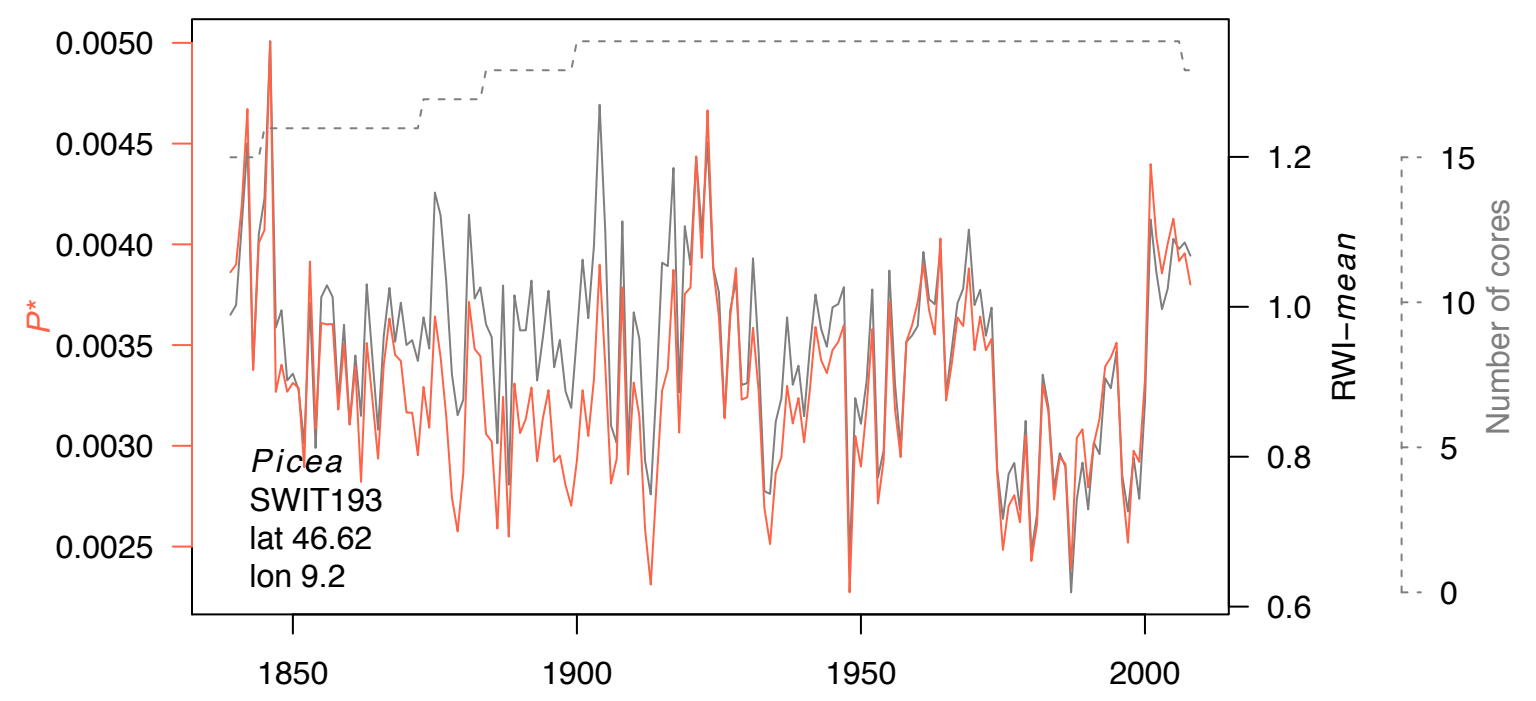

P*
0.0055
0.0050
0.0045
0.0040
0.0035
0.0030
0.0025
RWI–mean
1.2
1.1
1.0
0.9
0.8
0.7
0.6
Number of cores
12
10
8
6
4
2
0
1920
1940
1960
1980
2000
Picea
SWIT186
lat 46.63
lon 9.78

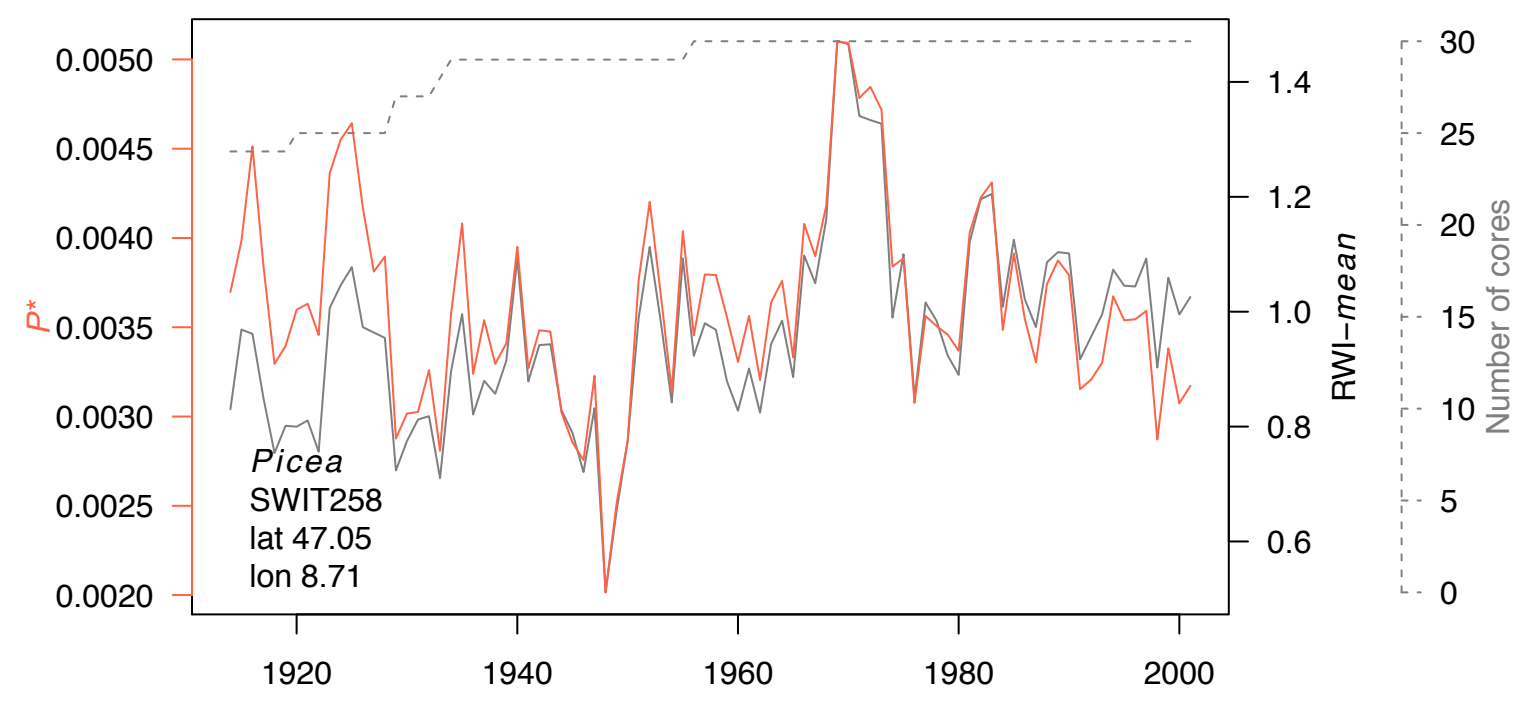

P*
0.00018
0.00016
0.00014
0.00012
0.00010
0.00008
RWI–mean
1.2
1.0
0.8
0.6
Number of cores
15
10
5
0
1850
1900
1950
2000
Picea
CO633
lat 40.55
lon –105.83

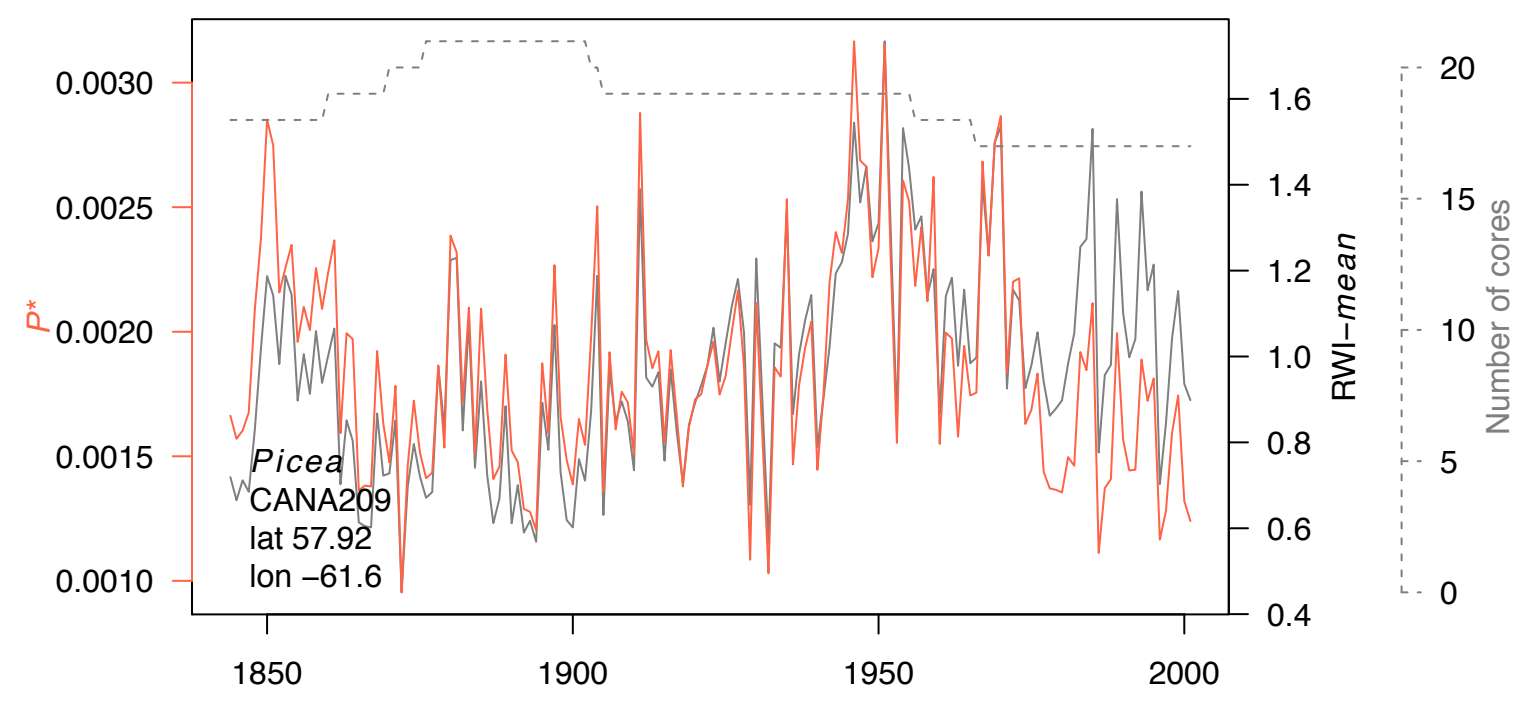

P*
0.008
0.007
0.006
0.005
0.004
RWI–mean
1.2
1.0
0.8
0.6
Number of cores
15
10
5
0
1900
1920
1940
1960
1980
2000
Picea
SWIT179
lat 46.77
lon 9.82

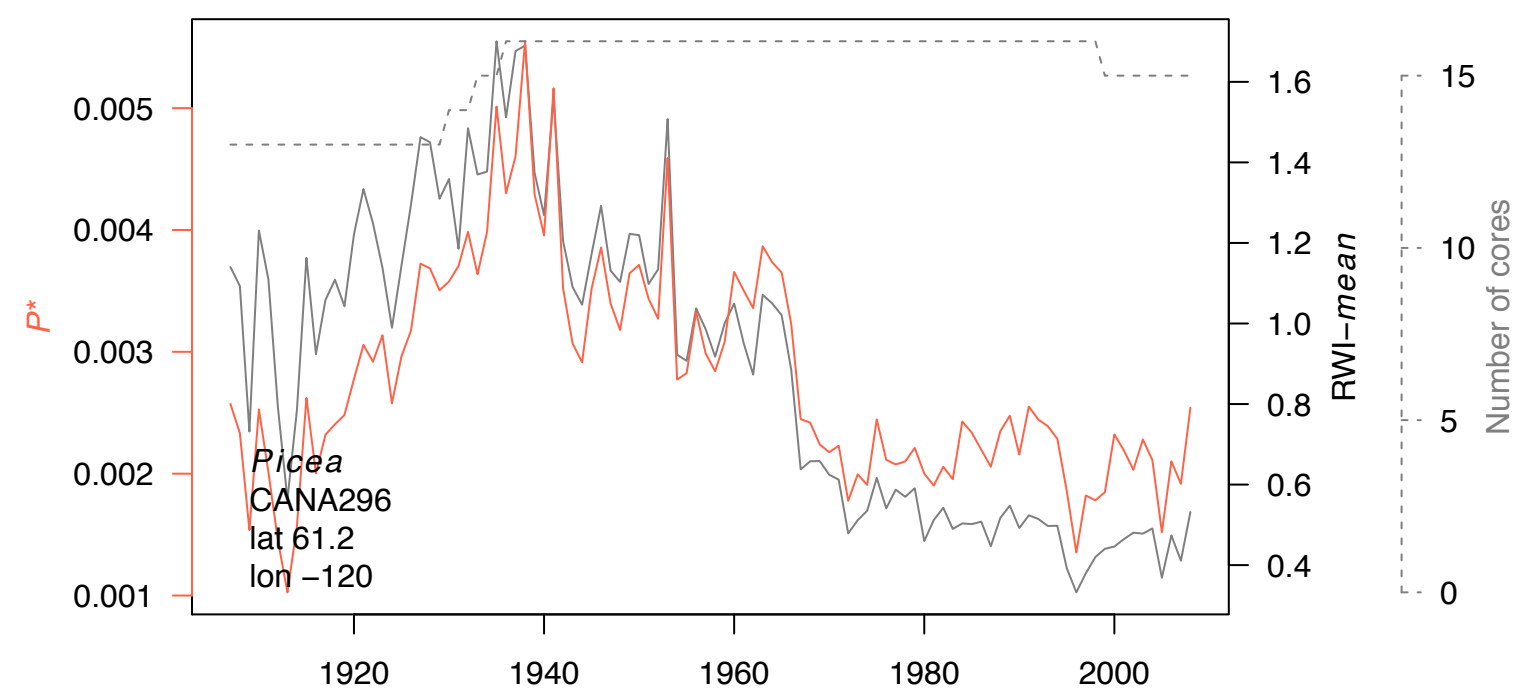

P*
0.010
0.009
0.008
0.007
0.006
0.005
RWI–mean
1.6
1.4
1.2
1.0
0.8
Number of cores
20
15
10
5
0
Picea
SWIT189
lat 47.03
lon 9.07
1880
1900
1920
1940
1960
1980
2000

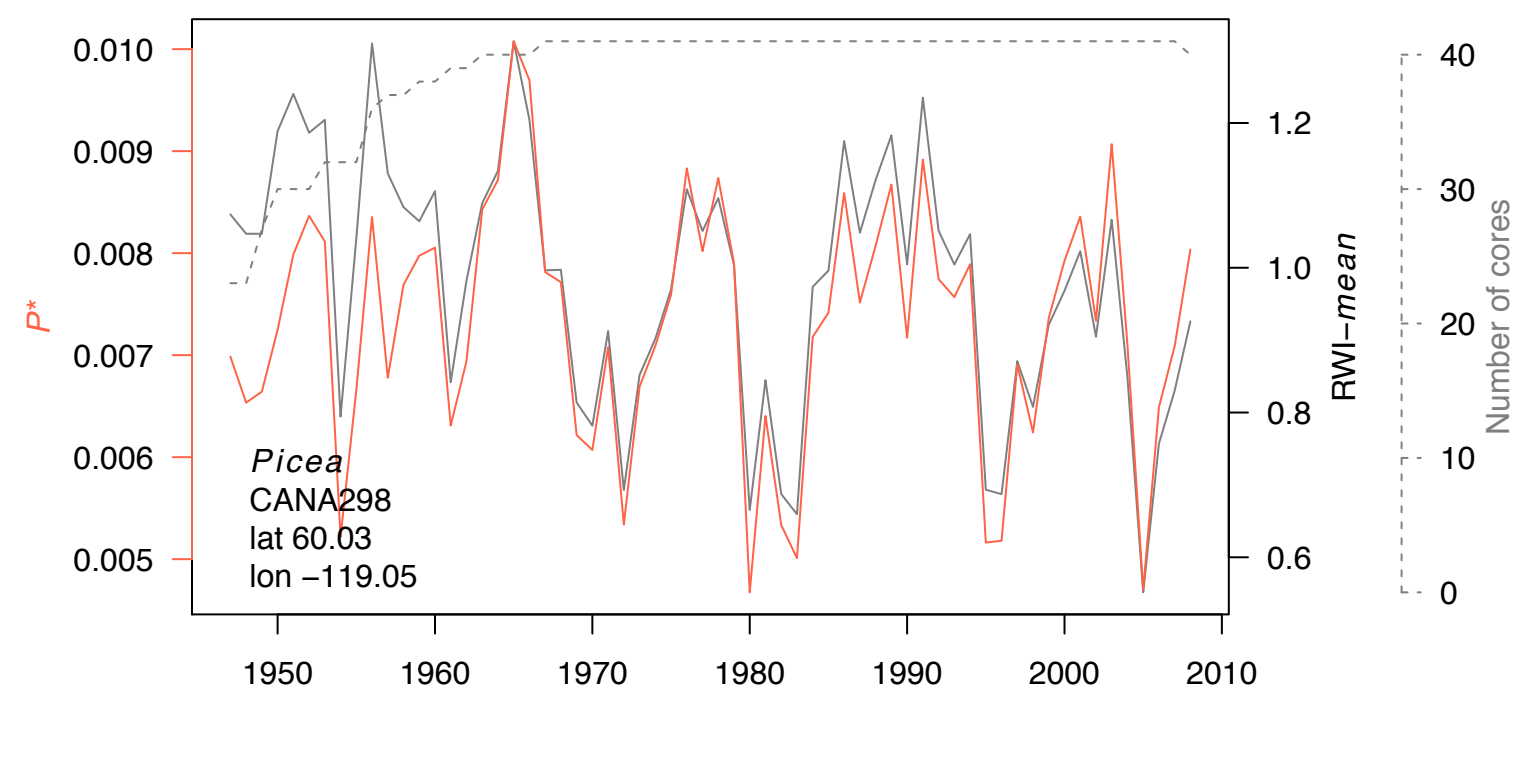

0.008
0.007
0.006
0.005
0.004
P*
1.4
1.2
1.0
0.8
0.6
RWI–mean
25
20
15
10
5
0
Number of cores
Picea
SWIT279
lat 46.59
lon 7.98
1850
1900
1950
2000

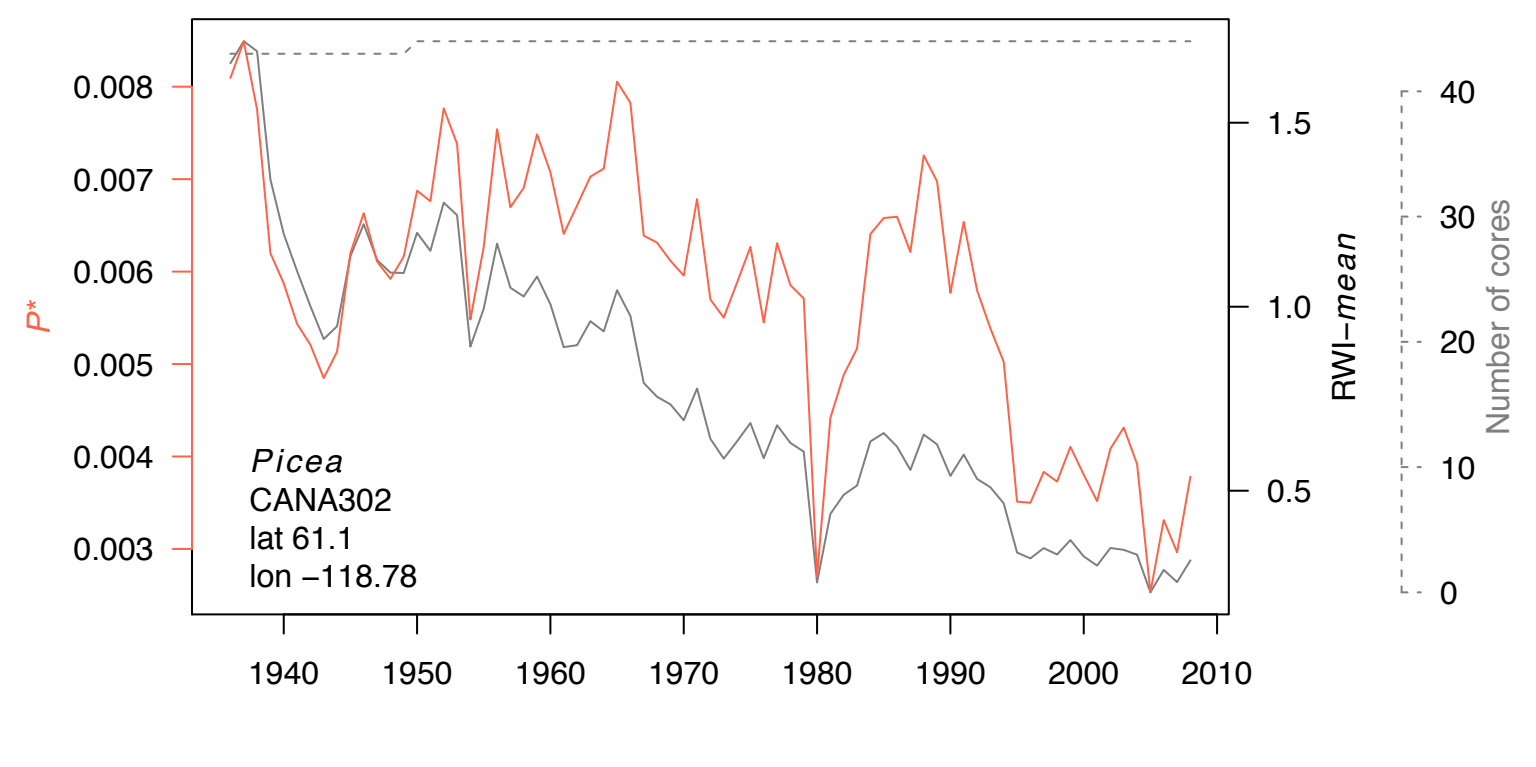

0.0050
0.0045
0.0040
0.0035
0.0030
0.0025
P*
1.2
1.0
0.8
0.6
RWI–mean
15
10
5
0
Number of cores
1850
1900
1950
2000
Picea
SWIT193
lat 46.62
lon 9.2

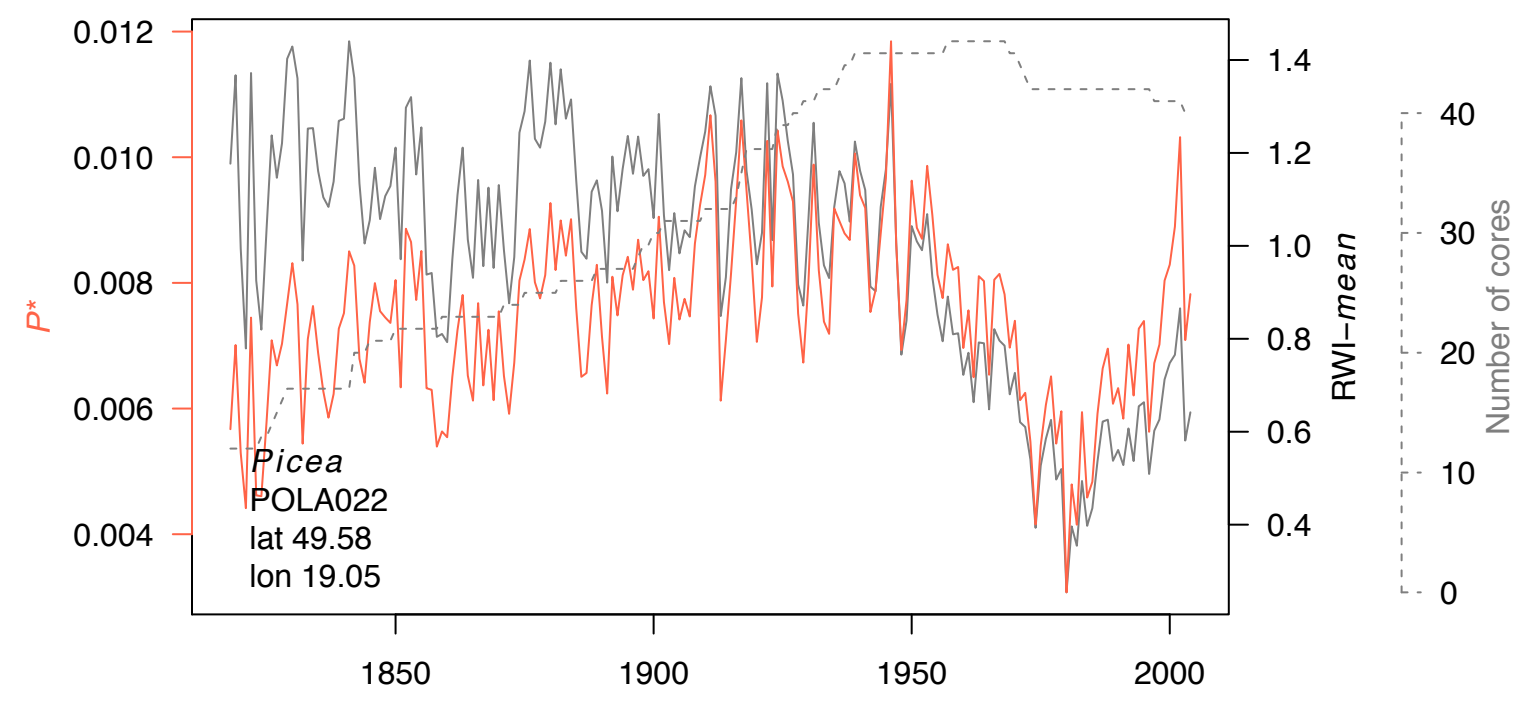

P*
0.0050
0.0045
0.0040
0.0035
0.0030
0.0025
0.0020
RWI–mean
1.4
1.2
1.0
0.8
0.6
Number of cores
30
25
20
15
10
5
0
1920
1940
1960
1980
2000
Picea
SWIT258
lat 47.05
lon 8.71

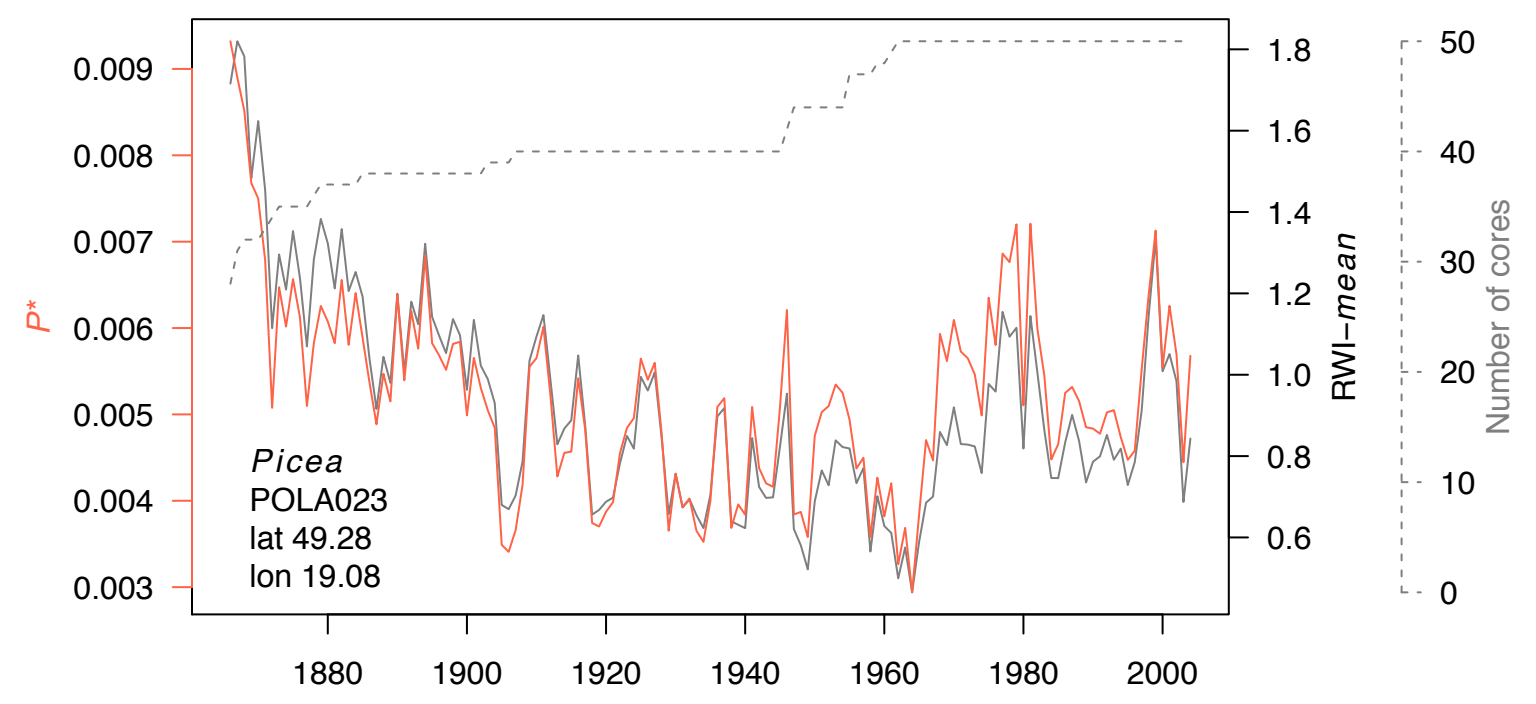

P*
0.0030
0.0025
0.0020
0.0015
0.0010
RWI–mean
1.6
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
20
15
10
5
0
1850
1900
1950
2000
Picea
CANA209
lat 57.92
lon –61.6

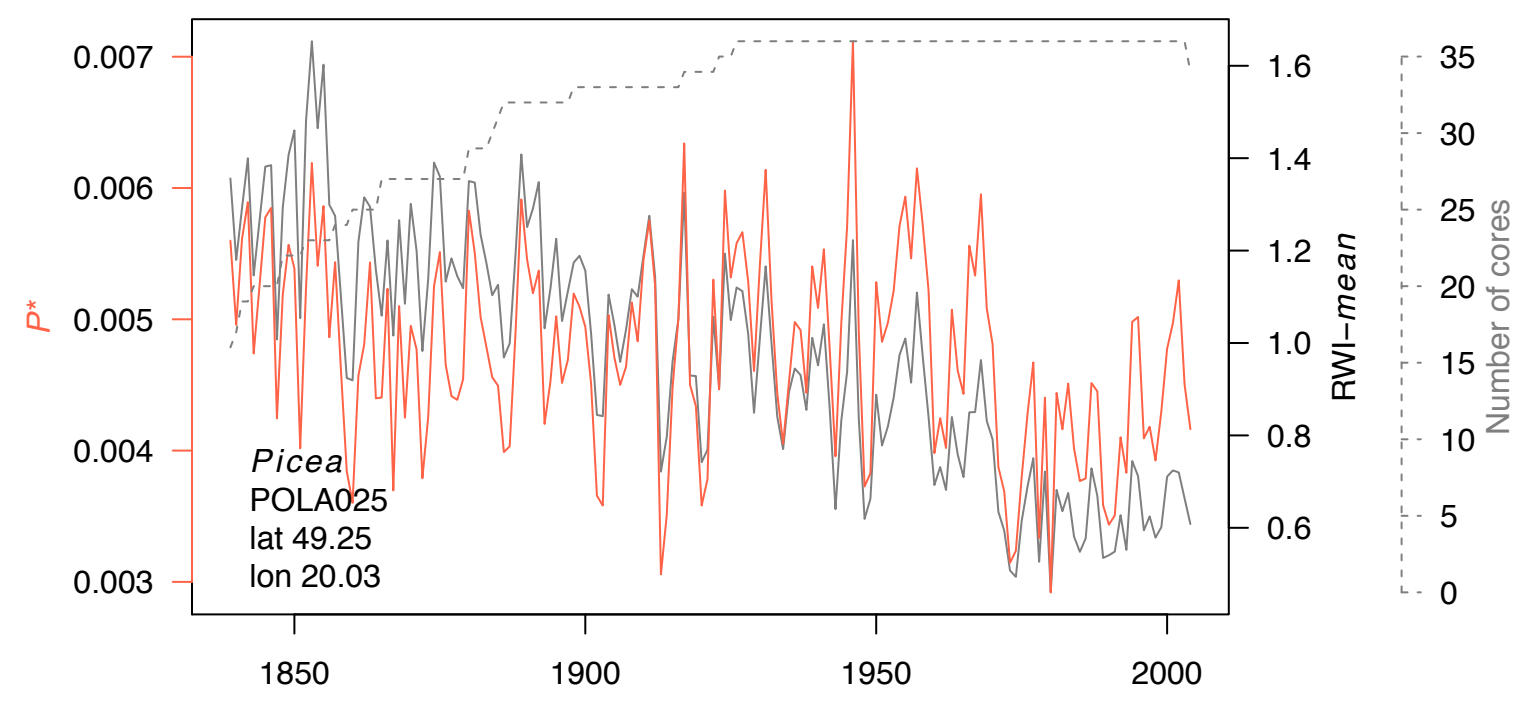

P*
0.005
0.004
0.003
0.002
0.001
Picea
CANA296
lat 61.2
lon −120
1920
1940
1960
1980
2000
RWI–mean
1.6
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
15
10
5
0

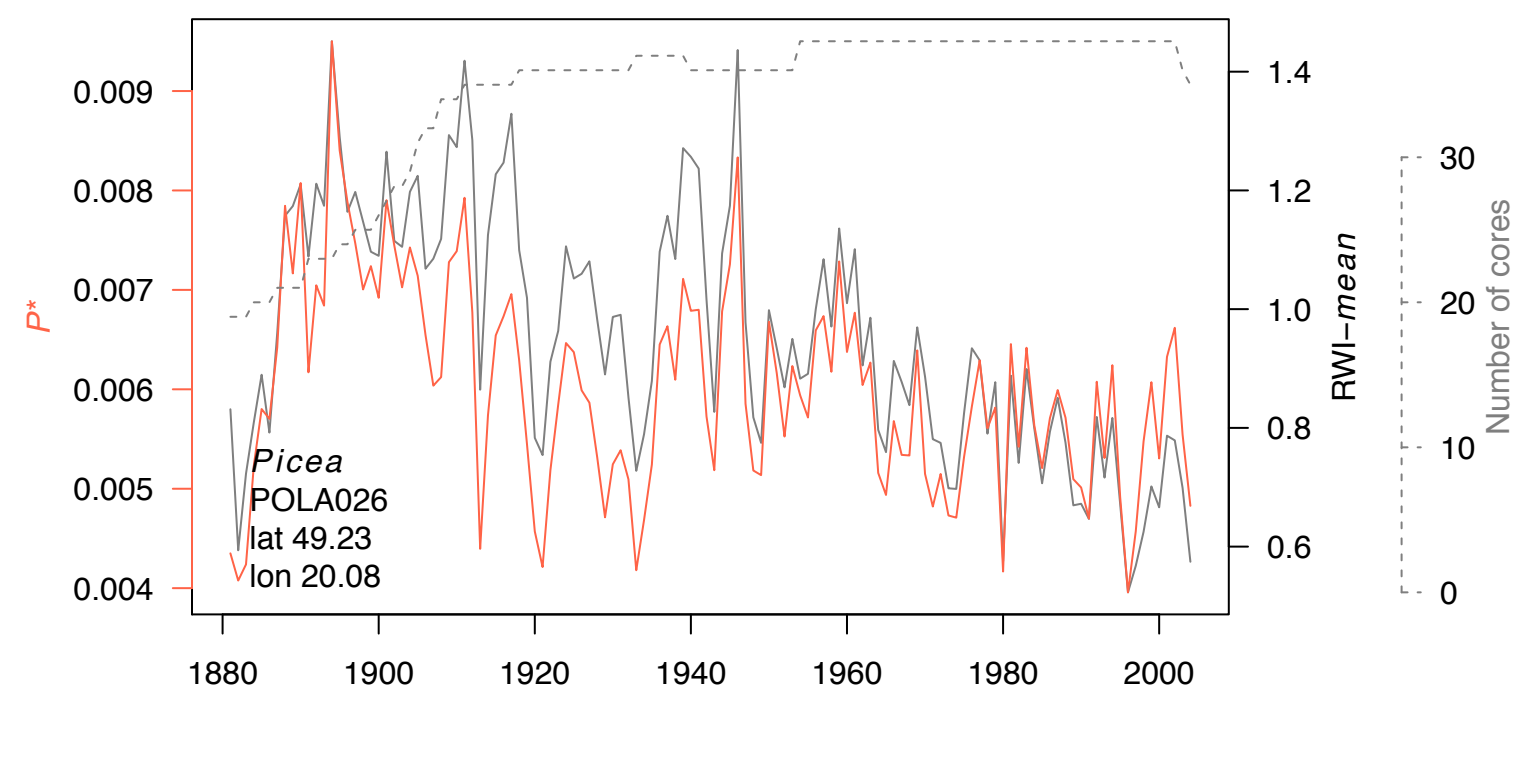

P*
0.010
0.009
0.008
0.007
0.006
0.005
RWI–mean
1.2
1.0
0.8
0.6
Number of cores
40
30
20
10
0
Picea
CANA298
lat 60.03
lon –119.05
1950
1960
1970
1980
1990
2000
2010

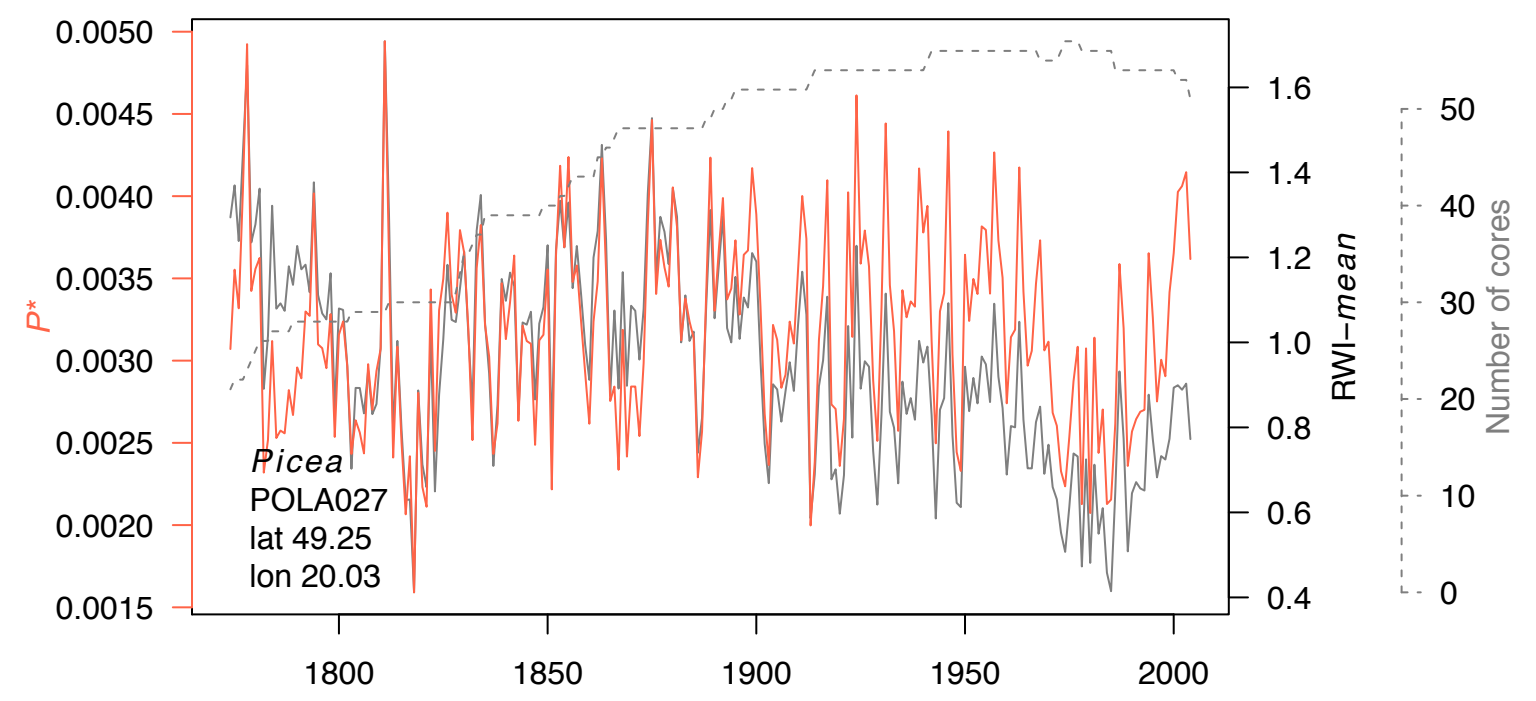

P*
0.008
0.007
0.006
0.005
0.004
0.003
Picea
CANA302
lat 61.1
lon −118.78
1940
1950
1960
1970
1980
1990
2000
2010
1.5
1.0
0.5
RWI–mean
40
30
20
10
0
Number of cores

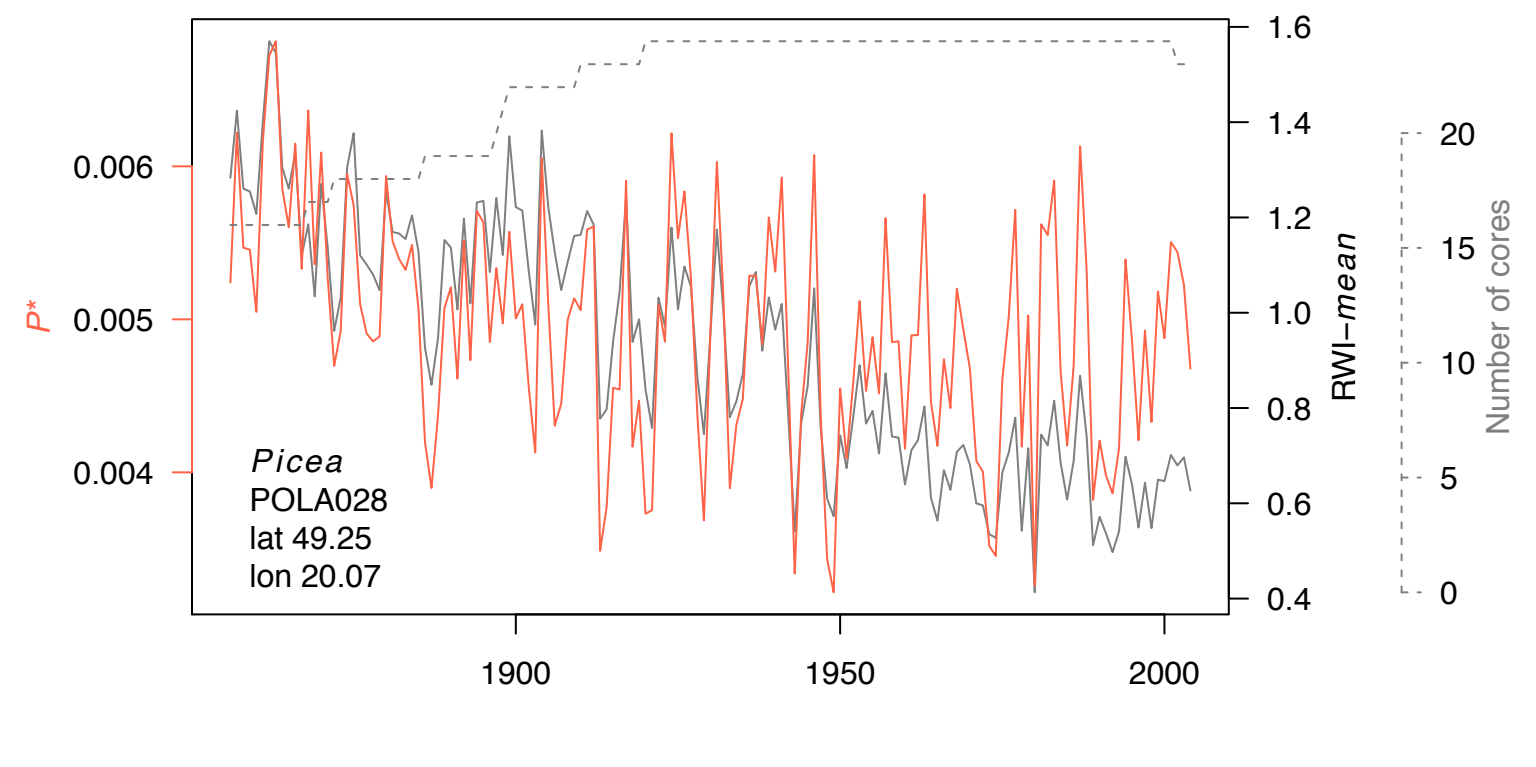

0.012
0.010
0.008
0.006
0.004
P*
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
40
30
20
10
0
Number of cores
Picea
POLA022
lat 49.58
lon 19.05
1850
1900
1950
2000

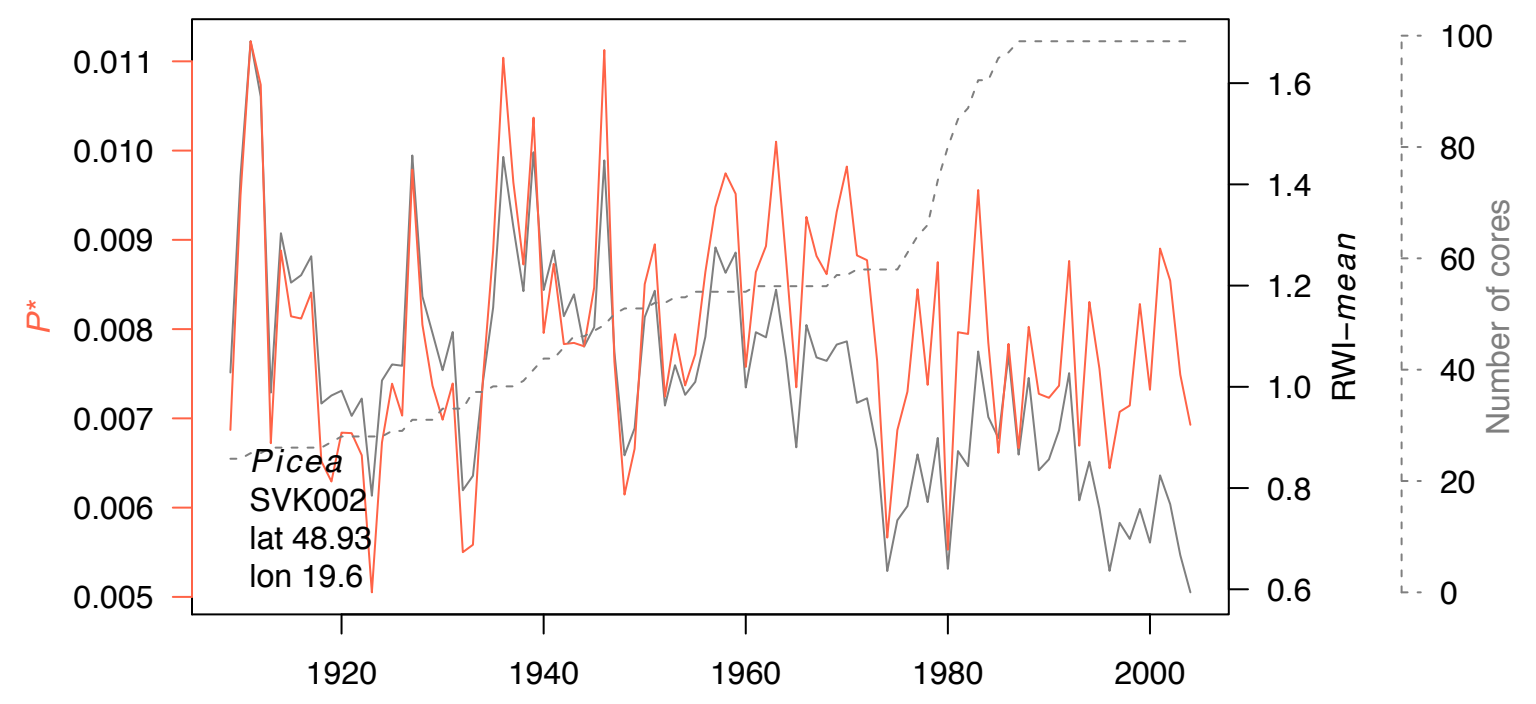

P*
0.009
0.008
0.007
0.006
0.005
0.004
0.003
Picea
POLA023
lat 49.28
lon 19.08
1880
1900
1920
1940
1960
1980
2000
1.8
1.6
1.4
1.2
1.0
0.8
0.6
RWI–mean
50
40
30
20
10
0
Number of cores

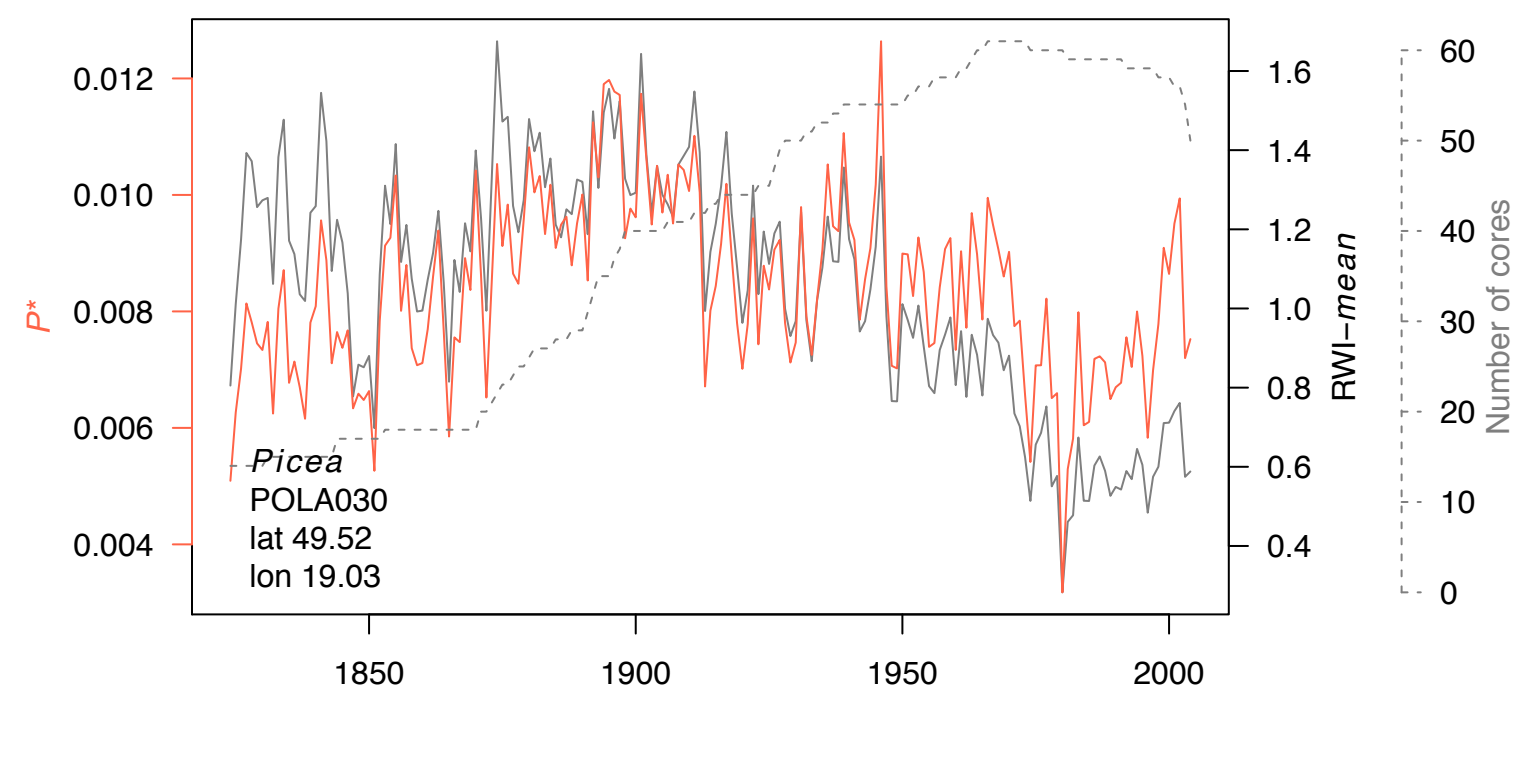

P*
0.007
0.006
0.005
0.004
0.003
RWI–mean
1.6
1.4
1.2
1.0
0.8
0.6
Number of cores
35
30
25
20
15
10
5
0
1850
1900
1950
2000
Picea
POLA025
lat 49.25
lon 20.03

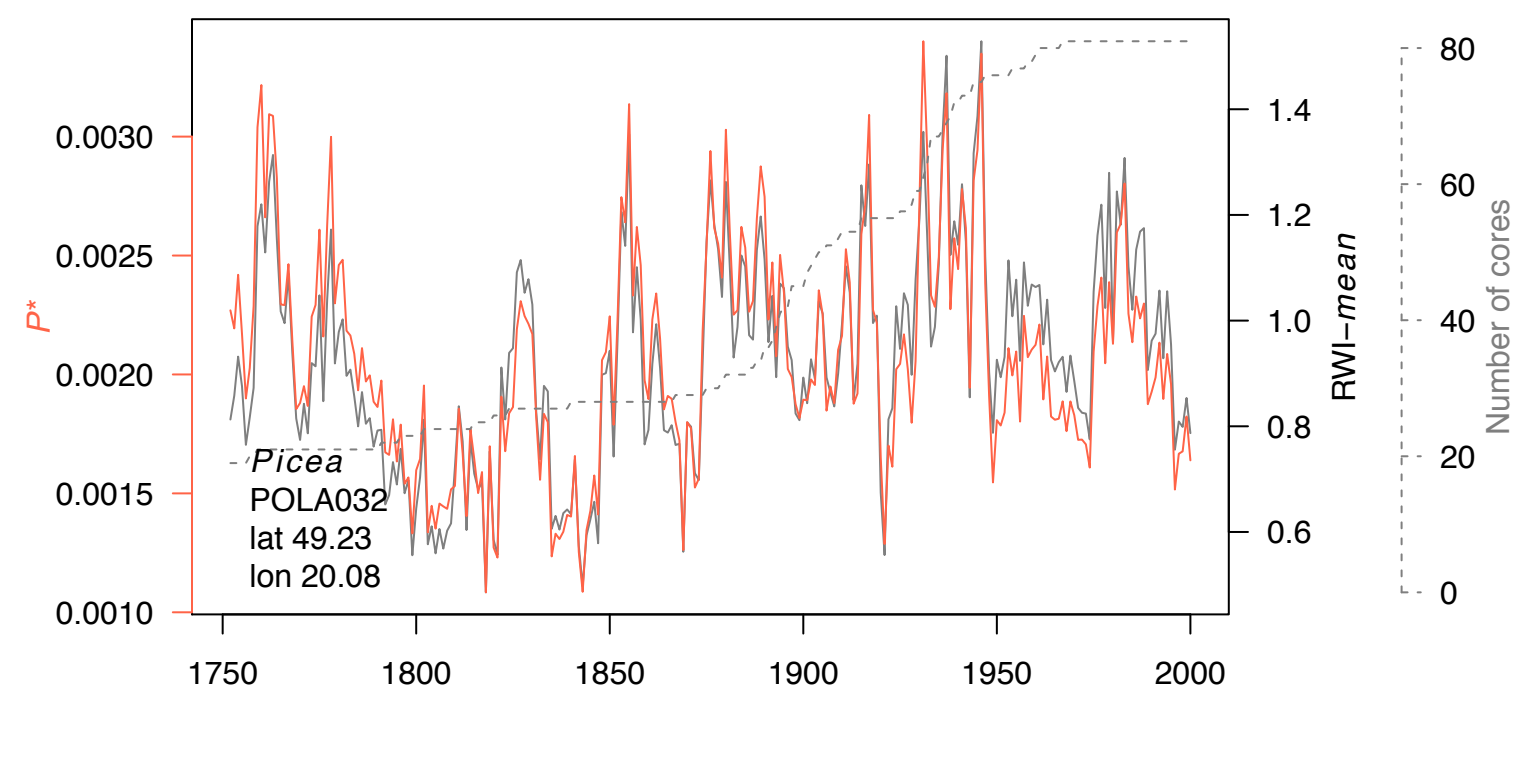

P*
0.009
0.008
0.007
0.006
0.005
0.004
Picea
POLA026
lat 49.23
lon 20.08
1880
1900
1920
1940
1960
1980
2000
1.4
1.2
1.0
0.8
0.6
RWI–mean
30
20
10
0
Number of cores

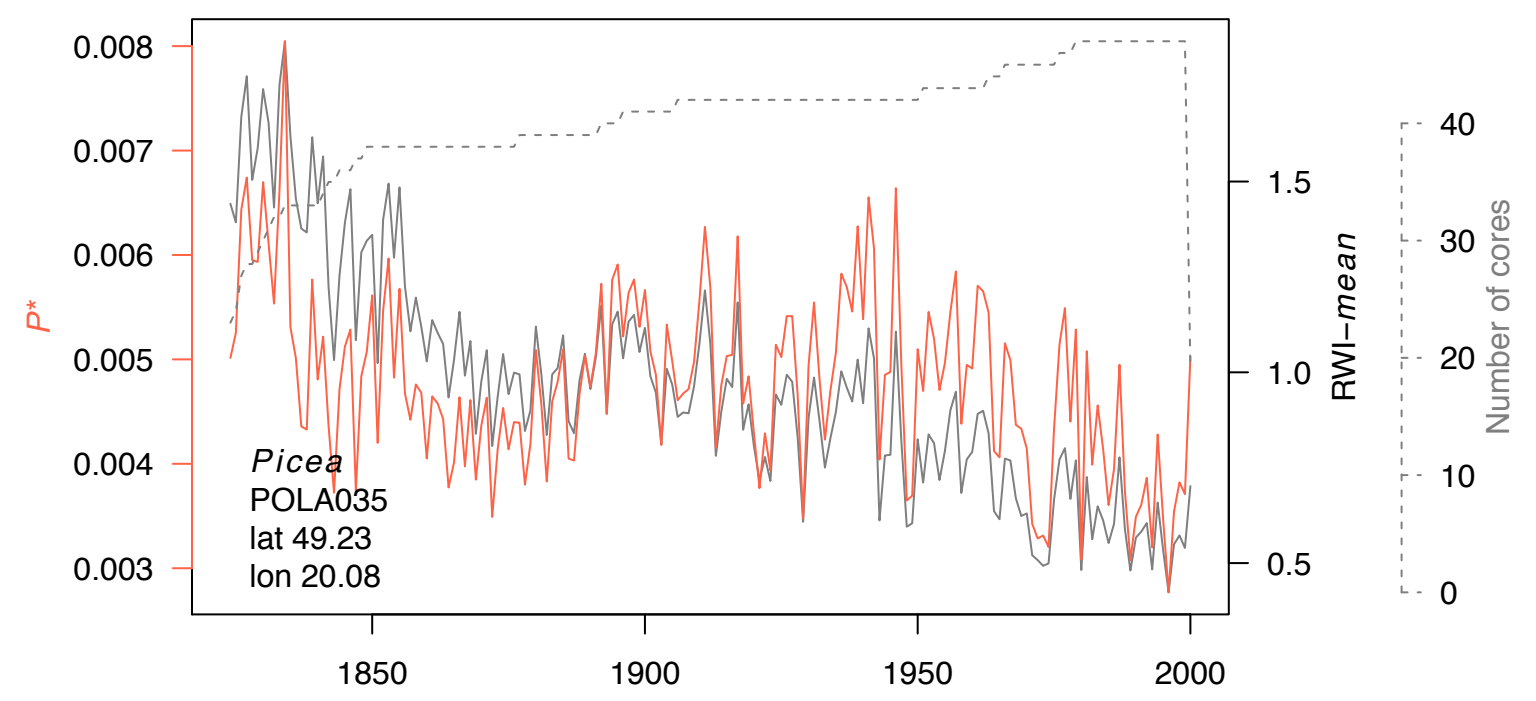

P*
0.0050
0.0045
0.0040
0.0035
0.0030
0.0025
0.0020
0.0015
RWI–mean
1.6
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
50
40
30
20
10
0
1800
1850
1900
1950
2000
Picea
POLA027
lat 49.25
lon 20.03

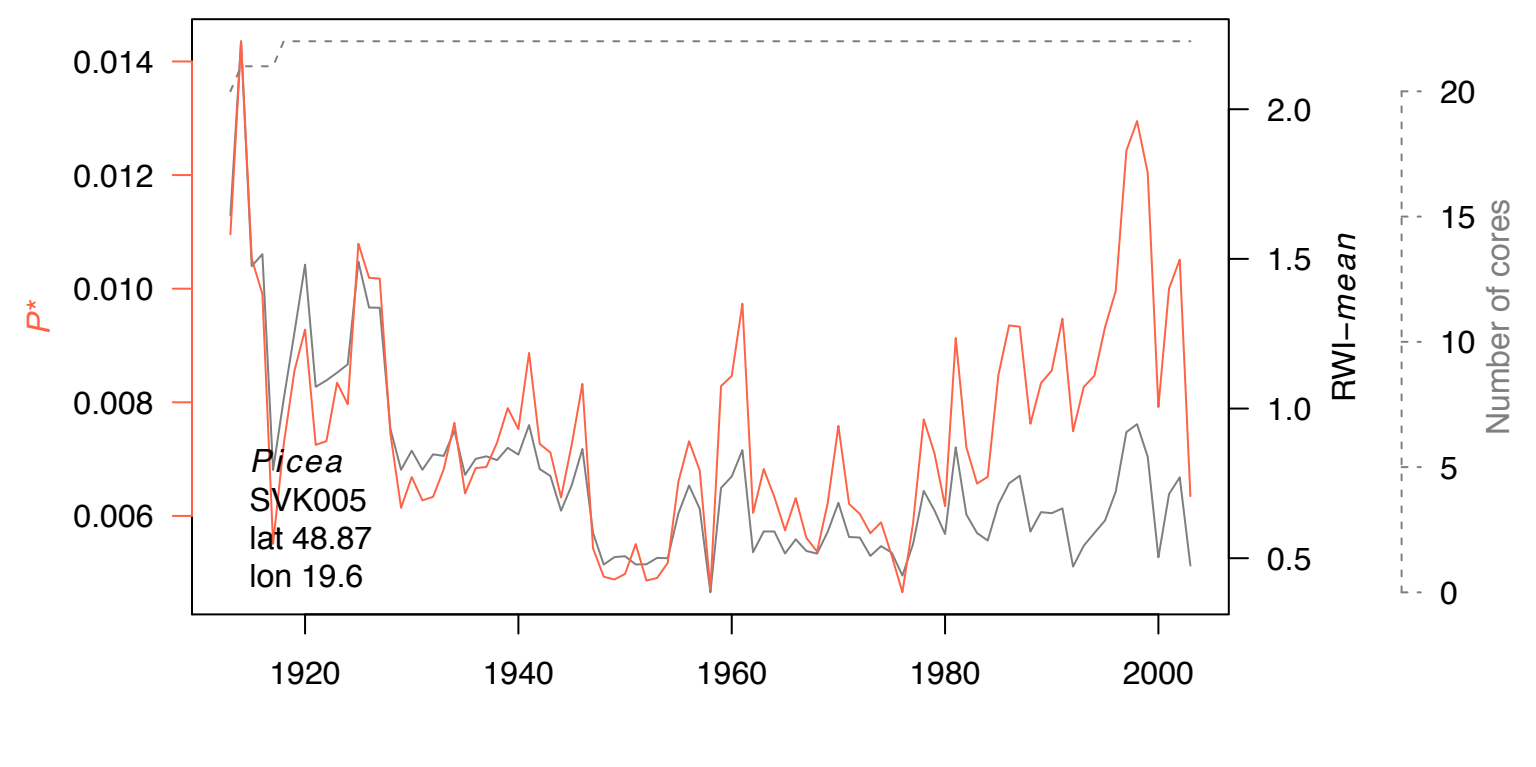

P*
0.006
0.005
0.004
Picea
POLA028
lat 49.25
lon 20.07
1900
1950
2000
1.6
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
20
15
10
5
0
Number of cores

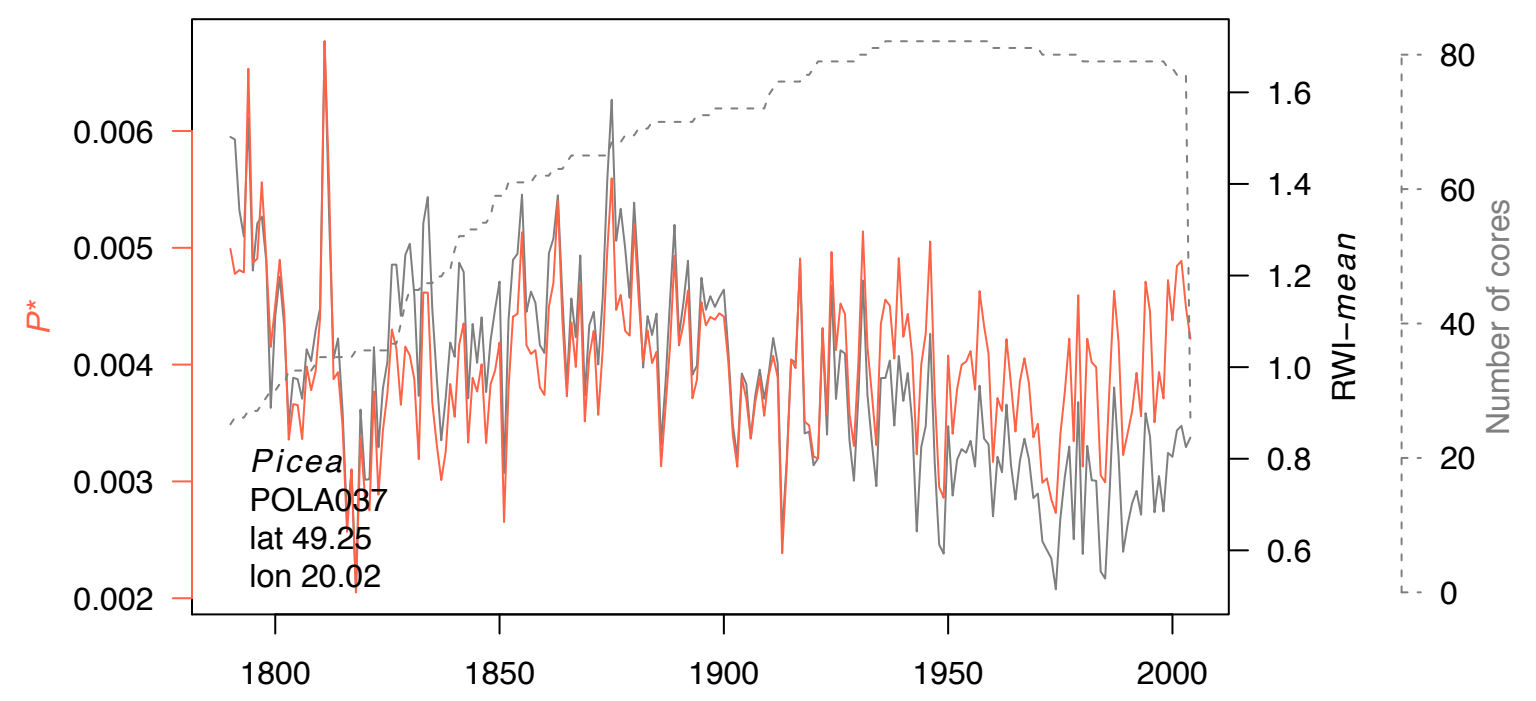

P*
0.011
0.010
0.009
0.008
0.007
0.006
0.005
RWI–mean
1.6
1.4
1.2
1.0
0.8
0.6
Number of cores
100
80
60
40
20
0
1920
1940
1960
1980
2000
Picea
SVK002
lat 48.93
lon 19.6

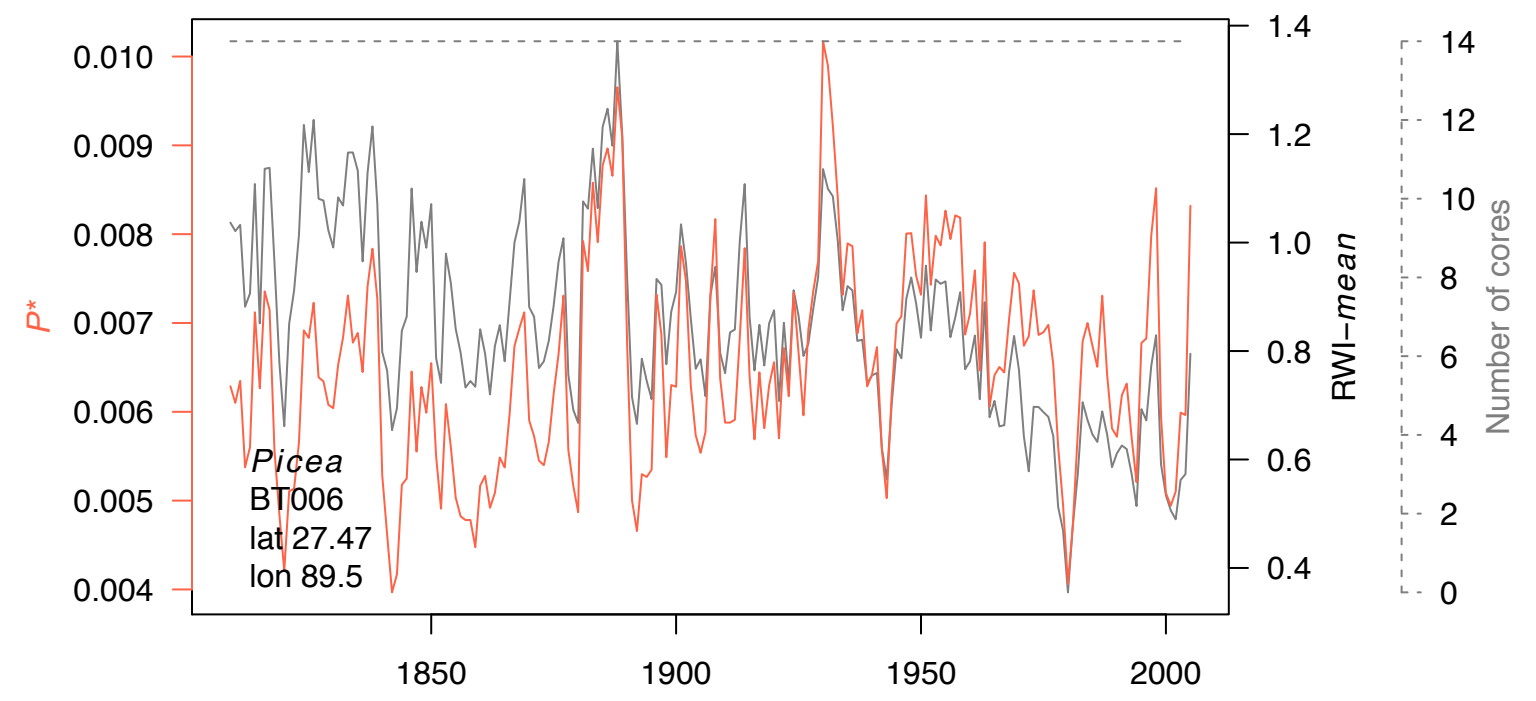

P*
0.012
0.010
0.008
0.006
0.004
RWI–mean
1.6
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
60
50
40
30
20
10
0
1850
1900
1950
2000
Picea
POLA030
lat 49.52
lon 19.03

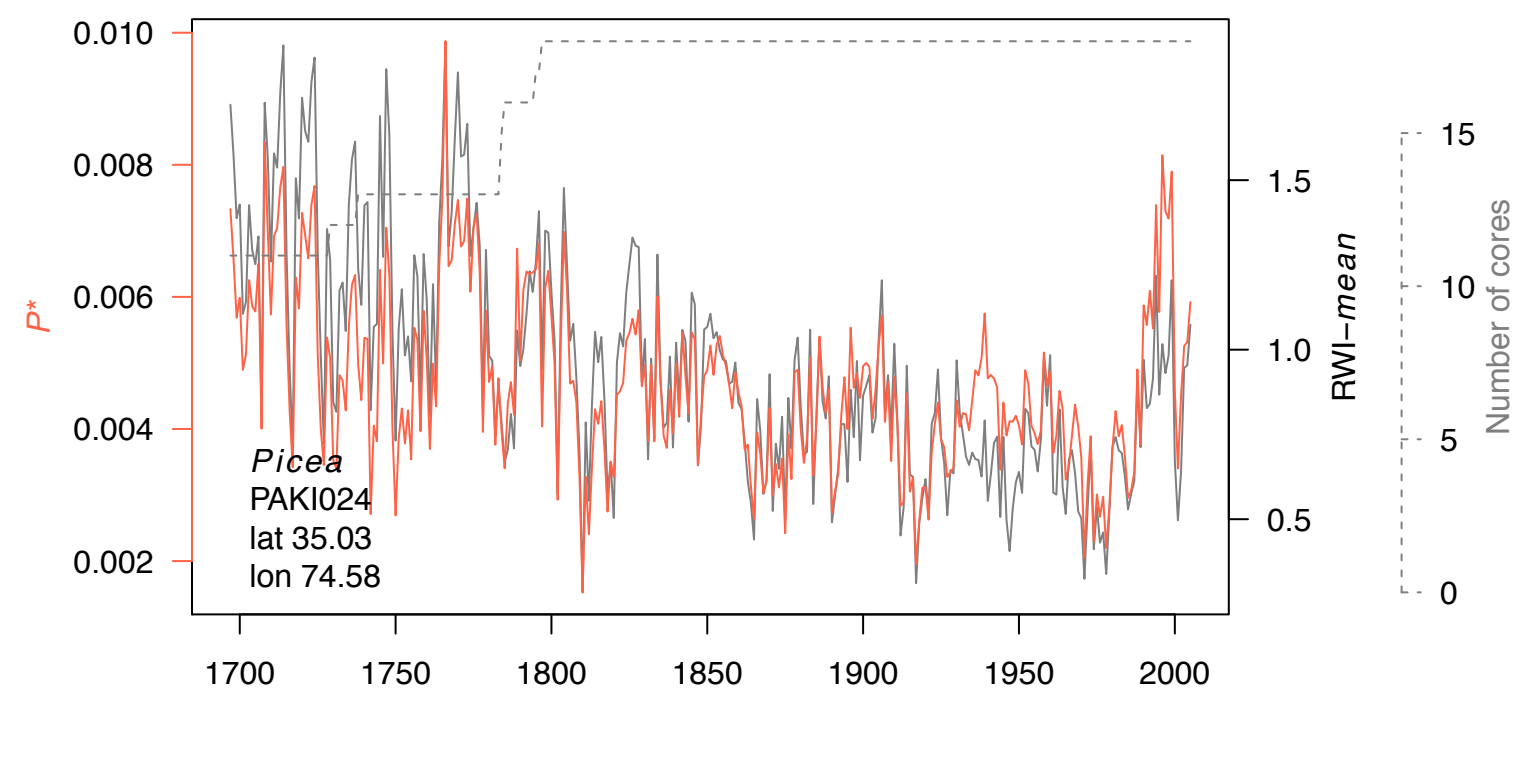

P*
0.0030
0.0025
0.0020
0.0015
0.0010
RWI–mean
1.4
1.2
1.0
0.8
0.6
Number of cores
80
60
40
20
0
1750
1800
1850
1900
1950
2000
Picea
POLA032
lat 49.23
lon 20.08

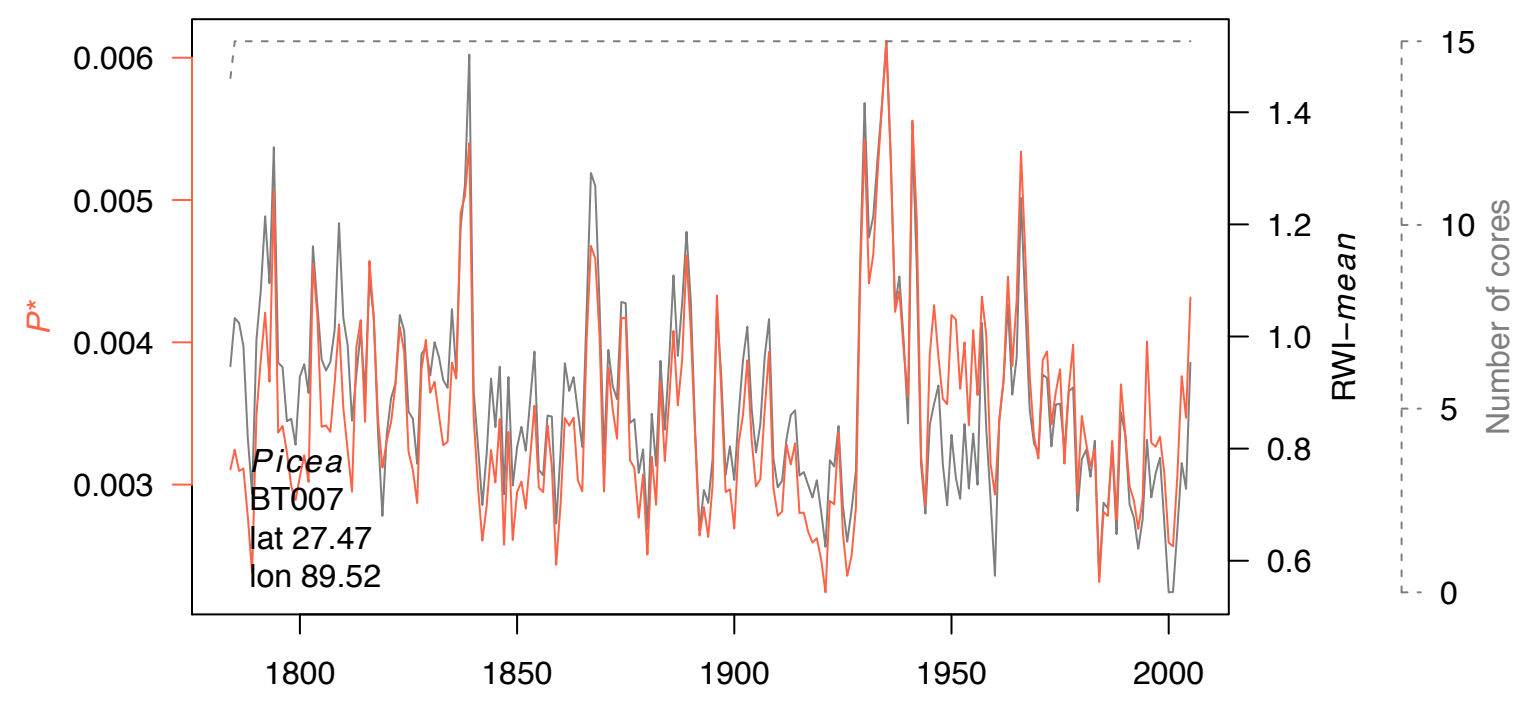

0.008
0.007
0.006
0.005
0.004
0.003
P*
1.5
1.0
0.5
RWI–mean
40
30
20
10
0
Number of cores
Picea
POLA035
lat 49.23
lon 20.08
1850
1900
1950
2000

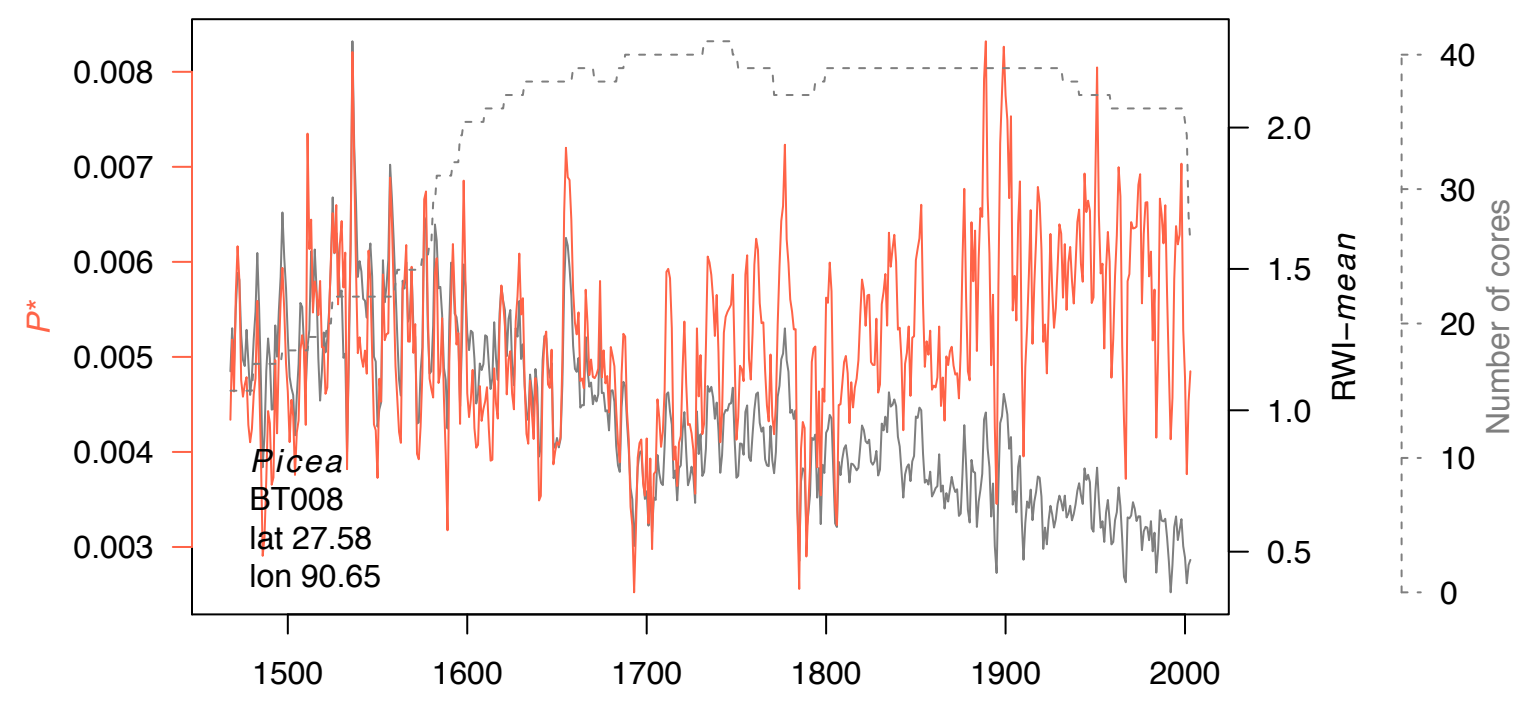

P*
0.014
0.012
0.010
0.008
0.006
RWI–mean
2.0
1.5
1.0
0.5
Number of cores
20
15
10
5
0
Picea
SVK005
lat 48.87
lon 19.6
1920
1940
1960
1980
2000

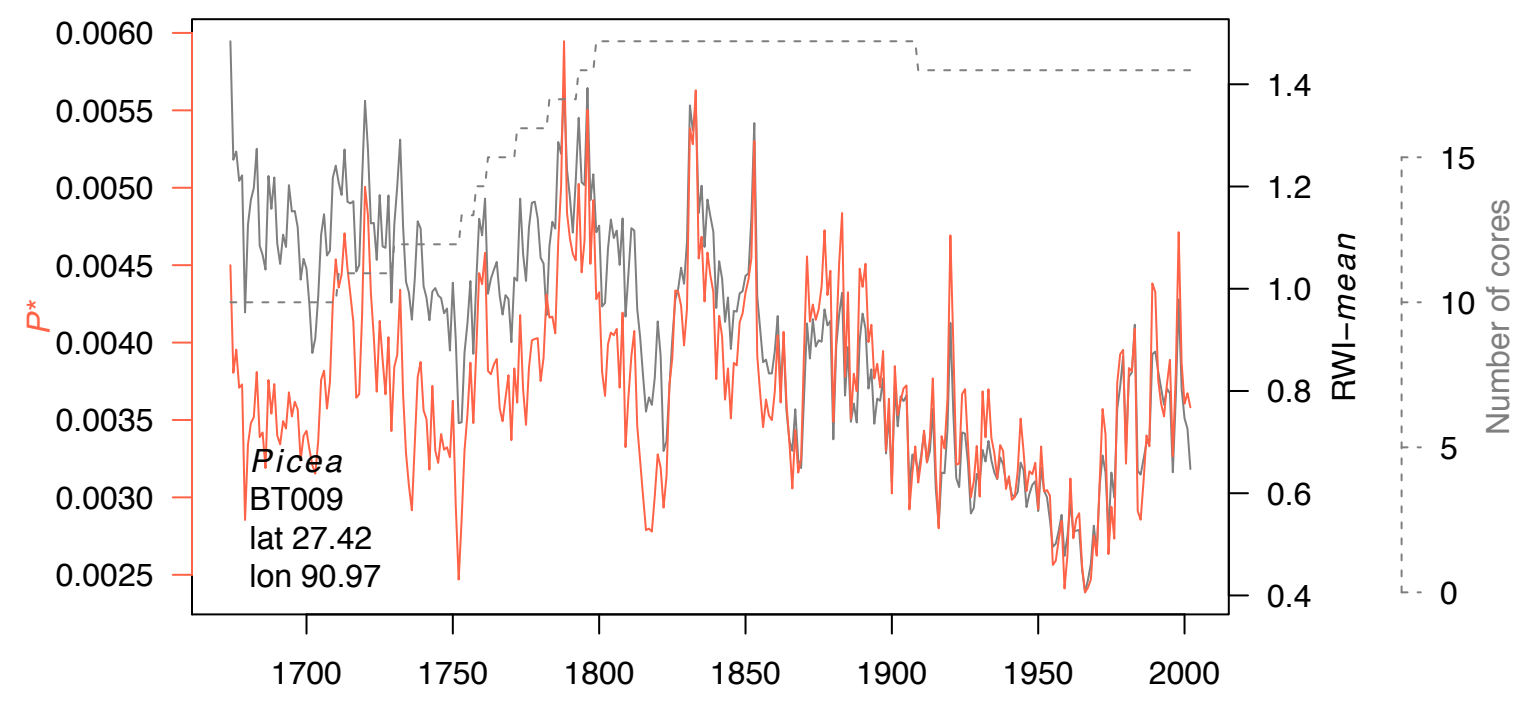

P*
0.006
0.005
0.004
0.003
0.002
RWI–mean
1.6
1.4
1.2
1.0
0.8
0.6
Number of cores
80
60
40
20
0
1800
1850
1900
1950
2000
Picea
POLA037
lat 49.25
lon 20.02

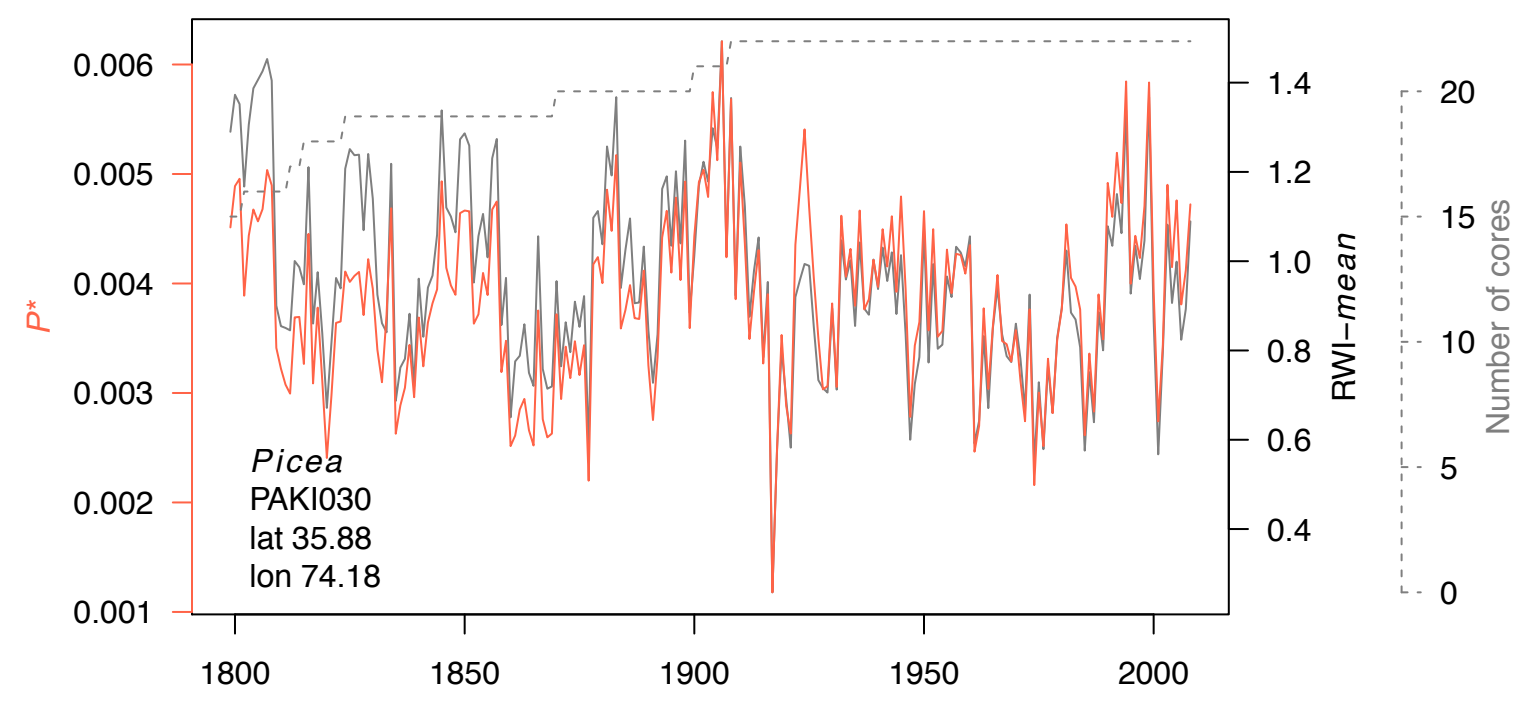

P*
0.010
0.009
0.008
0.007
0.006
0.005
0.004
Picea
BT006
lat 27.47
lon 89.5
1850
1900
1950
2000
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
14
12
10
8
6
4
2
0
Number of cores

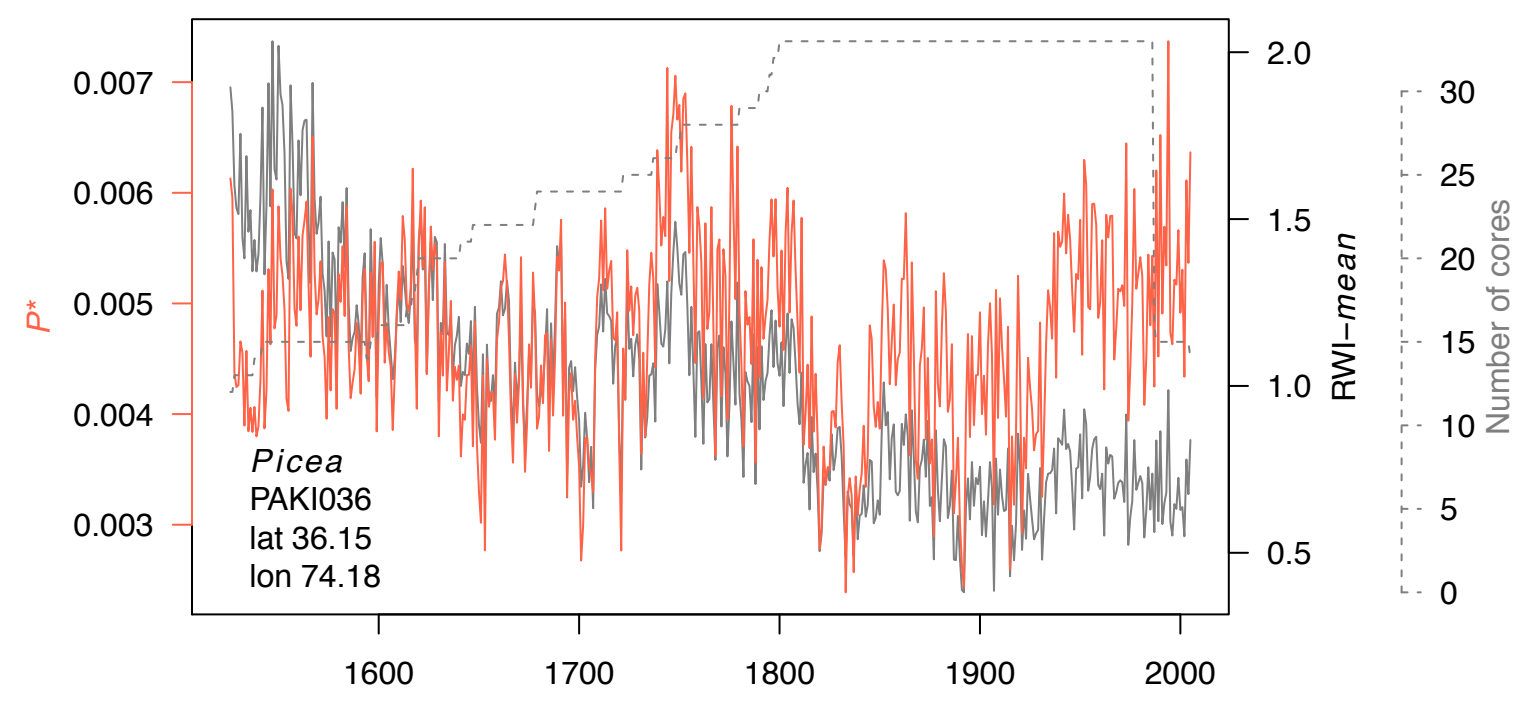

0.010
0.008
0.006
0.004
0.002
P*
1.5
1.0
0.5
RWI–mean
15
10
5
0
Number of cores
Picea
PAKI024
lat 35.03
lon 74.58
1700
1750
1800
1850
1900
1950
2000

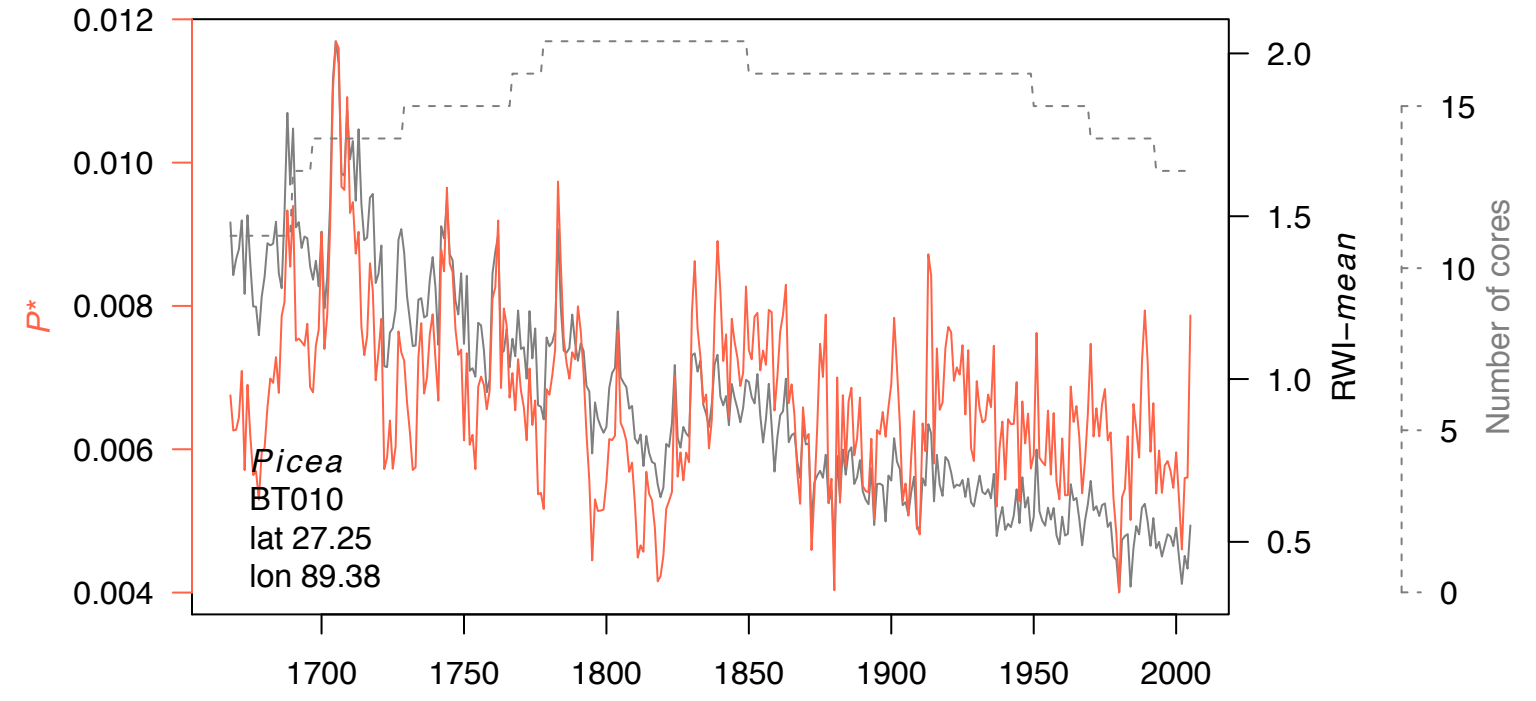

P*
0.006
0.005
0.004
0.003
RWI–mean
1.4
1.2
1.0
0.8
0.6
Number of cores
15
10
5
0
Picea
BT007
lat 27.47
lon 89.52
1800
1850
1900
1950
2000

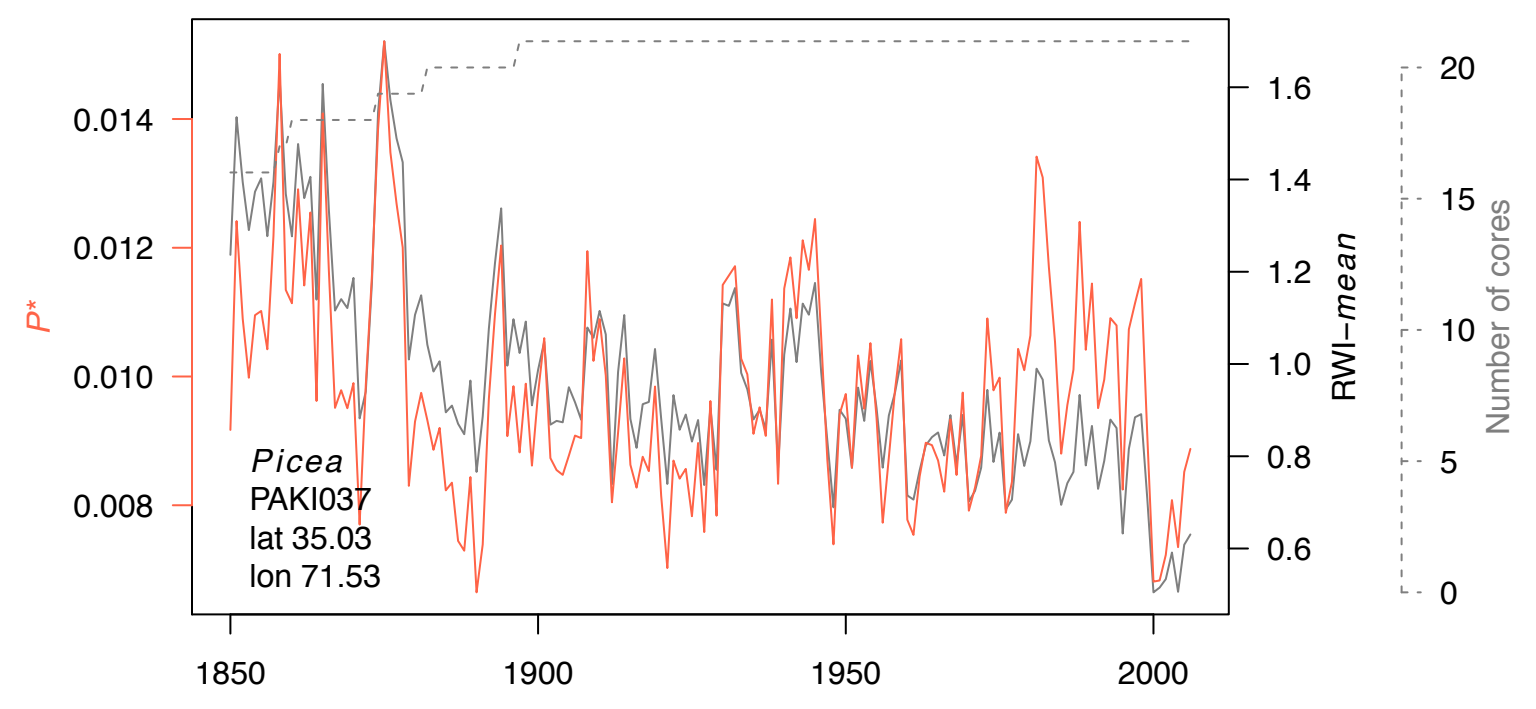

P*
0.008
0.007
0.006
0.005
0.004
0.003
RWI–mean
2.0
1.5
1.0
0.5
Number of cores
40
30
20
10
0
Picea
BT008
lat 27.58
lon 90.65
1500
1600
1700
1800
1900
2000

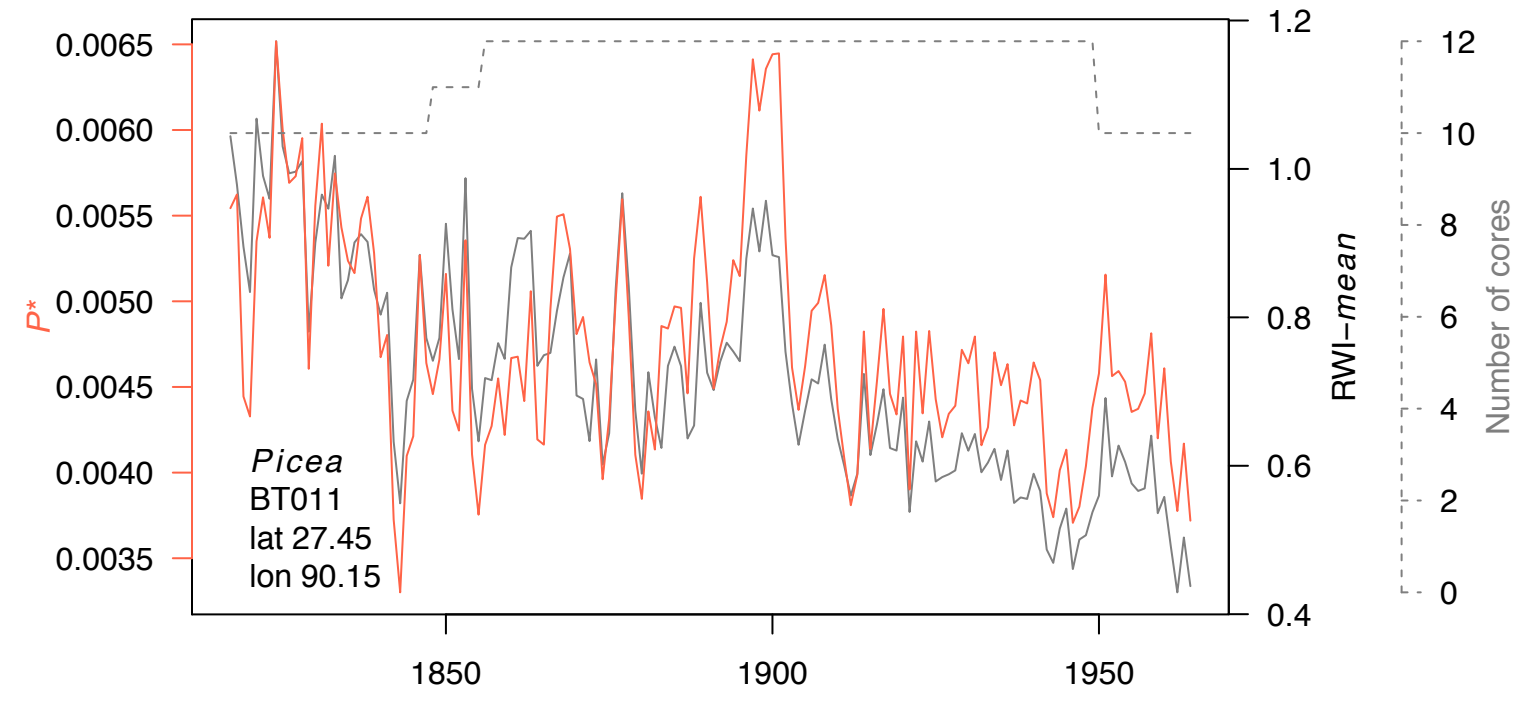

P*
0.0060
0.0055
0.0050
0.0045
0.0040
0.0035
0.0030
0.0025
Picea
BT009
lat 27.42
lon 90.97
1700
1750
1800
1850
1900
1950
2000
RWI–mean
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
15
10
5
0

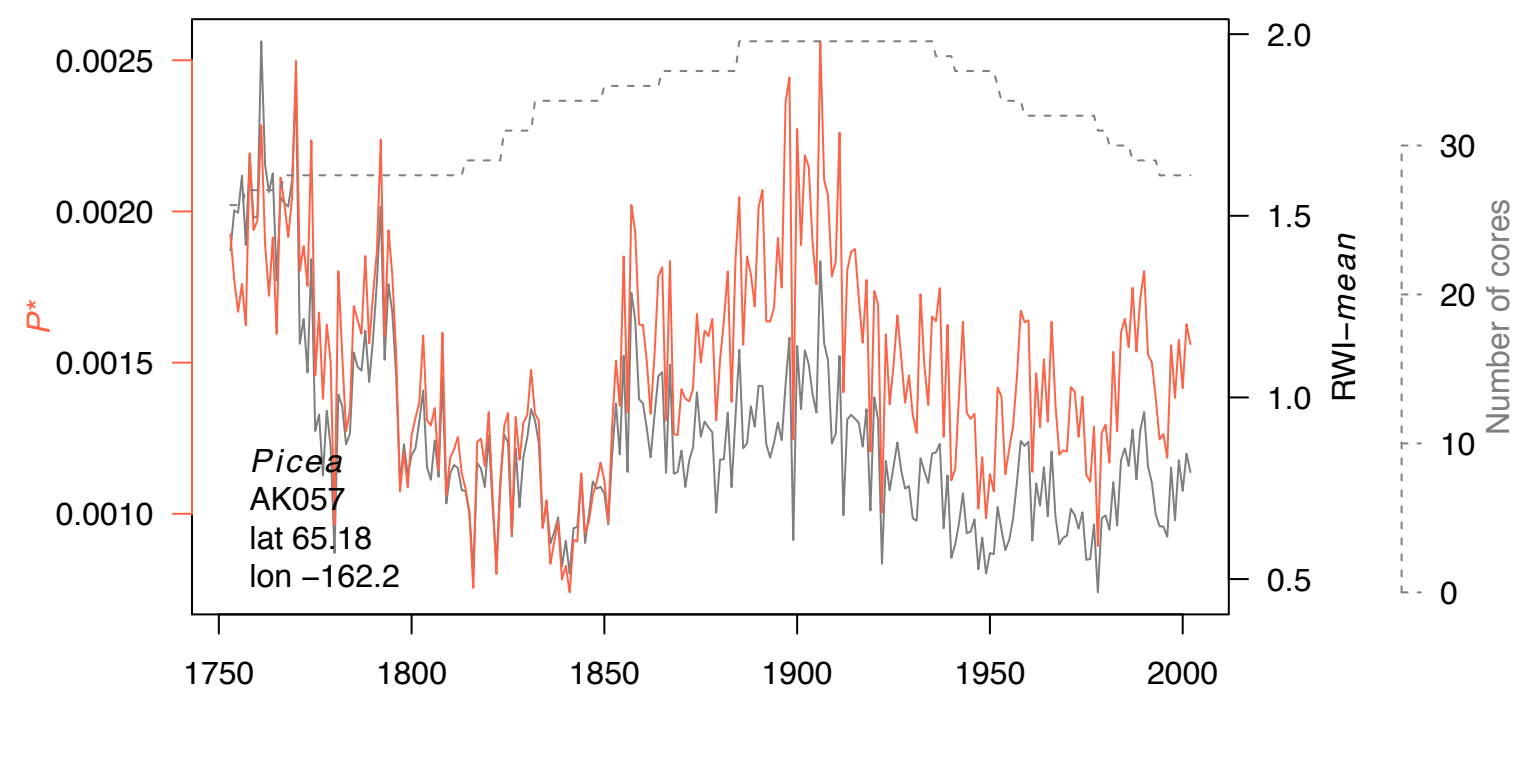

P*
0.006
0.005
0.004
0.003
0.002
0.001
Picea
PAKI030
lat 35.88
lon 74.18
1800
1850
1900
1950
2000
RWI–mean
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
20
15
10
5
0

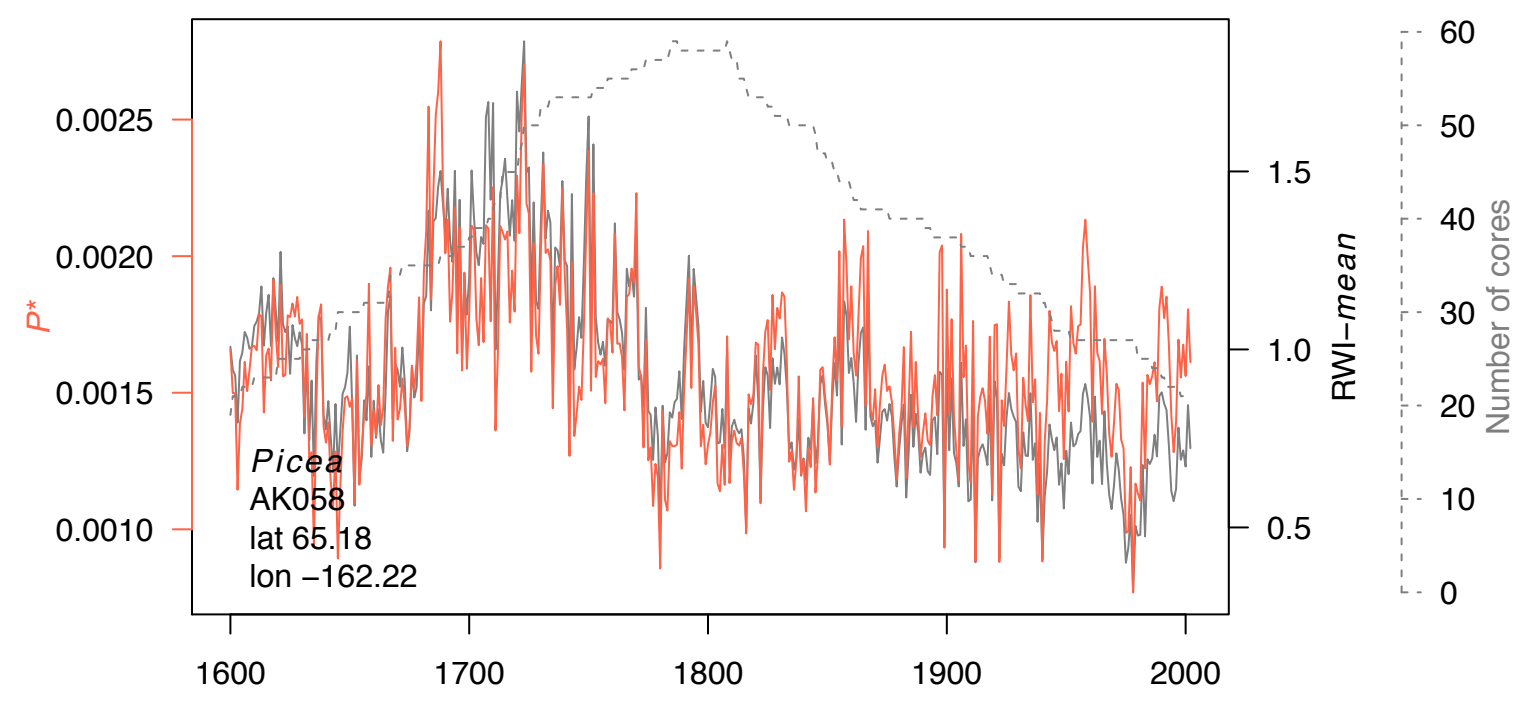

P*
0.007
0.006
0.005
0.004
0.003
Picea
PAKI036
lat 36.15
lon 74.18
2.0
1.5
1.0
0.5
RWI–mean
30
25
20
15
10
5
0
Number of cores
1600
1700
1800
1900
2000

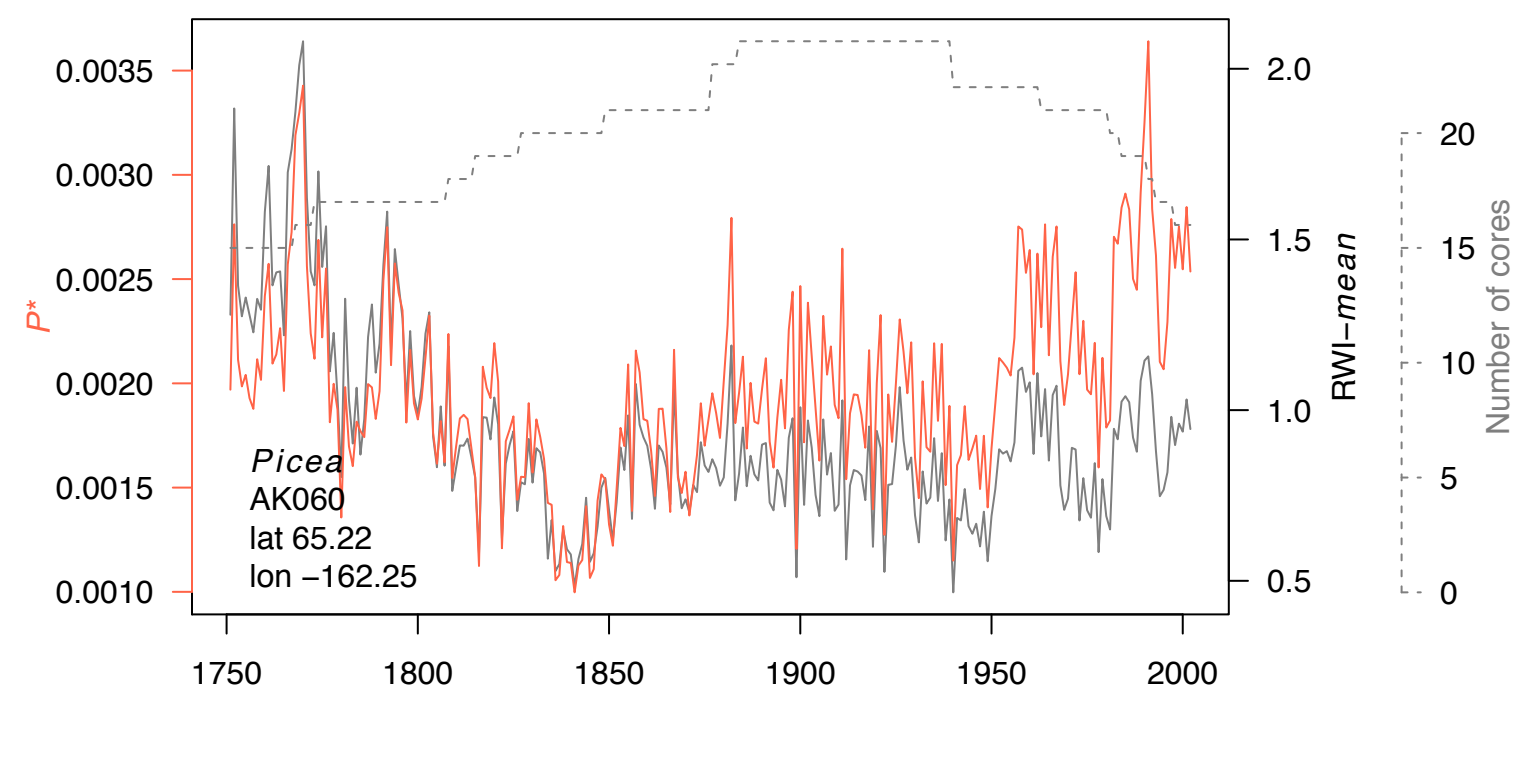

0.012
0.010
0.008
0.006
0.004
P*
2.0
1.5
1.0
0.5
RWI–mean
15
10
5
0
Number of cores
1700
1750
1800
1850
1900
1950
2000
Picea
BT010
lat 27.25
lon 89.38

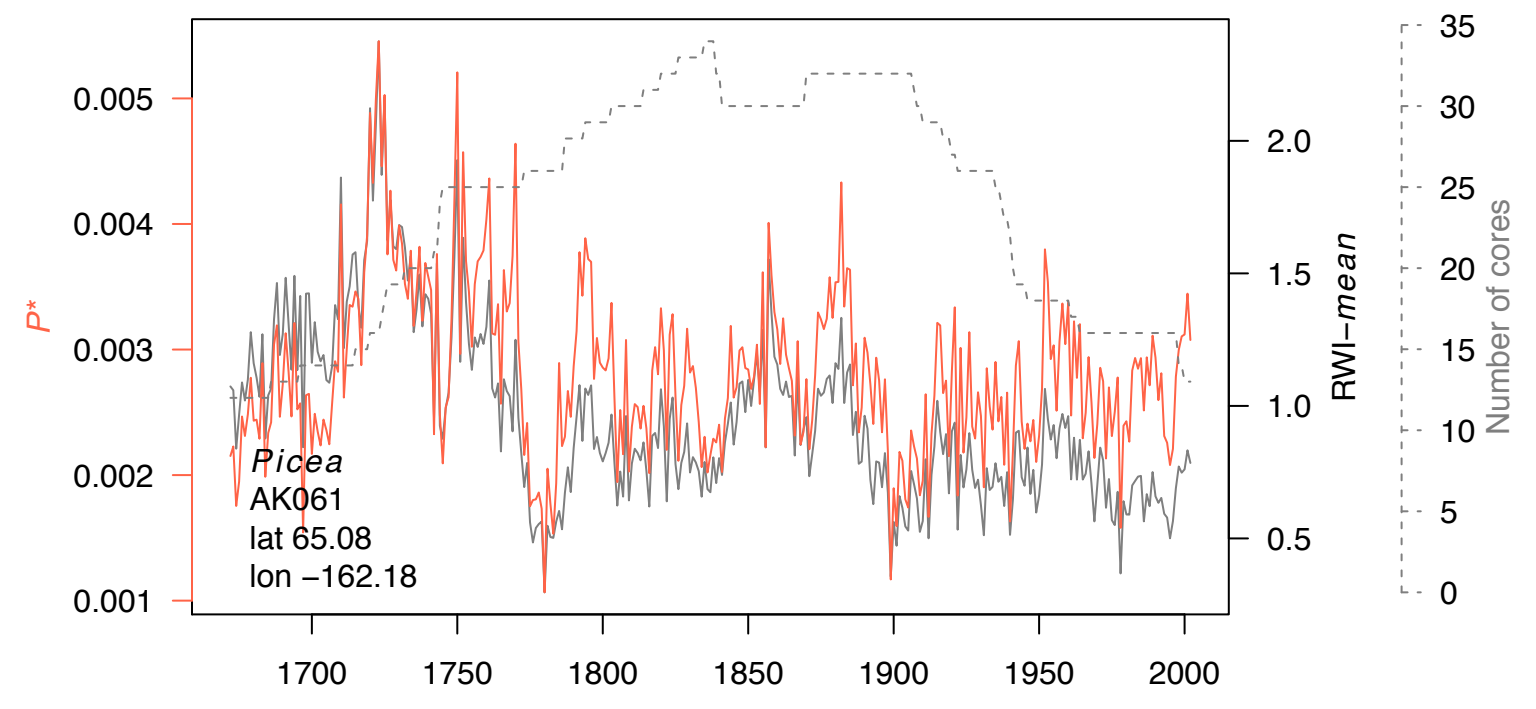

P*
0.014
0.012
0.010
0.008
RWI–mean
1.6
1.4
1.2
1.0
0.8
0.6
Number of cores
20
15
10
5
0
1850
1900
1950
2000
Picea
PAKI037
lat 35.03
lon 71.53

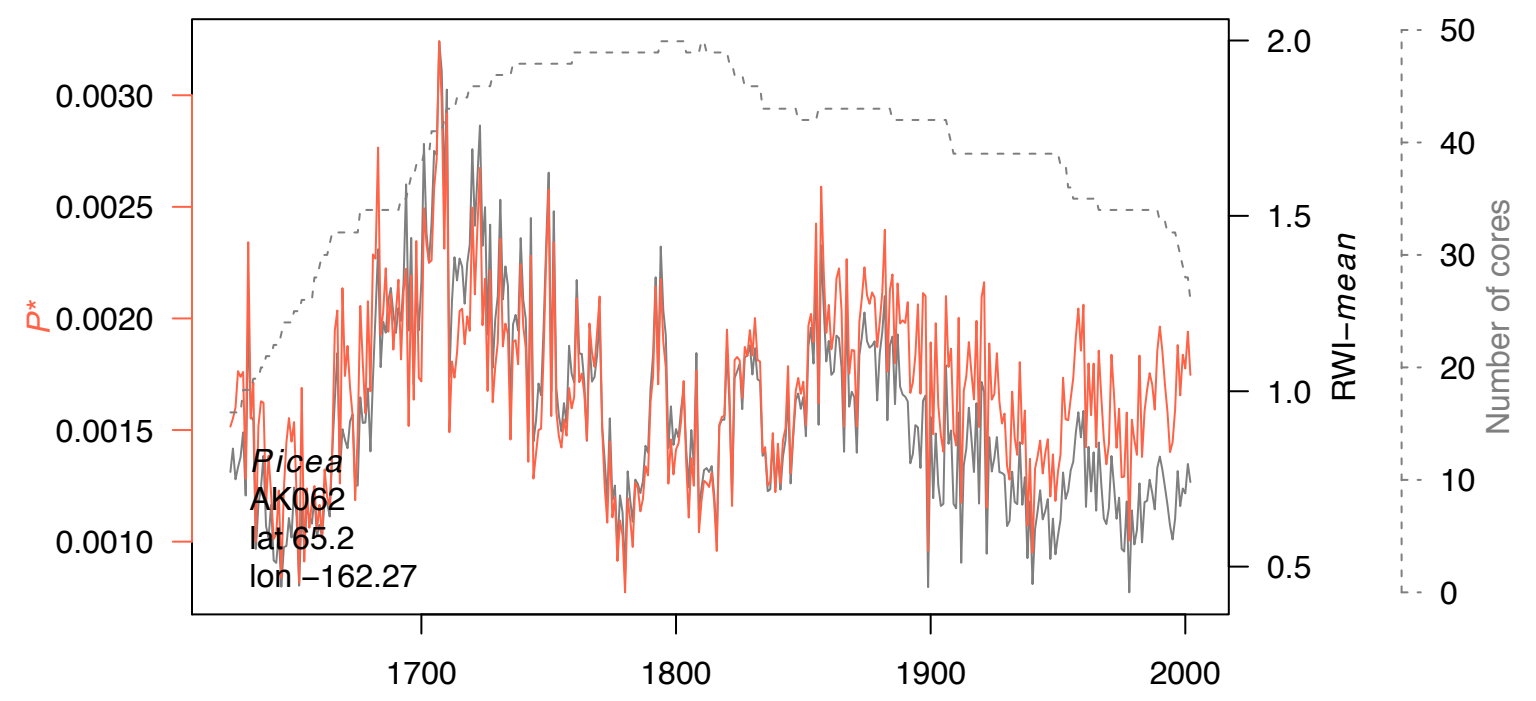

P*
0.0065
0.0060
0.0055
0.0050
0.0045
0.0040
0.0035
Picea
BT011
lat 27.45
lon 90.15
1850
1900
1950
1.2
1.0
0.8
0.6
0.4
RWI–mean
12
10
8
6
4
2
0
Number of cores

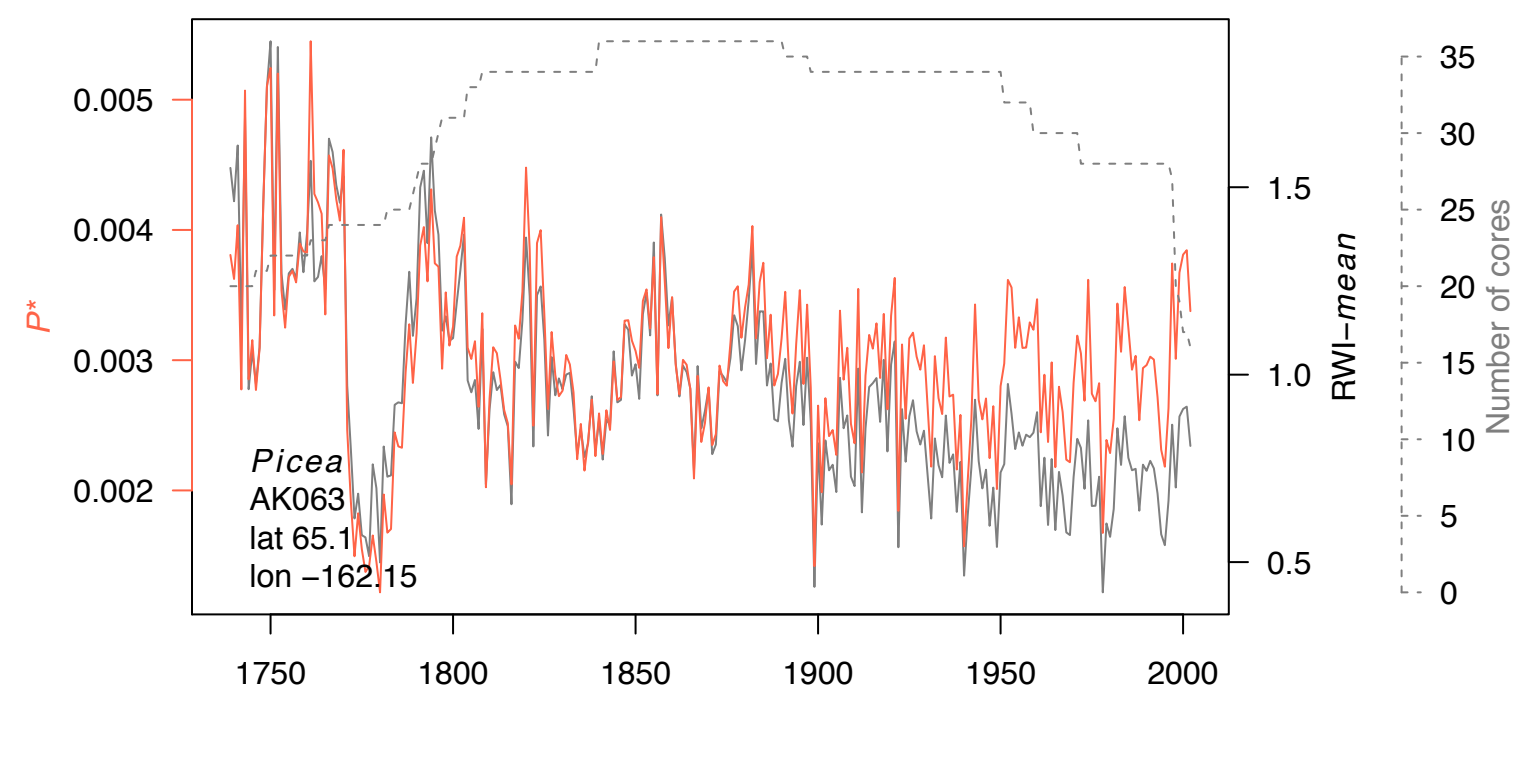

P*
0.0025
0.0020
0.0015
0.0010
2.0
1.5
1.0
0.5
RWI–mean
30
20
10
0
Number of cores
Picea
AK057
lat 65.18
lon −162.2
1750
1800
1850
1900
1950
2000

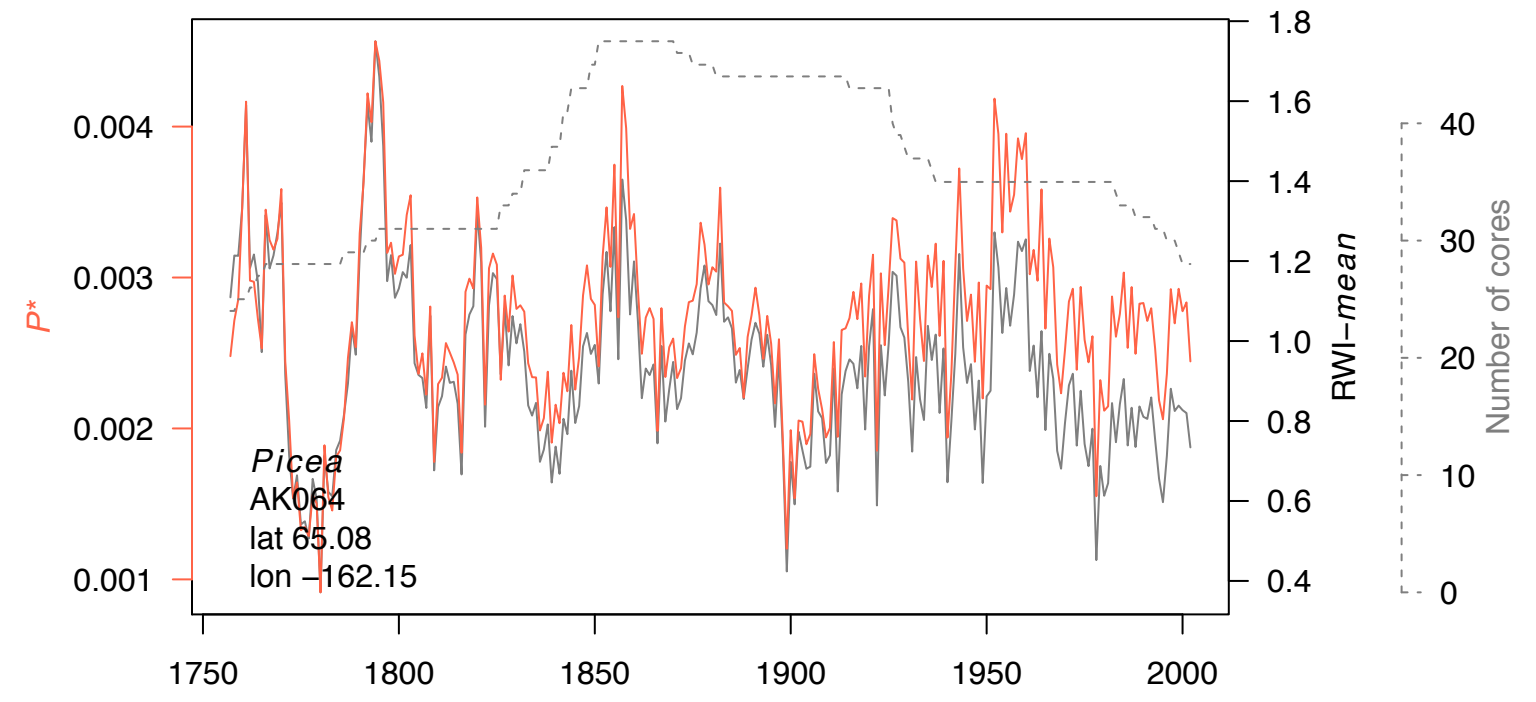

P*
0.0025
0.0020
0.0015
0.0010
RWI–mean
1.5
1.0
0.5
Number of cores
60
50
40
30
20
10
0
Picea
AK058
lat 65.18
lon −162.22
1600
1700
1800
1900
2000

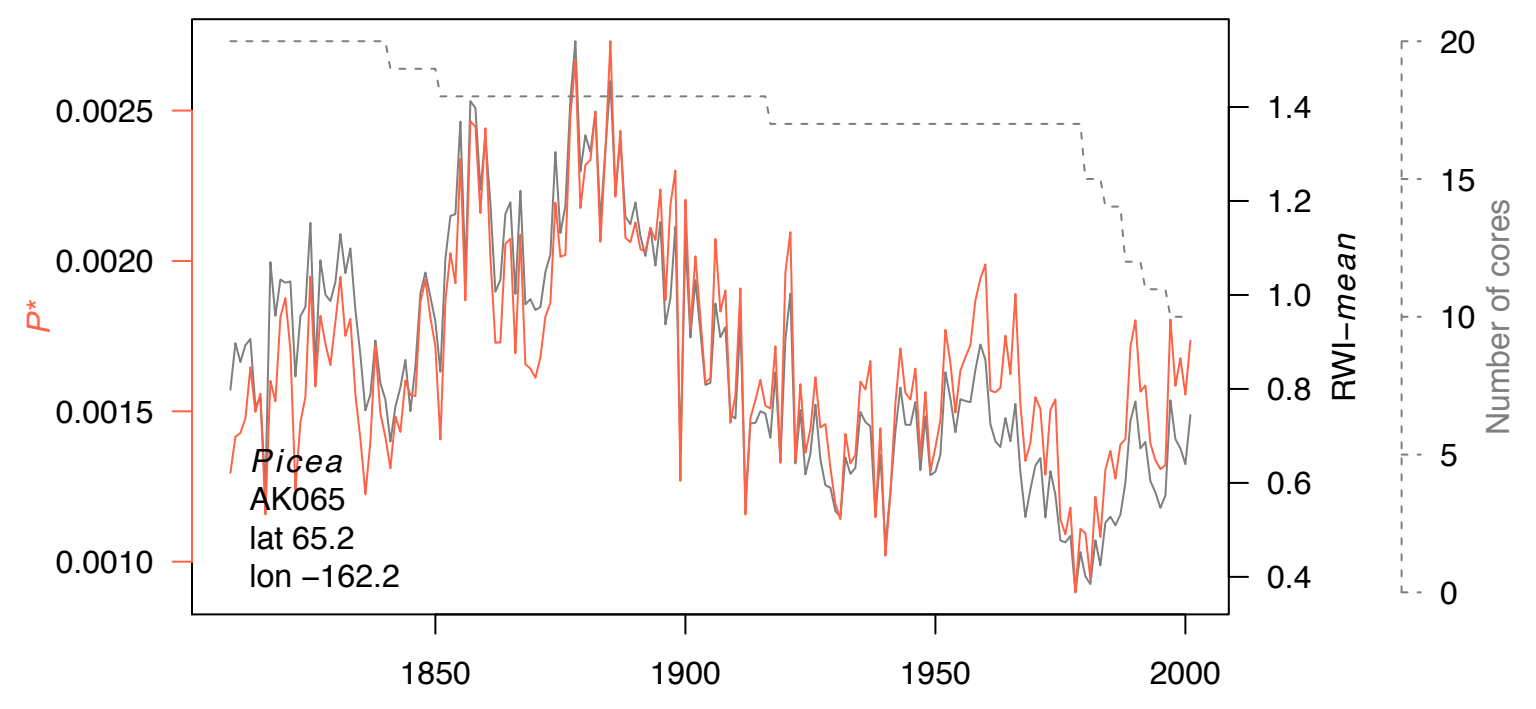

P*
0.0035
0.0030
0.0025
0.0020
0.0015
0.0010
RWI–mean
2.0
1.5
1.0
0.5
Number of cores
20
15
10
5
0
Picea
AK060
lat 65.22
lon −162.25
1750
1800
1850
1900
1950
2000

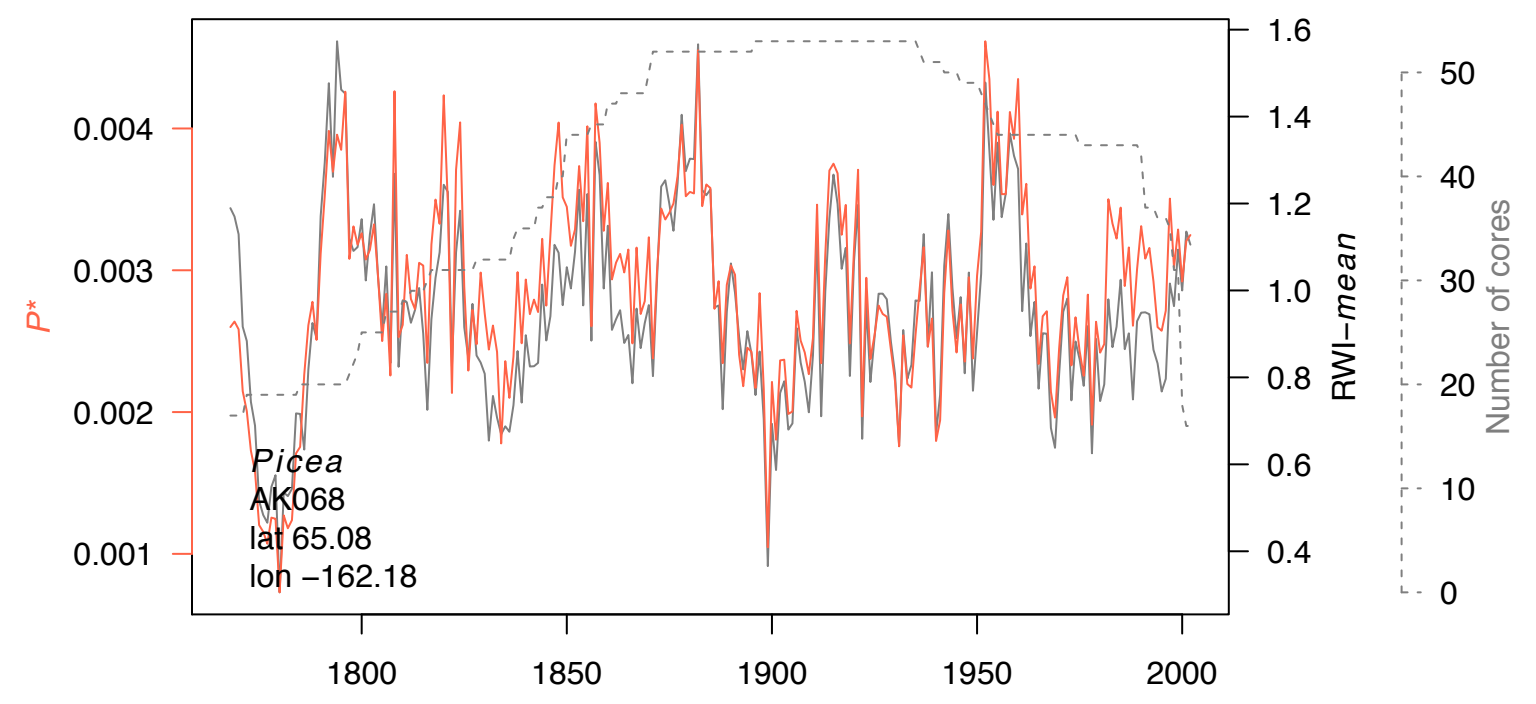

P*
0.005
0.004
0.003
0.002
0.001
Picea
AK061
lat 65.08
lon −162.18
1700
1750
1800
1850
1900
1950
2000
RWI–mean
2.0
1.5
1.0
0.5
Number of cores
35
30
25
20
15
10
5
0

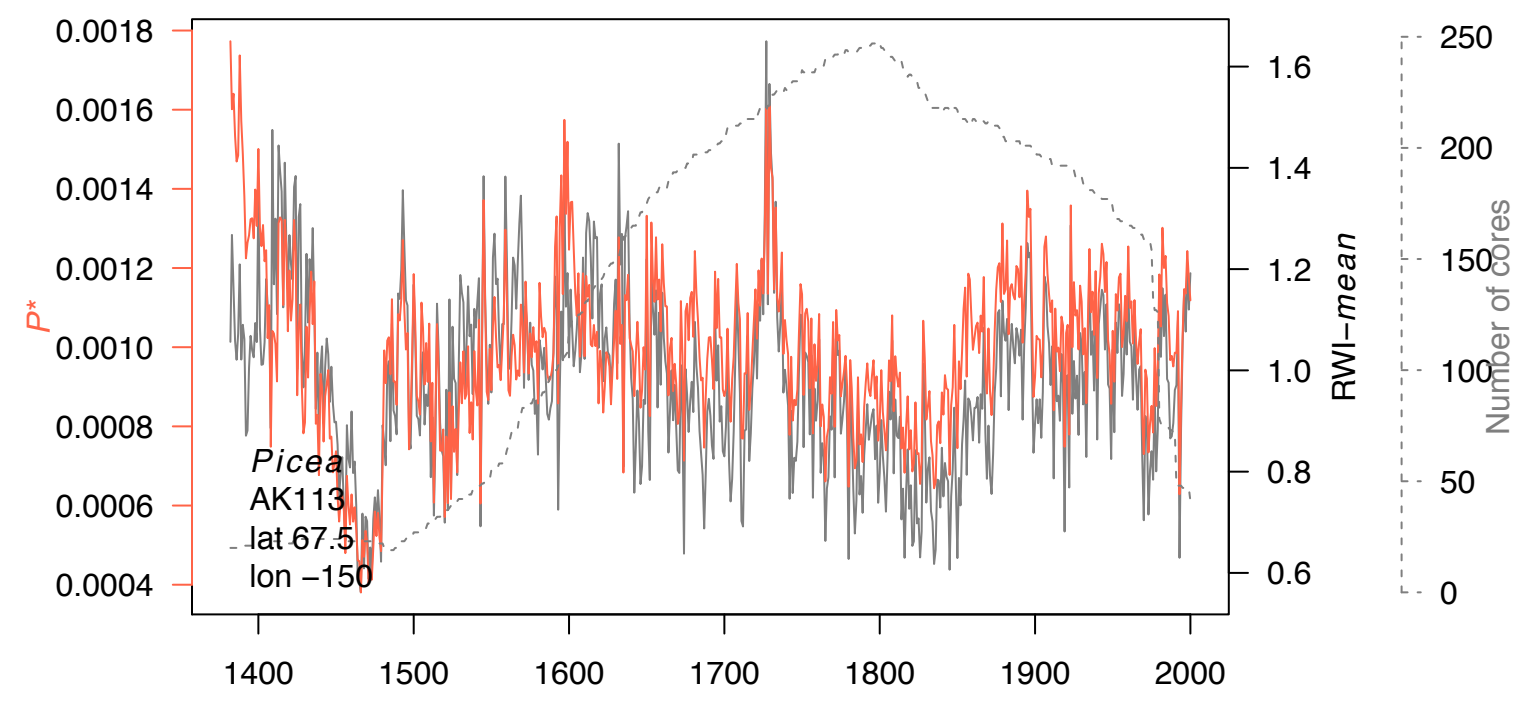

P*
0.0030
0.0025
0.0020
0.0015
0.0010
Picea
AK062
lat 65.2
lon −162.27
2.0
1.5
1.0
0.5
RWI–mean
50
40
30
20
10
0
Number of cores
1700
1800
1900
2000

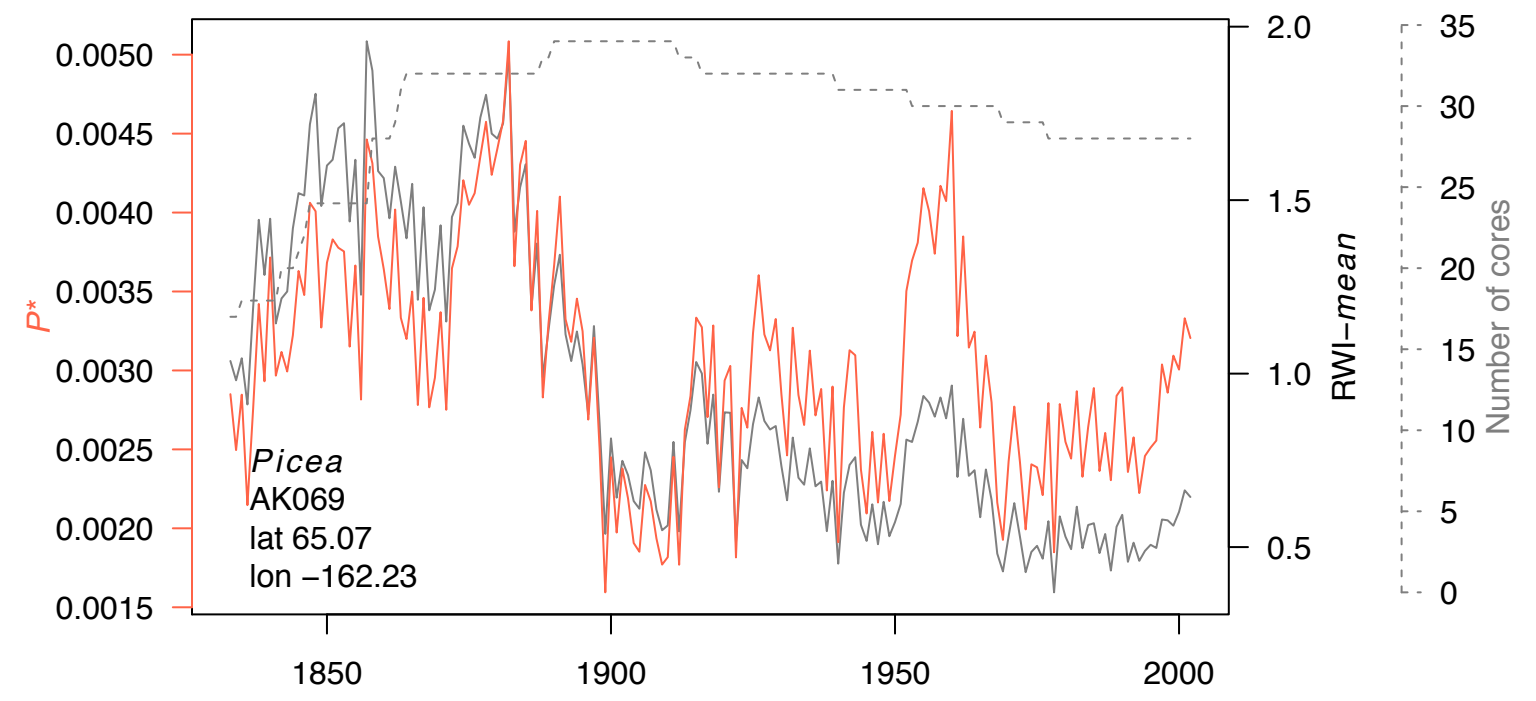

P*
0.005
0.004
0.003
0.002
Picea
AK063
lat 65.1
lon −162.15
1750
1800
1850
1900
1950
2000
1.5
1.0
0.5
RWI–mean
35
30
25
20
15
10
5
0
Number of cores

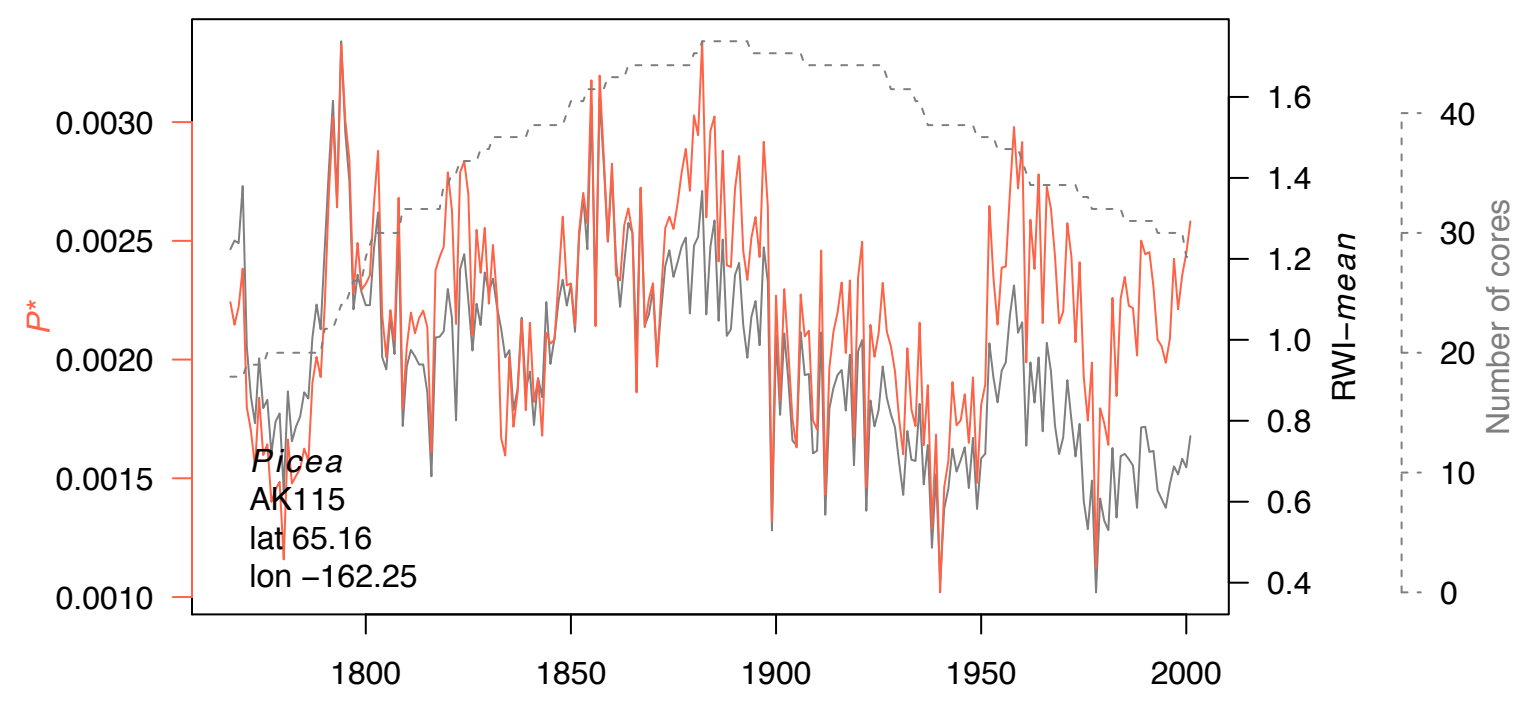

P*
0.004
0.003
0.002
0.001
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
40
30
20
10
0
Number of cores
Picea
AK064
lat 65.08
lon –162.15
1750
1800
1850
1900
1950
2000

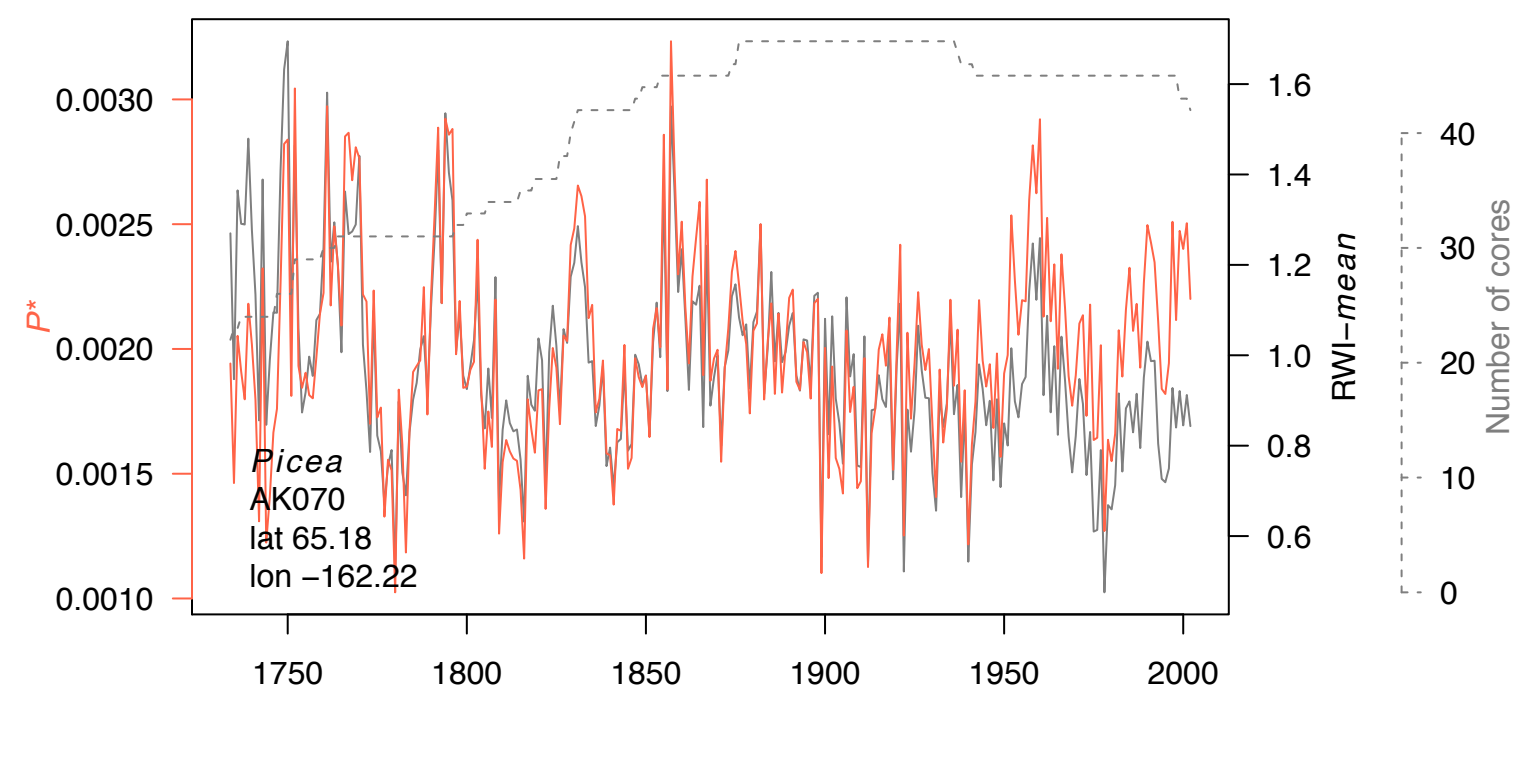

P*
0.0025
0.0020
0.0015
0.0010
Picea
AK065
lat 65.2
lon −162.2
1850
1900
1950
2000
RWI–mean
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
20
15
10
5
0

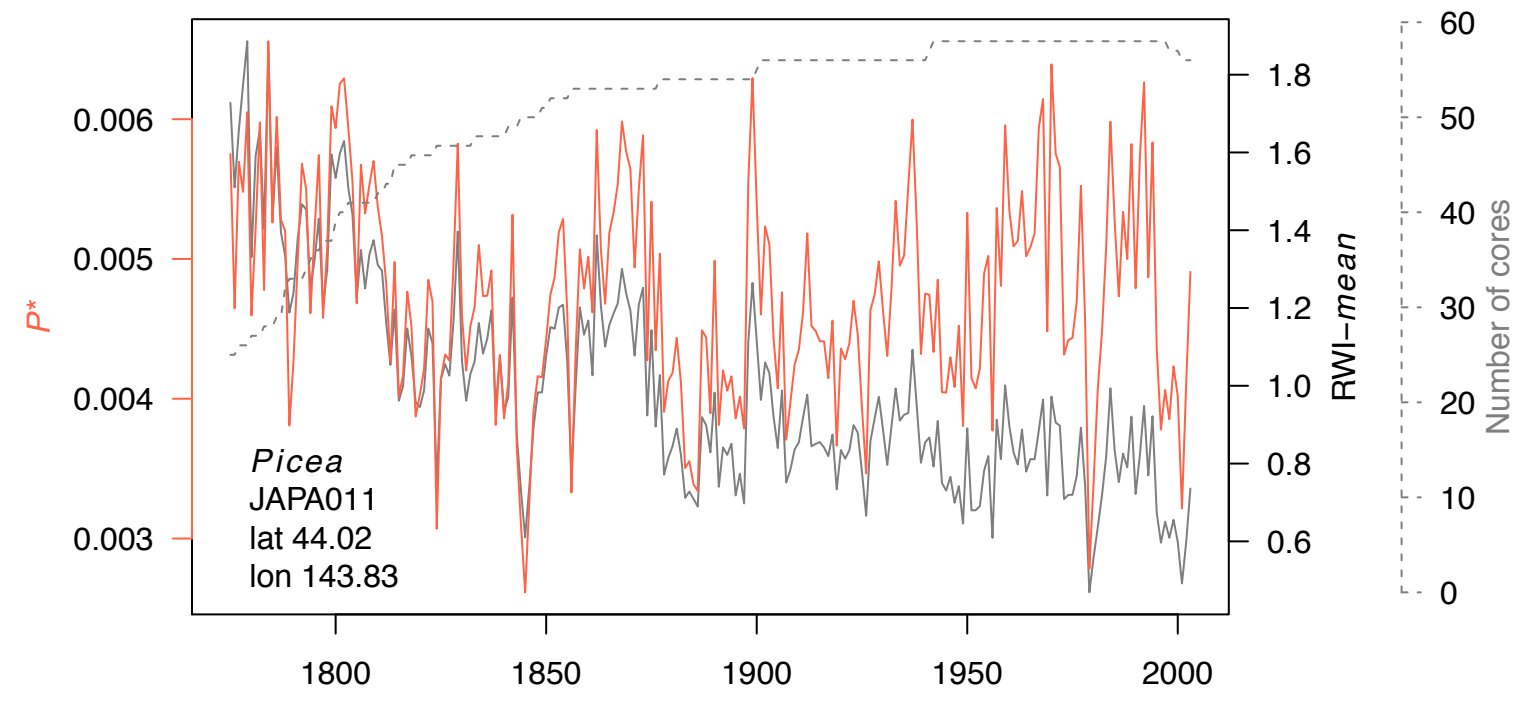

P*
0.004
0.003
0.002
0.001
Picea
AK068
lat 65.08
lon −162.18
1800
1850
1900
1950
2000
1.6
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
50
40
30
20
10
0
Number of cores

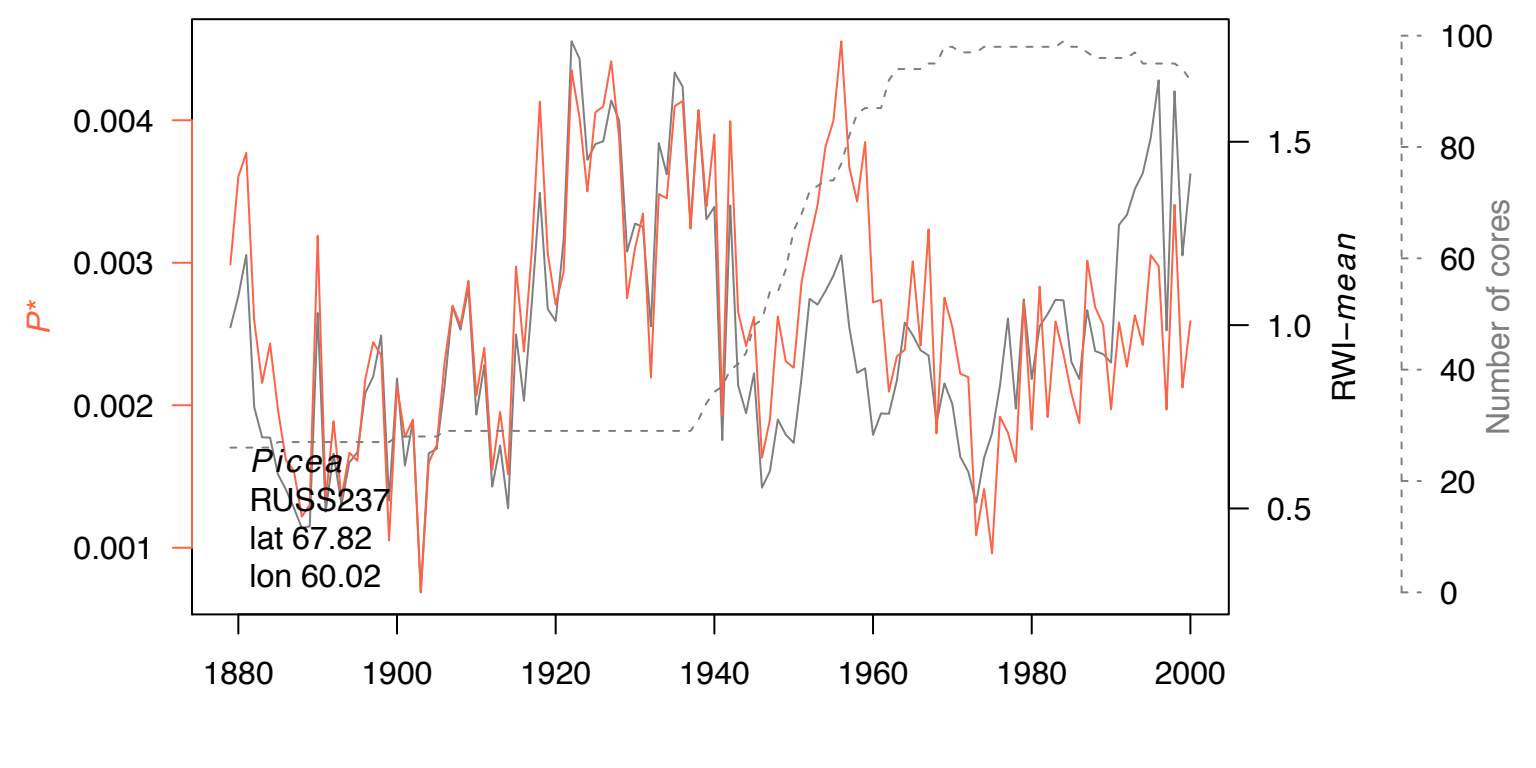

P*
0.0018
0.0016
0.0014
0.0012
0.0010
0.0008
0.0006
0.0004
RWI–mean
1.6
1.4
1.2
1.0
0.8
0.6
Number of cores
250
200
150
100
50
0
Picea
AK113
lat 67.5
lon −150
1400
1500
1600
1700
1800
1900
2000

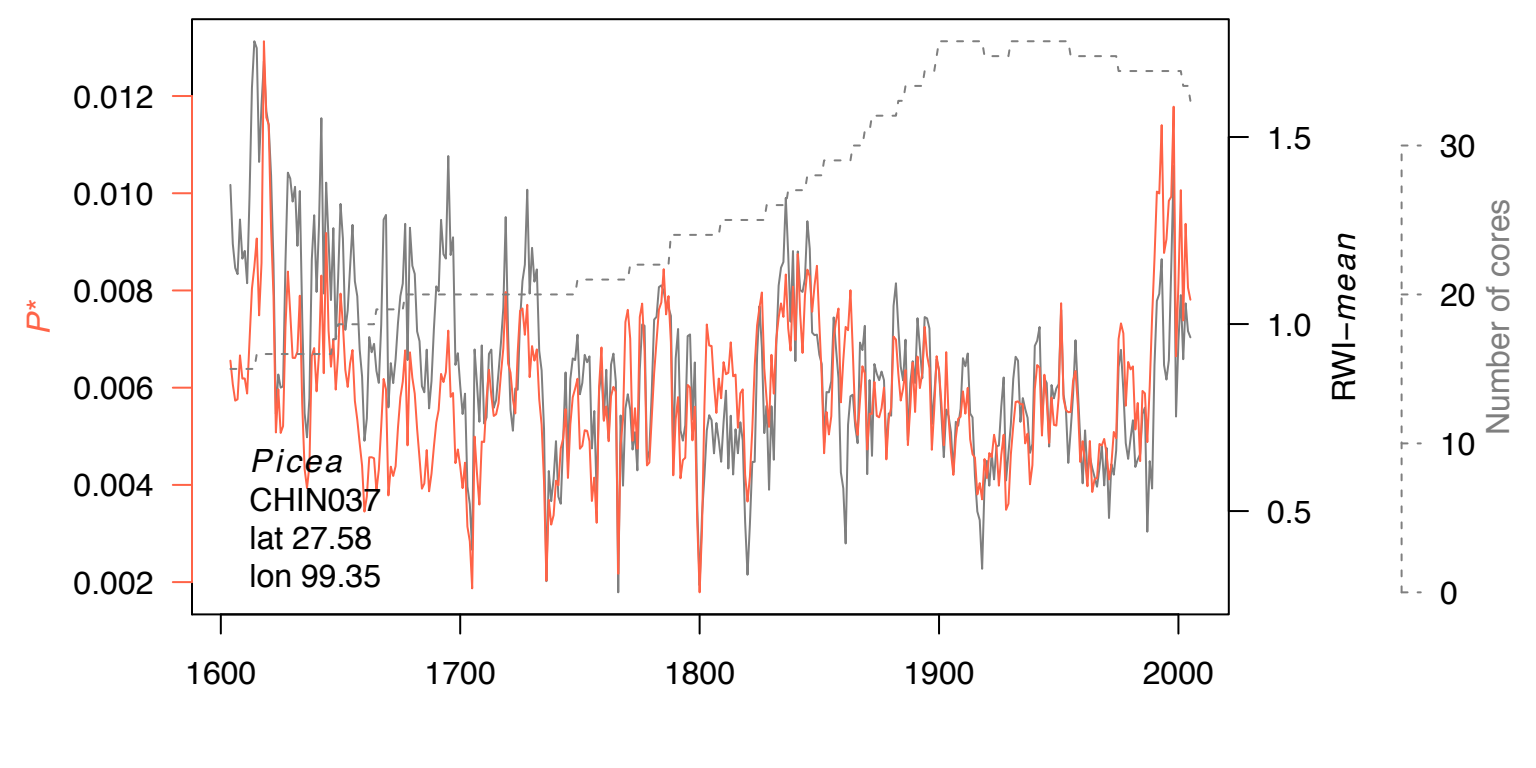

P*
0.0050
0.0045
0.0040
0.0035
0.0030
0.0025
0.0020
0.0015
RWI–mean
2.0
1.5
1.0
0.5
Number of cores
35
30
25
20
15
10
5
0
1850
1900
1950
2000
Picea
AK069
lat 65.07
lon −162.23

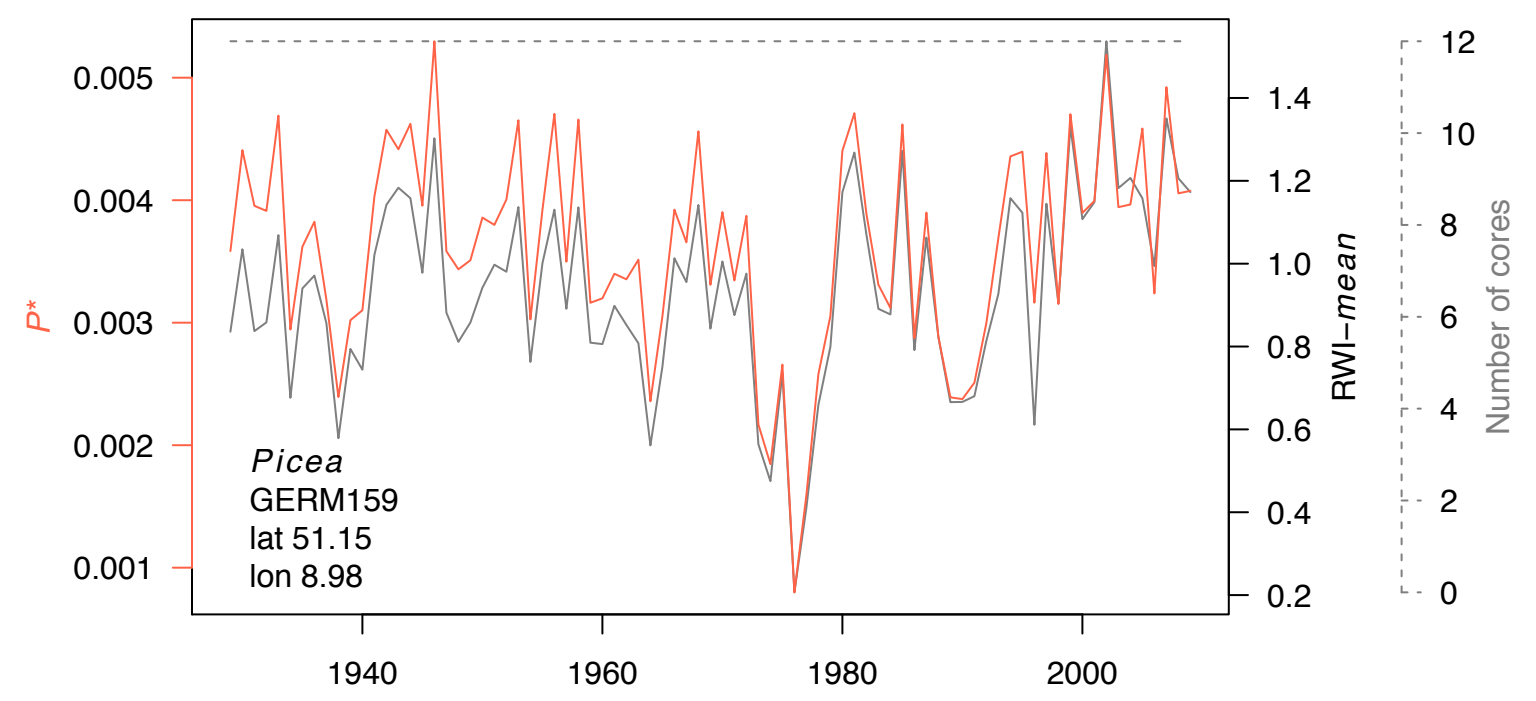

P*
0.0030
0.0025
0.0020
0.0015
0.0010
RWI–mean
1.6
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
40
30
20
10
0
1800
1850
1900
1950
2000
Picea
AK115
lat 65.16
lon −162.25

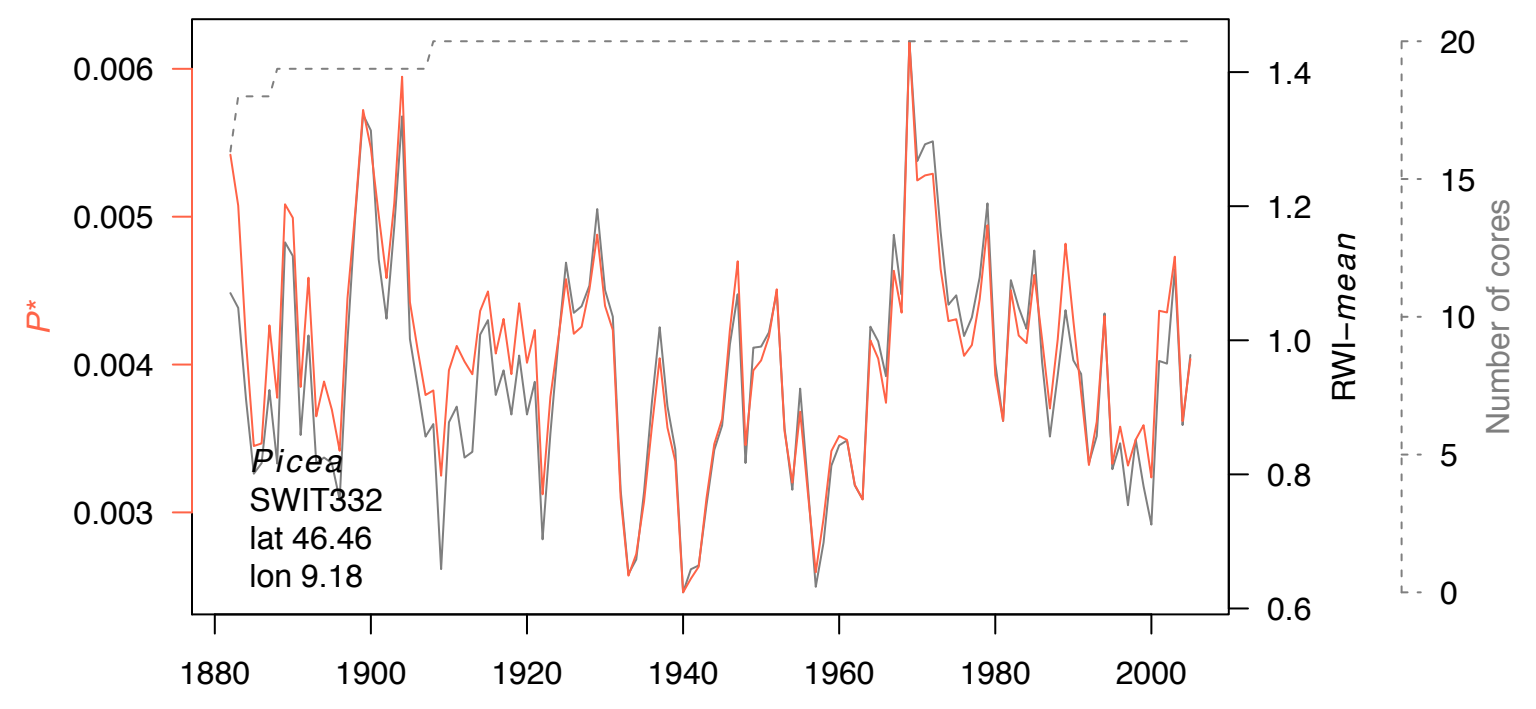

P*
0.0030
0.0025
0.0020
0.0015
0.0010
RWI–mean
1.6
1.4
1.2
1.0
0.8
0.6
Number of cores
40
30
20
10
0
1750
1800
1850
1900
1950
2000
Picea
AK070
lat 65.18
lon –162.22

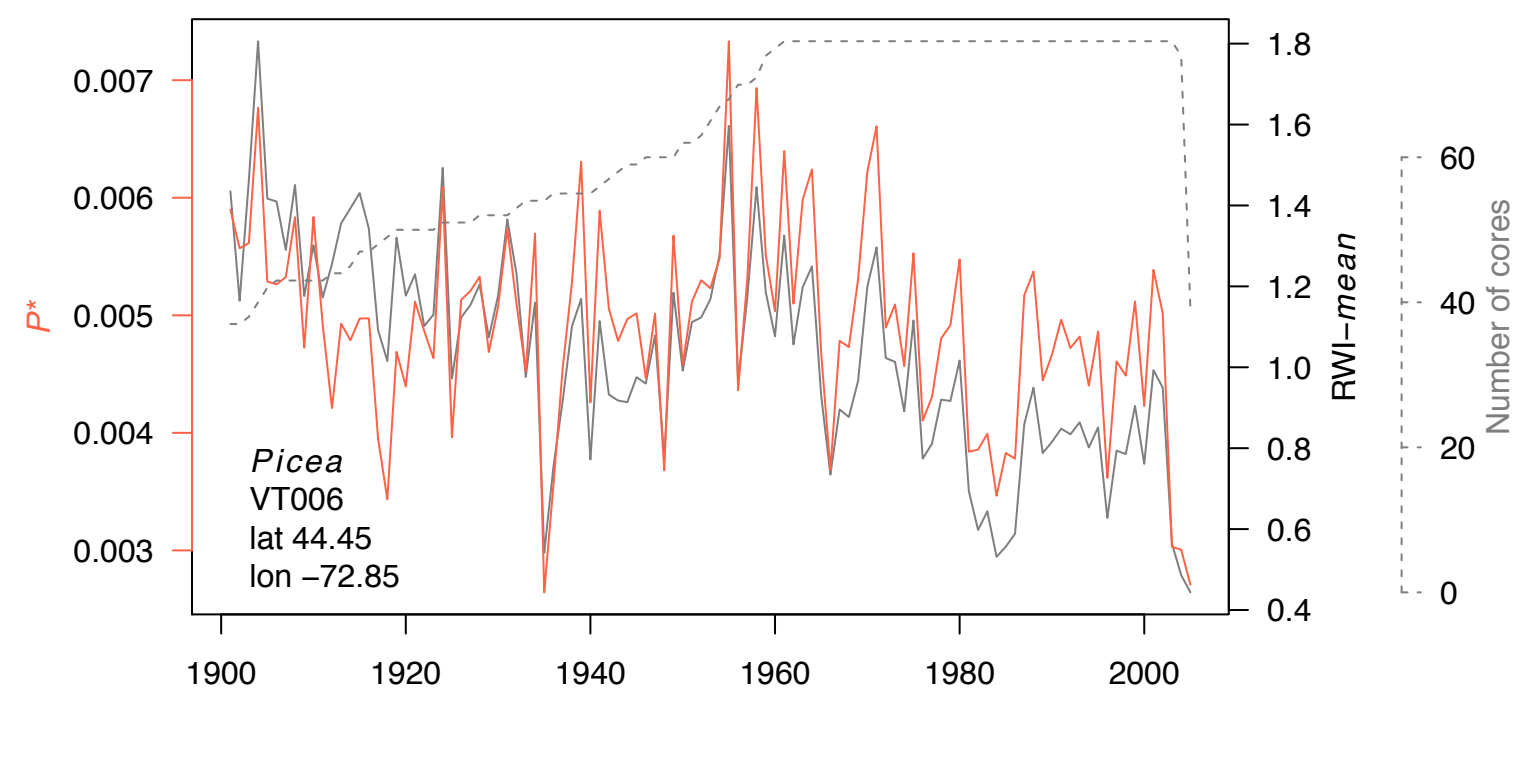

P*
0.006
0.005
0.004
0.003
RWI–mean
1.8
1.6
1.4
1.2
1.0
0.8
0.6
Number of cores
60
50
40
30
20
10
0
1800
1850
1900
1950
2000
Picea
JAPA011
lat 44.02
lon 143.83

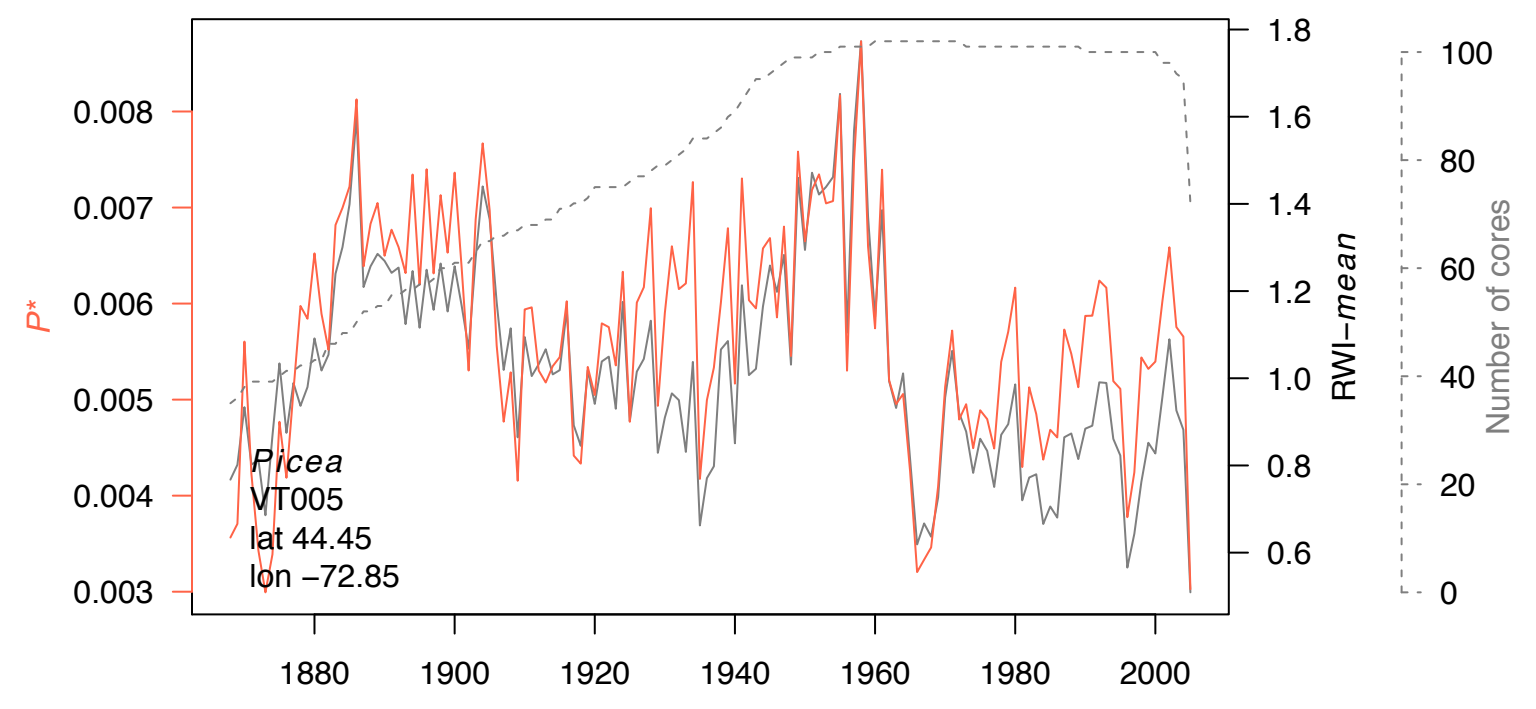

P*
0.004
0.003
0.002
0.001
RWI–mean
1.5
1.0
0.5
Number of cores
100
80
60
40
20
0
Picea
RUSS237
lat 67.82
lon 60.02
1880
1900
1920
1940
1960
1980
2000

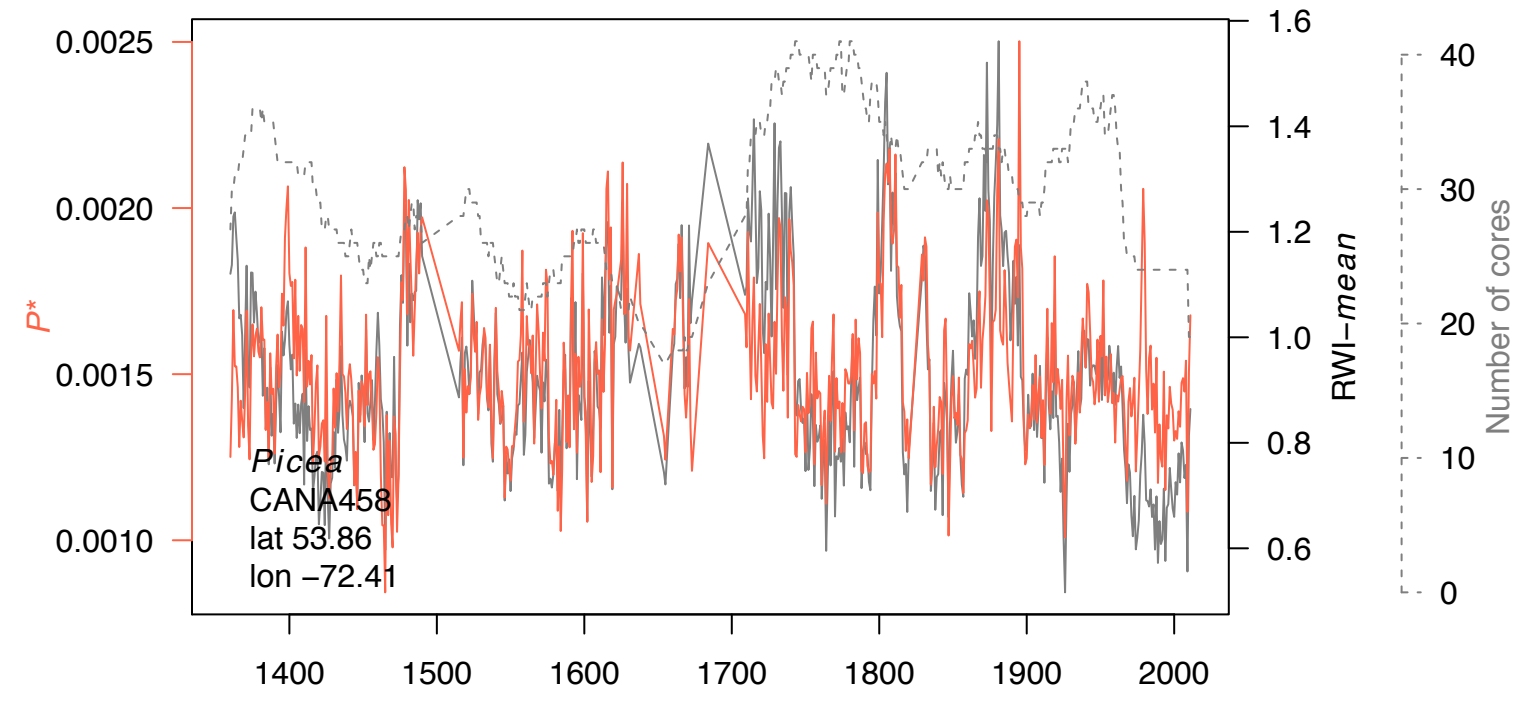

P*
0.012
0.010
0.008
0.006
0.004
0.002
Picea
CHIN037
lat 27.58
lon 99.35
1600
1700
1800
1900
2000
1.5
1.0
0.5
RWI–mean
30
20
10
0
Number of cores

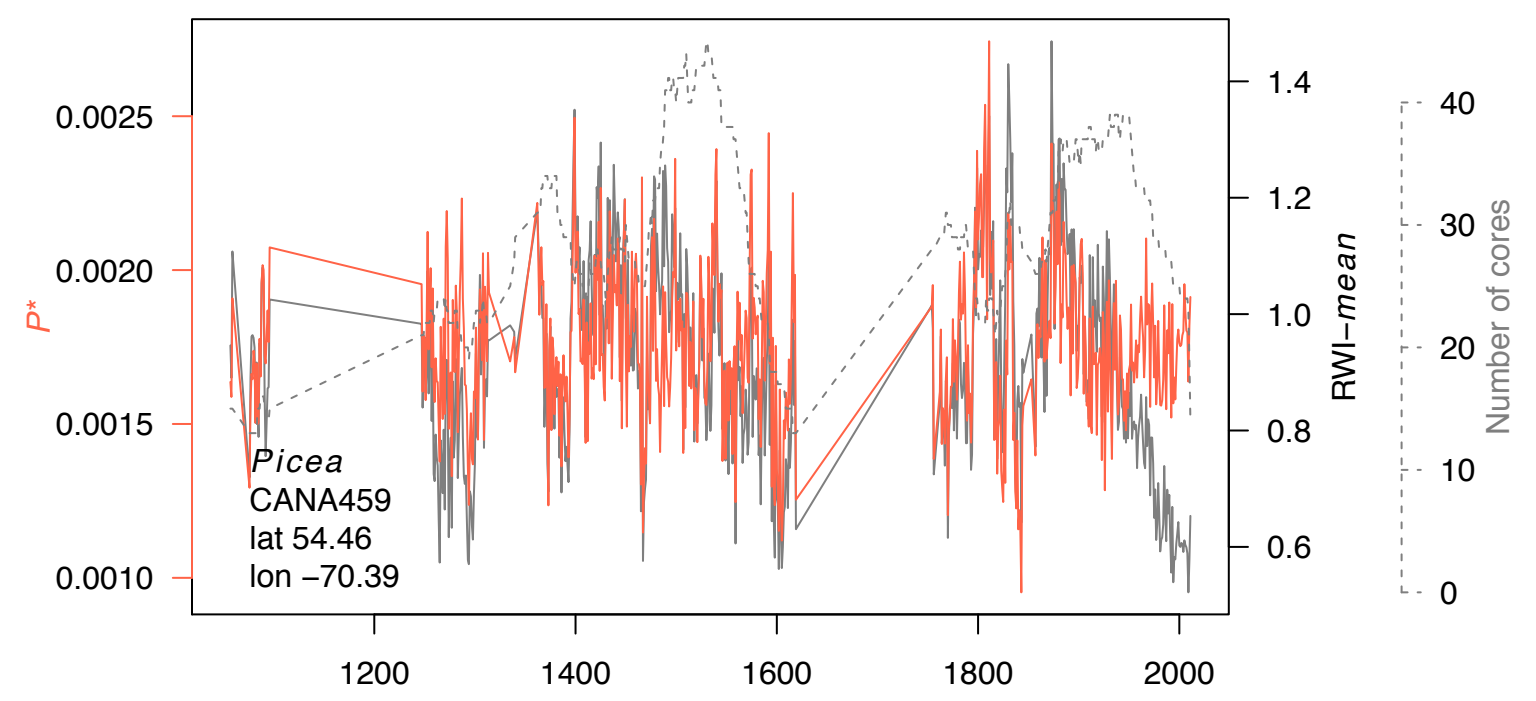

P*
0.005
0.004
0.003
0.002
0.001
Picea
GERM159
lat 51.15
lon 8.98
1940
1960
1980
2000
RWI–mean
1.4
1.2
1.0
0.8
0.6
0.4
0.2
Number of cores
12
10
8
6
4
2
0

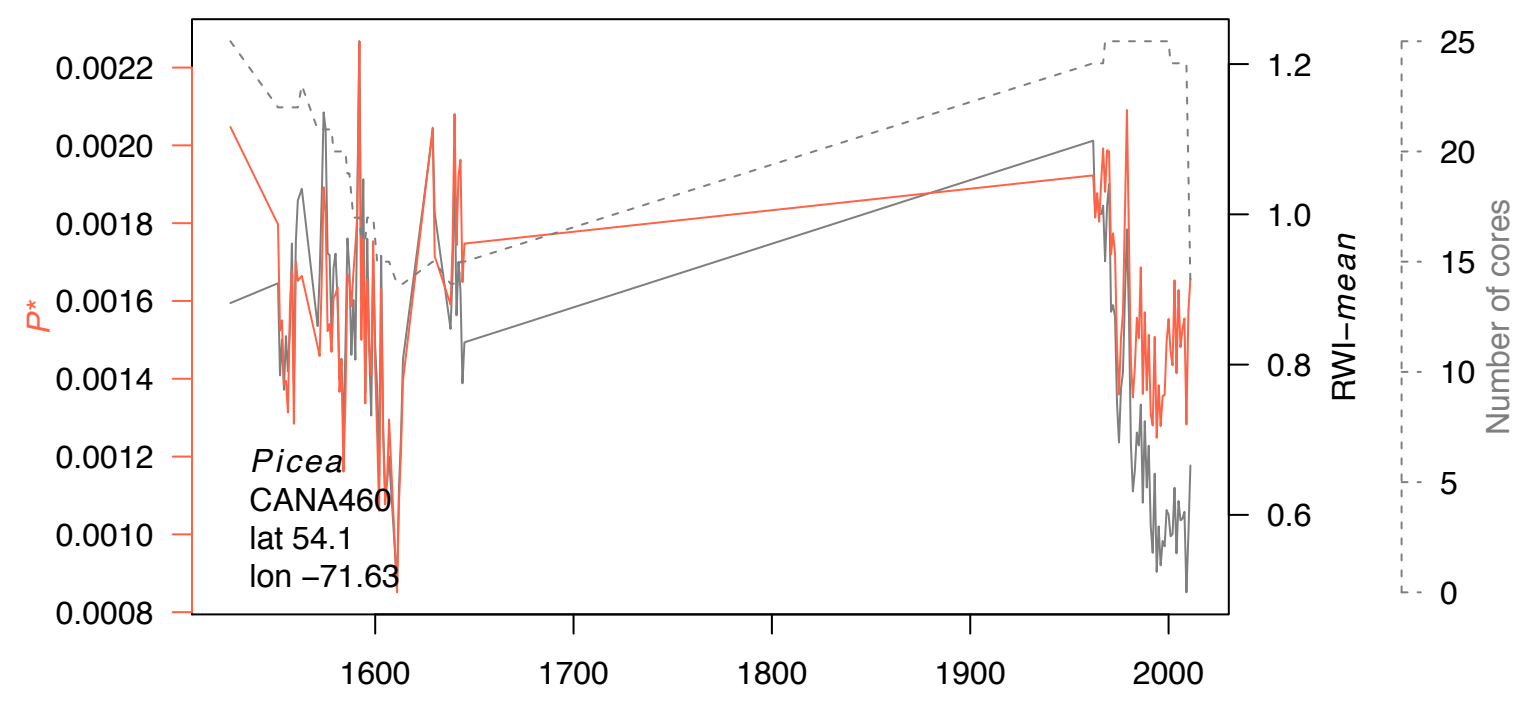

P*
0.006
0.005
0.004
0.003
Picea
SWIT332
lat 46.46
lon 9.18
1880
1900
1920
1940
1960
1980
2000
1.4
1.2
1.0
0.8
0.6
RWI–mean
20
15
10
5
0
Number of cores

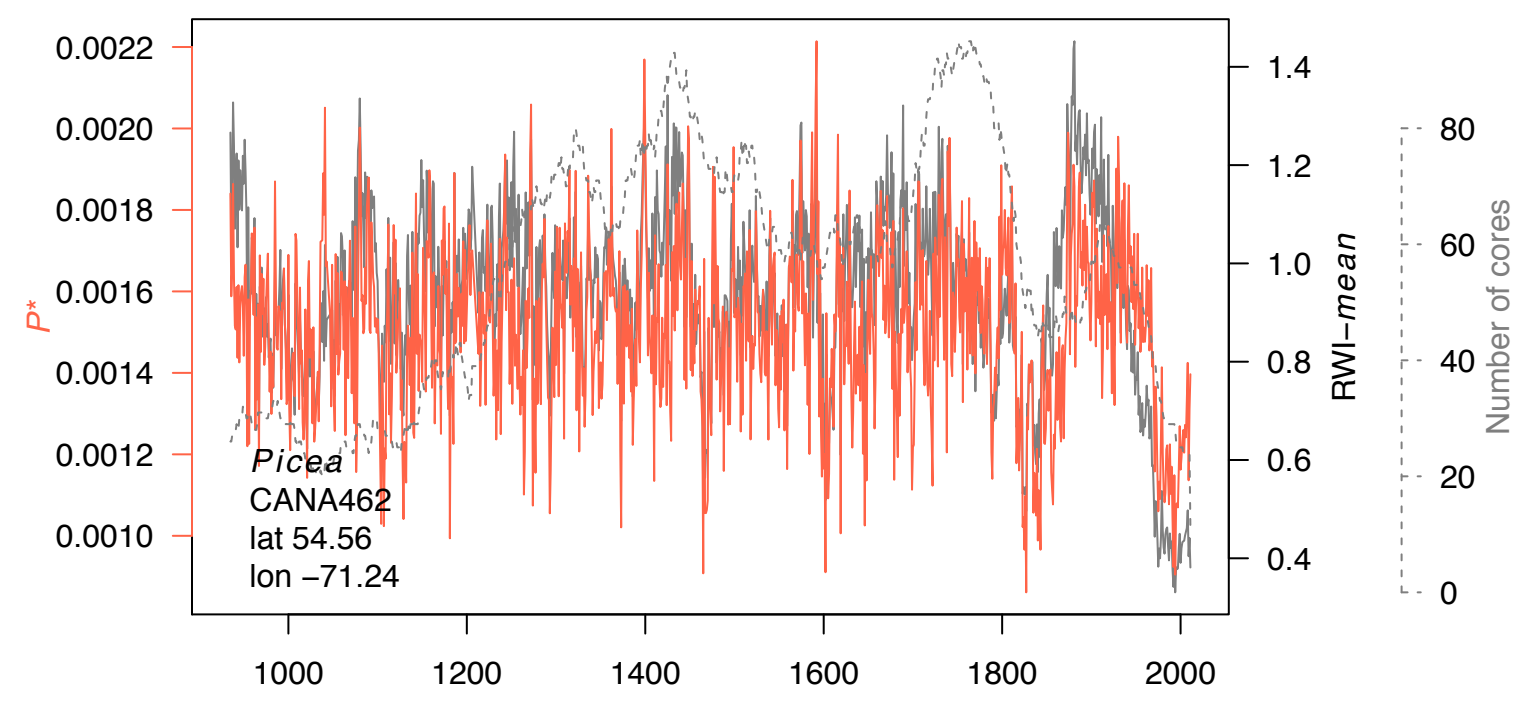

P*
0.007
0.006
0.005
0.004
0.003
Picea
VT006
lat 44.45
lon −72.85
1900
1920
1940
1960
1980
2000
RWI–mean
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
60
40
20
0

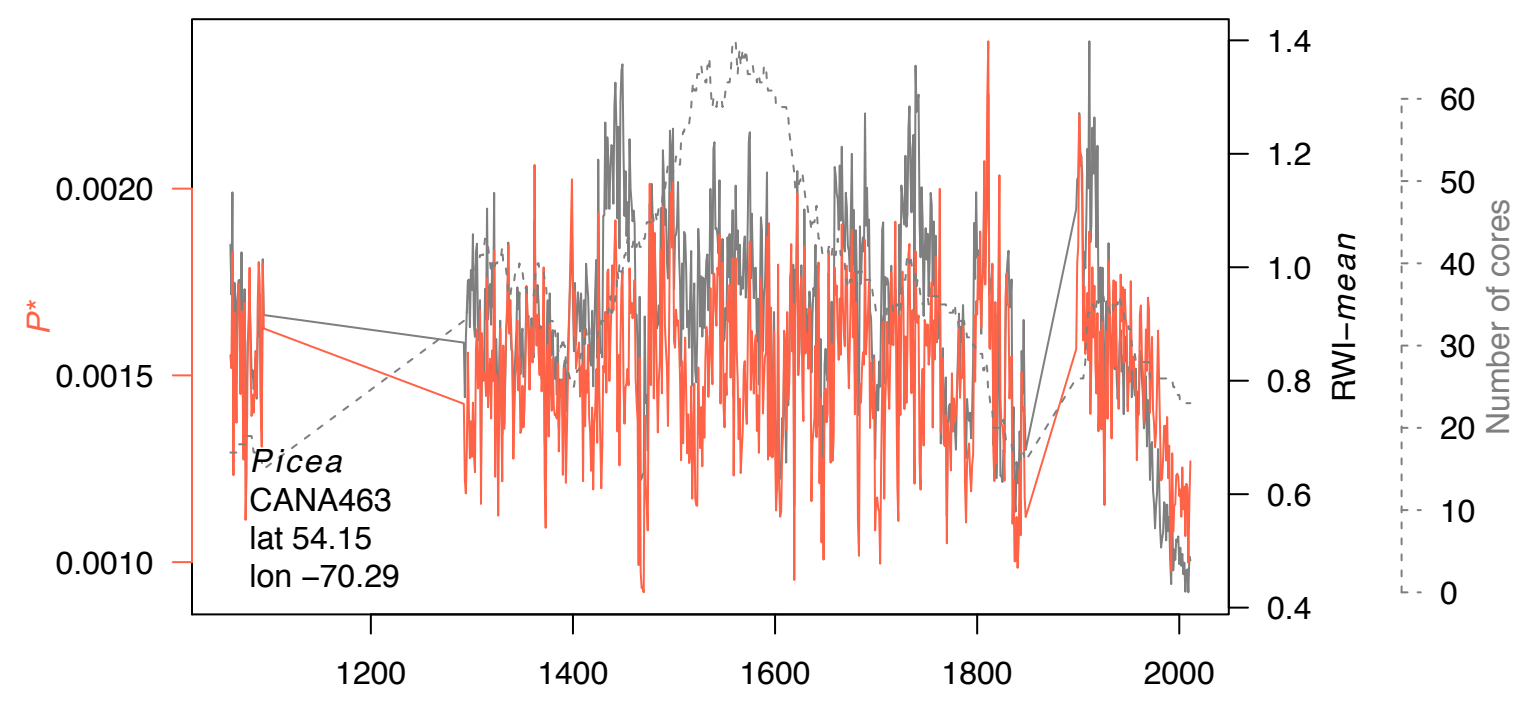

P*
0.008
0.007
0.006
0.005
0.004
0.003
Picea
VT005
lat 44.45
lon −72.85
1880
1900
1920
1940
1960
1980
2000
1.8
1.6
1.4
1.2
1.0
0.8
0.6
RWI–mean
100
80
60
40
20
0
Number of cores

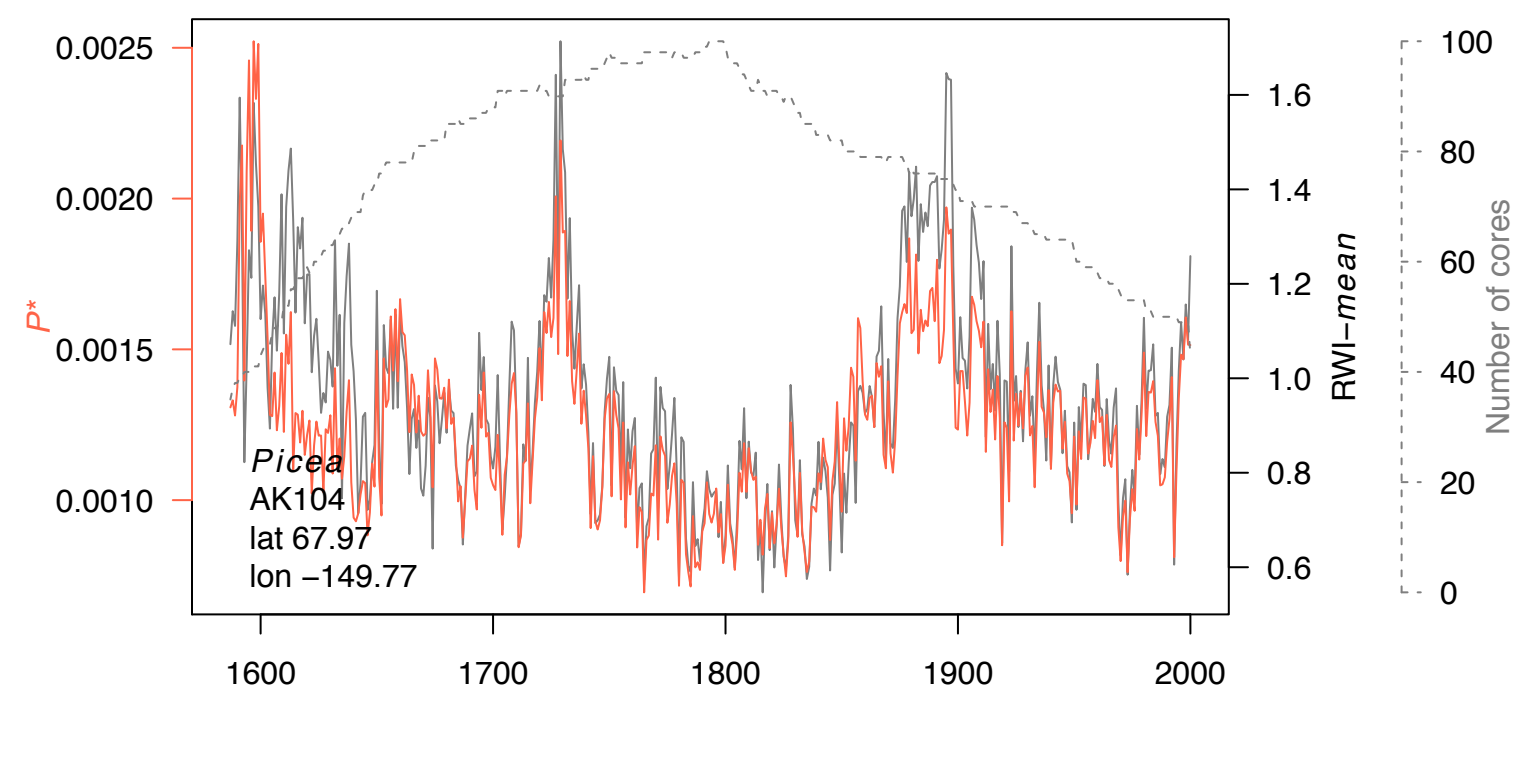

P*
0.0025
0.0020
0.0015
0.0010
RWI–mean
1.6
1.4
1.2
1.0
0.8
0.6
Number of cores
40
30
20
10
0
Picea
CANA458
lat 53.86
lon –72.41
1400
1500
1600
1700
1800
1900
2000

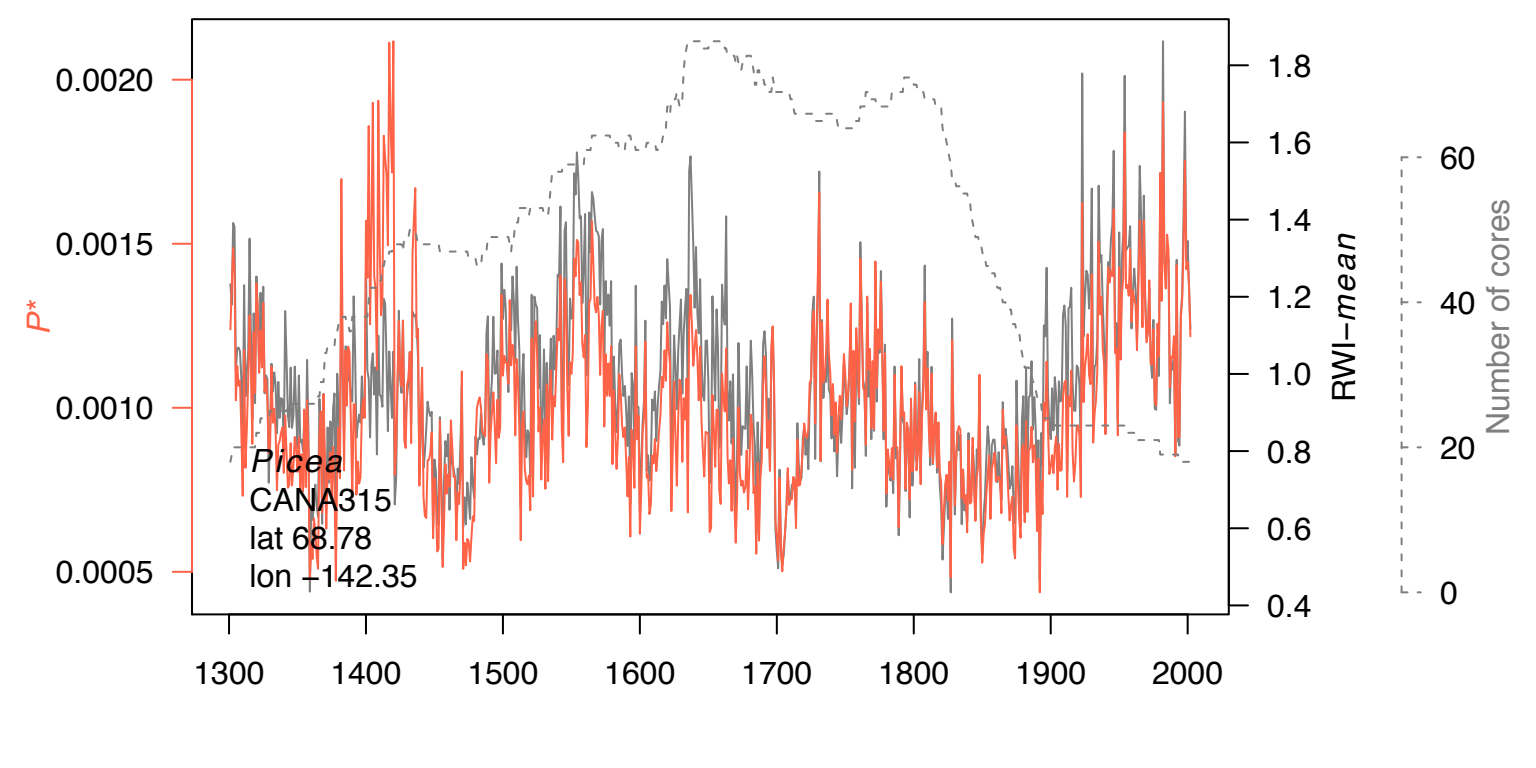

P*
0.0025
0.0020
0.0015
0.0010
Picea
CANA459
lat 54.46
lon −70.39
1200
1400
1600
1800
2000
1.4
1.2
1.0
0.8
0.6
RWI–mean
40
30
20
10
0
Number of cores

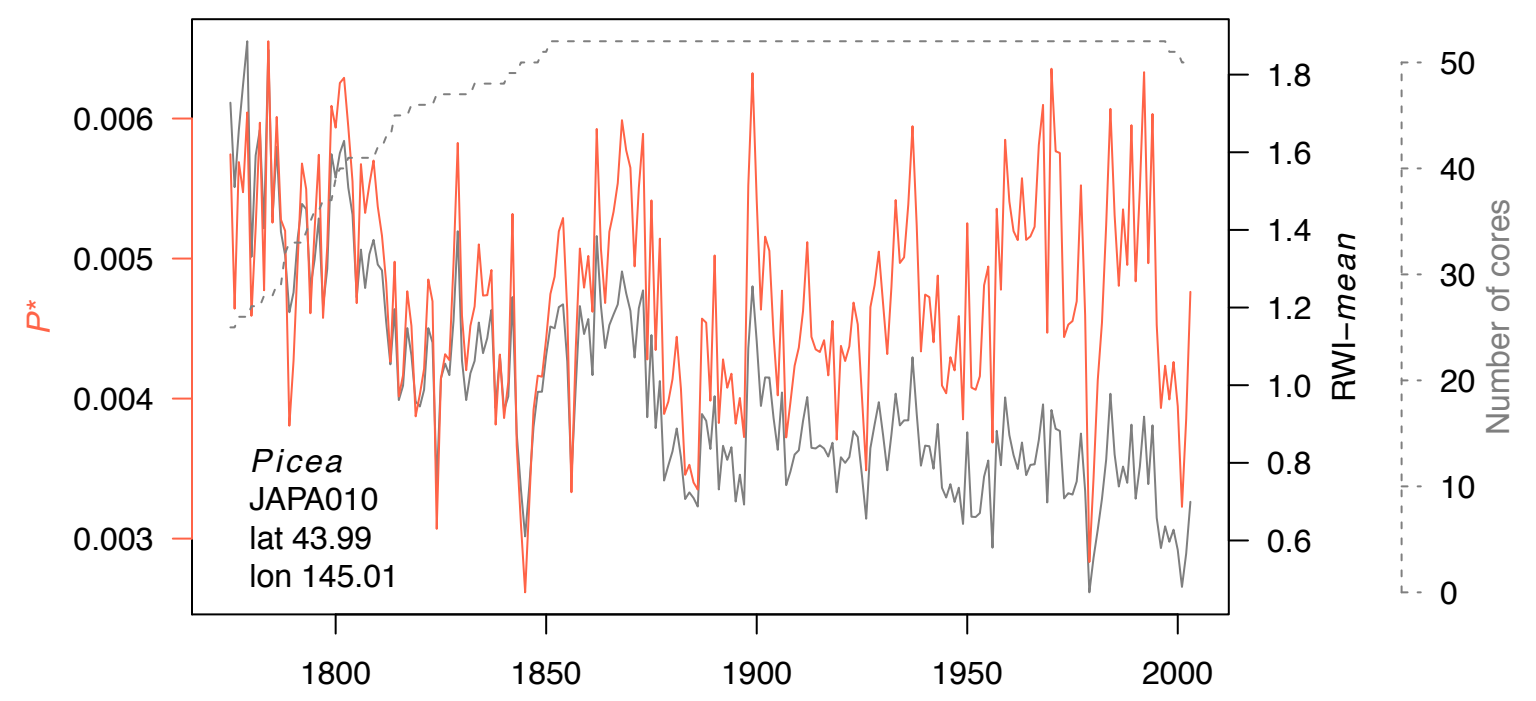

P*
0.0022
0.0020
0.0018
0.0016
0.0014
0.0012
0.0010
0.0008
RWI–mean
1.2
1.0
0.8
0.6
Number of cores
25
20
15
10
5
0
1600
1700
1800
1900
2000
Picea
CANA460
lat 54.1
lon –71.63

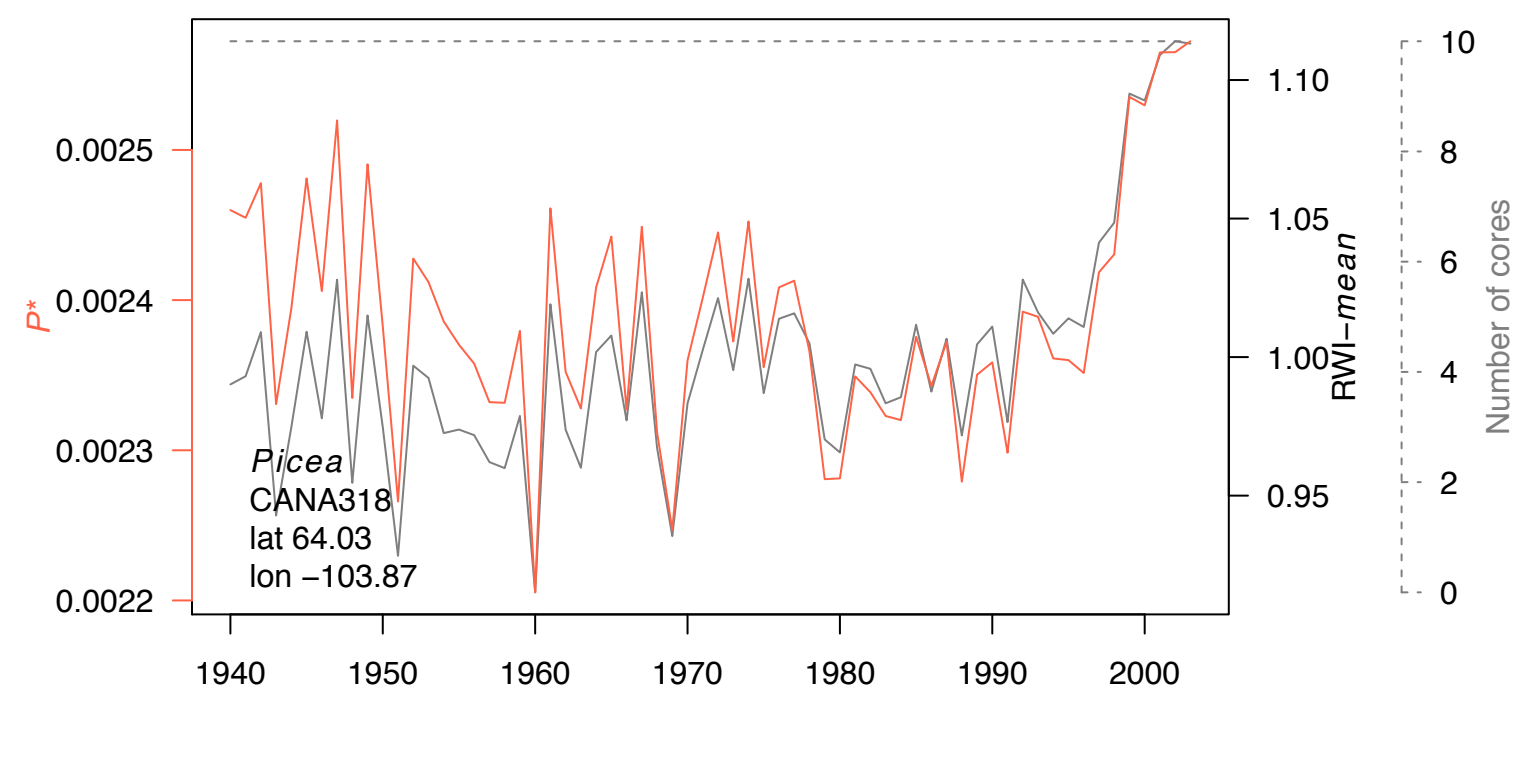

0.0022
0.0020
0.0018
0.0016
0.0014
0.0012
0.0010
P*
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
80
60
40
20
0
Number of cores
Picea
CANA462
lat 54.56
lon –71.24
1000
1200
1400
1600
1800
2000

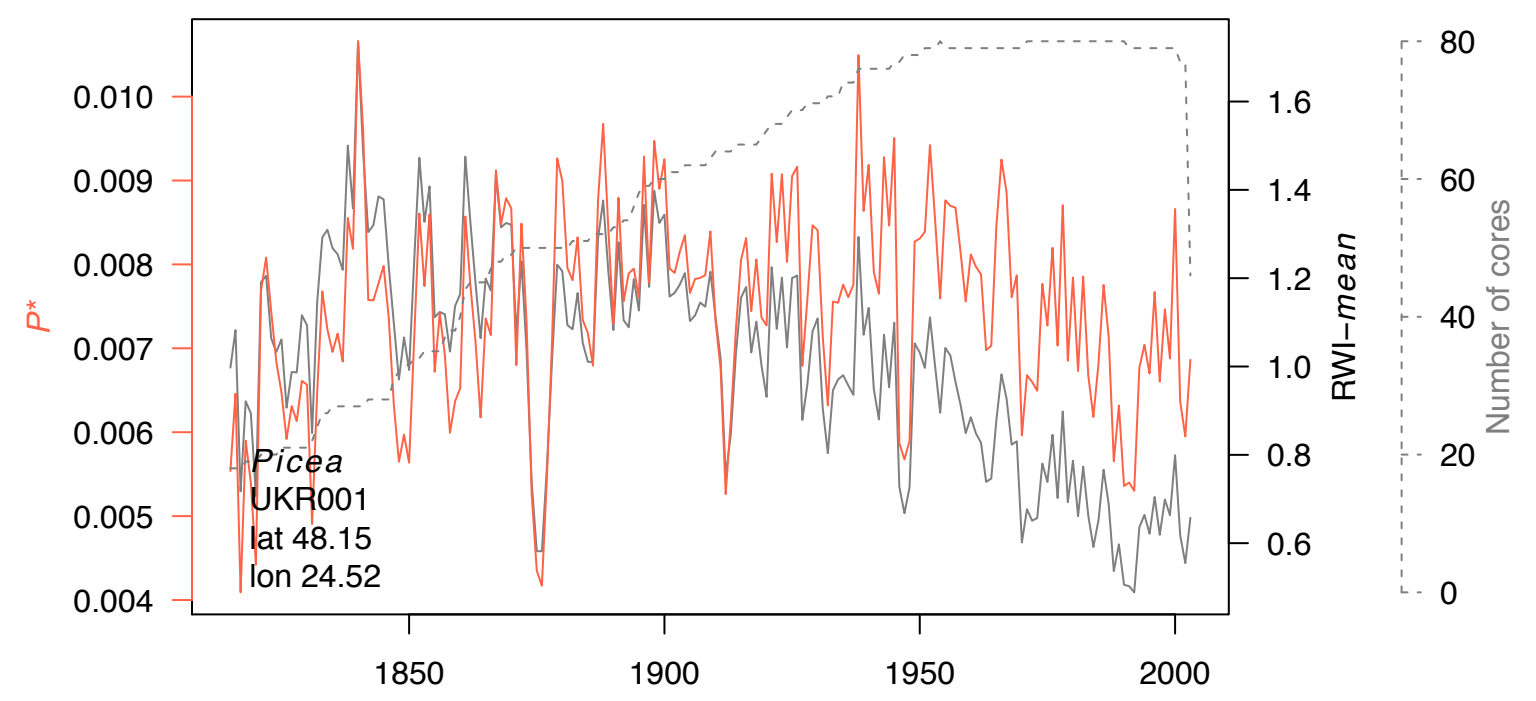

P*
0.0020
0.0015
0.0010
Picea
CANA463
lat 54.15
lon −70.29
1200
1400
1600
1800
2000
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
60
50
40
30
20
10
0
Number of cores

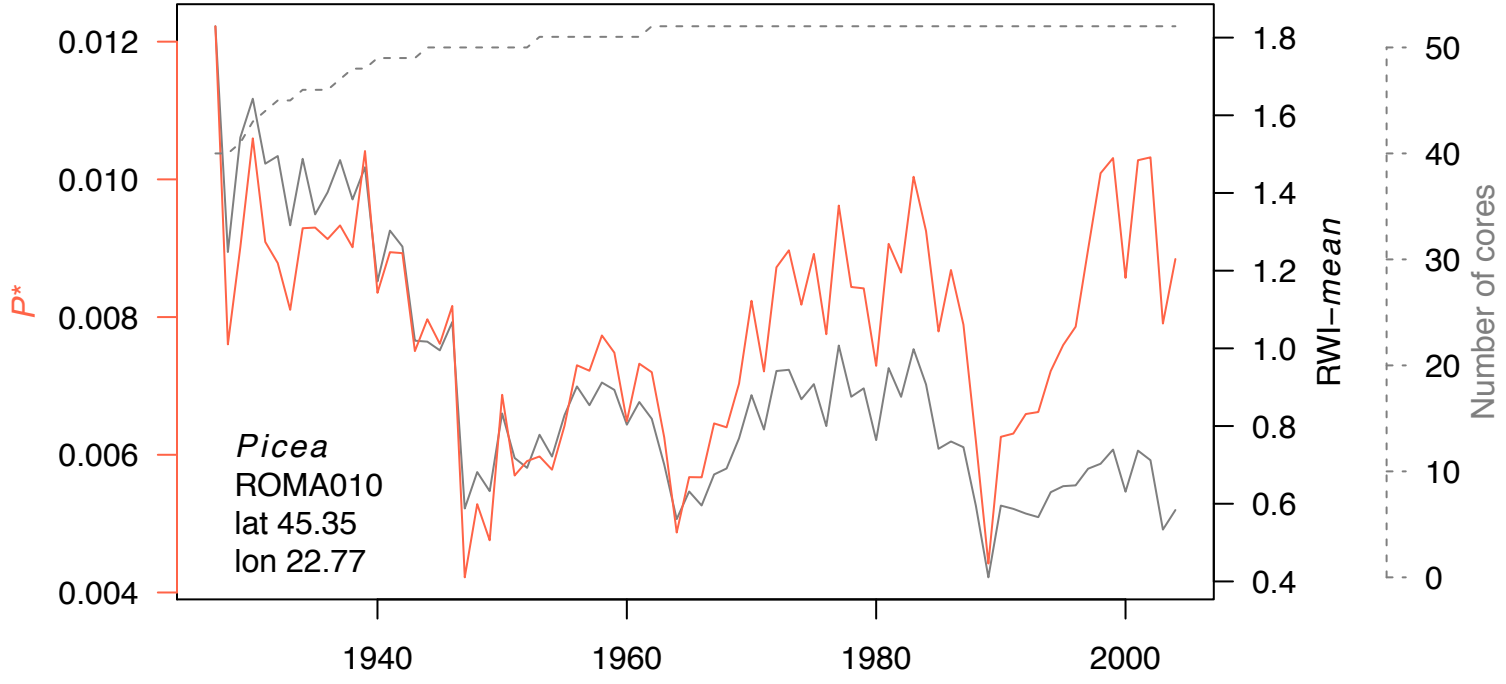

0.0025
0.0020
0.0015
0.0010
P*
1.6
1.4
1.2
1.0
0.8
0.6
RWI–mean
100
80
60
40
20
0
Number of cores
Picea
AK104
lat 67.97
lon –149.77
1600
1700
1800
1900
2000

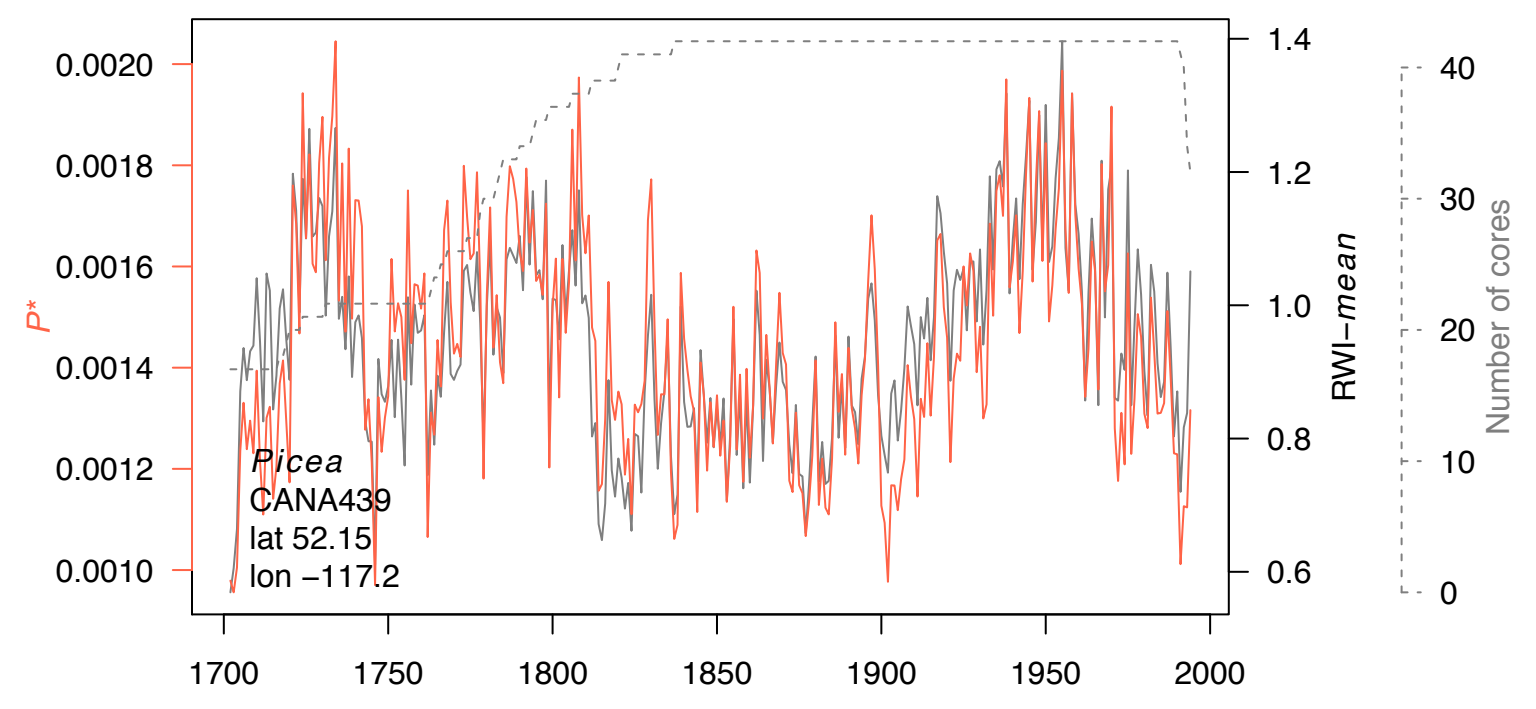

P*
0.0020
0.0015
0.0010
0.0005
Picea
CANA315
lat 68.78
lon −142.35
RWI–mean
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
60
40
20
0
1300
1400
1500
1600
1700
1800
1900
2000

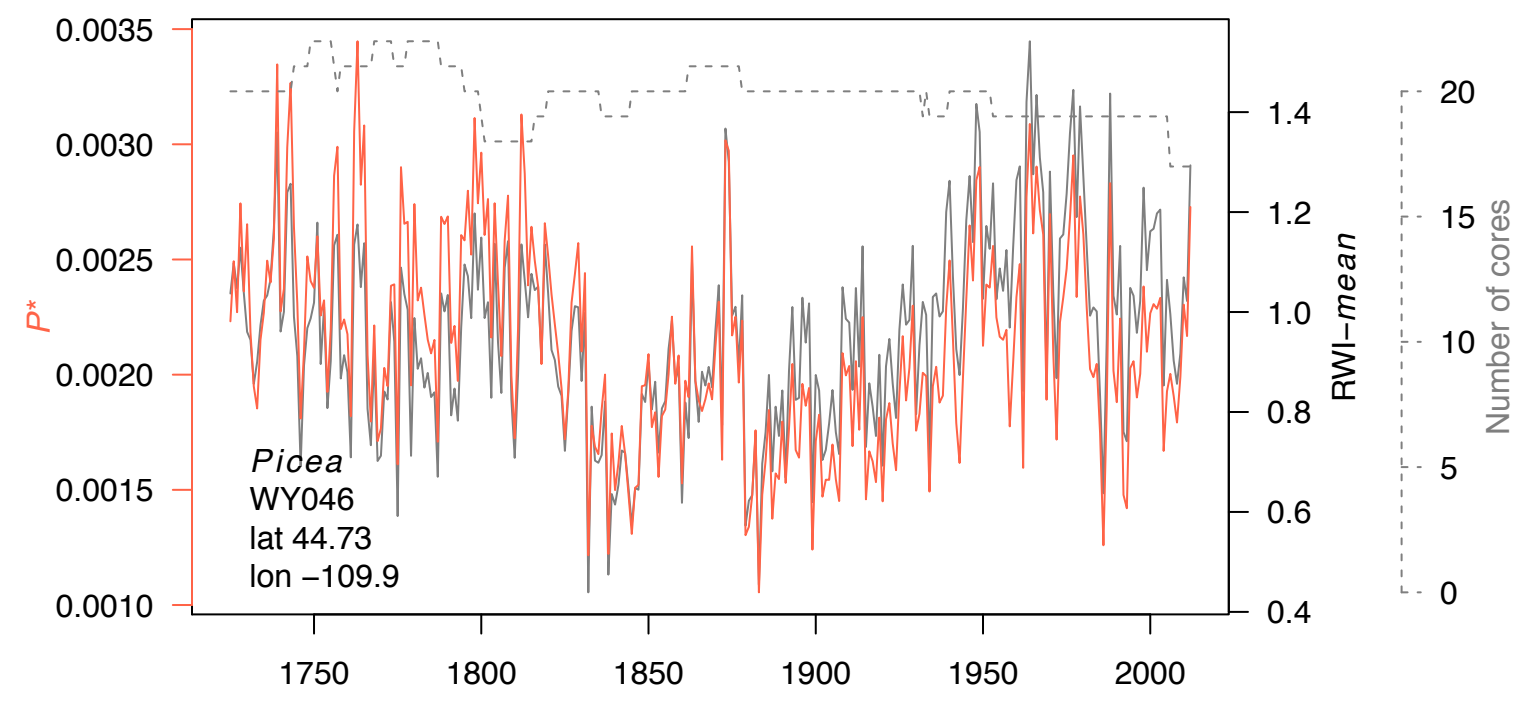

P*
0.006
0.005
0.004
0.003
Picea
JAPA010
lat 43.99
lon 145.01
1800
1850
1900
1950
2000
1.8
1.6
1.4
1.2
1.0
0.8
0.6
RWI–mean
50
40
30
20
10
0
Number of cores

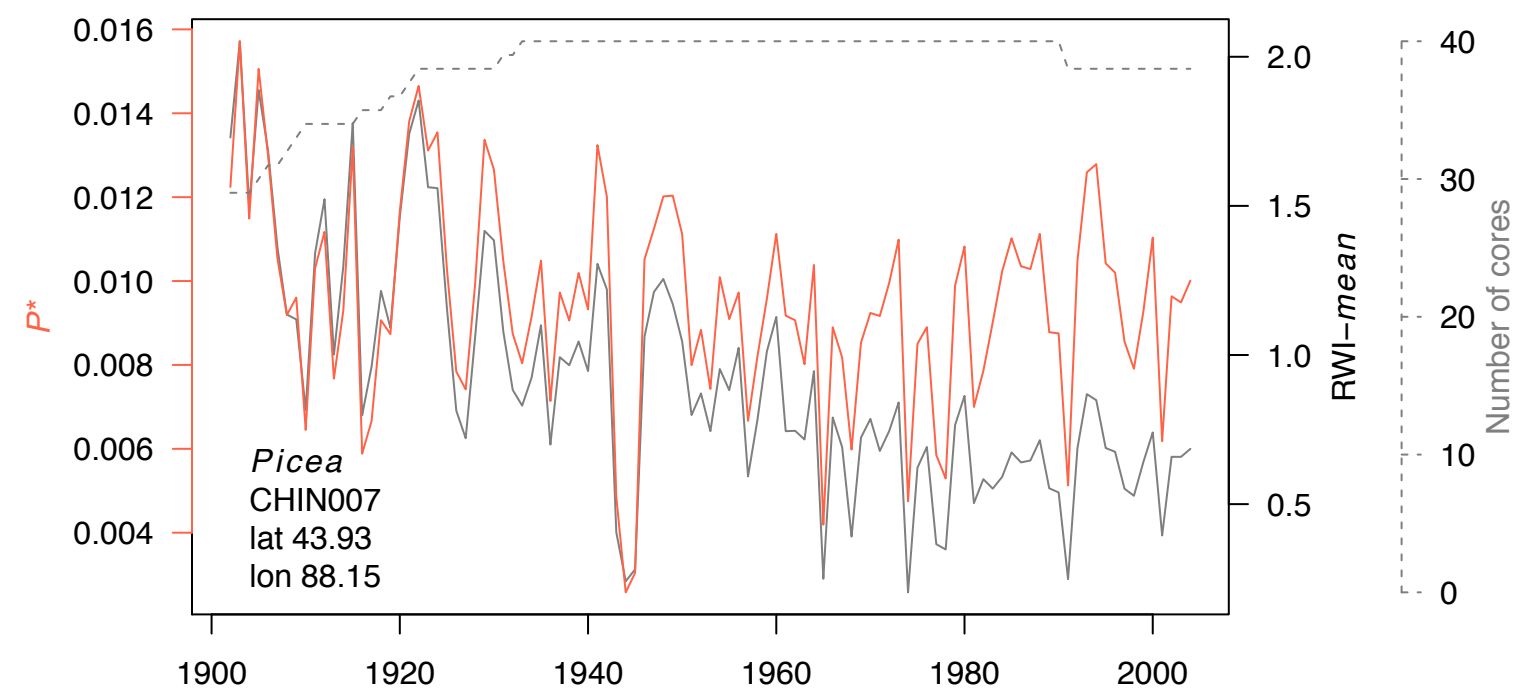

P*
0.0025
0.0024
0.0023
0.0022
1.10
1.05
1.00
0.95
RWI–mean
10
8
6
4
2
0
Number of cores
1940
1950
1960
1970
1980
1990
2000
Picea
CANA318
lat 64.03
lon −103.87

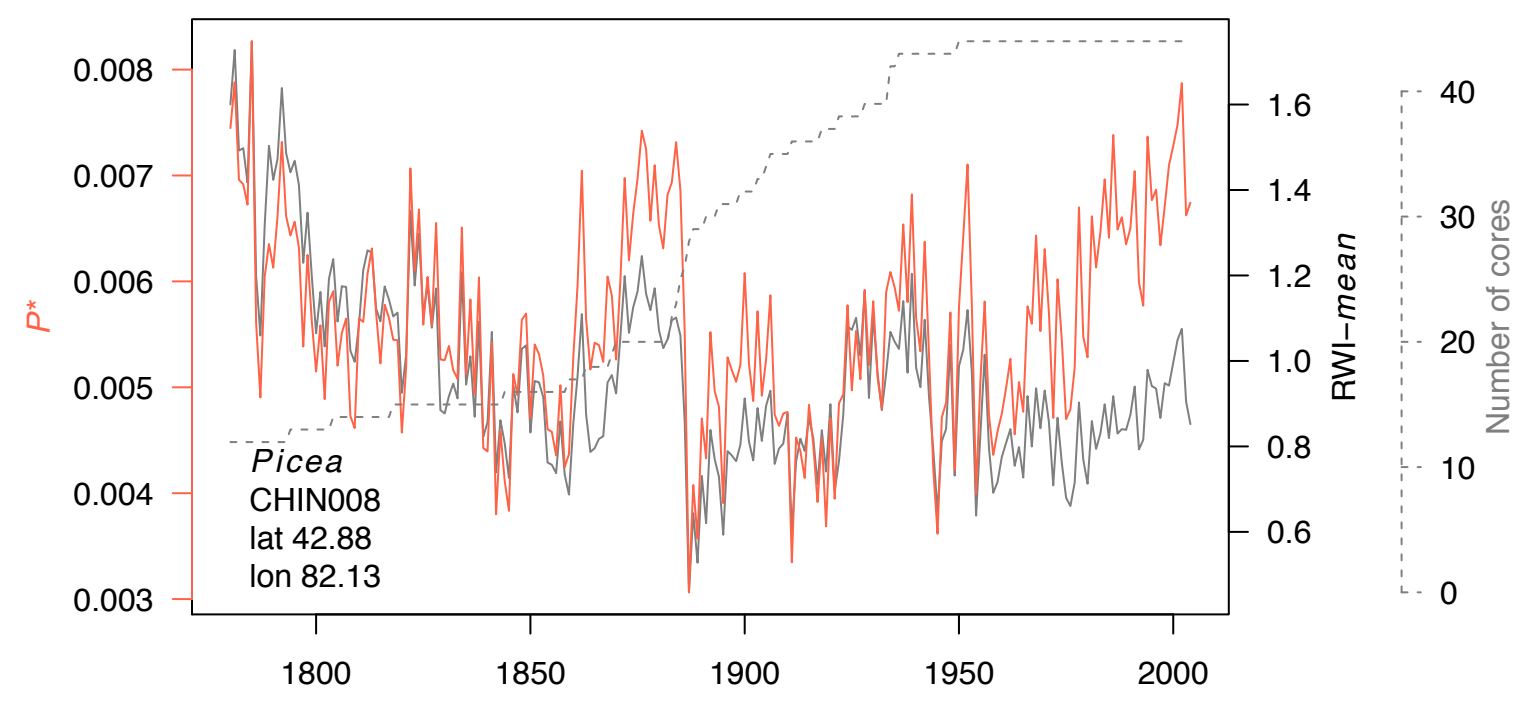

P*
0.010
0.009
0.008
0.007
0.006
0.005
0.004
Picea
UKR001
lat 48.15
lon 24.52
1850
1900
1950
2000
1.6
1.4
1.2
1.0
0.8
0.6
RWI–mean
80
60
40
20
0
Number of cores

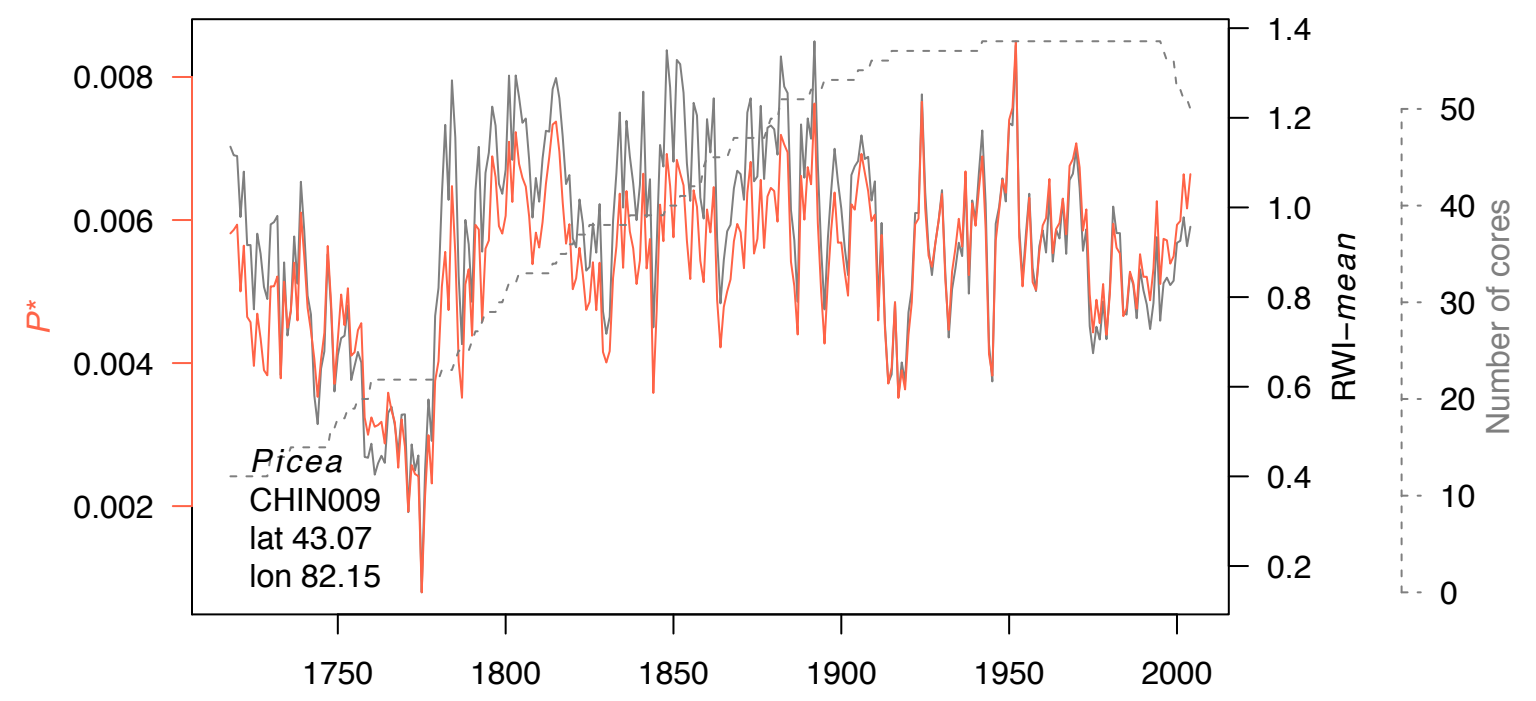

P*
0.012
0.010
0.008
0.006
0.004
RWI–mean
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
50
40
30
20
10
0
1940
1960
1980
2000
Picea
ROMA010
lat 45.35
lon 22.77

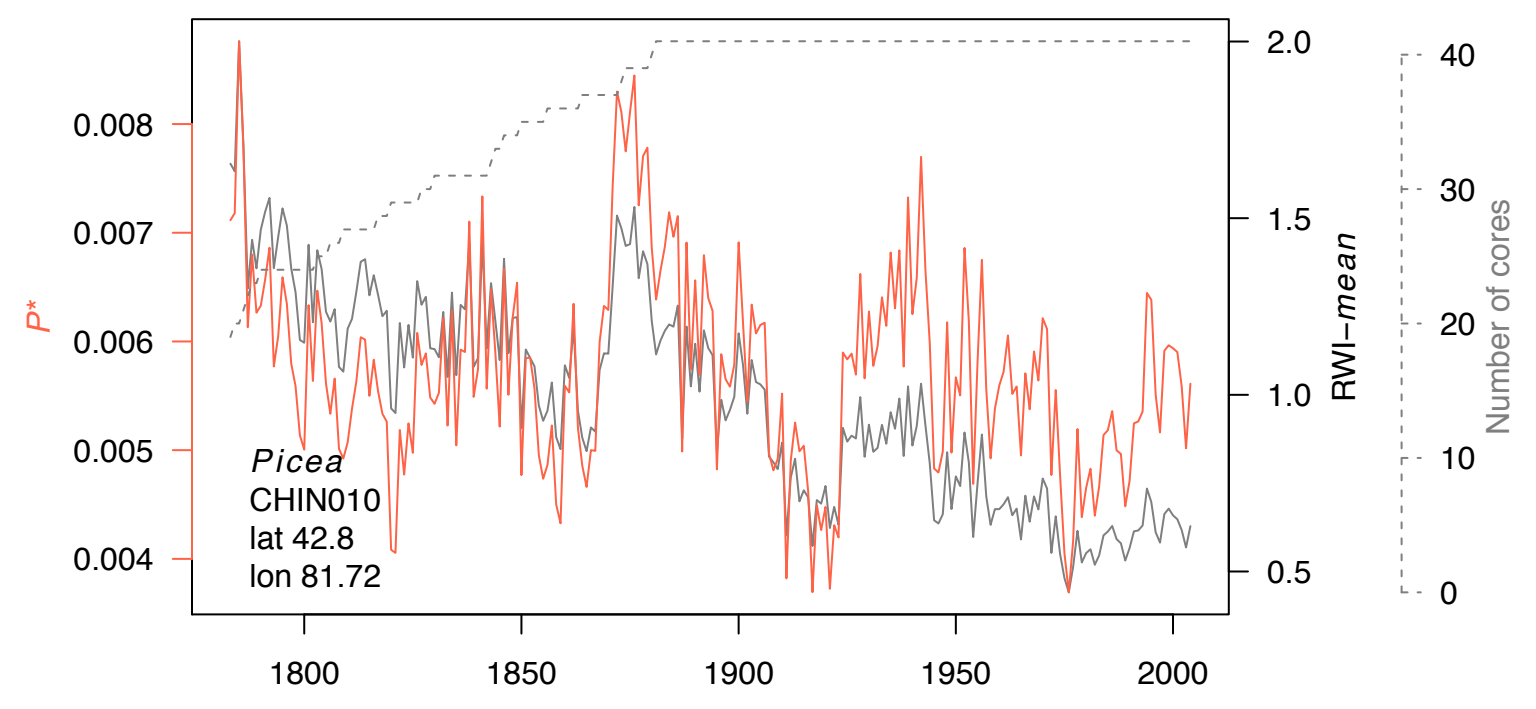

P*
0.0020
0.0018
0.0016
0.0014
0.0012
0.0010
Picea
CANA439
lat 52.15
lon −117.2
1700
1750
1800
1850
1900
1950
2000
1.4
1.2
1.0
0.8
0.6
RWI–mean
40
30
20
10
0
Number of cores

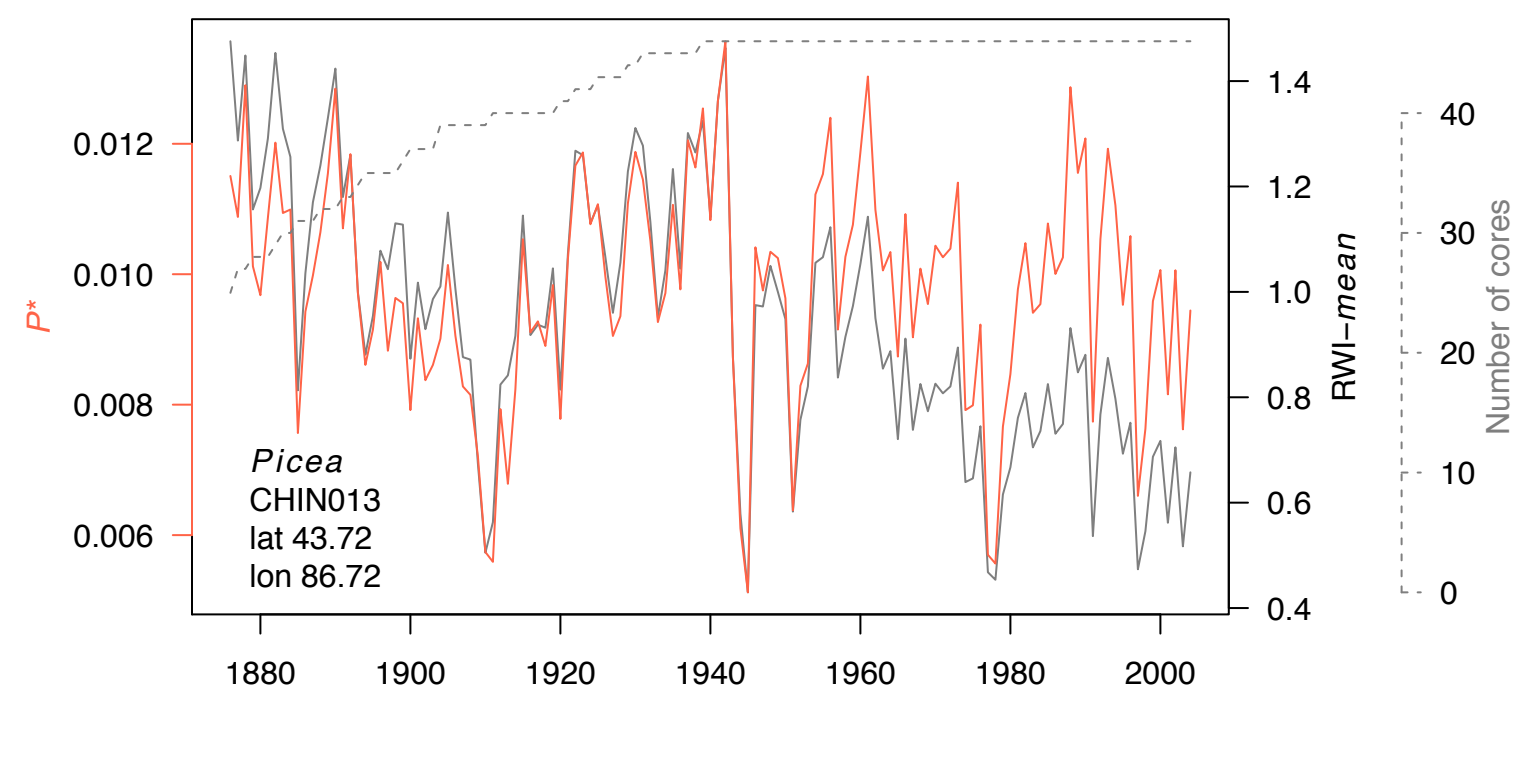

0.0035
0.0030
0.0025
0.0020
0.0015
0.0010
P*
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
20
15
10
5
0
Number of cores
1750
1800
1850
1900
1950
2000
Picea
WY046
lat 44.73
lon –109.9

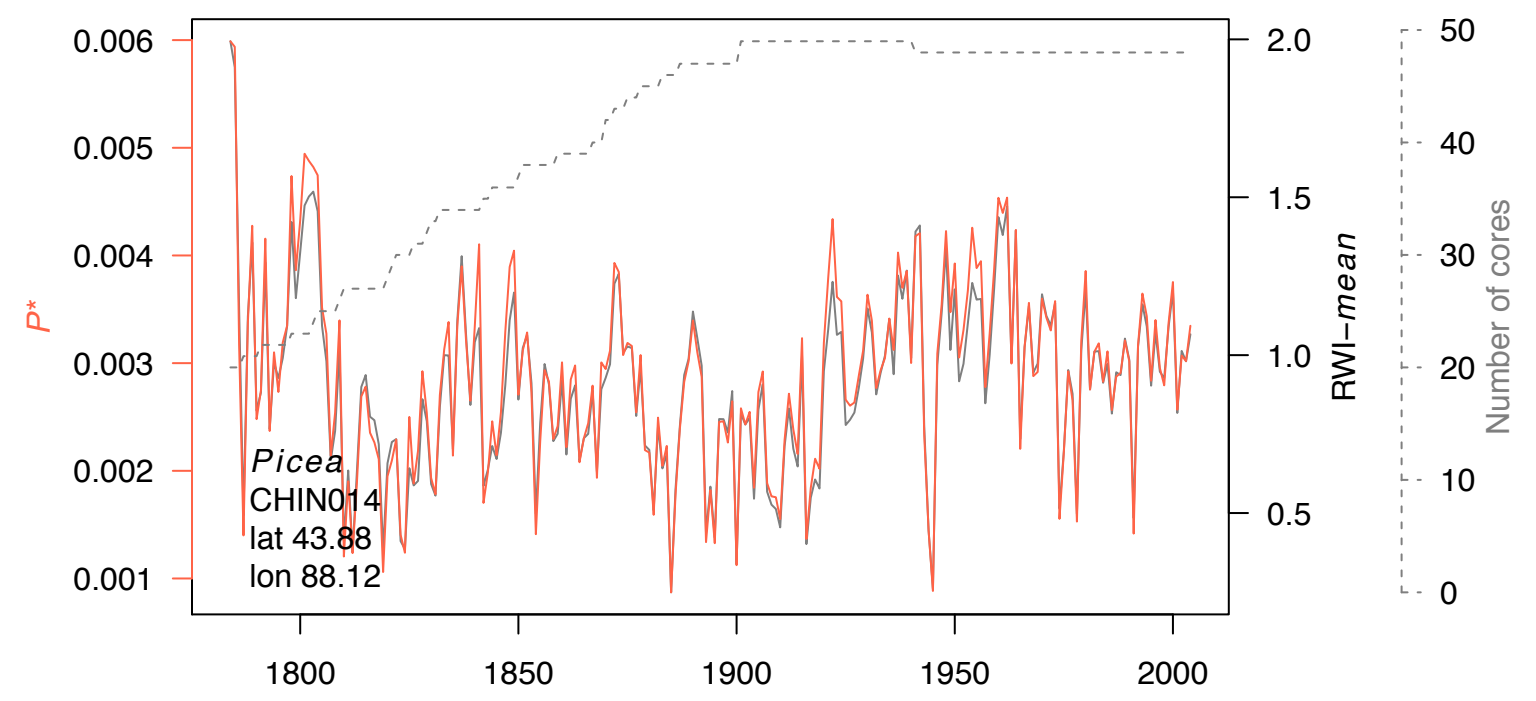

P*
0.016
0.014
0.012
0.010
0.008
0.006
0.004
RWI–mean
2.0
1.5
1.0
0.5
Number of cores
40
30
20
10
0
Picea
CHIN007
lat 43.93
lon 88.15
1900
1920
1940
1960
1980
2000

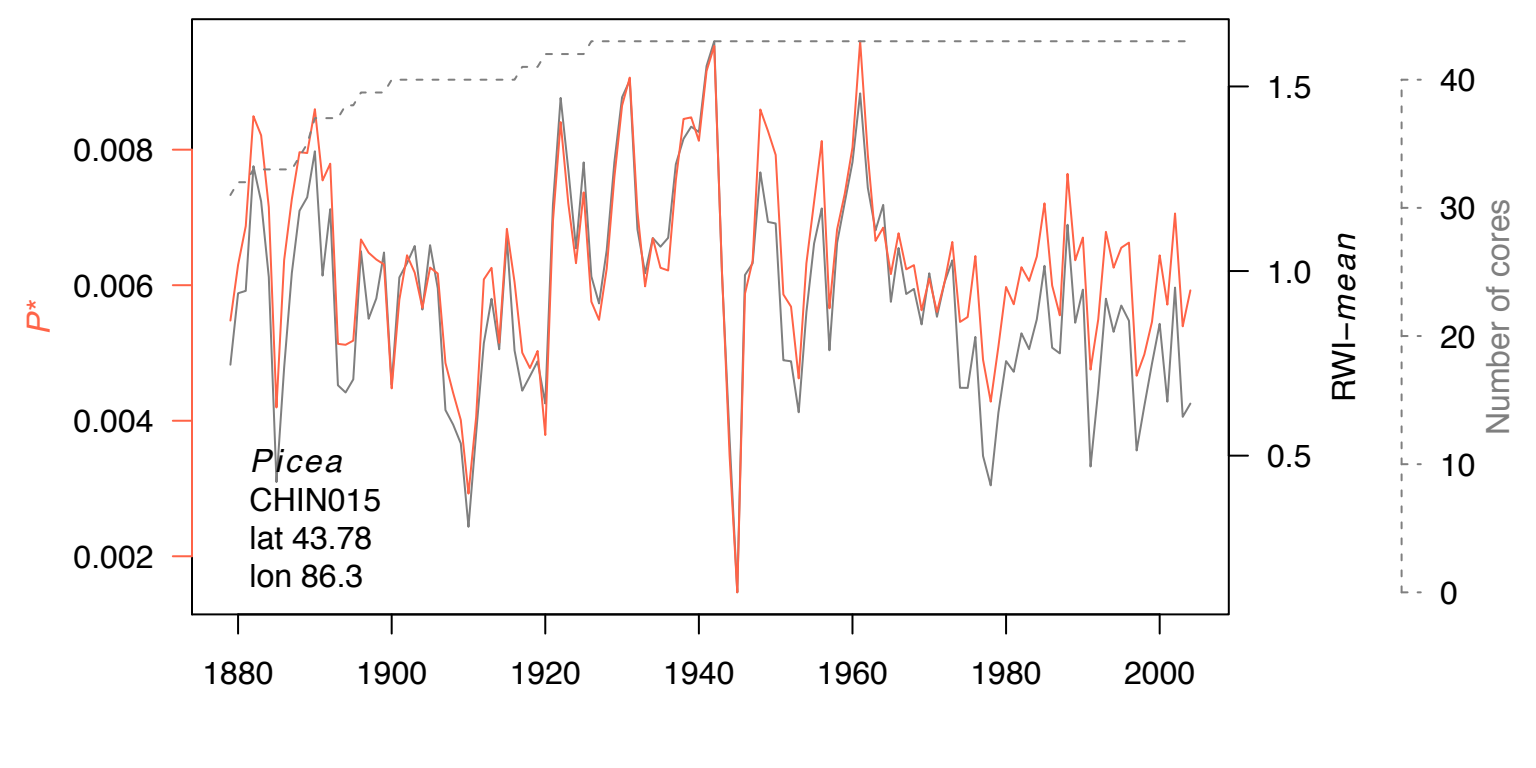

P*
0.008
0.007
0.006
0.005
0.004
0.003
RWI–mean
1.6
1.4
1.2
1.0
0.8
0.6
Number of cores
40
30
20
10
0
1800
1850
1900
1950
2000
Picea
CHIN008
lat 42.88
lon 82.13

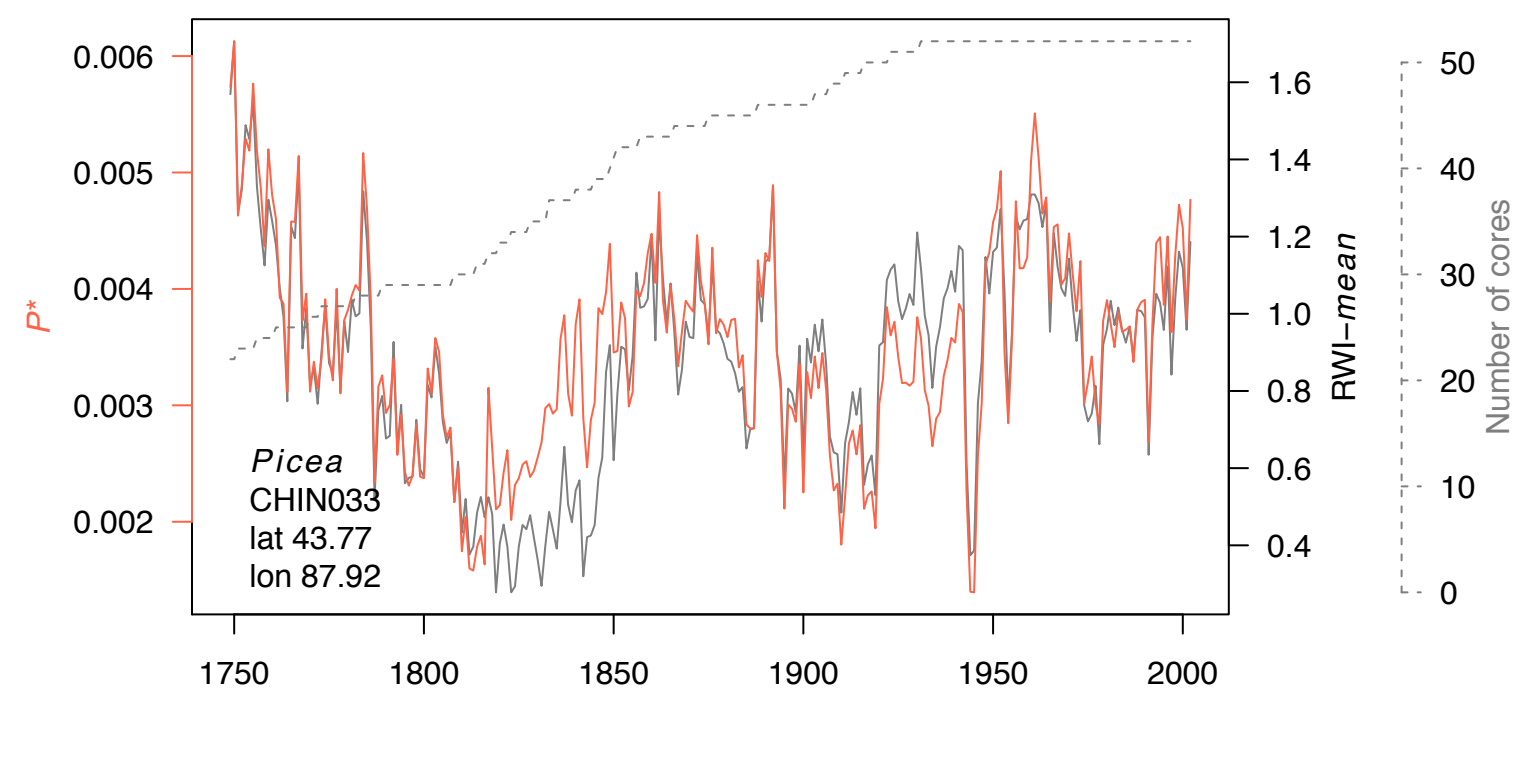

P*
0.008
0.006
0.004
0.002
RWI–mean
1.4
1.2
1.0
0.8
0.6
0.4
0.2
Number of cores
50
40
30
20
10
0
Picea
CHIN009
lat 43.07
lon 82.15
1750
1800
1850
1900
1950
2000

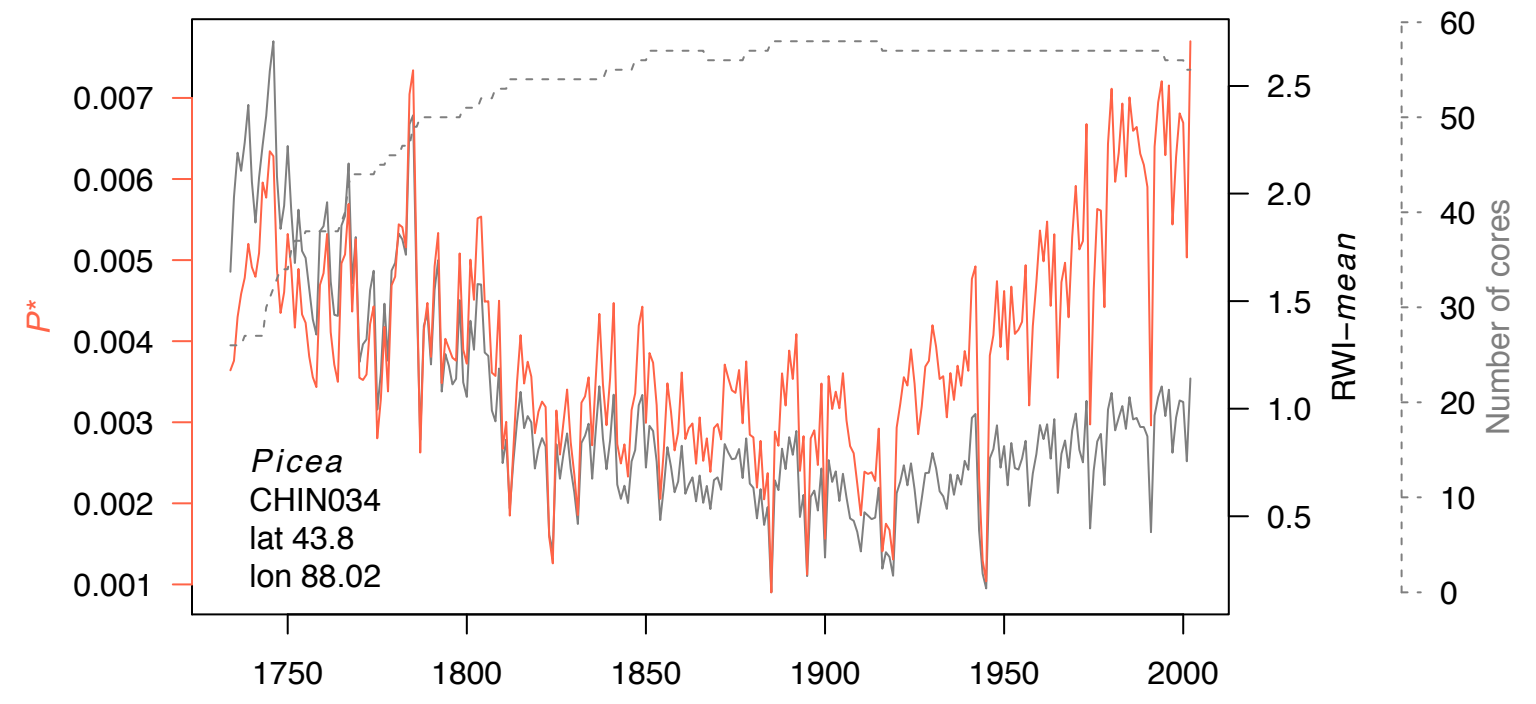

P*
0.008
0.007
0.006
0.005
0.004
Picea
CHIN010
lat 42.8
lon 81.72
1800
1850
1900
1950
2000
2.0
1.5
1.0
0.5
RWI–mean
40
30
20
10
0
Number of cores

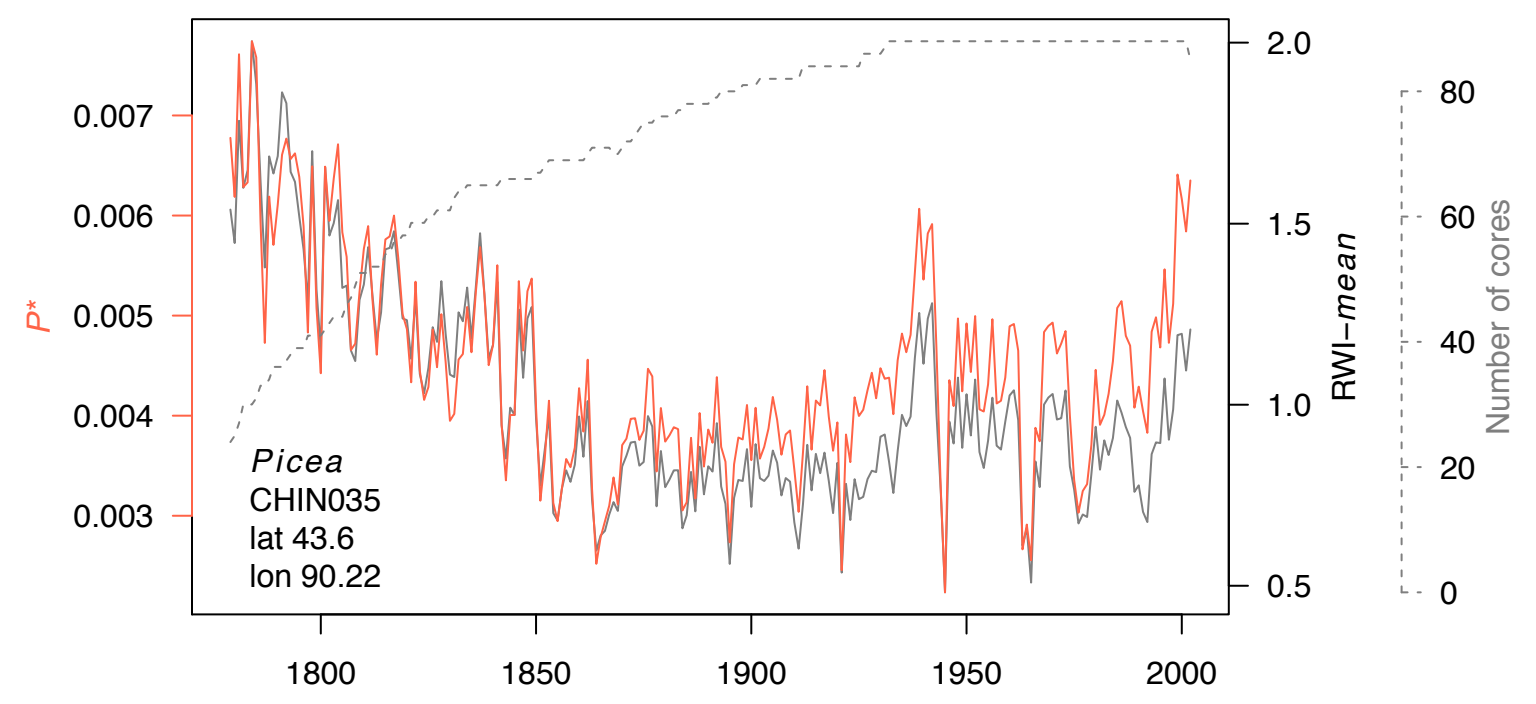

P*
0.012
0.010
0.008
0.006
Picea
CHIN013
lat 43.72
lon 86.72
1880
1900
1920
1940
1960
1980
2000
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
40
30
20
10
0
Number of cores

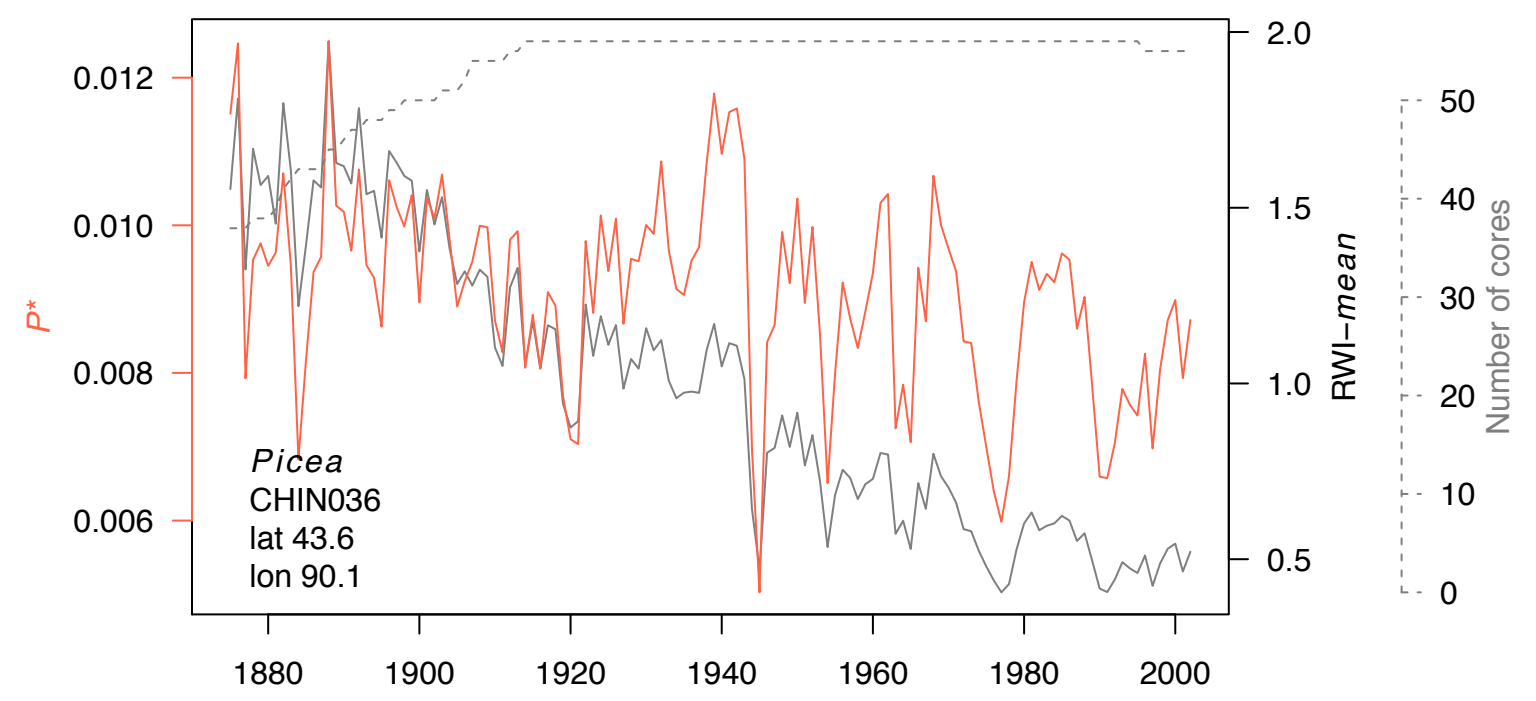

P*
0.006
0.005
0.004
0.003
0.002
0.001
RWI–mean
2.0
1.5
1.0
0.5
Number of cores
50
40
30
20
10
0
1800
1850
1900
1950
2000
Picea
CHIN014
lat 43.88
lon 88.12

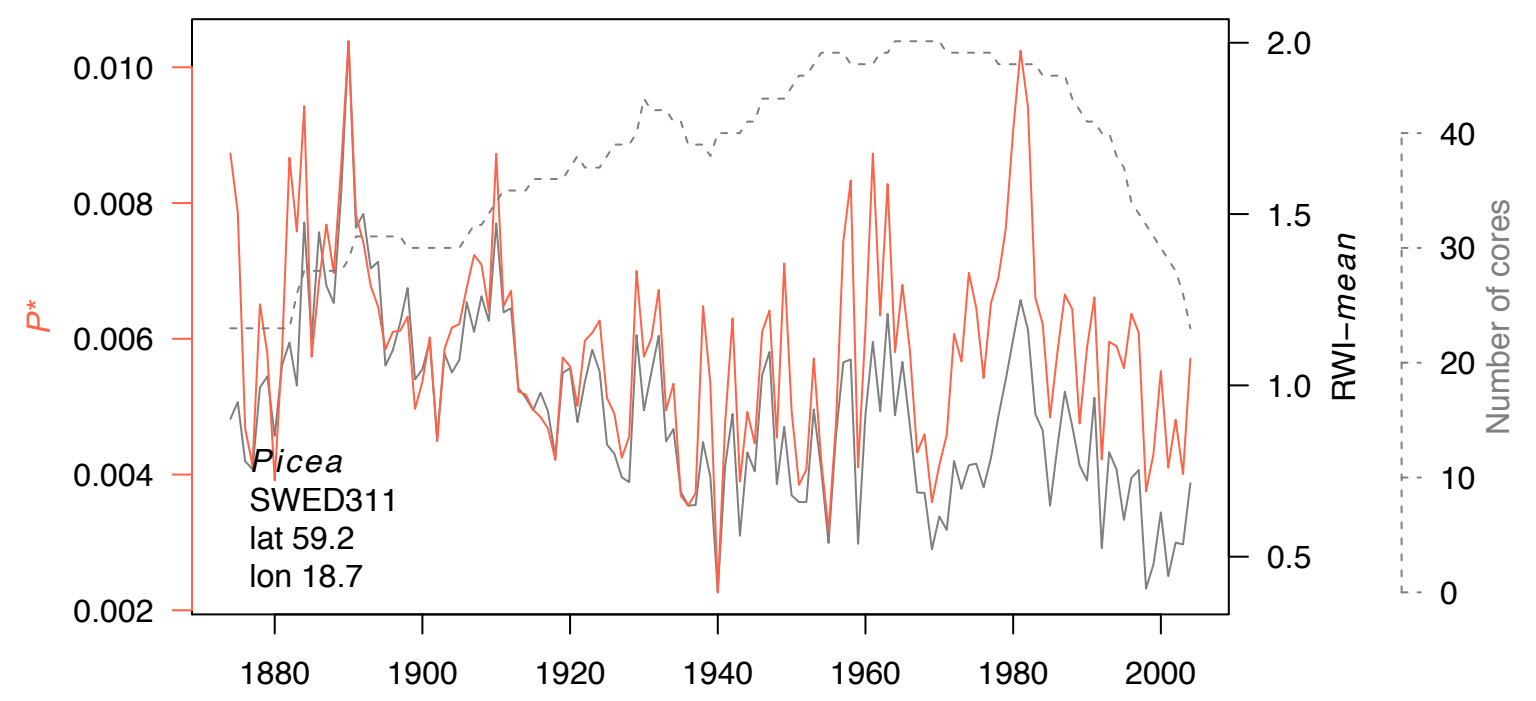

P*
0.008
0.006
0.004
0.002
Picea
CHIN015
lat 43.78
lon 86.3
1880
1900
1920
1940
1960
1980
2000
1.5
1.0
0.5
RWI–mean
40
30
20
10
0
Number of cores

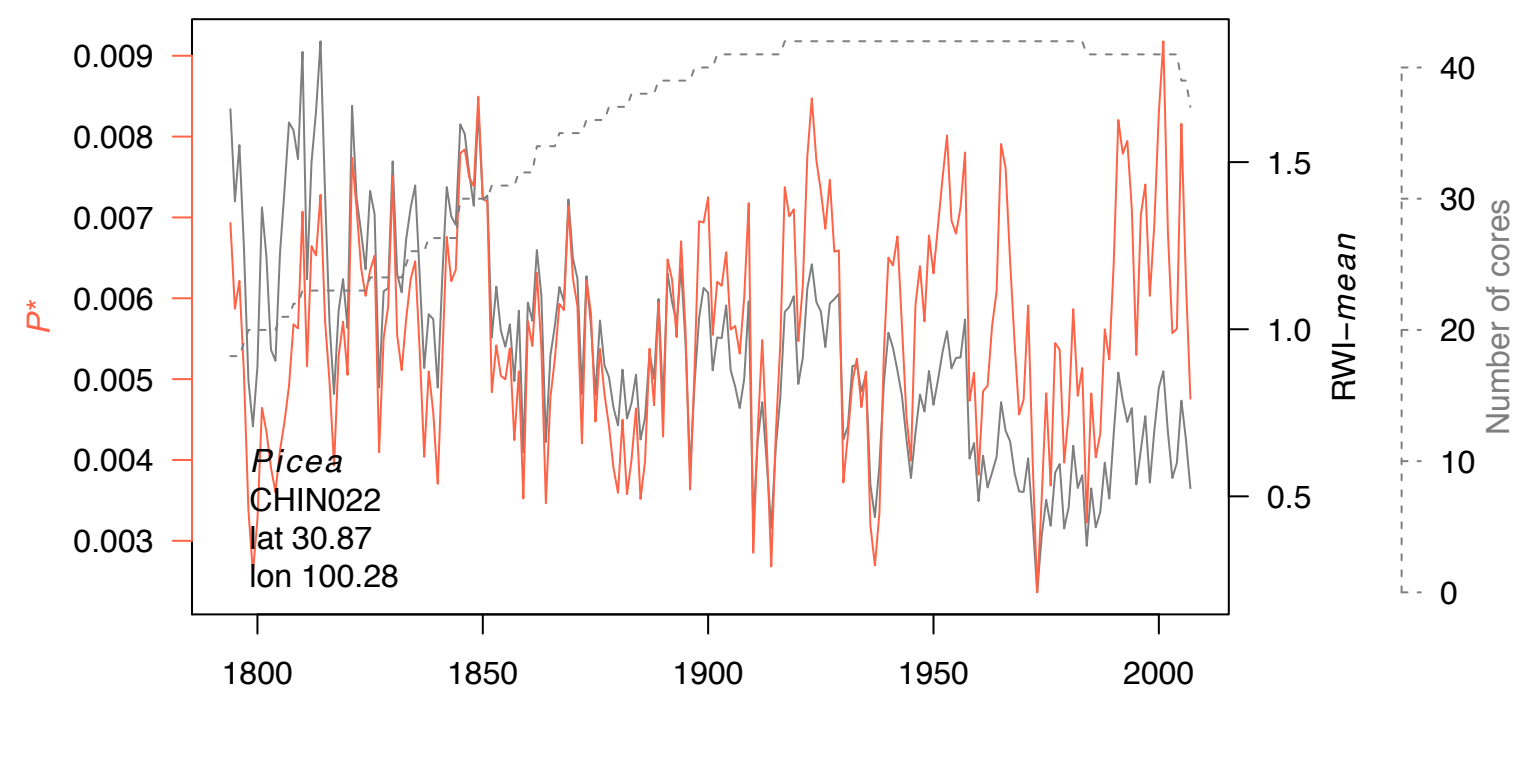

P*
0.006
0.005
0.004
0.003
0.002
RWI–mean
1.6
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
50
40
30
20
10
0
1750
1800
1850
1900
1950
2000
Picea
CHIN033
lat 43.77
lon 87.92

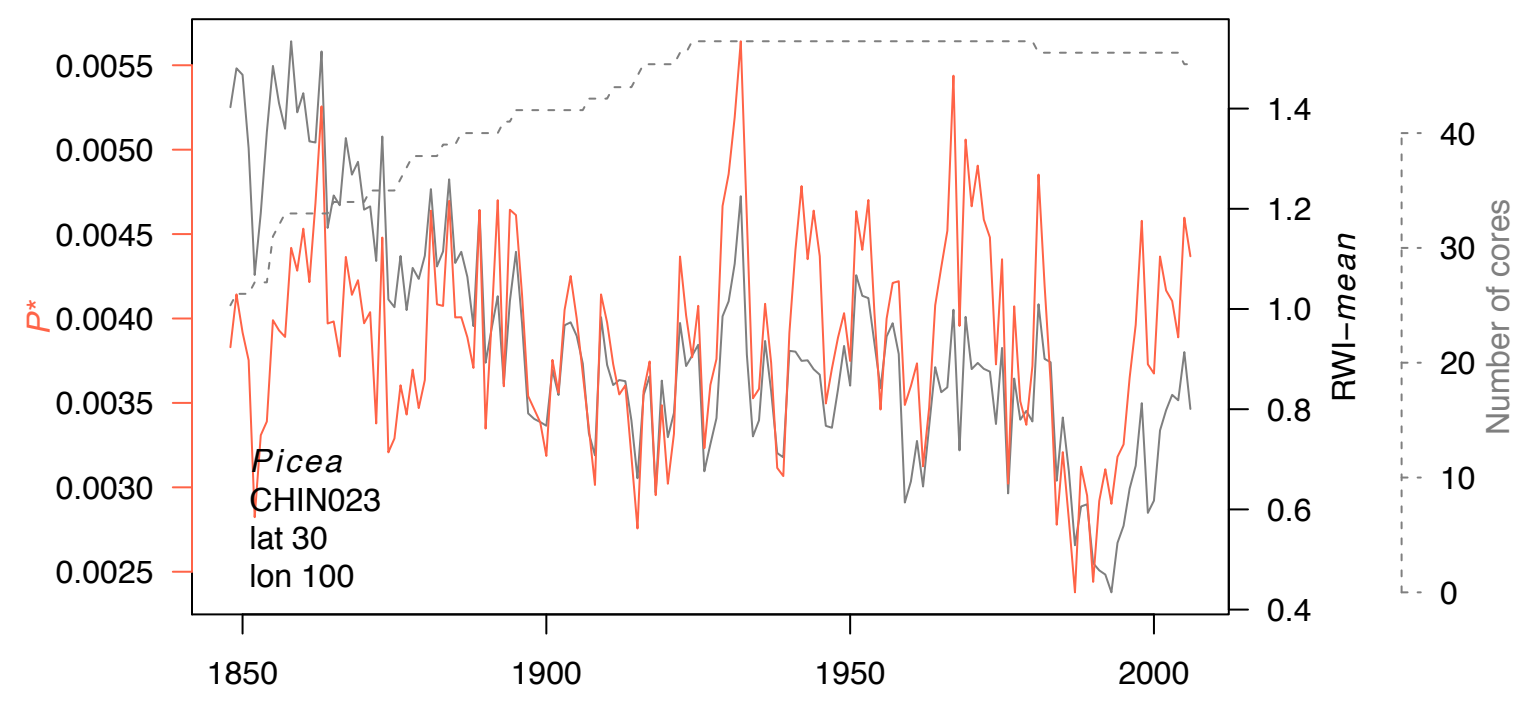

P*
0.007
0.006
0.005
0.004
0.003
0.002
0.001
RWI–mean
2.5
2.0
1.5
1.0
0.5
Number of cores
60
50
40
30
20
10
0
Picea
CHIN034
lat 43.8
lon 88.02
1750
1800
1850
1900
1950
2000

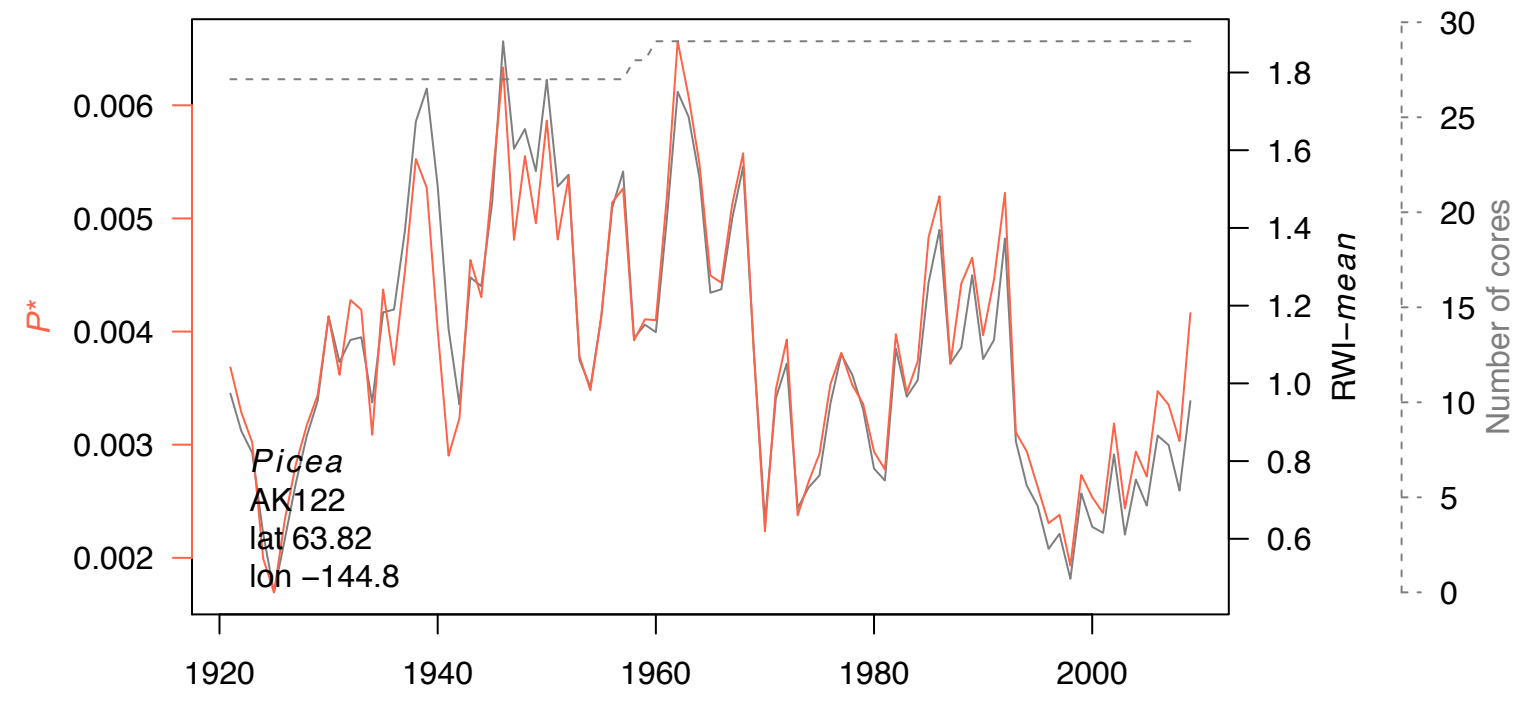

P*
0.007
0.006
0.005
0.004
0.003
Picea
CHIN035
lat 43.6
lon 90.22
2.0
1.5
1.0
0.5
RWI–mean
80
60
40
20
0
Number of cores
1800
1850
1900
1950
2000

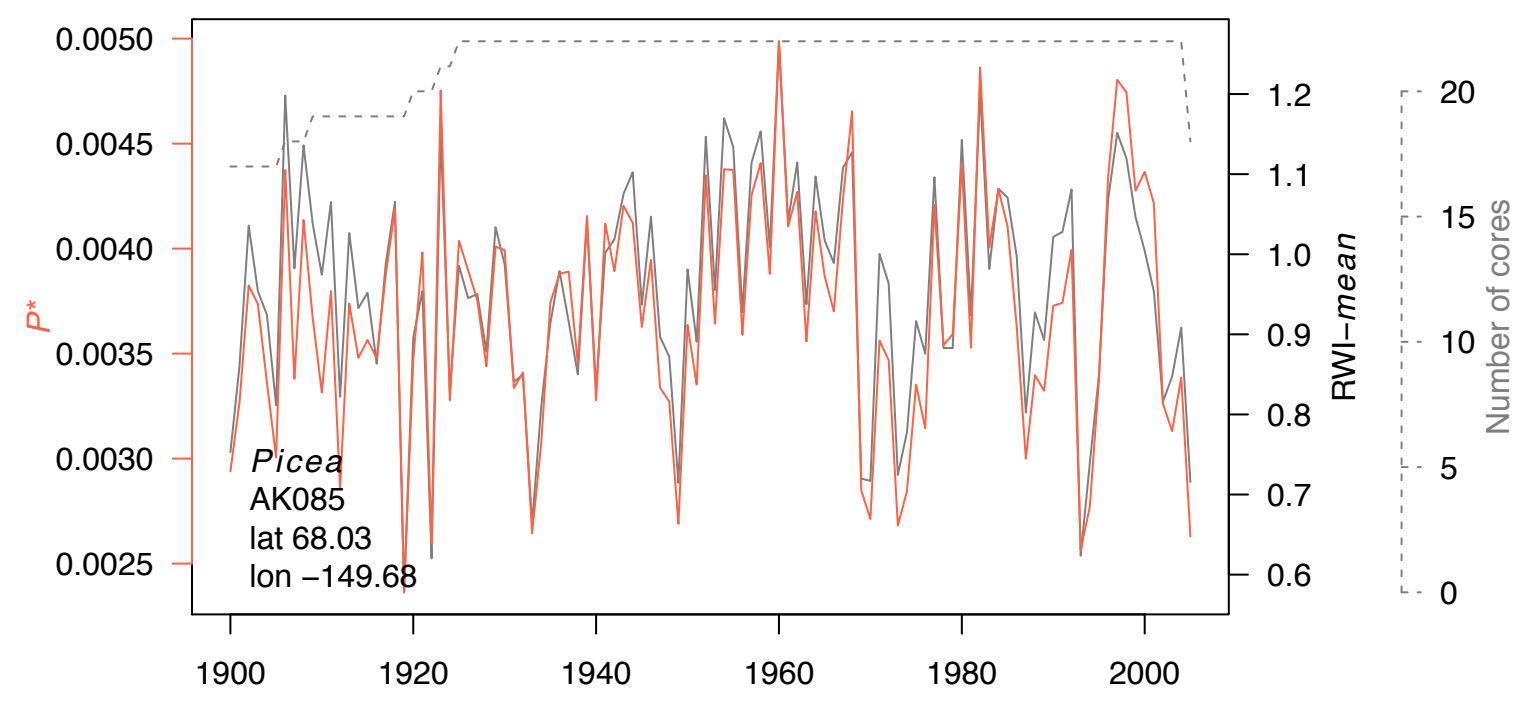

P*
0.012
0.010
0.008
0.006
Picea
CHIN036
lat 43.6
lon 90.1
2.0
1.5
1.0
0.5
RWI–mean
50
40
30
20
10
0
Number of cores
1880
1900
1920
1940
1960
1980
2000

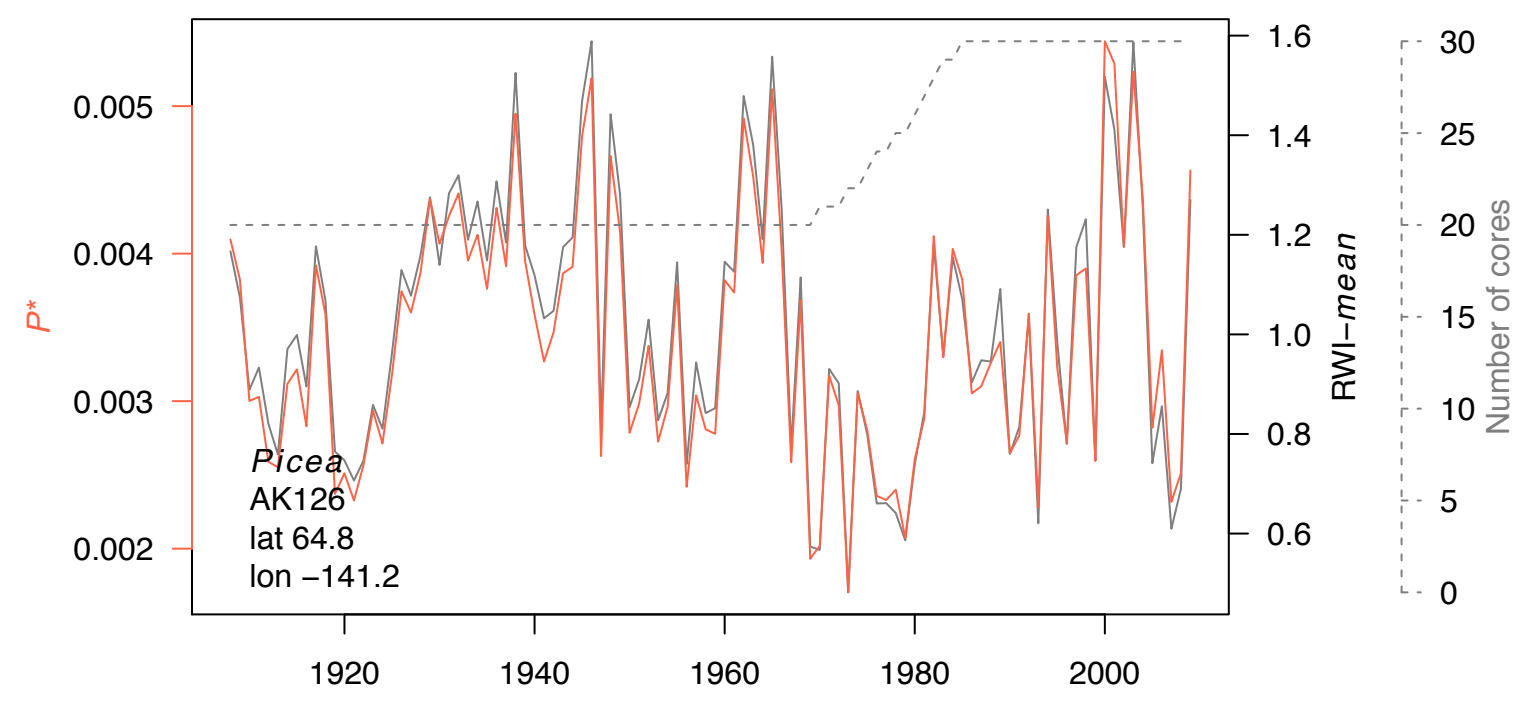

P*
0.010
0.008
0.006
0.004
0.002
2.0
1.5
1.0
0.5
RWI–mean
40
30
20
10
0
Number of cores
1880
1900
1920
1940
1960
1980
2000
Picea
SWED311
lat 59.2
lon 18.7

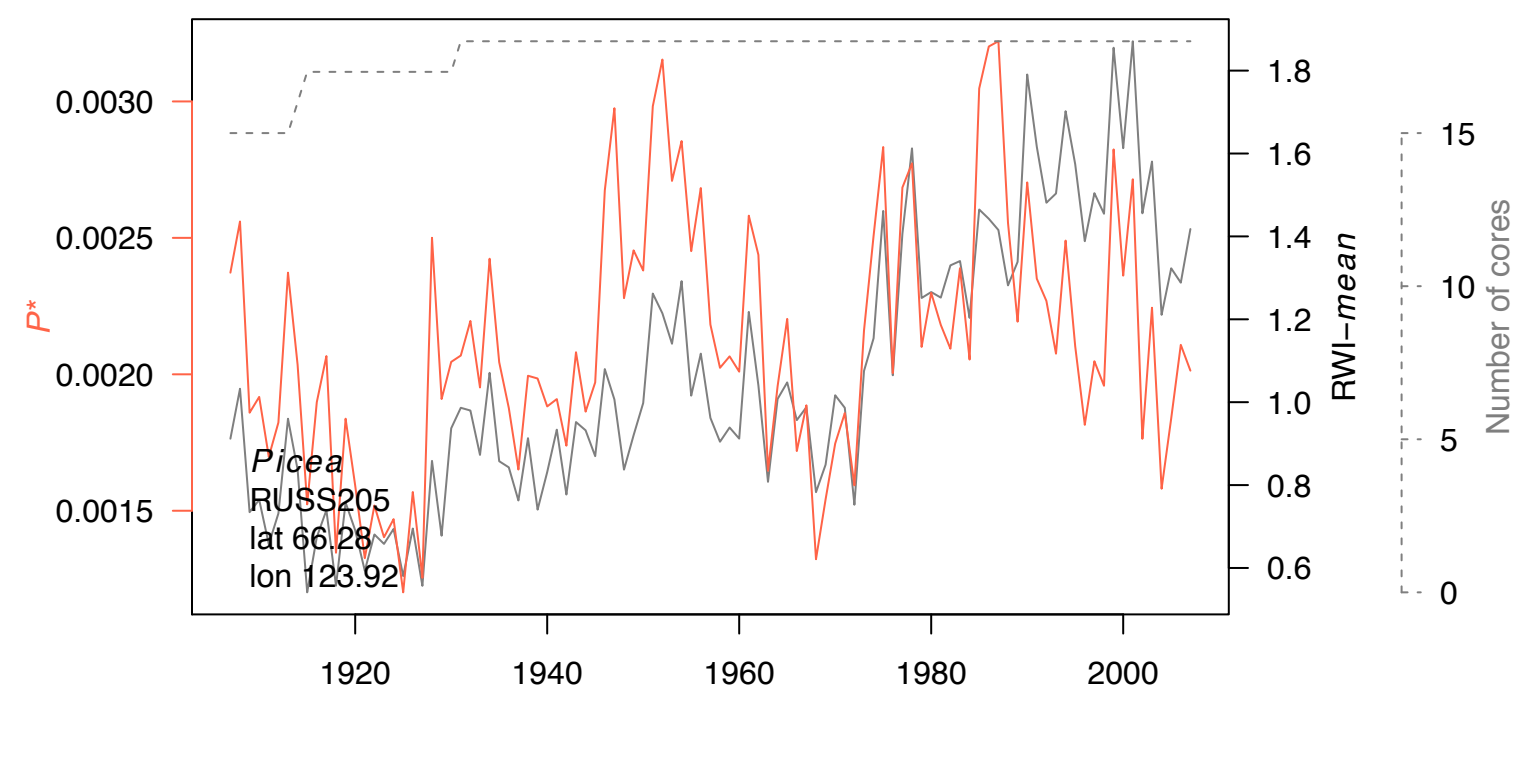

P*
0.009
0.008
0.007
0.006
0.005
0.004
0.003
Picea
CHIN022
lat 30.87
lon 100.28
1800
1850
1900
1950
2000
1.5
1.0
0.5
RWI–mean
40
30
20
10
0
Number of cores

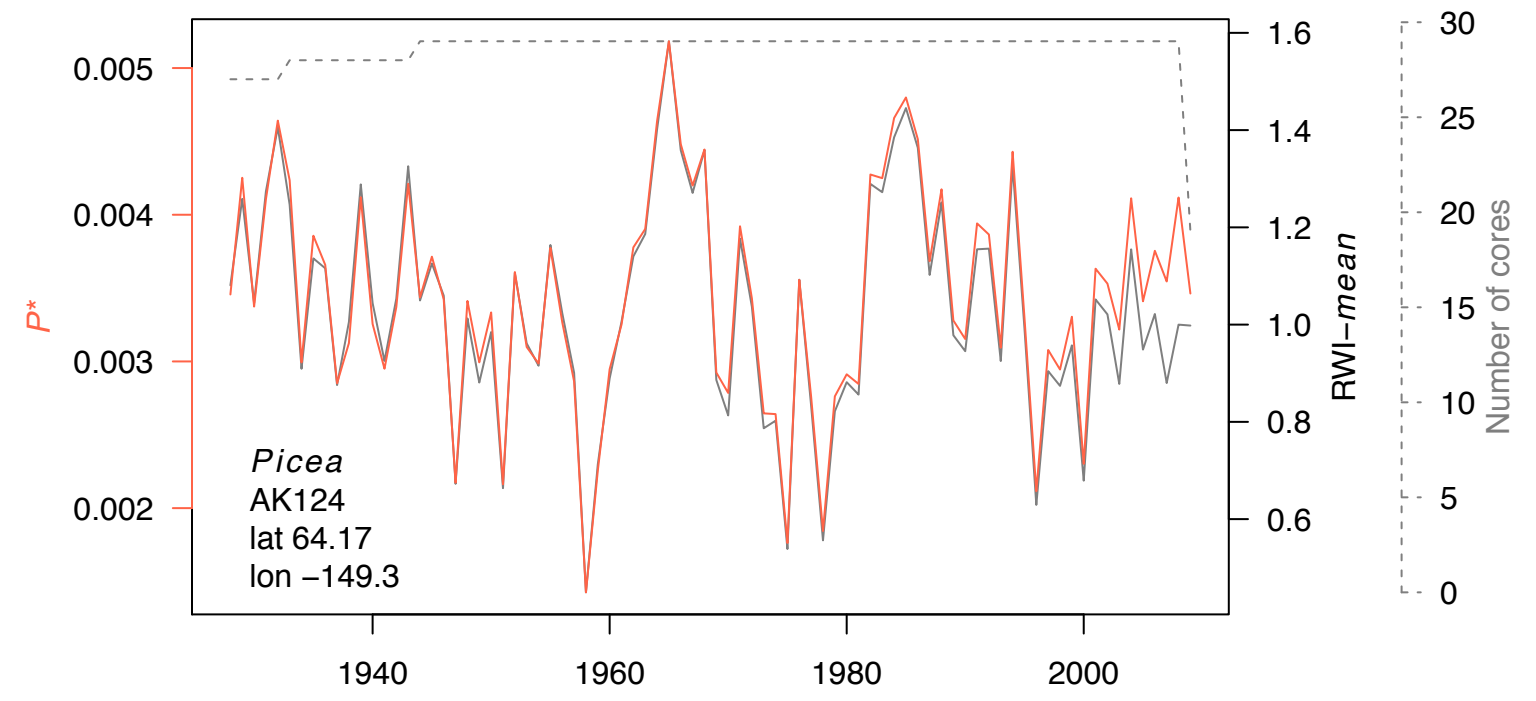

P*
0.0055
0.0050
0.0045
0.0040
0.0035
0.0030
0.0025
RWI–mean
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
40
30
20
10
0
1850
1900
1950
2000
Picea
CHIN023
lat 30
lon 100

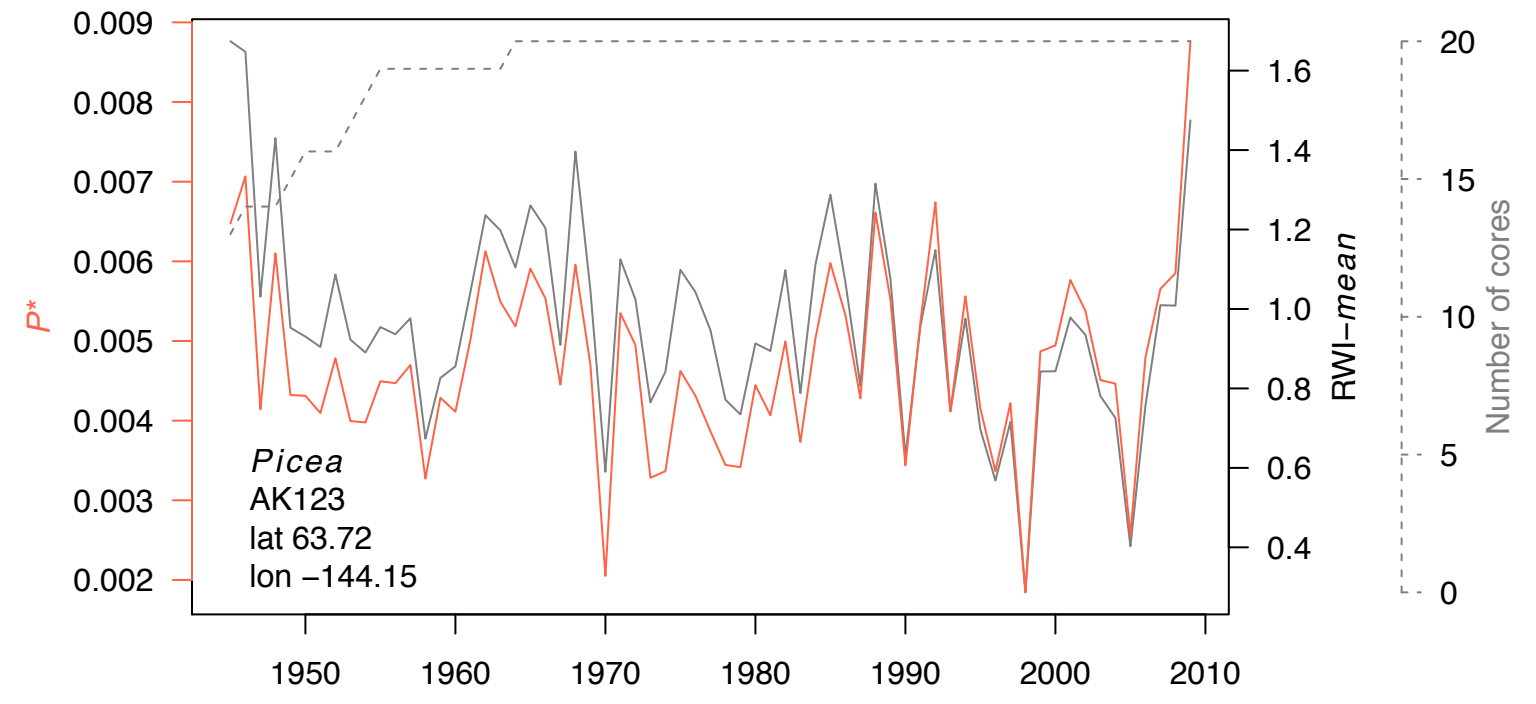

P*
0.006
0.005
0.004
0.003
0.002
Picea
AK122
lat 63.82
lon −144.8
1920
1940
1960
1980
2000
RWI–mean
1.8
1.6
1.4
1.2
1.0
0.8
0.6
Number of cores
30
25
20
15
10
5
0

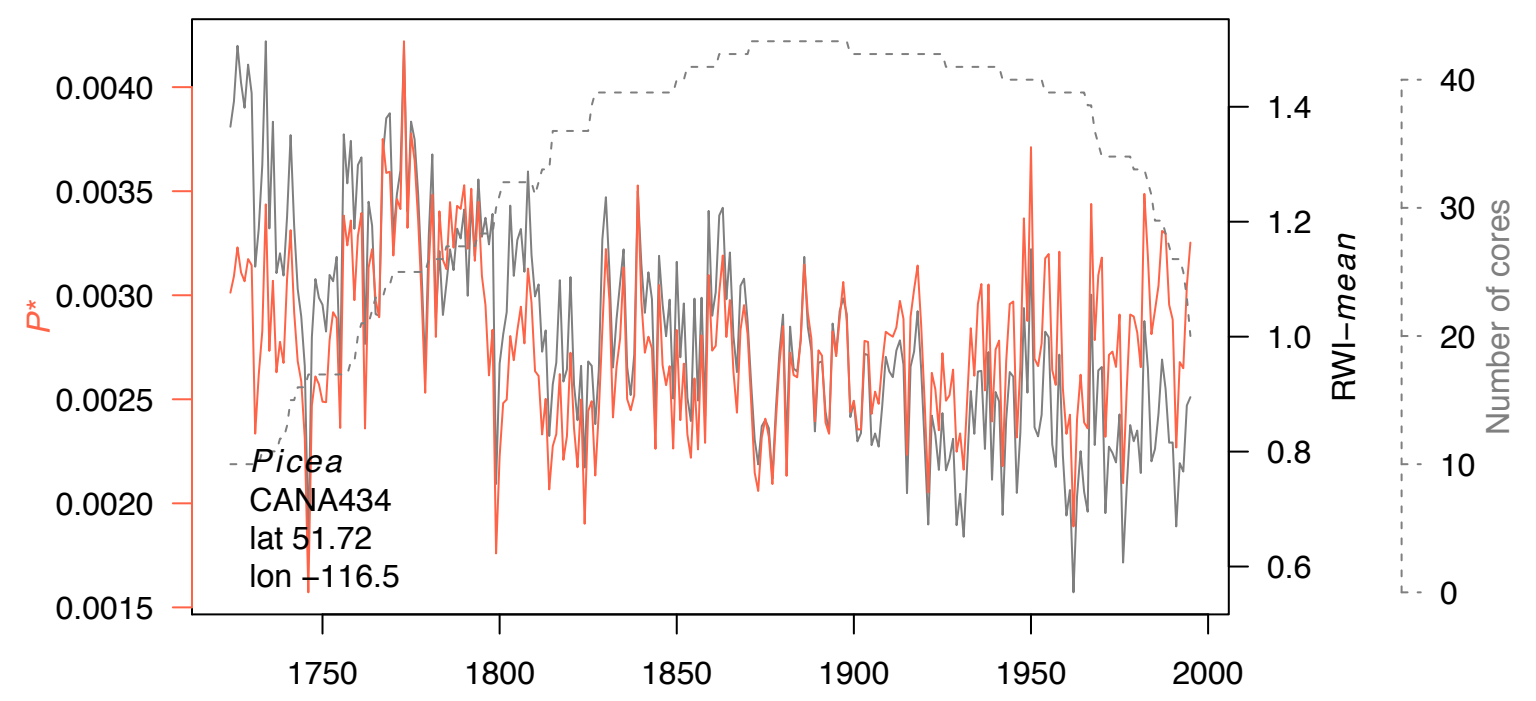

0.0050
0.0045
0.0040
0.0035
0.0030
0.0025
P*
Picea
AK085
lat 68.03
lon −149.68
1.2
1.1
1.0
0.9
0.8
0.7
0.6
RWI–mean
20
15
10
5
0
Number of cores
1900
1920
1940
1960
1980
2000

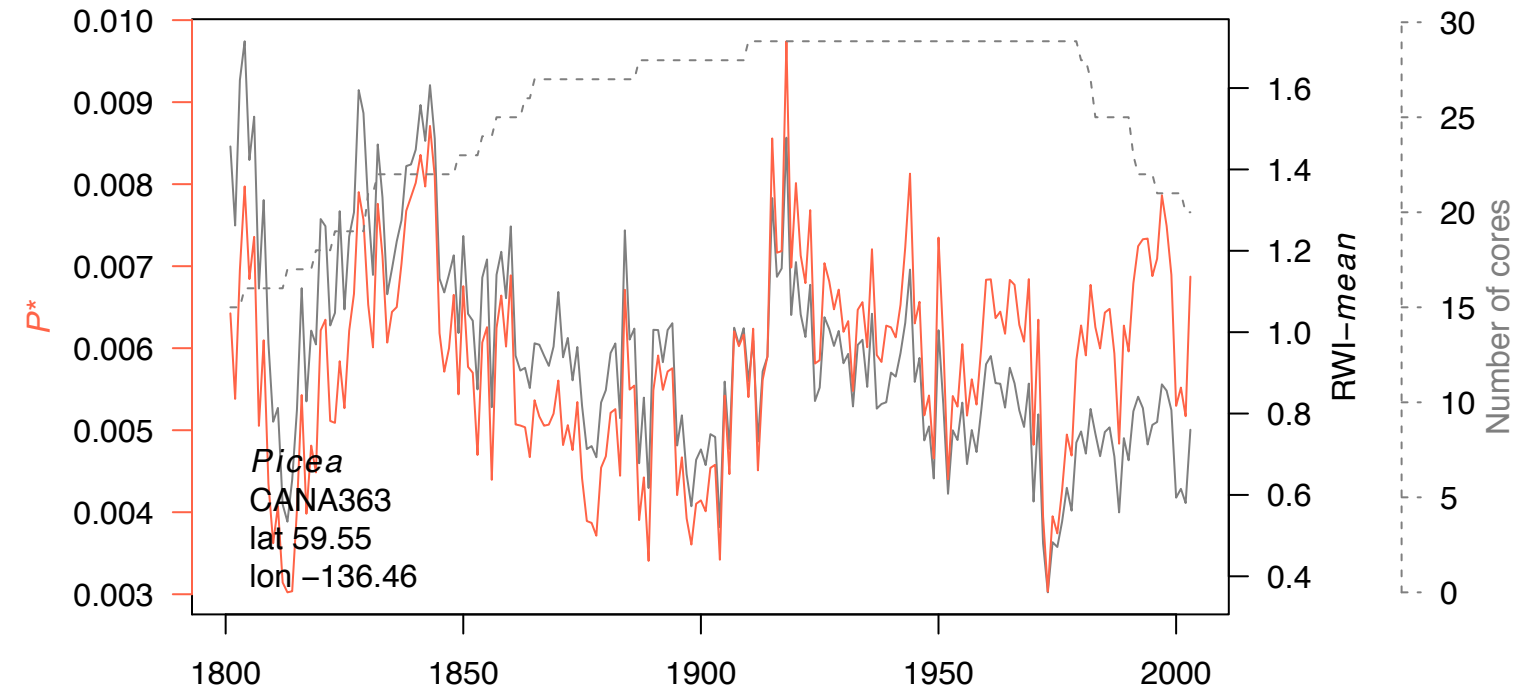

P*
0.005
0.004
0.003
0.002
Picea
AK126
lat 64.8
lon −141.2
1920
1940
1960
1980
2000
1.6
1.4
1.2
1.0
0.8
0.6
RWI–mean
30
25
20
15
10
5
0
Number of cores

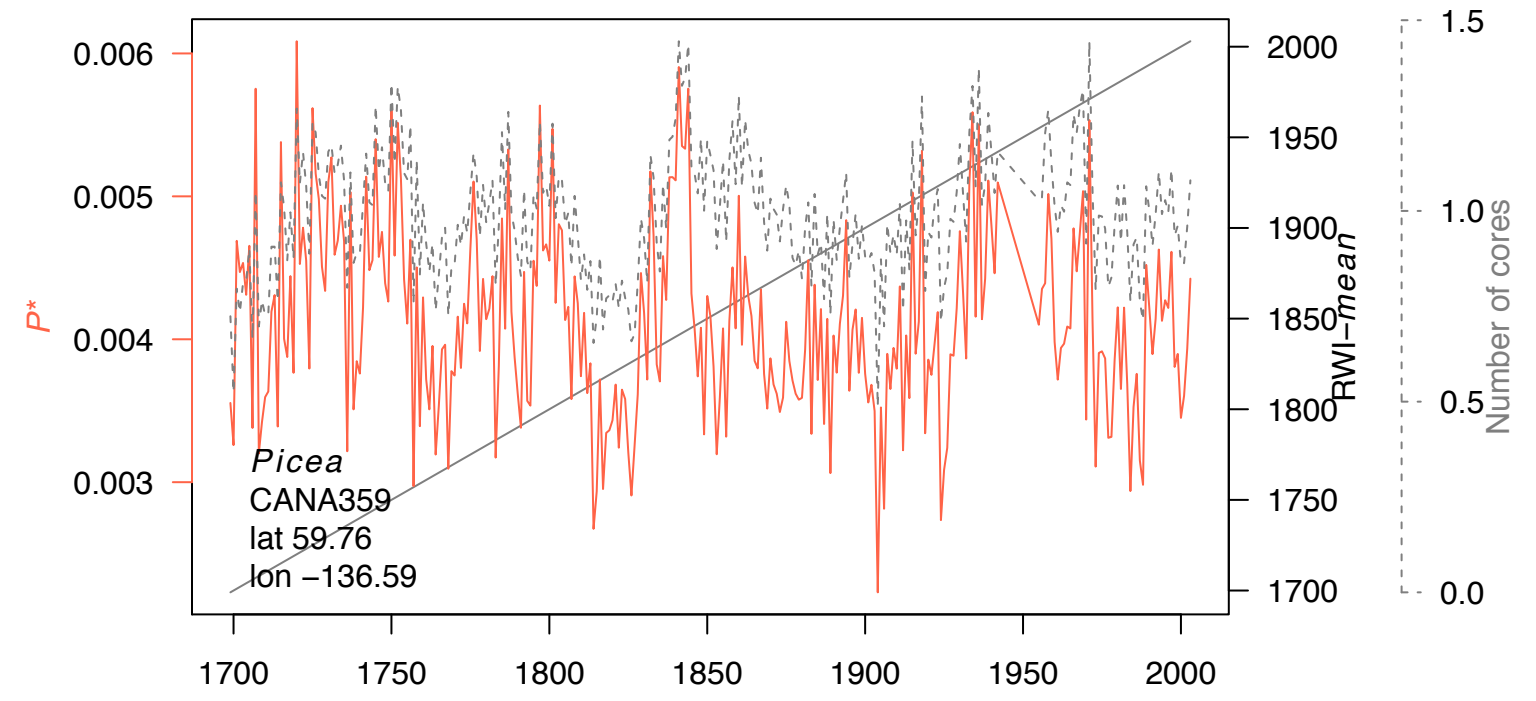

P*
0.0030
0.0025
0.0020
0.0015
Picea
RUSS205
lat 66.28
lon 123.92
1920
1940
1960
1980
2000
1.8
1.6
1.4
1.2
1.0
0.8
0.6
RWI–mean
15
10
5
0
Number of cores

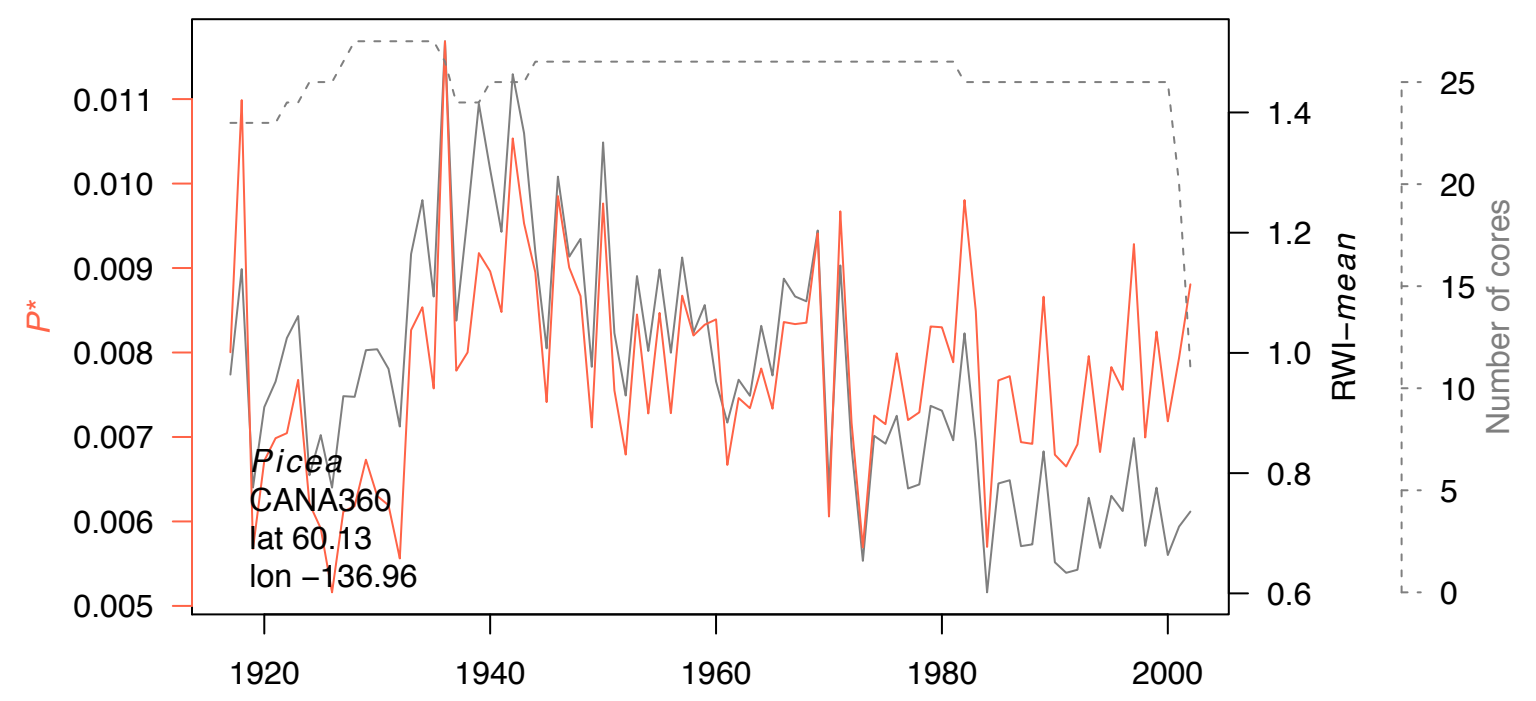

P*
0.005
0.004
0.003
0.002
Picea
AK124
lat 64.17
lon −149.3
1940
1960
1980
2000
1.6
1.4
1.2
1.0
0.8
0.6
RWI–mean
30
25
20
15
10
5
0
Number of cores

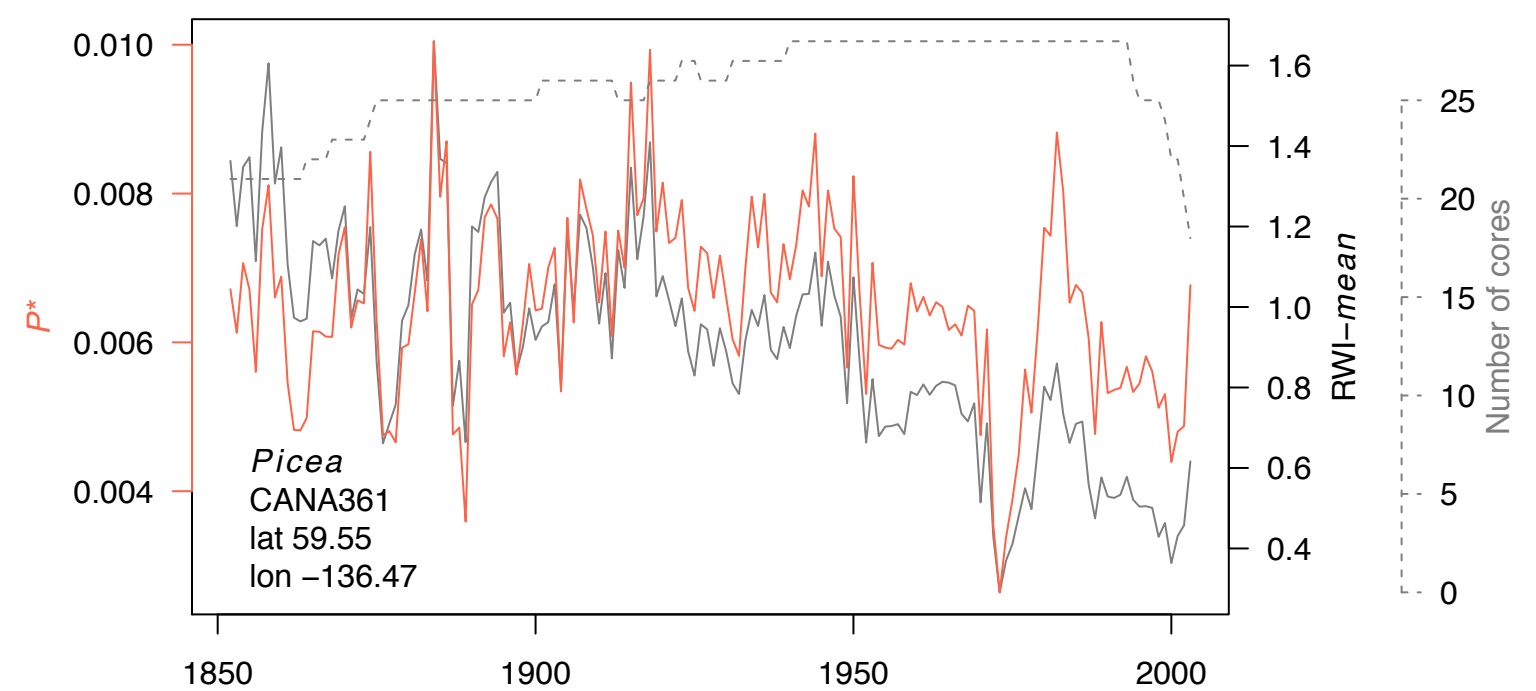

P*
0.009
0.008
0.007
0.006
0.005
0.004
0.003
0.002
Picea
AK123
lat 63.72
lon −144.15
1950
1960
1970
1980
1990
2000
2010
RWI–mean
1.6
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
20
15
10
5
0

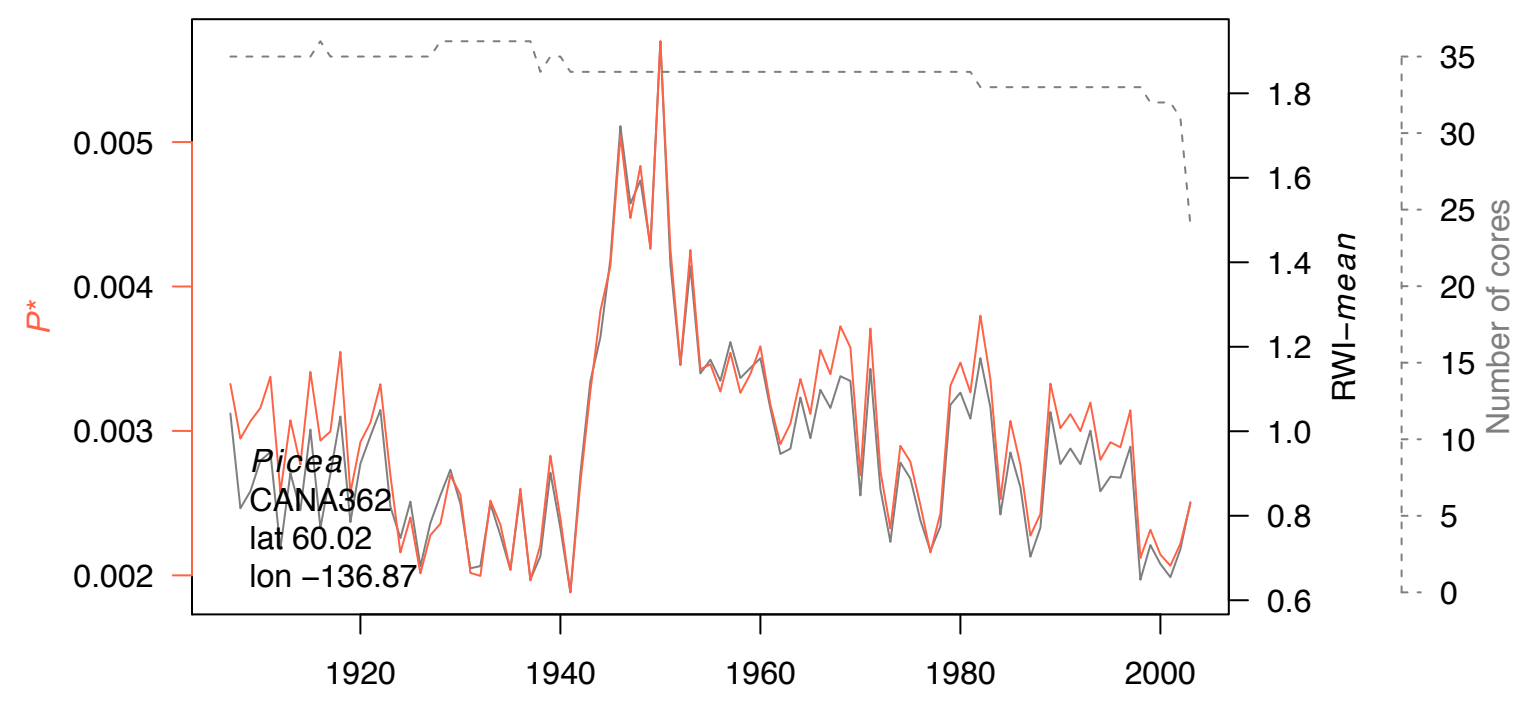

P*
0.0040
0.0035
0.0030
0.0025
0.0020
0.0015
RWI–mean
1.4
1.2
1.0
0.8
0.6
Number of cores
40
30
20
10
0
1750
1800
1850
1900
1950
2000
Picea
CANA434
lat 51.72
lon –116.5

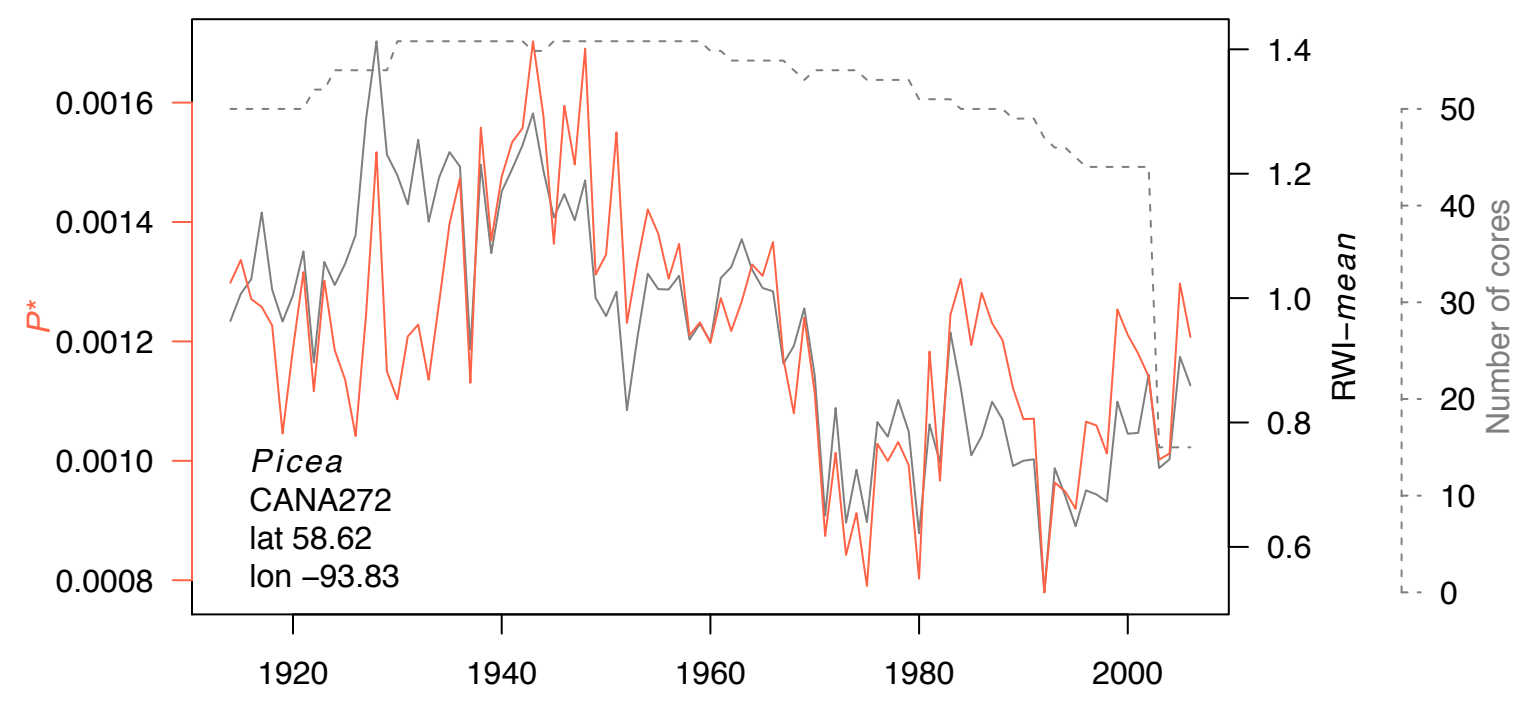

P*
0.010
0.009
0.008
0.007
0.006
0.005
0.004
0.003
RWI–mean
1.6
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
30
25
20
15
10
5
0
1800
1850
1900
1950
2000
Picea
CANA363
lat 59.55
lon –136.46

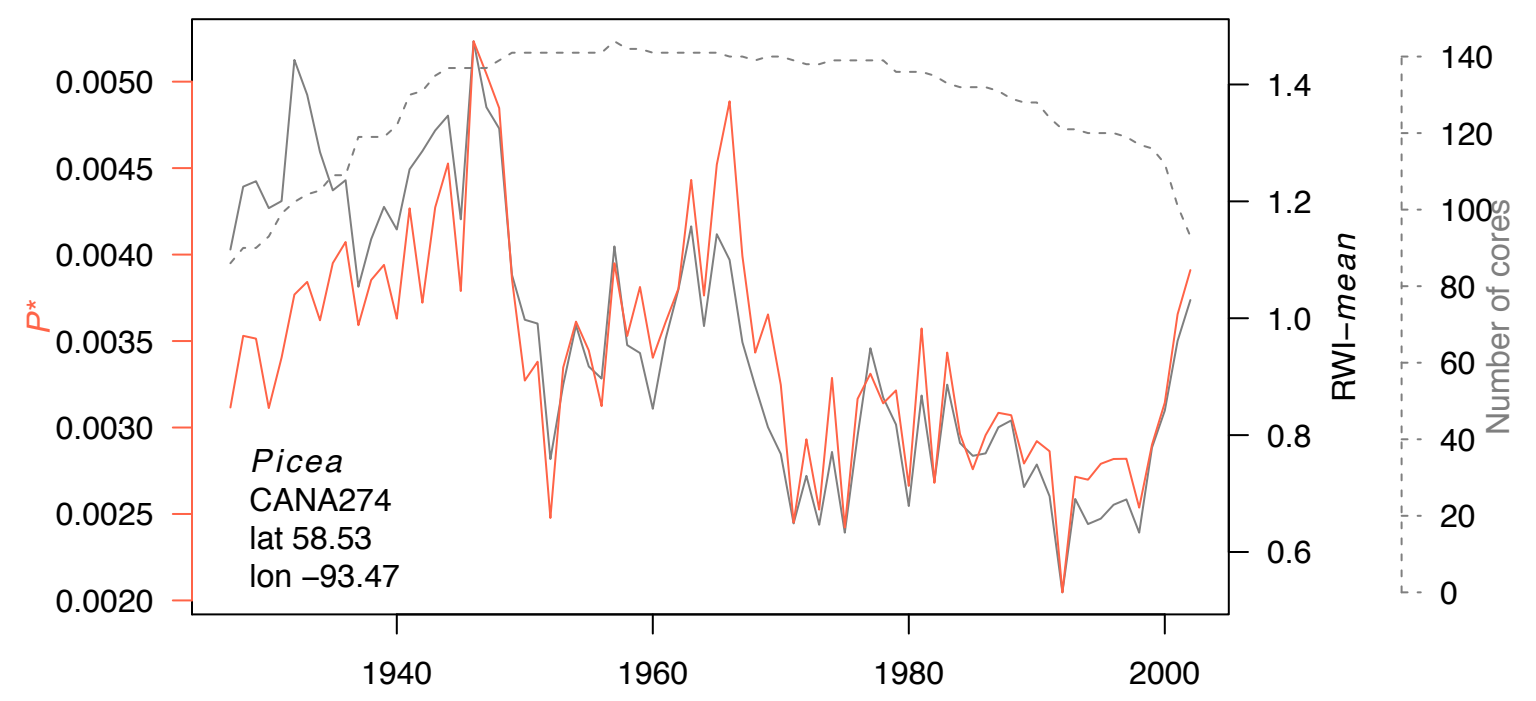

P*
0.006
0.005
0.004
0.003
Picea
CANA359
lat 59.76
lon −136.59
1700
1750
1800
1850
1900
1950
2000
RWI–mean
2000
1950
1900
1850
1800
1750
1700
Number of cores
1.5
1.0
0.5
0.0

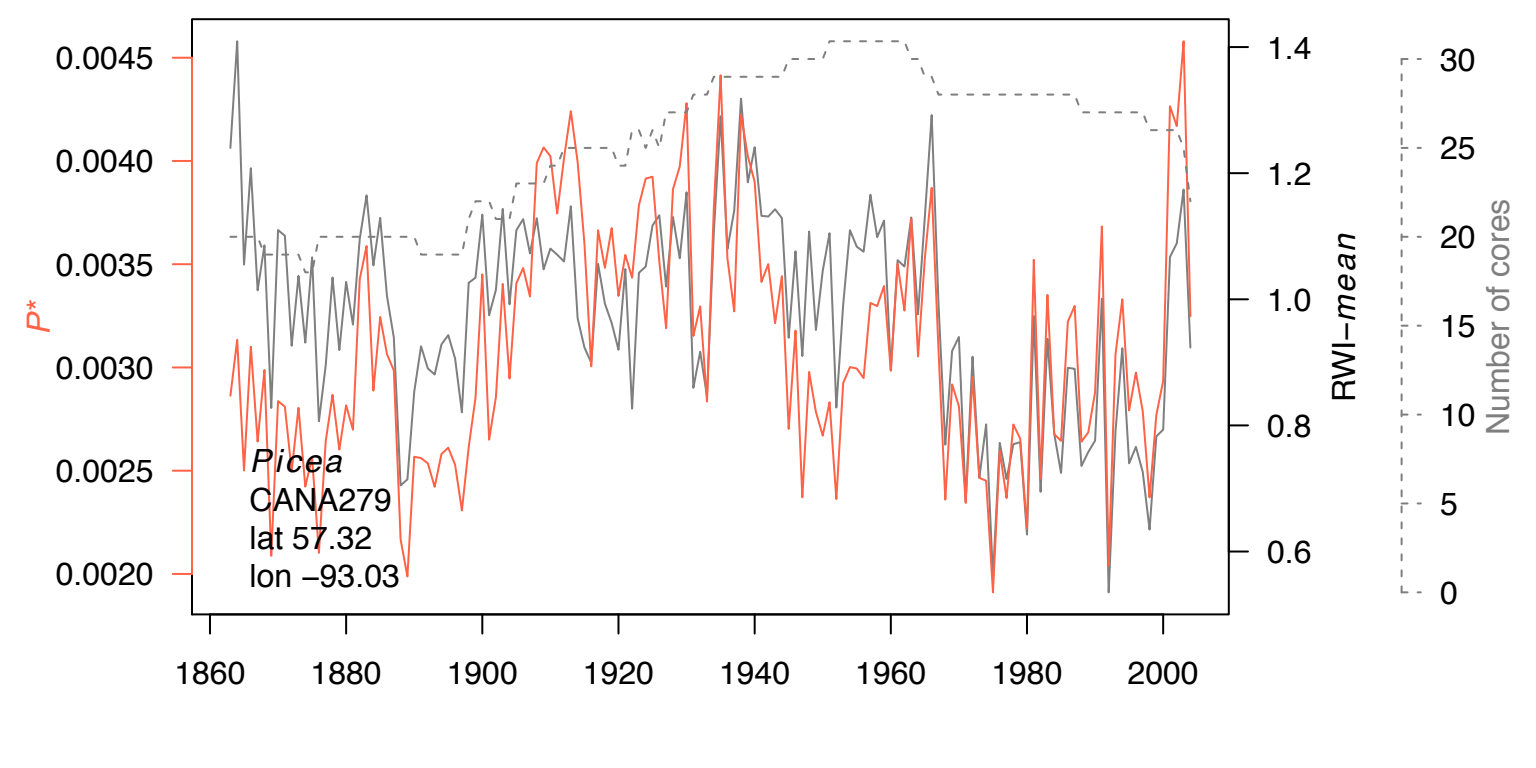

P*
0.011
0.010
0.009
0.008
0.007
0.006
0.005
Picea
CANA360
lat 60.13
lon −136.96
1920
1940
1960
1980
2000
RWI–mean
1.4
1.2
1.0
0.8
0.6
Number of cores
25
20
15
10
5
0

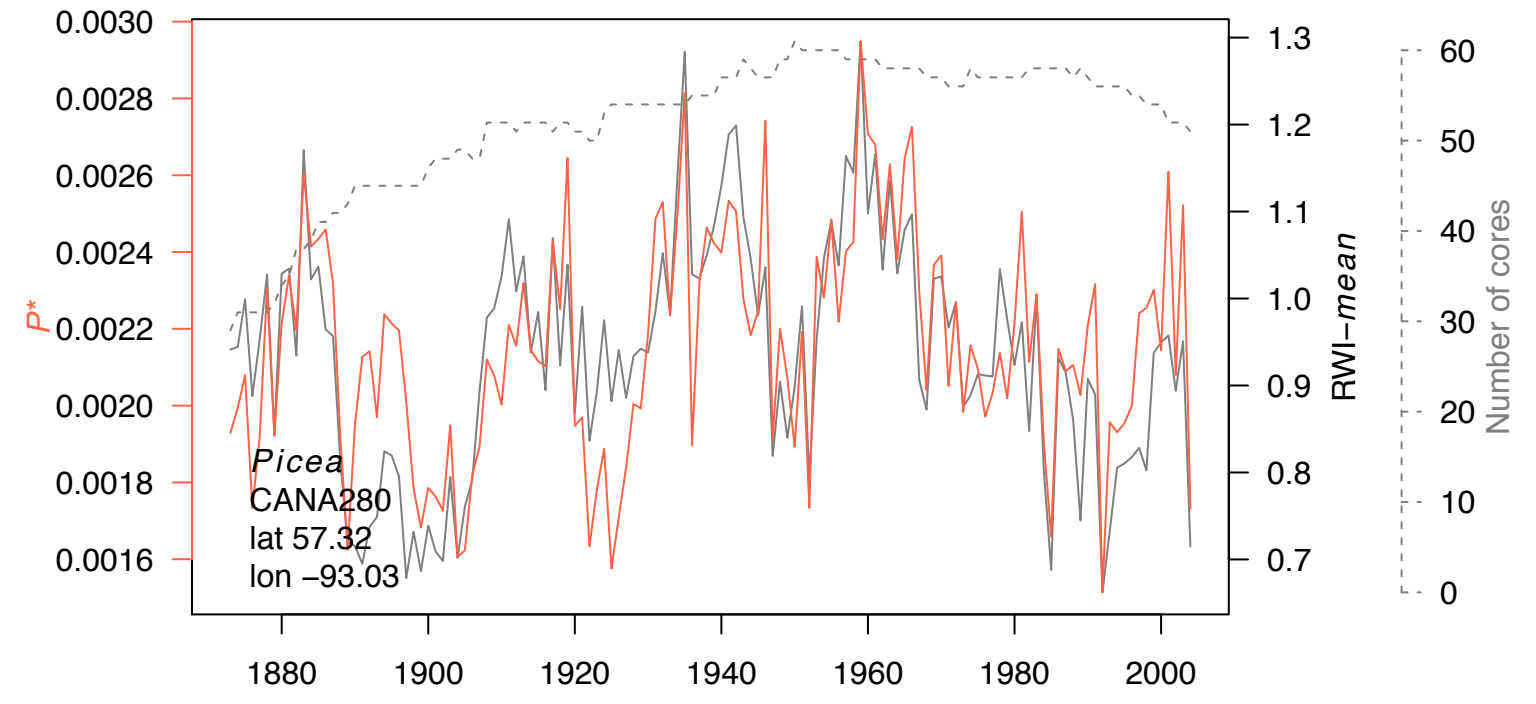

P*
0.010
0.008
0.006
0.004
RWI–mean
1.6
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
25
20
15
10
5
0
1850
1900
1950
2000
Picea
CANA361
lat 59.55
lon −136.47

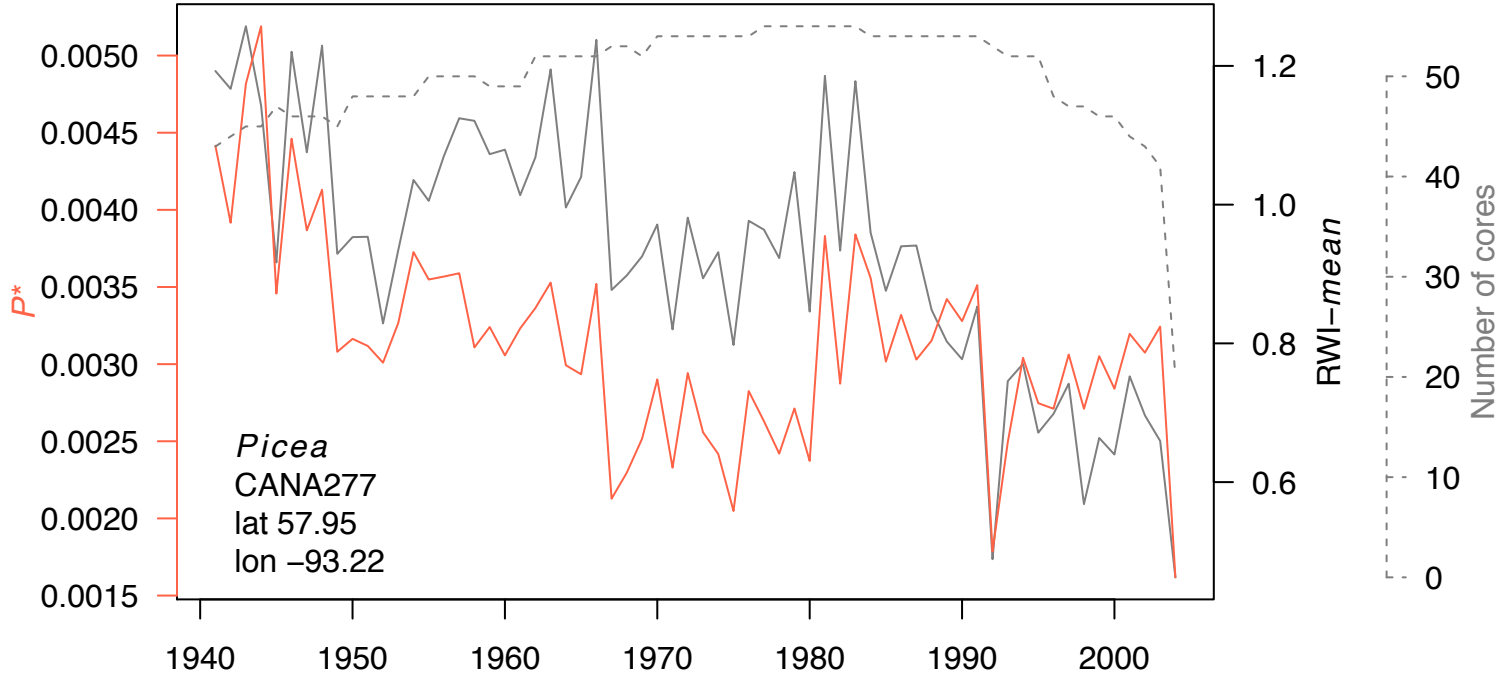

P*
0.005
0.004
0.003
0.002
Picea
CANA362
lat 60.02
lon −136.87
1920
1940
1960
1980
2000
RWI–mean
1.8
1.6
1.4
1.2
1.0
0.8
0.6
Number of cores
35
30
25
20
15
10
5
0

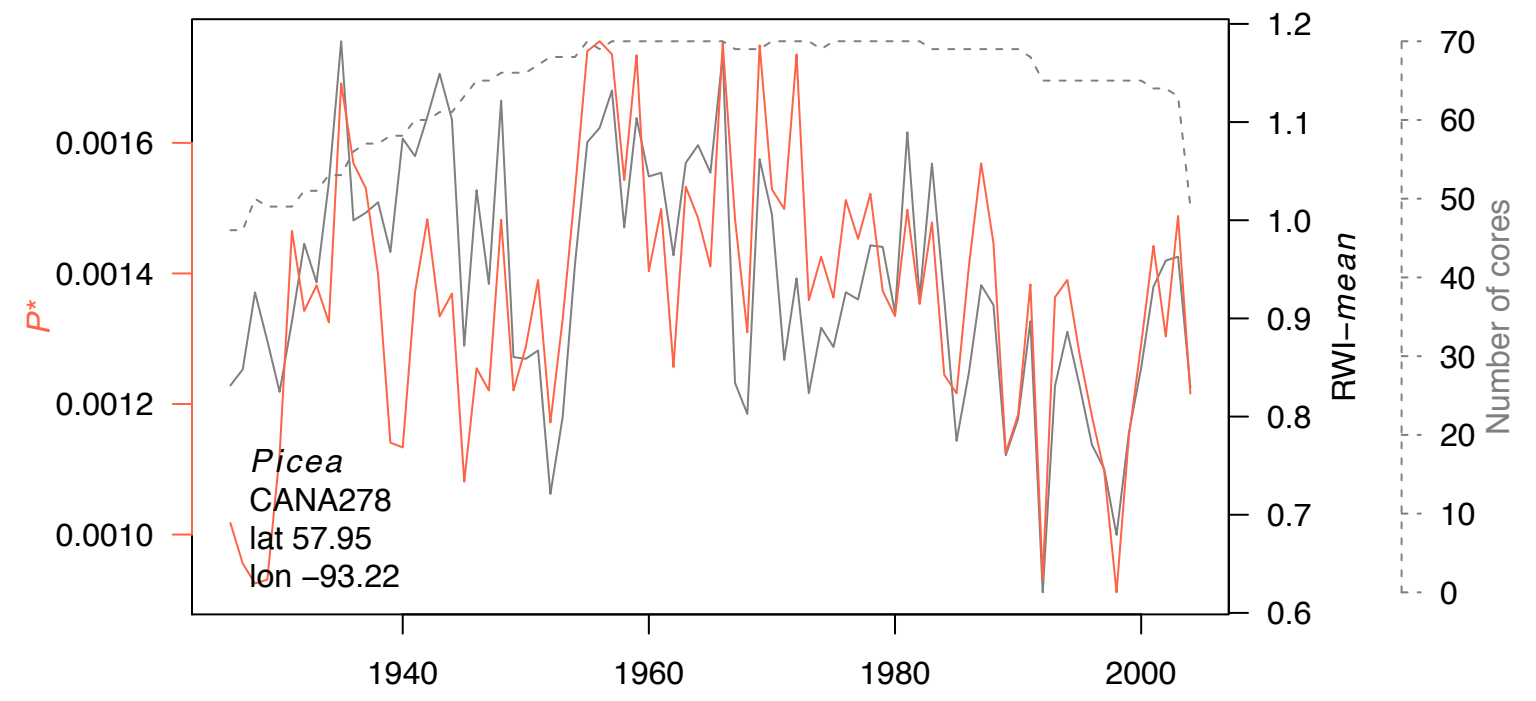

P*
0.0016
0.0014
0.0012
0.0010
0.0008
Picea
CANA272
lat 58.62
lon −93.83
1920
1940
1960
1980
2000
1.4
1.2
1.0
0.8
0.6
RWI–mean
50
40
30
20
10
0
Number of cores

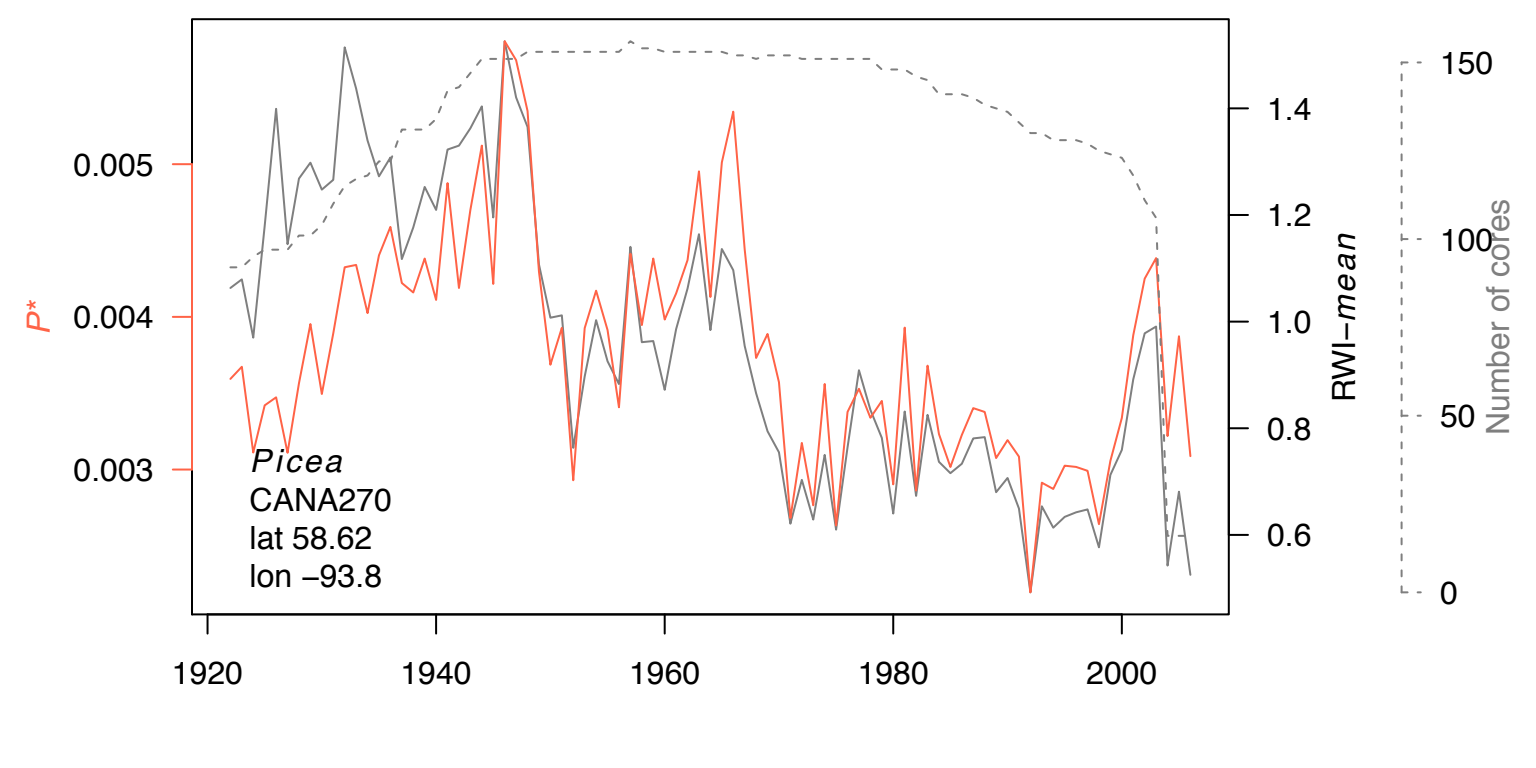

P*
0.0050
0.0045
0.0040
0.0035
0.0030
0.0025
0.0020
Picea
CANA274
lat 58.53
lon –93.47
1940
1960
1980
2000
RWI–mean
1.4
1.2
1.0
0.8
0.6
Number of cores
140
120
100
80
60
40
20
0

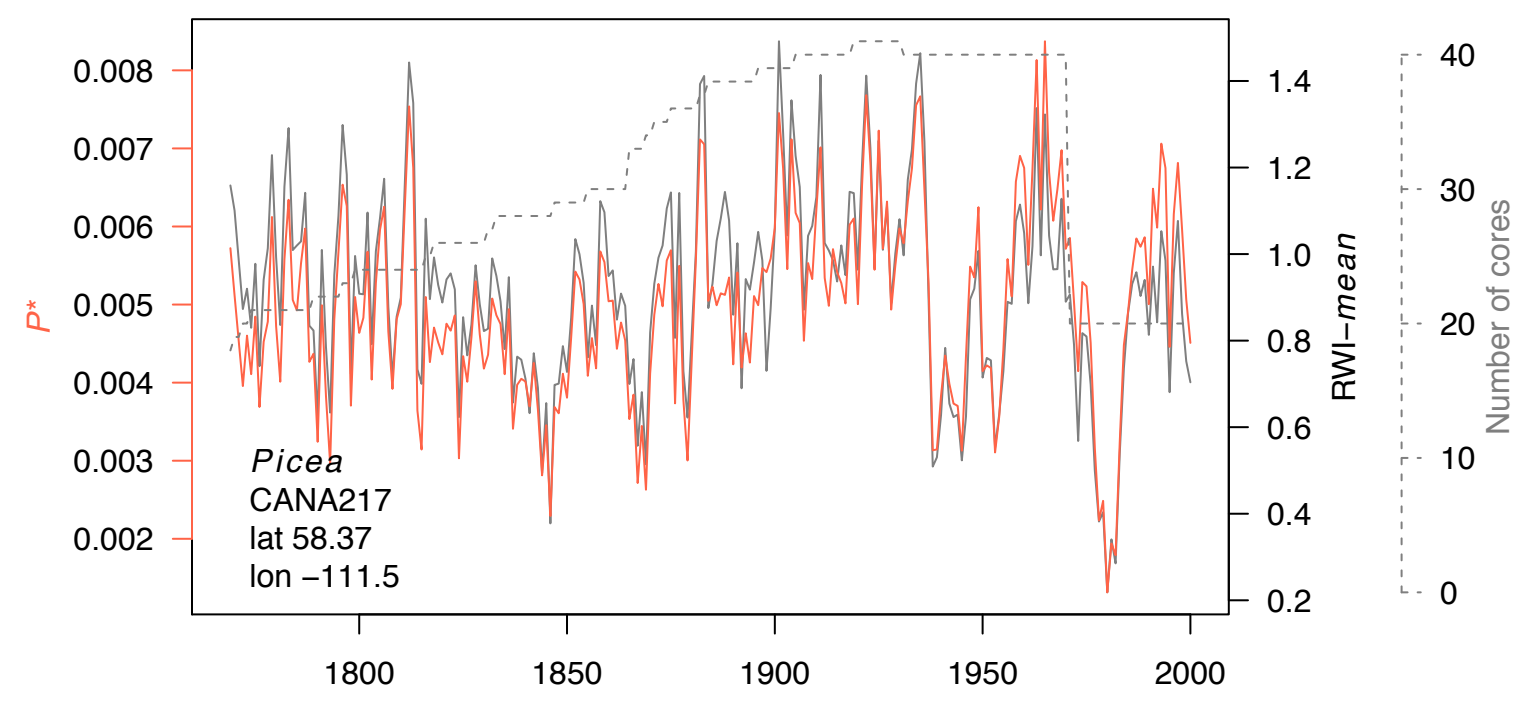

P*
0.0045
0.0040
0.0035
0.0030
0.0025
0.0020
RWI–mean
1.4
1.2
1.0
0.8
0.6
Number of cores
30
25
20
15
10
5
0
1860
1880
1900
1920
1940
1960
1980
2000
Picea
CANA279
lat 57.32
lon –93.03

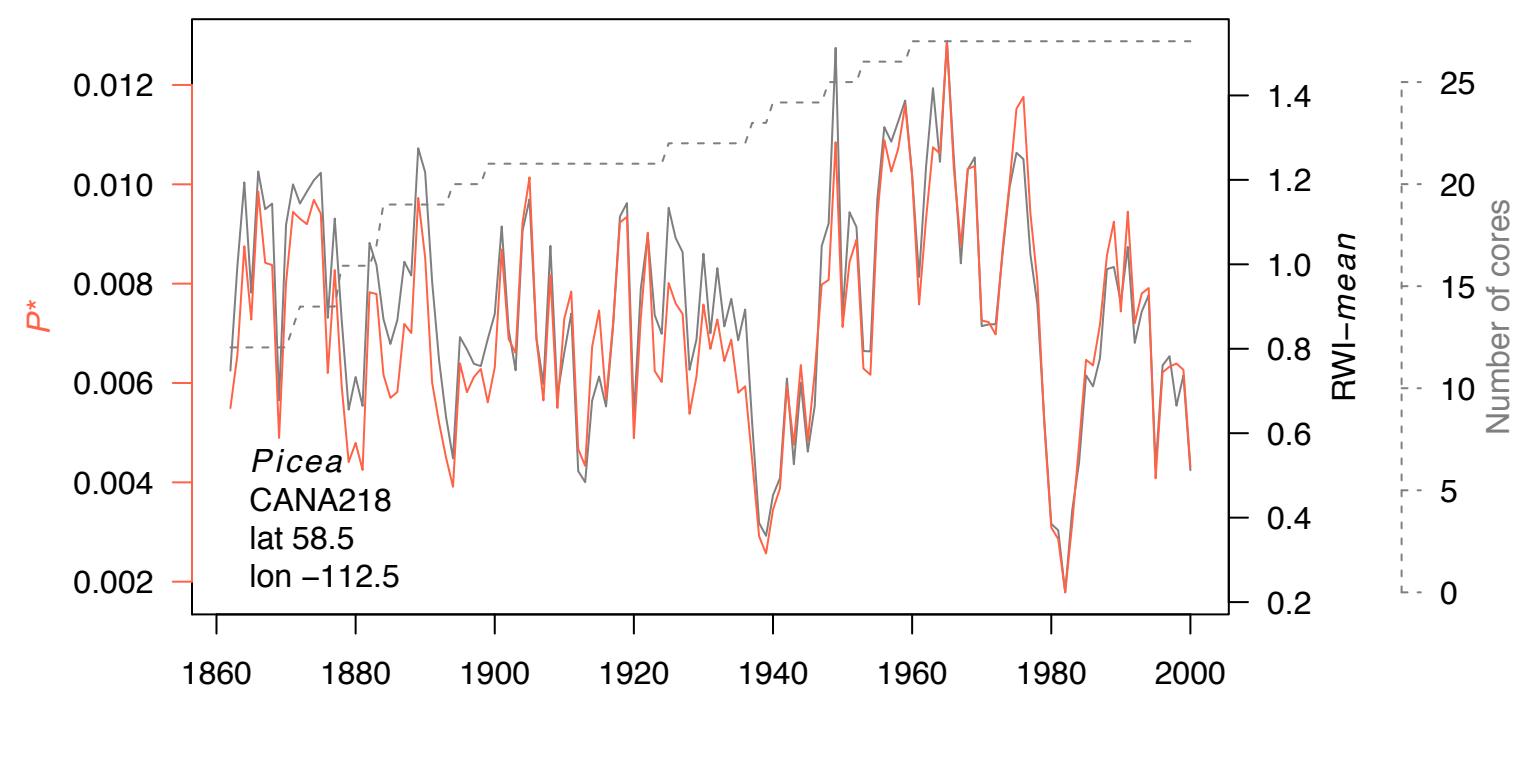

0.0030
0.0028
0.0026
0.0024
0.0022
0.0020
0.0018
0.0016
P*
1.3
1.2
1.1
1.0
0.9
0.8
0.7
RWI–mean
60
50
40
30
20
10
0
Number of cores
Picea
CANA280
lat 57.32
lon –93.03
1880
1900
1920
1940
1960
1980
2000

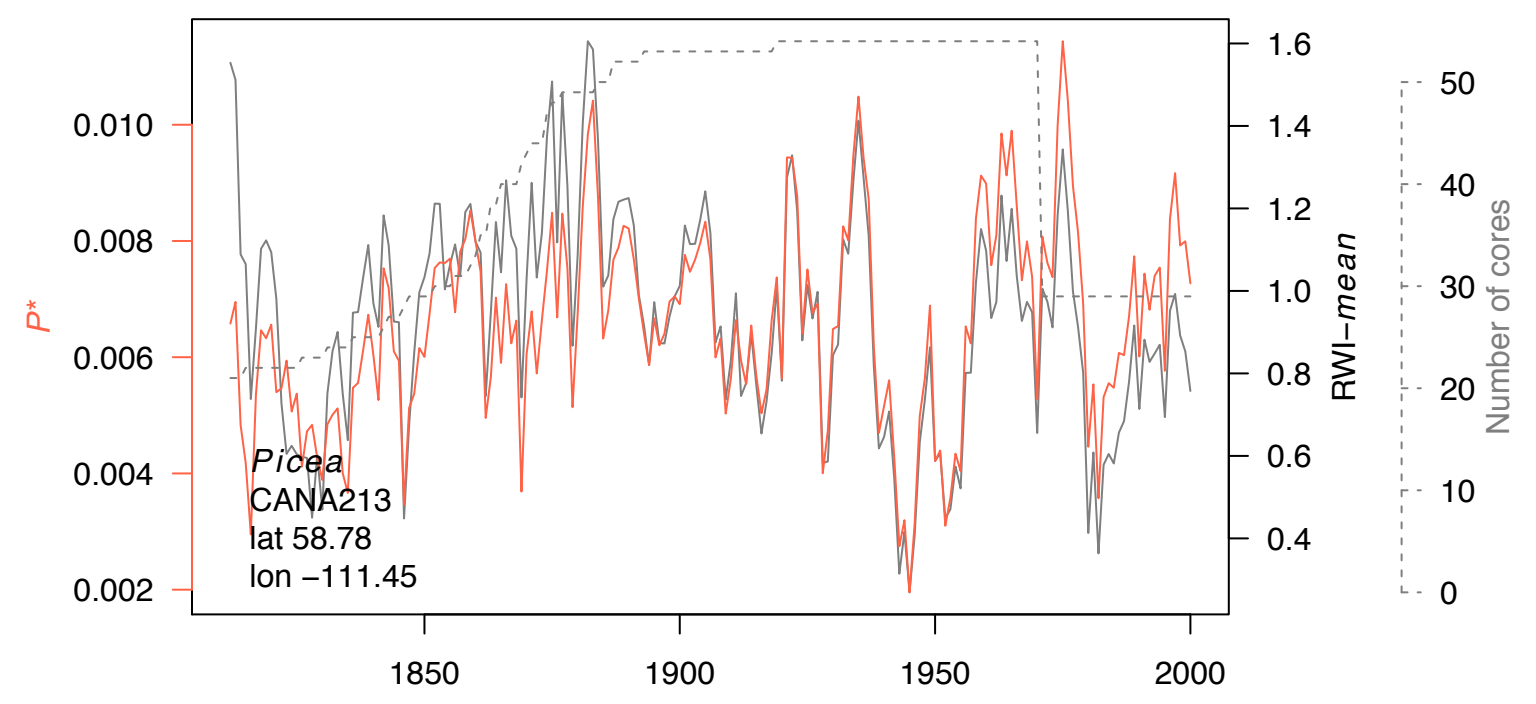

P*
0.0050
0.0045
0.0040
0.0035
0.0030
0.0025
0.0020
0.0015
RWI–mean
1.2
1.0
0.8
0.6
Number of cores
50
40
30
20
10
0
1940
1950
1960
1970
1980
1990
2000
Picea
CANA277
lat 57.95
lon –93.22

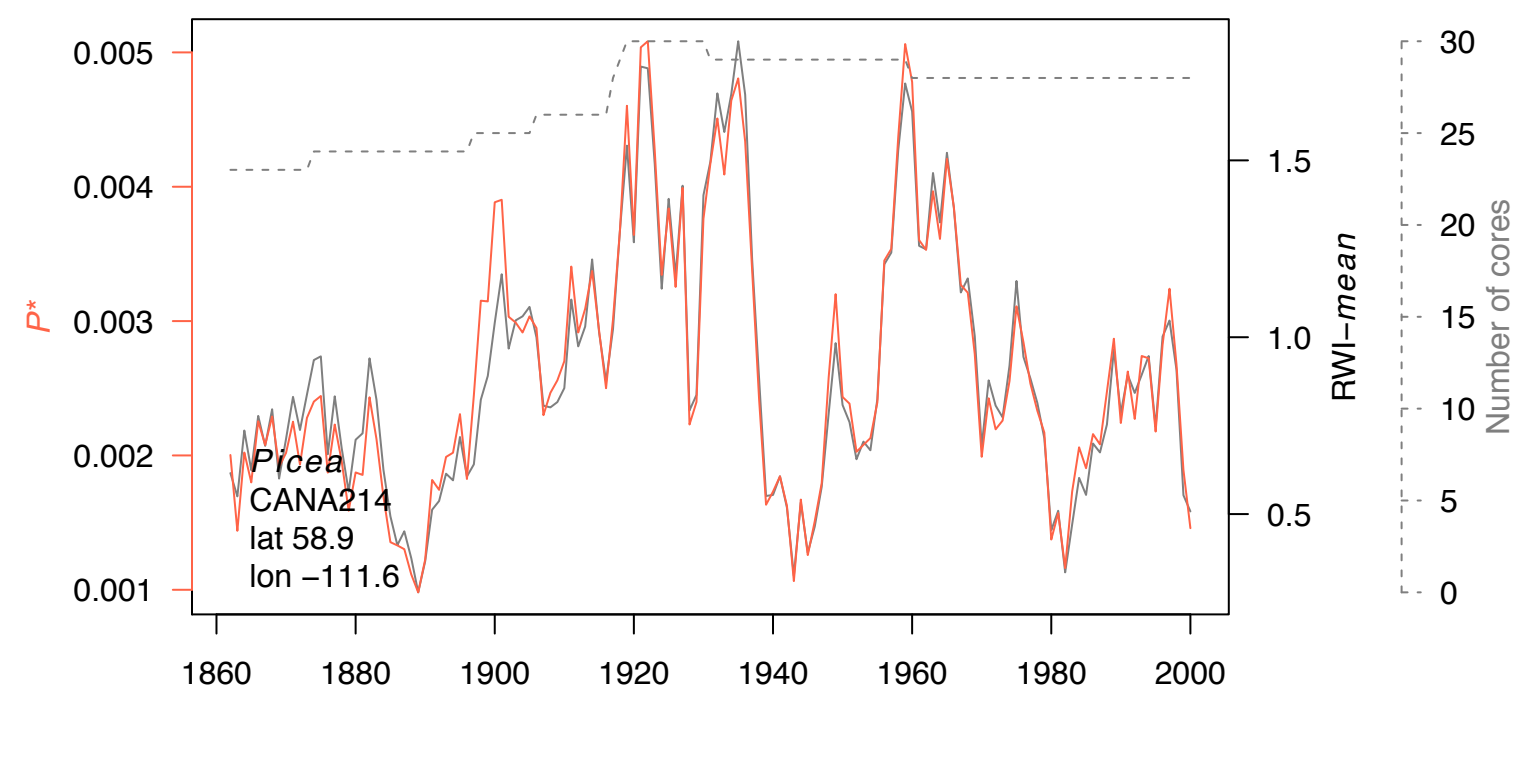

P*
0.0016
0.0014
0.0012
0.0010
Picea
CANA278
lat 57.95
lon −93.22
1940
1960
1980
2000
1.2
1.1
1.0
0.9
0.8
0.7
0.6
RWI–mean
70
60
50
40
30
20
10
0
Number of cores

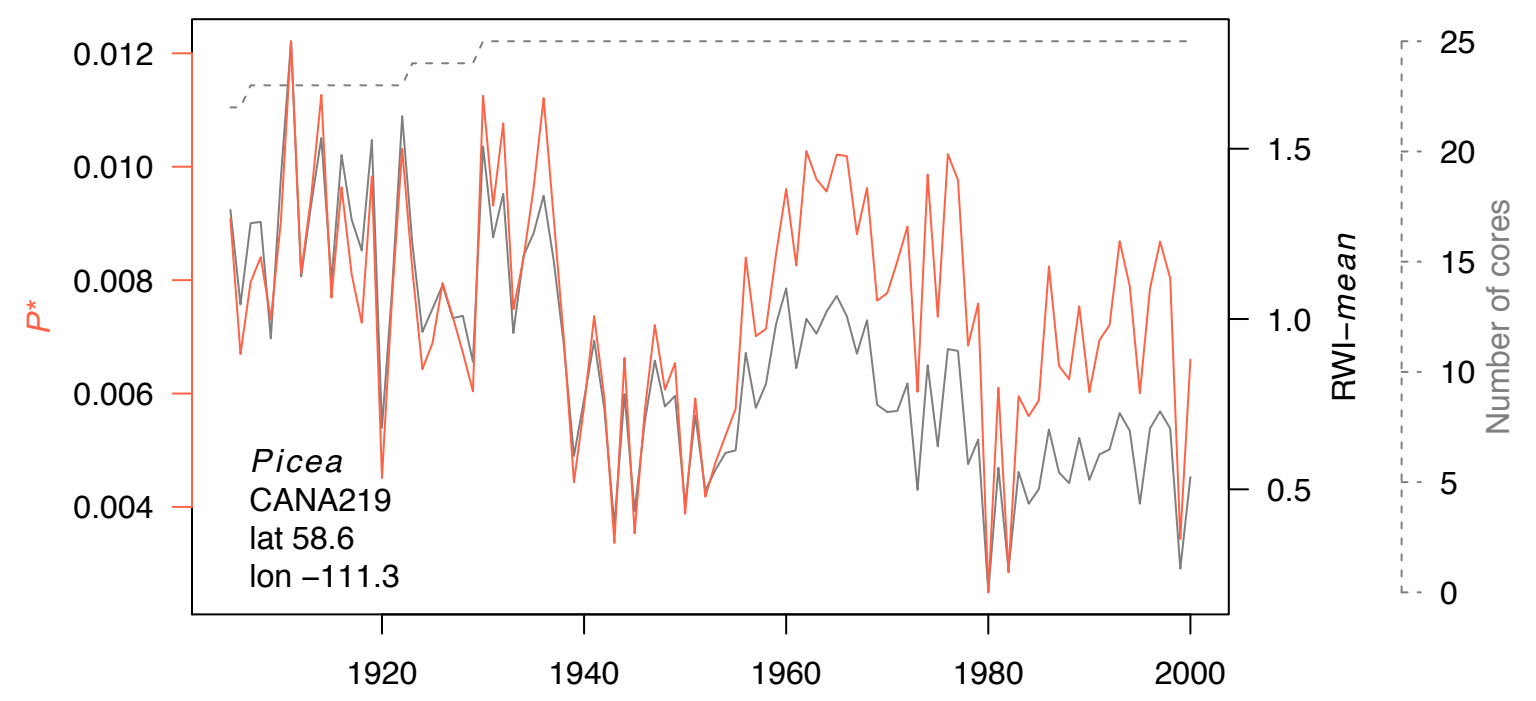

P*
0.005
0.004
0.003
Picea
CANA270
lat 58.62
lon −93.8
1.4
1.2
1.0
0.8
0.6
RWI–mean
150
100
50
0
Number of cores
1920
1940
1960
1980
2000

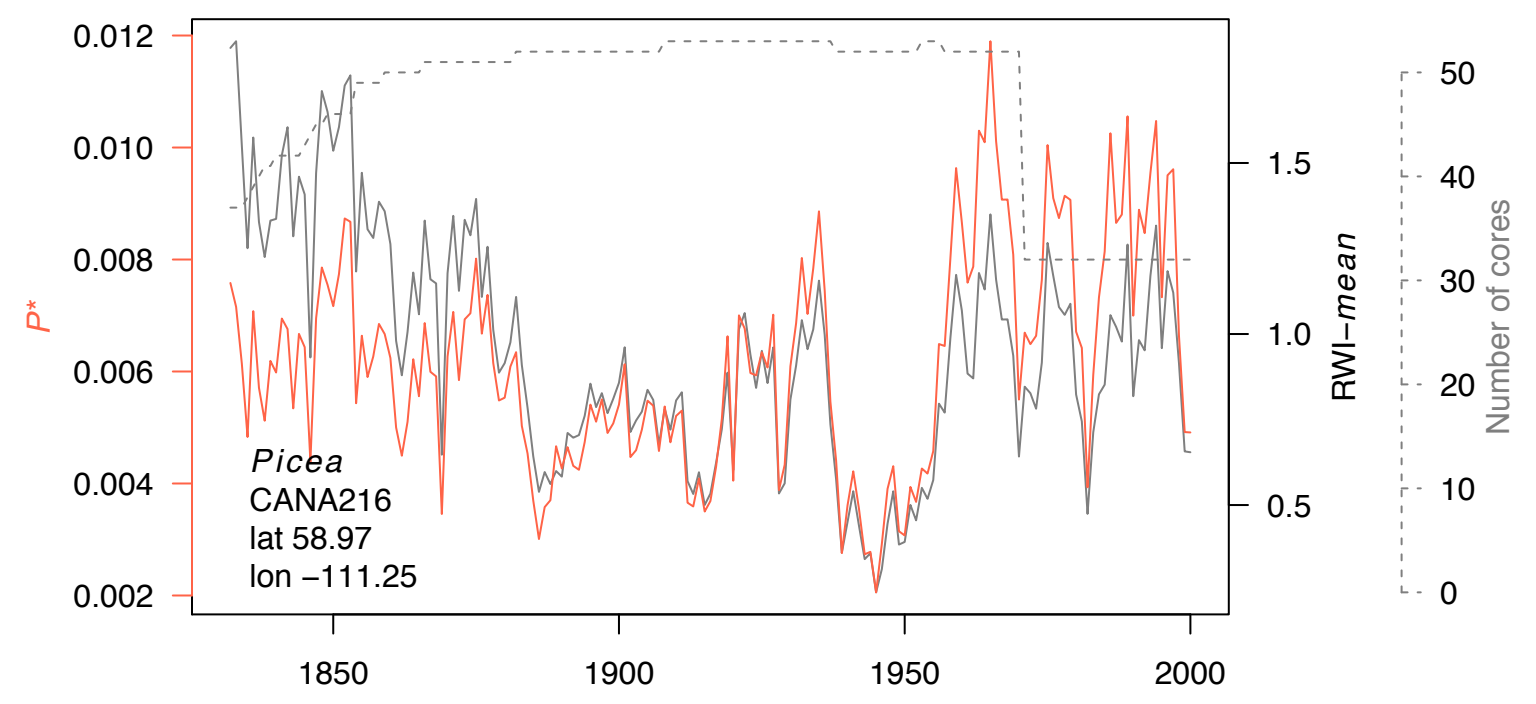

P*
0.008
0.007
0.006
0.005
0.004
0.003
0.002
Picea
CANA217
lat 58.37
lon −111.5
1800
1850
1900
1950
2000
RWI–mean
1.4
1.2
1.0
0.8
0.6
0.4
0.2
Number of cores
40
30
20
10
0

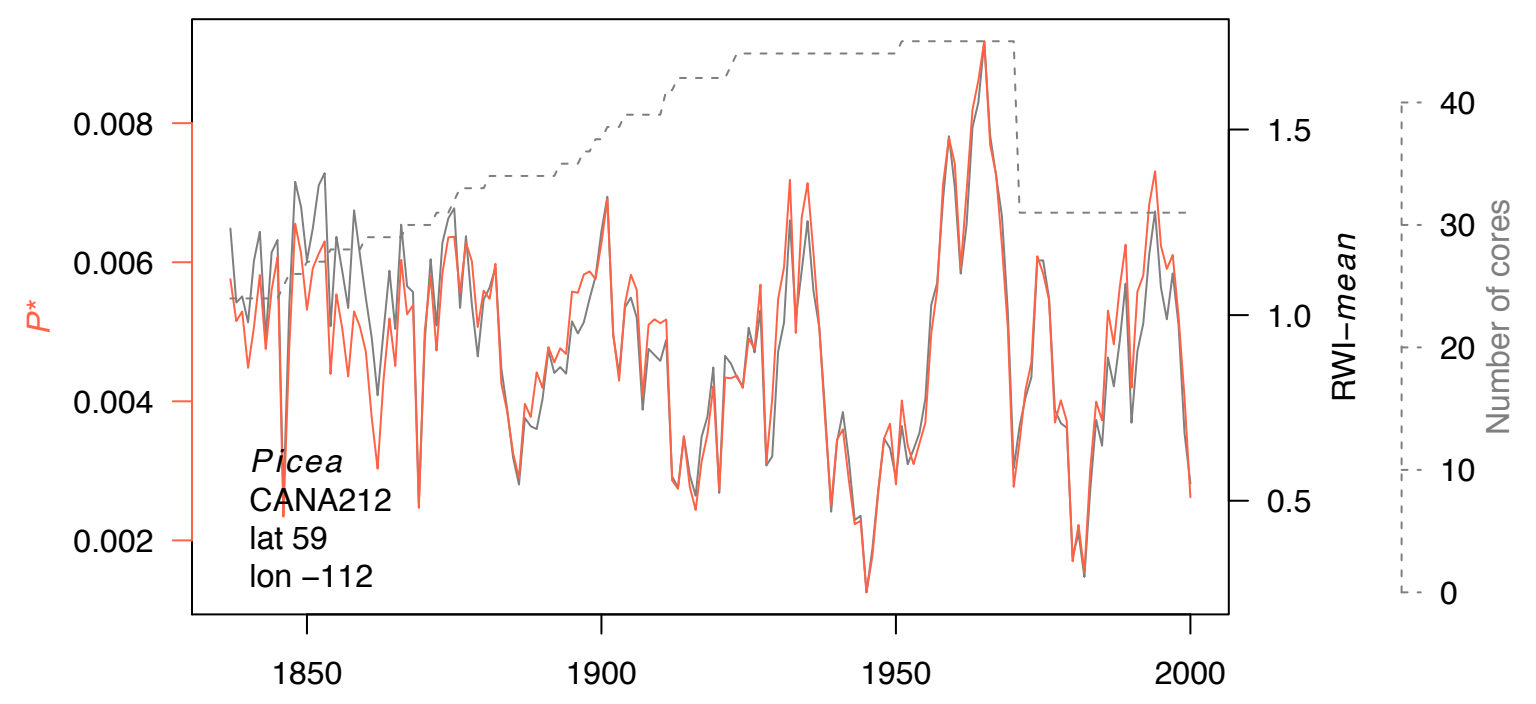

P*
0.012
0.010
0.008
0.006
0.004
0.002
Picea
CANA218
lat 58.5
lon −112.5
1860
1880
1900
1920
1940
1960
1980
2000
RWI–mean
1.4
1.2
1.0
0.8
0.6
0.4
0.2
Number of cores
25
20
15
10
5
0

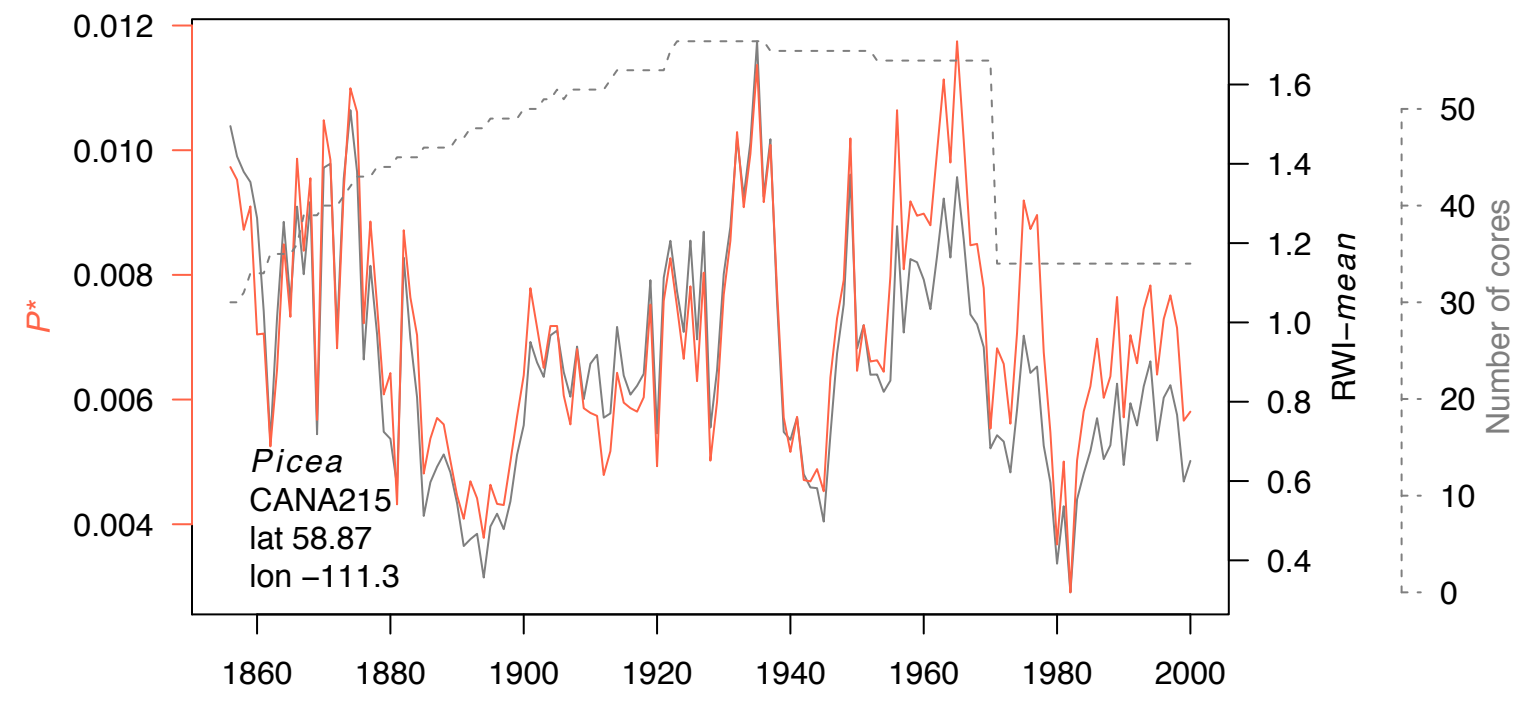

P*
0.010
0.008
0.006
0.004
0.002
1850
1900
1950
2000
1.6
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
50
40
30
20
10
0
Number of cores
Picea
CANA213
lat 58.78
lon –111.45

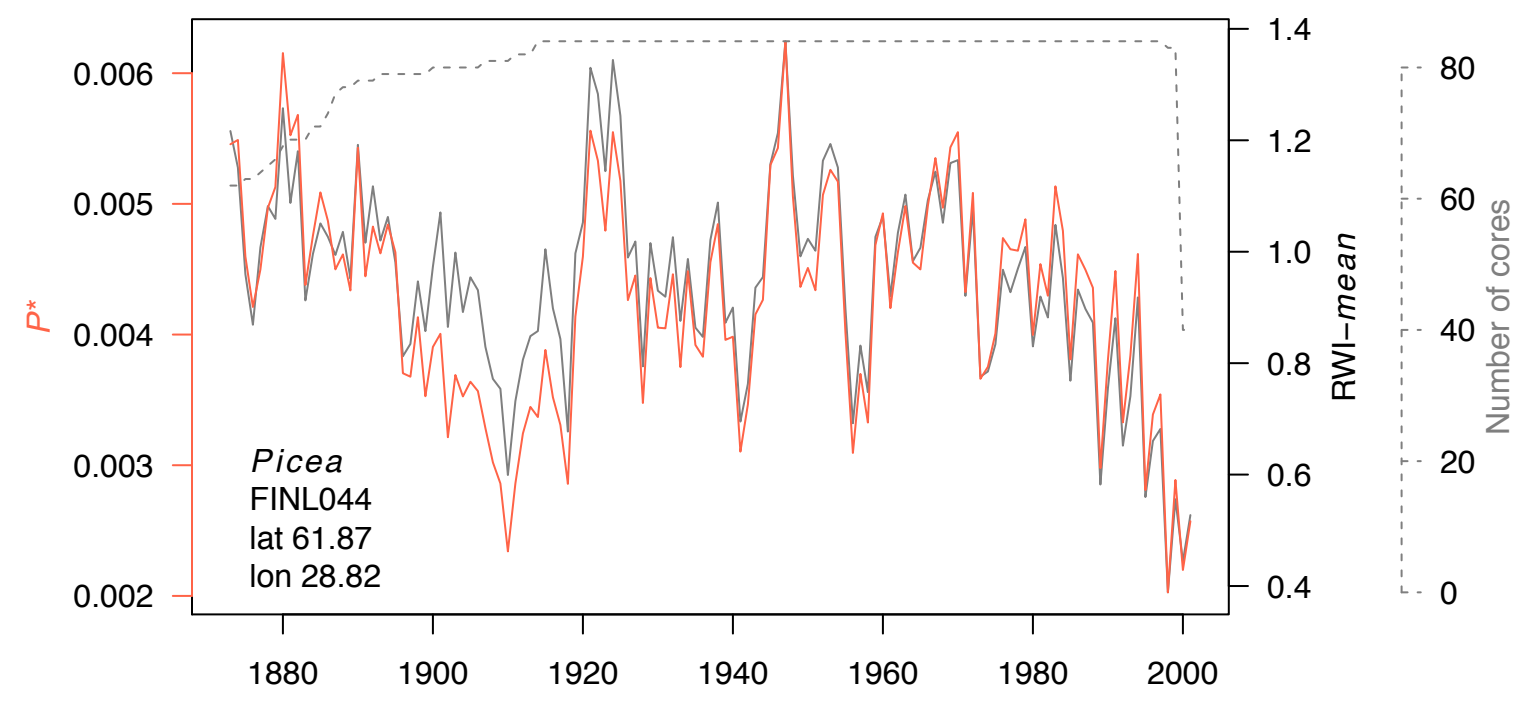

0.005
0.004
0.003
0.002
0.001
P*
Picea
CANA214
lat 58.9
lon −111.6
1.5
1.0
0.5
RWI–mean
30
25
20
15
10
5
0
Number of cores
1860
1880
1900
1920
1940
1960
1980
2000

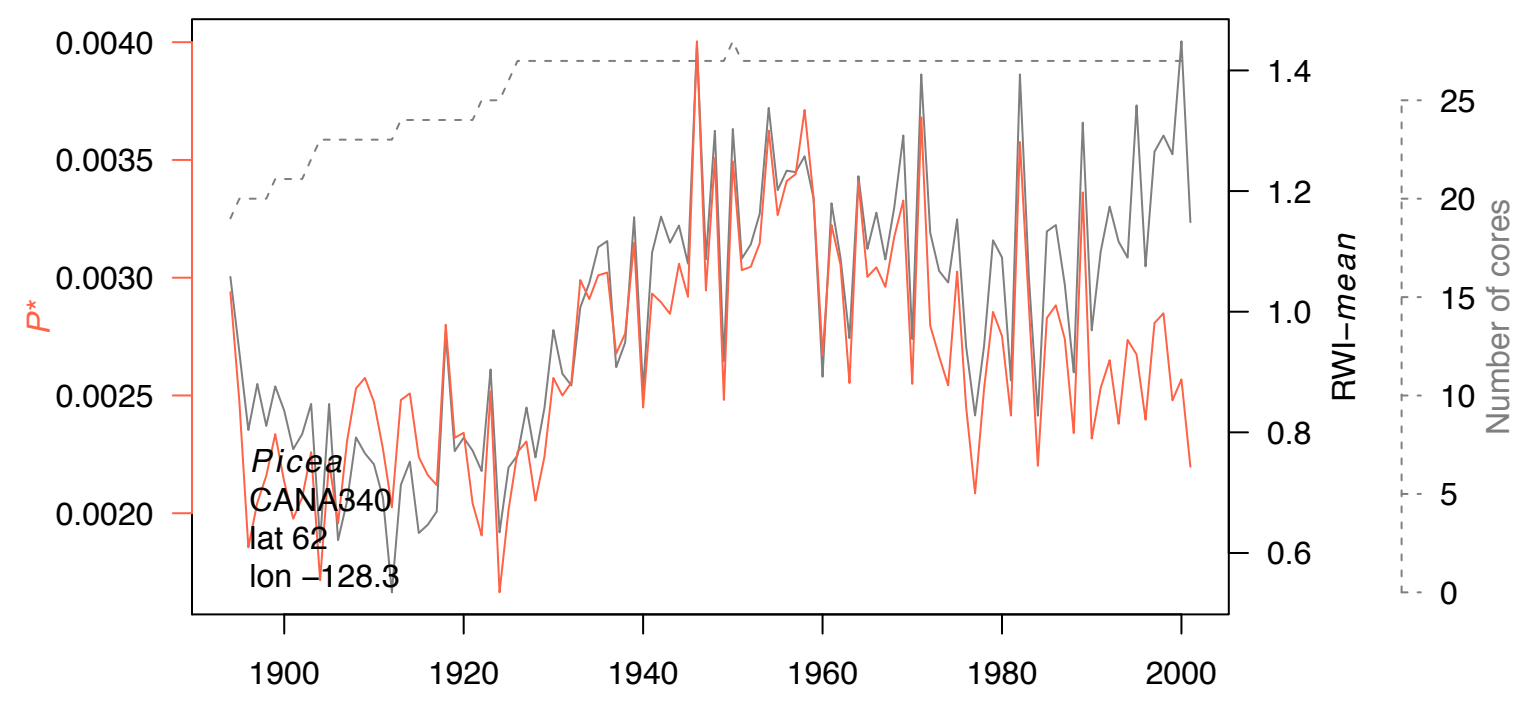

P*
0.012
0.010
0.008
0.006
0.004
Picea
CANA219
lat 58.6
lon −111.3
1920
1940
1960
1980
2000
RWI–mean
1.5
1.0
0.5
Number of cores
25
20
15
10
5
0

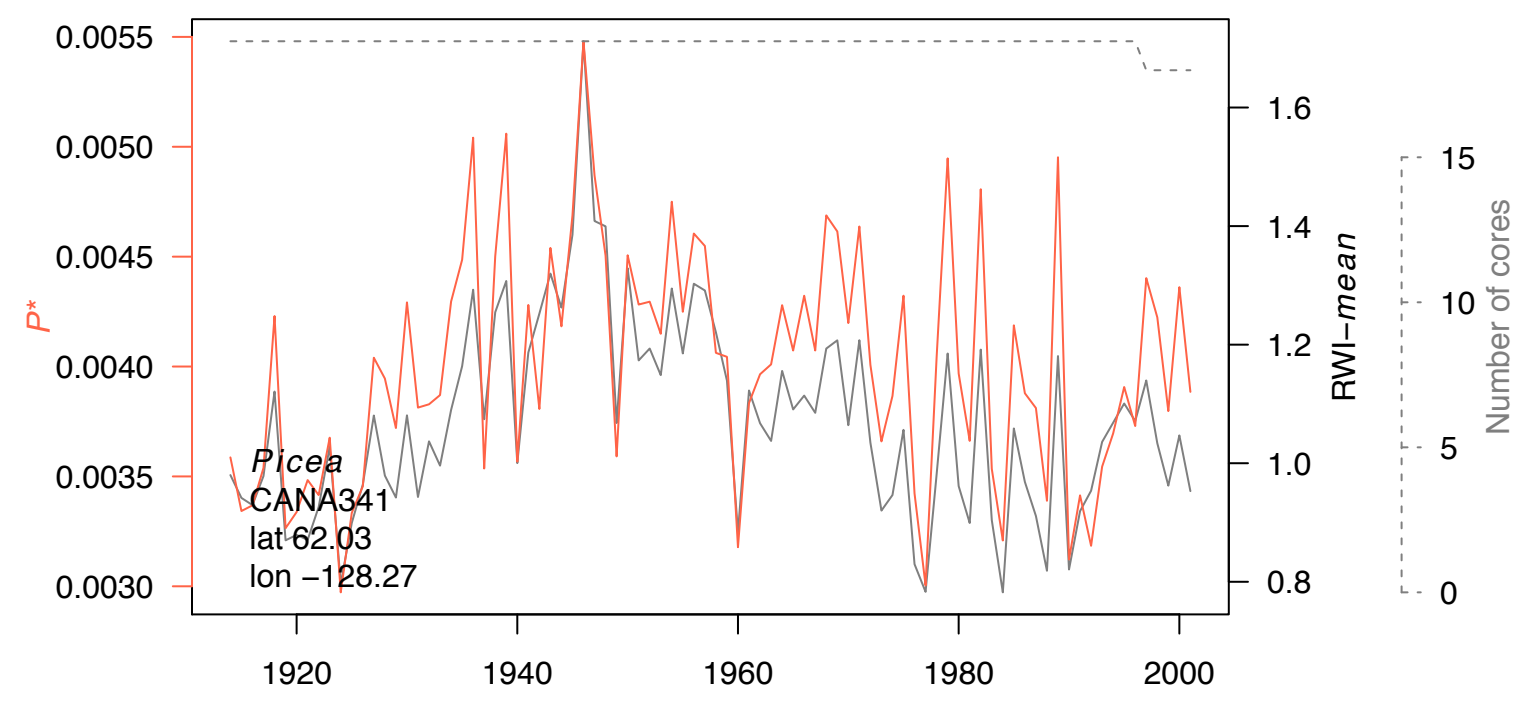

0.012
0.010
0.008
0.006
0.004
0.002
P*
1.5
1.0
0.5
RWI–mean
50
40
30
20
10
0
Number of cores
1850
1900
1950
2000
Picea
CANA216
lat 58.97
lon –111.25

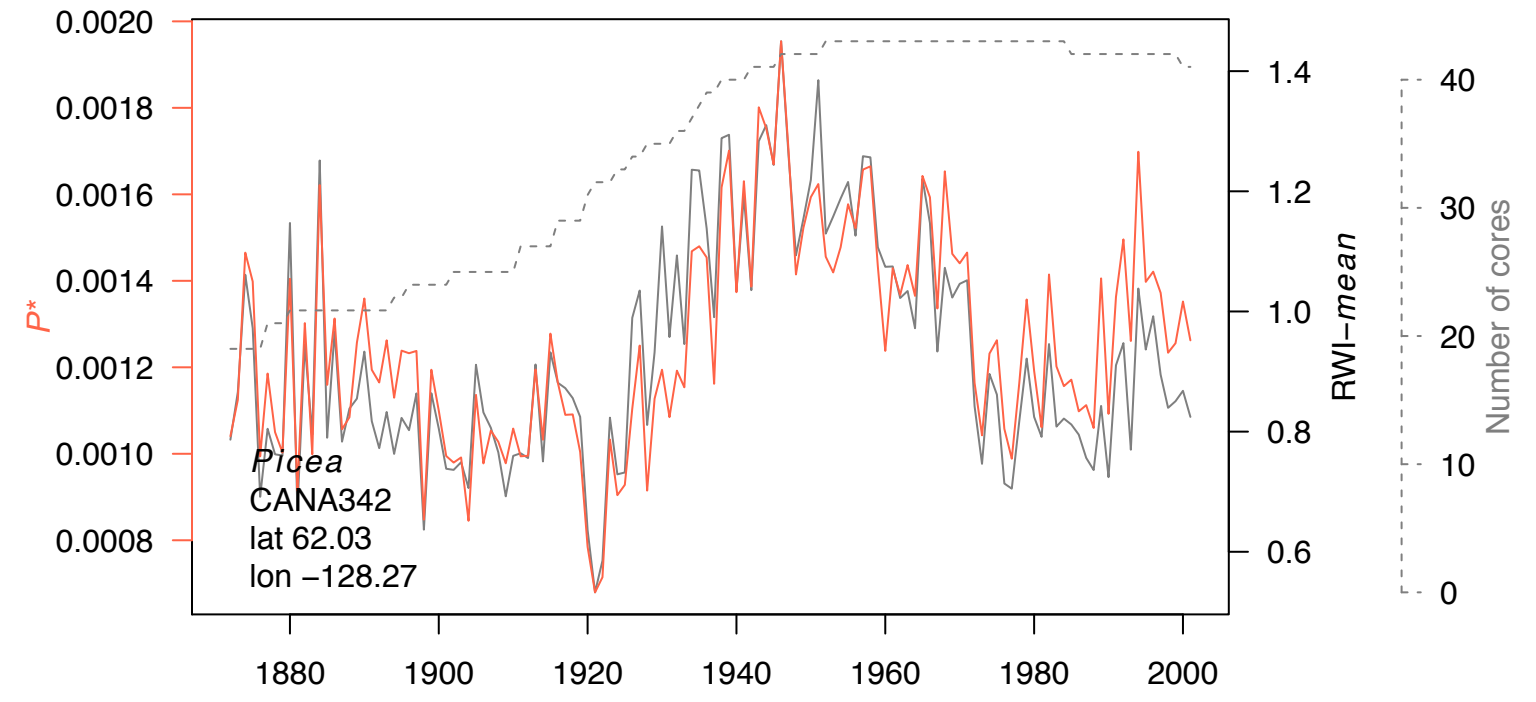

P*
0.008
0.006
0.004
0.002
Picea
CANA212
lat 59
lon −112
1850
1900
1950
2000
1.5
1.0
0.5
RWI–mean
40
30
20
10
0
Number of cores

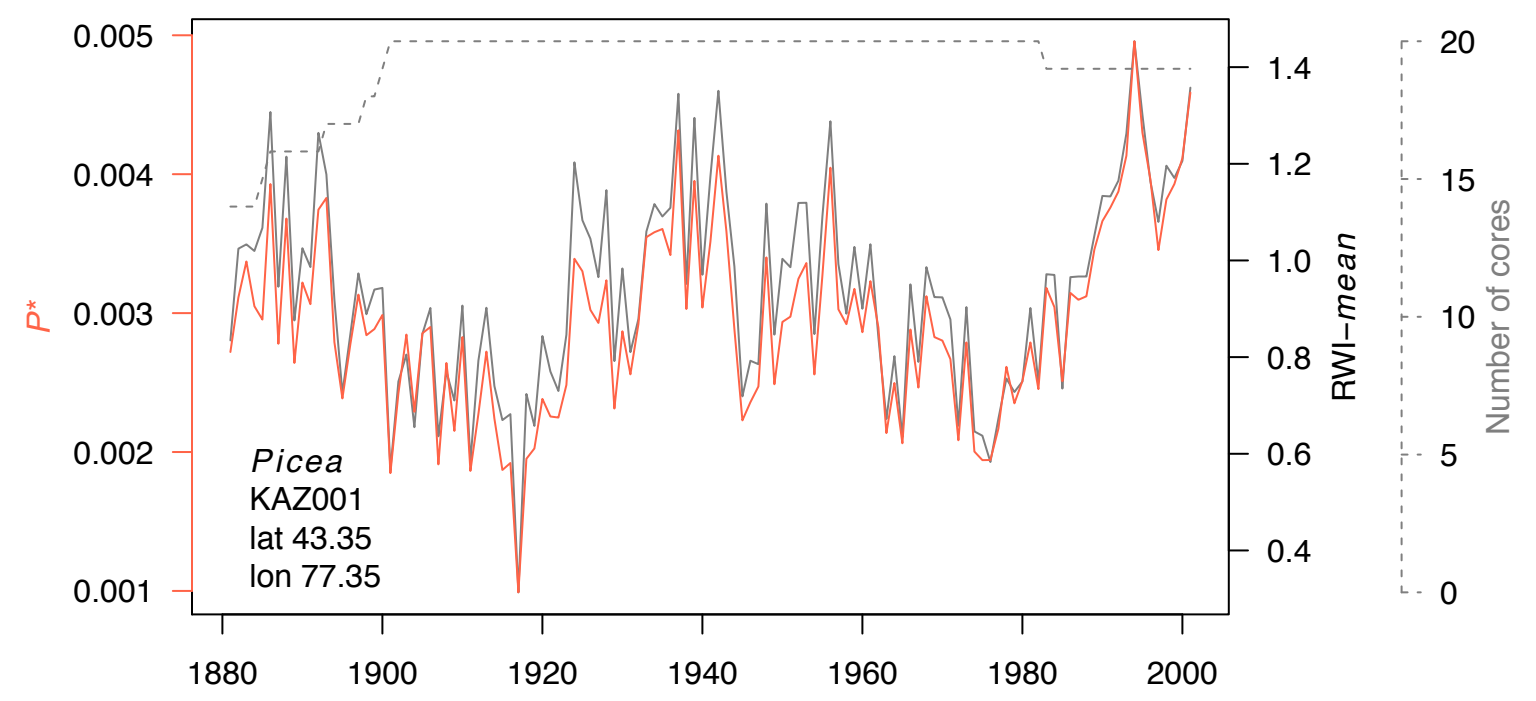

P*
0.012
0.010
0.008
0.006
0.004
RWI–mean
1.6
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
50
40
30
20
10
0
Picea
CANA215
lat 58.87
lon –111.3
1860
1880
1900
1920
1940
1960
1980
2000

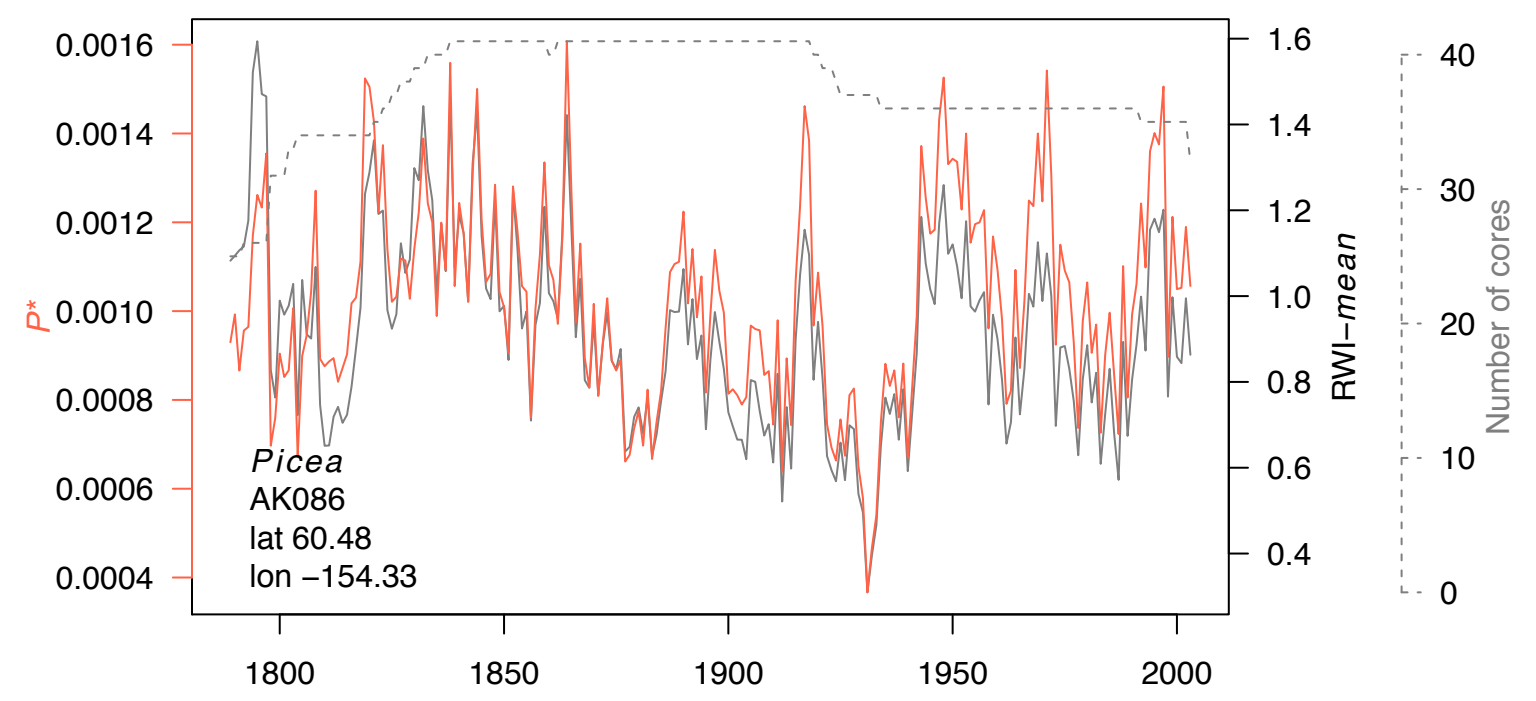

P*
0.006
0.005
0.004
0.003
0.002
RWI–mean
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
80
60
40
20
0
Picea
FINL044
lat 61.87
lon 28.82
1880
1900
1920
1940
1960
1980
2000

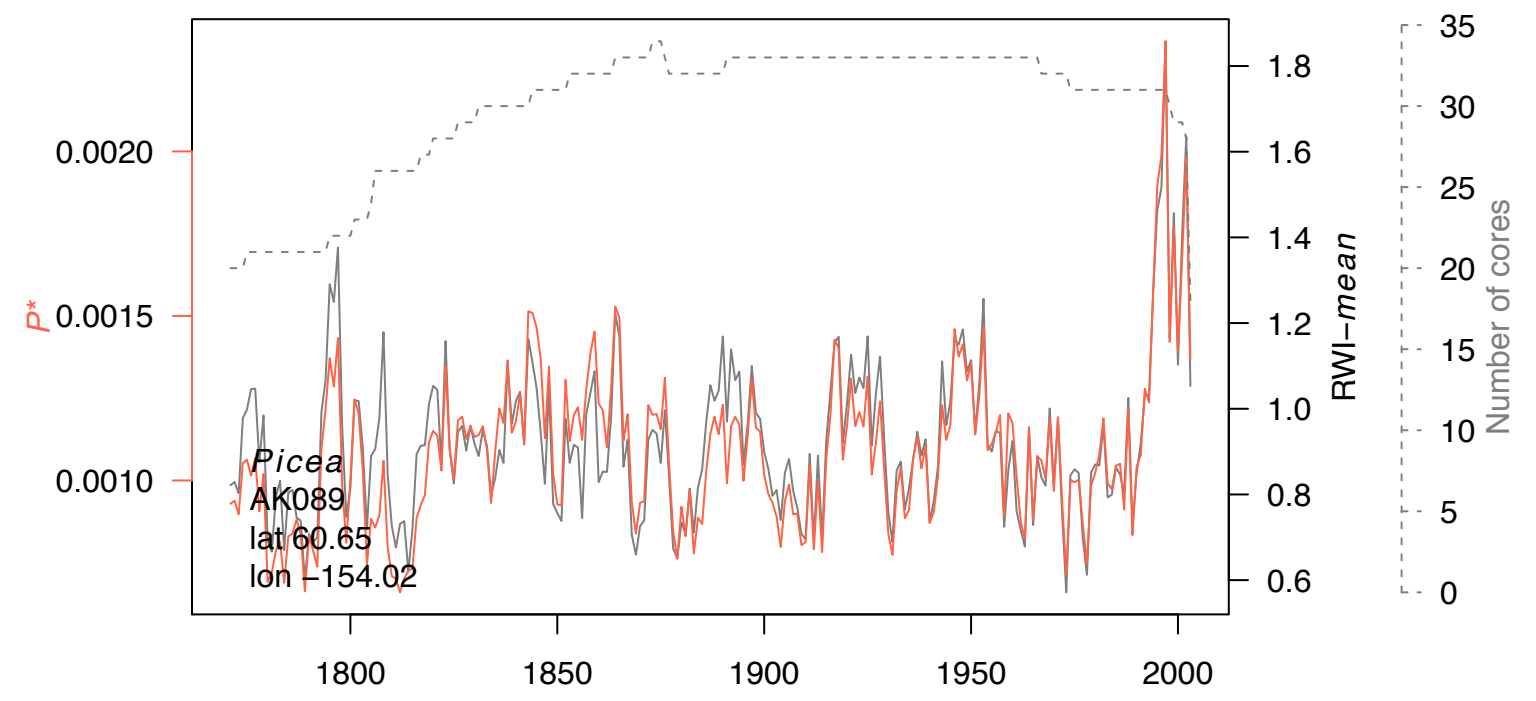

0.0040
0.0035
0.0030
0.0025
0.0020
P*
1.4
1.2
1.0
0.8
0.6
RWI–mean
25
20
15
10
5
0
Number of cores
Picea
CANA340
lat 62
lon –128.3
1900
1920
1940
1960
1980
2000

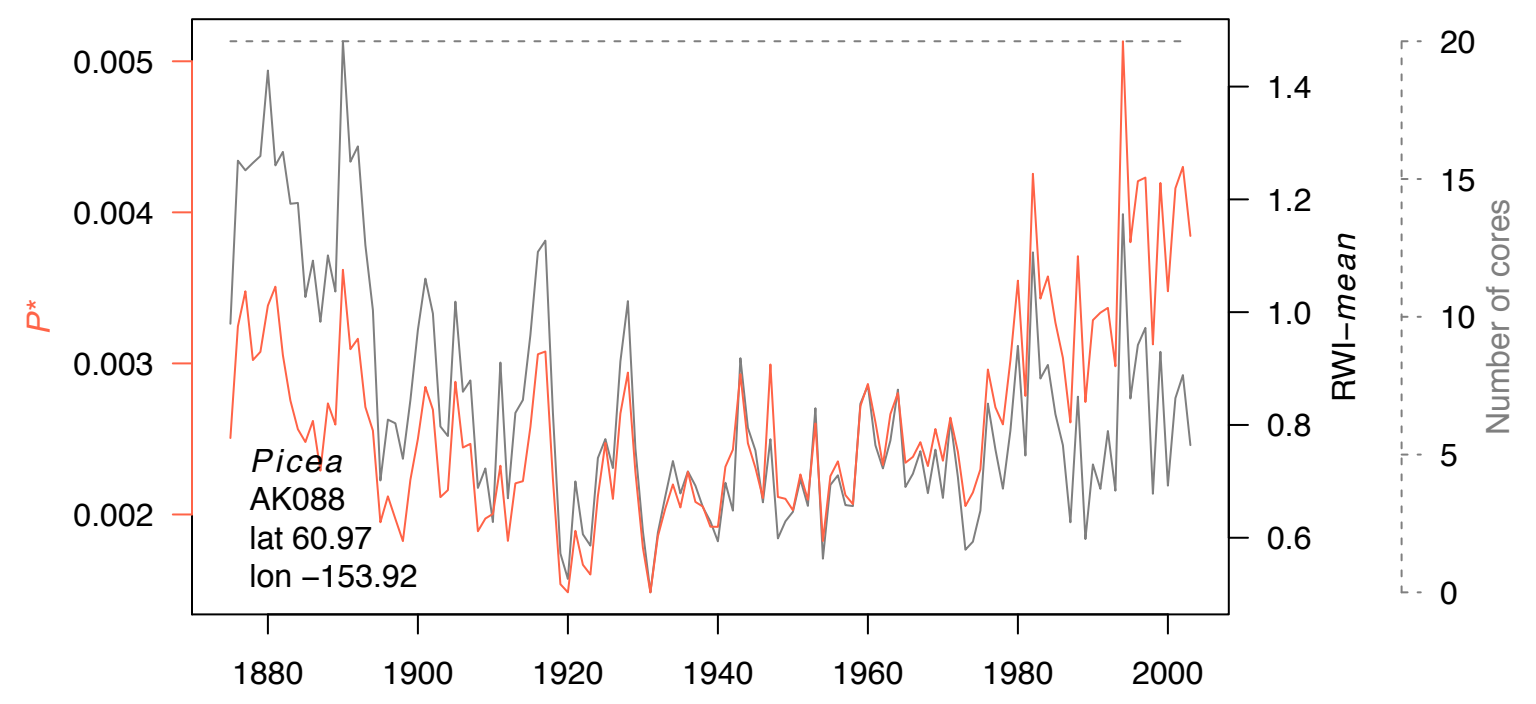

0.0055
0.0050
0.0045
0.0040
0.0035
0.0030
P*
1.6
1.4
1.2
1.0
0.8
RWI–mean
15
10
5
0
Number of cores
1920
1940
1960
1980
2000
Picea
CANA341
lat 62.03
lon −128.27

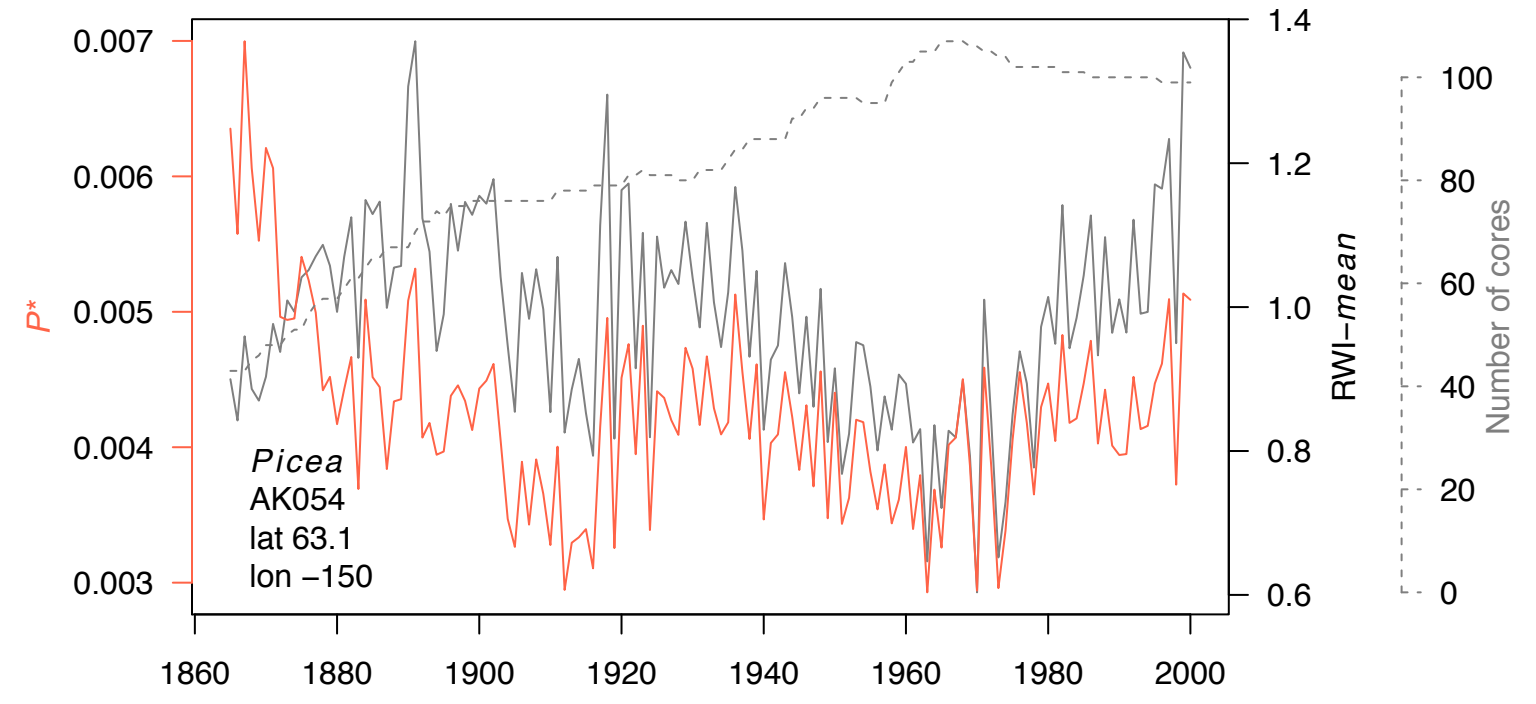

0.0020
0.0018
0.0016
0.0014
0.0012
0.0010
0.0008
P*
1.4
1.2
1.0
0.8
0.6
RWI–mean
40
30
20
10
0
Number of cores
1880
1900
1920
1940
1960
1980
2000
Picea
CANA342
lat 62.03
lon −128.27

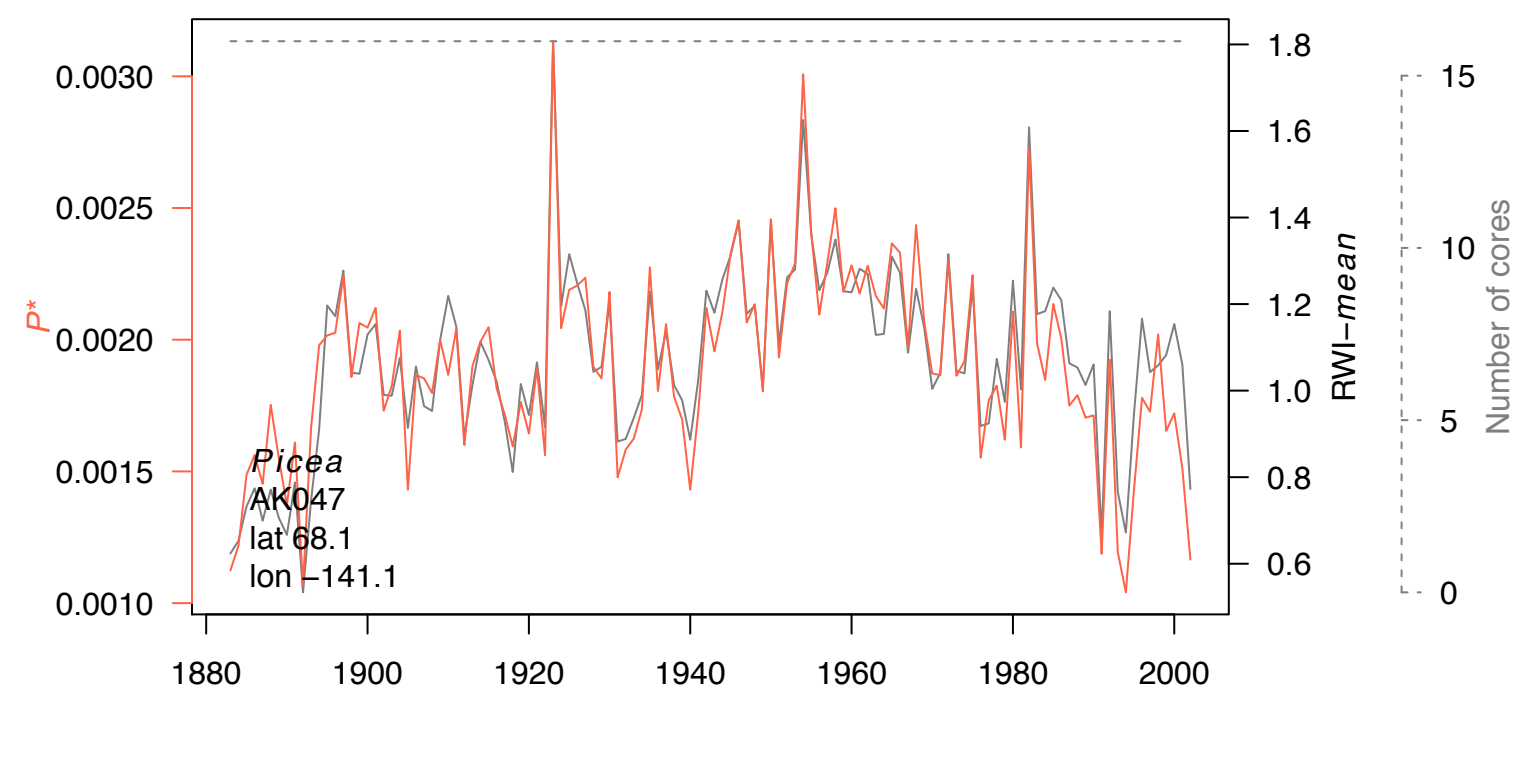

0.005
0.004
0.003
0.002
0.001
P*
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
20
15
10
5
0
Number of cores
Picea
KAZ001
lat 43.35
lon 77.35
1880
1900
1920
1940
1960
1980
2000

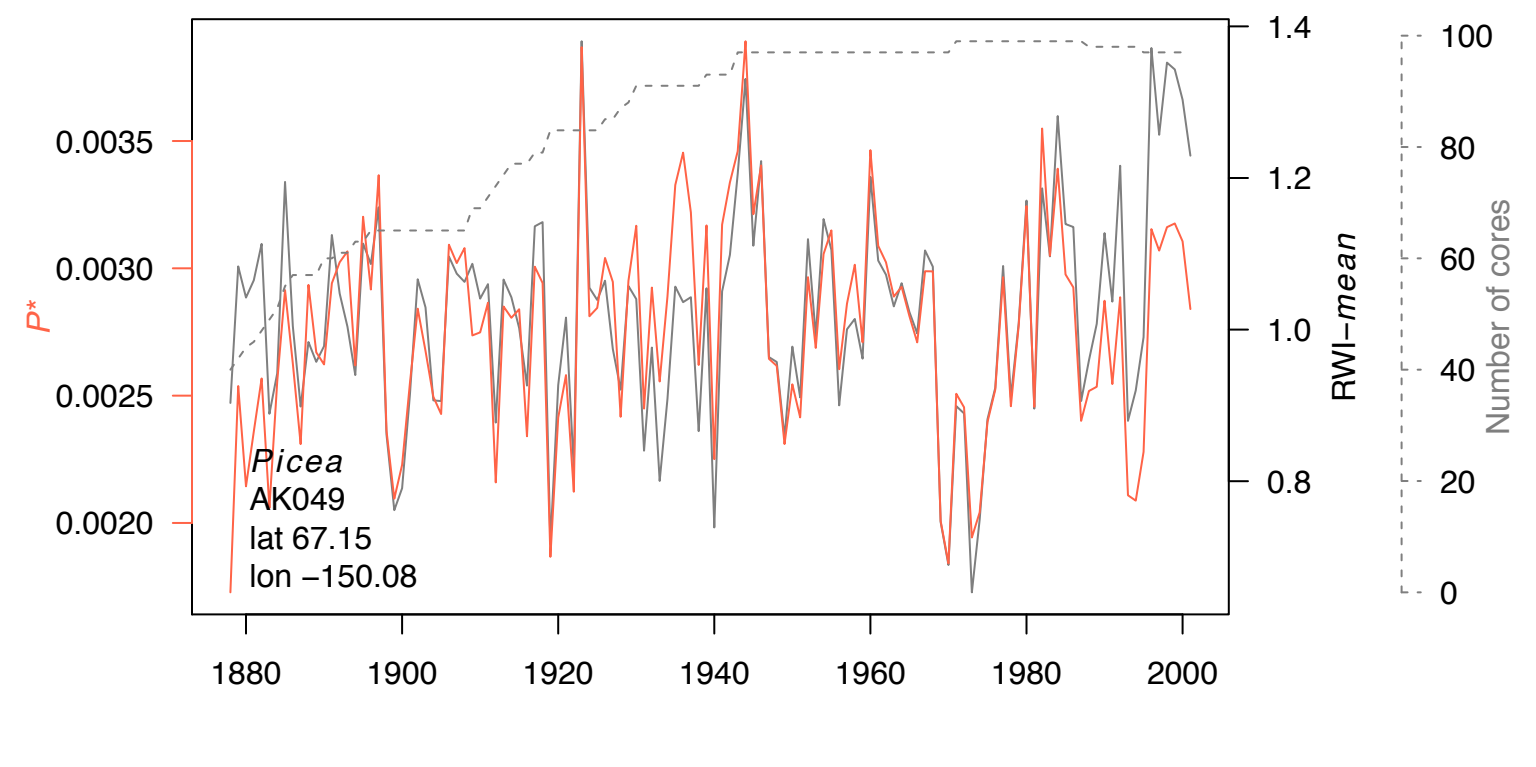

P*
0.0016
0.0014
0.0012
0.0010
0.0008
0.0006
0.0004
RWI–mean
1.6
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
40
30
20
10
0
1800
1850
1900
1950
2000
Picea
AK086
lat 60.48
lon –154.33

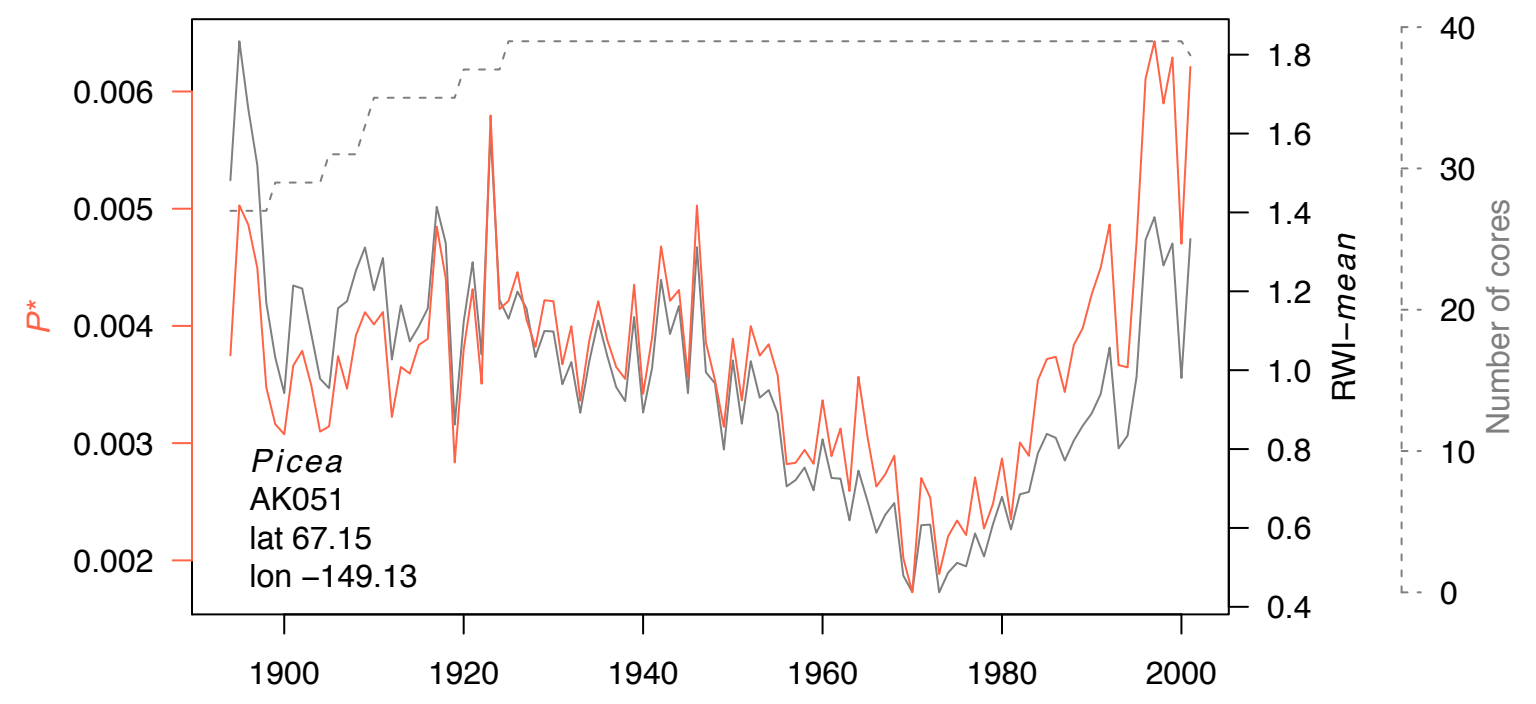

P*
0.0020
0.0015
0.0010
Picea
AK089
lat 60.65
lon −154.02
1800
1850
1900
1950
2000
RWI–mean
1.8
1.6
1.4
1.2
1.0
0.8
0.6
Number of cores
35
30
25
20
15
10
5
0

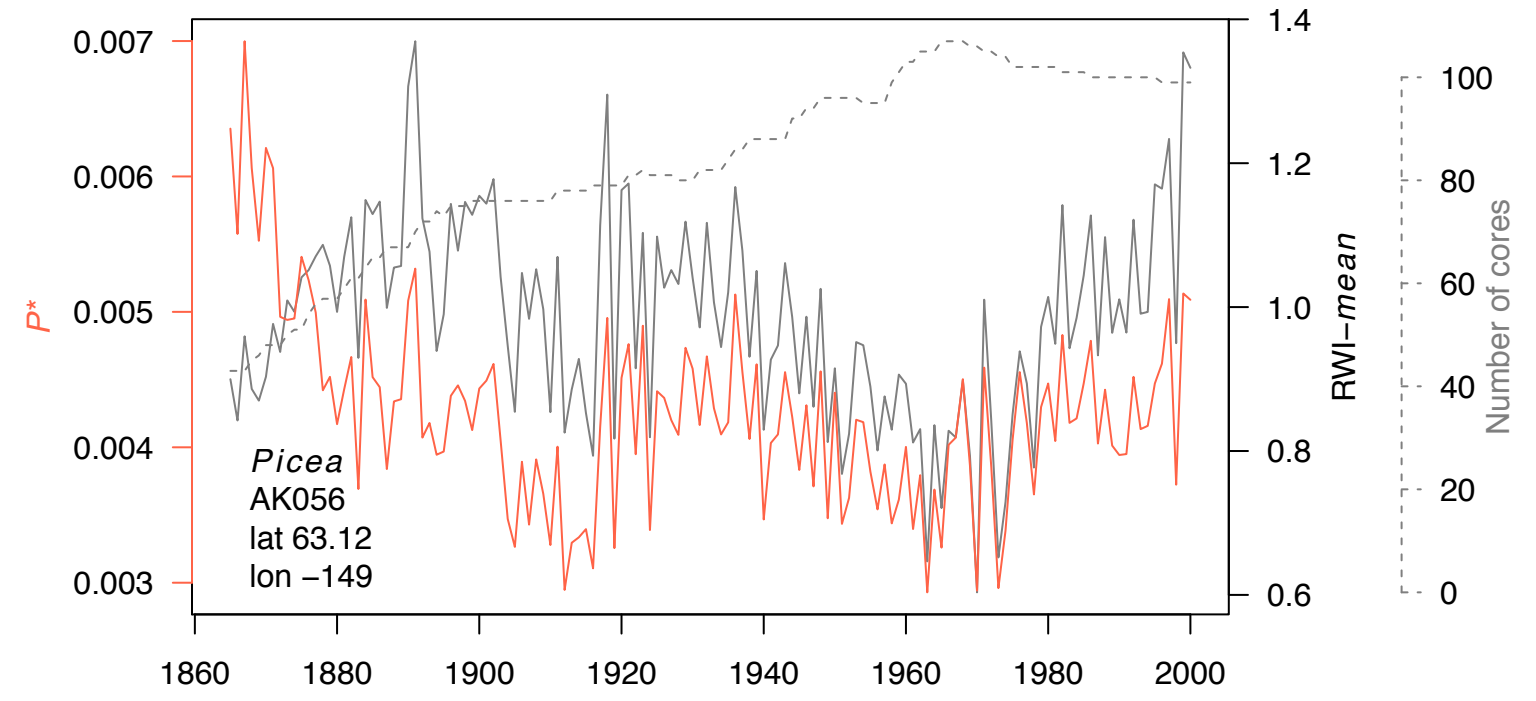

P*
0.005
0.004
0.003
0.002
Picea
AK088
lat 60.97
lon −153.92
1880
1900
1920
1940
1960
1980
2000
RWI–mean
1.4
1.2
1.0
0.8
0.6
Number of cores
20
15
10
5
0

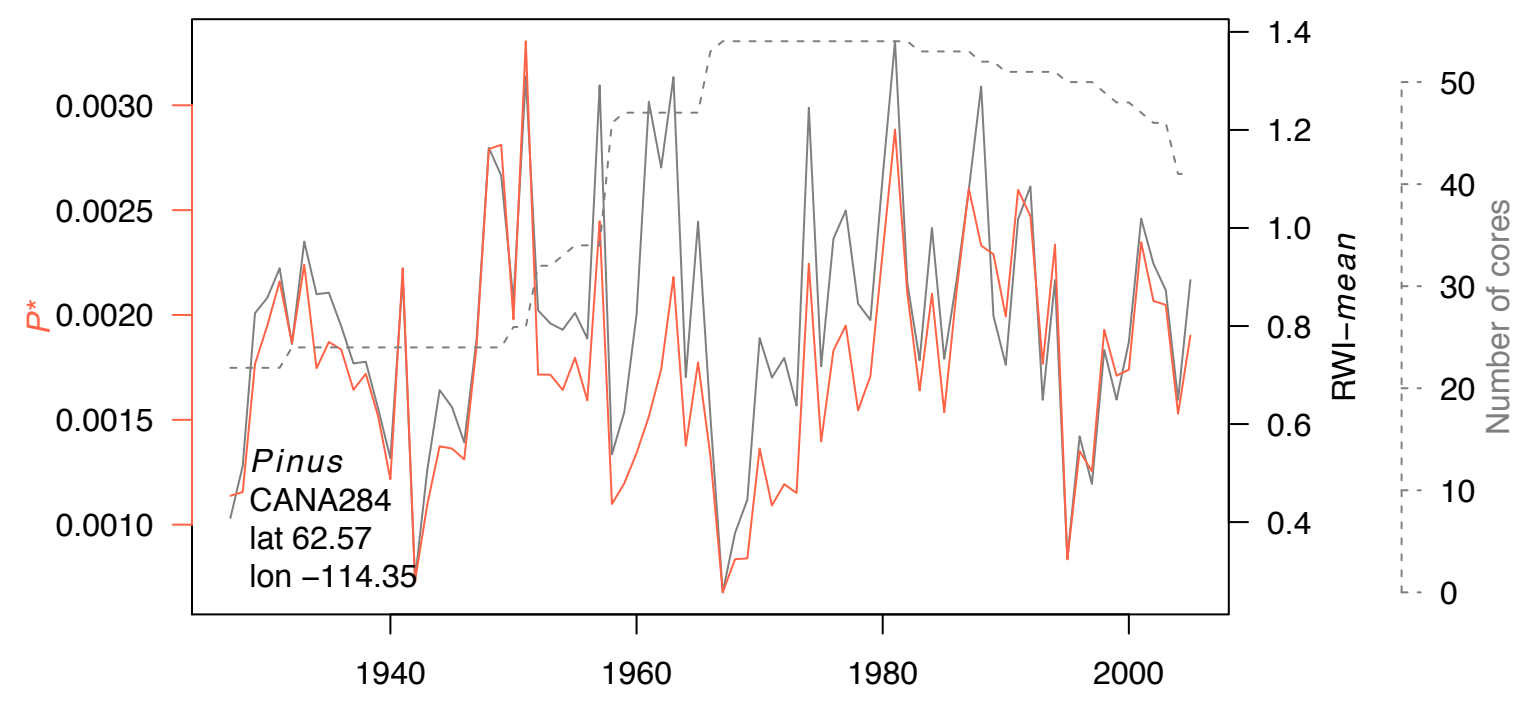

P*
0.007
0.006
0.005
0.004
0.003
Picea
AK054
lat 63.1
lon −150
1.4
1.2
1.0
0.8
0.6
RWI–mean
100
80
60
40
20
0
Number of cores
1860
1880
1900
1920
1940
1960
1980
2000

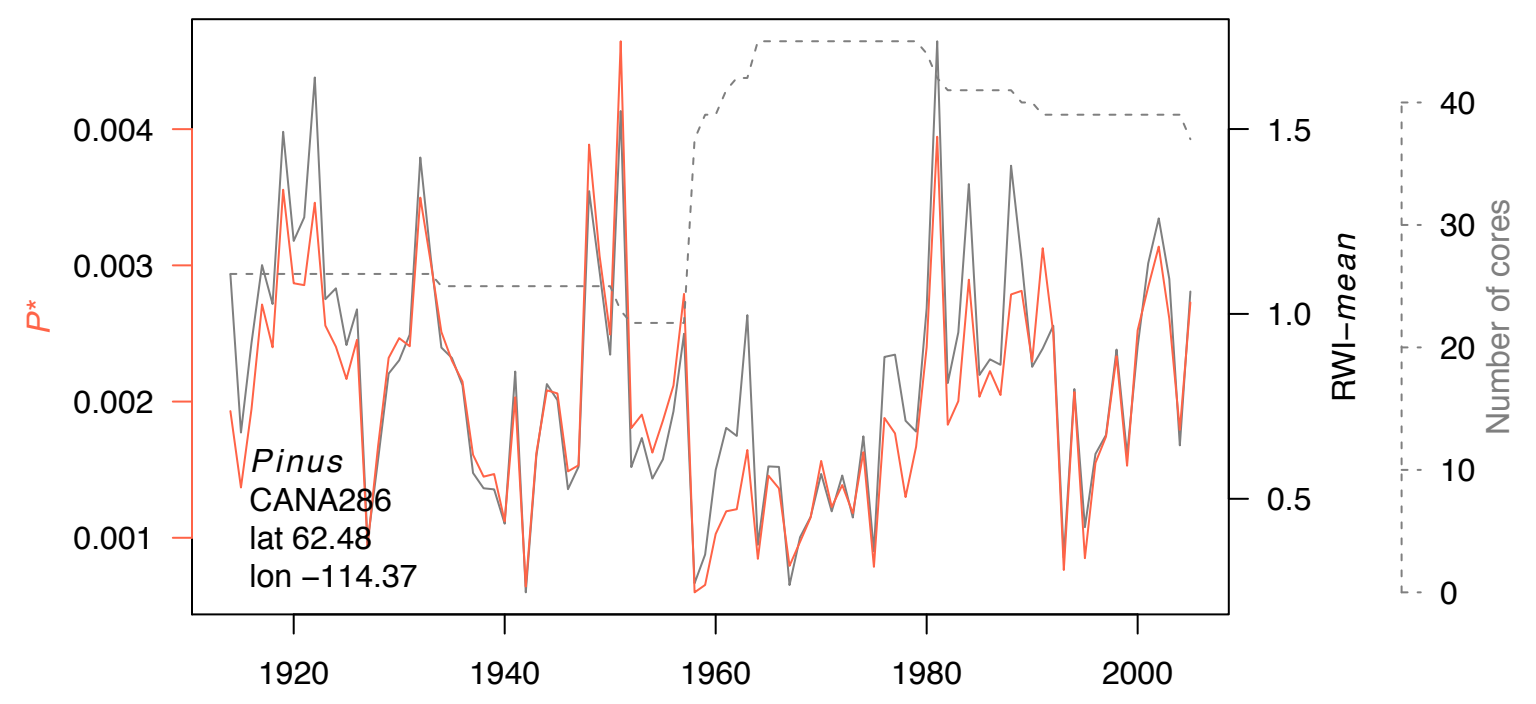

P*
0.0030
0.0025
0.0020
0.0015
0.0010
RWI–mean
1.8
1.6
1.4
1.2
1.0
0.8
0.6
Number of cores
15
10
5
0
1880
1900
1920
1940
1960
1980
2000
Picea
AK047
lat 68.1
lon –141.1

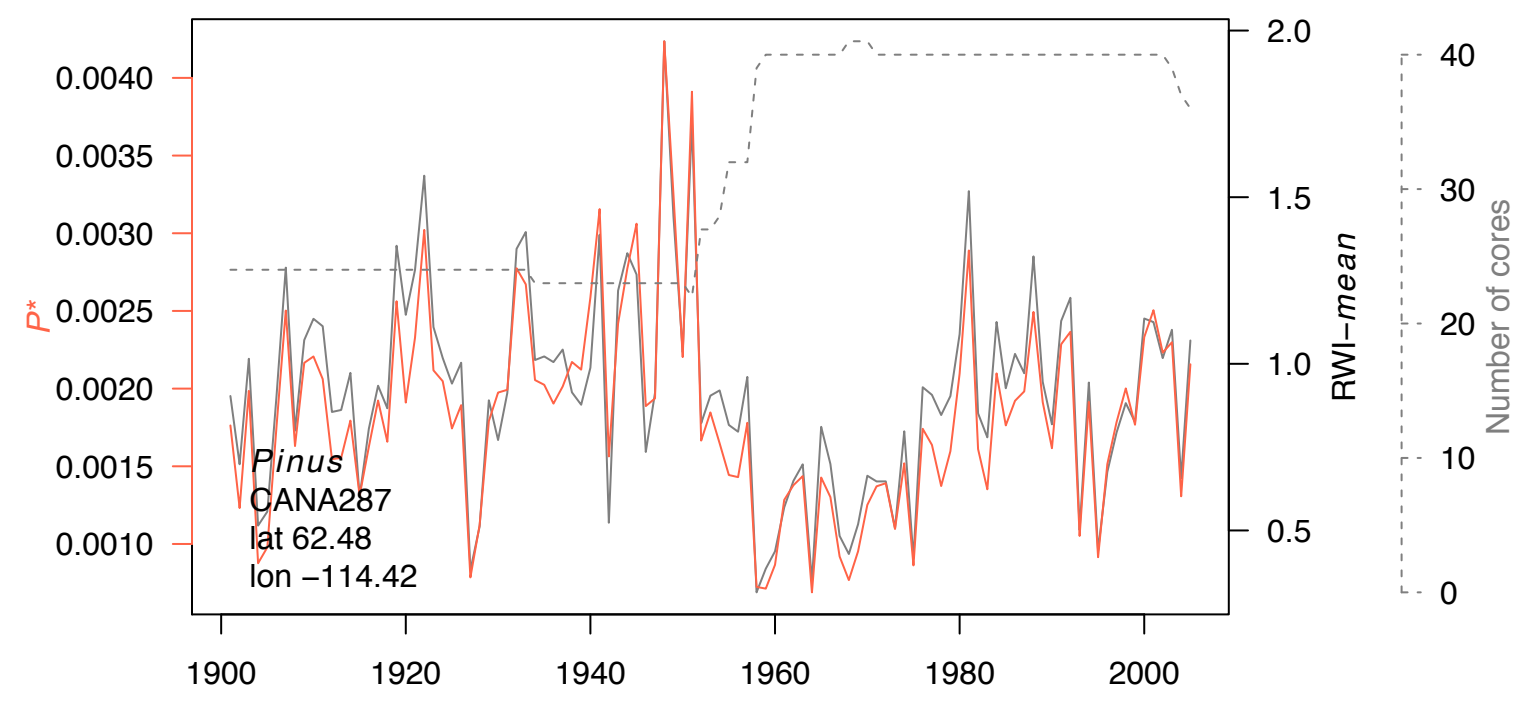

P*
0.0035
0.0030
0.0025
0.0020
Picea
AK049
lat 67.15
lon −150.08
1880
1900
1920
1940
1960
1980
2000
1.4
1.2
1.0
0.8
RWI–mean
100
80
60
40
20
0
Number of cores

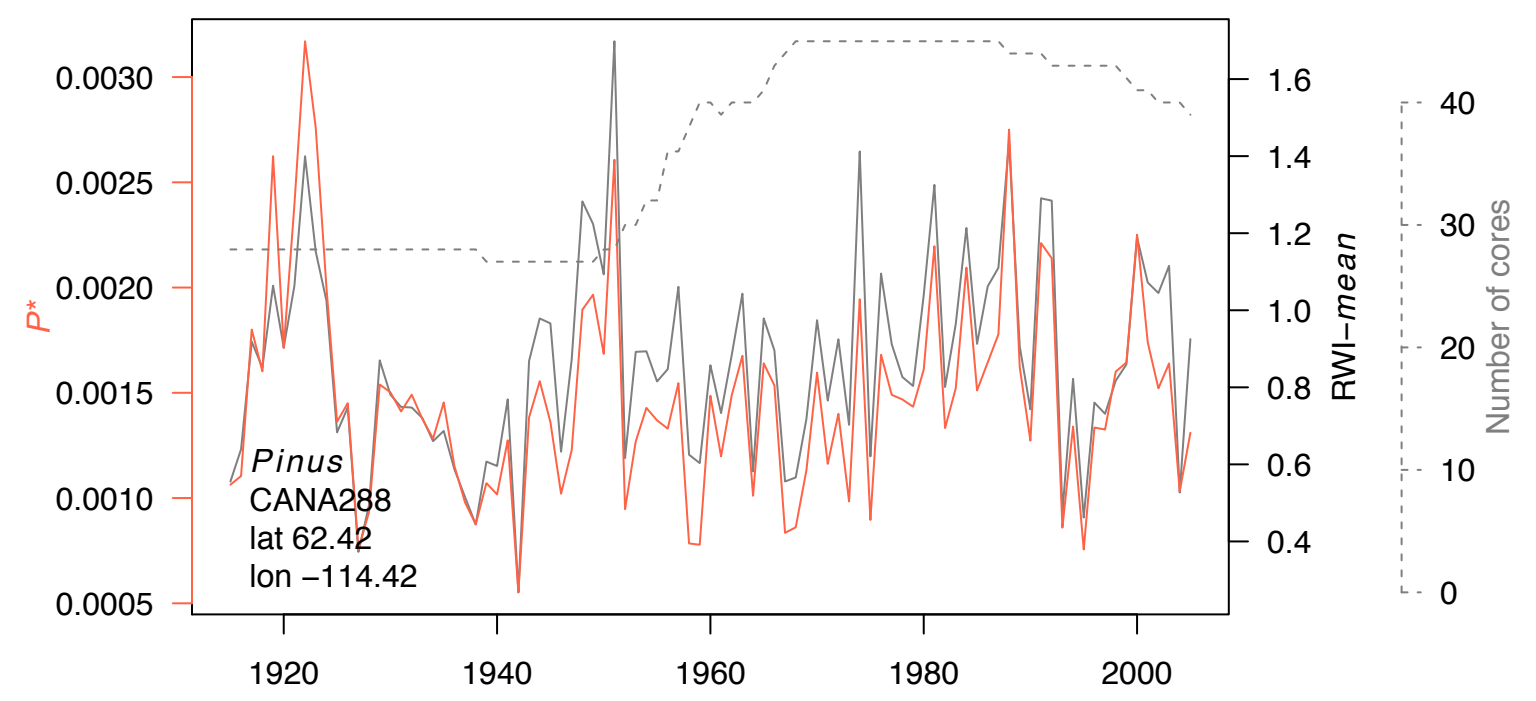

P*
0.006
0.005
0.004
0.003
0.002
Picea
AK051
lat 67.15
lon −149.13
1900
1920
1940
1960
1980
2000
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
40
30
20
10
0
Number of cores

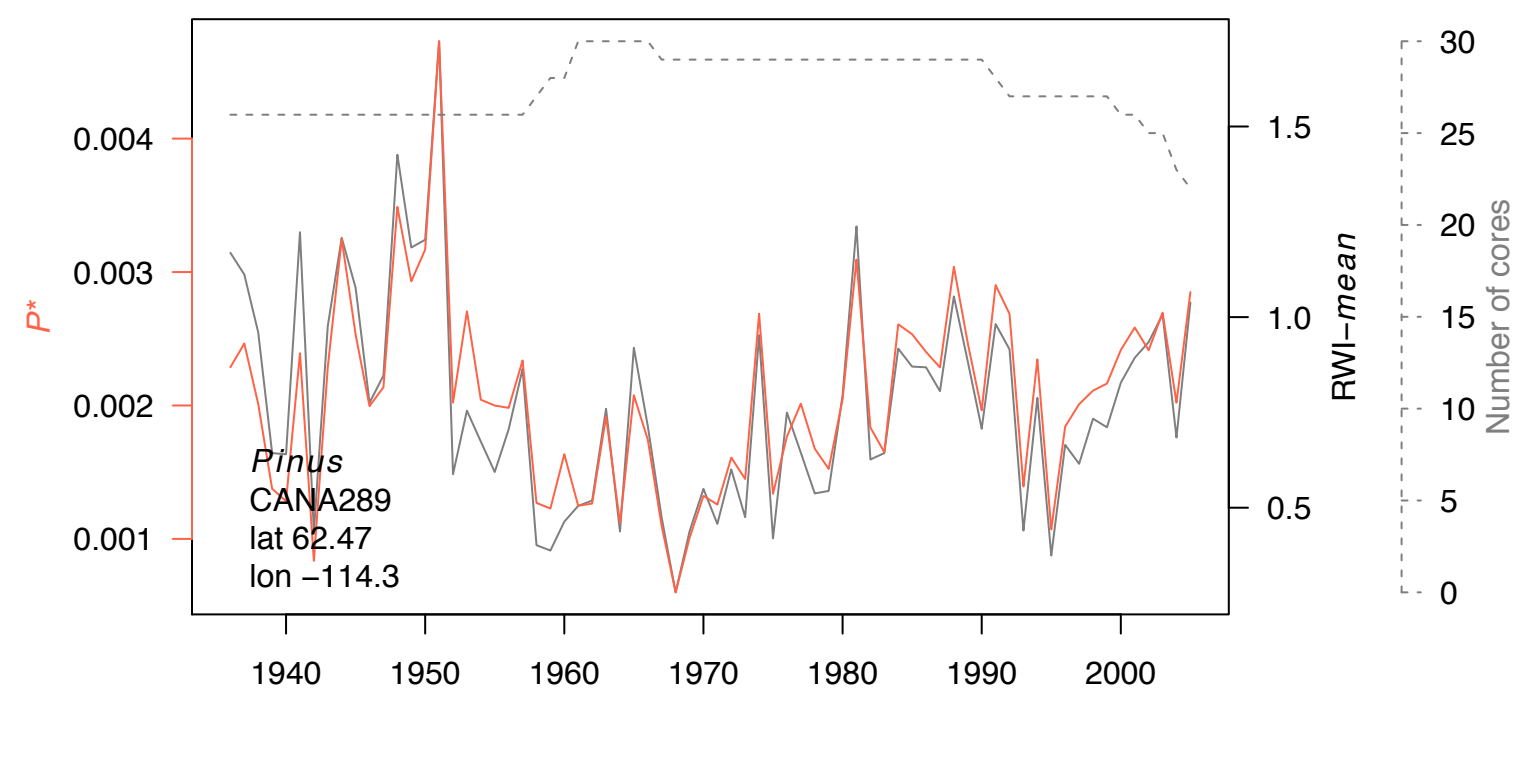

P*
0.007
0.006
0.005
0.004
0.003
RWI–mean
1.4
1.2
1.0
0.8
0.6
Number of cores
100
80
60
40
20
0
Picea
AK056
lat 63.12
lon –149
1860
1880
1900
1920
1940
1960
1980
2000

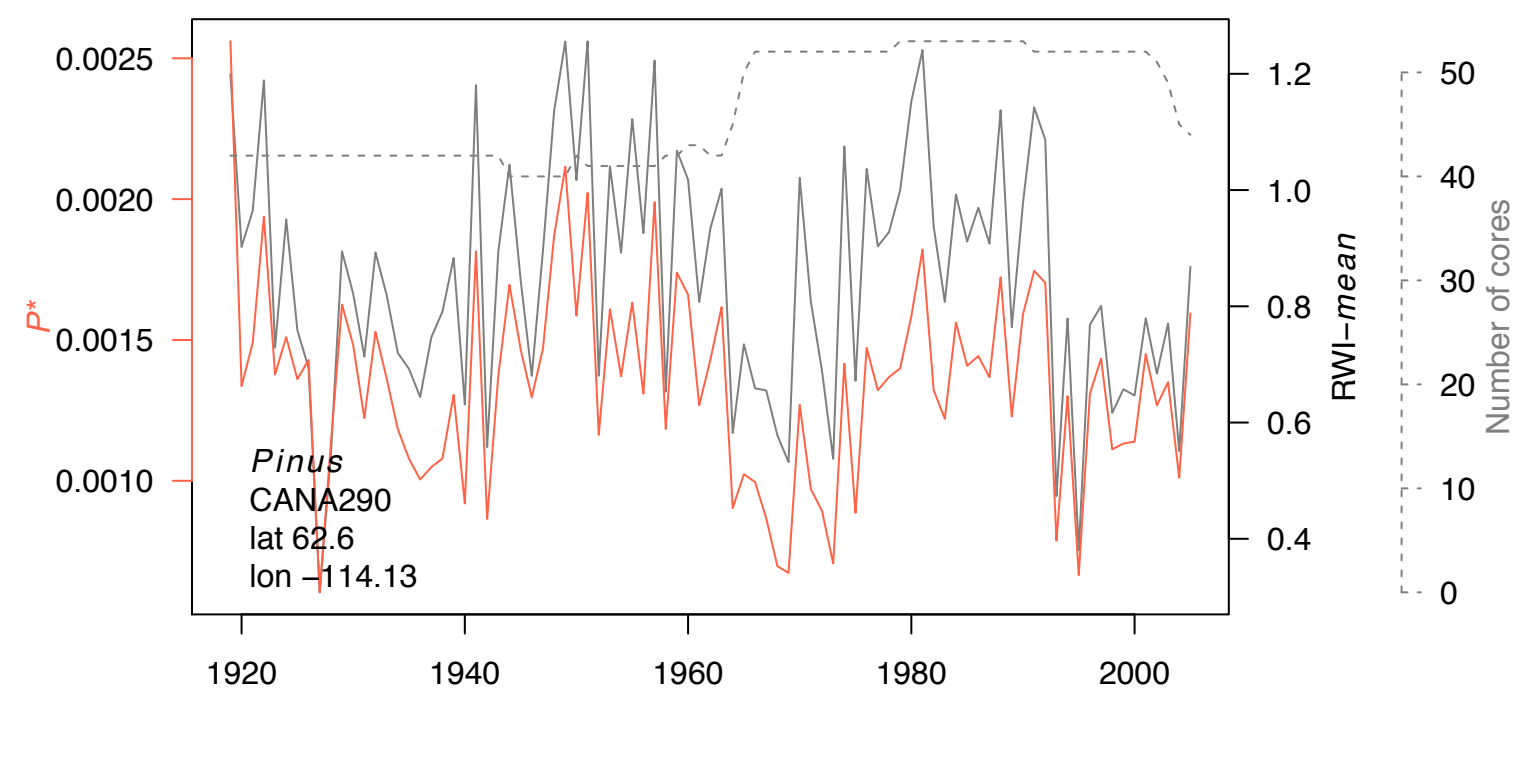

P*
0.0030
0.0025
0.0020
0.0015
0.0010
Pinus
CANA284
lat 62.57
lon −114.35
1940
1960
1980
2000
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
50
40
30
20
10
0
Number of cores

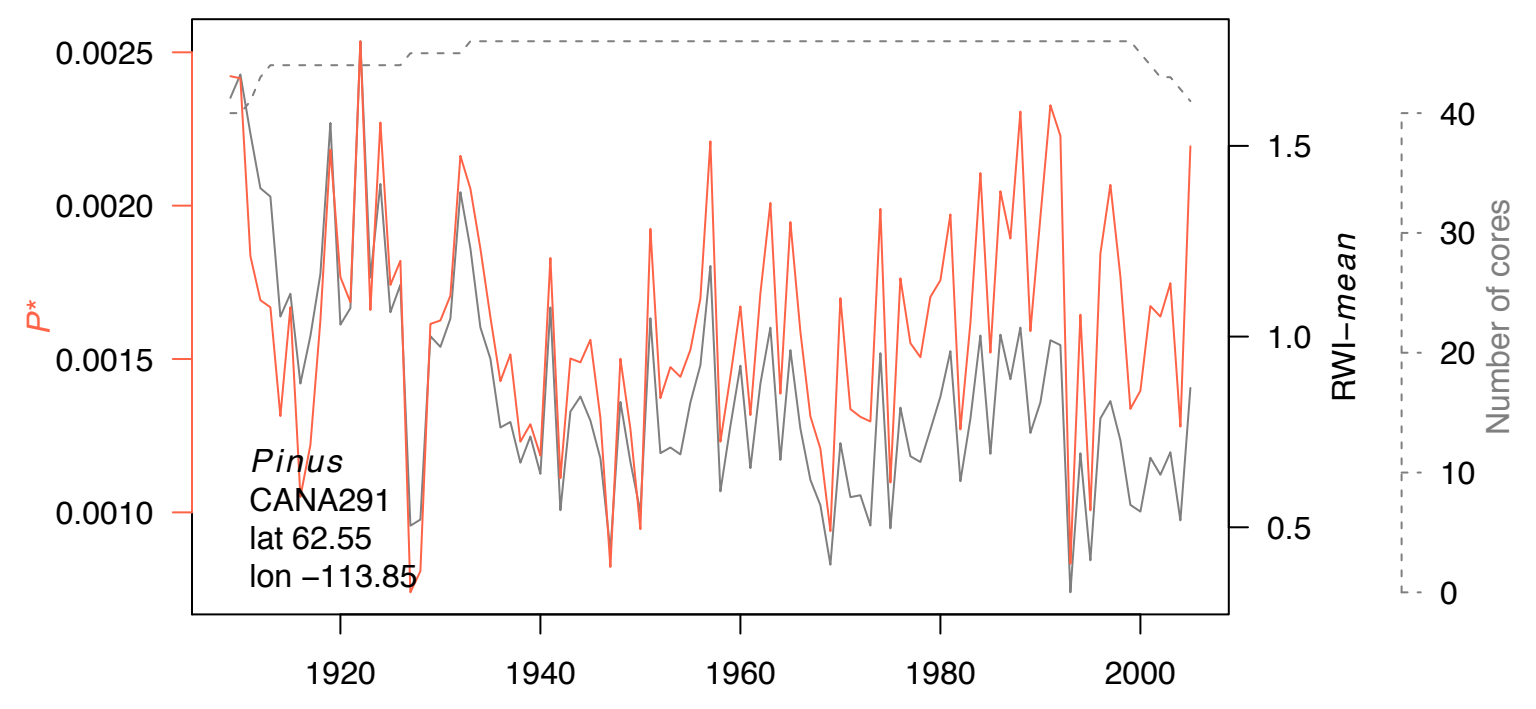

P*
0.004
0.003
0.002
0.001
Pinus
CANA286
lat 62.48
lon −114.37
1920
1940
1960
1980
2000
1.5
1.0
0.5
RWI–mean
40
30
20
10
0
Number of cores

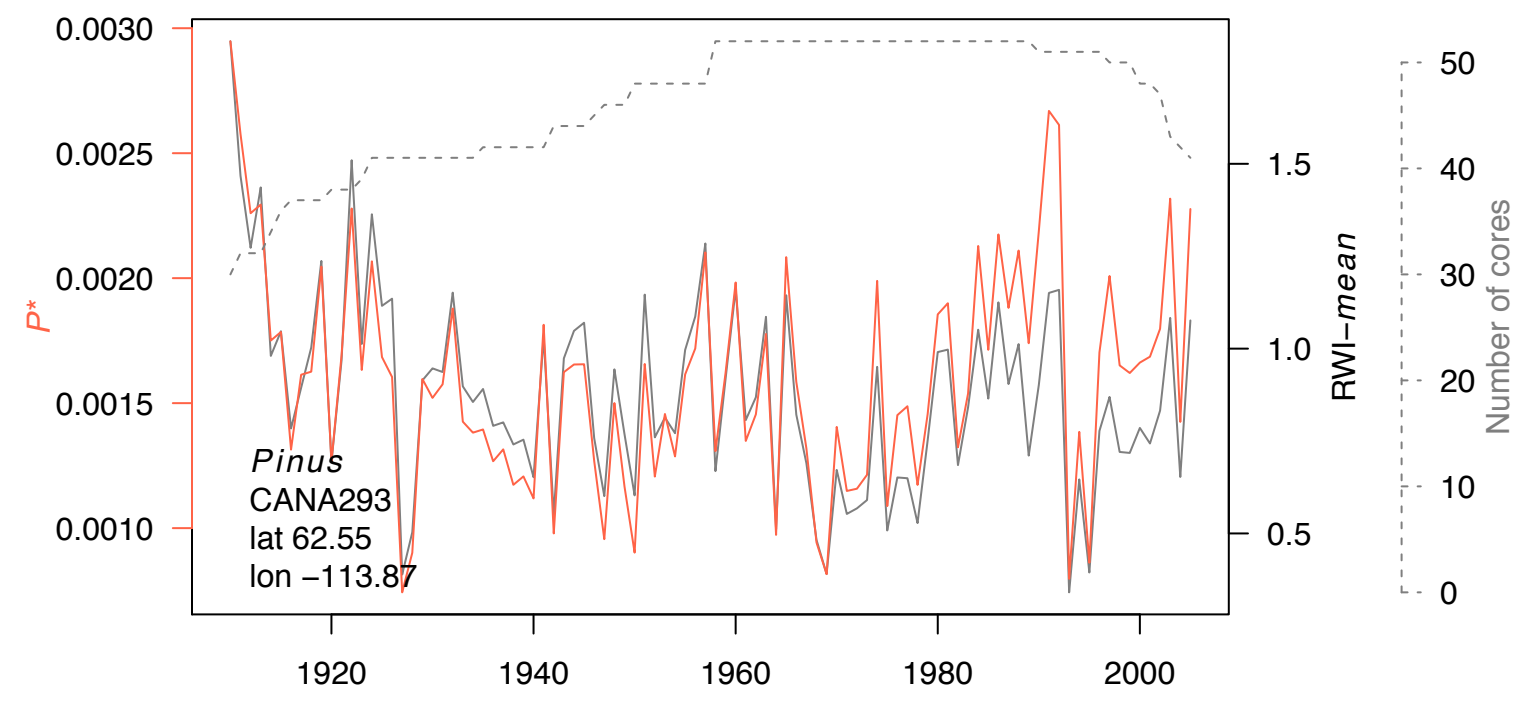

P*
0.0040
0.0035
0.0030
0.0025
0.0020
0.0015
0.0010
Pinus
CANA287
lat 62.48
lon −114.42
2.0
1.5
1.0
0.5
RWI–mean
40
30
20
10
0
Number of cores
1900
1920
1940
1960
1980
2000

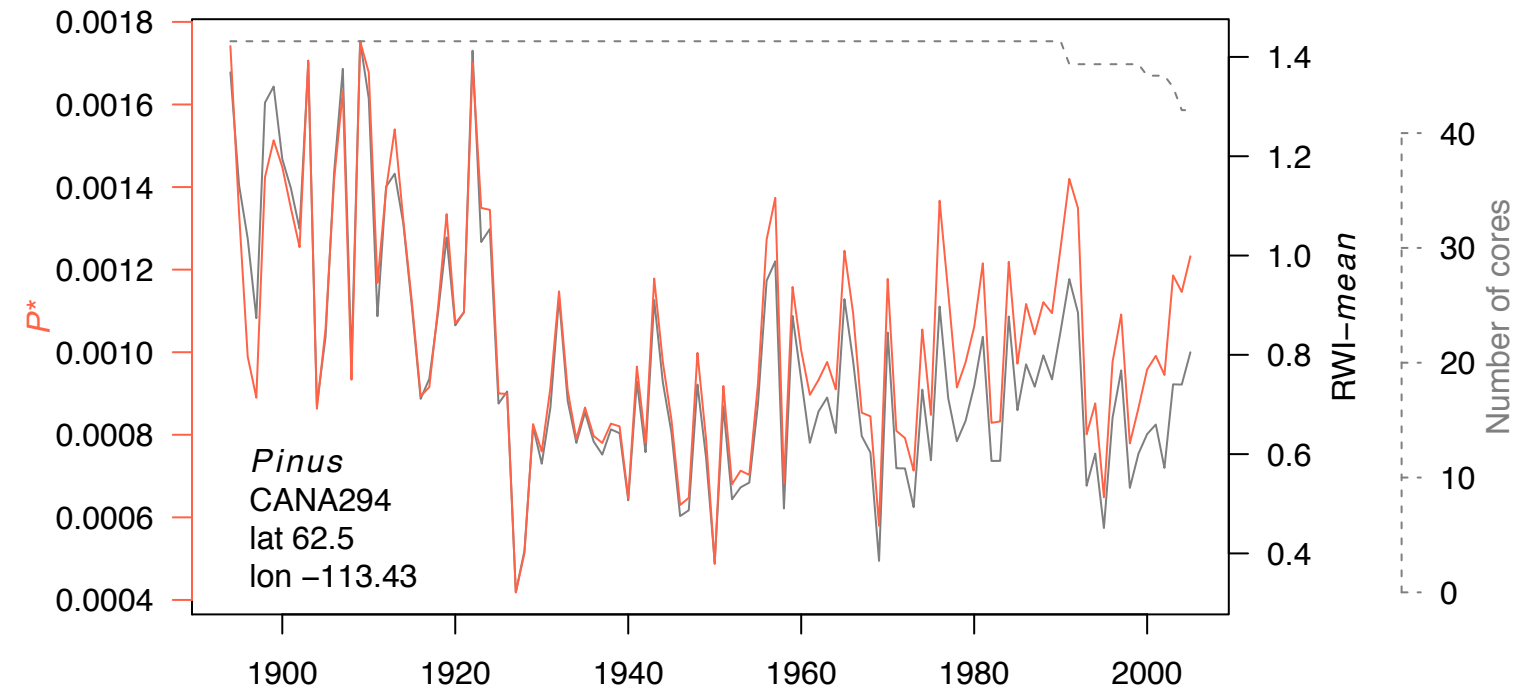

P*
0.0030
0.0025
0.0020
0.0015
0.0010
0.0005
Pinus
CANA288
lat 62.42
lon −114.42
1920
1940
1960
1980
2000
RWI–mean
1.6
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
40
30
20
10
0

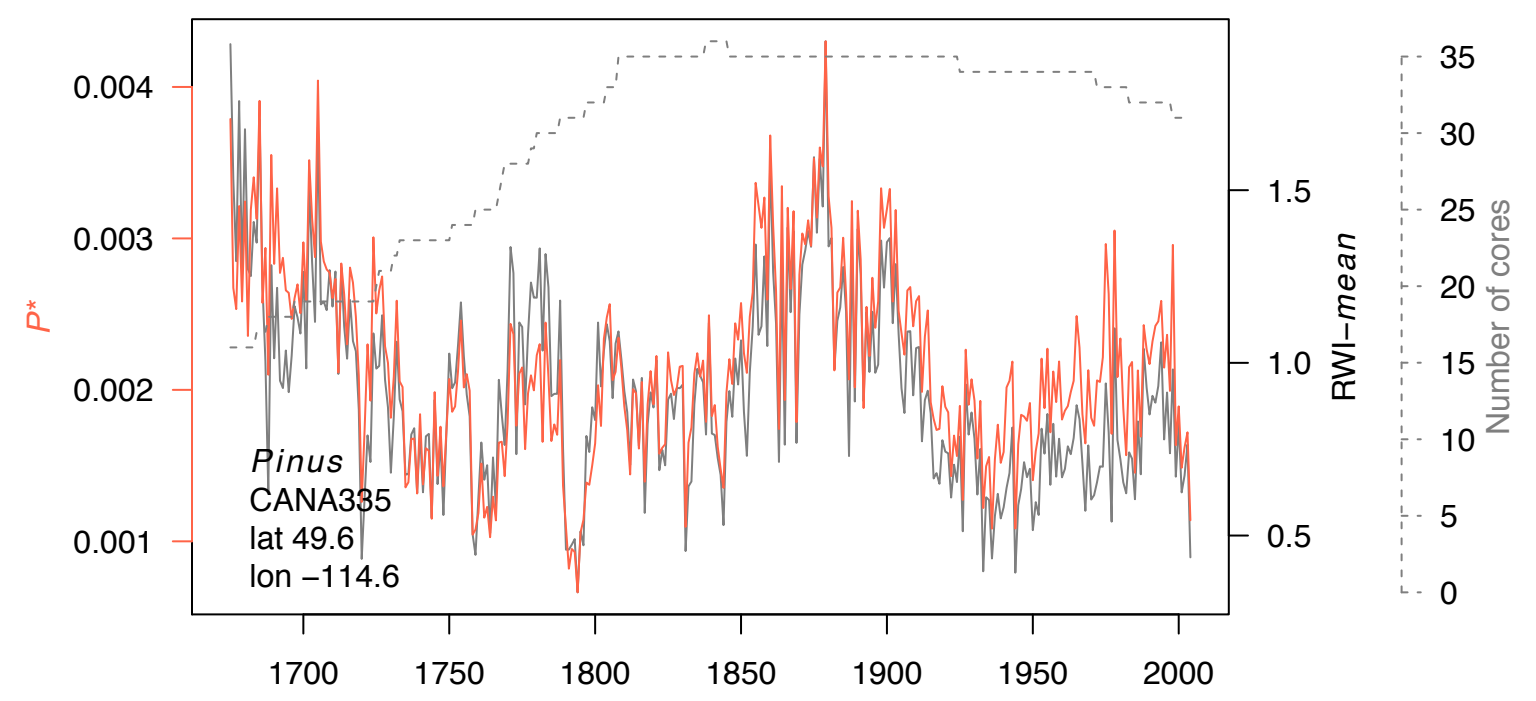

P*
0.004
0.003
0.002
0.001
Pinus
CANA289
lat 62.47
lon −114.3
1940
1950
1960
1970
1980
1990
2000
1.5
1.0
0.5
RWI–mean
30
25
20
15
10
5
0
Number of cores

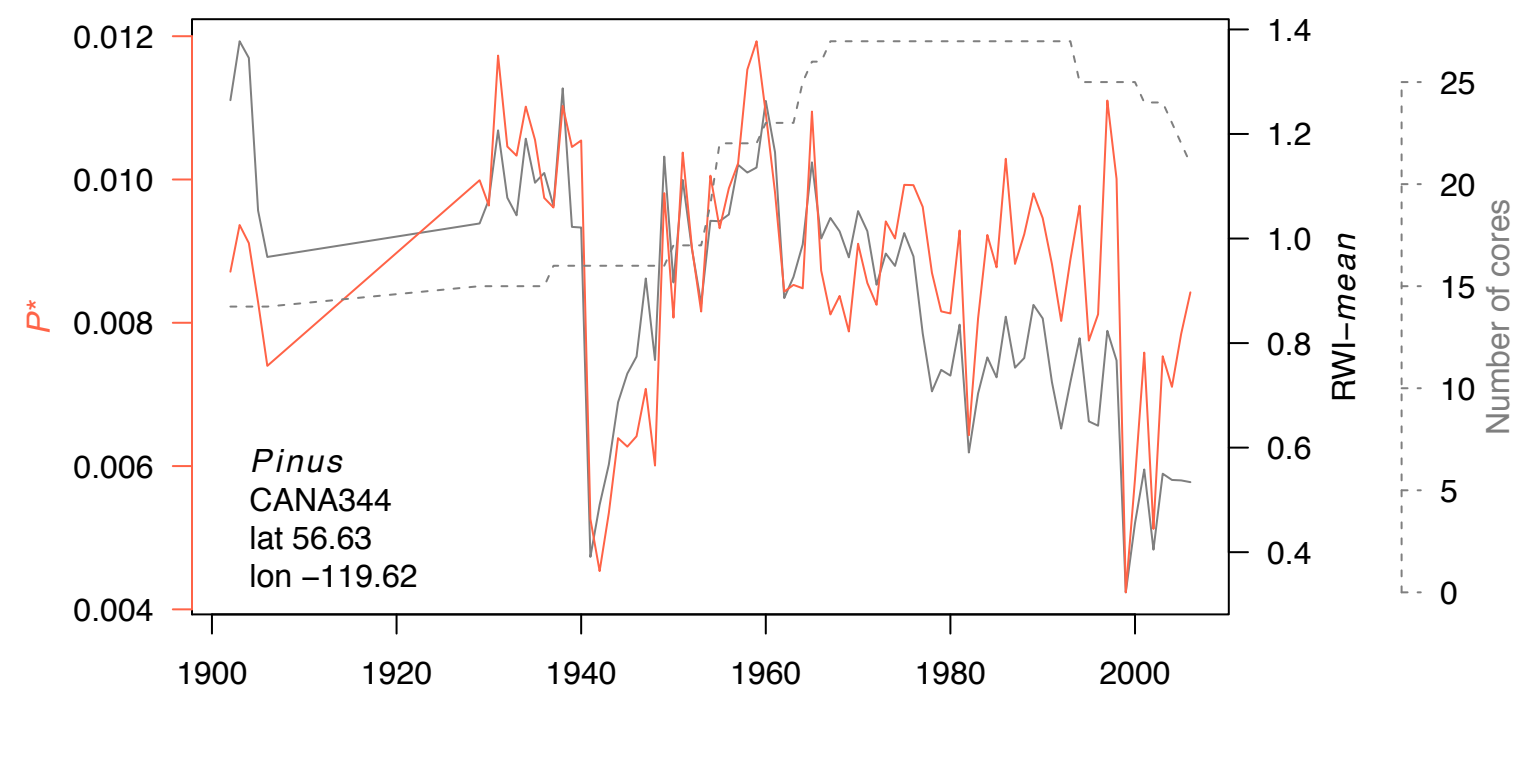

P*
0.0025
0.0020
0.0015
0.0010
Pinus
CANA290
lat 62.6
lon –114.13
1920
1940
1960
1980
2000
RWI–mean
1.2
1.0
0.8
0.6
0.4
Number of cores
50
40
30
20
10
0

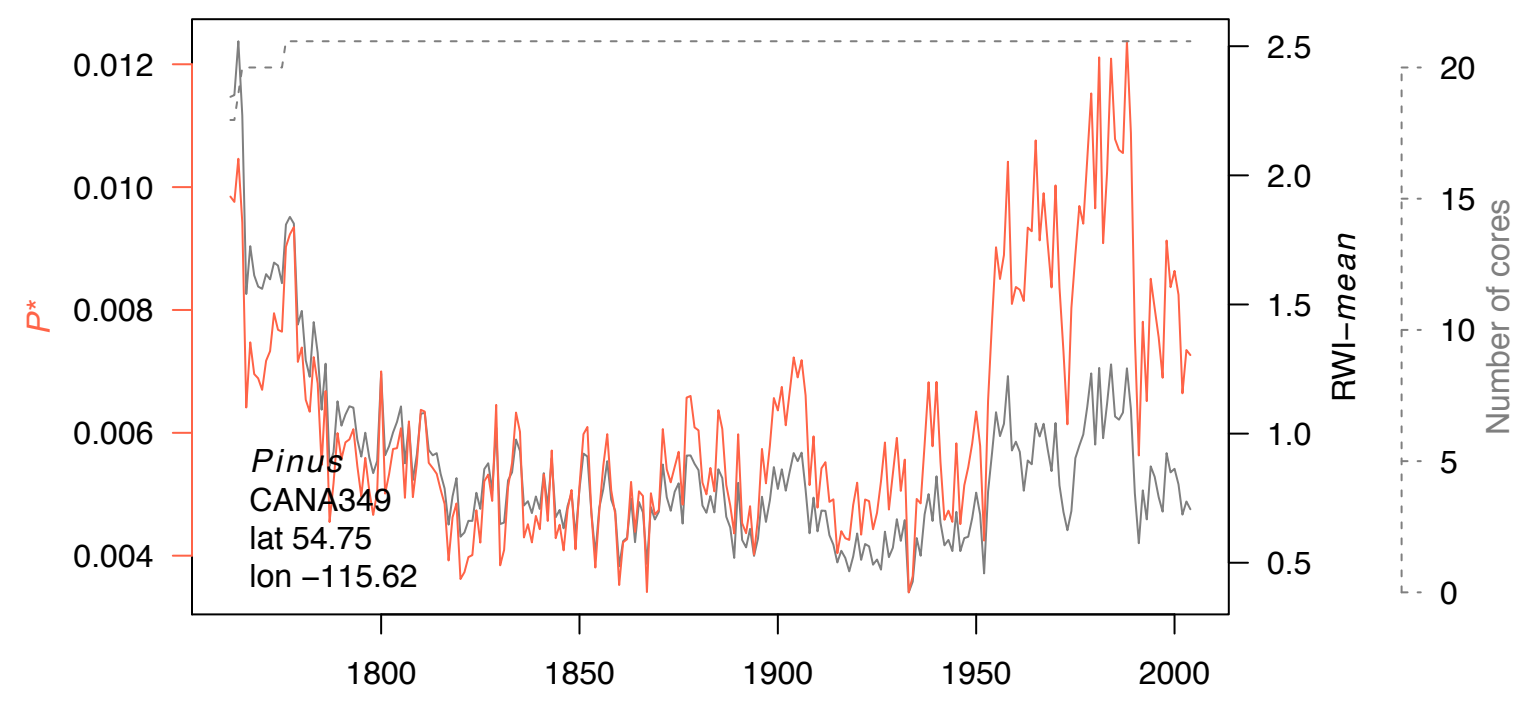

0.0025
0.0020
0.0015
0.0010
P*
1.5
1.0
0.5
RWI–mean
40
30
20
10
0
Number of cores
Pinus
CANA291
lat 62.55
lon –113.85
1920
1940
1960
1980
2000

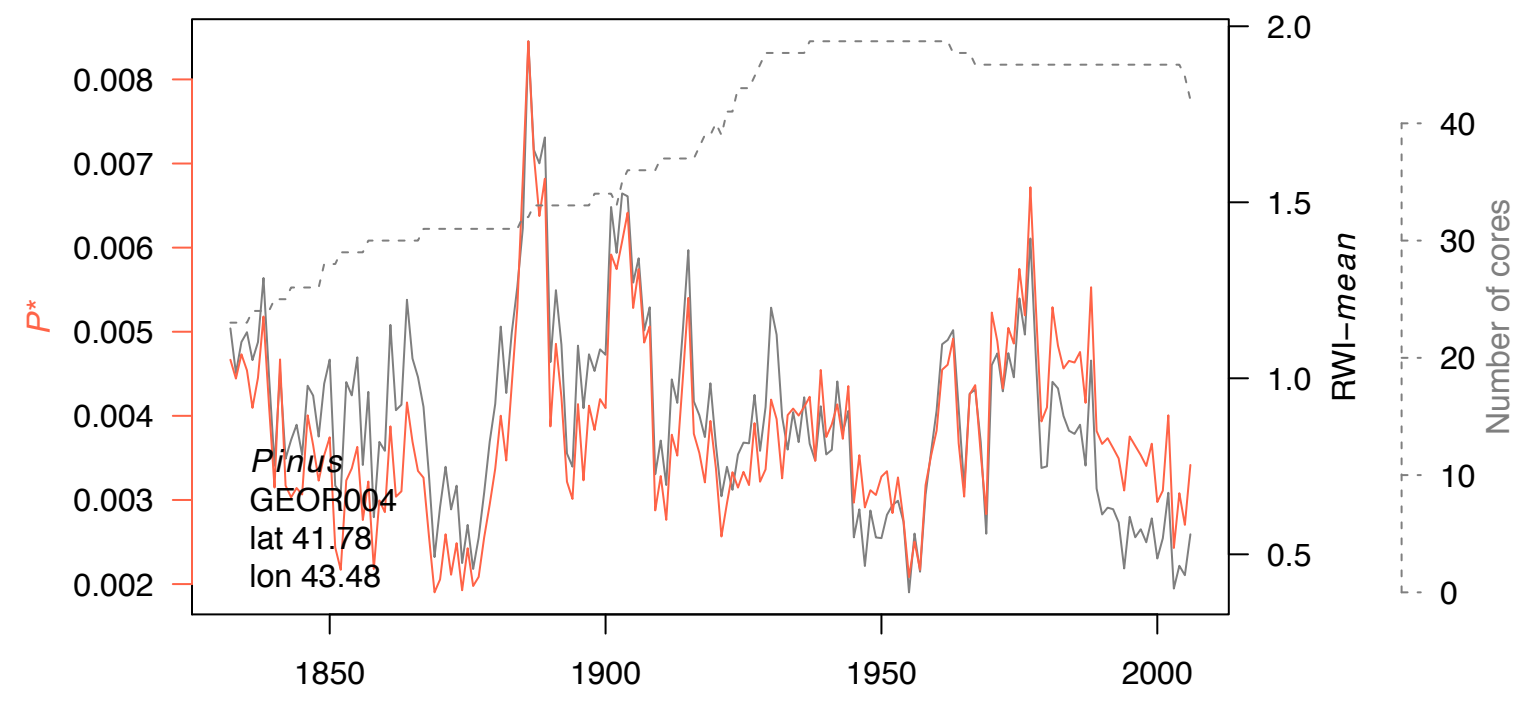

0.0030
0.0025
0.0020
0.0015
0.0010
P*
Pinus
CANA293
lat 62.55
lon −113.87
1.5
1.0
0.5
RWI–mean
50
40
30
20
10
0
Number of cores
1920
1940
1960
1980
2000

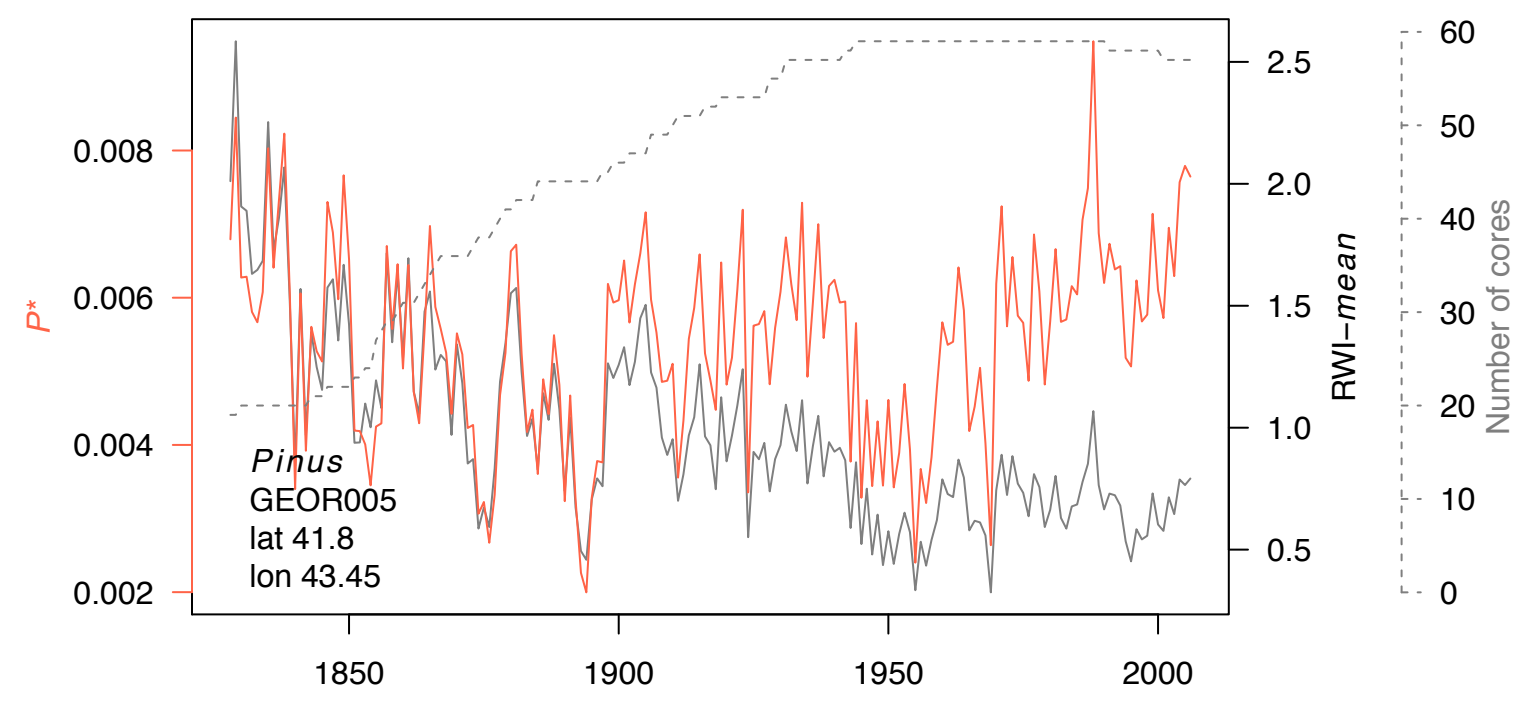

0.0018
0.0016
0.0014
0.0012
0.0010
0.0008
0.0006
0.0004
P*
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
40
30
20
10
0
Number of cores
Pinus
CANA294
lat 62.5
lon –113.43
1900
1920
1940
1960
1980
2000

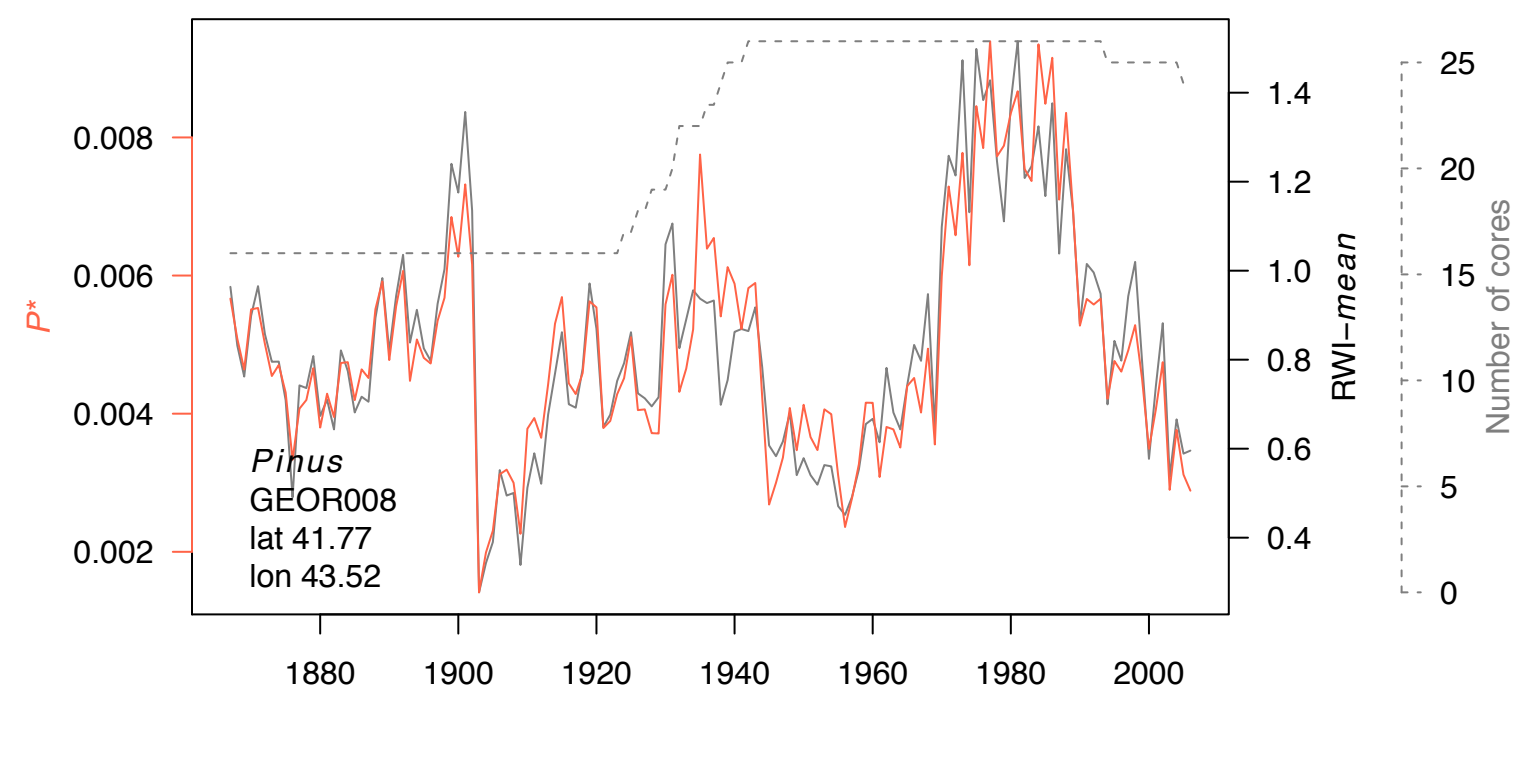

P*
0.004
0.003
0.002
0.001
RWI–mean
1.5
1.0
0.5
Number of cores
35
30
25
20
15
10
5
0
Pinus
CANA335
lat 49.6
lon −114.6
1700
1750
1800
1850
1900
1950
2000

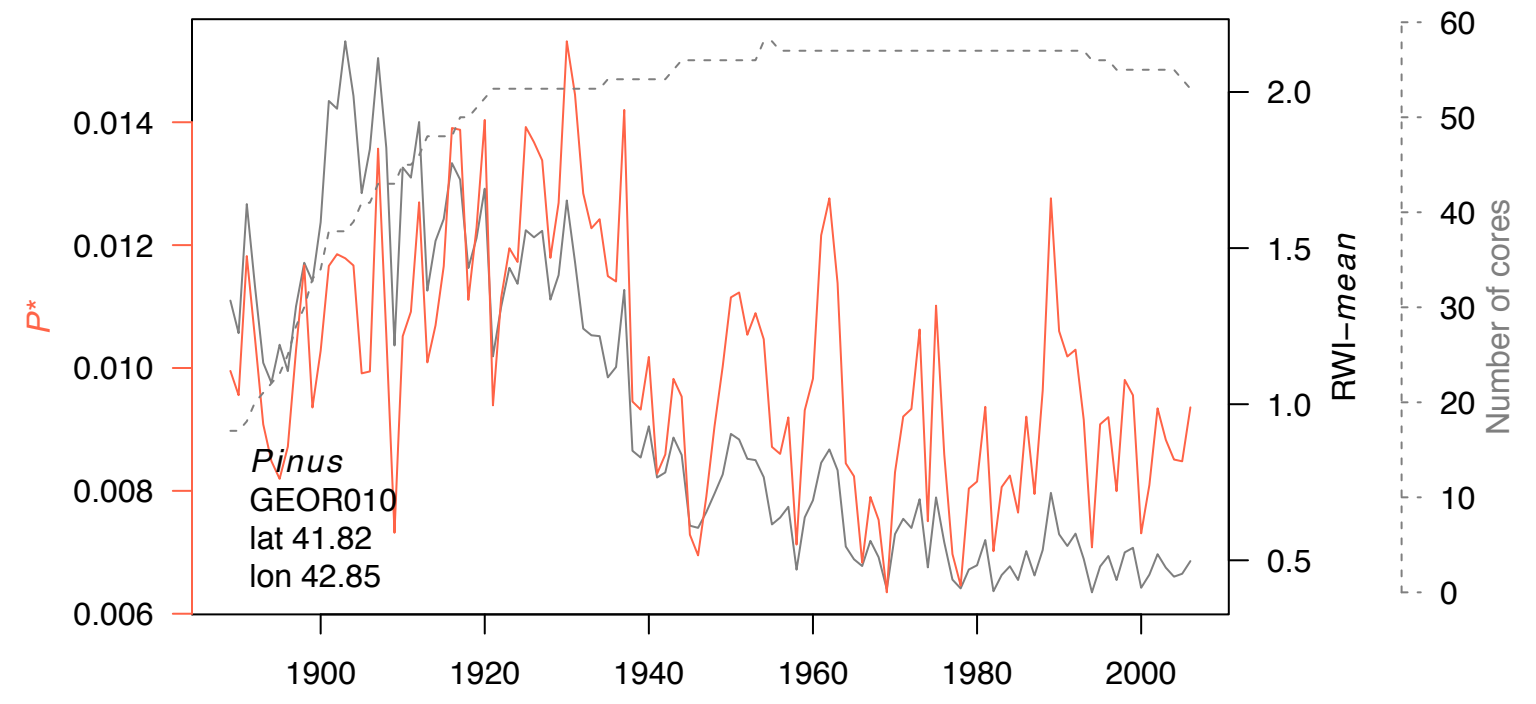

P*
0.012
0.010
0.008
0.006
0.004
Pinus
CANA344
lat 56.63
lon −119.62
1900
1920
1940
1960
1980
2000
RWI–mean
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
25
20
15
10
5
0

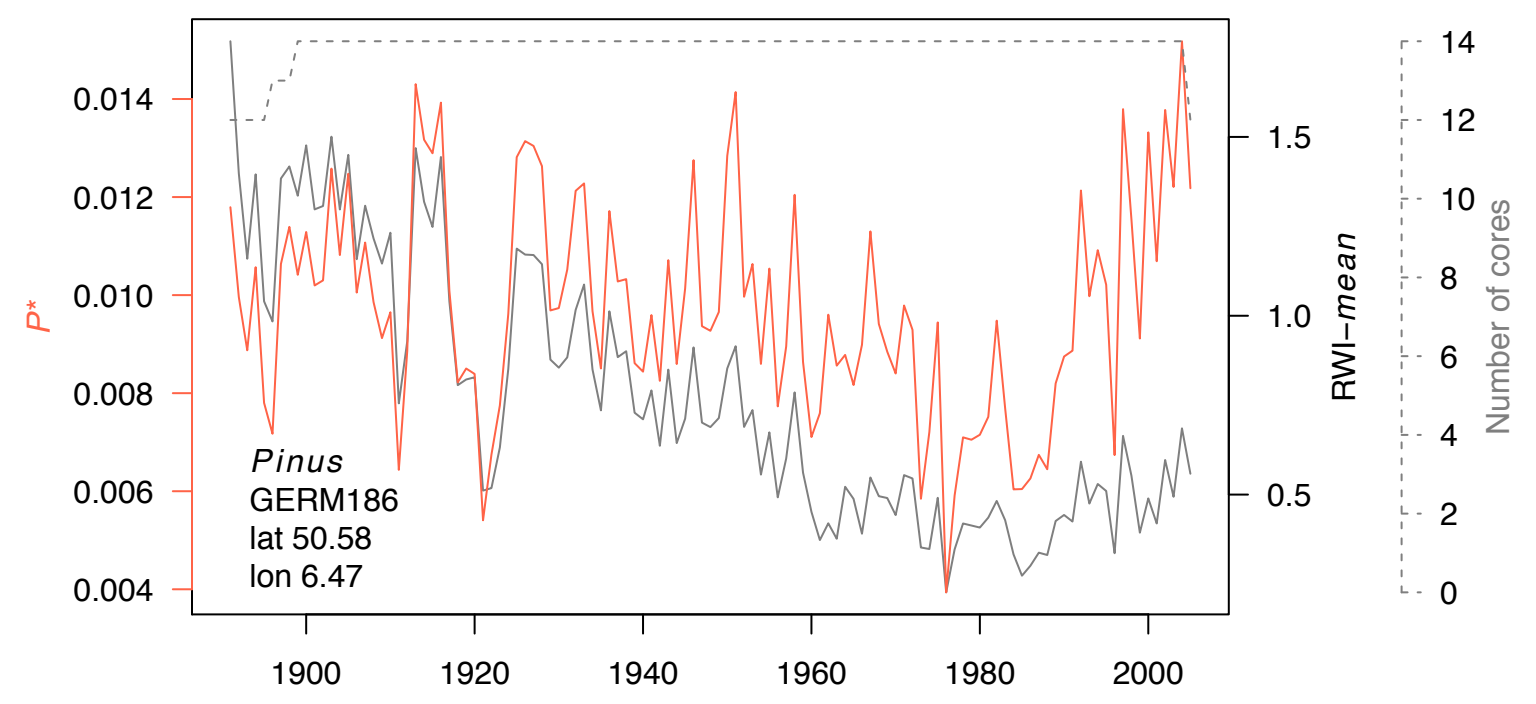

P*
0.012
0.010
0.008
0.006
0.004
RWI–mean
2.5
2.0
1.5
1.0
0.5
Number of cores
20
15
10
5
0
Pinus
CANA349
lat 54.75
lon –115.62
1800
1850
1900
1950
2000

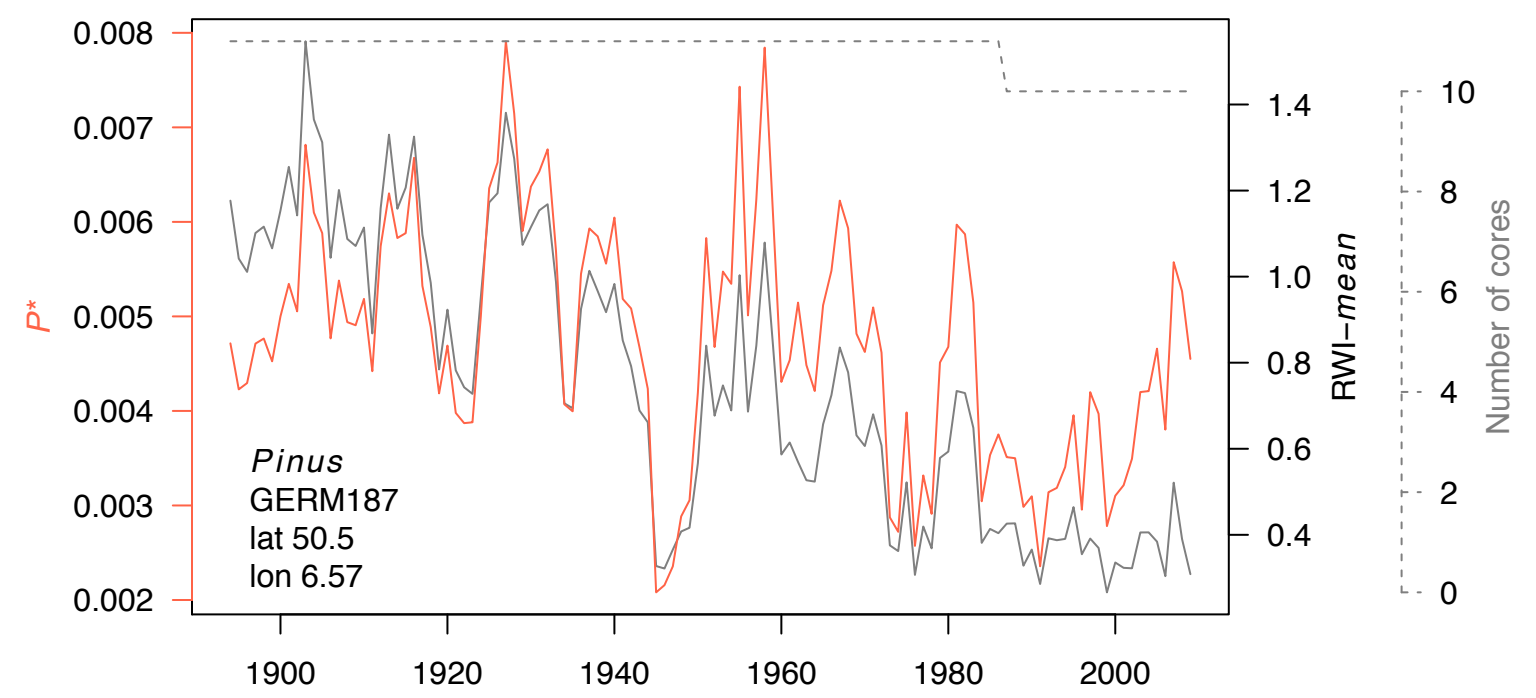

P*
0.008
0.007
0.006
0.005
0.004
0.003
0.002
Pinus
GEOR004
lat 41.78
lon 43.48
1850
1900
1950
2000
2.0
1.5
1.0
0.5
RWI–mean
40
30
20
10
0
Number of cores

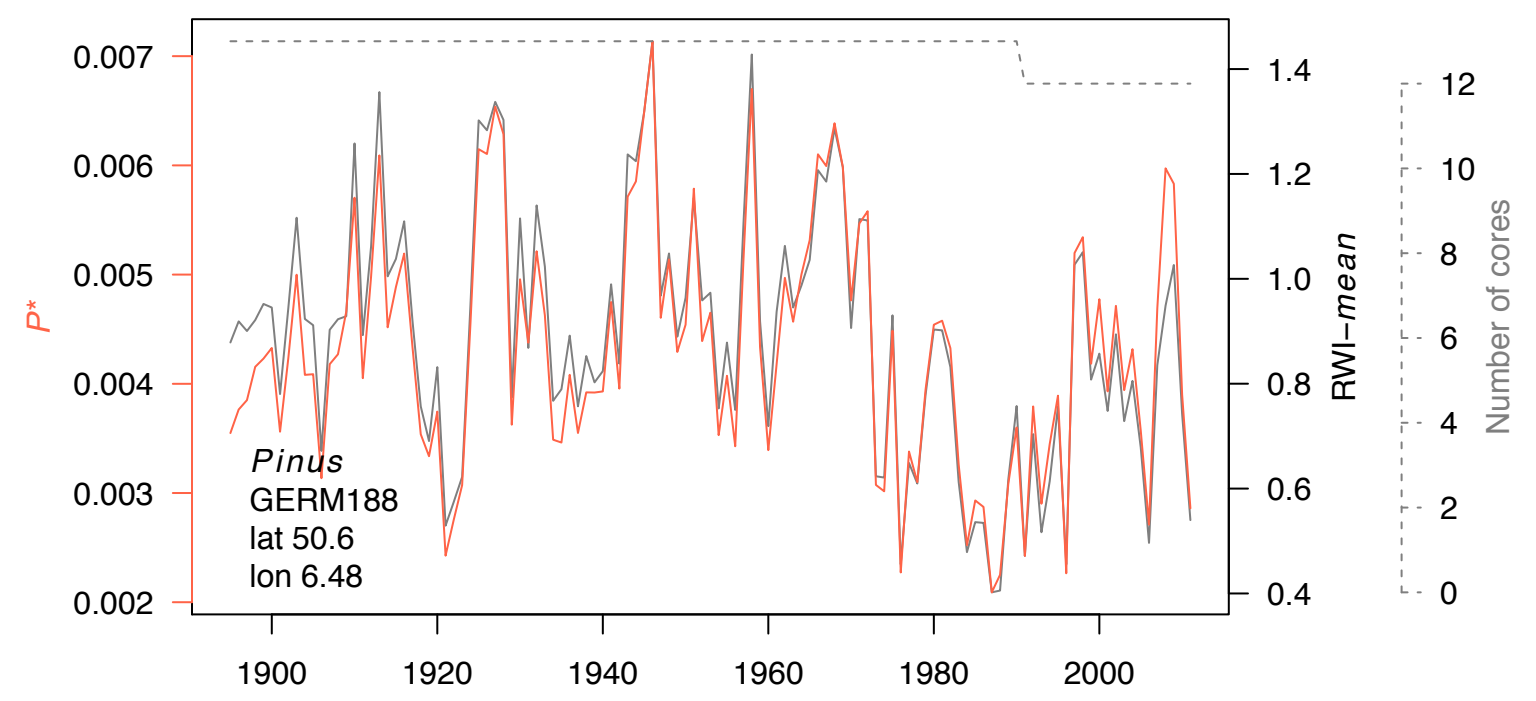

P*
0.008
0.006
0.004
0.002
Pinus
GEOR005
lat 41.8
lon 43.45
1850
1900
1950
2000
2.5
2.0
1.5
1.0
0.5
RWI–mean
60
50
40
30
20
10
0
Number of cores

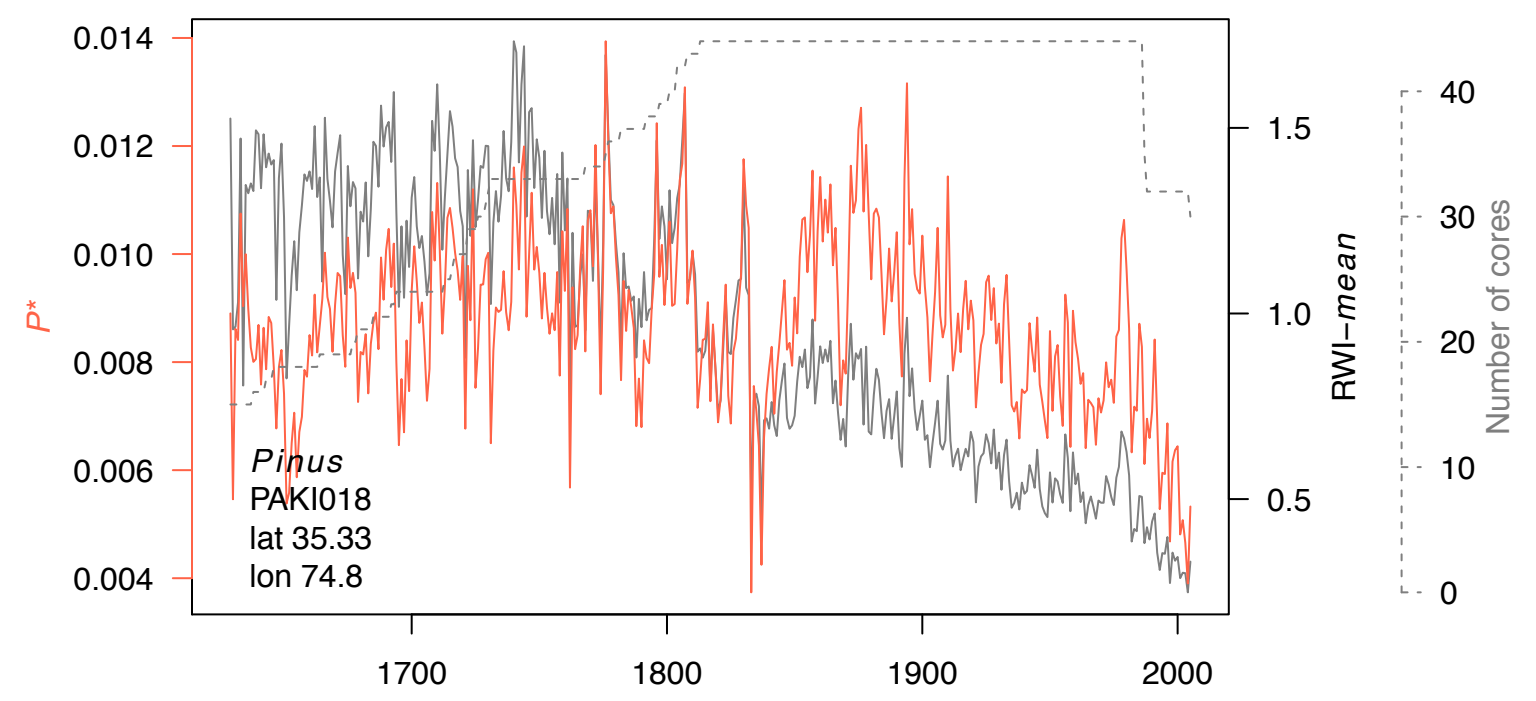

P*
0.008
0.006
0.004
0.002
Pinus
GEOR008
lat 41.77
lon 43.52
1880
1900
1920
1940
1960
1980
2000
RWI–mean
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
25
20
15
10
5
0

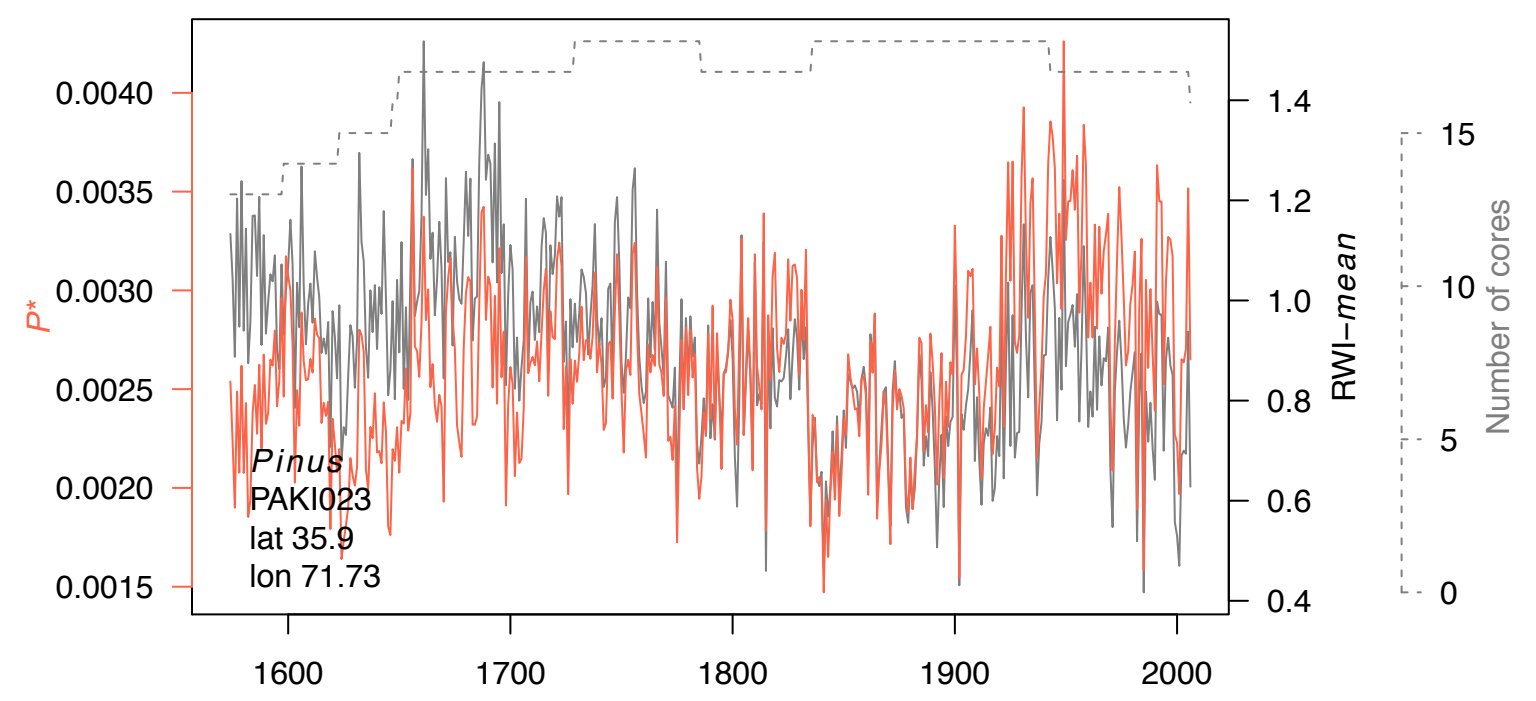

P*
0.014
0.012
0.010
0.008
0.006
RWI–mean
2.0
1.5
1.0
0.5
Number of cores
60
50
40
30
20
10
0
1900
1920
1940
1960
1980
2000
Pinus
GEOR010
lat 41.82
lon 42.85

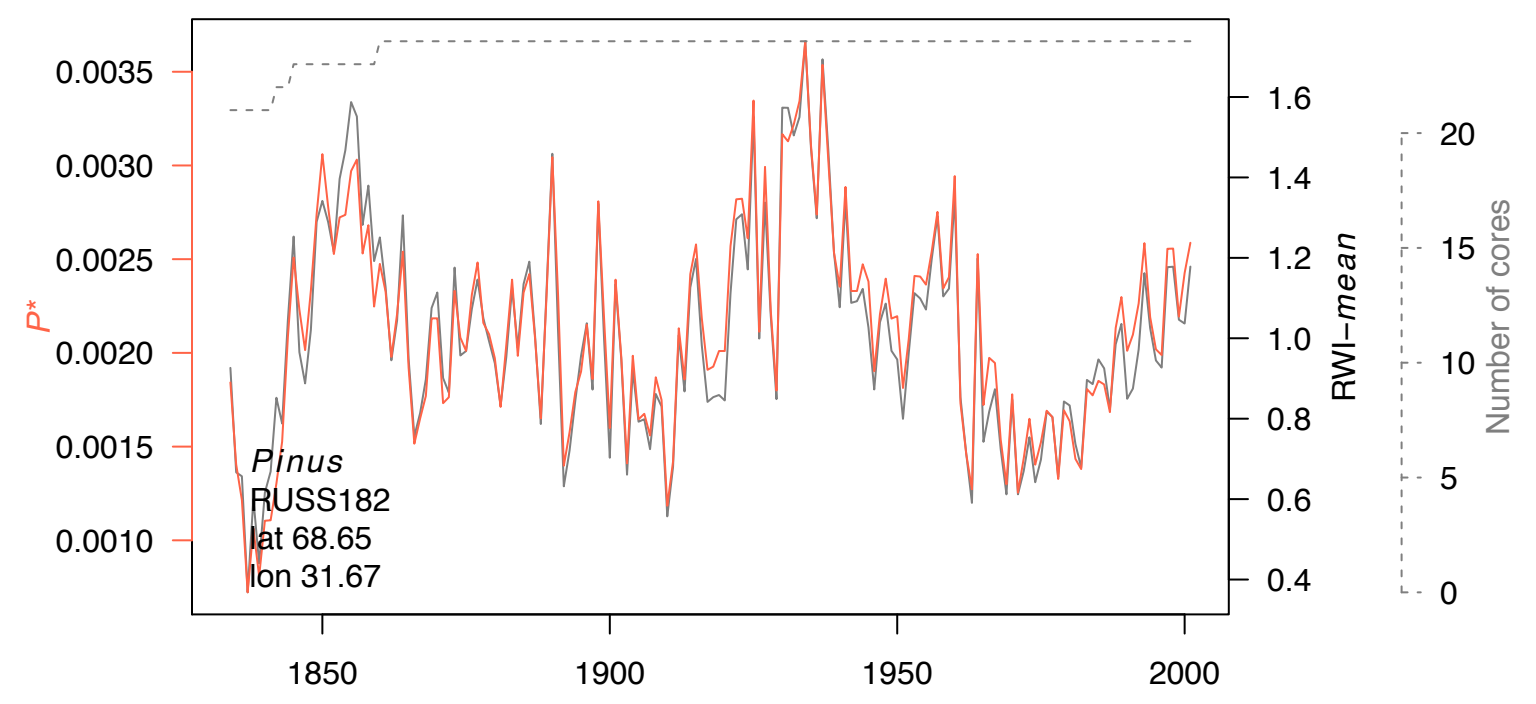

P*
0.014
0.012
0.010
0.008
0.006
0.004
Pinus
GERM186
lat 50.58
lon 6.47
1900
1920
1940
1960
1980
2000
1.5
1.0
0.5
RWI–mean
14
12
10
8
6
4
2
0
Number of cores

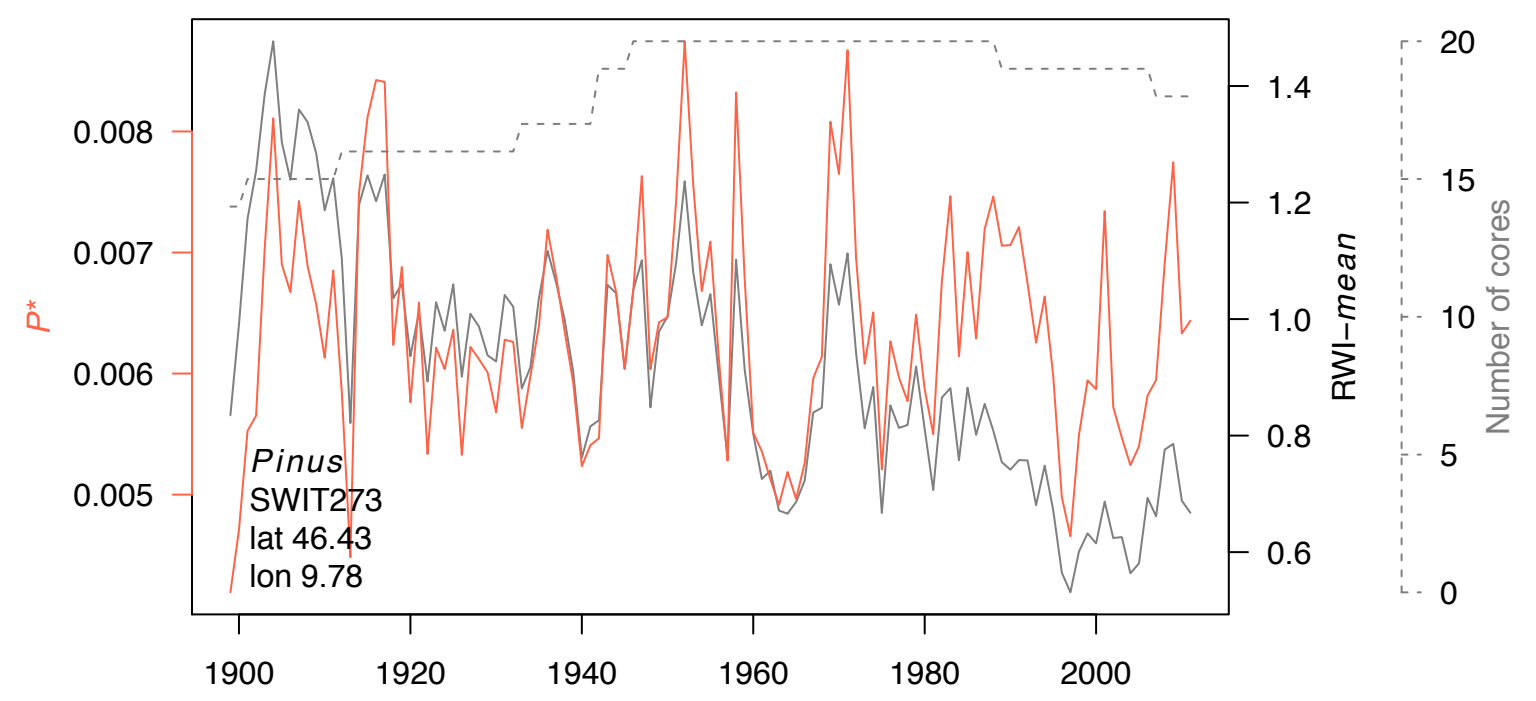

P*
0.008
0.007
0.006
0.005
0.004
0.003
0.002
Pinus
GERM187
lat 50.5
lon 6.57
1900
1920
1940
1960
1980
2000
RWI–mean
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
10
8
6
4
2
0

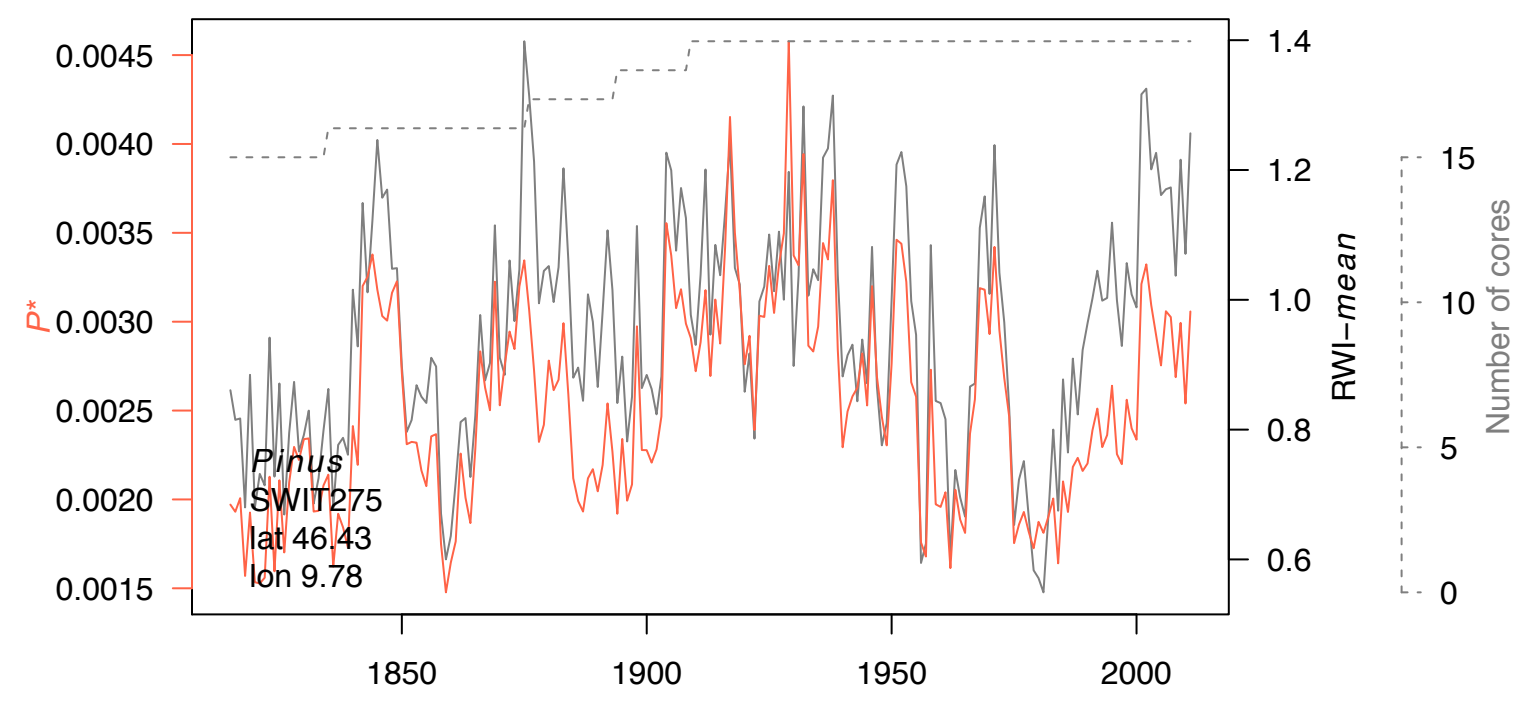

P*
0.007
0.006
0.005
0.004
0.003
0.002
Pinus
GERM188
lat 50.6
lon 6.48
1900
1920
1940
1960
1980
2000
RWI–mean
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
12
10
8
6
4
2
0

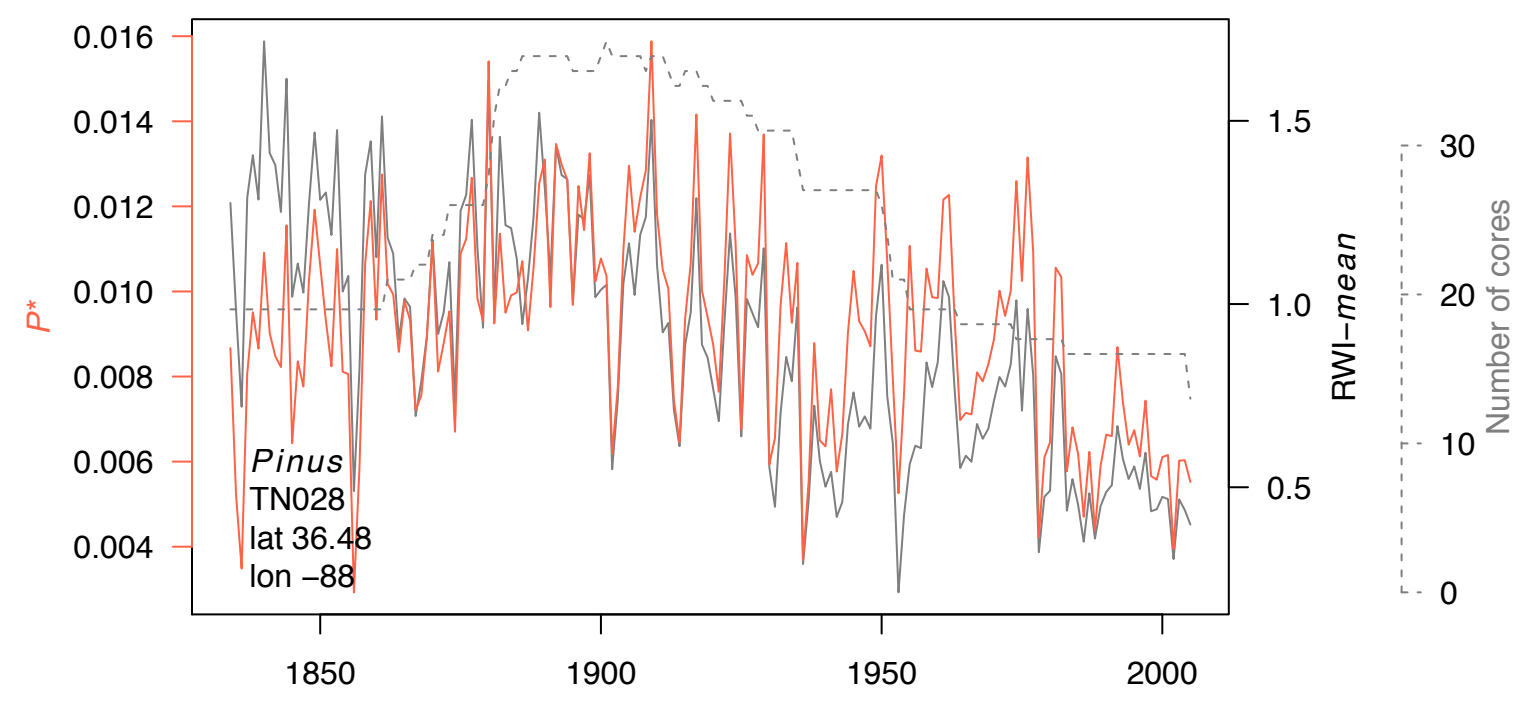

0.014
0.012
0.010
0.008
0.006
0.004
P*
1.5
1.0
0.5
RWI–mean
40
30
20
10
0
Number of cores
1700
1800
1900
2000
Pinus
PAKI018
lat 35.33
lon 74.8

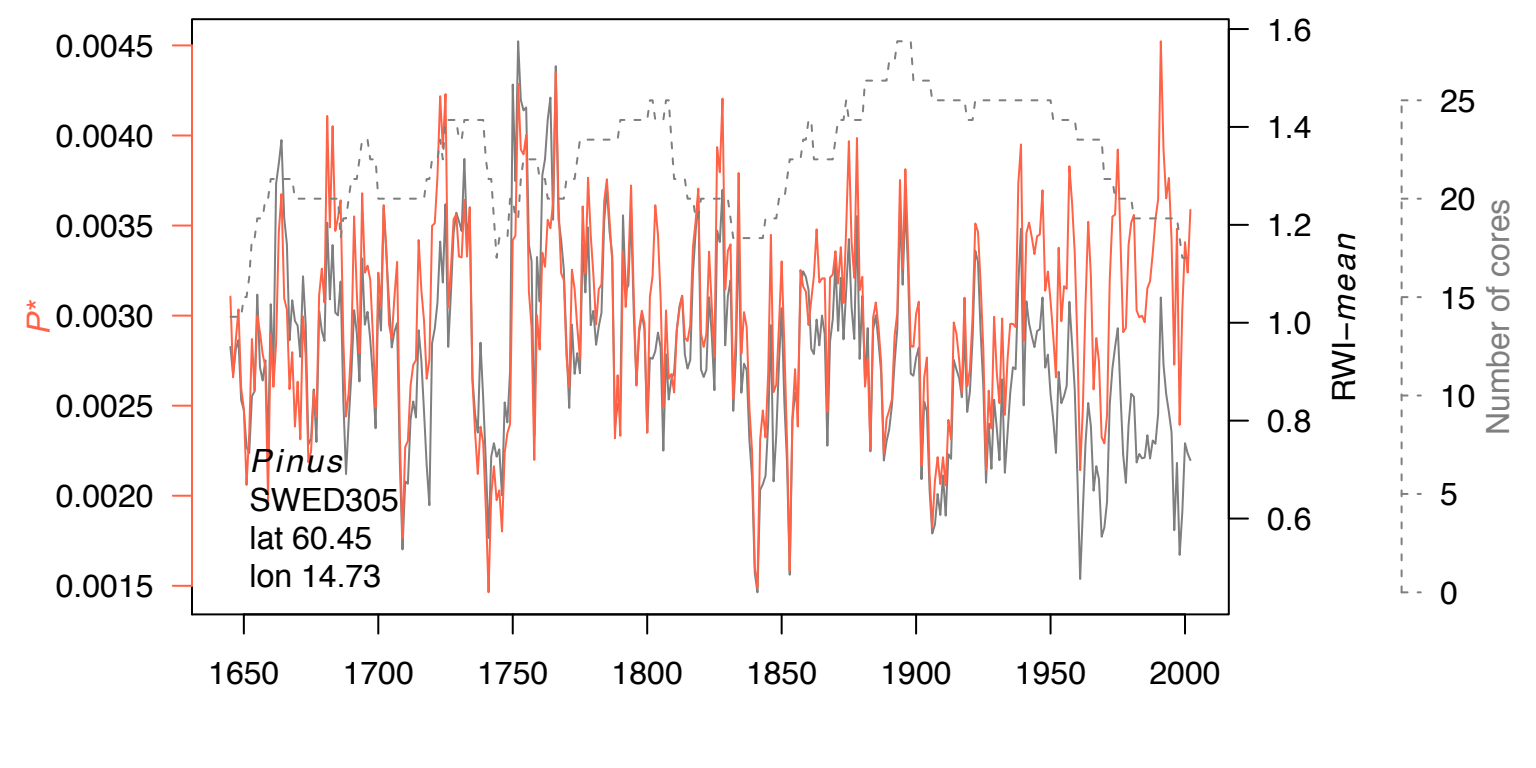

P*
0.0040
0.0035
0.0030
0.0025
0.0020
0.0015
Pinus
PAKI023
lat 35.9
lon 71.73
1600
1700
1800
1900
2000
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
15
10
5
0
Number of cores

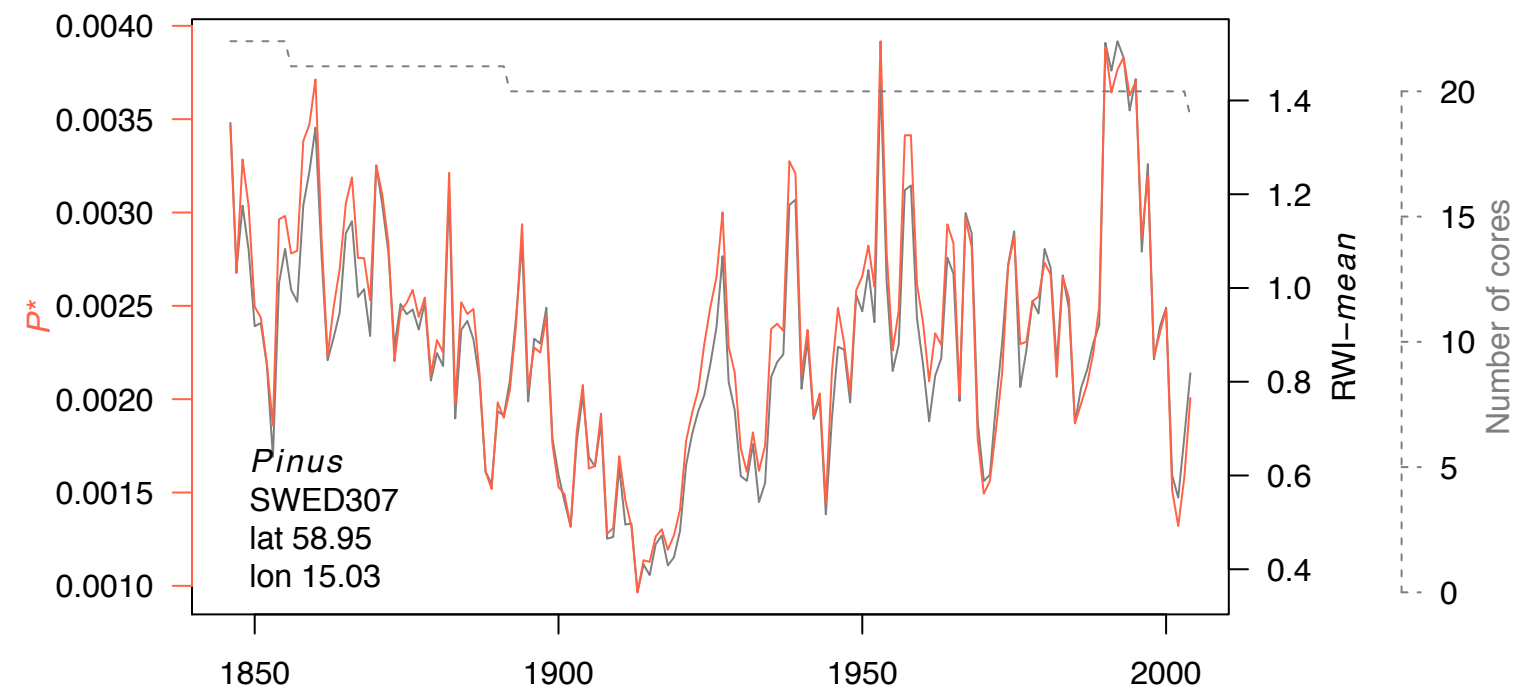

P*
0.0035
0.0030
0.0025
0.0020
0.0015
0.0010
Pinus
RUSS182
lat 68.65
lon 31.67
1850
1900
1950
2000
RWI–mean
1.6
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
20
15
10
5
0

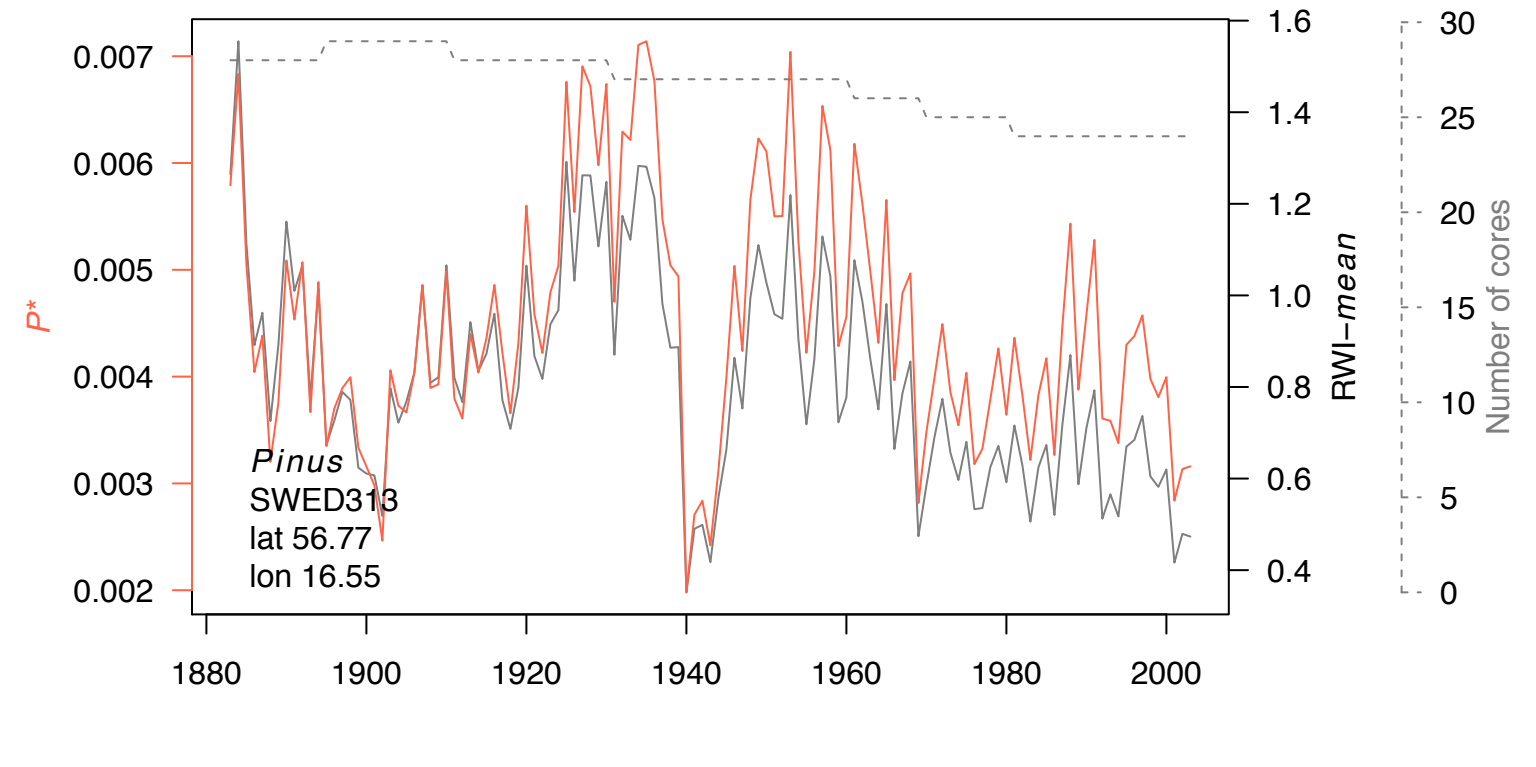

P*
0.008
0.007
0.006
0.005
Pinus
SWIT273
lat 46.43
lon 9.78
1900
1920
1940
1960
1980
2000
1.4
1.2
1.0
0.8
0.6
RWI–mean
20
15
10
5
0
Number of cores

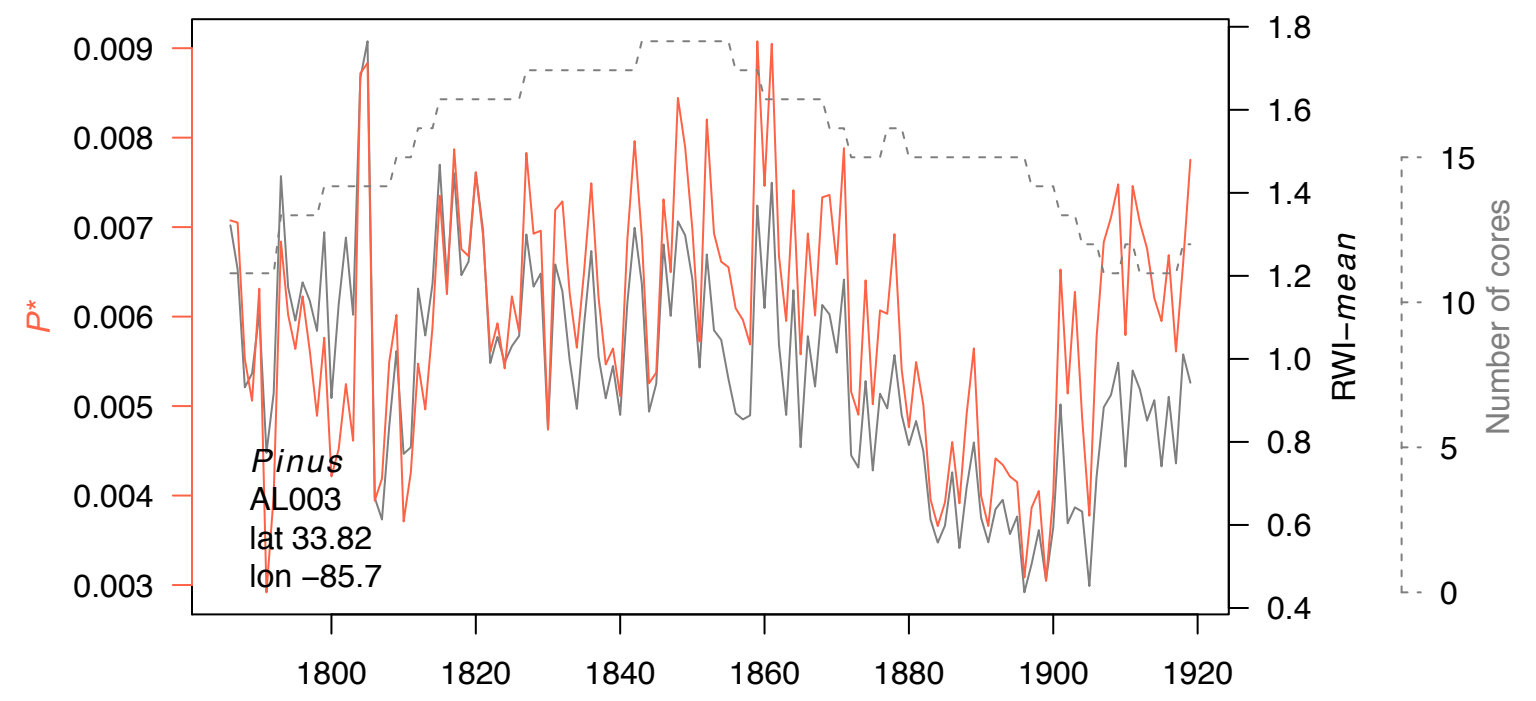

P*
0.0045
0.0040
0.0035
0.0030
0.0025
0.0020
0.0015
RWI–mean
1.4
1.2
1.0
0.8
0.6
Number of cores
15
10
5
0
1850
1900
1950
2000
Pinus
SWIT275
lat 46.43
lon 9.78

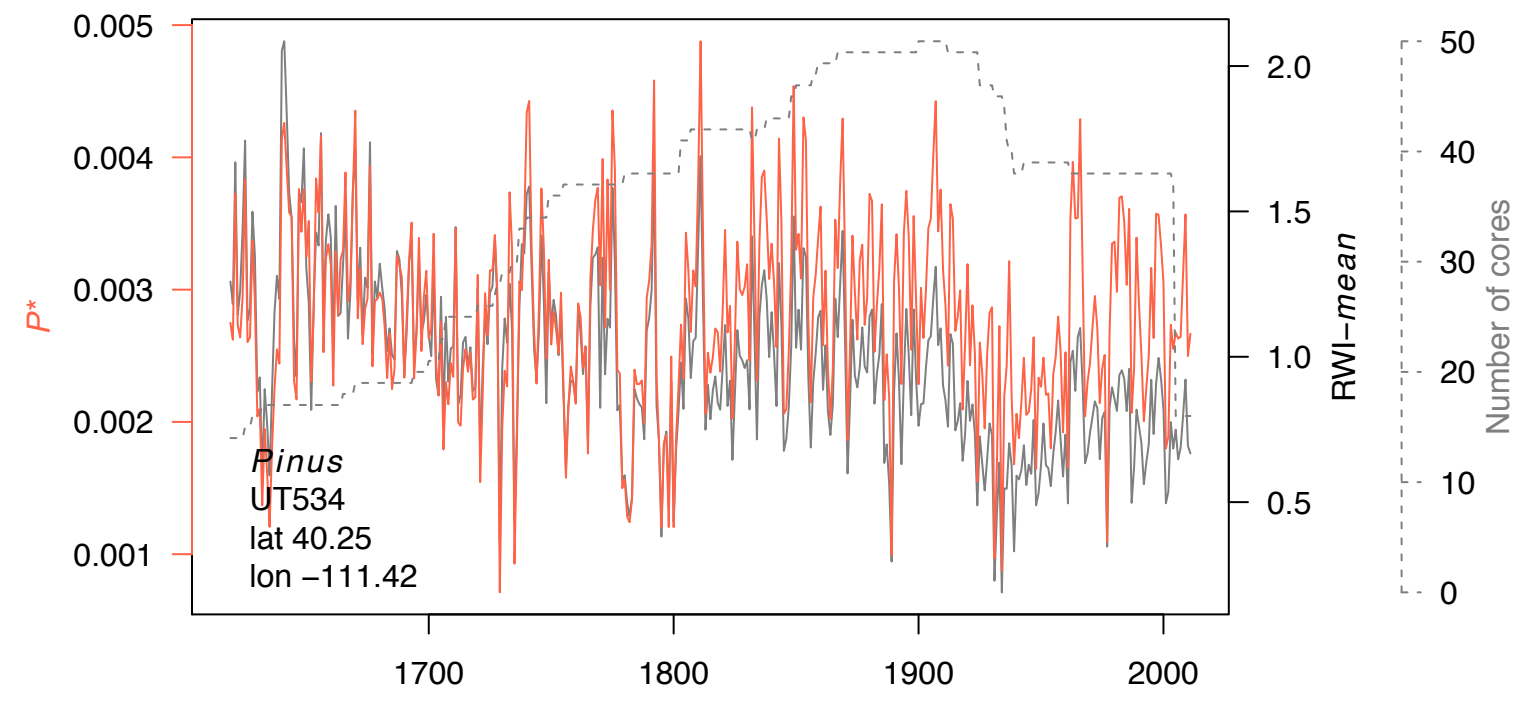

P*
0.016
0.014
0.012
0.010
0.008
0.006
0.004
Pinus
TN028
lat 36.48
lon −88
1850
1900
1950
2000
RWI–mean
1.5
1.0
0.5
Number of cores
30
20
10
0

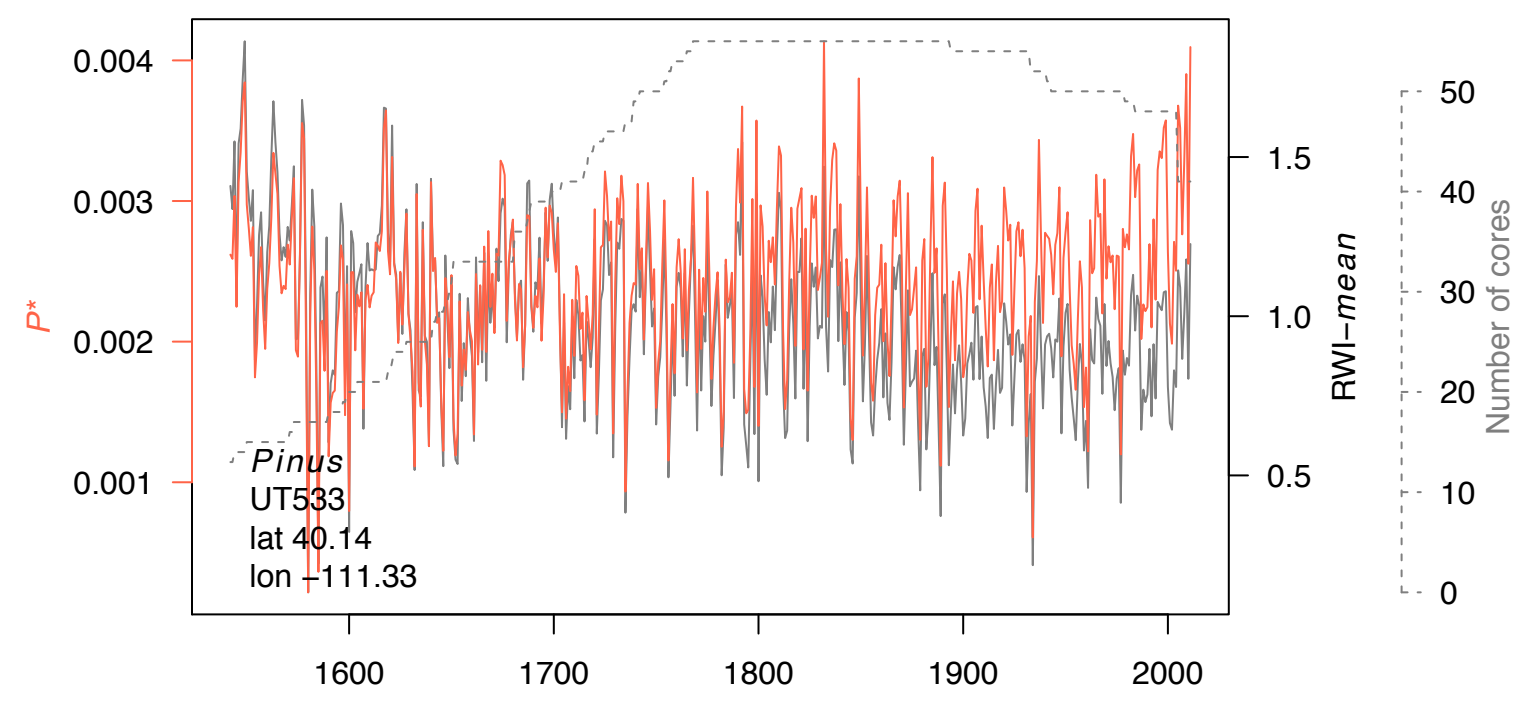

P*
0.0045
0.0040
0.0035
0.0030
0.0025
0.0020
0.0015
Pinus
SWED305
lat 60.45
lon 14.73
1650
1700
1750
1800
1850
1900
1950
2000
RWI–mean
1.6
1.4
1.2
1.0
0.8
0.6
Number of cores
25
20
15
10
5
0

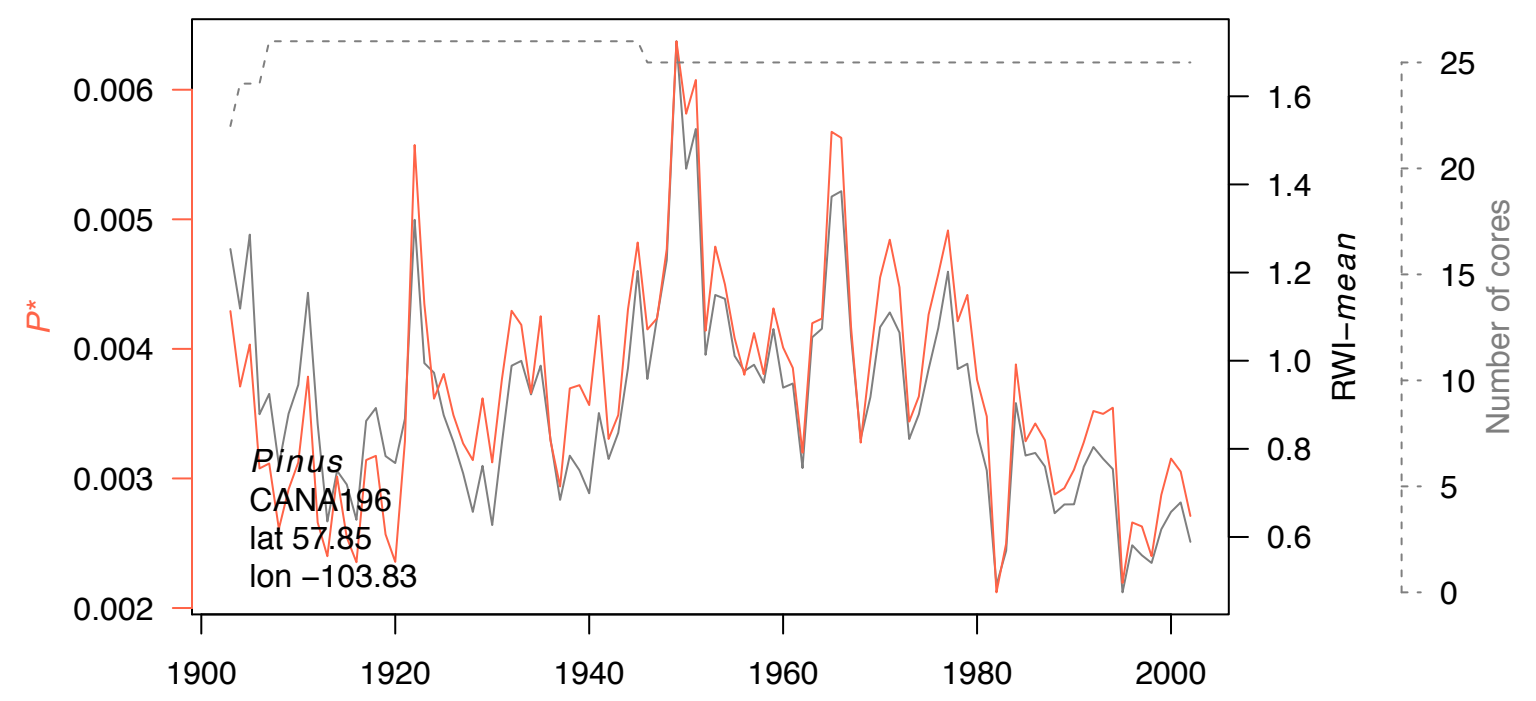

0.0040
0.0035
0.0030
0.0025
0.0020
0.0015
0.0010
P*
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
20
15
10
5
0
Number of cores
1850
1900
1950
2000
Pinus
SWED307
lat 58.95
lon 15.03

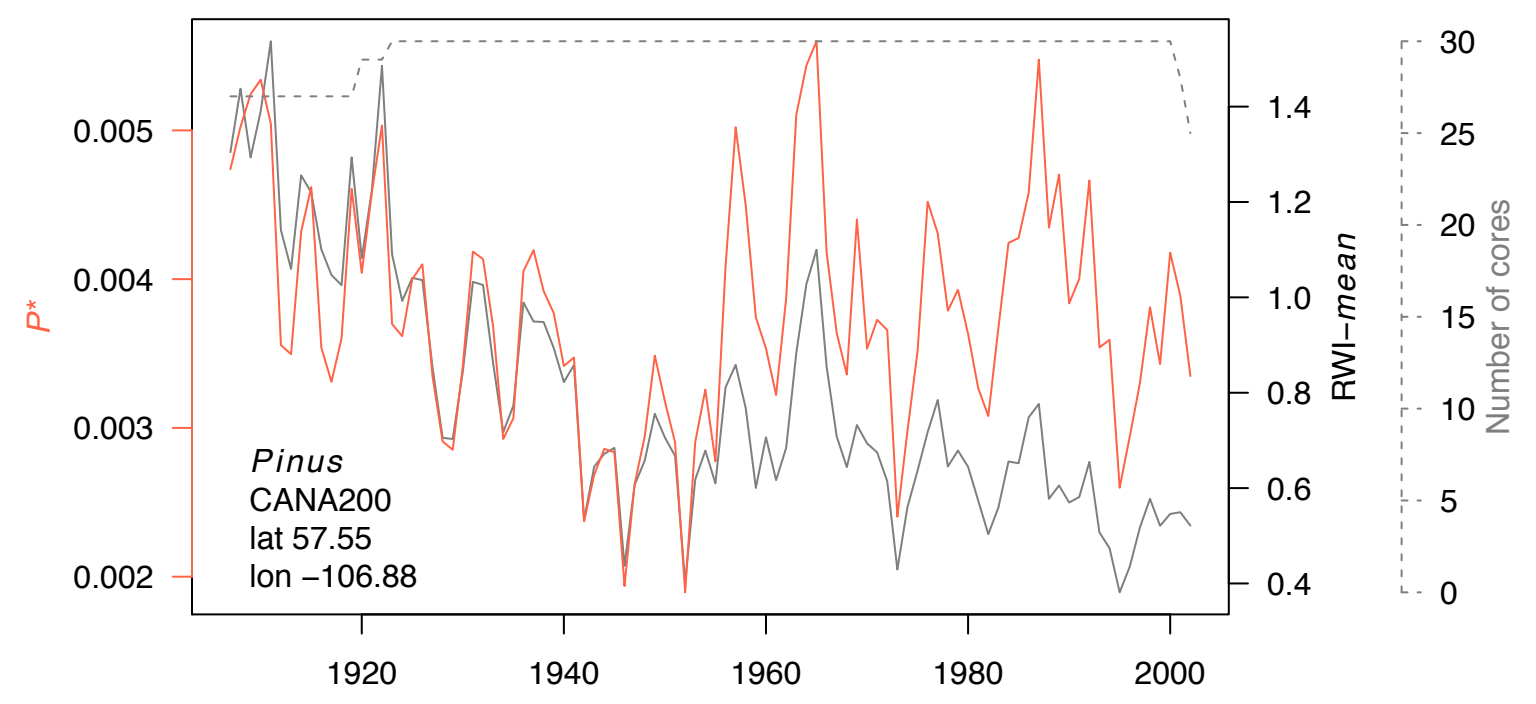

P*
0.007
0.006
0.005
0.004
0.003
0.002
Pinus
SWED313
lat 56.77
lon 16.55
1880
1900
1920
1940
1960
1980
2000
1.6
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
30
25
20
15
10
5
0
Number of cores

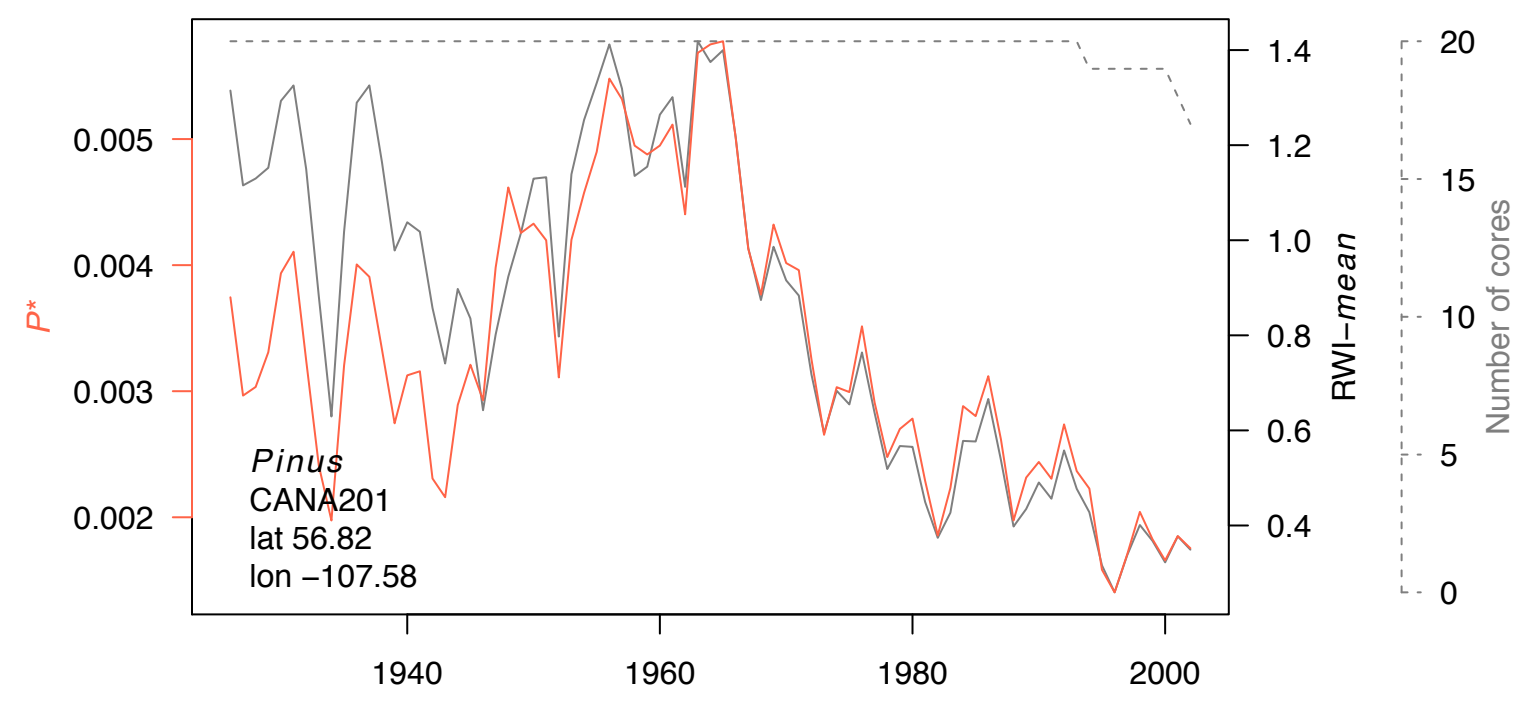

P*
0.009
0.008
0.007
0.006
0.005
0.004
0.003
RWI–mean
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
15
10
5
0
1800
1820
1840
1860
1880
1900
1920
Pinus
AL003
lat 33.82
lon –85.7

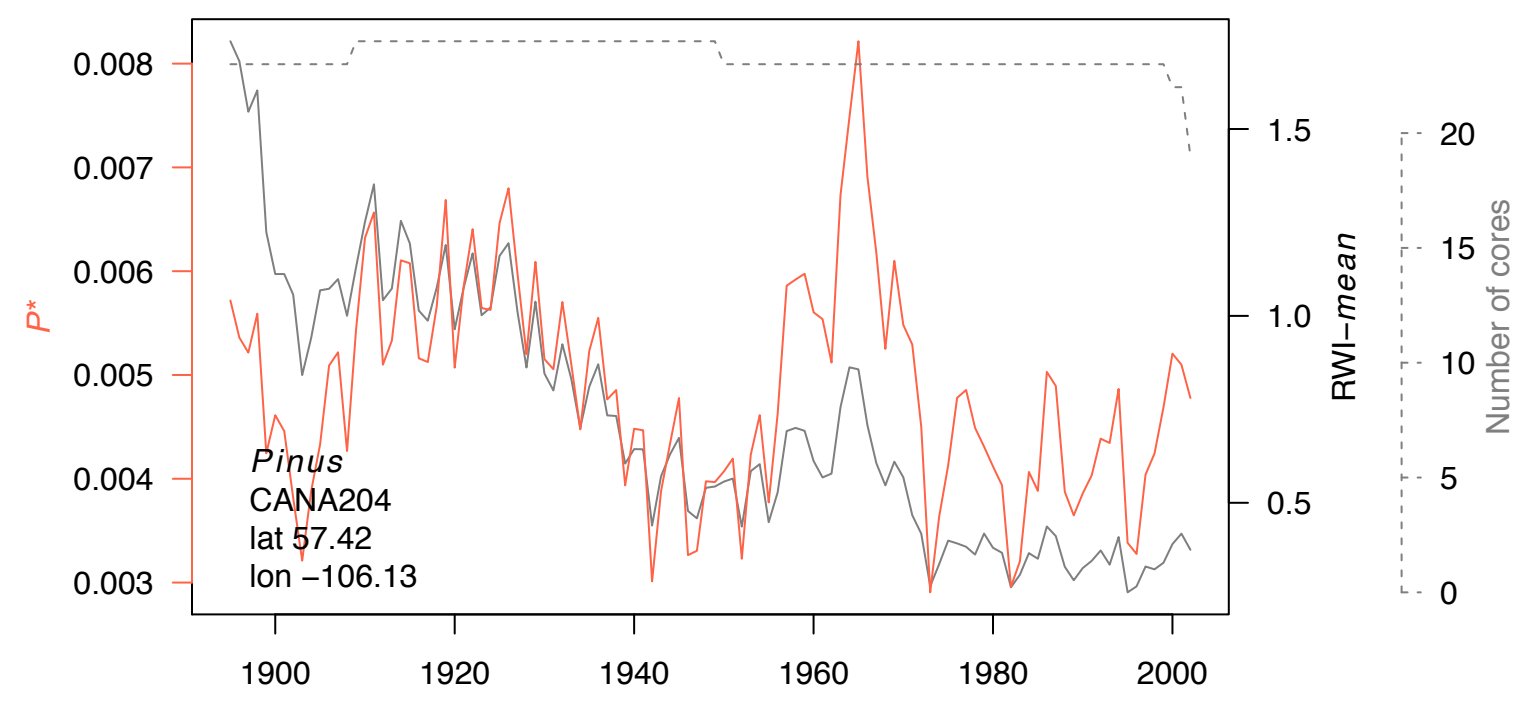

P*
0.005
0.004
0.003
0.002
0.001
RWI–mean
2.0
1.5
1.0
0.5
Number of cores
50
40
30
20
10
0
Pinus
UT534
lat 40.25
lon –111.42
1700
1800
1900
2000

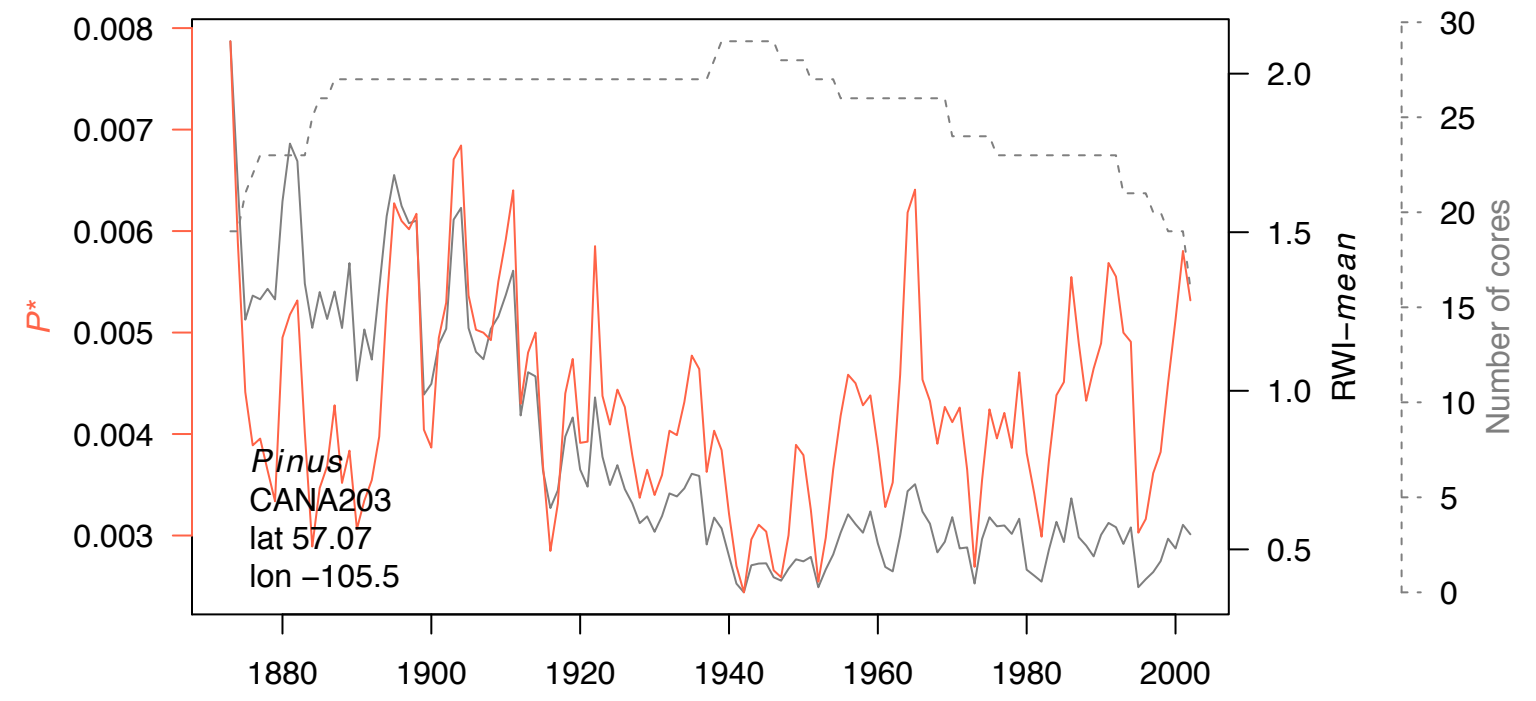

P*
0.004
0.003
0.002
0.001
Pinus
UT533
lat 40.14
lon −111.33
1600
1700
1800
1900
2000
RWI–mean
1.5
1.0
0.5
Number of cores
50
40
30
20
10
0

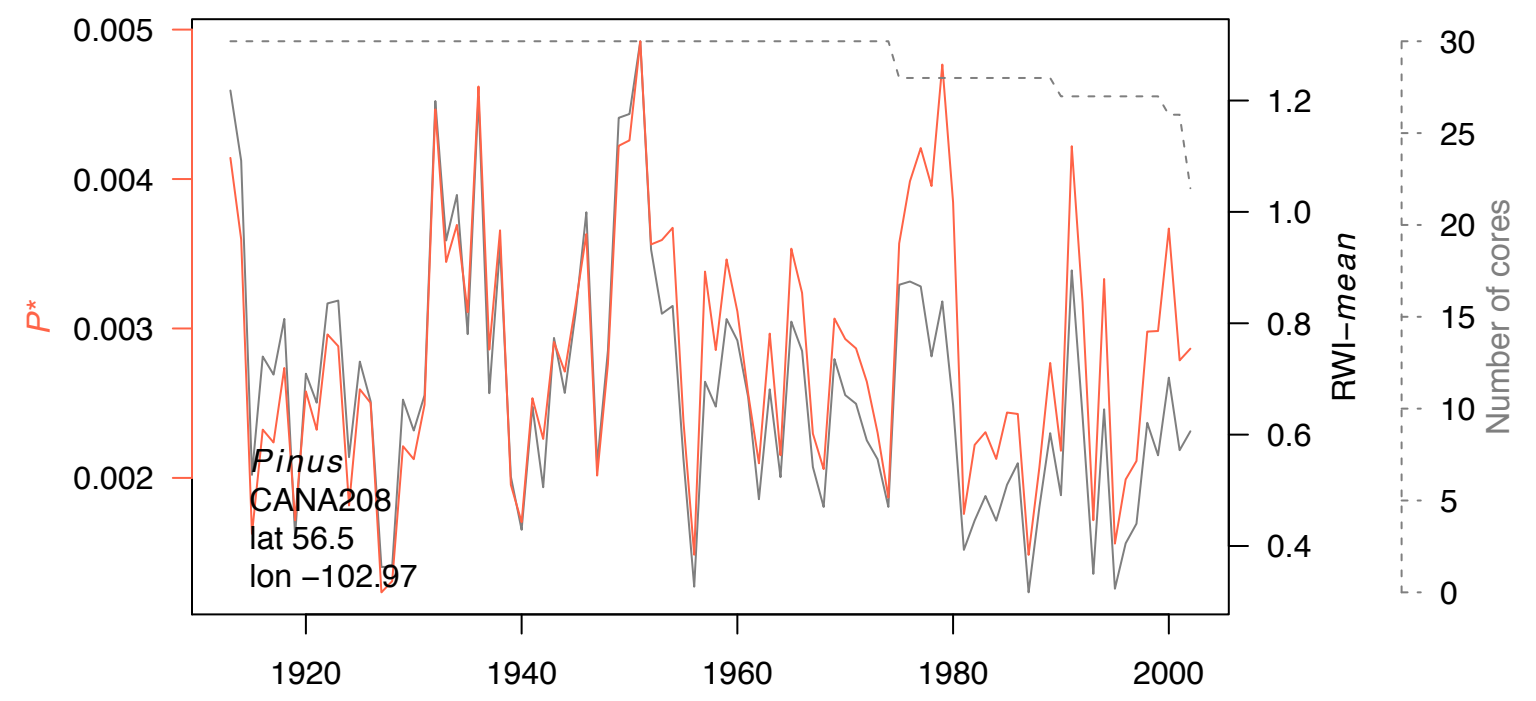

P*
0.006
0.005
0.004
0.003
0.002
RWI–mean
1.6
1.4
1.2
1.0
0.8
0.6
Number of cores
25
20
15
10
5
0
1900
1920
1940
1960
1980
2000
Pinus
CANA196
lat 57.85
lon −103.83

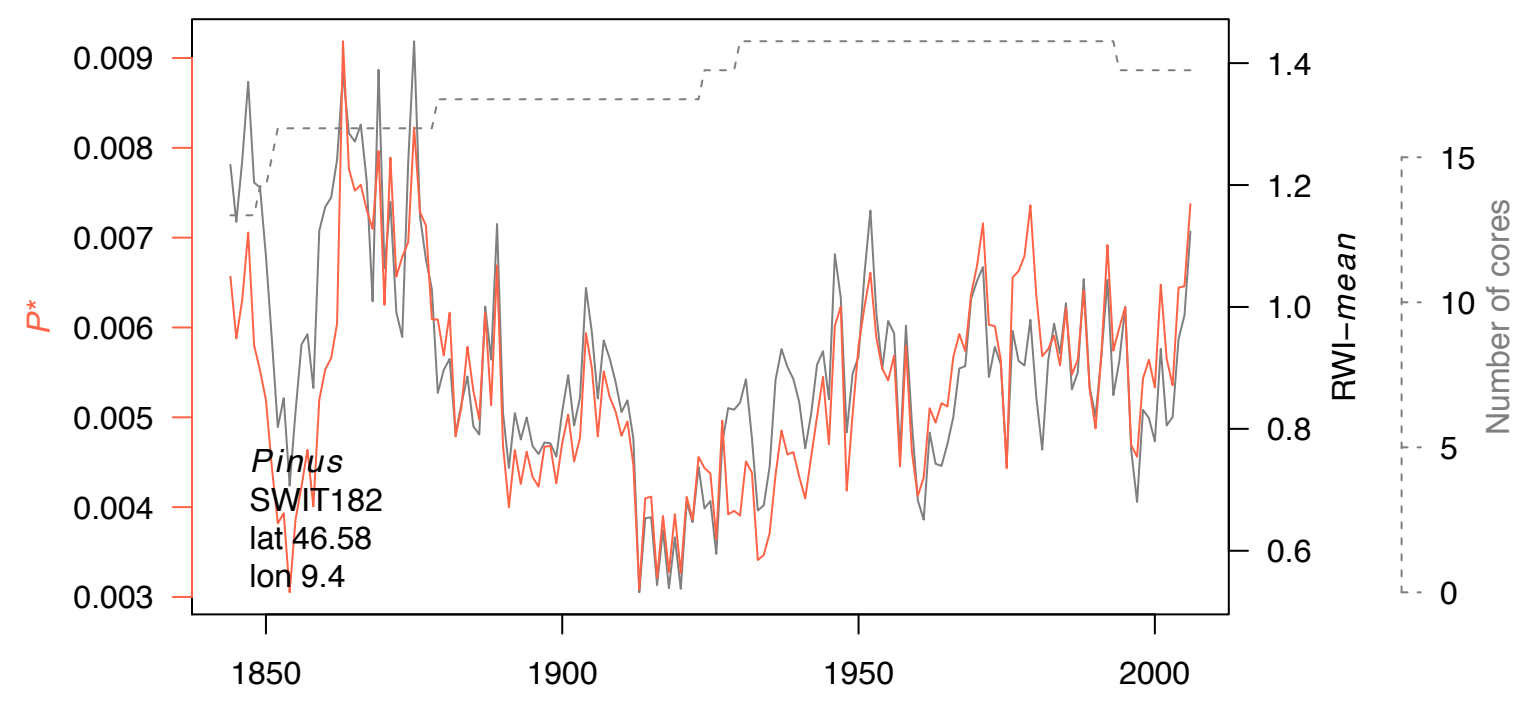

P*
0.005
0.004
0.003
0.002
Pinus
CANA200
lat 57.55
lon −106.88
1920
1940
1960
1980
2000
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
30
25
20
15
10
5
0
Number of cores

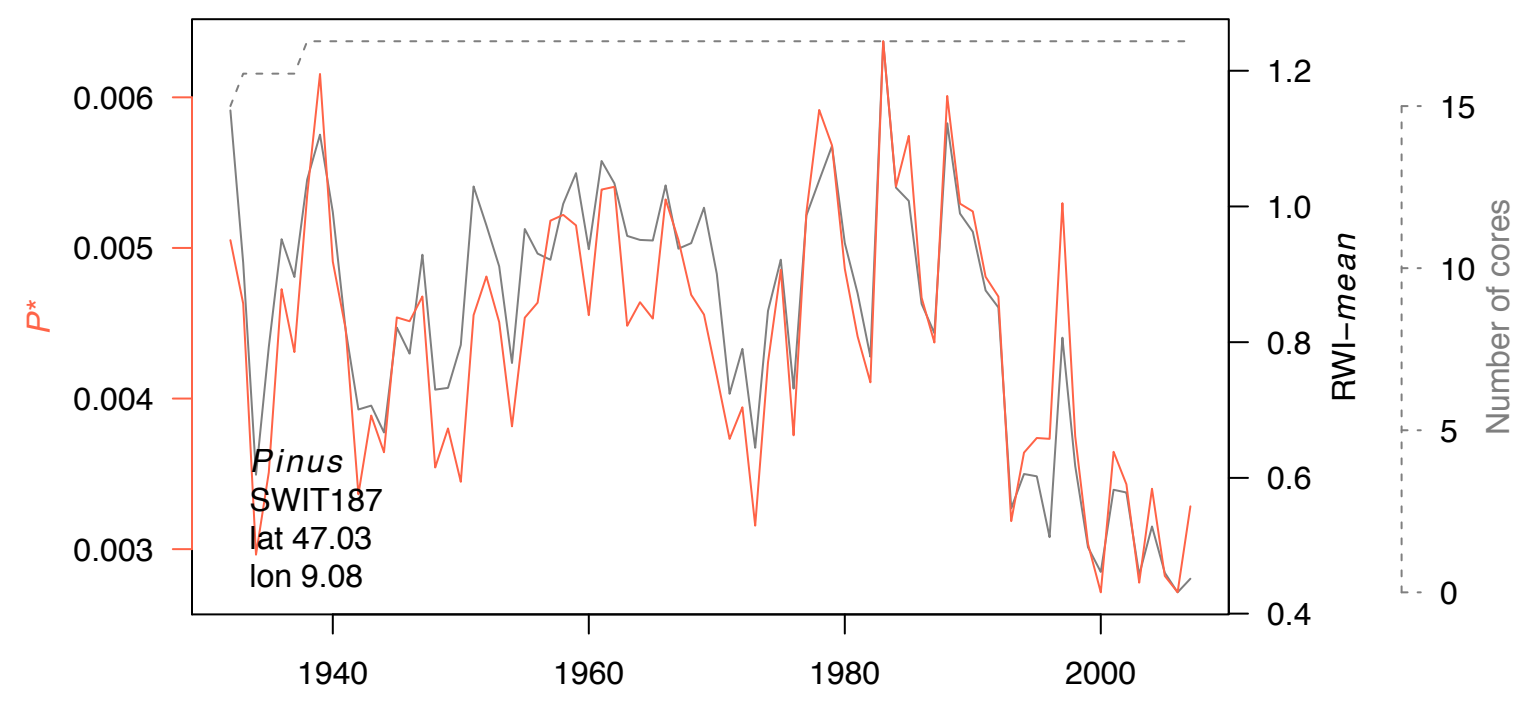

P*
0.005
0.004
0.003
0.002
Pinus
CANA201
lat 56.82
lon −107.58
1940
1960
1980
2000
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
20
15
10
5
0
Number of cores

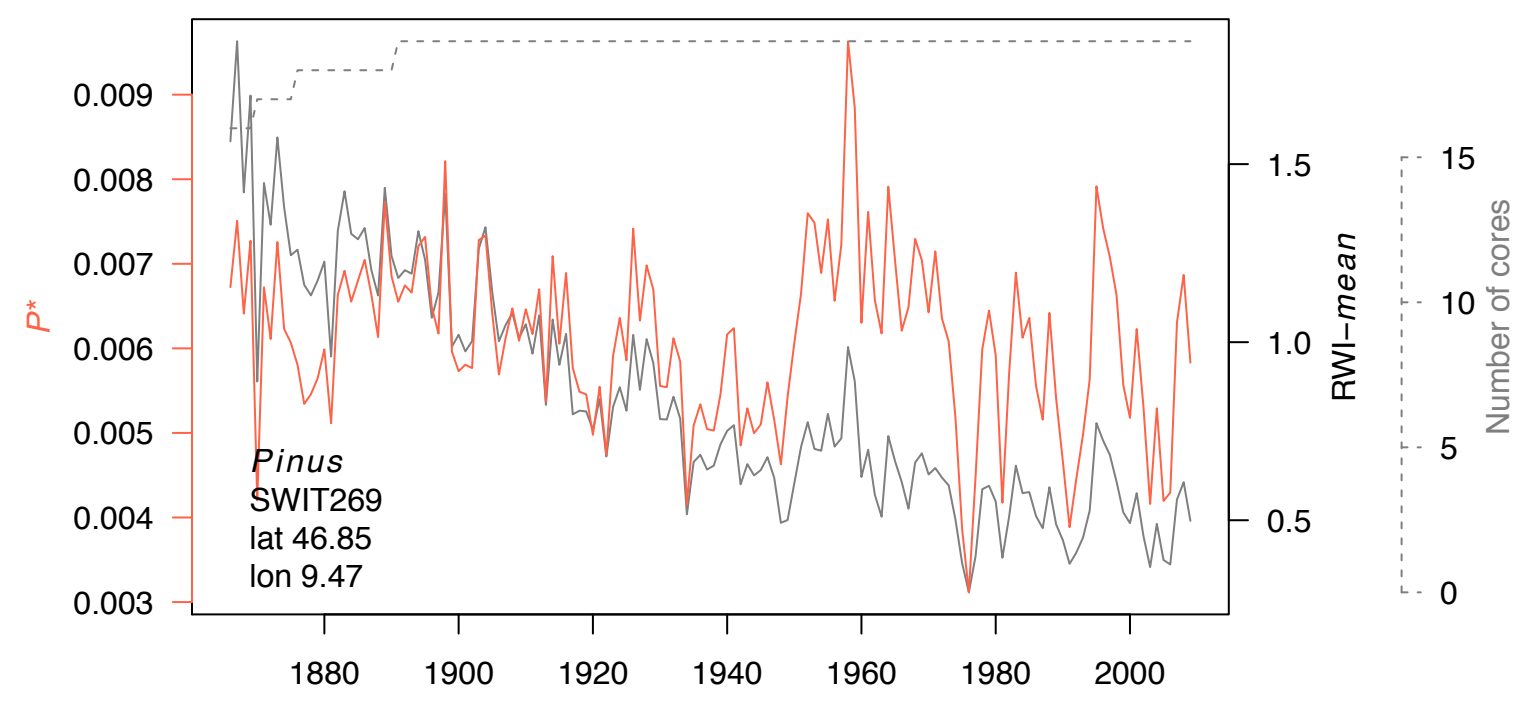

P*
0.008
0.007
0.006
0.005
0.004
0.003
Pinus
CANA204
lat 57.42
lon −106.13
1900
1920
1940
1960
1980
2000
1.5
1.0
0.5
RWI–mean
20
15
10
5
0
Number of cores

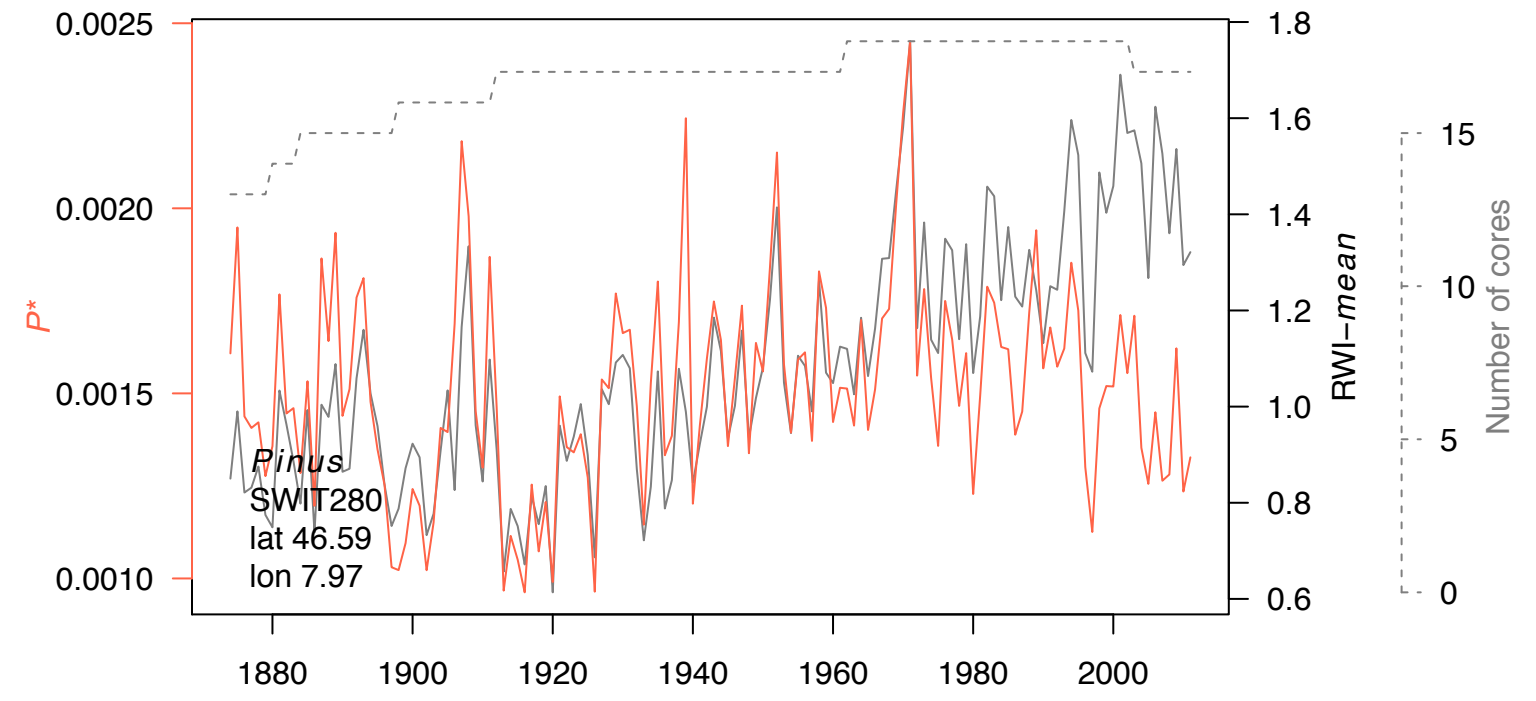

P*
0.008
0.007
0.006
0.005
0.004
0.003
RWI–mean
2.0
1.5
1.0
0.5
Number of cores
30
25
20
15
10
5
0
Pinus
CANA203
lat 57.07
lon −105.5
1880
1900
1920
1940
1960
1980
2000

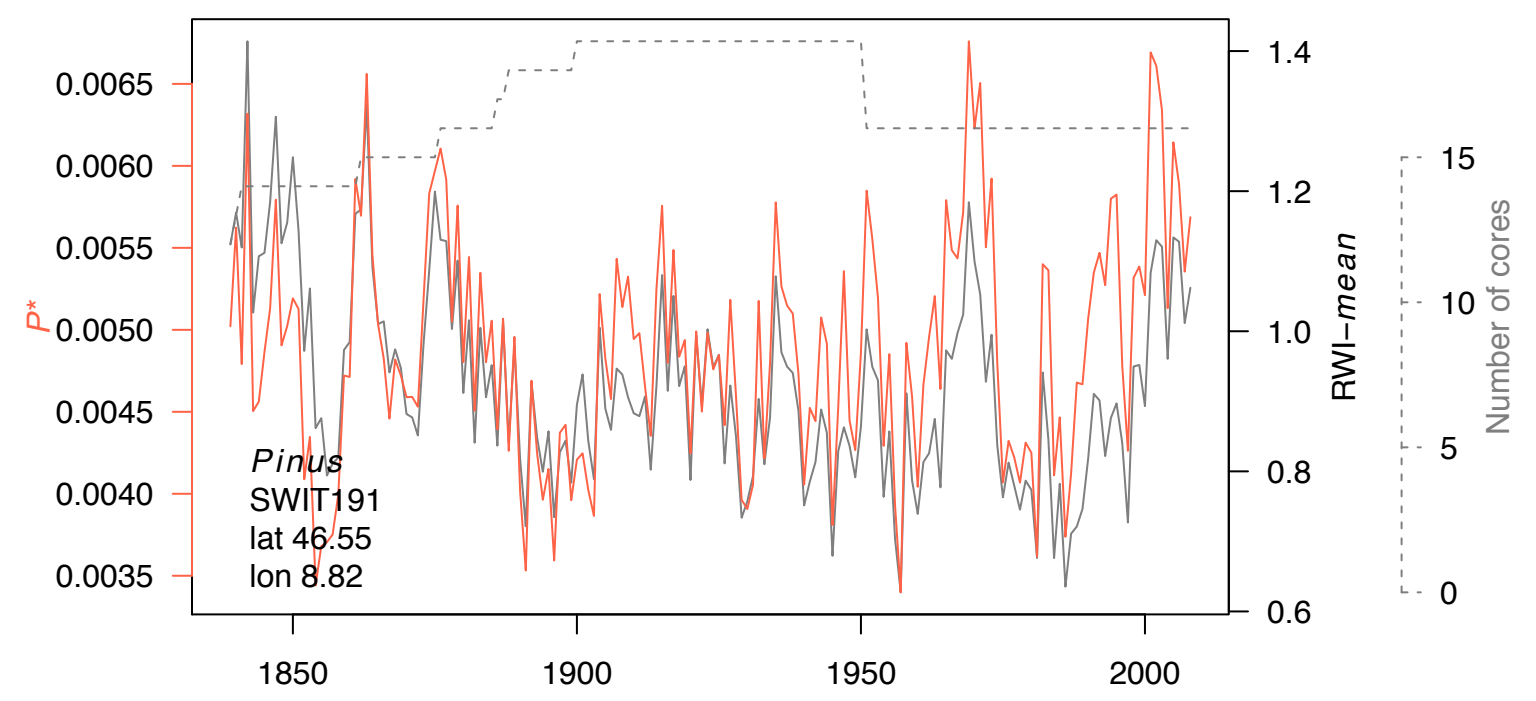

0.005
0.004
0.003
0.002
P*
Pinus
CANA208
lat 56.5
lon −102.97
1920
1940
1960
1980
2000
1.2
1.0
0.8
0.6
0.4
RWI–mean
30
25
20
15
10
5
0
Number of cores

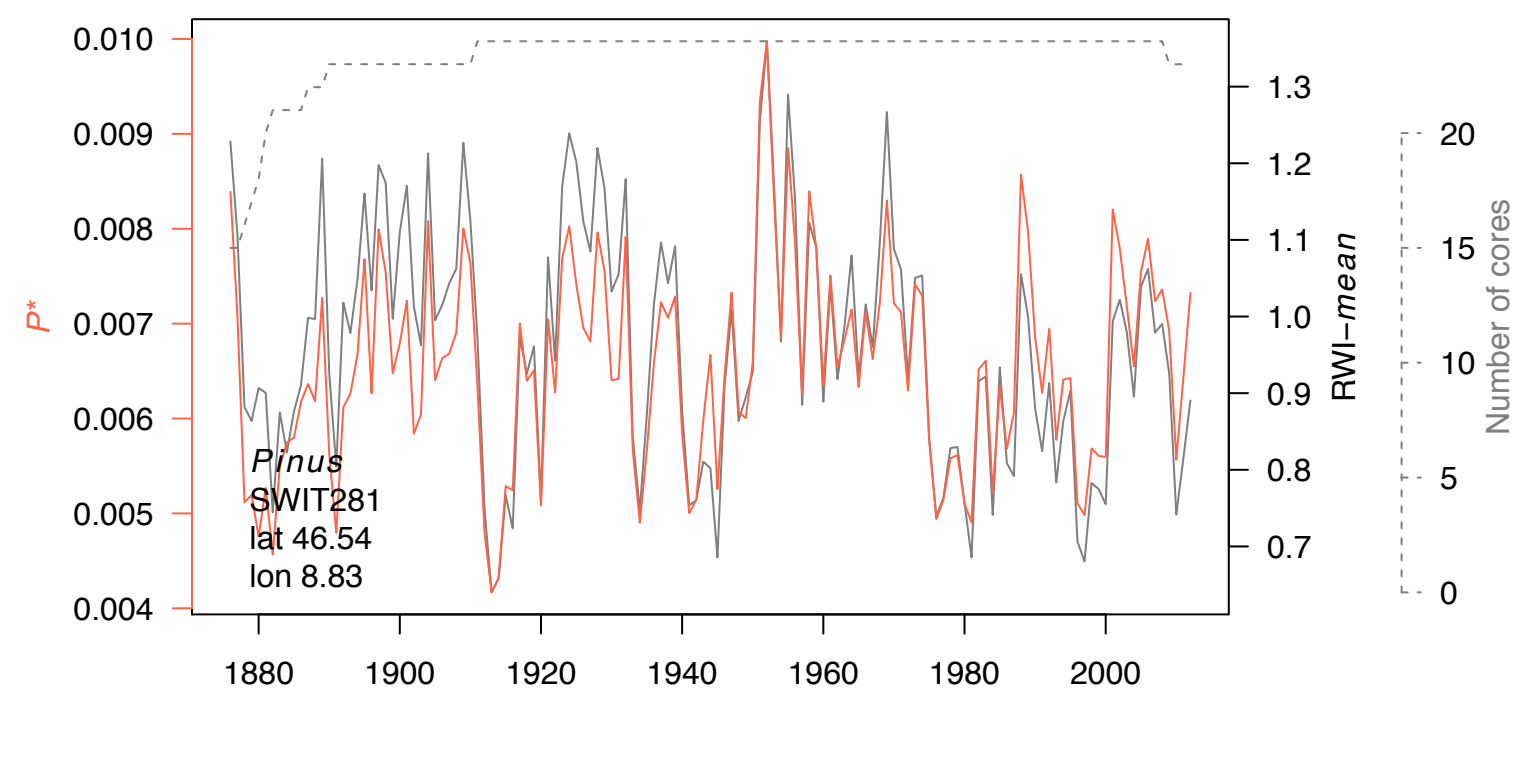

P*
0.009
0.008
0.007
0.006
0.005
0.004
0.003
Pinus
SWIT182
lat 46.58
lon 9.4
1850
1900
1950
2000
1.4
1.2
1.0
0.8
0.6
RWI–mean
15
10
5
0
Number of cores

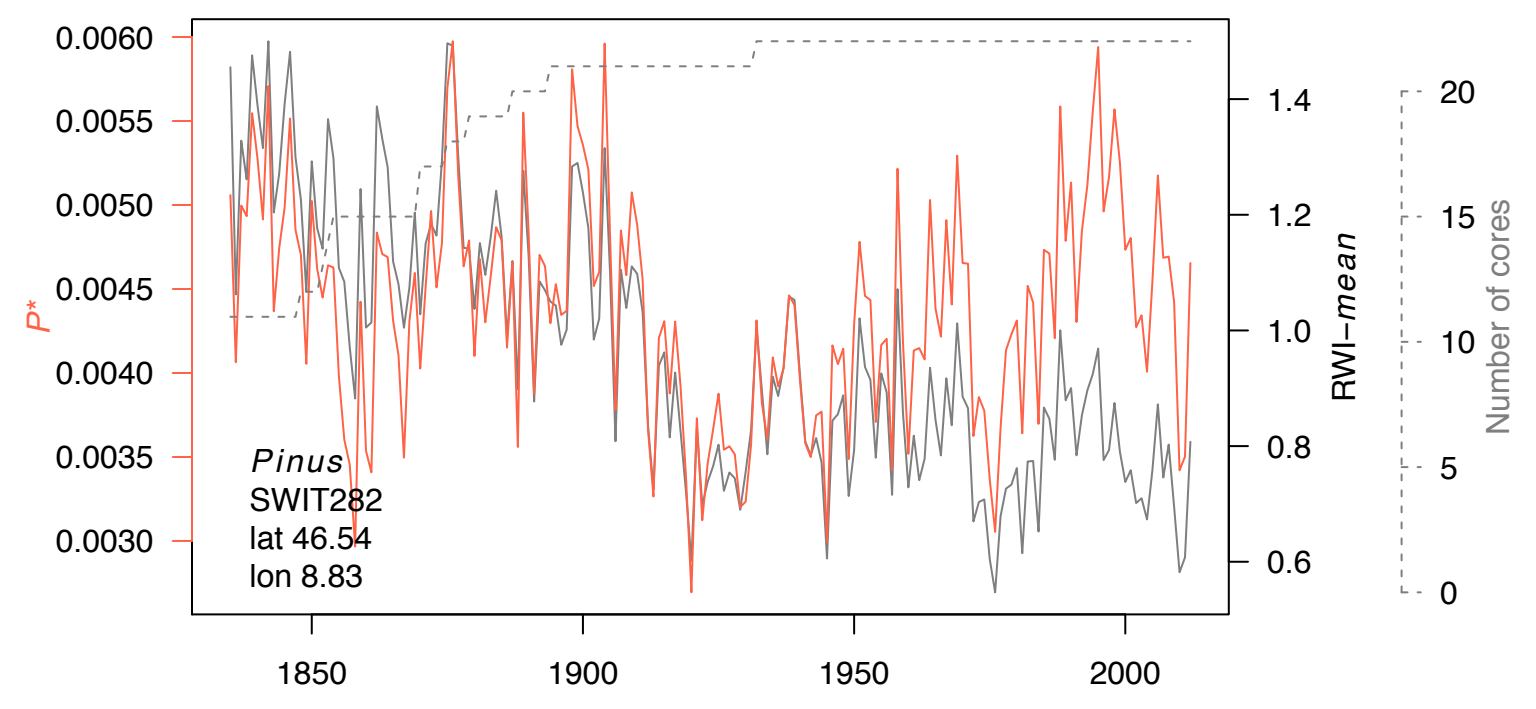

P*
0.006
0.005
0.004
0.003
Pinus
SWIT187
lat 47.03
lon 9.08
1940
1960
1980
2000
1.2
1.0
0.8
0.6
0.4
RWI–mean
15
10
5
0
Number of cores

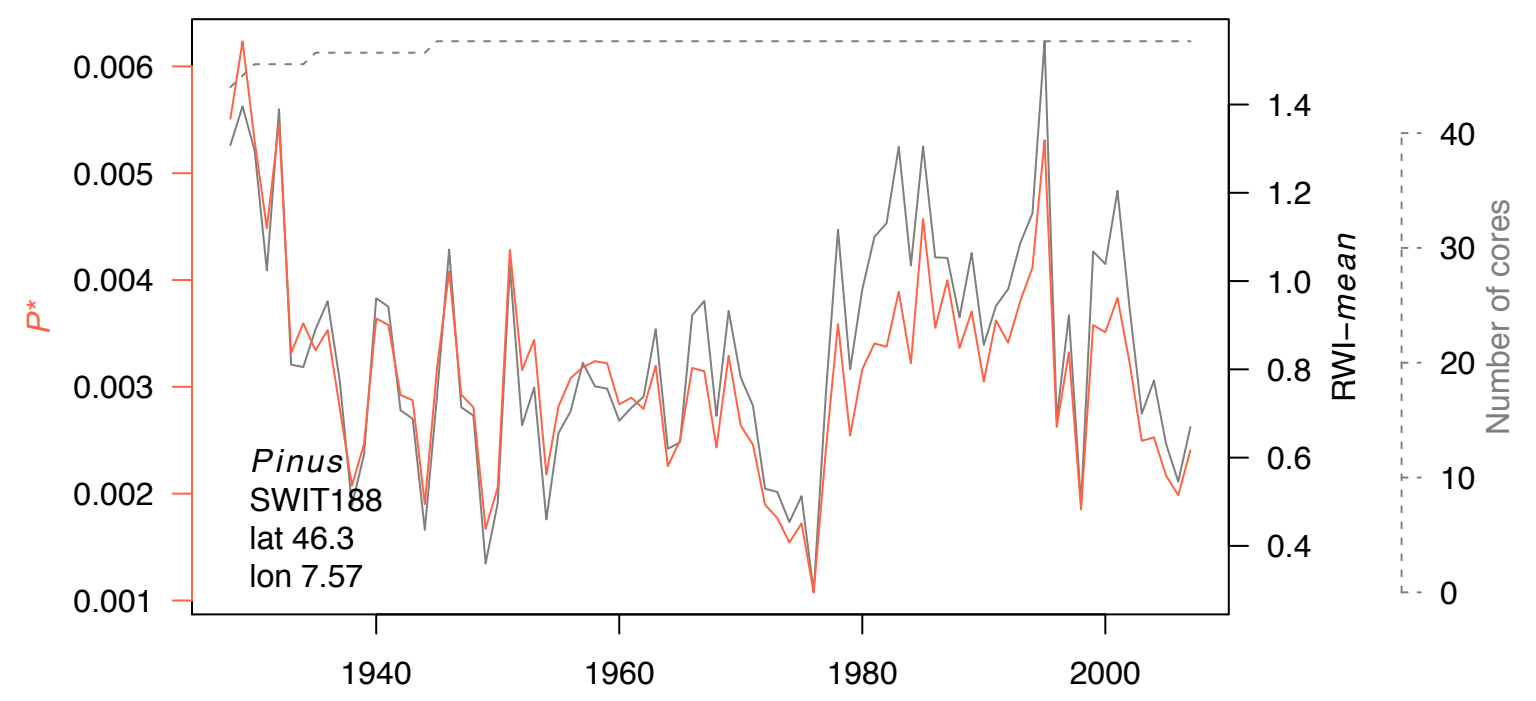

P*
0.009
0.008
0.007
0.006
0.005
0.004
0.003
Pinus
SWIT269
lat 46.85
lon 9.47
1880
1900
1920
1940
1960
1980
2000
RWI–mean
1.5
1.0
0.5
Number of cores
15
10
5
0

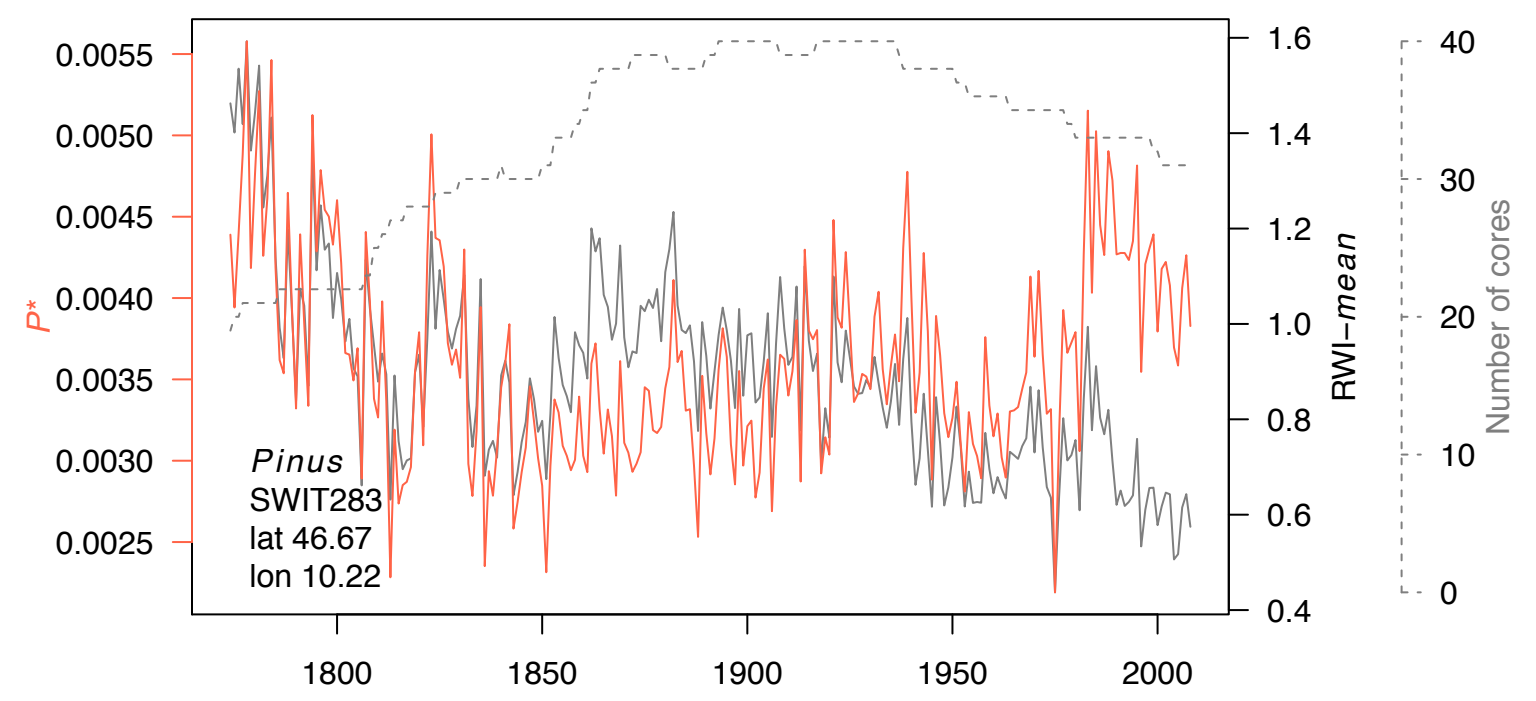

0.0025
0.0020
0.0015
0.0010
P*
1.8
1.6
1.4
1.2
1.0
0.8
0.6
RWI–mean
15
10
5
0
Number of cores
Pinus
SWIT280
lat 46.59
lon 7.97
1880
1900
1920
1940
1960
1980
2000

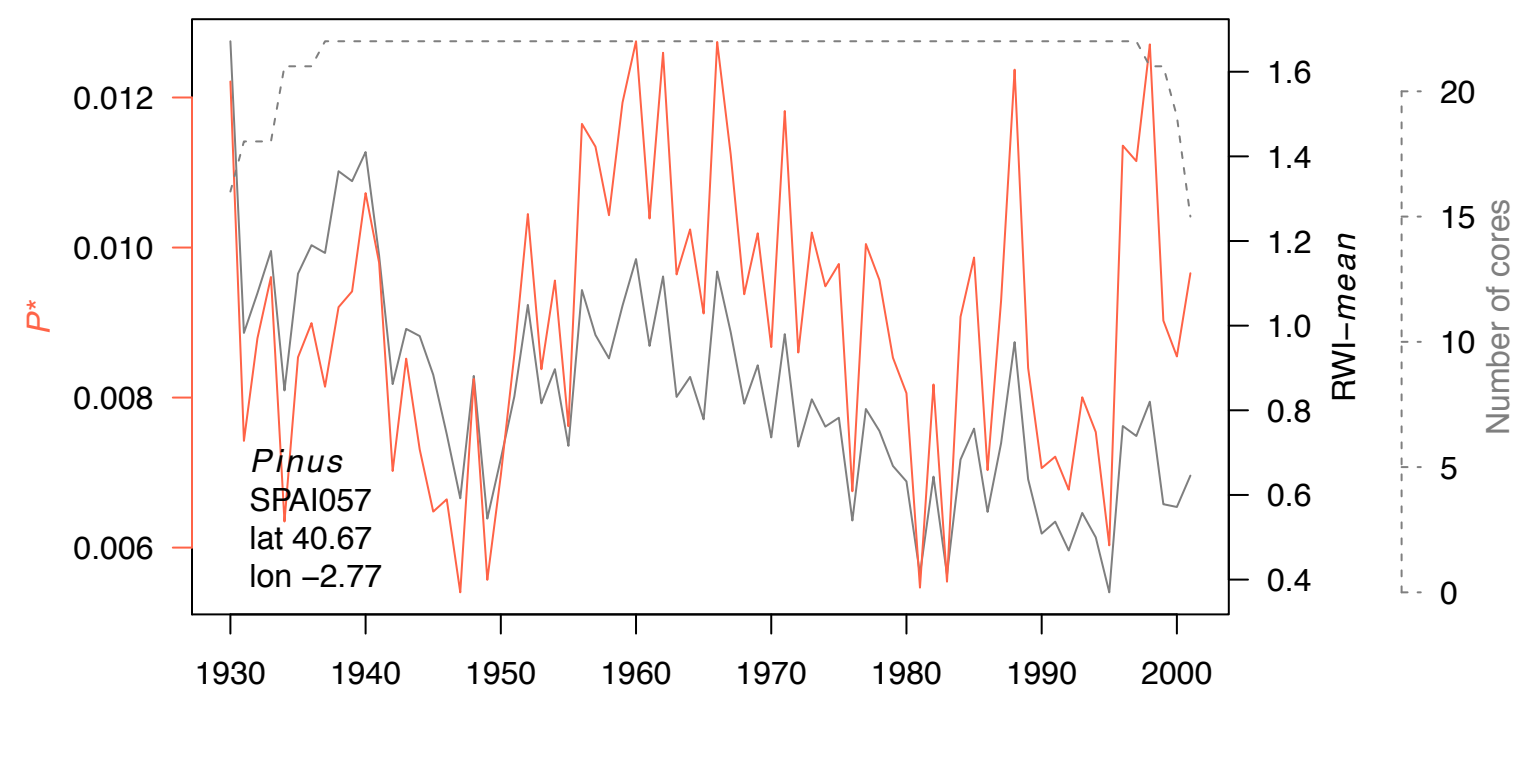

P*
0.0065
0.0060
0.0055
0.0050
0.0045
0.0040
0.0035
Pinus
SWIT191
lat 46.55
lon 8.82
1850
1900
1950
2000
1.4
1.2
1.0
0.8
0.6
RWI–mean
15
10
5
0
Number of cores

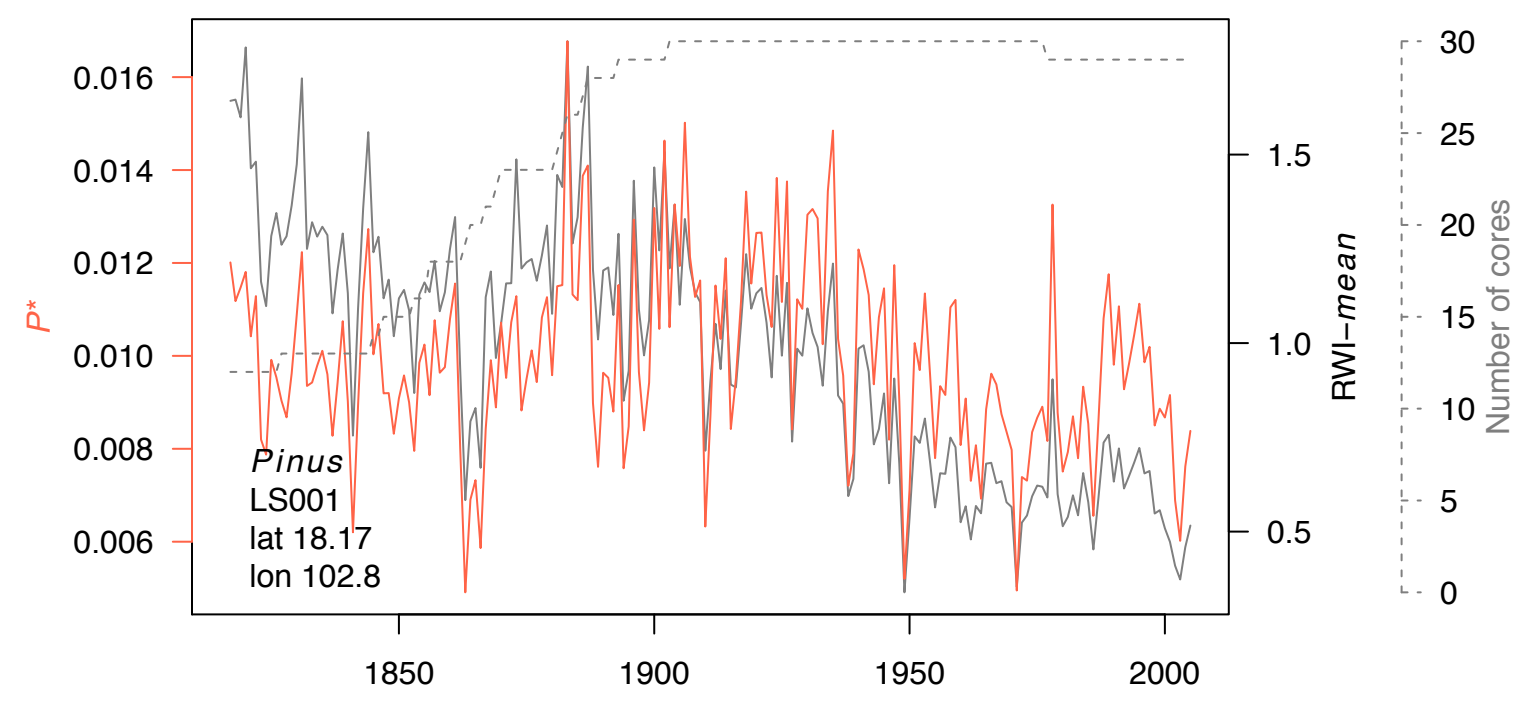

P*
0.010
0.009
0.008
0.007
0.006
0.005
0.004
Pinus
SWIT281
lat 46.54
lon 8.83
1880
1900
1920
1940
1960
1980
2000
RWI–mean
1.3
1.2
1.1
1.0
0.9
0.8
0.7
Number of cores
20
15
10
5
0

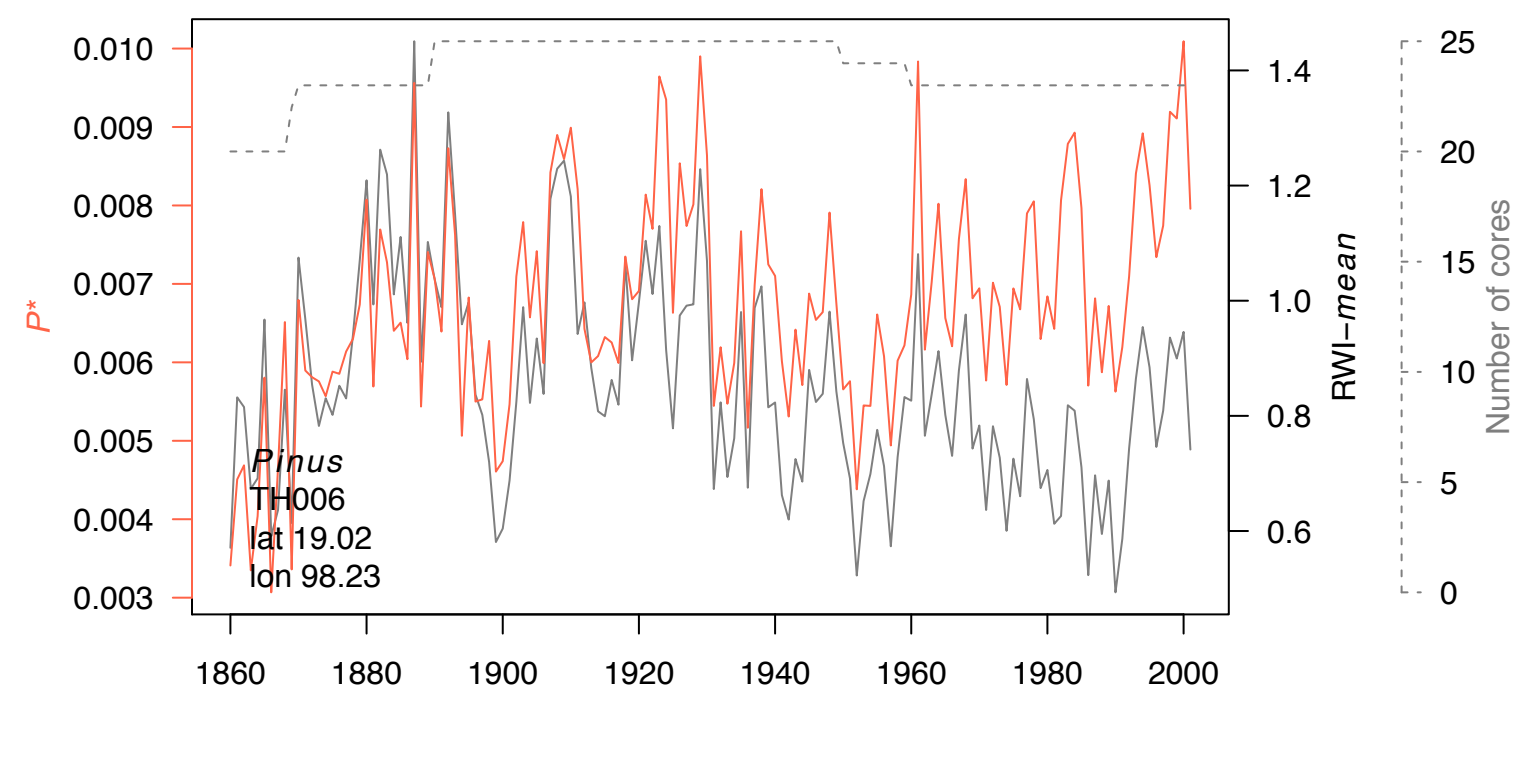

P*
0.0060
0.0055
0.0050
0.0045
0.0040
0.0035
0.0030
Pinus
SWIT282
lat 46.54
lon 8.83
1850
1900
1950
2000
RWI–mean
1.4
1.2
1.0
0.8
0.6
Number of cores
20
15
10
5
0

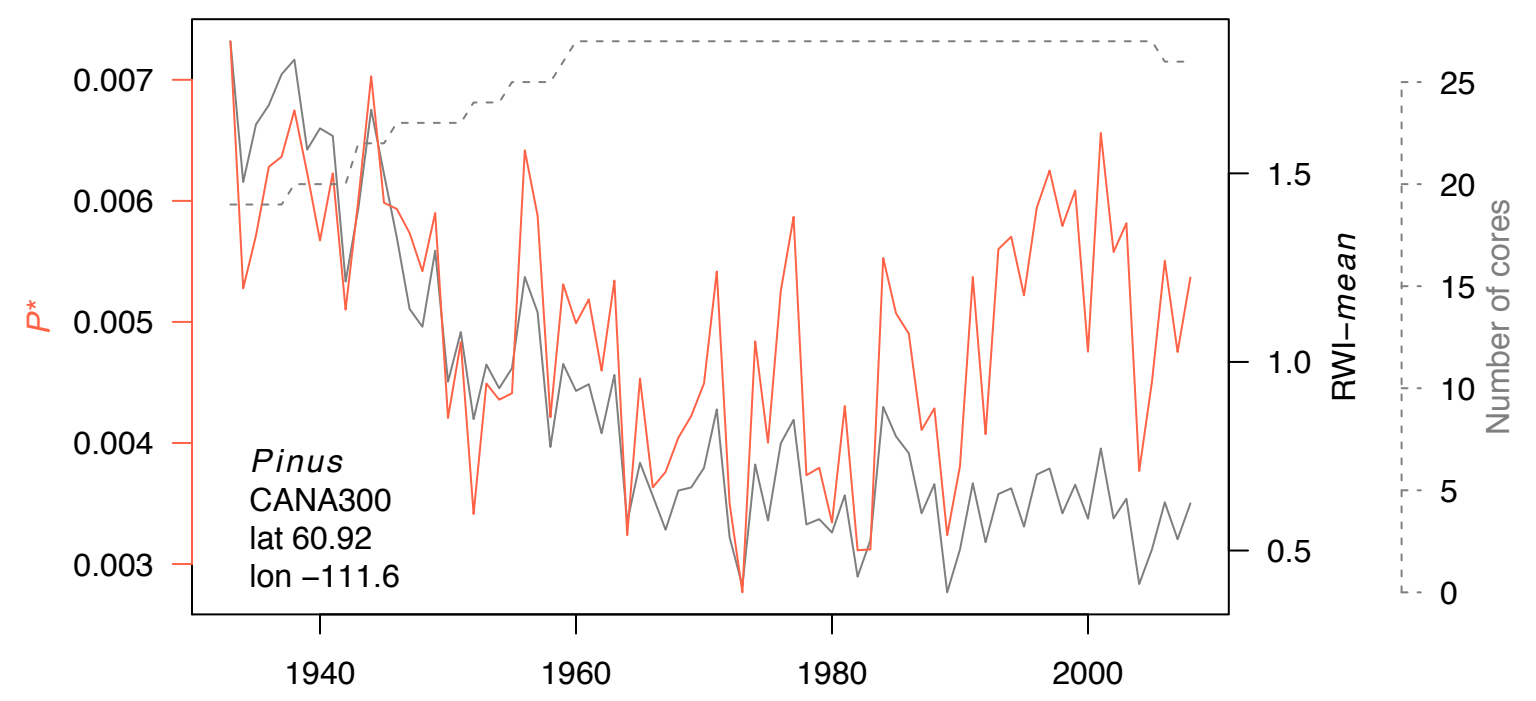

P*
0.006
0.005
0.004
0.003
0.002
0.001
Pinus
SWIT188
lat 46.3
lon 7.57
1940
1960
1980
2000
RWI–mean
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
40
30
20
10
0

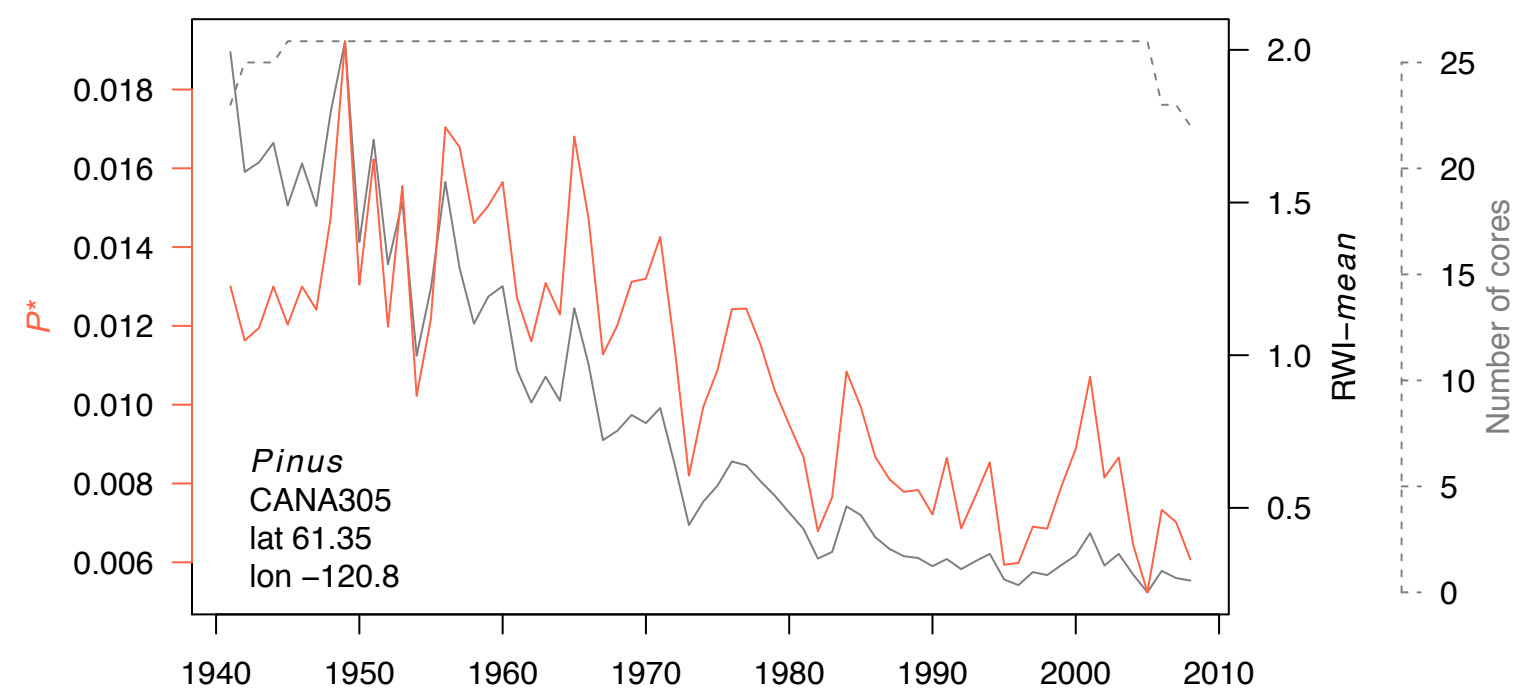

P*
0.0055
0.0050
0.0045
0.0040
0.0035
0.0030
0.0025
RWI–mean
1.6
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
40
30
20
10
0
1800
1850
1900
1950
2000
Pinus
SWIT283
lat 46.67
lon 10.22

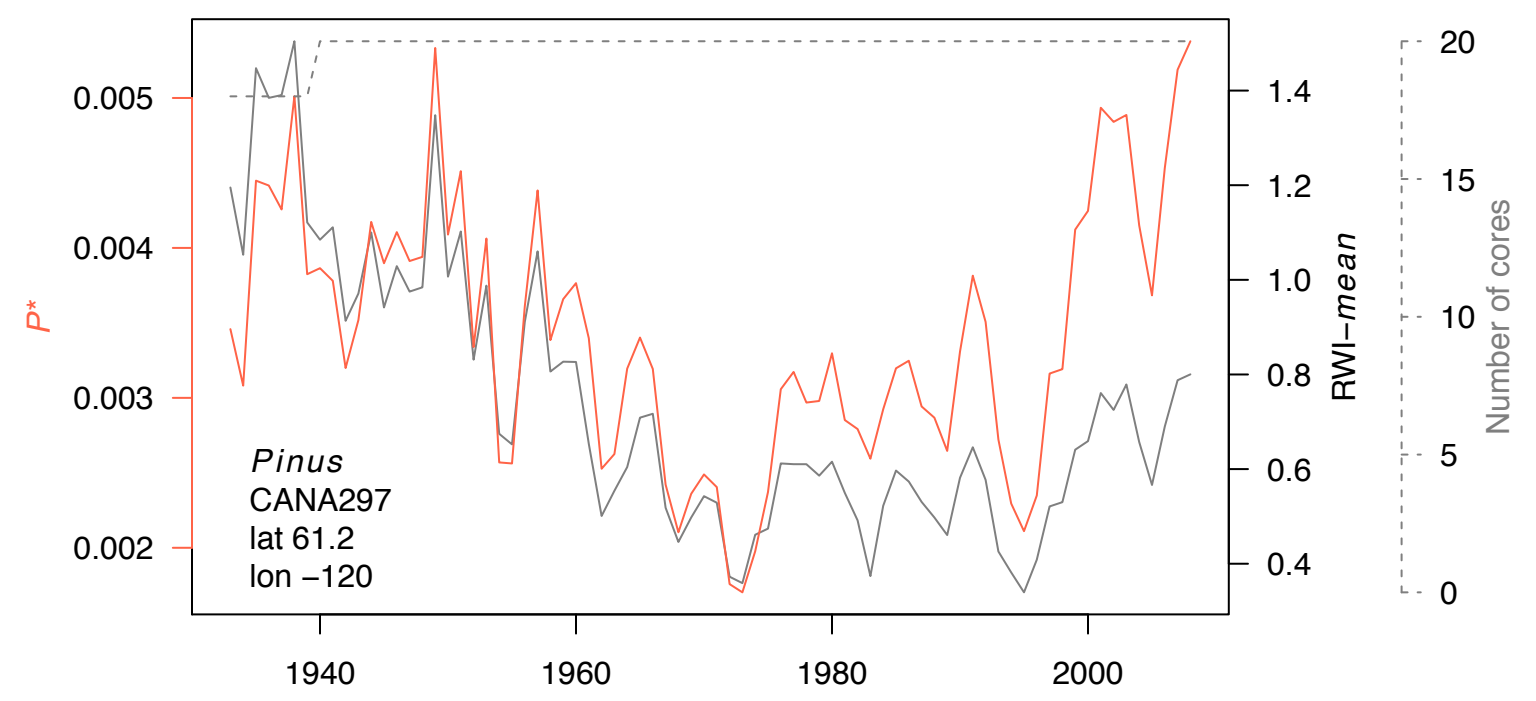

P*
0.012
0.010
0.008
0.006
Pinus
SPAI057
lat 40.67
lon −2.77
1930
1940
1950
1960
1970
1980
1990
2000
1.6
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
20
15
10
5
0
Number of cores

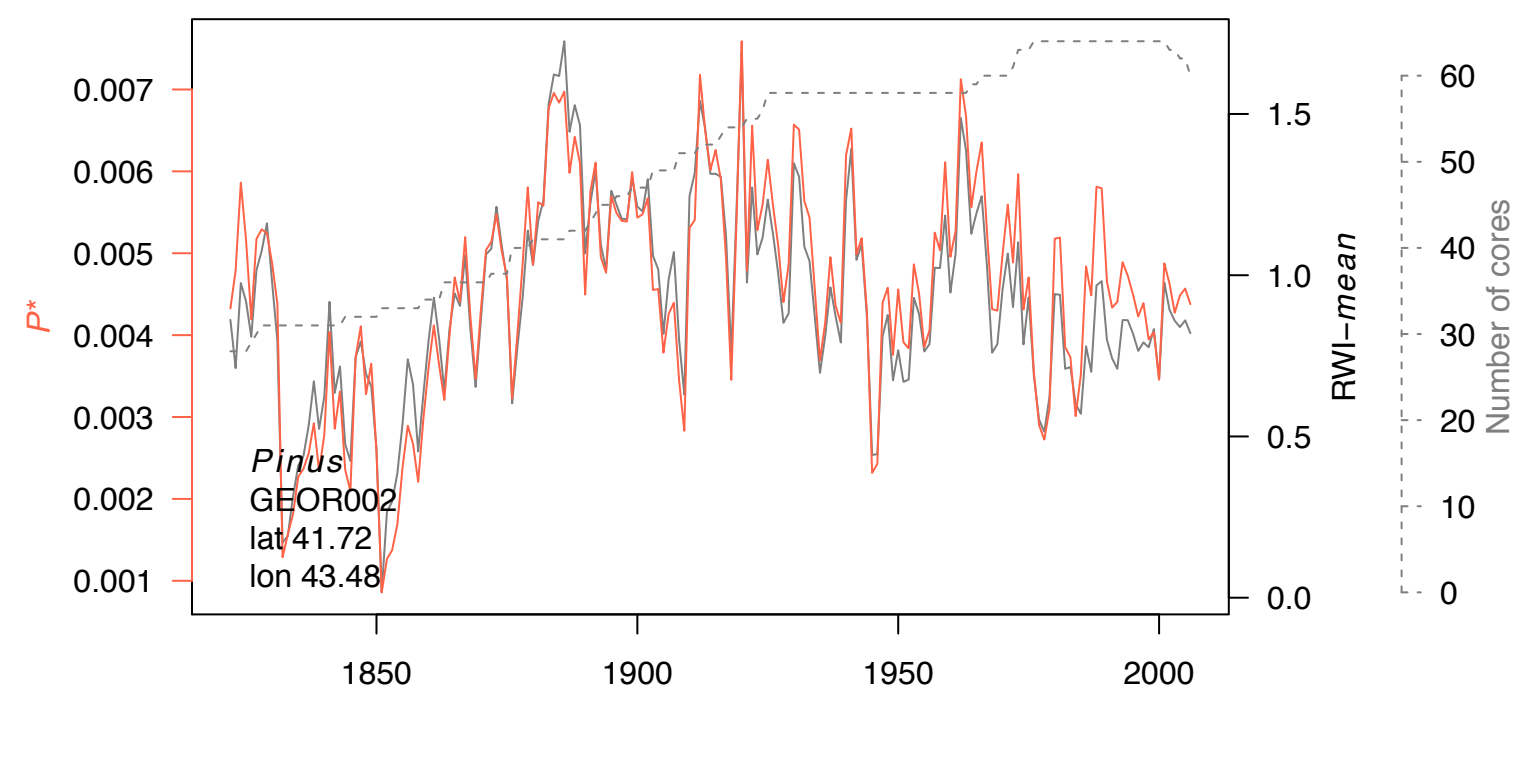

P*
0.016
0.014
0.012
0.010
0.008
0.006
Pinus
LS001
lat 18.17
lon 102.8
1850
1900
1950
2000
1.5
1.0
0.5
RWI–mean
30
25
20
15
10
5
0
Number of cores

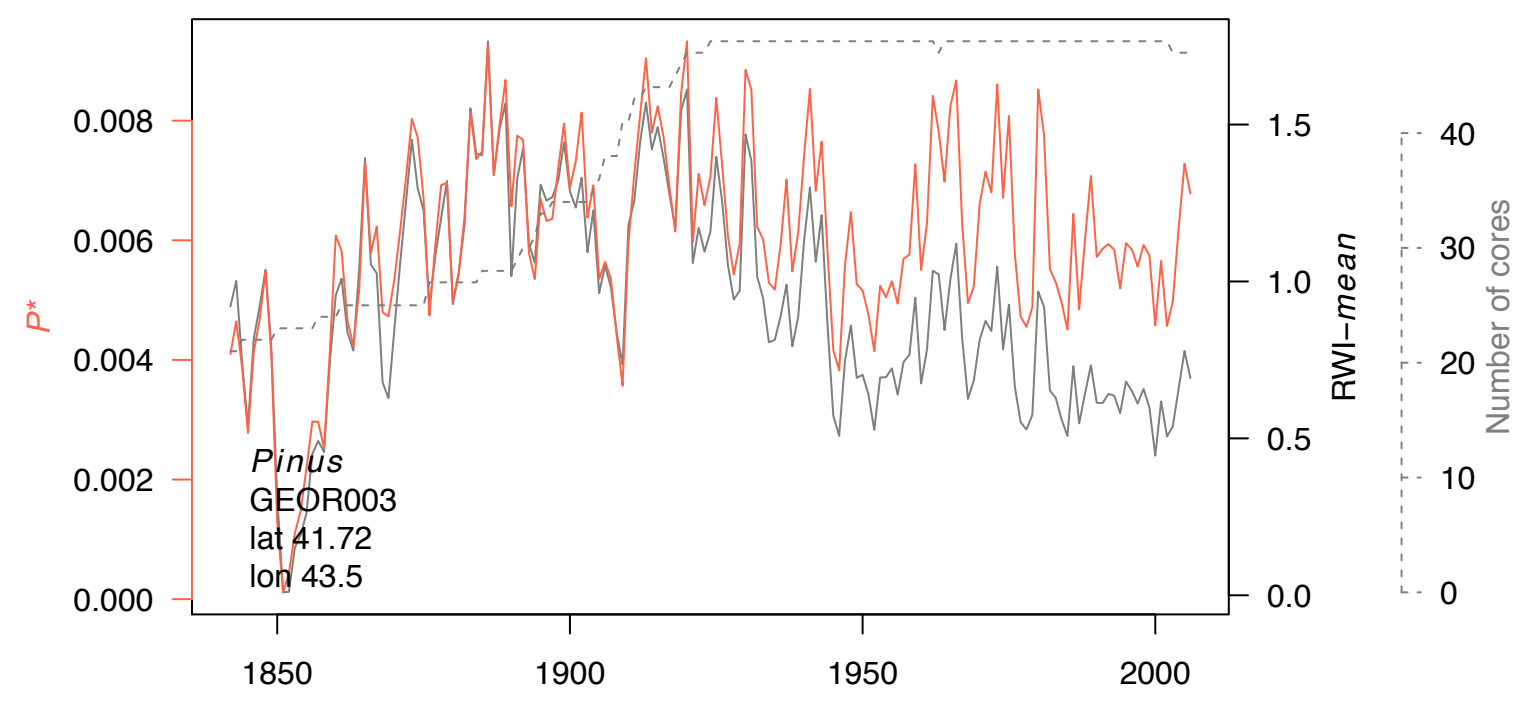

P*
0.010
0.009
0.008
0.007
0.006
0.005
0.004
0.003
Pinus
TH006
lat 19.02
lon 98.23
1860
1880
1900
1920
1940
1960
1980
2000
RWI–mean
1.4
1.2
1.0
0.8
0.6
Number of cores
25
20
15
10
5
0

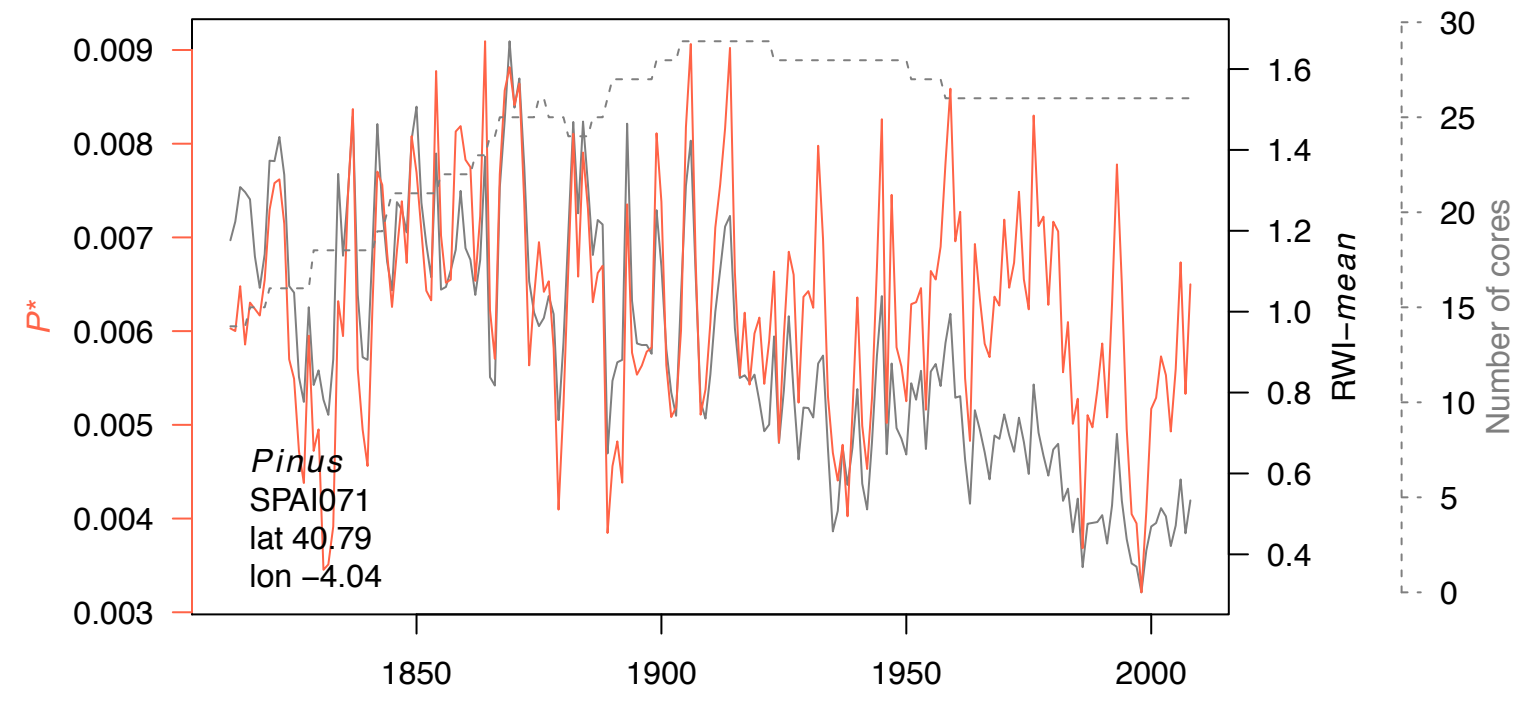

P*
0.007
0.006
0.005
0.004
0.003
Pinus
CANA300
lat 60.92
lon −111.6
1940
1960
1980
2000
RWI–mean
1.5
1.0
0.5
Number of cores
25
20
15
10
5
0

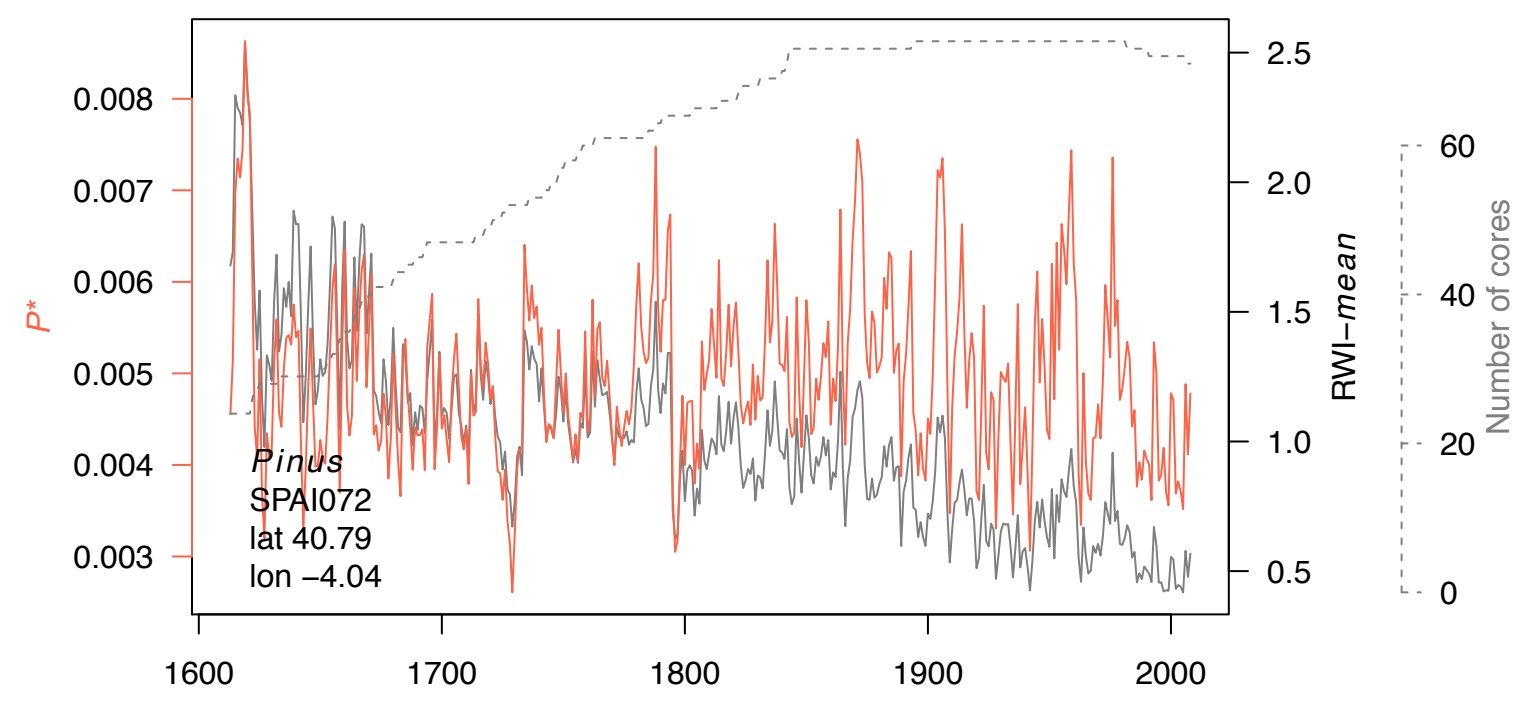

P*
0.018
0.016
0.014
0.012
0.010
0.008
0.006
Pinus
CANA305
lat 61.35
lon −120.8
1940
1950
1960
1970
1980
1990
2000
2010
2.0
1.5
1.0
0.5
RWI–mean
25
20
15
10
5
0
Number of cores

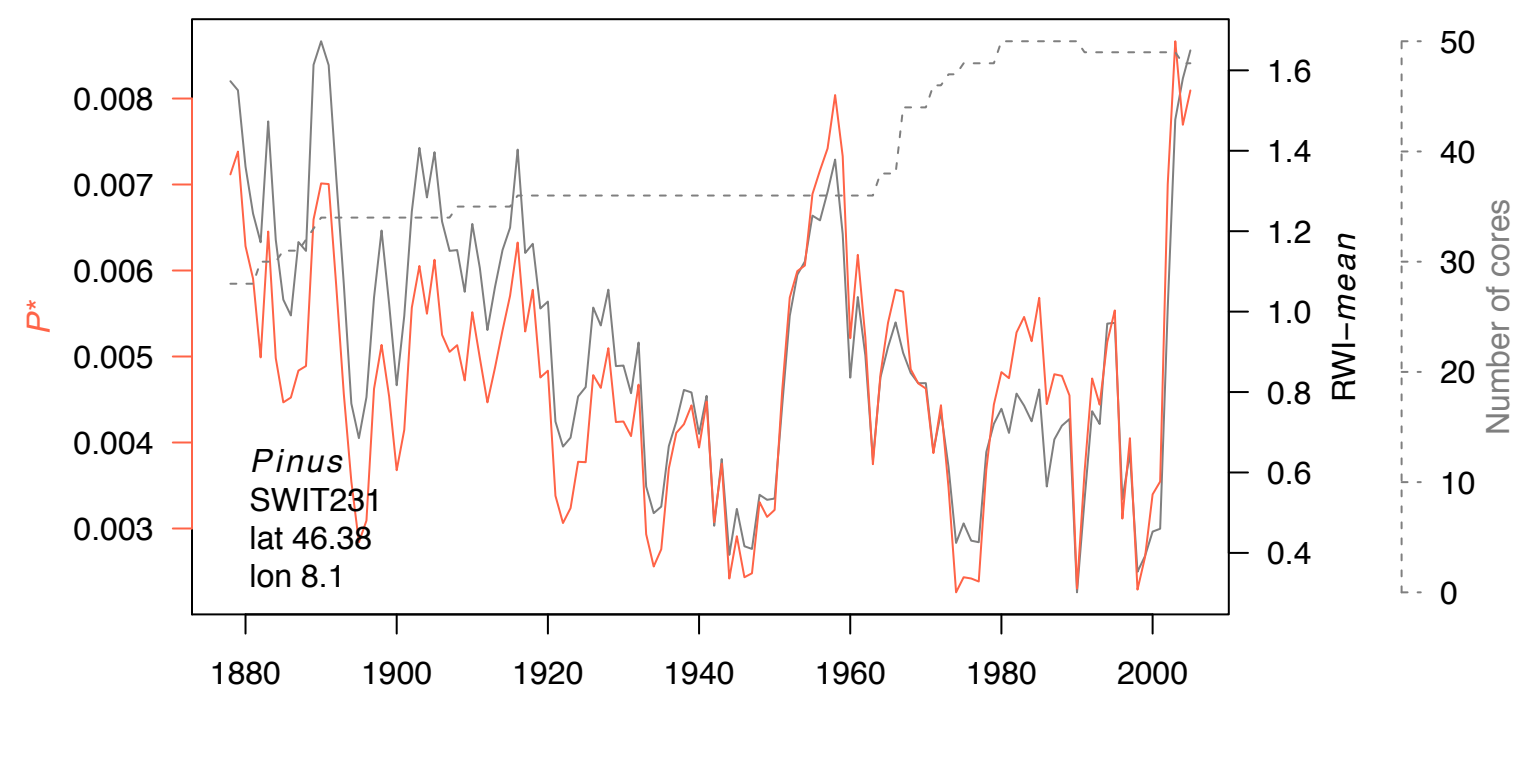

P*
0.005
0.004
0.003
0.002
Pinus
CANA297
lat 61.2
lon −120
1940
1960
1980
2000
RWI–mean
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
20
15
10
5
0

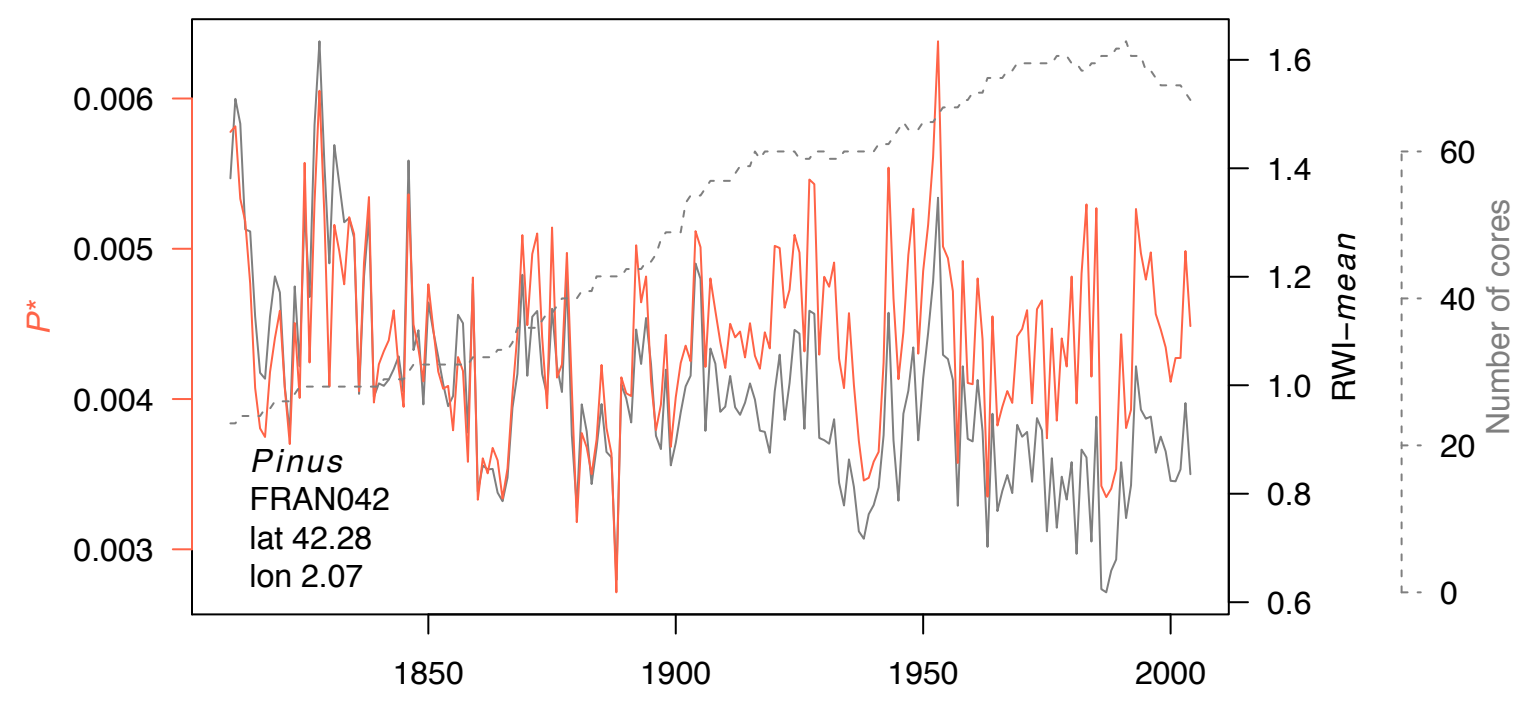

P*
0.007
0.006
0.005
0.004
0.003
0.002
0.001
RWI–mean
1.5
1.0
0.5
0.0
Number of cores
60
50
40
30
20
10
0
1850
1900
1950
2000
Pinus
GEOR002
lat 41.72
lon 43.48

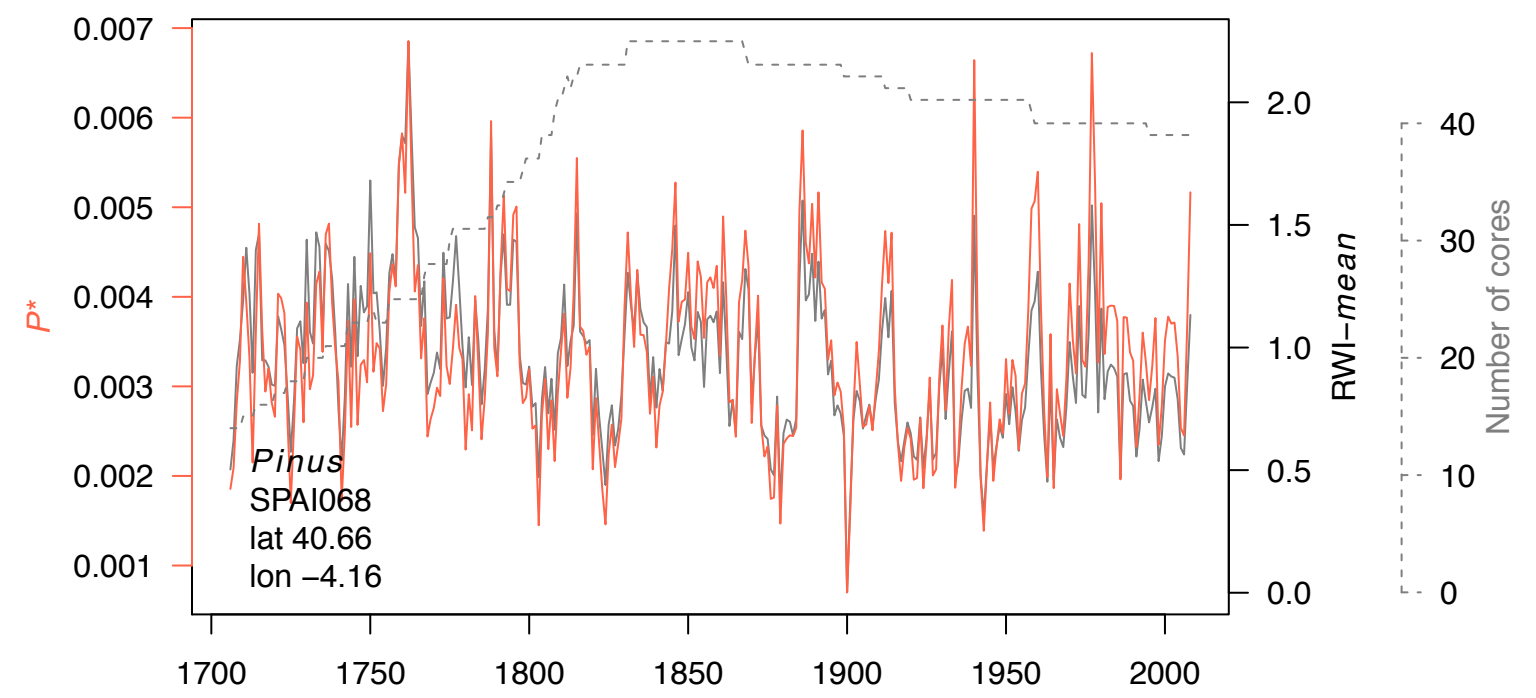

P*
0.008
0.006
0.004
0.002
0.000
Pinus
GEOR003
lat 41.72
lon 43.5
1850
1900
1950
2000
1.5
1.0
0.5
0.0
RWI–mean
40
30
20
10
0
Number of cores

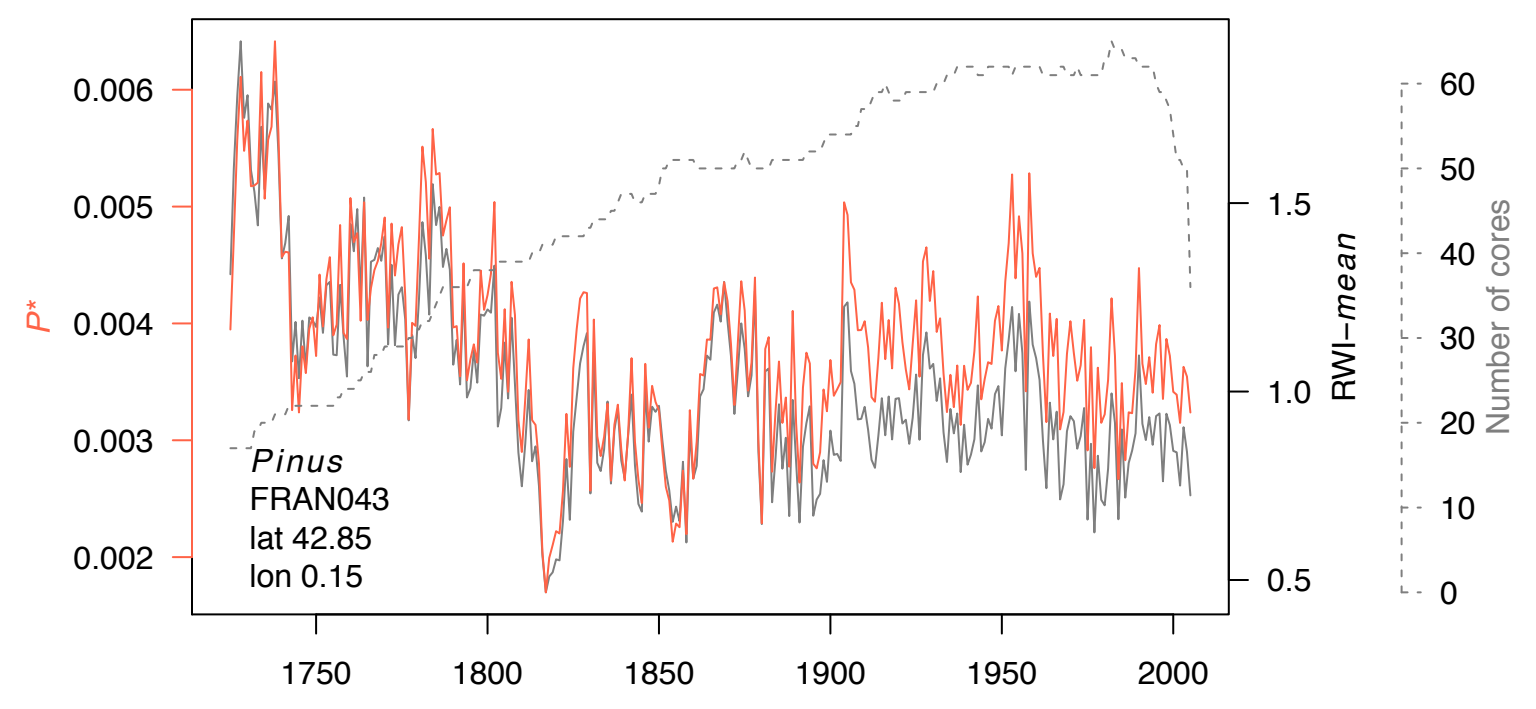

P*
0.009
0.008
0.007
0.006
0.005
0.004
0.003
RWI–mean
1.6
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
30
25
20
15
10
5
0
1850
1900
1950
2000
Pinus
SPAI071
lat 40.79
lon –4.04

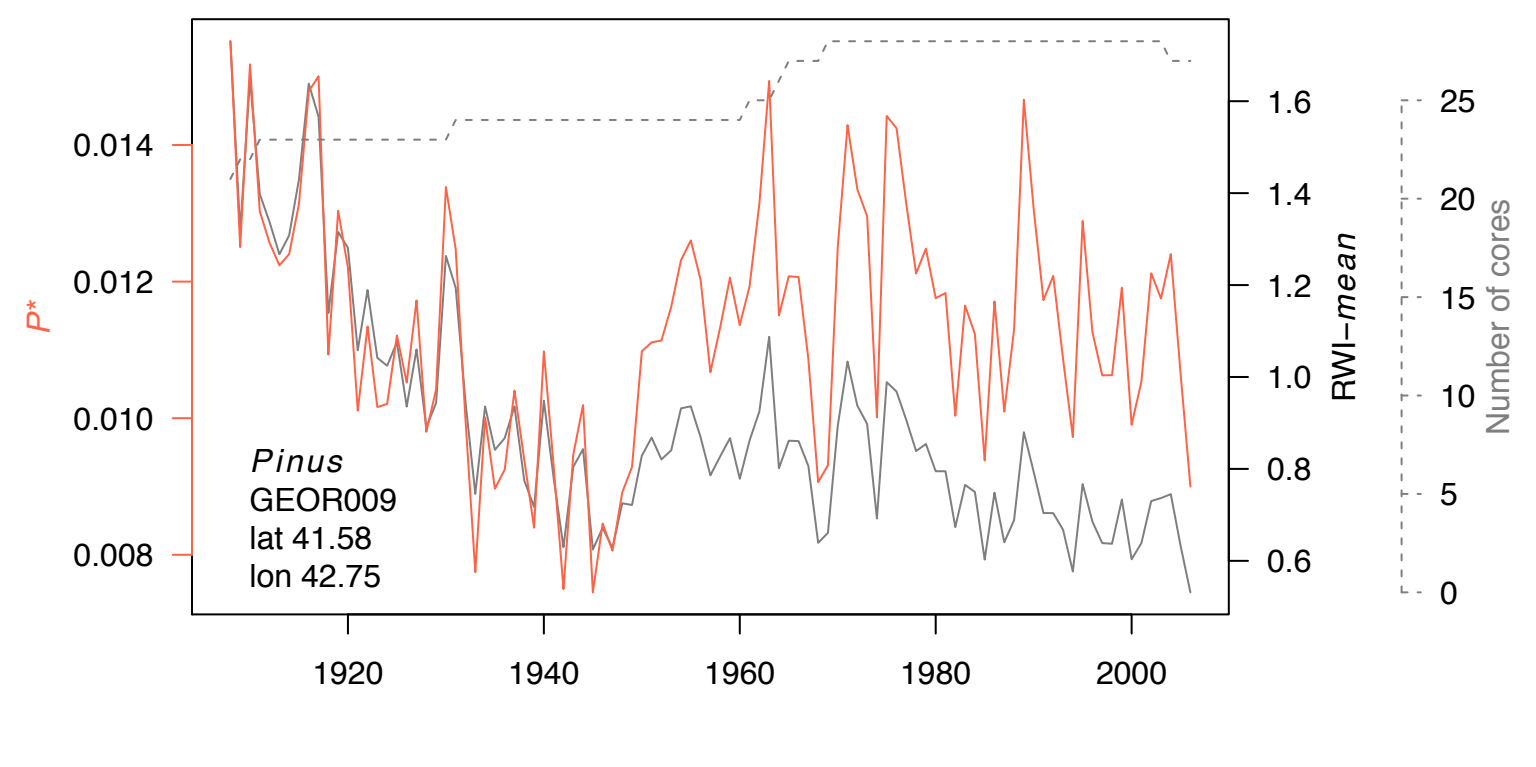

P*
0.008
0.007
0.006
0.005
0.004
0.003
Pinus
SPAI072
lat 40.79
lon −4.04
2.5
2.0
1.5
1.0
0.5
RWI–mean
60
40
20
0
Number of cores
1600
1700
1800
1900
2000

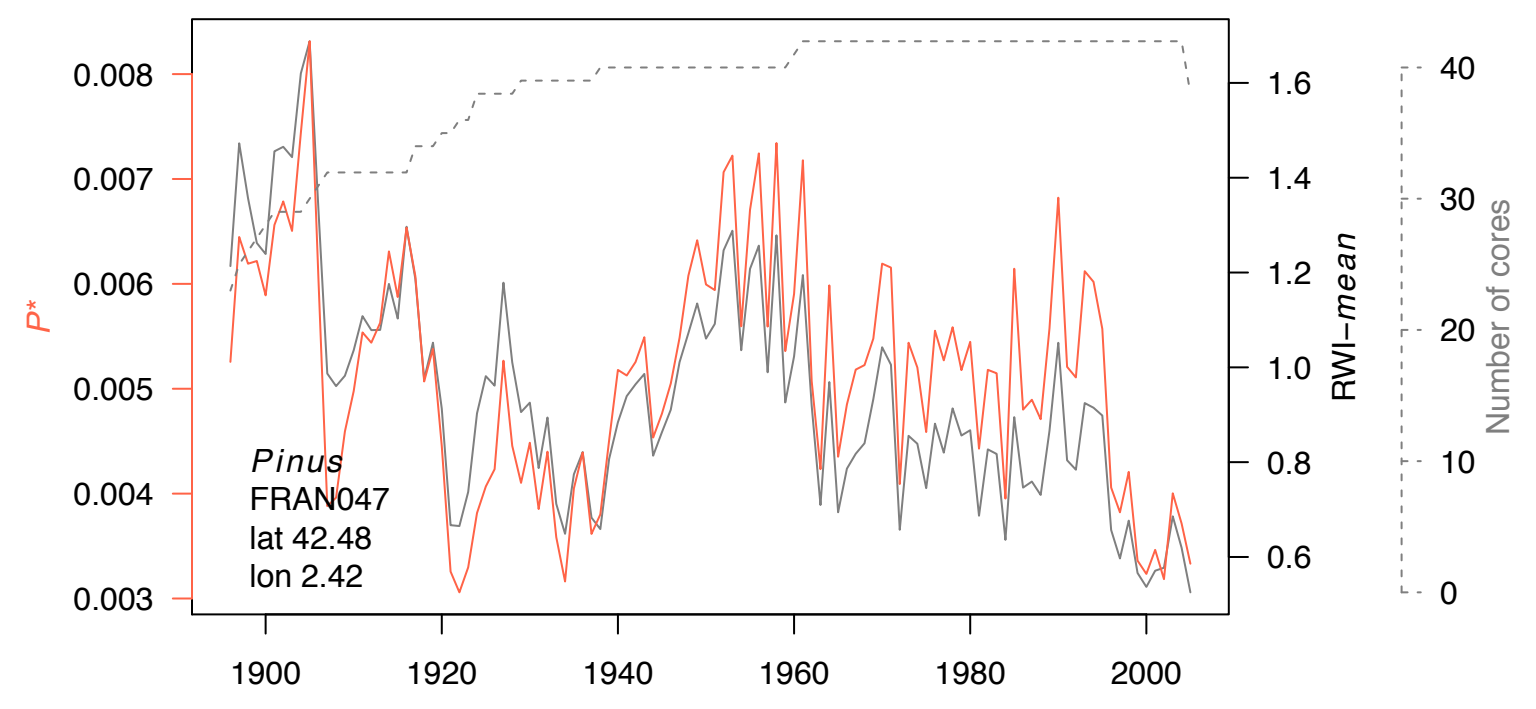

P*
0.008
0.007
0.006
0.005
0.004
0.003
Pinus
SWIT231
lat 46.38
lon 8.1
1880
1900
1920
1940
1960
1980
2000
RWI–mean
1.6
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
50
40
30
20
10
0

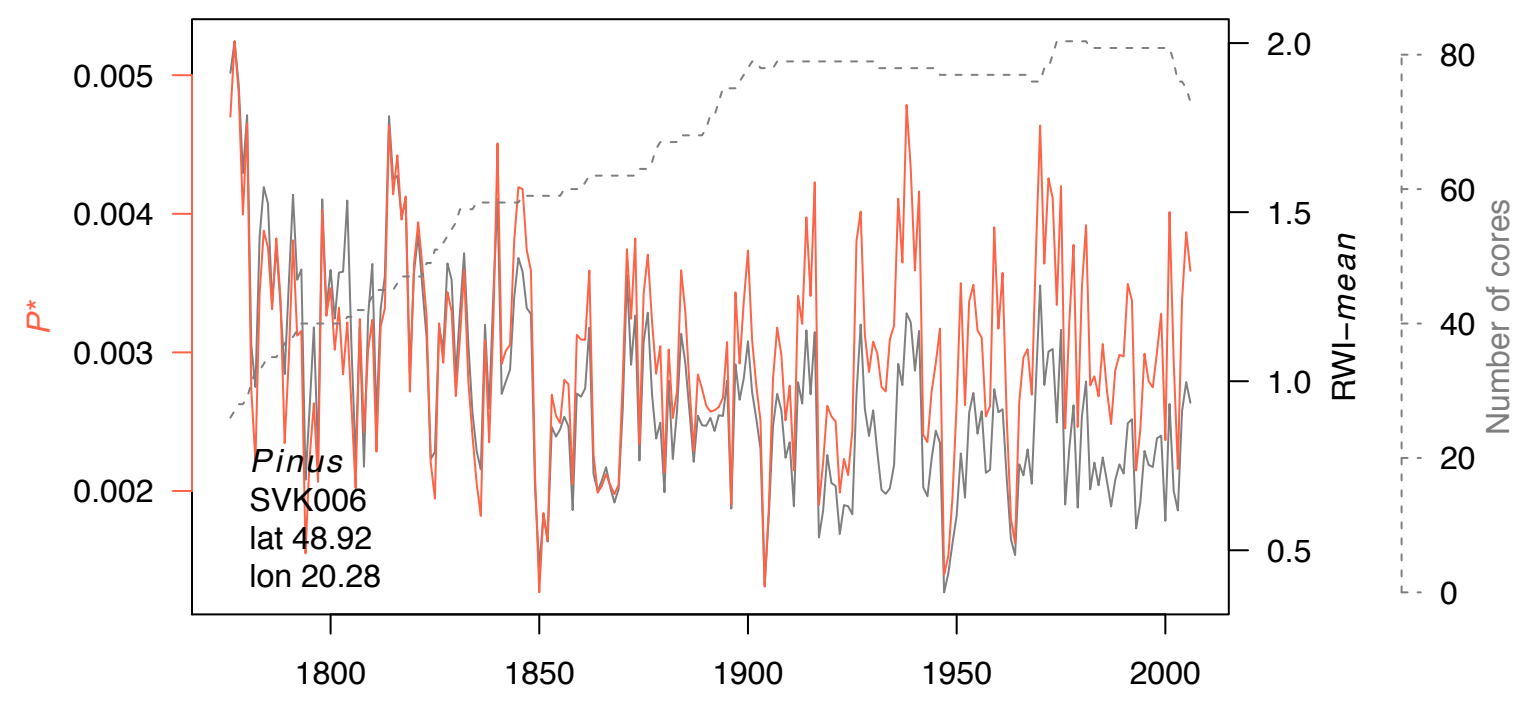

P*
0.006
0.005
0.004
0.003
Pinus
FRAN042
lat 42.28
lon 2.07
1850
1900
1950
2000
1.6
1.4
1.2
1.0
0.8
0.6
RWI–mean
60
40
20
0
Number of cores

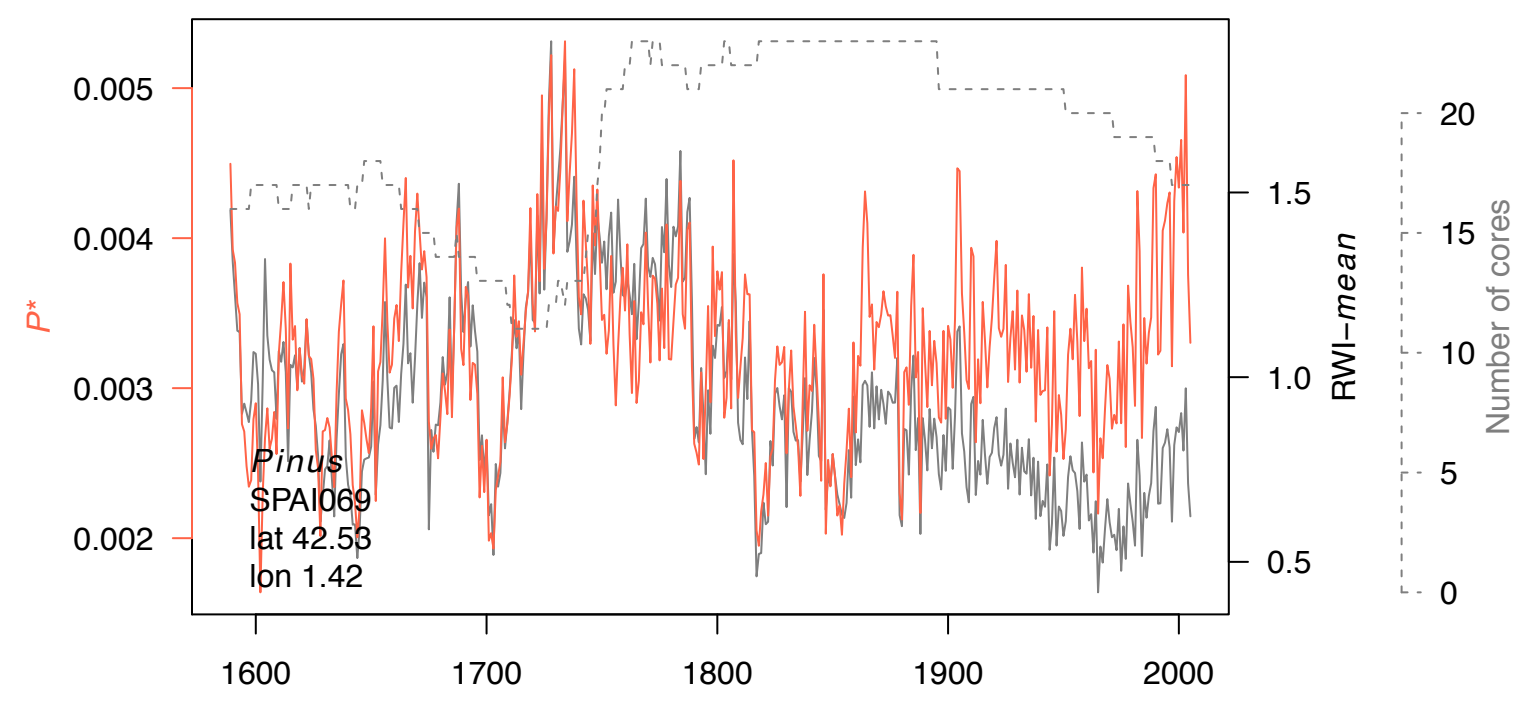

P*
0.007
0.006
0.005
0.004
0.003
0.002
0.001
Pinus
SPAI068
lat 40.66
lon –4.16
1700
1750
1800
1850
1900
1950
2000
RWI–mean
2.0
1.5
1.0
0.5
0.0
Number of cores
40
30
20
10
0

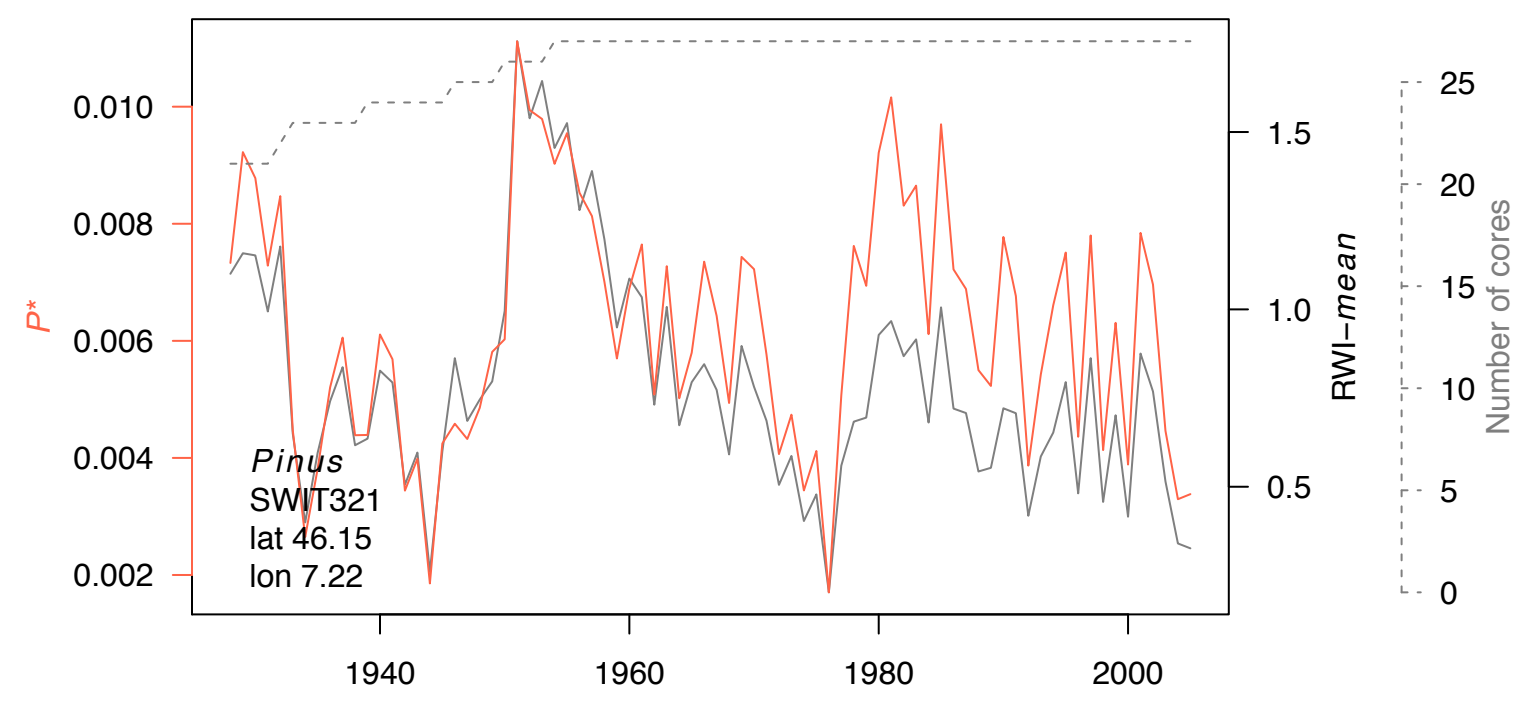

P*
0.006
0.005
0.004
0.003
0.002
Pinus
FRAN043
lat 42.85
lon 0.15
1750
1800
1850
1900
1950
2000
1.5
1.0
0.5
RWI–mean
60
50
40
30
20
10
0
Number of cores

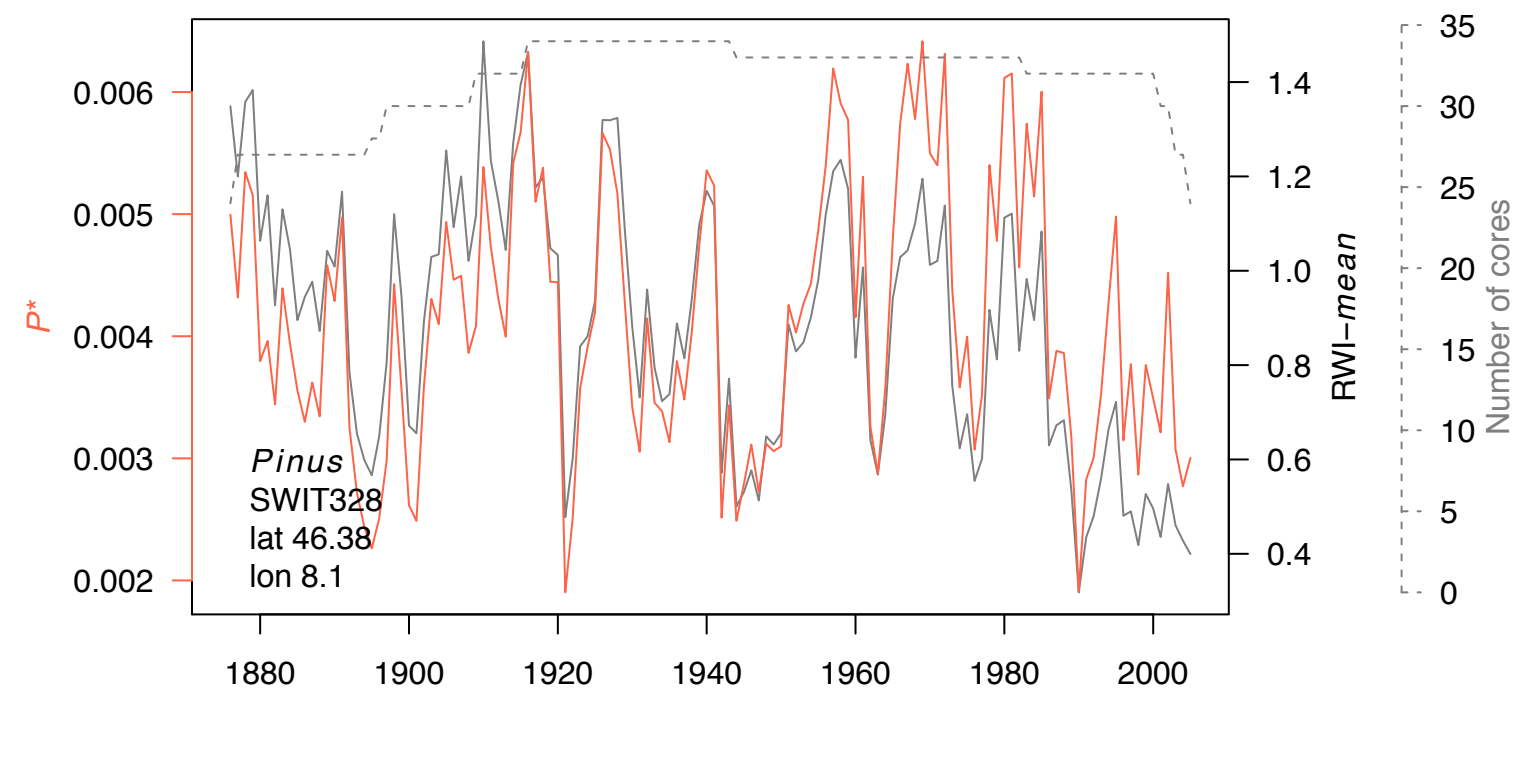

P*
0.014
0.012
0.010
0.008
Pinus
GEOR009
lat 41.58
lon 42.75
1920
1940
1960
1980
2000
1.6
1.4
1.2
1.0
0.8
0.6
RWI–mean
25
20
15
10
5
0
Number of cores

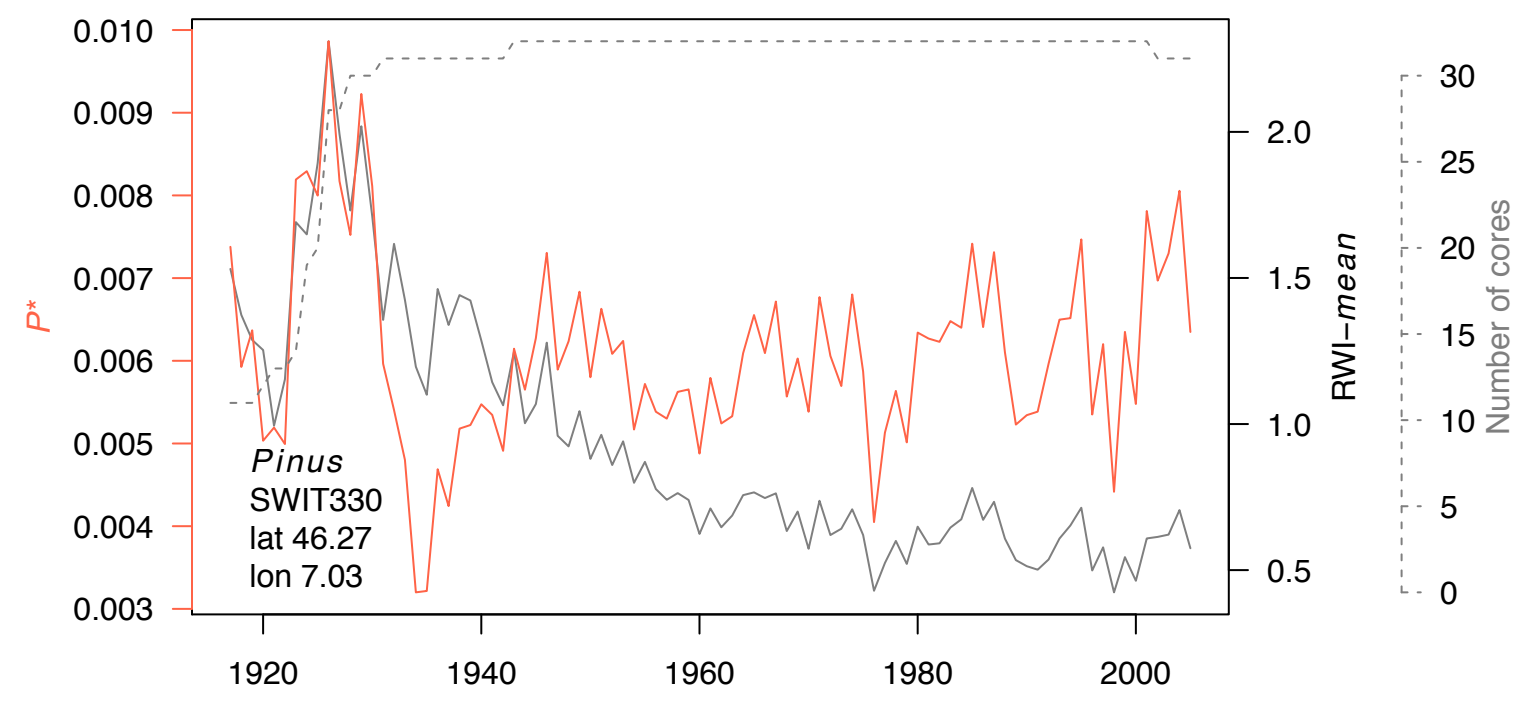

P*
0.008
0.007
0.006
0.005
0.004
0.003
RWI–mean
1.6
1.4
1.2
1.0
0.8
0.6
Number of cores
40
30
20
10
0
1900
1920
1940
1960
1980
2000
Pinus
FRAN047
lat 42.48
lon 2.42

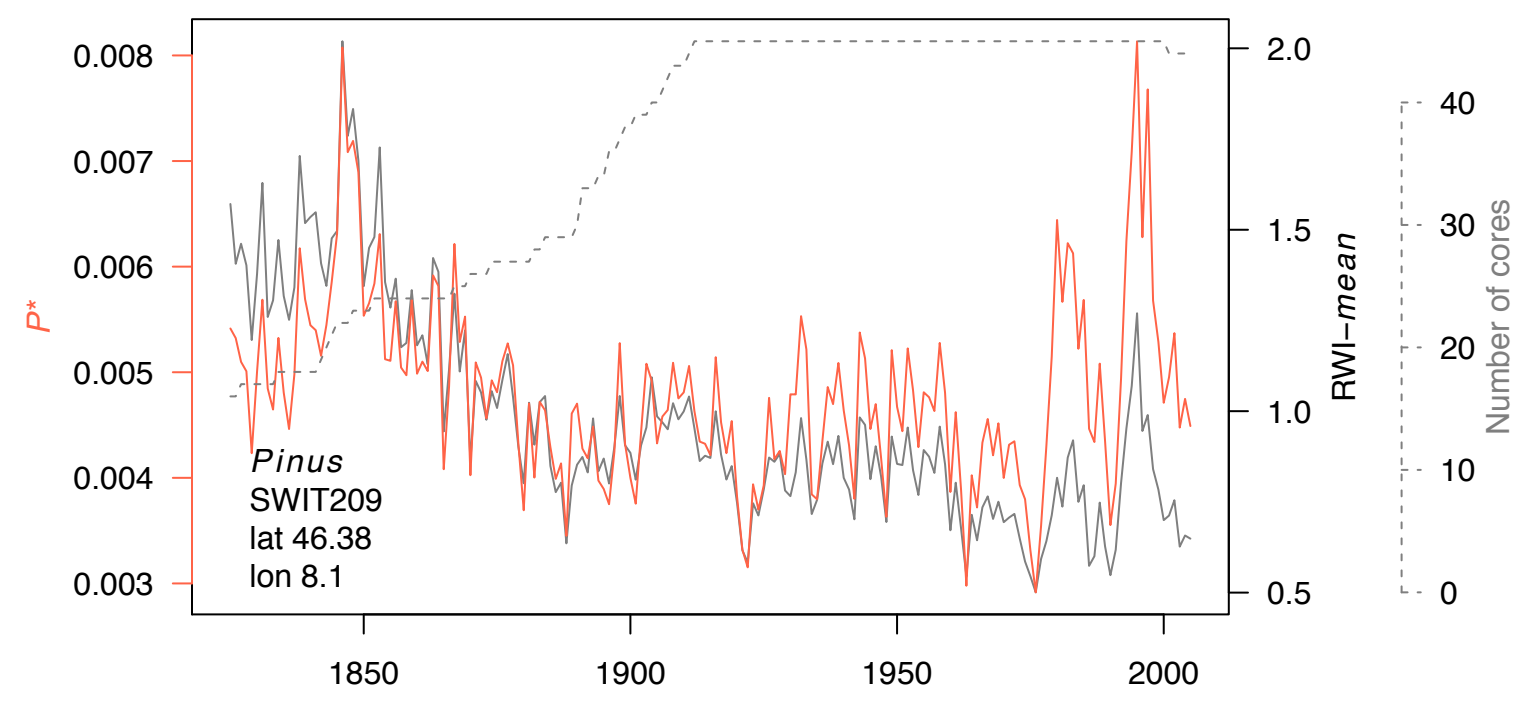

P*
0.005
0.004
0.003
0.002
Pinus
SVK006
lat 48.92
lon 20.28
2.0
1.5
1.0
0.5
RWI–mean
80
60
40
20
0
Number of cores
1800
1850
1900
1950
2000

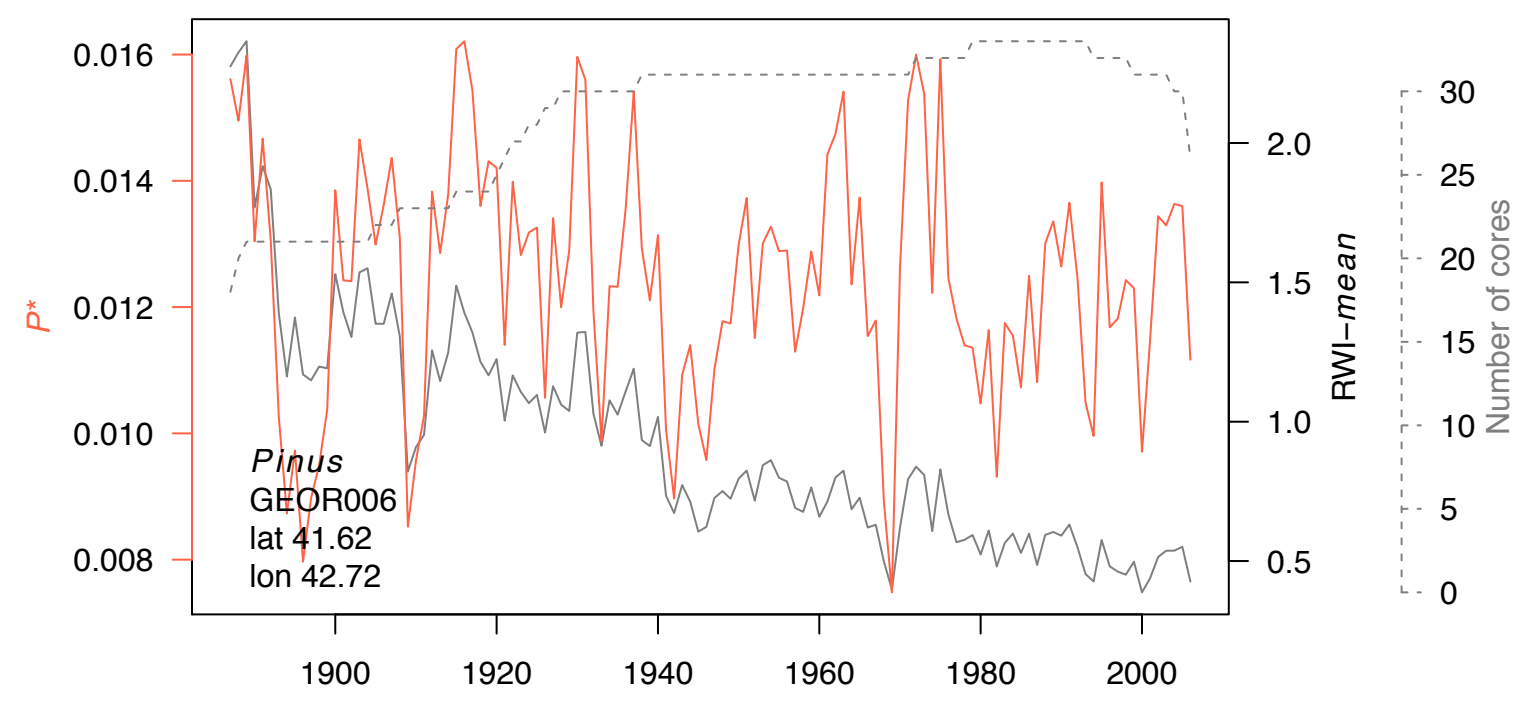

P*
0.005
0.004
0.003
0.002
Pinus
SPAI069
lat 42.53
lon 1.42
1600
1700
1800
1900
2000
1.5
1.0
0.5
RWI–mean
20
15
10
5
0
Number of cores

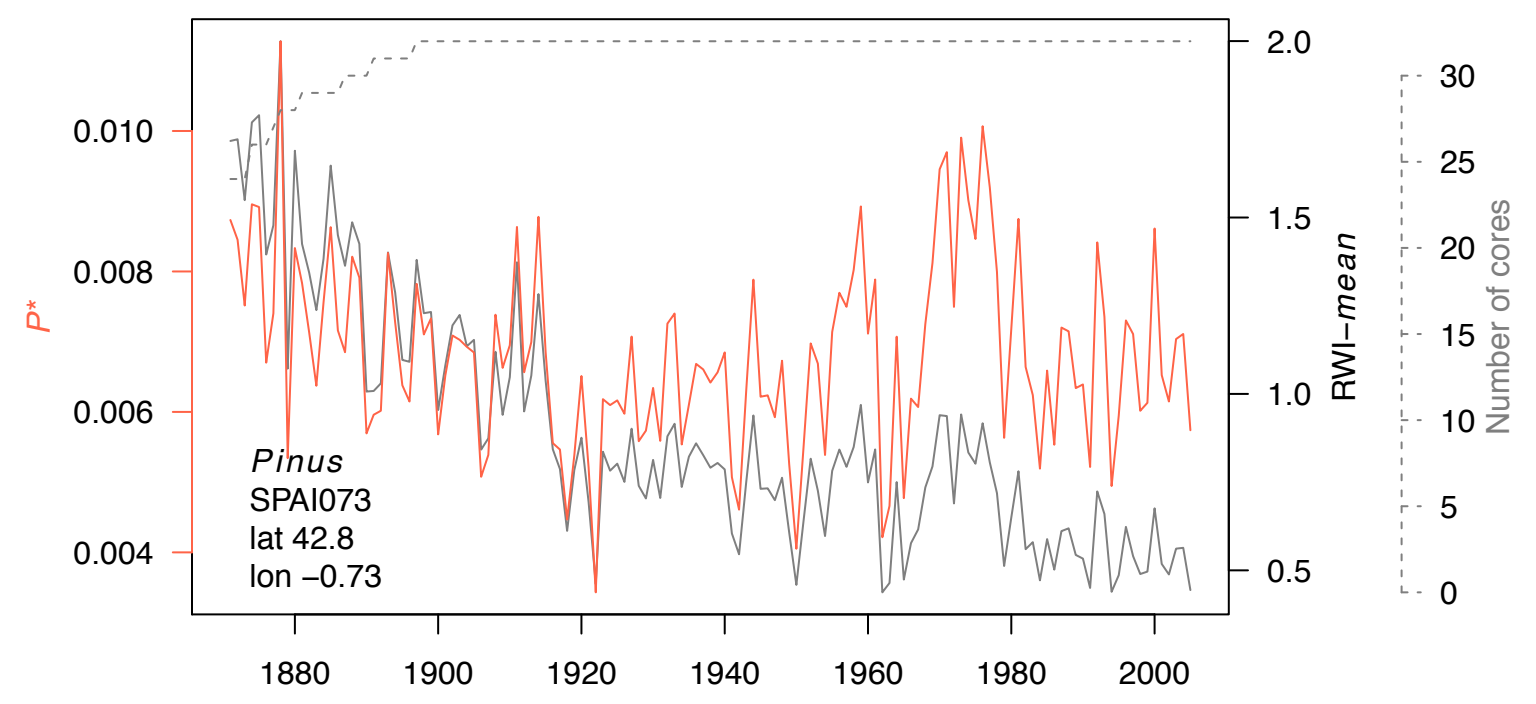

P*
0.010
0.008
0.006
0.004
0.002
Pinus
SWIT321
lat 46.15
lon 7.22
1940
1960
1980
2000
1.5
1.0
0.5
RWI–mean
25
20
15
10
5
0
Number of cores

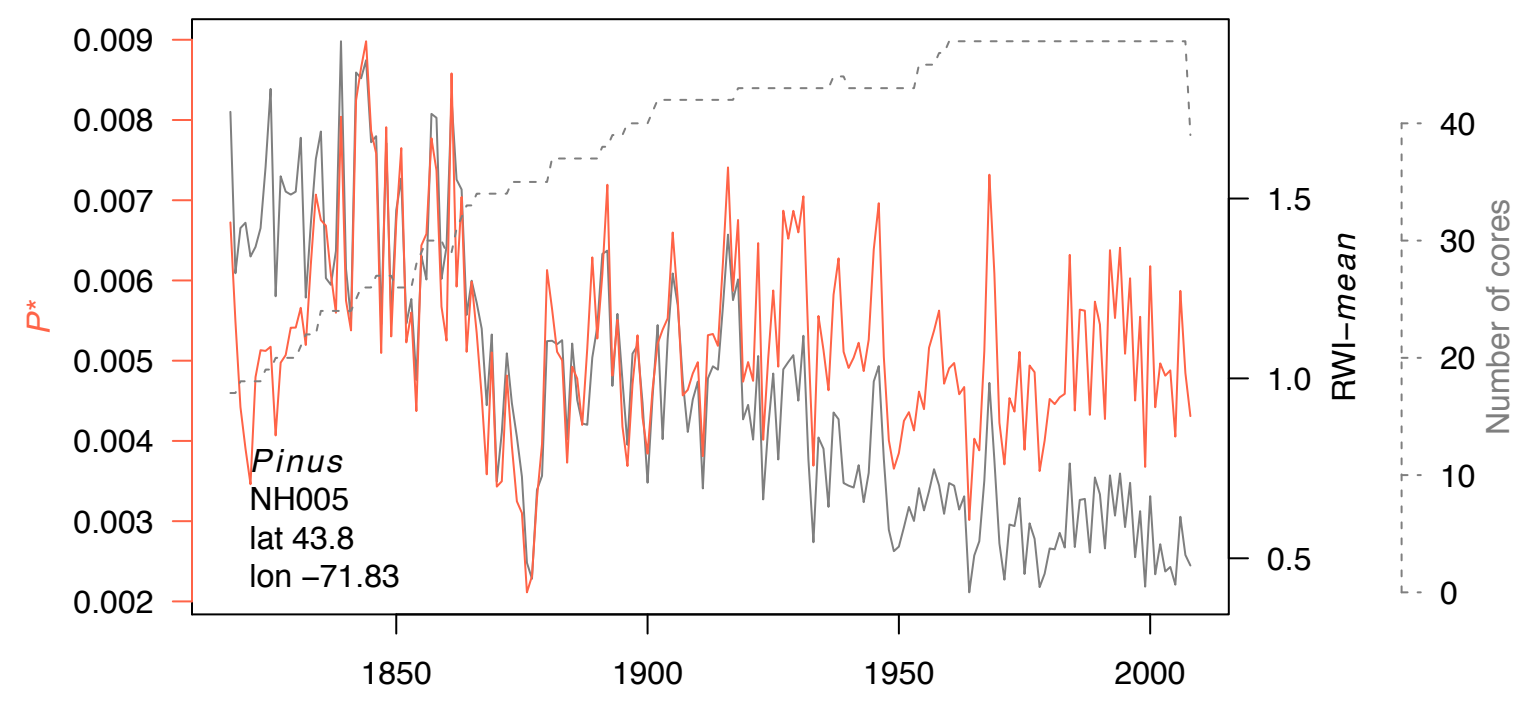

P*
0.006
0.005
0.004
0.003
0.002
Pinus
SWIT328
lat 46.38
lon 8.1
1880
1900
1920
1940
1960
1980
2000
RWI–mean
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
35
30
25
20
15
10
5
0

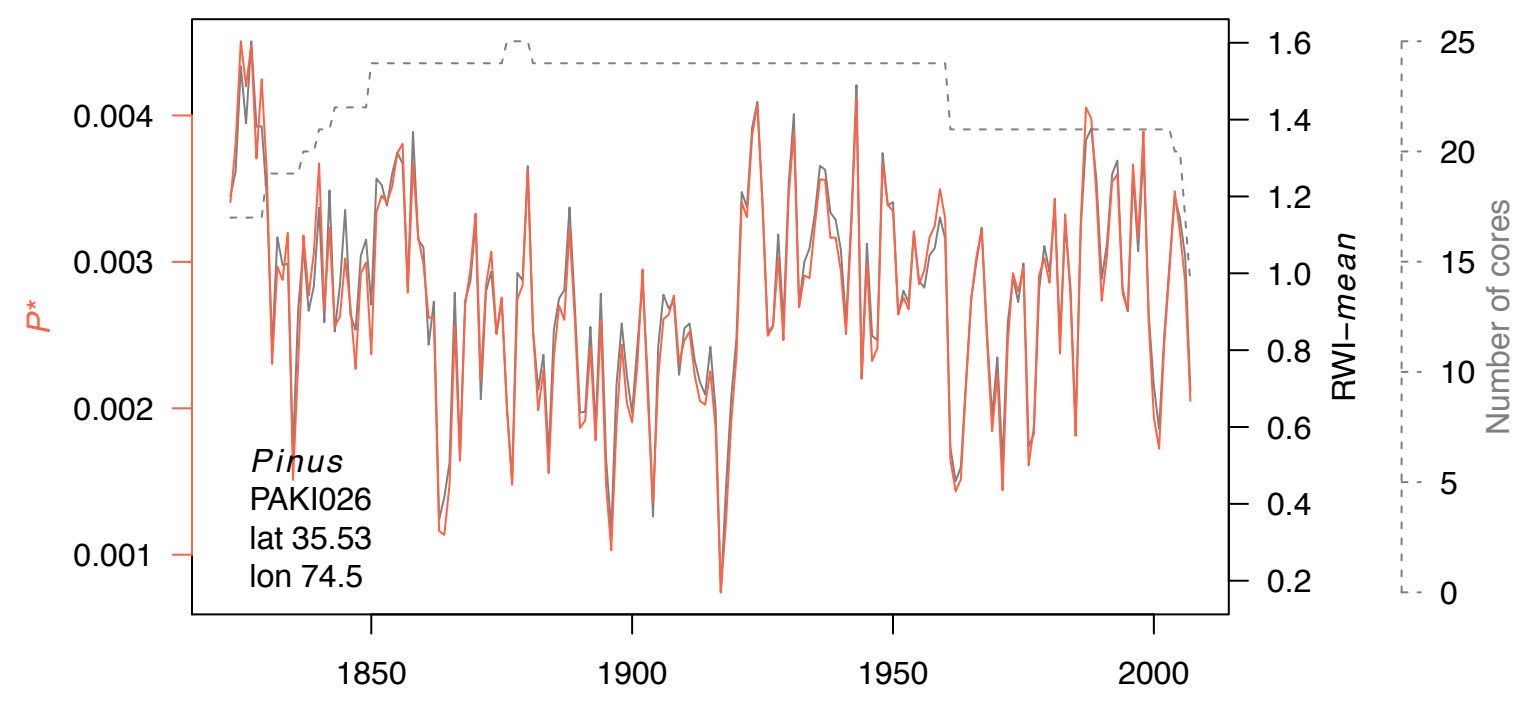

P*
0.010
0.009
0.008
0.007
0.006
0.005
0.004
0.003
Pinus
SWIT330
lat 46.27
lon 7.03
1920
1940
1960
1980
2000
RWI–mean
2.0
1.5
1.0
0.5
Number of cores
30
25
20
15
10
5
0

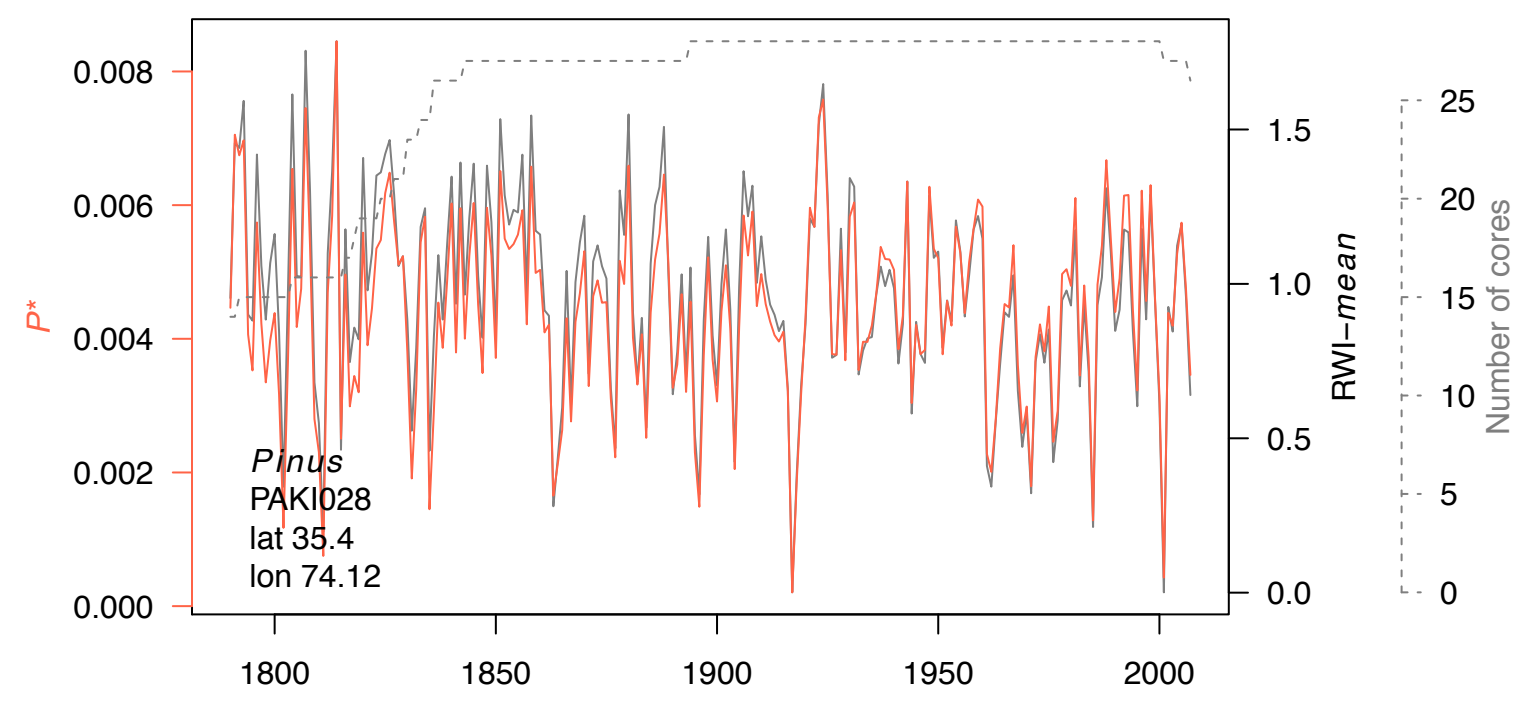

P*
0.008
0.007
0.006
0.005
0.004
0.003
Pinus
SWIT209
lat 46.38
lon 8.1
1850
1900
1950
2000
2.0
1.5
1.0
0.5
RWI–mean
40
30
20
10
0
Number of cores

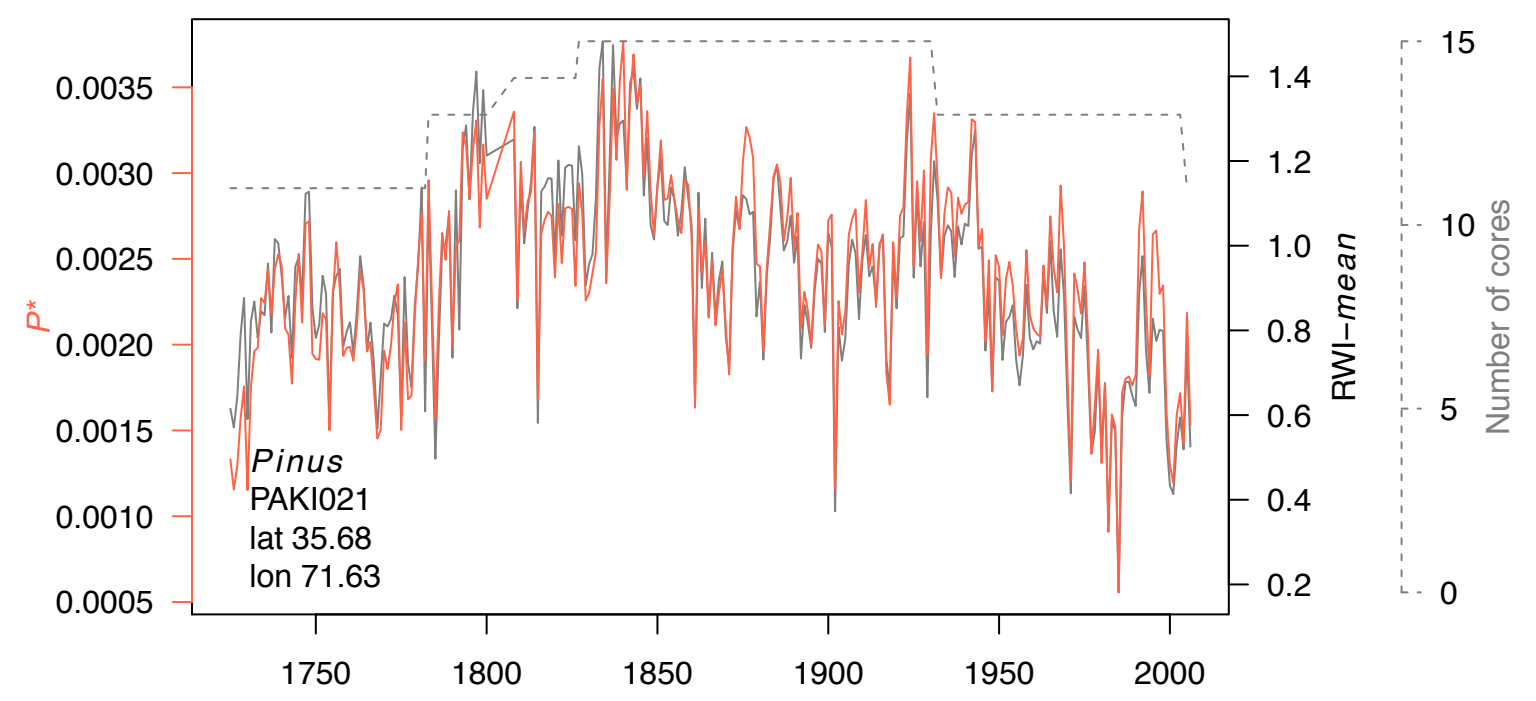

P*
0.016
0.014
0.012
0.010
0.008
Pinus
GEOR006
lat 41.62
lon 42.72
1900
1920
1940
1960
1980
2000
RWI–mean
2.0
1.5
1.0
0.5
Number of cores
30
25
20
15
10
5
0

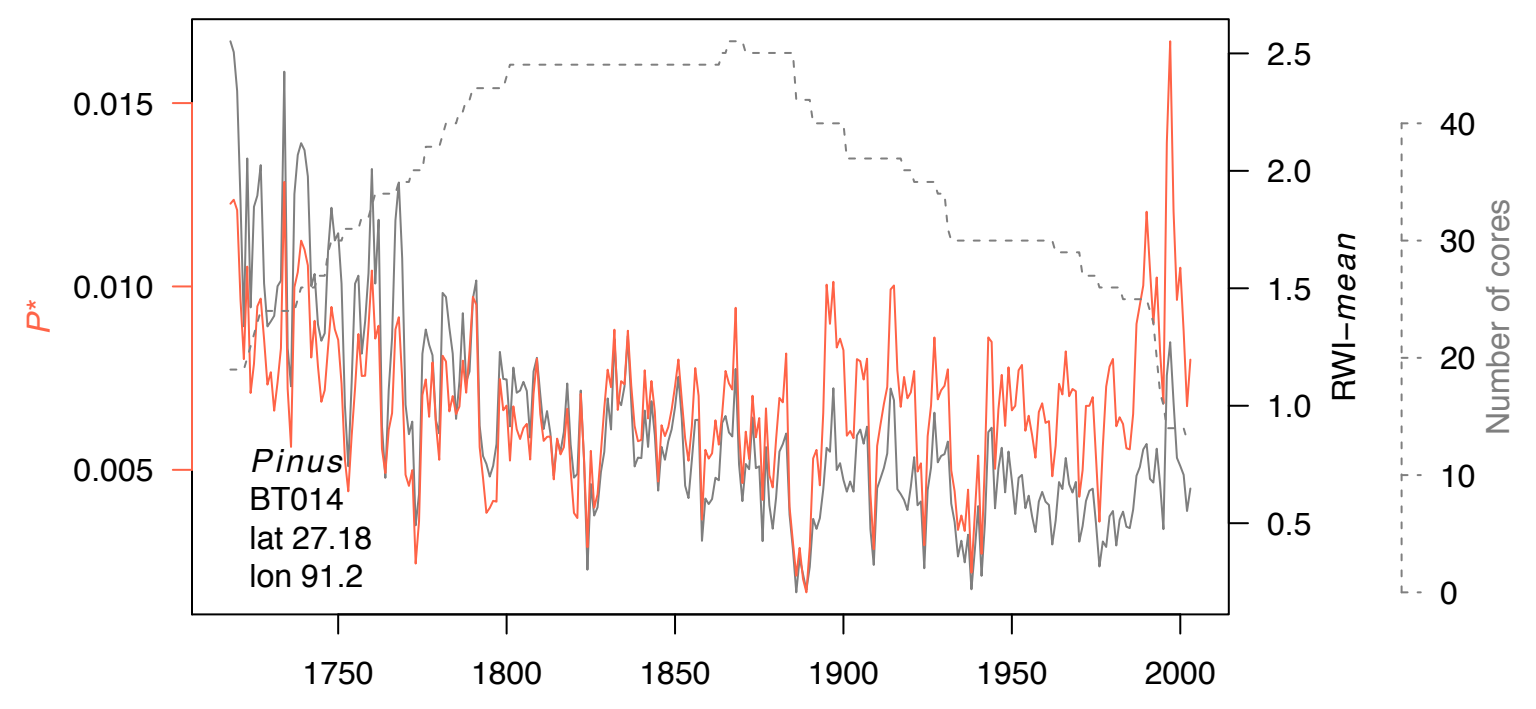

P*
0.010
0.008
0.006
0.004
Pinus
SPAI073
lat 42.8
lon −0.73
1880
1900
1920
1940
1960
1980
2000
2.0
1.5
1.0
0.5
RWI–mean
30
25
20
15
10
5
0
Number of cores

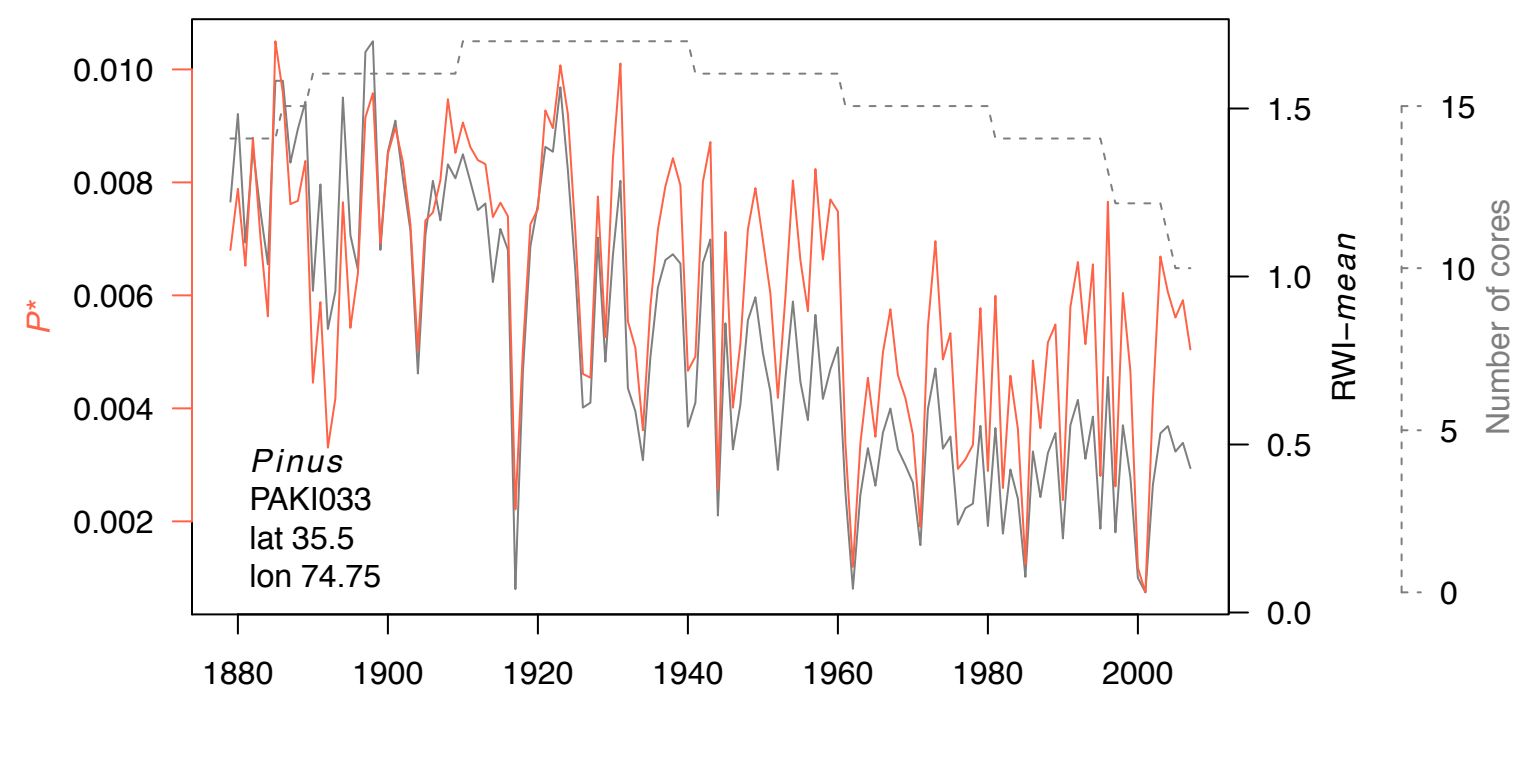

P*
0.009
0.008
0.007
0.006
0.005
0.004
0.003
0.002
Pinus
NH005
lat 43.8
lon −71.83
1850
1900
1950
2000
RWI–mean
1.5
1.0
0.5
Number of cores
40
30
20
10
0

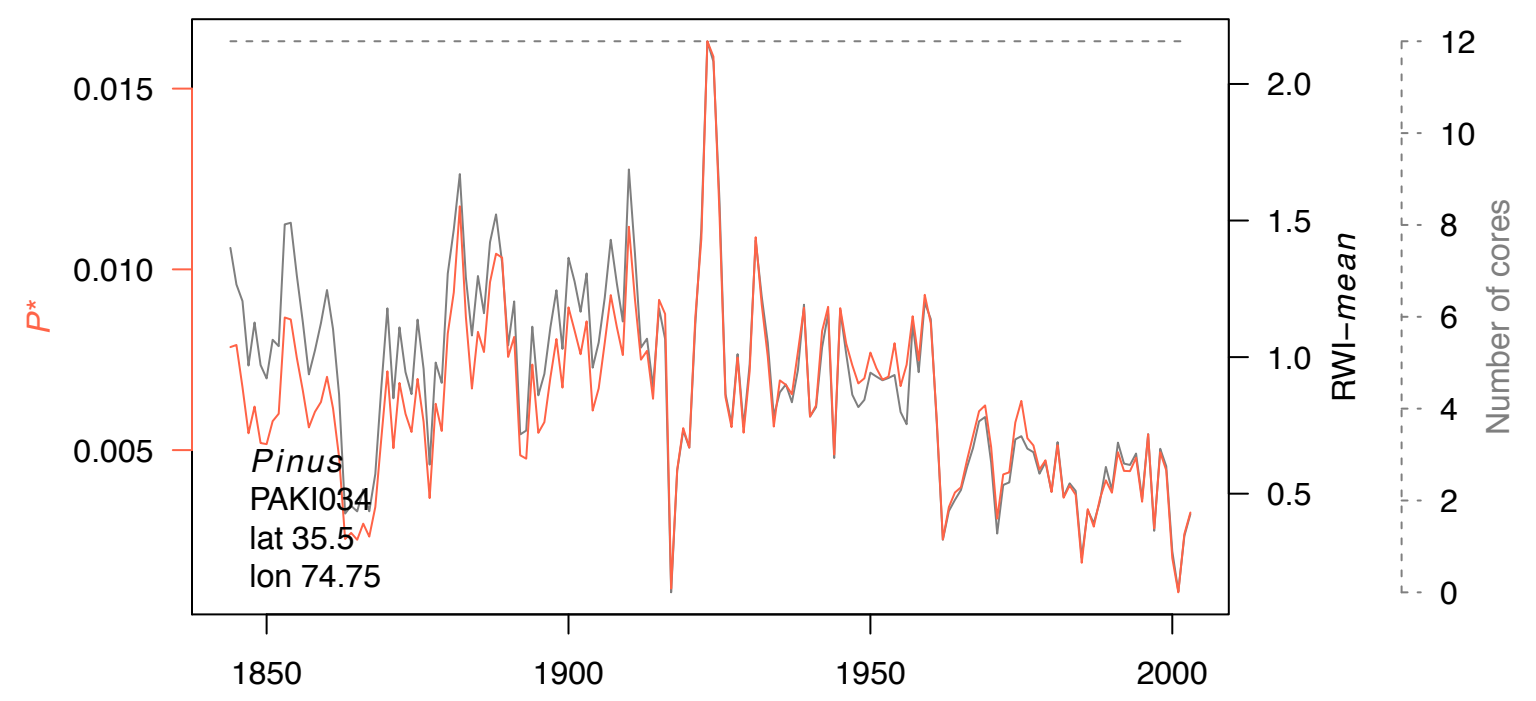

P*
0.004
0.003
0.002
0.001
Pinus
PAKI026
lat 35.53
lon 74.5
1850
1900
1950
2000
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
RWI–mean
25
20
15
10
5
0
Number of cores

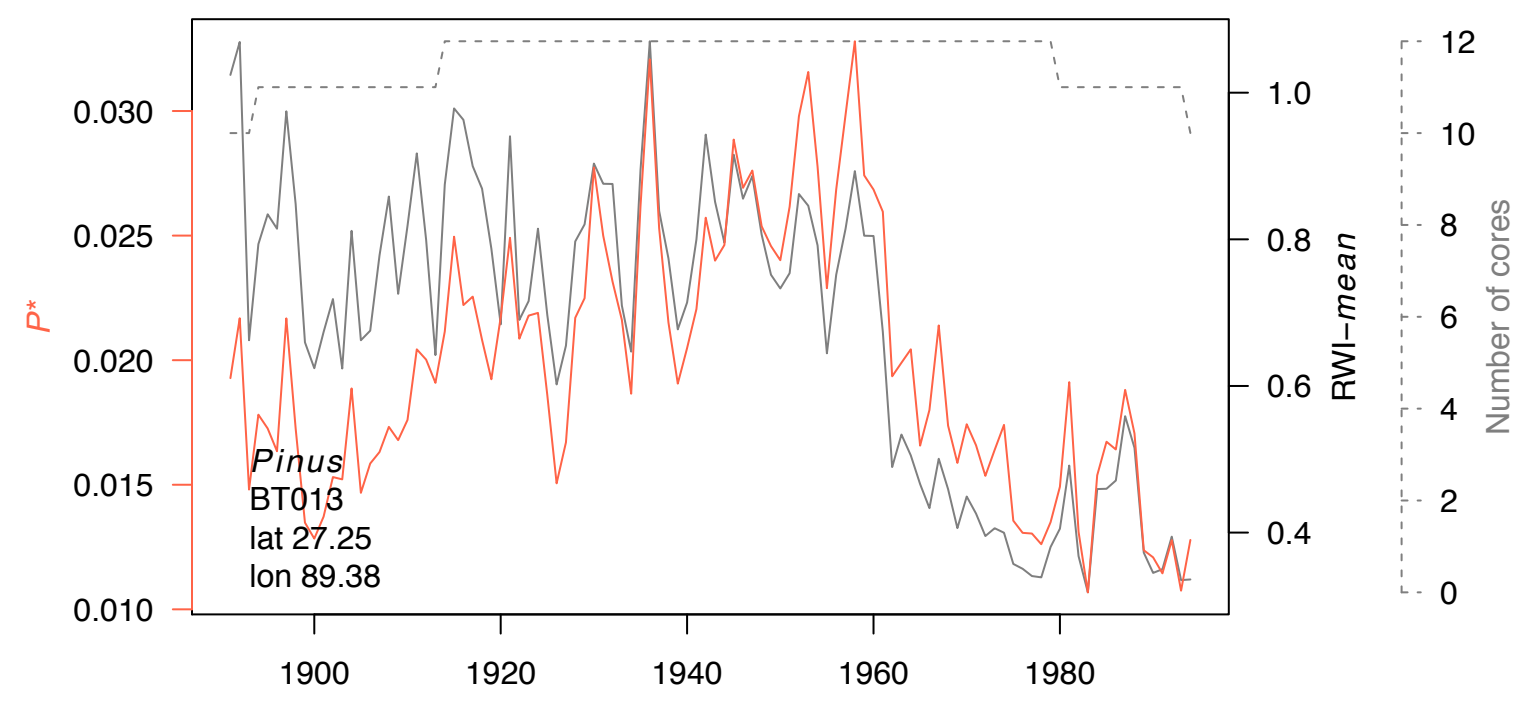

P*
0.008
0.006
0.004
0.002
0.000
Pinus
PAKI028
lat 35.4
lon 74.12
1800
1850
1900
1950
2000
RWI–mean
1.5
1.0
0.5
0.0
Number of cores
25
20
15
10
5
0

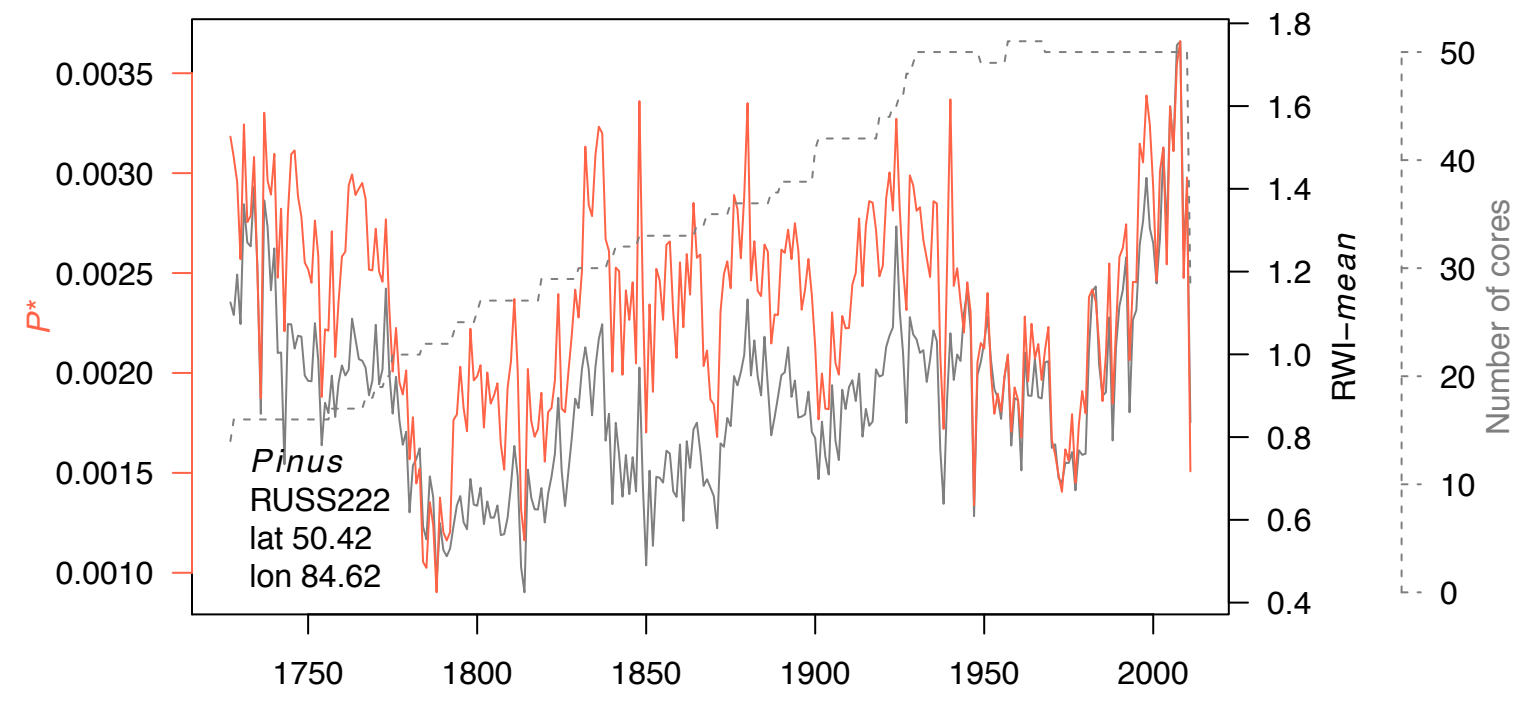

P*
0.0035
0.0030
0.0025
0.0020
0.0015
0.0010
0.0005
Pinus
PAKI021
lat 35.68
lon 71.63
1750
1800
1850
1900
1950
2000
RWI–mean
1.4
1.2
1.0
0.8
0.6
0.4
0.2
Number of cores
15
10
5
0

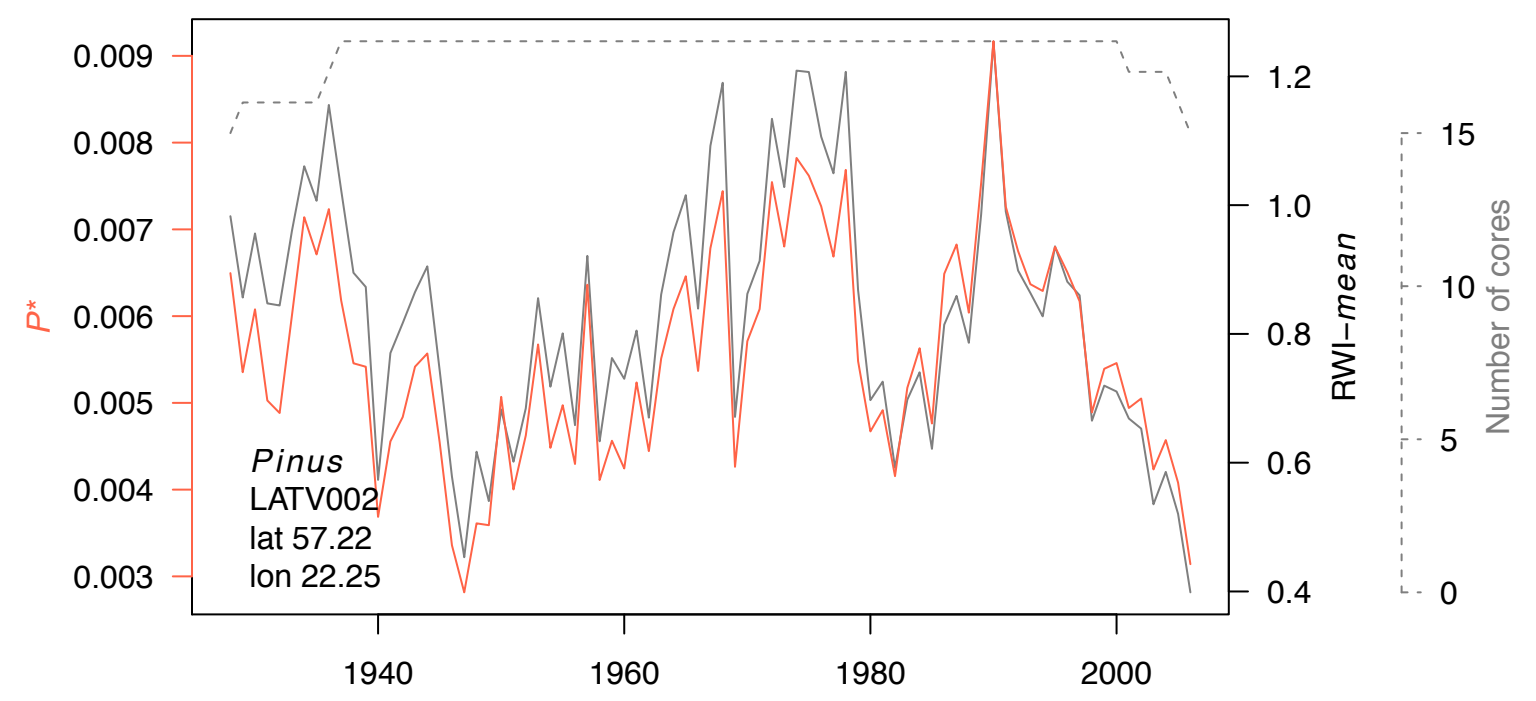

P*
0.015
0.010
0.005
Pinus
BT014
lat 27.18
lon 91.2
2.5
2.0
1.5
1.0
0.5
RWI–mean
40
30
20
10
0
Number of cores
1750
1800
1850
1900
1950
2000

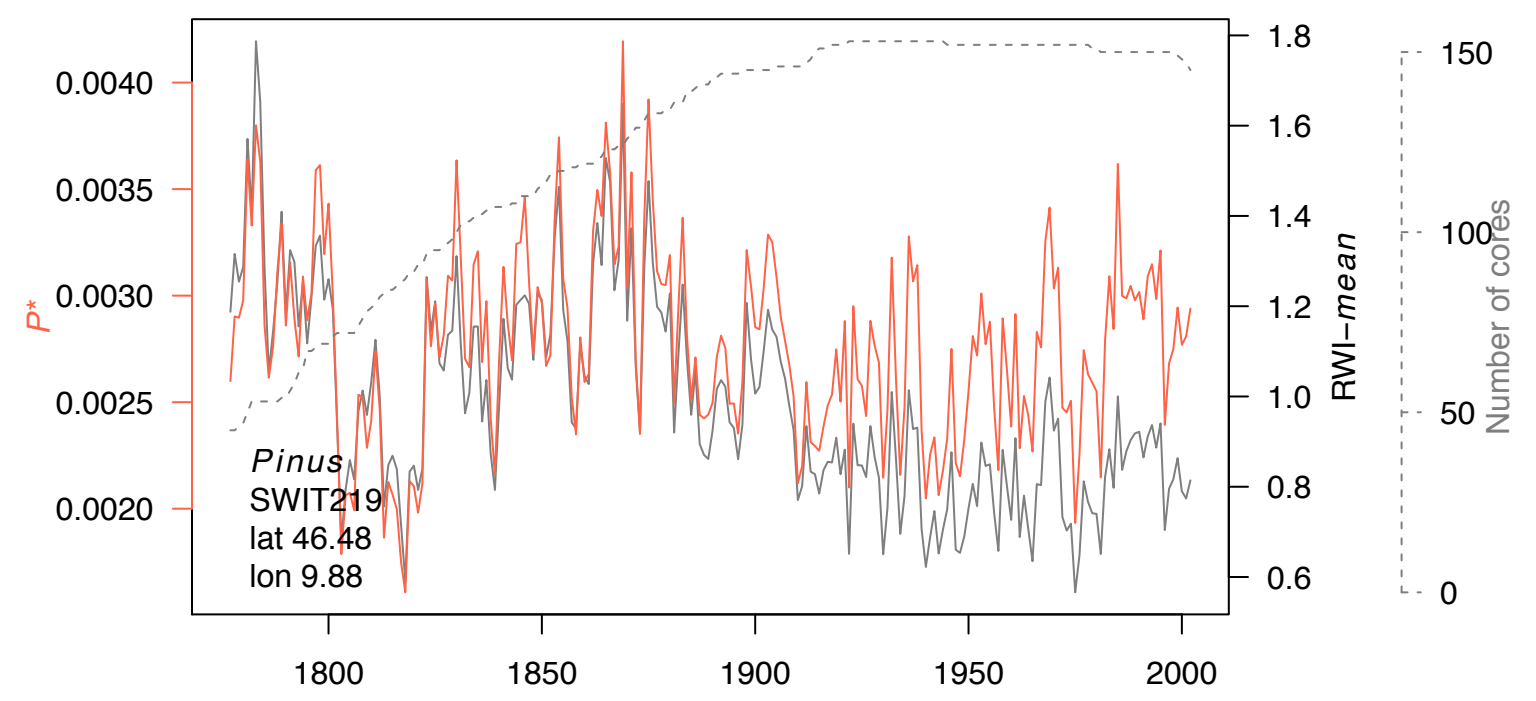

P*
0.010
0.008
0.006
0.004
0.002
Pinus
PAKI033
lat 35.5
lon 74.75
1880
1900
1920
1940
1960
1980
2000
1.5
1.0
0.5
0.0
RWI–mean
15
10
5
0
Number of cores

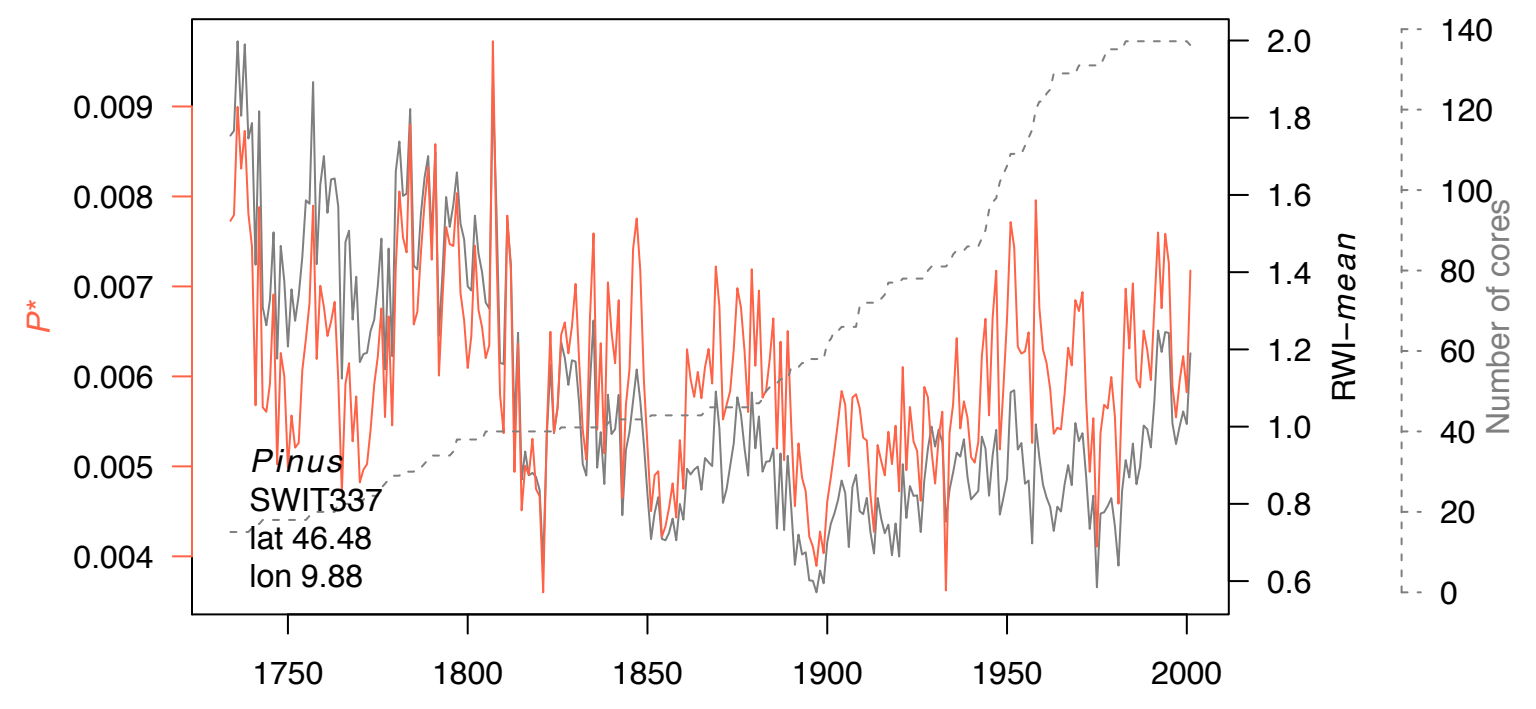

P*
0.015
0.010
0.005
RWI–mean
2.0
1.5
1.0
0.5
Number of cores
12
10
8
6
4
2
0
Pinus
PAKI034
lat 35.5
lon 74.75
1850
1900
1950
2000

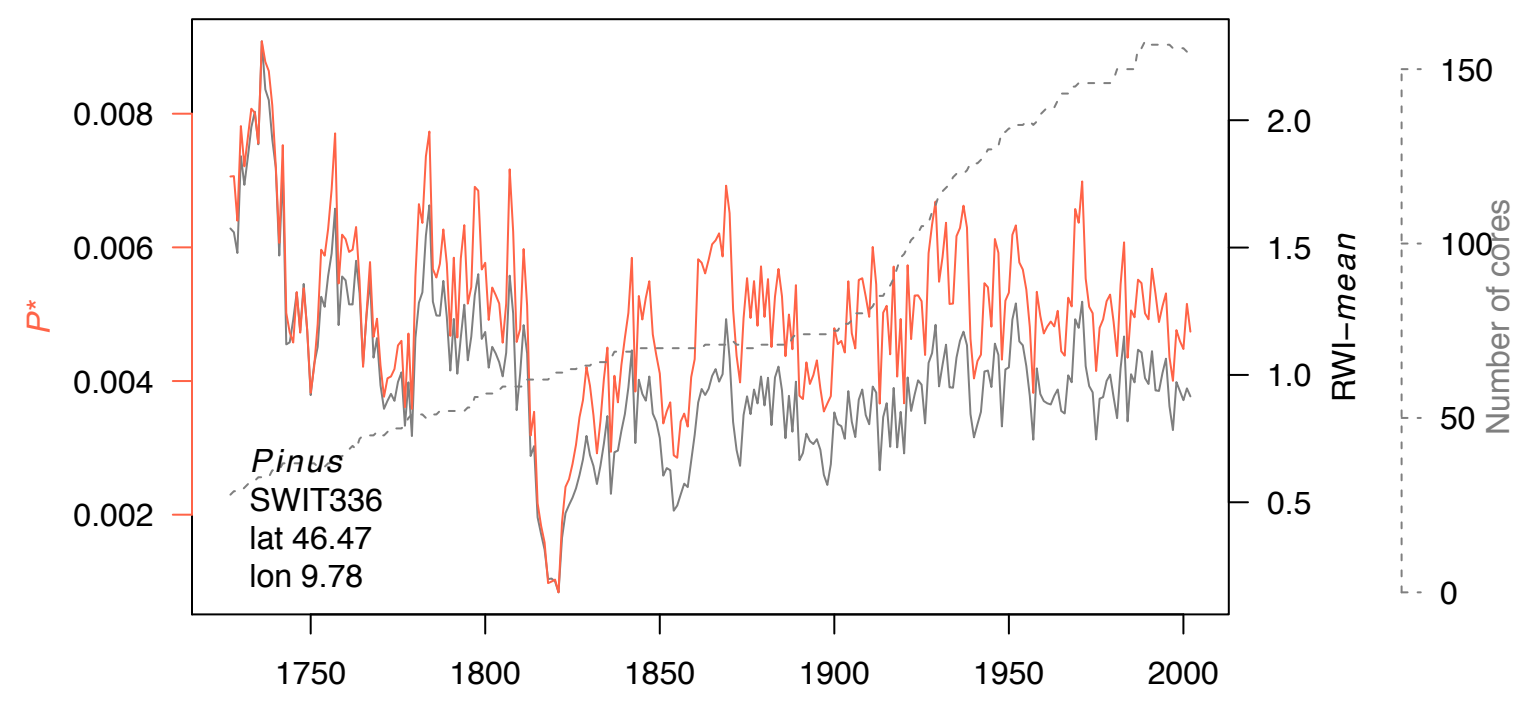

P*
0.030
0.025
0.020
0.015
0.010
1.0
0.8
0.6
0.4
RWI–mean
12
10
8
6
4
2
0
Number of cores
1900
1920
1940
1960
1980
Pinus
BT013
lat 27.25
lon 89.38

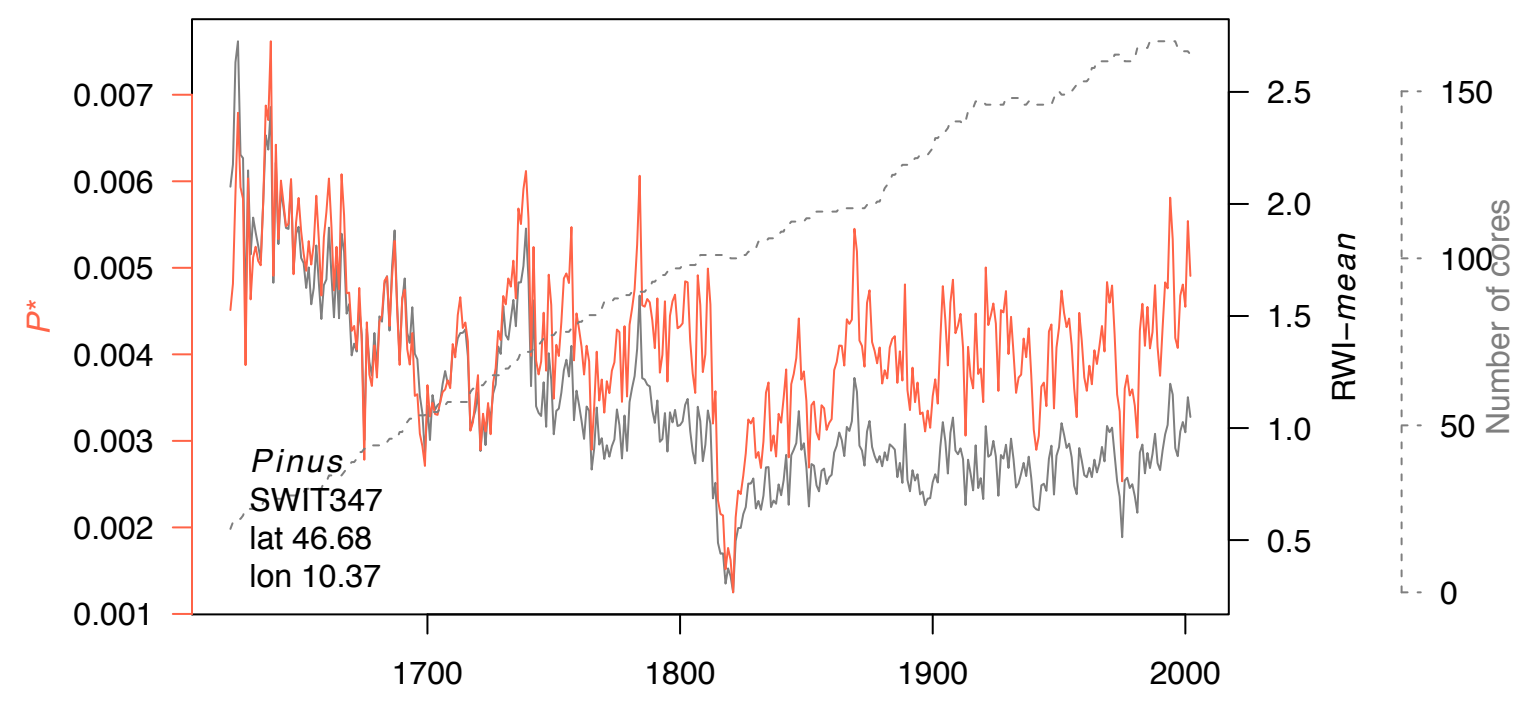

P*
0.0035
0.0030
0.0025
0.0020
0.0015
0.0010
RWI–mean
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
50
40
30
20
10
0
Pinus
RUSS222
lat 50.42
lon 84.62
1750
1800
1850
1900
1950
2000

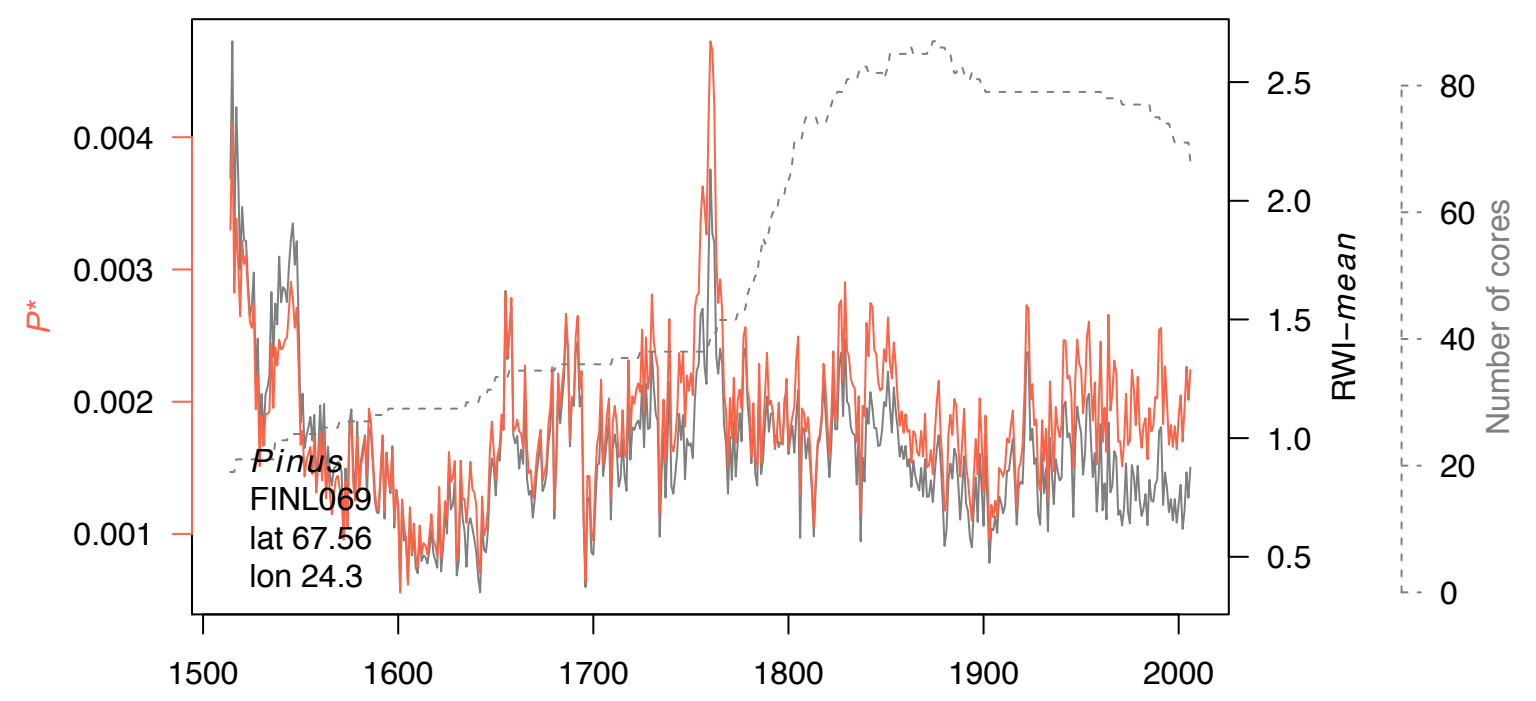

P*
0.009
0.008
0.007
0.006
0.005
0.004
0.003
Pinus
LATV002
lat 57.22
lon 22.25
1940
1960
1980
2000
RWI–mean
1.2
1.0
0.8
0.6
0.4
Number of cores
15
10
5
0

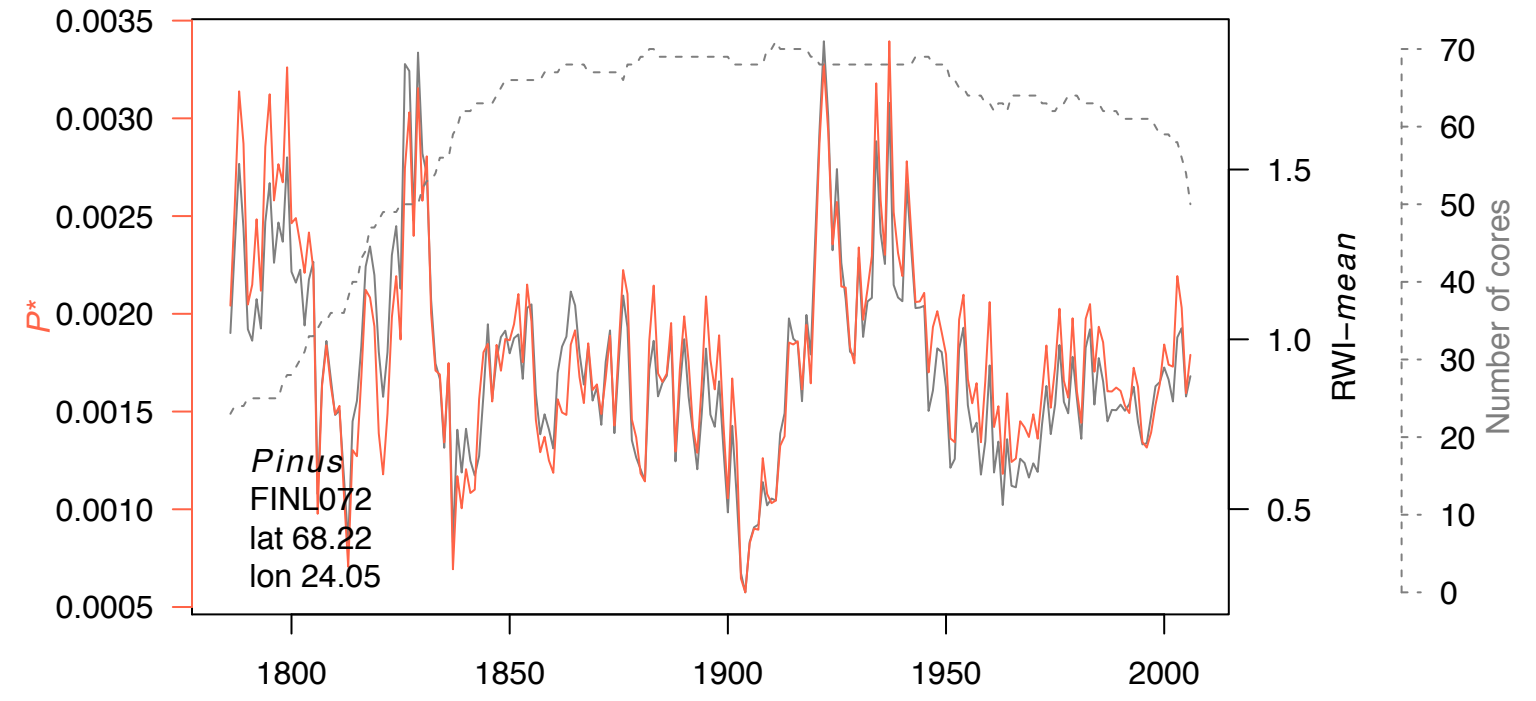

P*
0.0040
0.0035
0.0030
0.0025
0.0020
RWI–mean
1.8
1.6
1.4
1.2
1.0
0.8
0.6
Number of cores
150
100
50
0
Pinus
SWIT219
lat 46.48
lon 9.88
1800
1850
1900
1950
2000

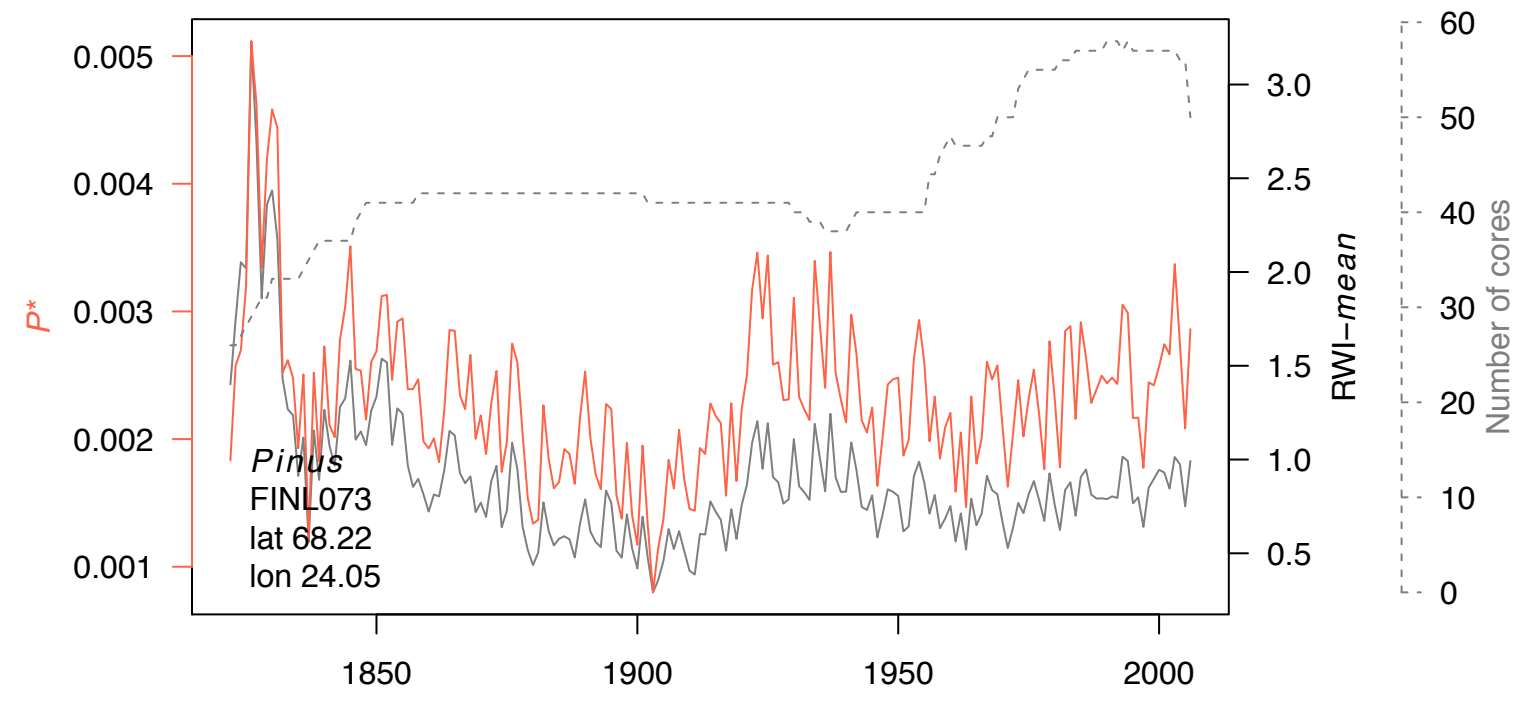

P*
0.009
0.008
0.007
0.006
0.005
0.004
Pinus
SWIT337
lat 46.48
lon 9.88
1750
1800
1850
1900
1950
2000
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
RWI–mean
140
120
100
80
60
40
20
0
Number of cores

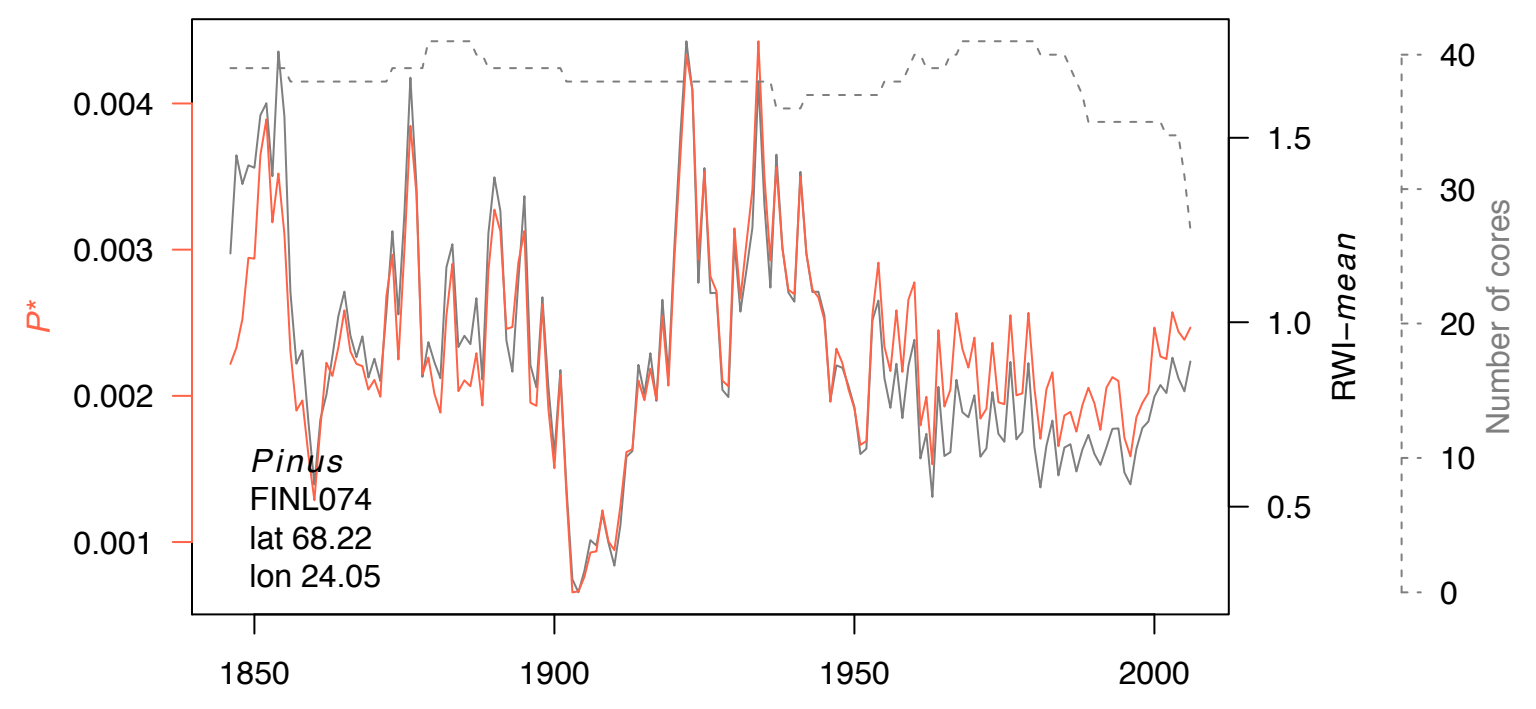

P*
0.008
0.006
0.004
0.002
RWI–mean
2.0
1.5
1.0
0.5
Number of cores
150
100
50
0
1750
1800
1850
1900
1950
2000
Pinus
SWIT336
lat 46.47
lon 9.78

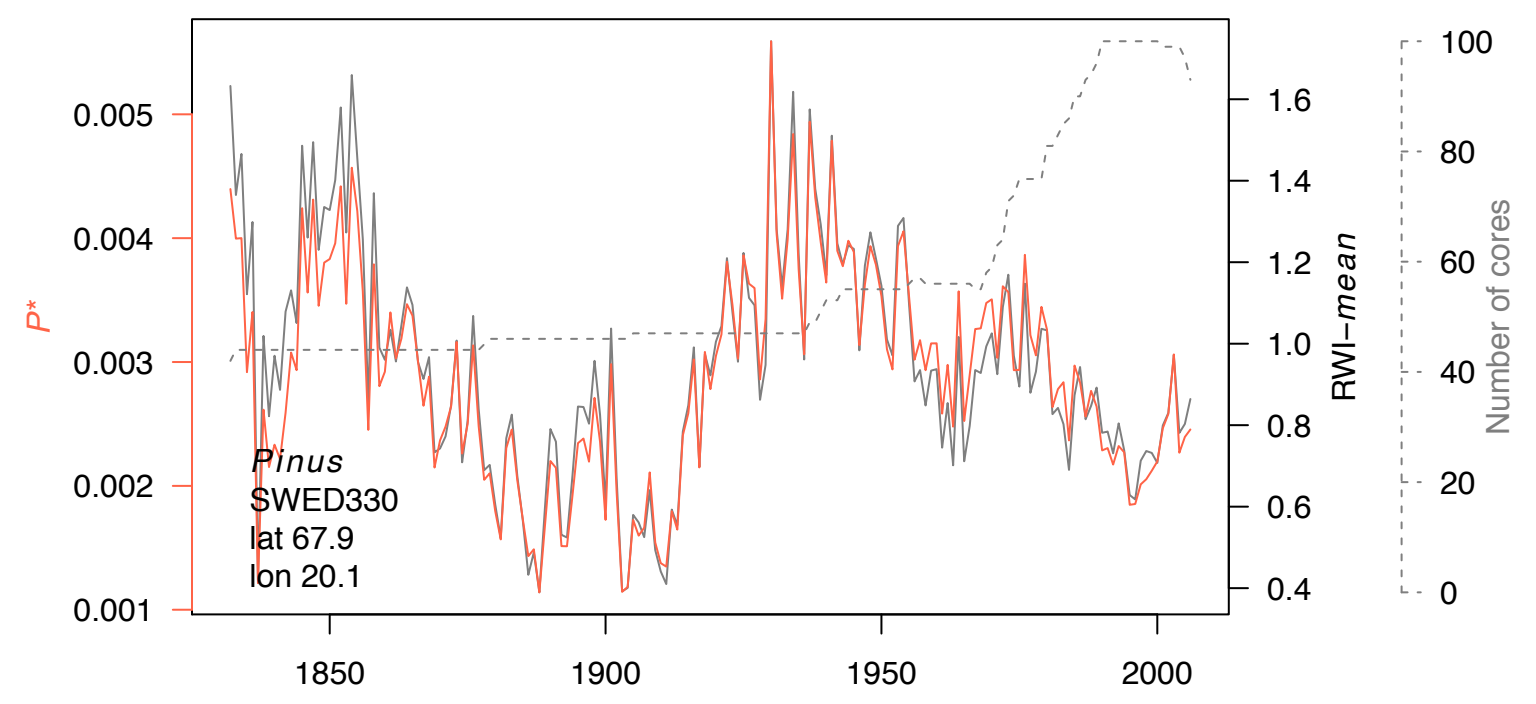

P*
0.007
0.006
0.005
0.004
0.003
0.002
0.001
Pinus
SWIT347
lat 46.68
lon 10.37
1700
1800
1900
2000
RWI–mean
2.5
2.0
1.5
1.0
0.5
Number of cores
150
100
50
0

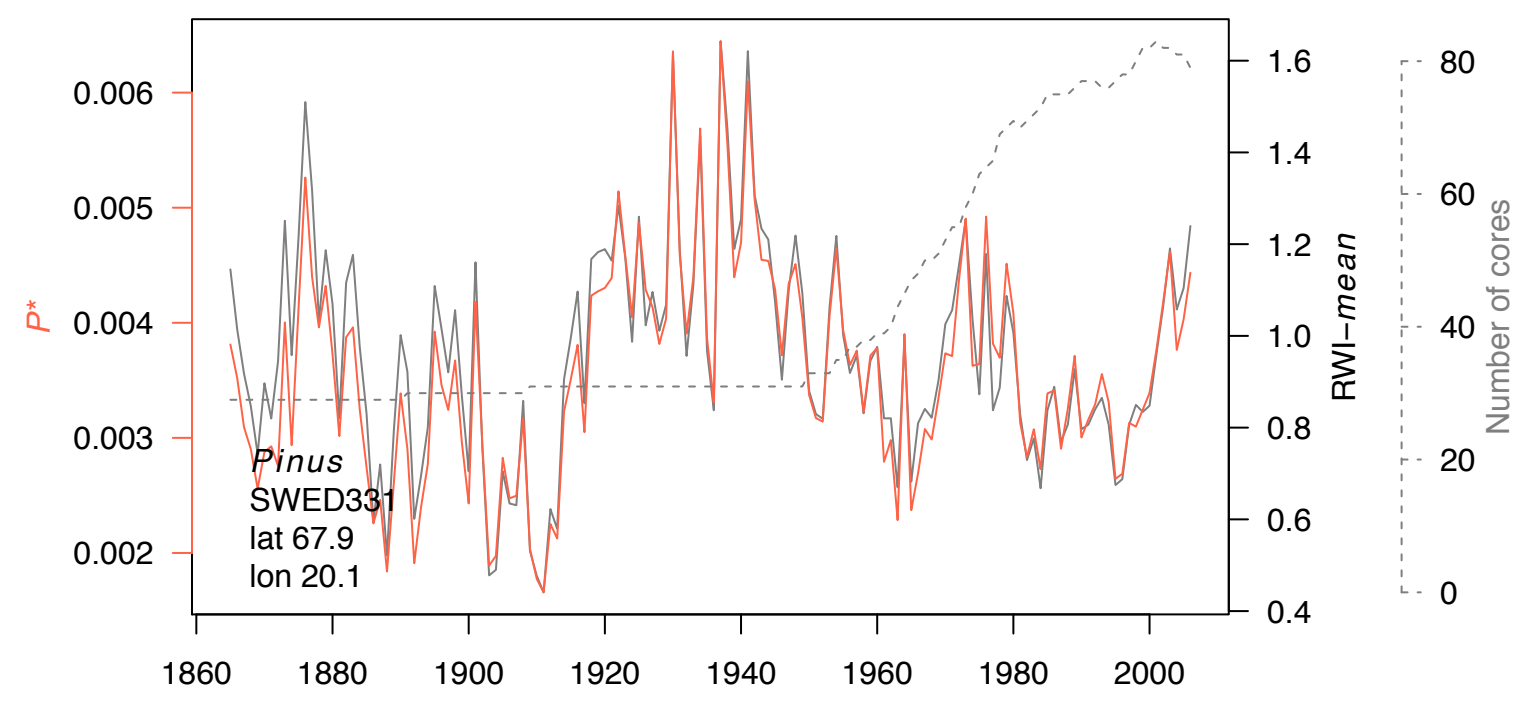

P*
0.004
0.003
0.002
0.001
Pinus
FINL069
lat 67.56
lon 24.3
2.5
2.0
1.5
1.0
0.5
RWI–mean
80
60
40
20
0
Number of cores
1500
1600
1700
1800
1900
2000

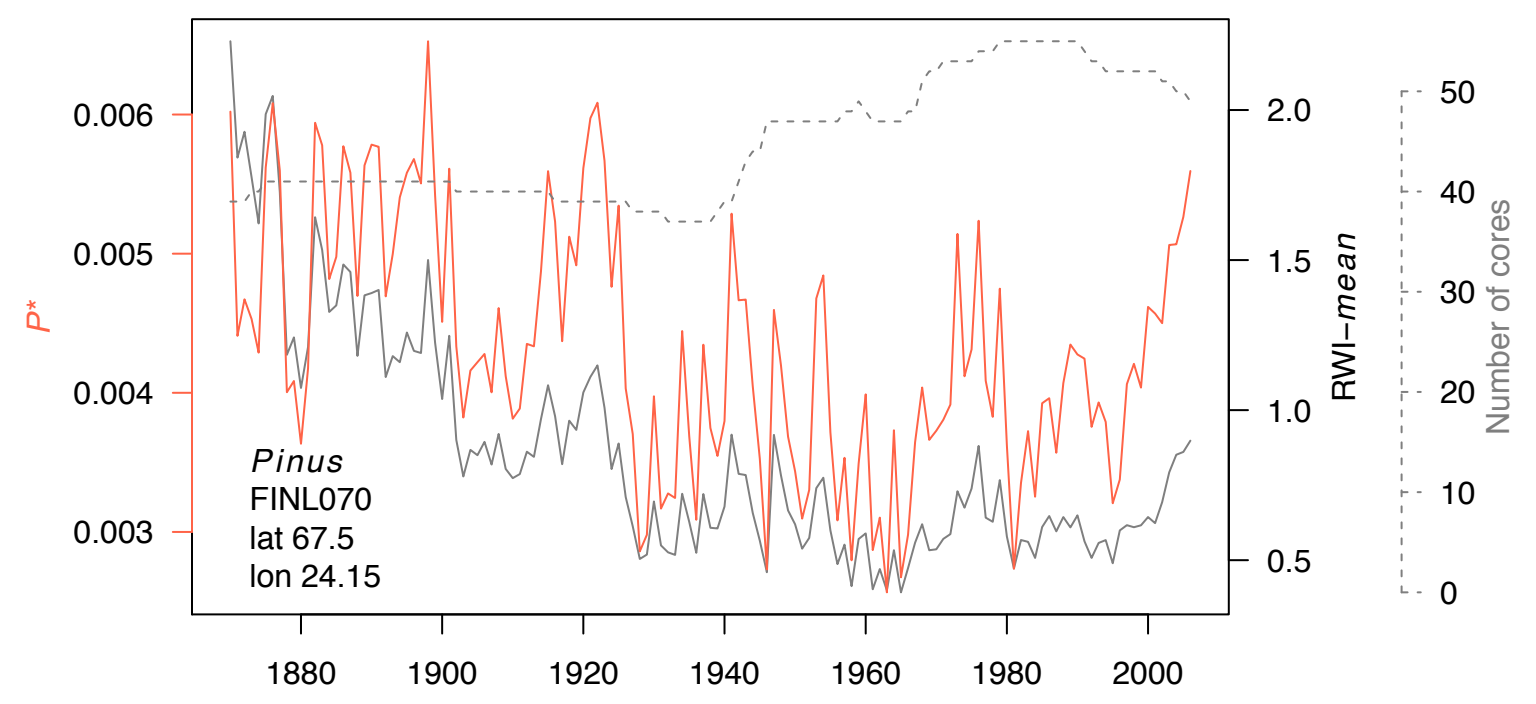

0.0035
0.0030
0.0025
0.0020
0.0015
0.0010
0.0005
P*
1800
1850
1900
1950
2000
1.5
1.0
0.5
RWI–mean
70
60
50
40
30
20
10
0
Number of cores
Pinus
FINL072
lat 68.22
lon 24.05

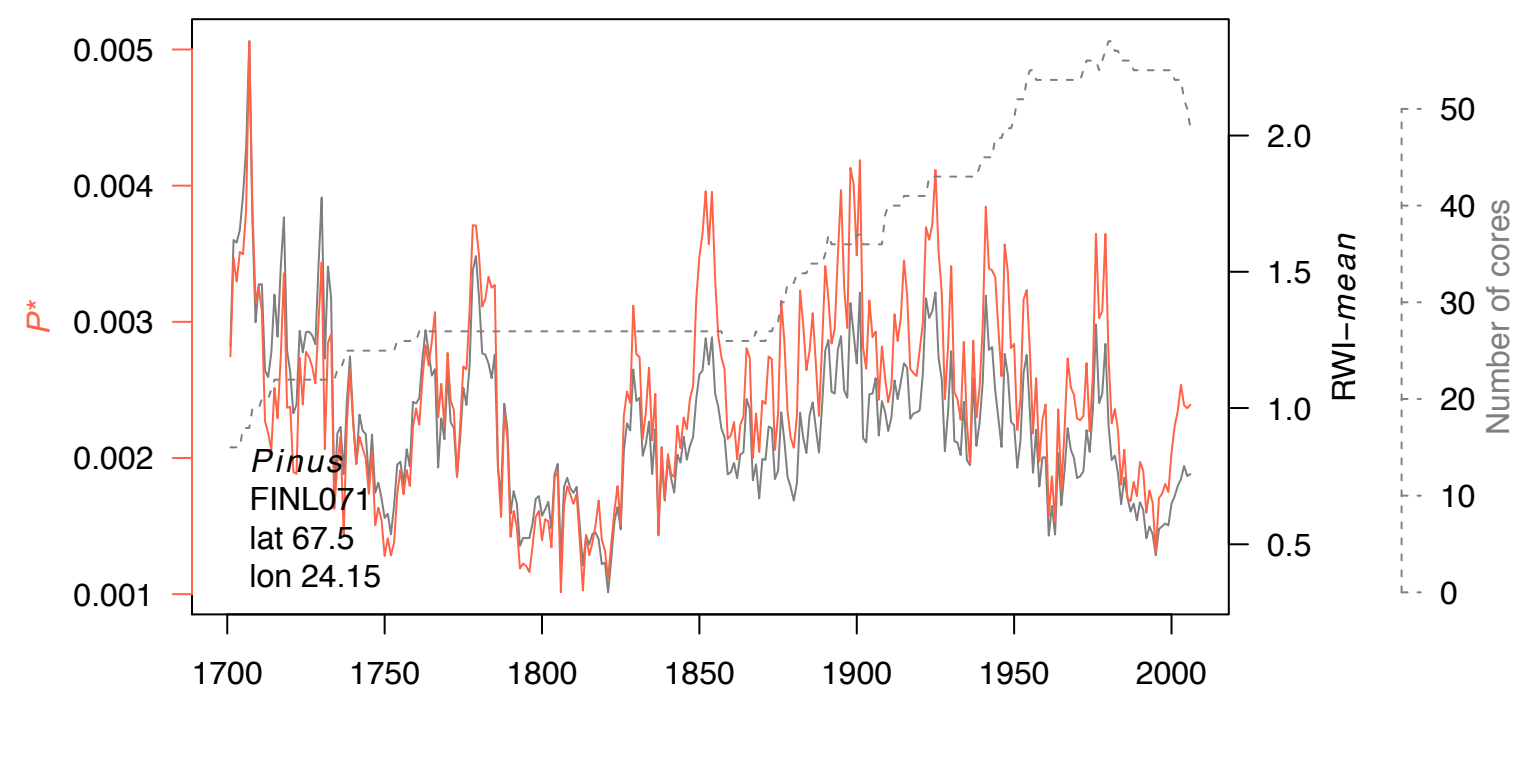

P*
0.005
0.004
0.003
0.002
0.001
RWI–mean
3.0
2.5
2.0
1.5
1.0
0.5
Number of cores
60
50
40
30
20
10
0
1850
1900
1950
2000
Pinus
FINL073
lat 68.22
lon 24.05

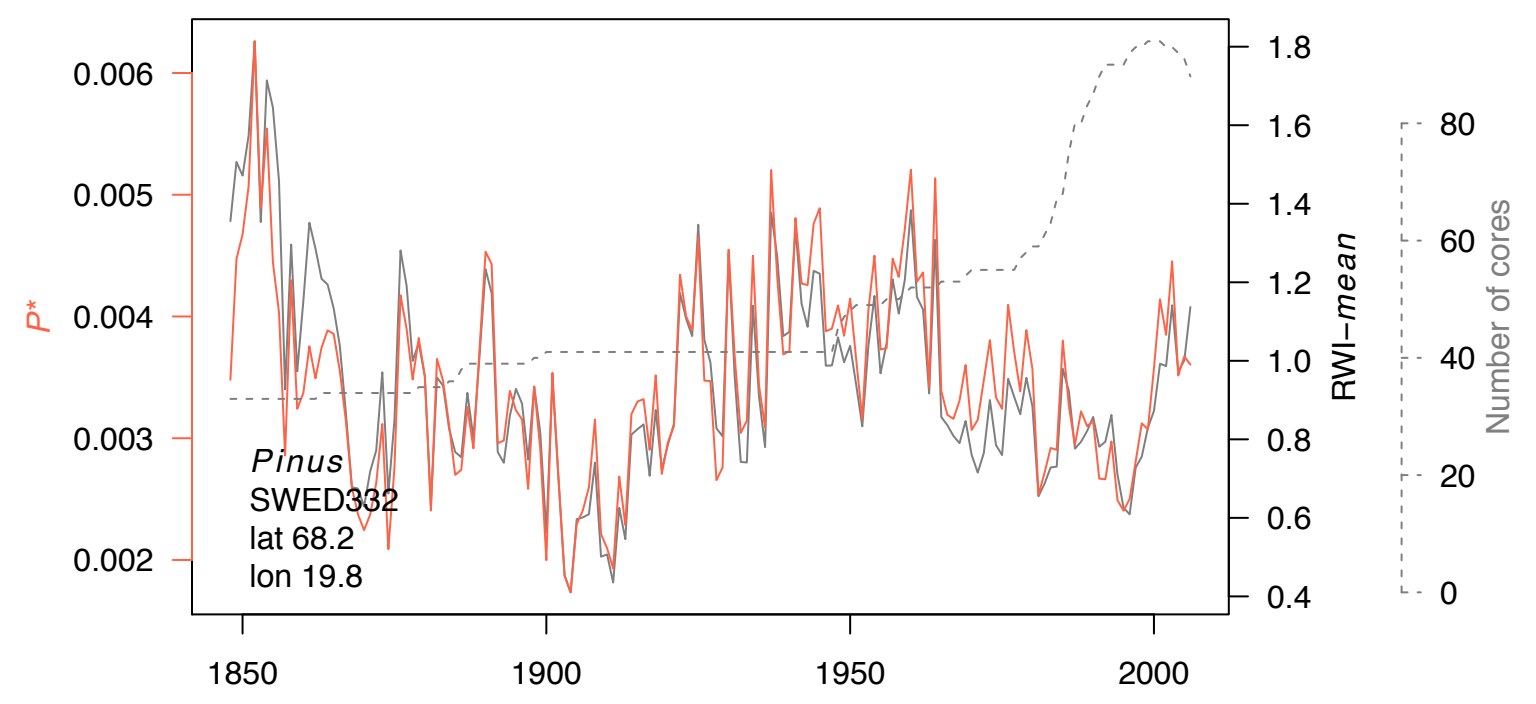

P*
0.004
0.003
0.002
0.001
Pinus
FINL074
lat 68.22
lon 24.05
1850
1900
1950
2000
RWI–mean
1.5
1.0
0.5
Number of cores
40
30
20
10
0

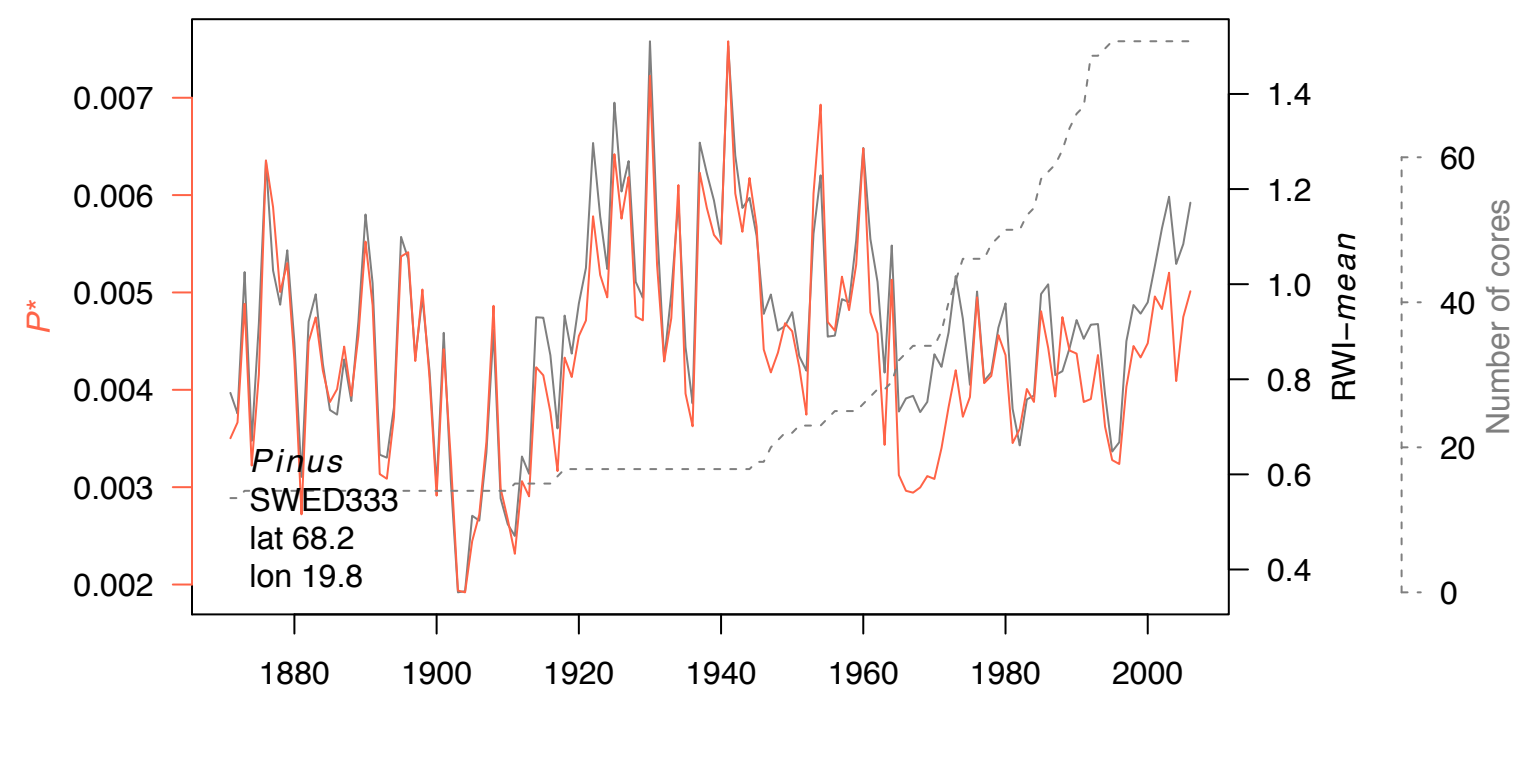

P*
0.005
0.004
0.003
0.002
0.001
Pinus
SWED330
lat 67.9
lon 20.1
1850
1900
1950
2000
RWI–mean
1.6
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
100
80
60
40
20
0

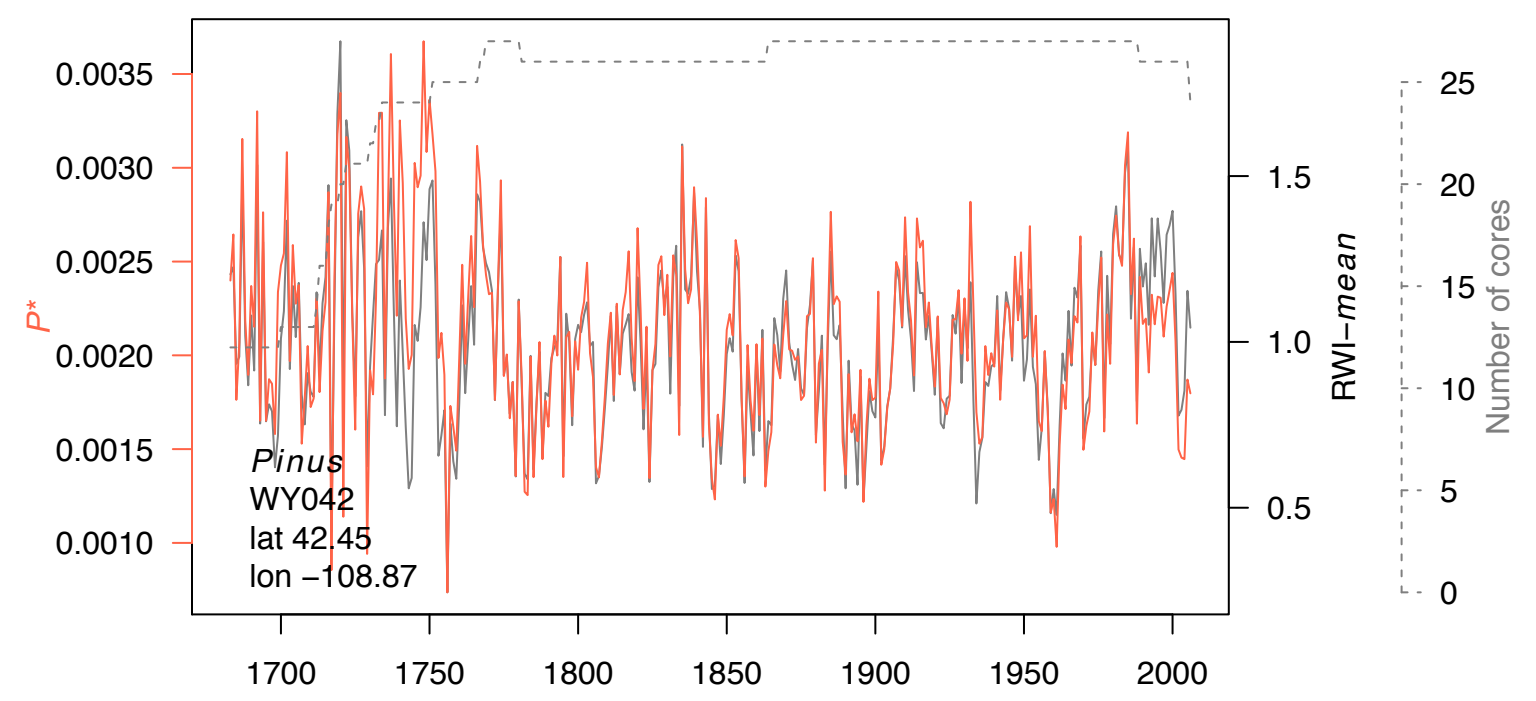

P*
0.006
0.005
0.004
0.003
0.002
Pinus
SWED331
lat 67.9
lon 20.1
1860
1880
1900
1920
1940
1960
1980
2000
1.6
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
80
60
40
20
0
Number of cores

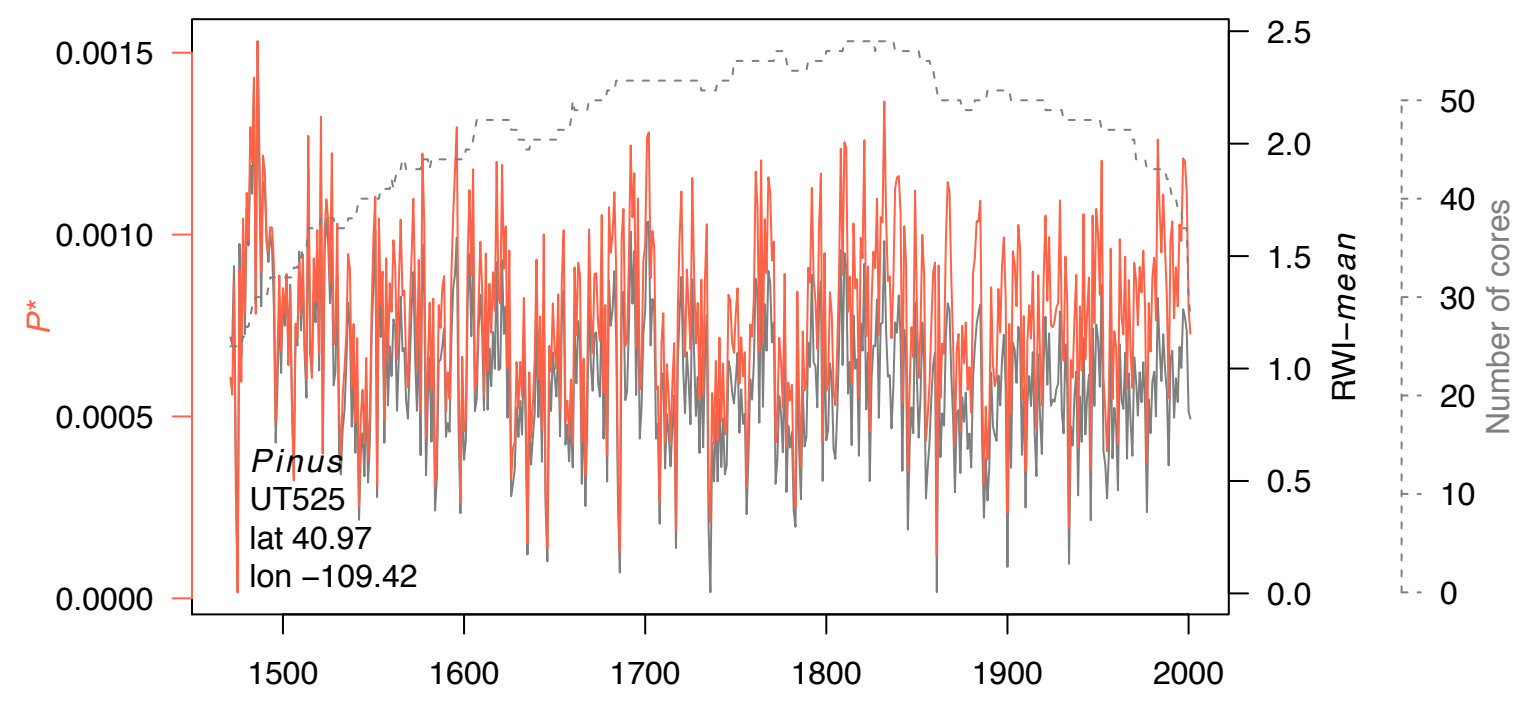

P*
0.006
0.005
0.004
0.003
Pinus
FINL070
lat 67.5
lon 24.15
1880
1900
1920
1940
1960
1980
2000
RWI–mean
2.0
1.5
1.0
0.5
Number of cores
50
40
30
20
10
0

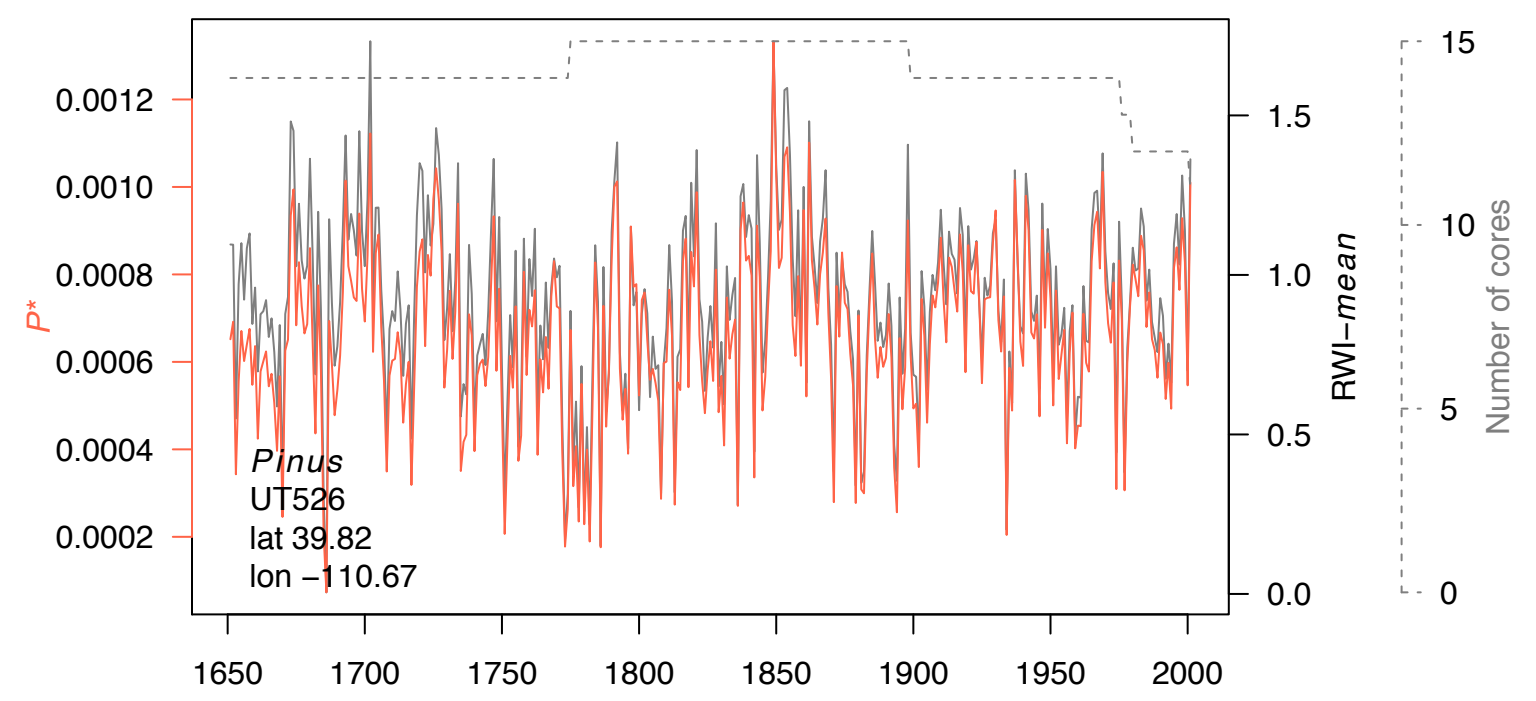

P*
0.005
0.004
0.003
0.002
0.001
RWI–mean
2.0
1.5
1.0
0.5
Number of cores
50
40
30
20
10
0
Pinus
FINL071
lat 67.5
lon 24.15
1700
1750
1800
1850
1900
1950
2000

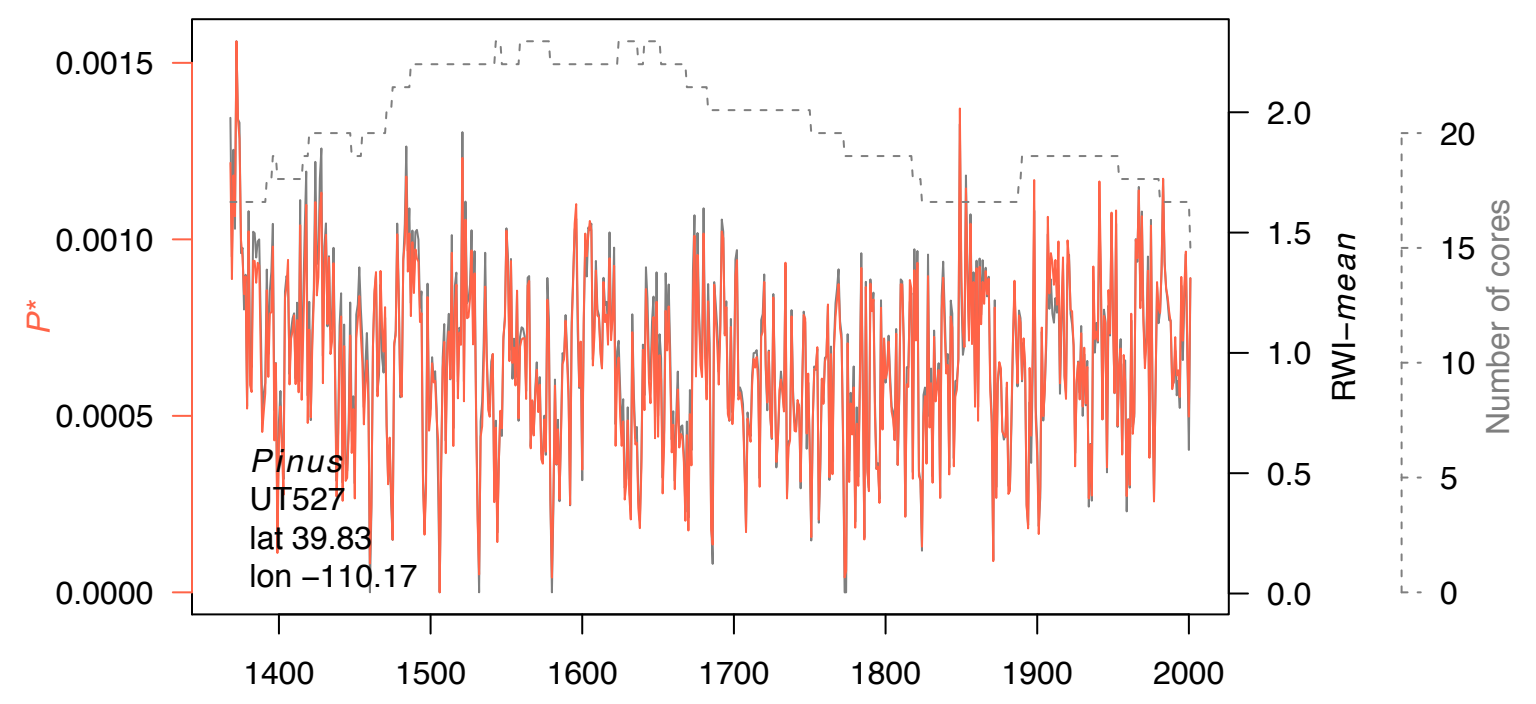

P*
0.006
0.005
0.004
0.003
0.002
Pinus
SWED332
lat 68.2
lon 19.8
1850
1900
1950
2000
RWI–mean
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
80
60
40
20
0

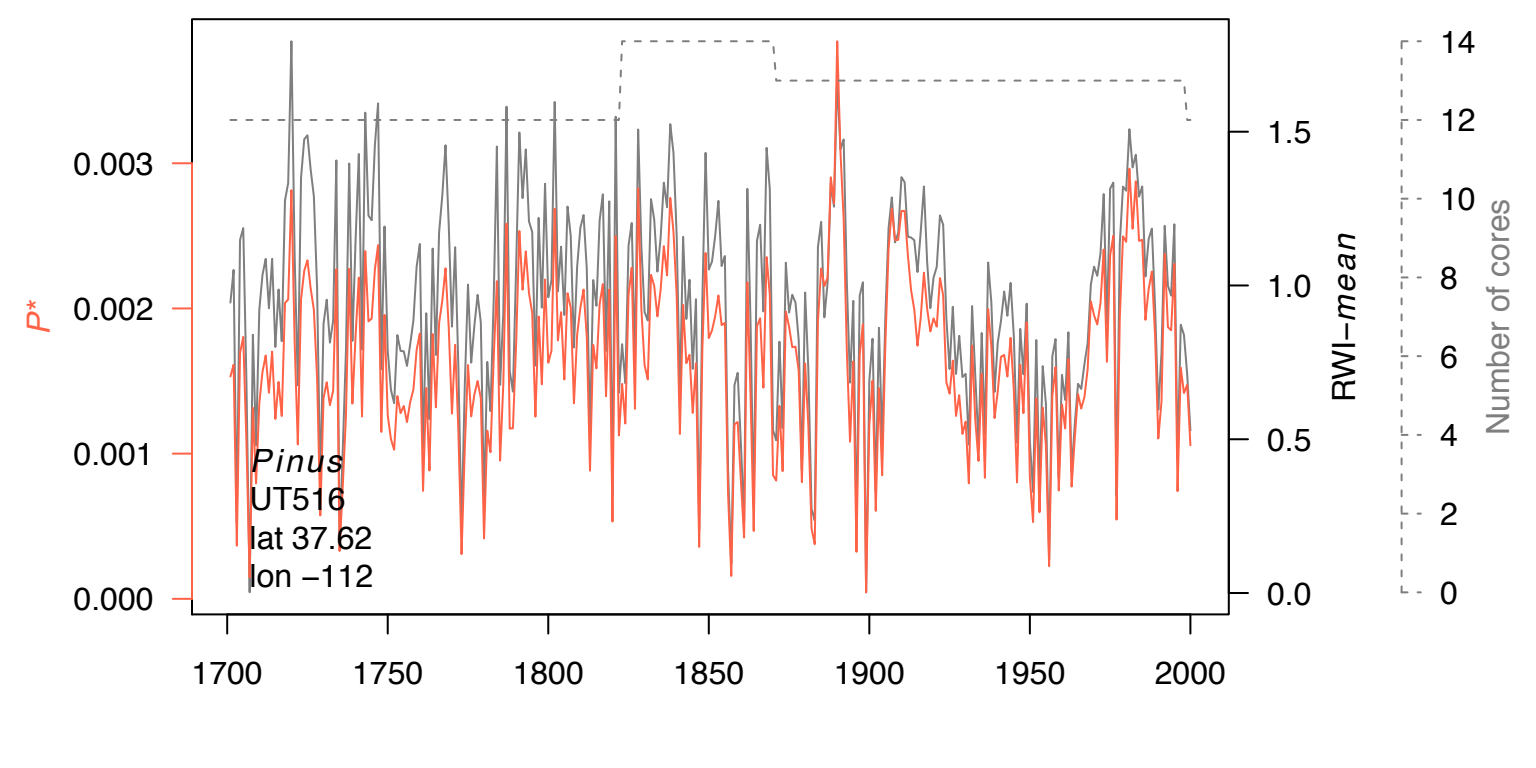

P*
0.007
0.006
0.005
0.004
0.003
0.002
Pinus
SWED333
lat 68.2
lon 19.8
1880
1900
1920
1940
1960
1980
2000
RWI–mean
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
60
40
20
0

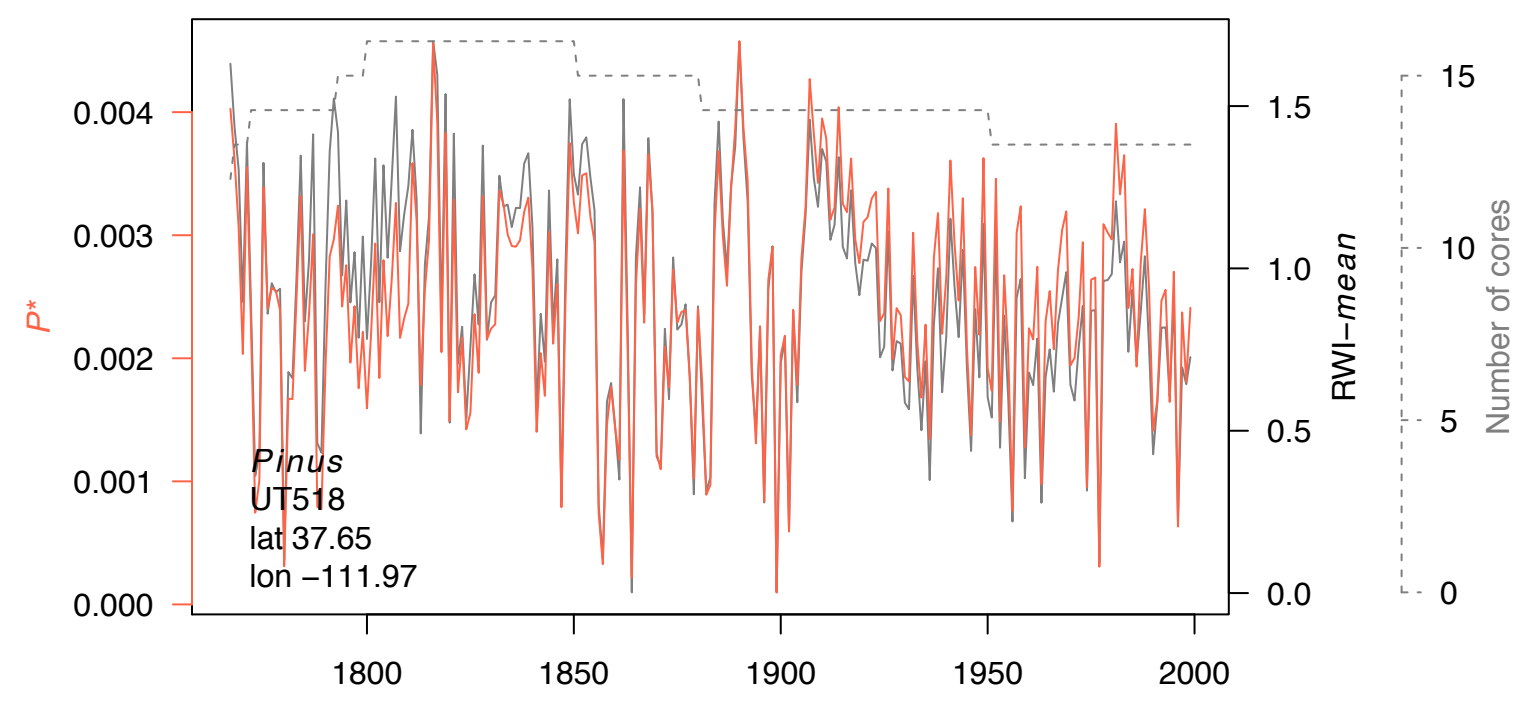

P*
0.0035
0.0030
0.0025
0.0020
0.0015
0.0010
RWI–mean
1.5
1.0
0.5
Number of cores
25
20
15
10
5
0
Pinus
WY042
lat 42.45
lon −108.87
1700
1750
1800
1850
1900
1950
2000

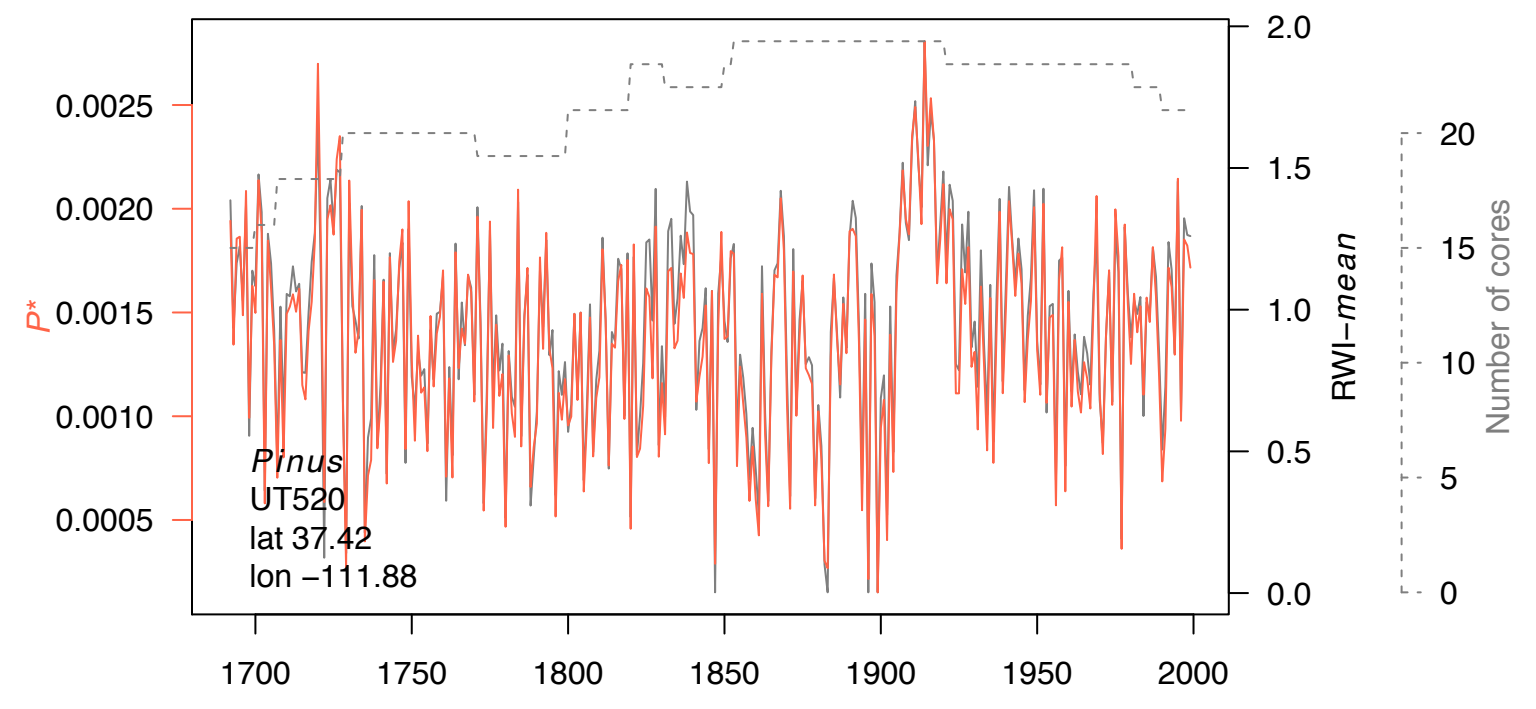

P*
0.0015
0.0010
0.0005
0.0000
RWI–mean
2.5
2.0
1.5
1.0
0.5
0.0
Number of cores
50
40
30
20
10
0
1500
1600
1700
1800
1900
2000
Pinus
UT525
lat 40.97
lon –109.42

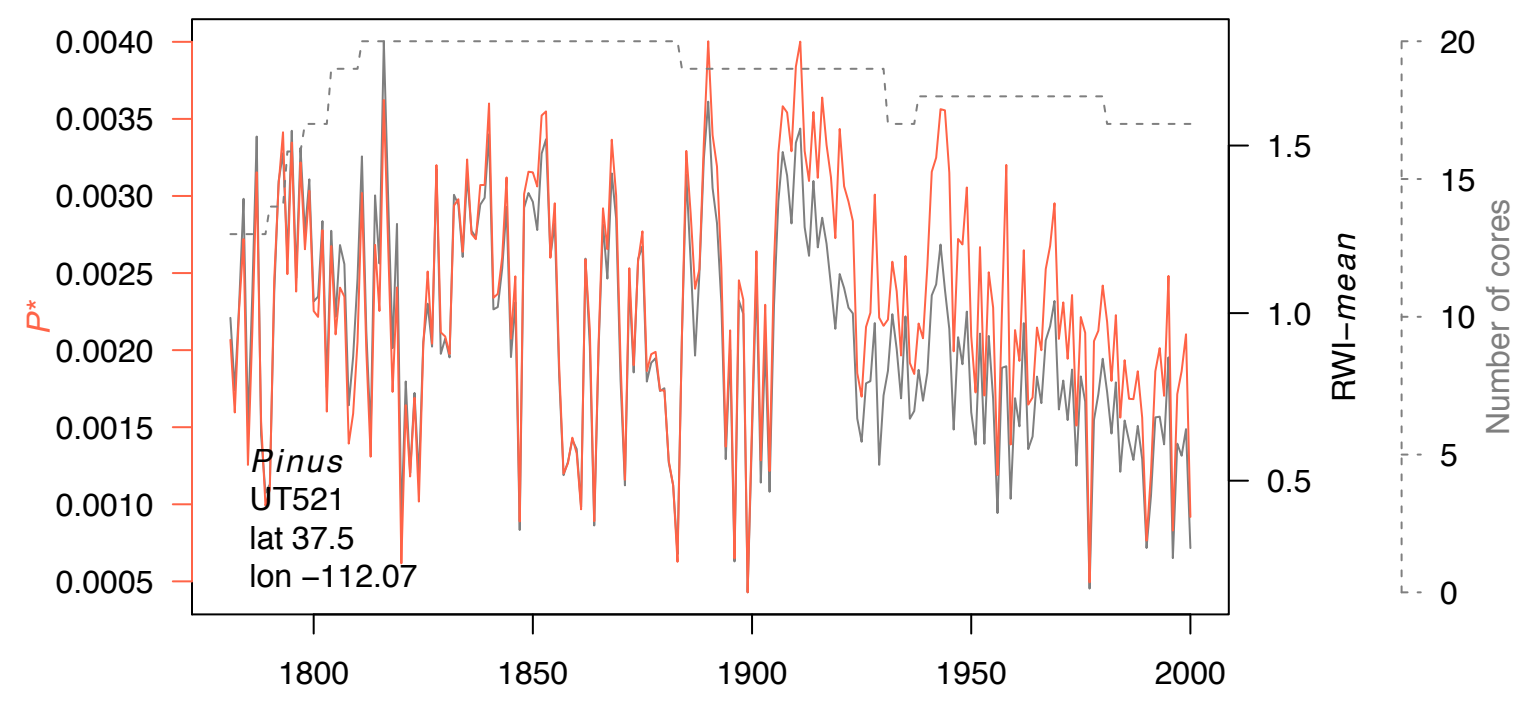

P*
0.0012
0.0010
0.0008
0.0006
0.0004
0.0002
Pinus
UT526
lat 39.82
lon −110.67
1650
1700
1750
1800
1850
1900
1950
2000
RWI–mean
1.5
1.0
0.5
0.0
Number of cores
15
10
5
0

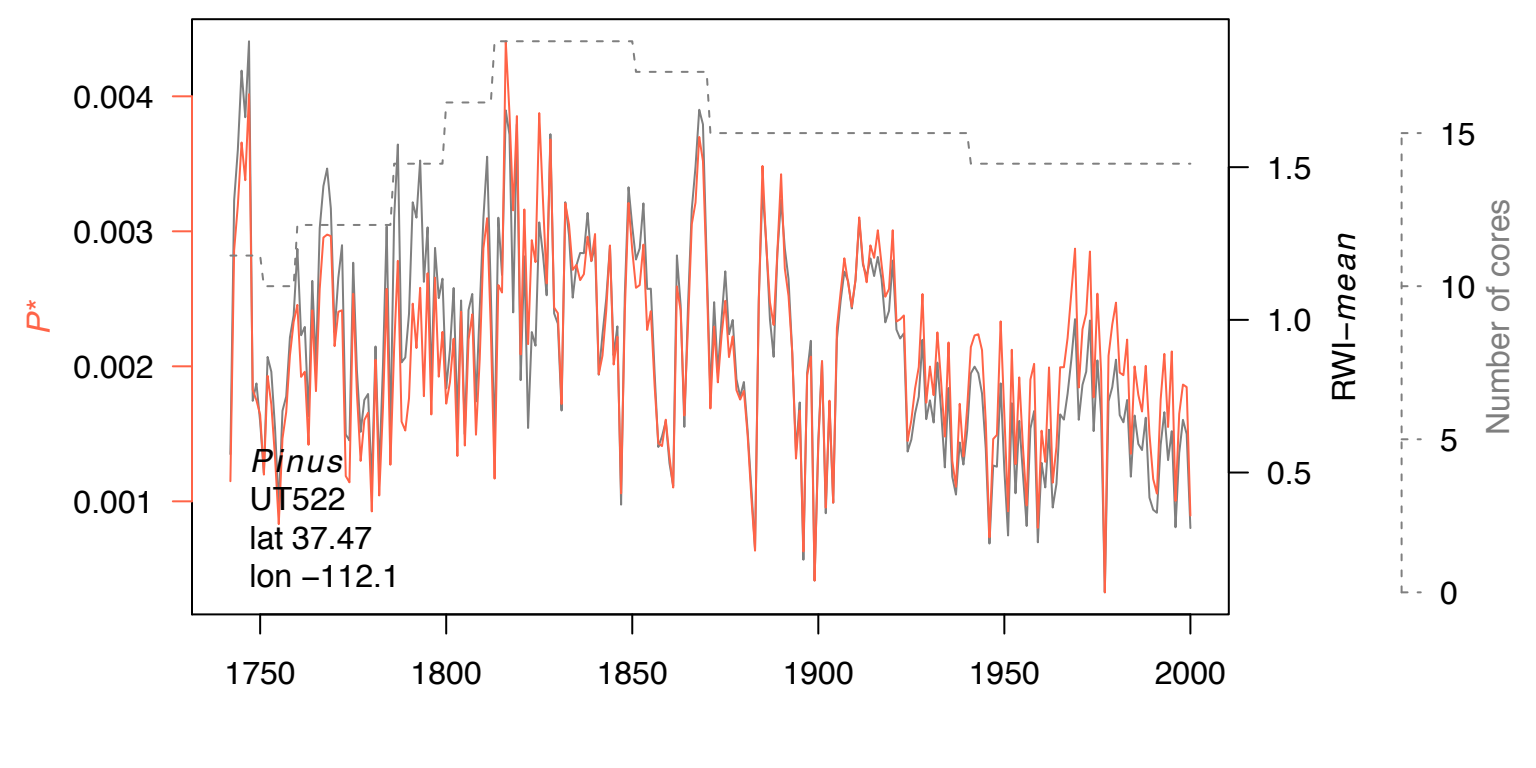

P*
0.0015
0.0010
0.0005
0.0000
Pinus
UT527
lat 39.83
lon −110.17
2.0
1.5
1.0
0.5
0.0
RWI–mean
20
15
10
5
0
Number of cores
1400
1500
1600
1700
1800
1900
2000

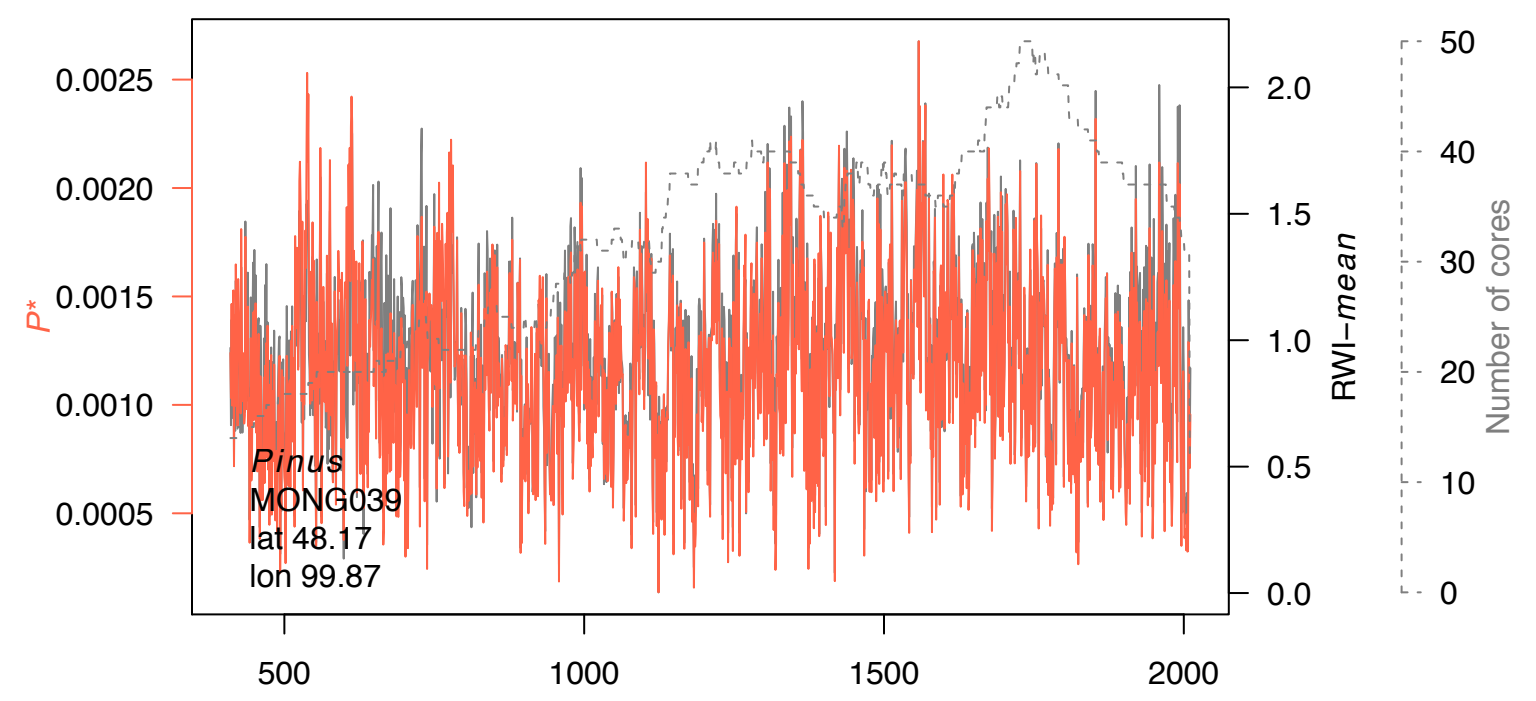

P*
0.003
0.002
0.001
0.000
Pinus
UT516
lat 37.62
lon −112
1700
1750
1800
1850
1900
1950
2000
1.5
1.0
0.5
0.0
RWI–mean
14
12
10
8
6
4
2
0
Number of cores

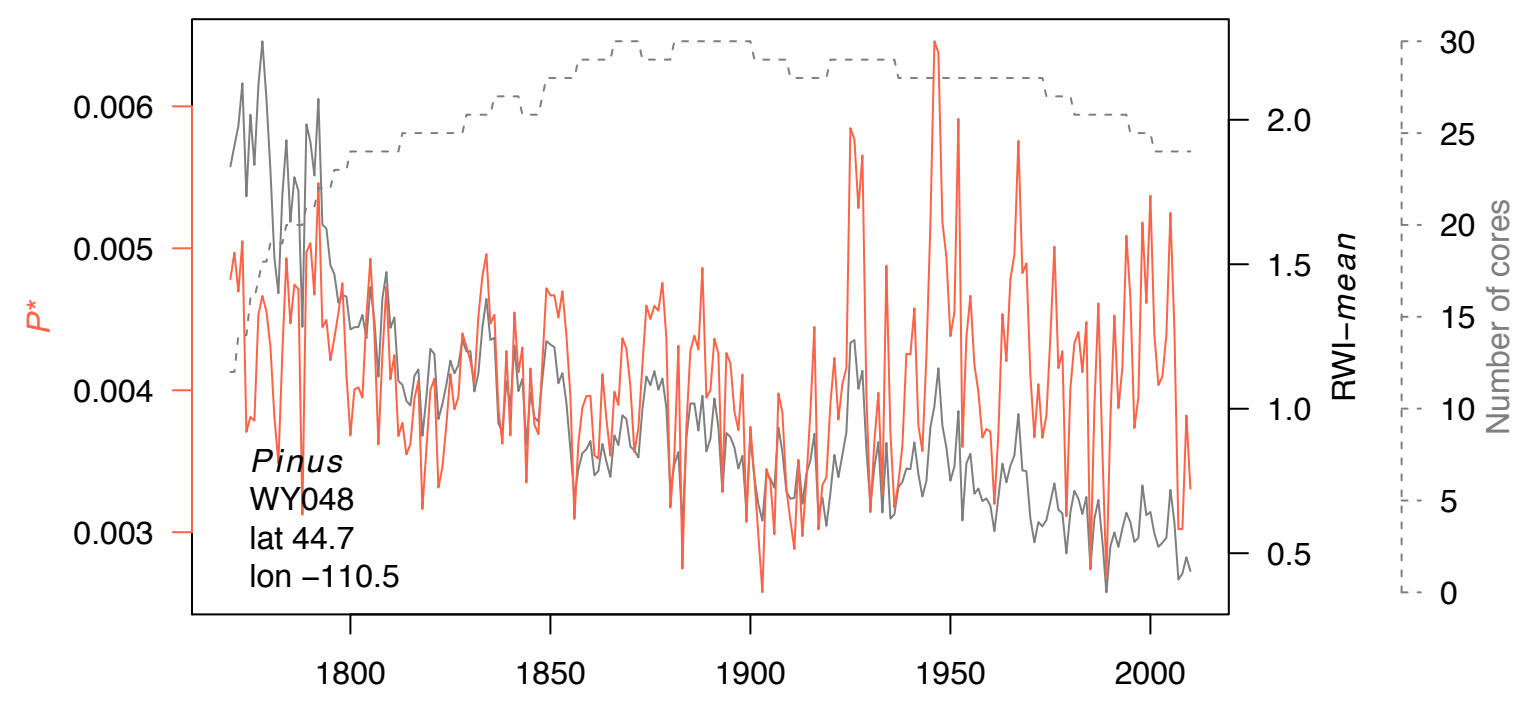

P*
0.004
0.003
0.002
0.001
0.000
Pinus
UT518
lat 37.65
lon −111.97
1800
1850
1900
1950
2000
1.5
1.0
0.5
0.0
RWI–mean
15
10
5
0
Number of cores

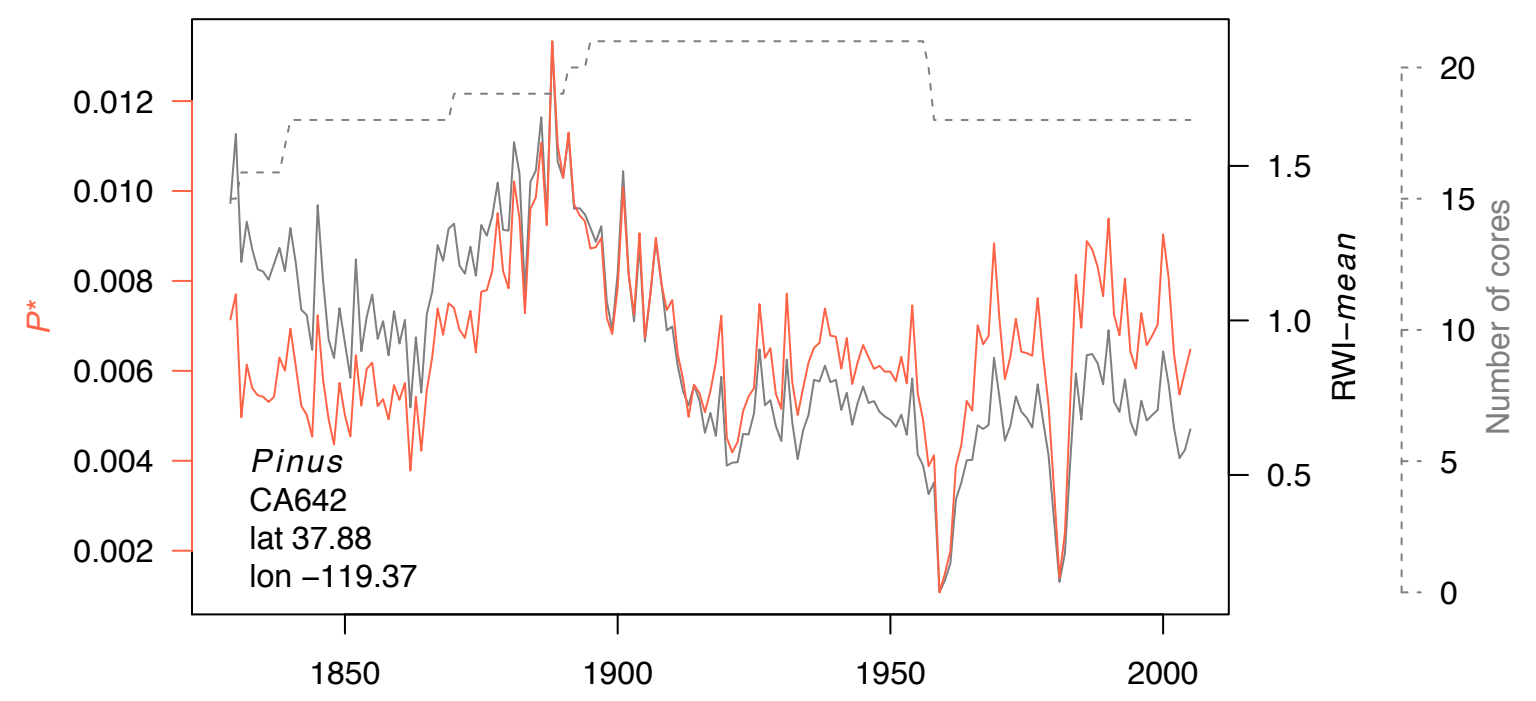

P*
0.0025
0.0020
0.0015
0.0010
0.0005
Pinus
UT520
lat 37.42
lon −111.88
2.0
1.5
1.0
0.5
0.0
RWI–mean
20
15
10
5
0
Number of cores
1700
1750
1800
1850
1900
1950
2000

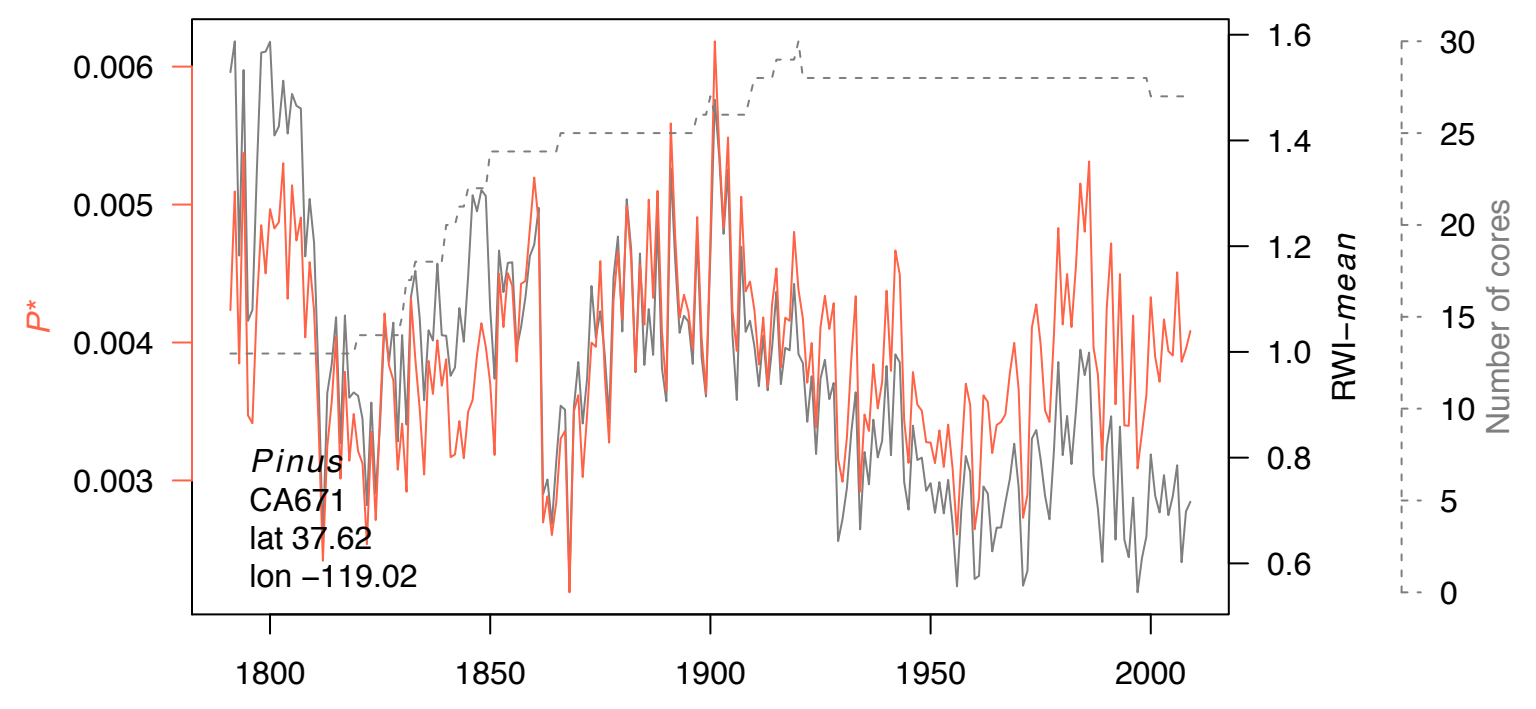

P*
0.0040
0.0035
0.0030
0.0025
0.0020
0.0015
0.0010
0.0005
Pinus
UT521
lat 37.5
lon −112.07
1800
1850
1900
1950
2000
RWI–mean
1.5
1.0
0.5
Number of cores
20
15
10
5
0

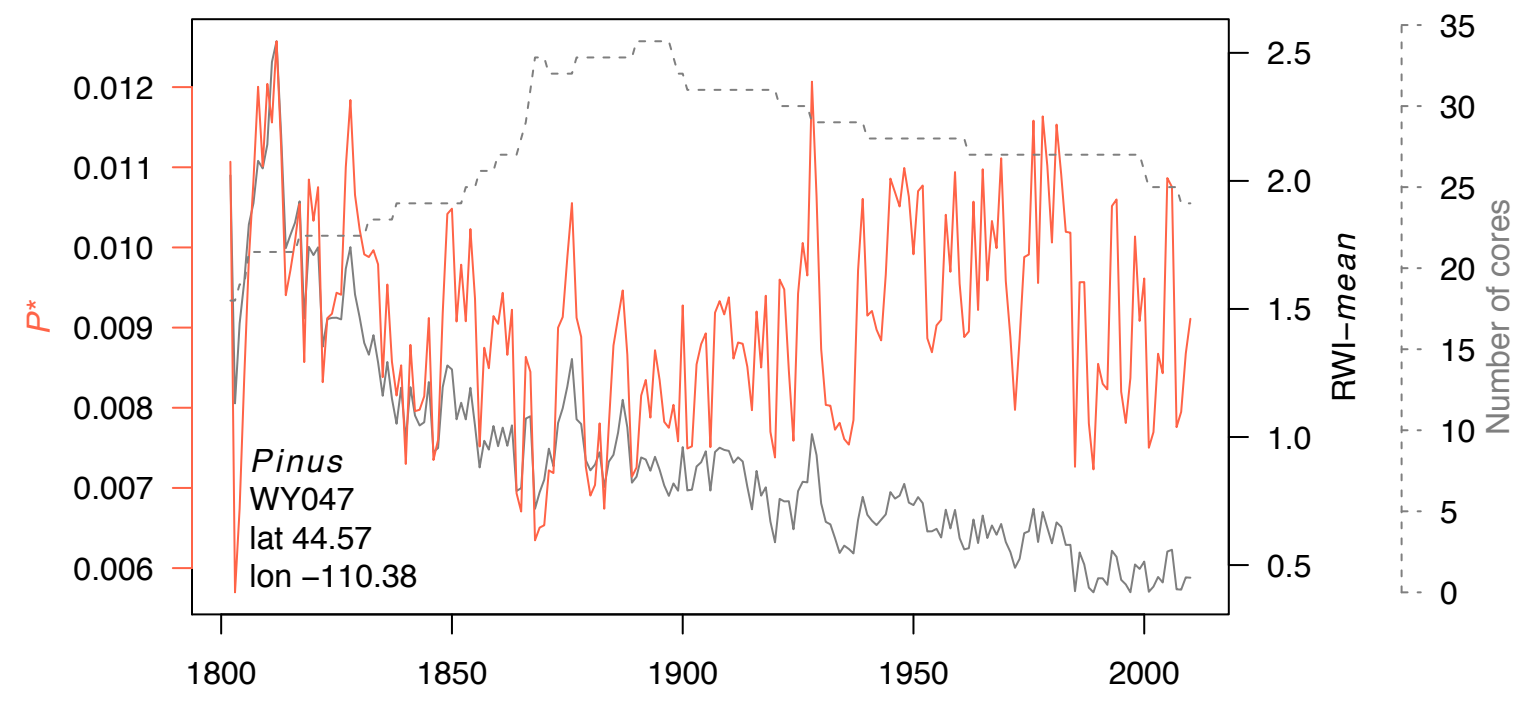

P*
0.004
0.003
0.002
0.001
Pinus
UT522
lat 37.47
lon −112.1
1750
1800
1850
1900
1950
2000
1.5
1.0
0.5
RWI–mean
15
10
5
0
Number of cores

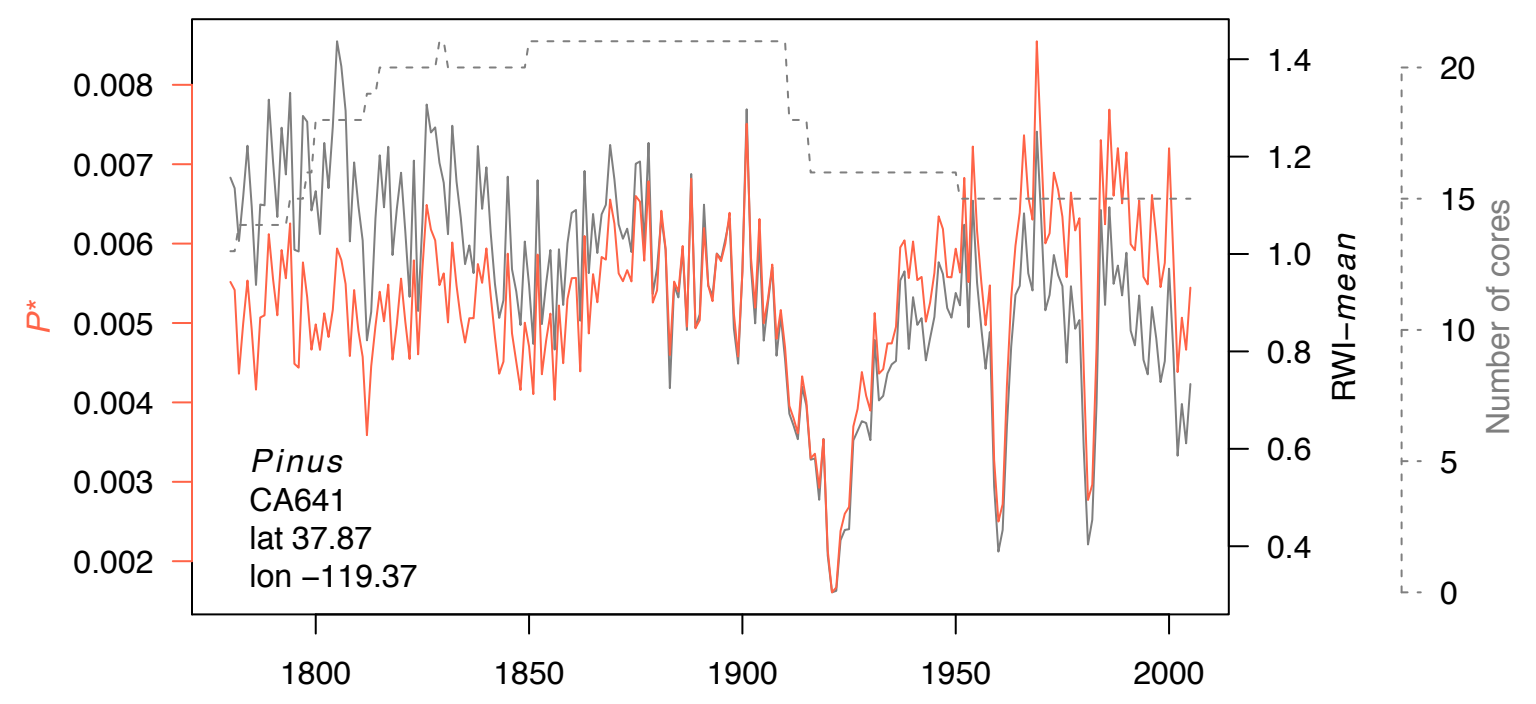

P*
0.0025
0.0020
0.0015
0.0010
0.0005
Pinus
MONG039
lat 48.17
lon 99.87
500
1000
1500
2000
RWI–mean
2.0
1.5
1.0
0.5
0.0
Number of cores
50
40
30
20
10
0

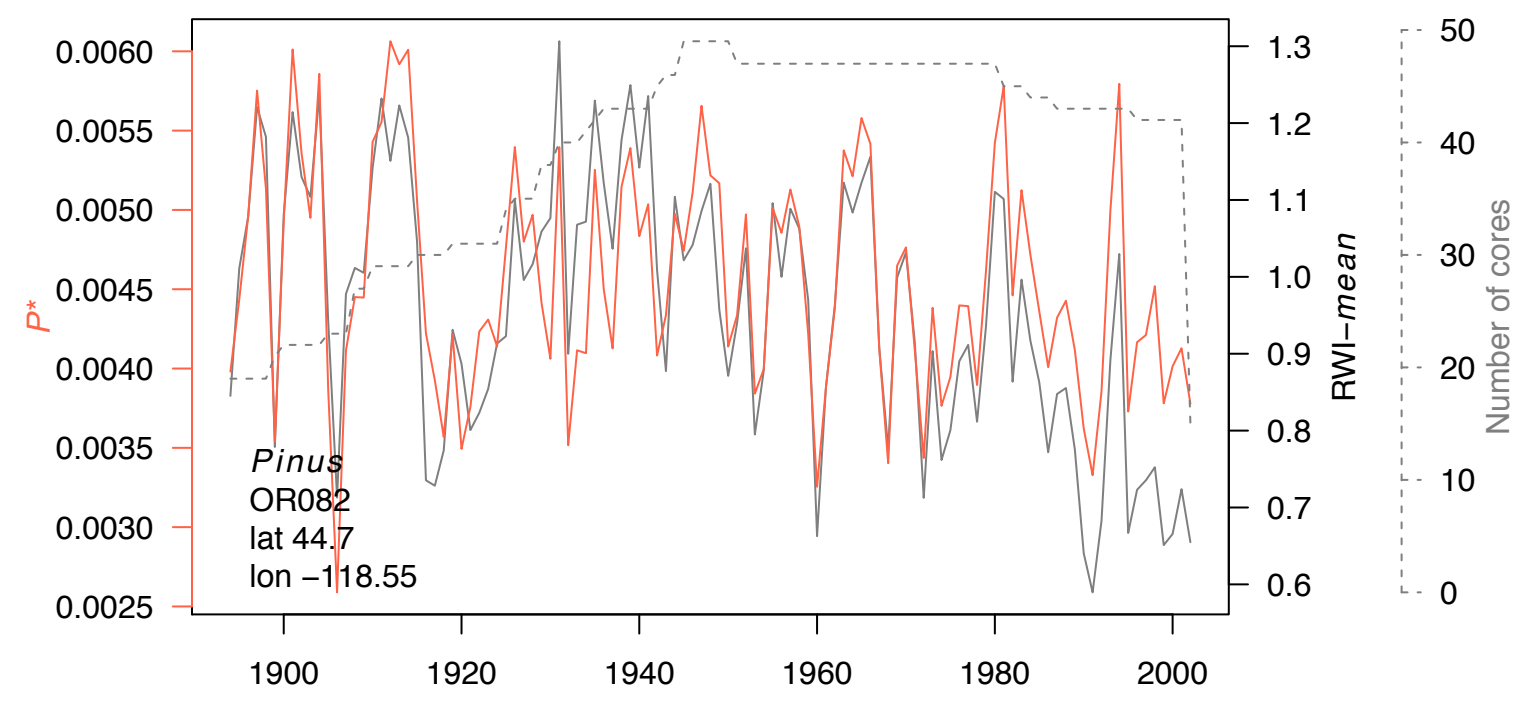

P*
0.006
0.005
0.004
0.003
Pinus
WY048
lat 44.7
lon −110.5
1800
1850
1900
1950
2000
2.0
1.5
1.0
0.5
RWI–mean
30
25
20
15
10
5
0
Number of cores

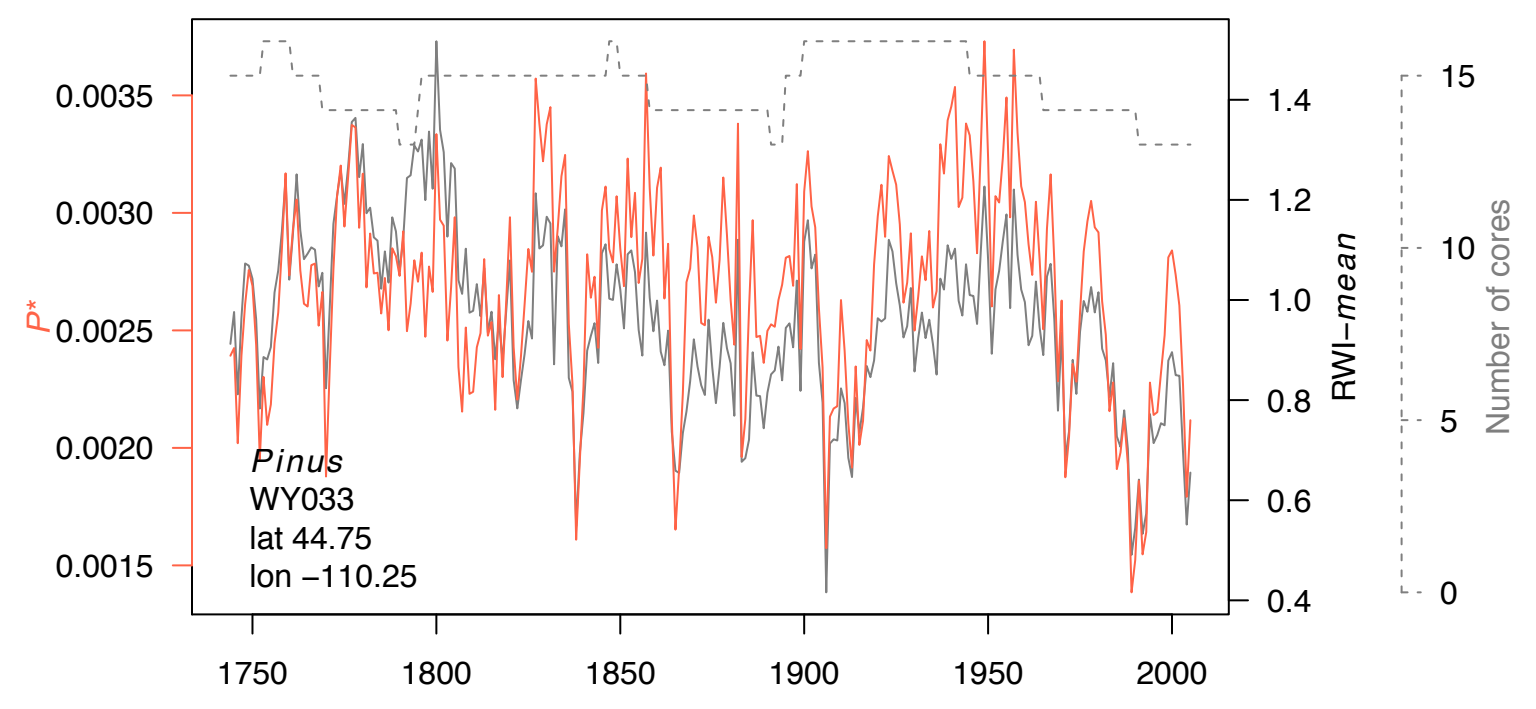

P*
0.012
0.010
0.008
0.006
0.004
0.002
Pinus
CA642
lat 37.88
lon −119.37
1850
1900
1950
2000
1.5
1.0
0.5
RWI–mean
20
15
10
5
0
Number of cores

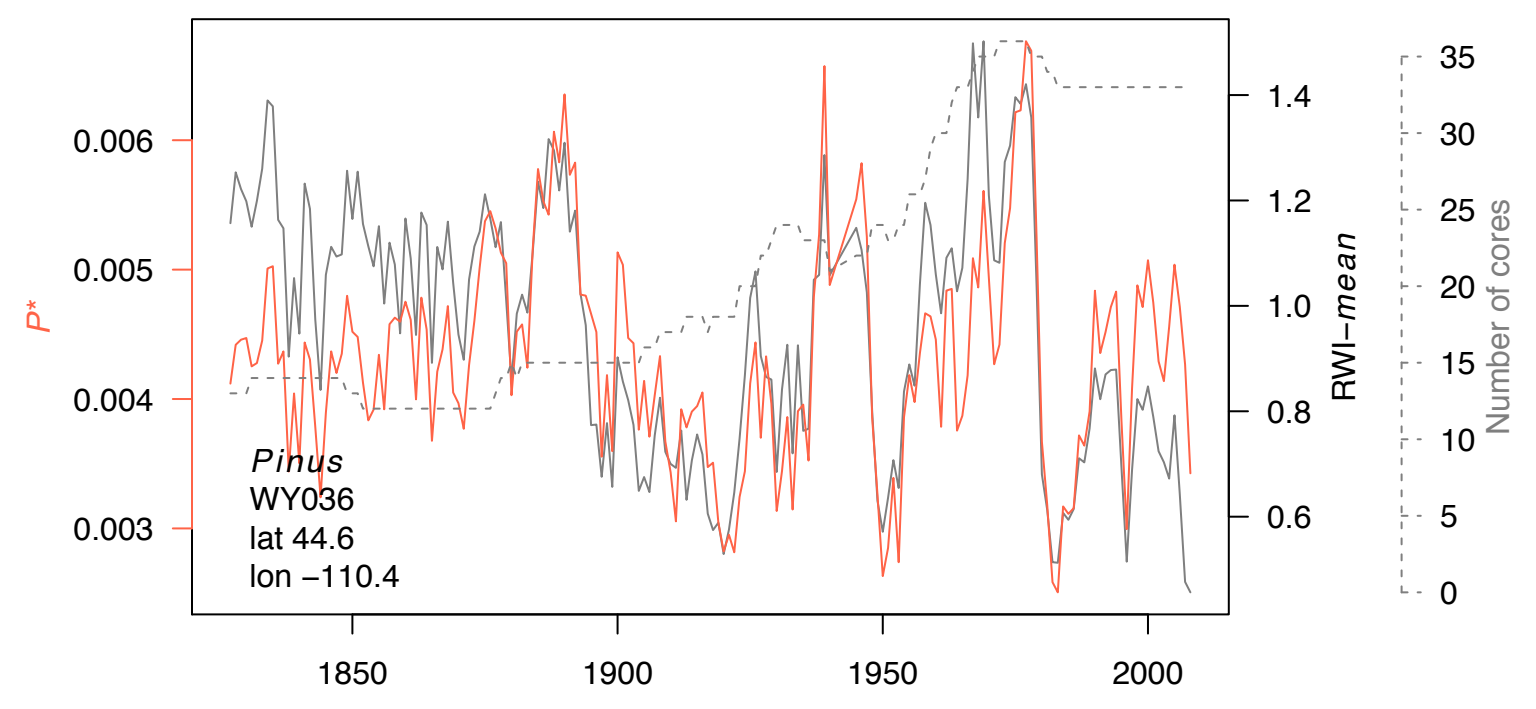

P*
0.006
0.005
0.004
0.003
Pinus
CA671
lat 37.62
lon −119.02
1800
1850
1900
1950
2000
1.6
1.4
1.2
1.0
0.8
0.6
RWI–mean
30
25
20
15
10
5
0
Number of cores

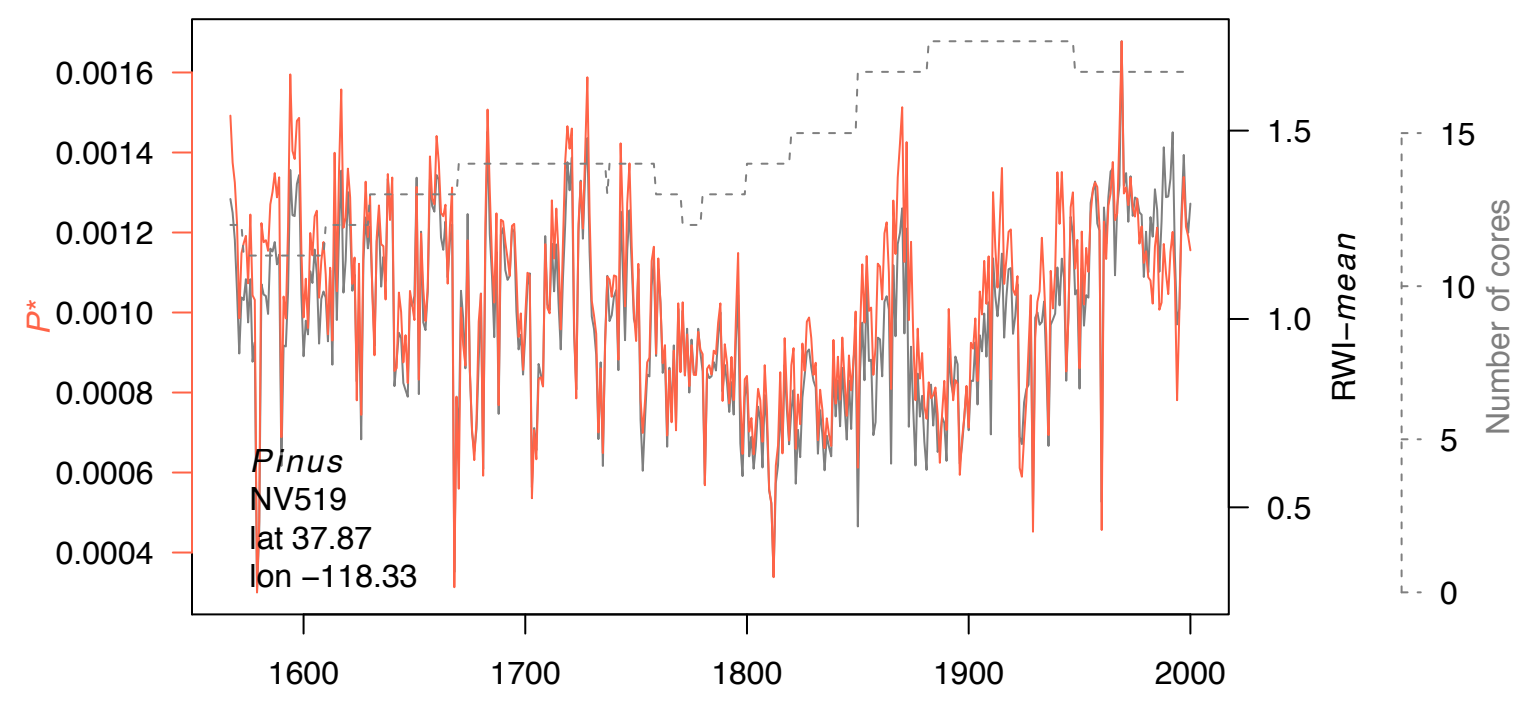

P*
0.012
0.011
0.010
0.009
0.008
0.007
0.006
Pinus
WY047
lat 44.57
lon −110.38
2.5
2.0
1.5
1.0
0.5
RWI–mean
35
30
25
20
15
10
5
0
Number of cores
1800
1850
1900
1950
2000

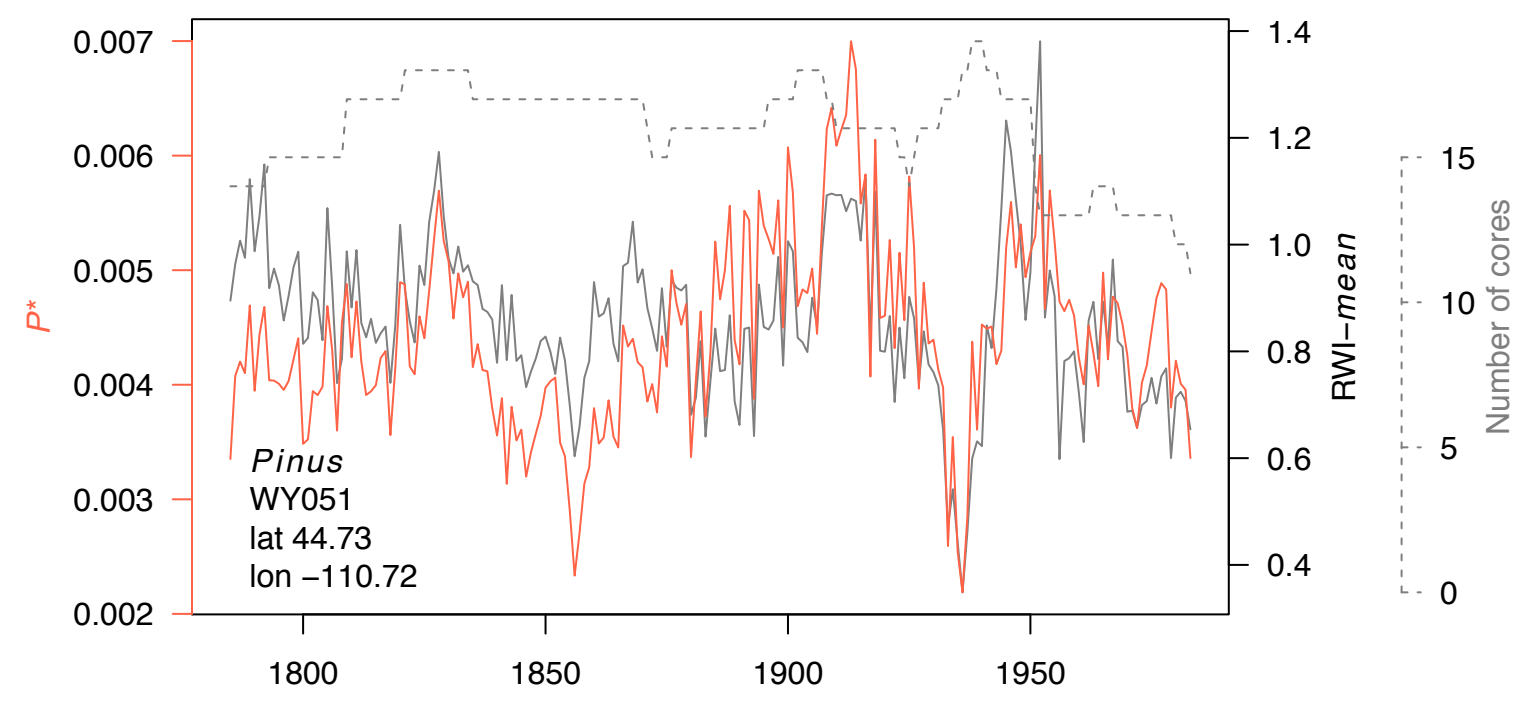

P*
0.008
0.007
0.006
0.005
0.004
0.003
0.002
Pinus
CA641
lat 37.87
lon −119.37
1800
1850
1900
1950
2000
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
20
15
10
5
0
Number of cores

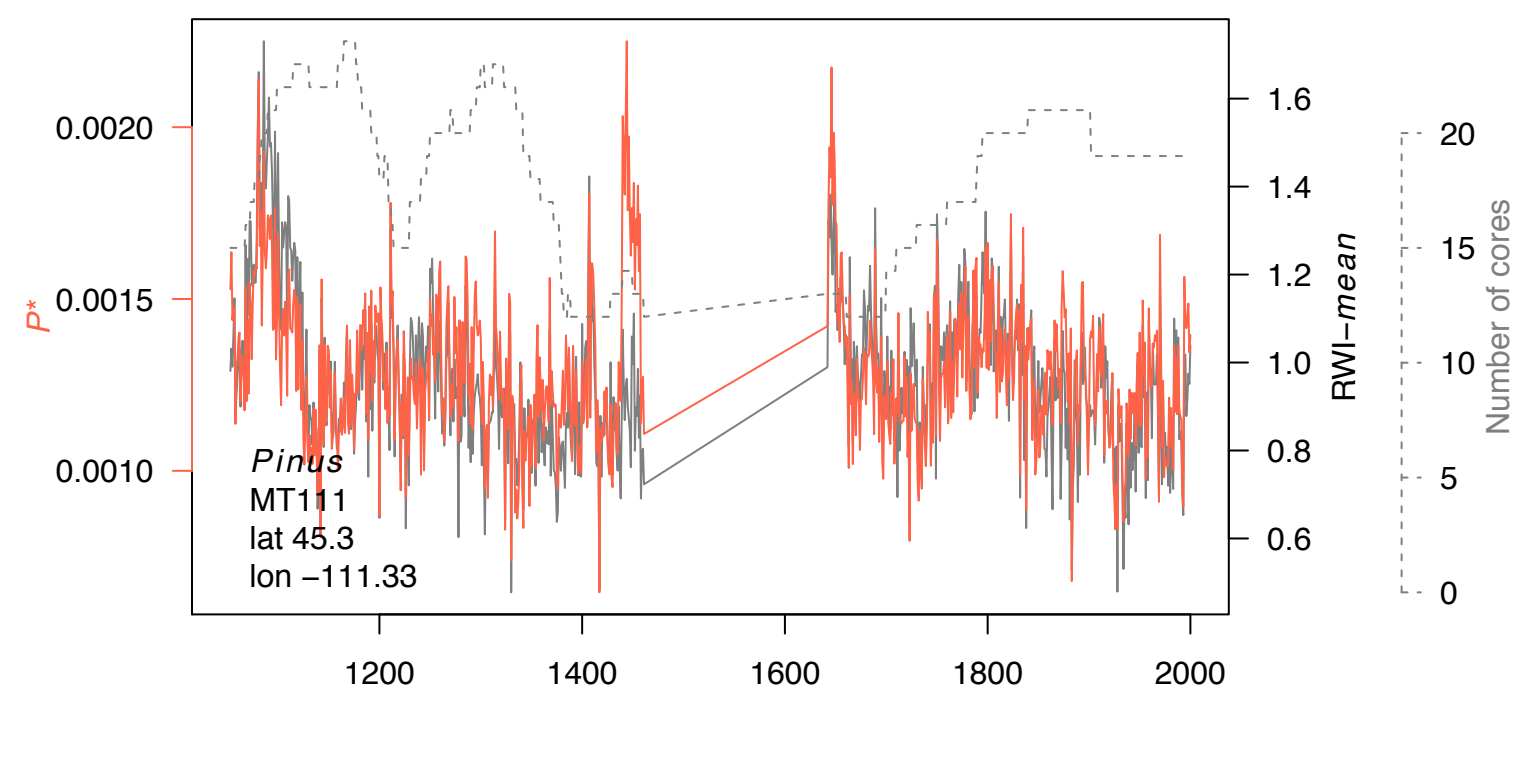

P*
0.0060
0.0055
0.0050
0.0045
0.0040
0.0035
0.0030
0.0025
RWI–mean
1.3
1.2
1.1
1.0
0.9
0.8
0.7
0.6
Number of cores
50
40
30
20
10
0
1900
1920
1940
1960
1980
2000
Pinus
OR082
lat 44.7
lon −118.55

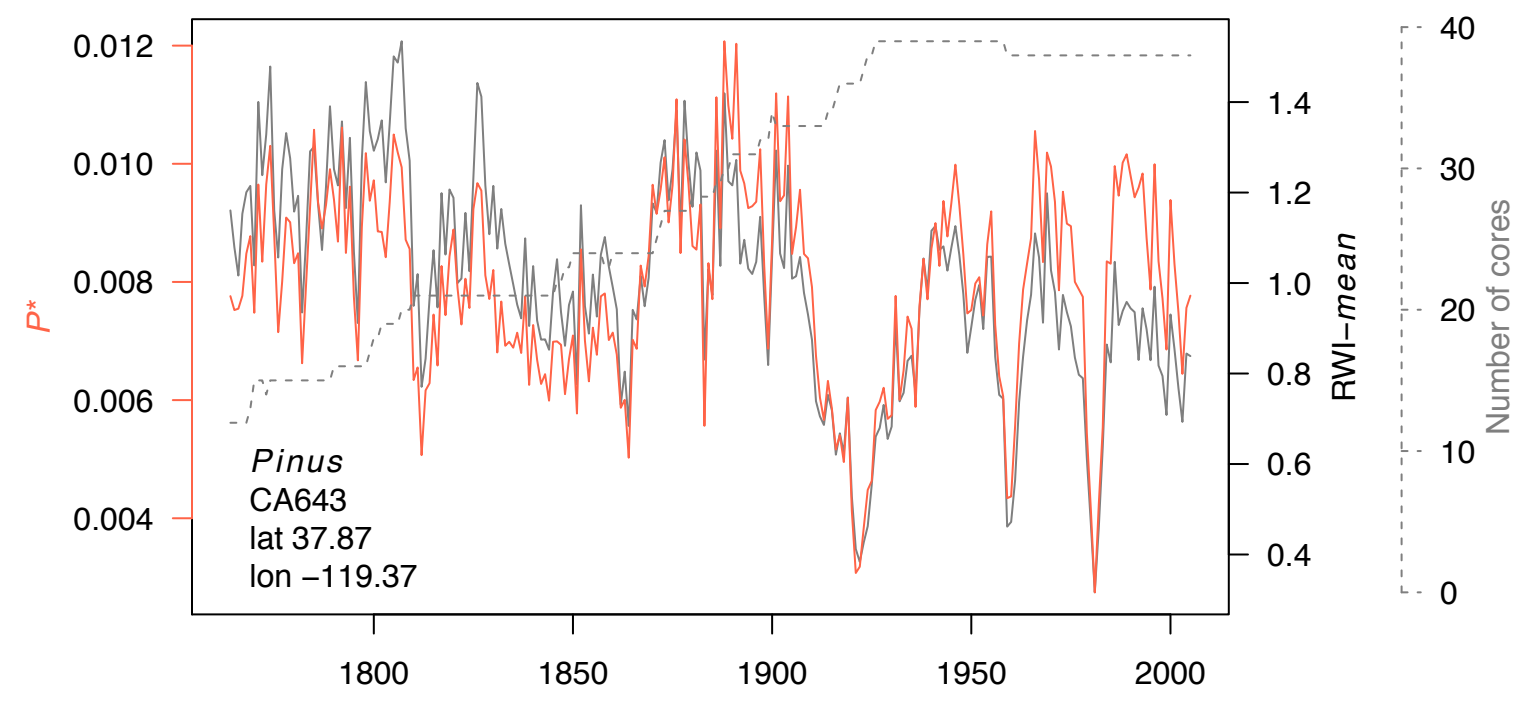

P*
0.0035
0.0030
0.0025
0.0020
0.0015
Pinus
WY033
lat 44.75
lon −110.25
1750
1800
1850
1900
1950
2000
RWI–mean
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
15
10
5
0

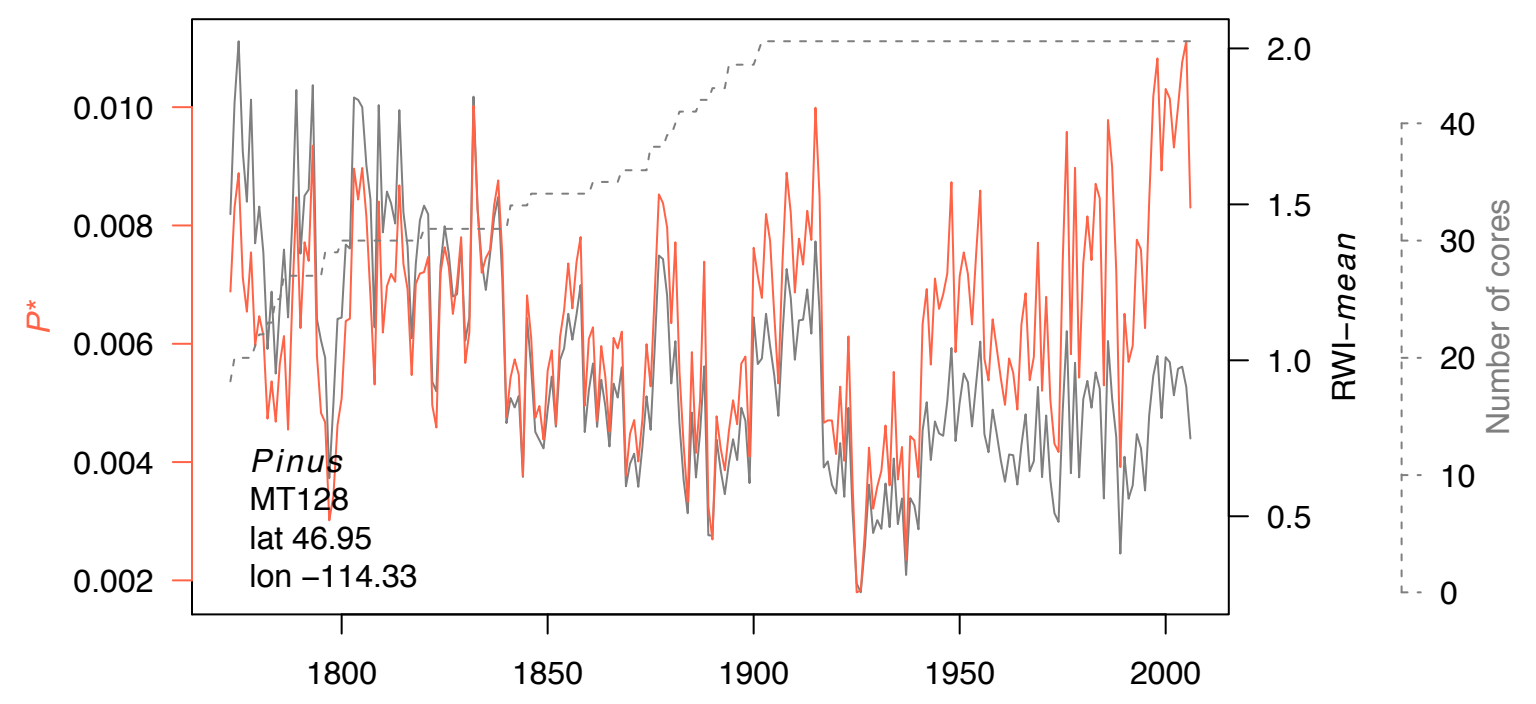

P*
0.006
0.005
0.004
0.003
Pinus
WY036
lat 44.6
lon −110.4
1850
1900
1950
2000
1.4
1.2
1.0
0.8
0.6
RWI–mean
35
30
25
20
15
10
5
0
Number of cores

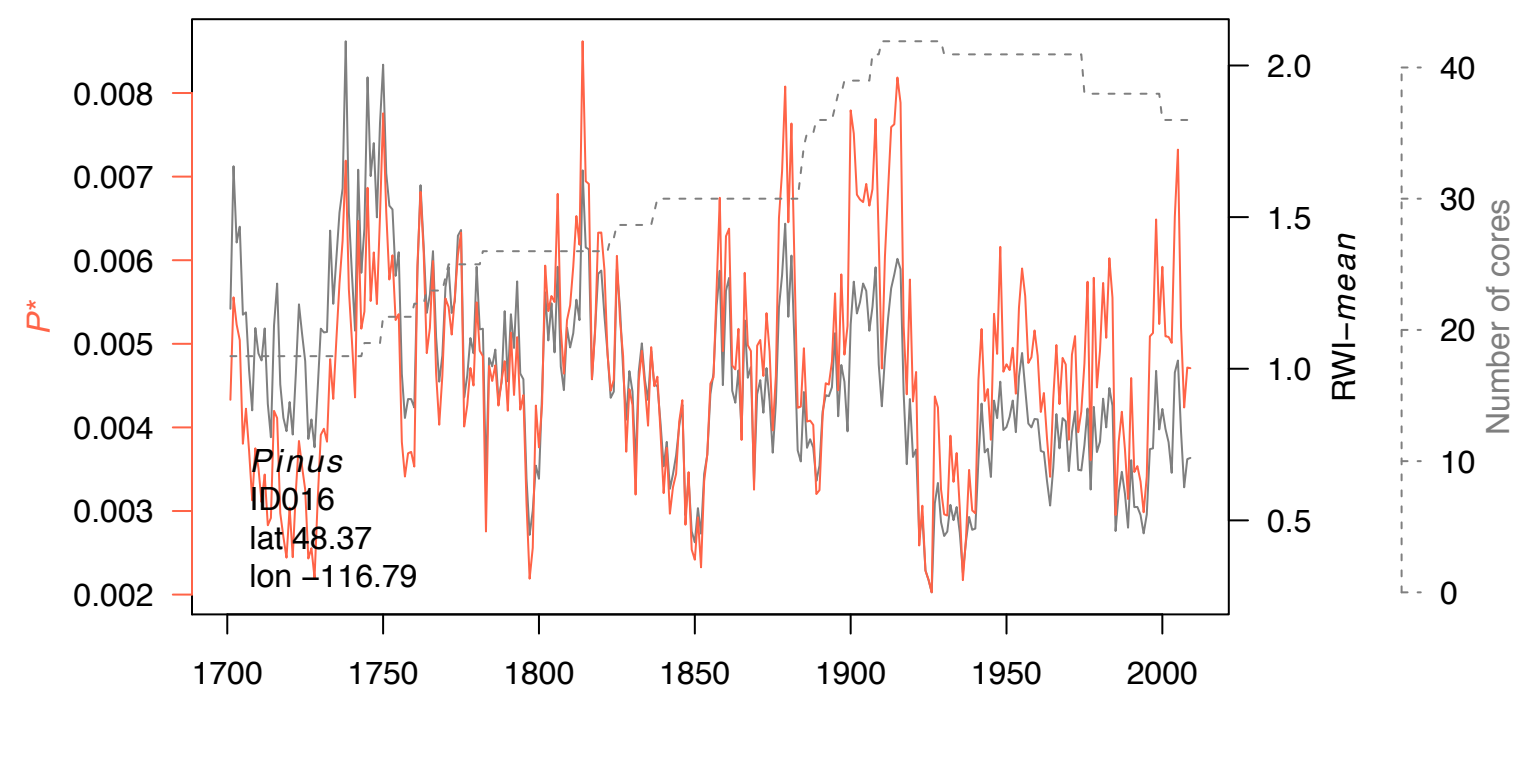

P*
0.0016
0.0014
0.0012
0.0010
0.0008
0.0006
0.0004
Pinus
NV519
lat 37.87
lon −118.33
1600
1700
1800
1900
2000
RWI–mean
1.5
1.0
0.5
Number of cores
15
10
5
0

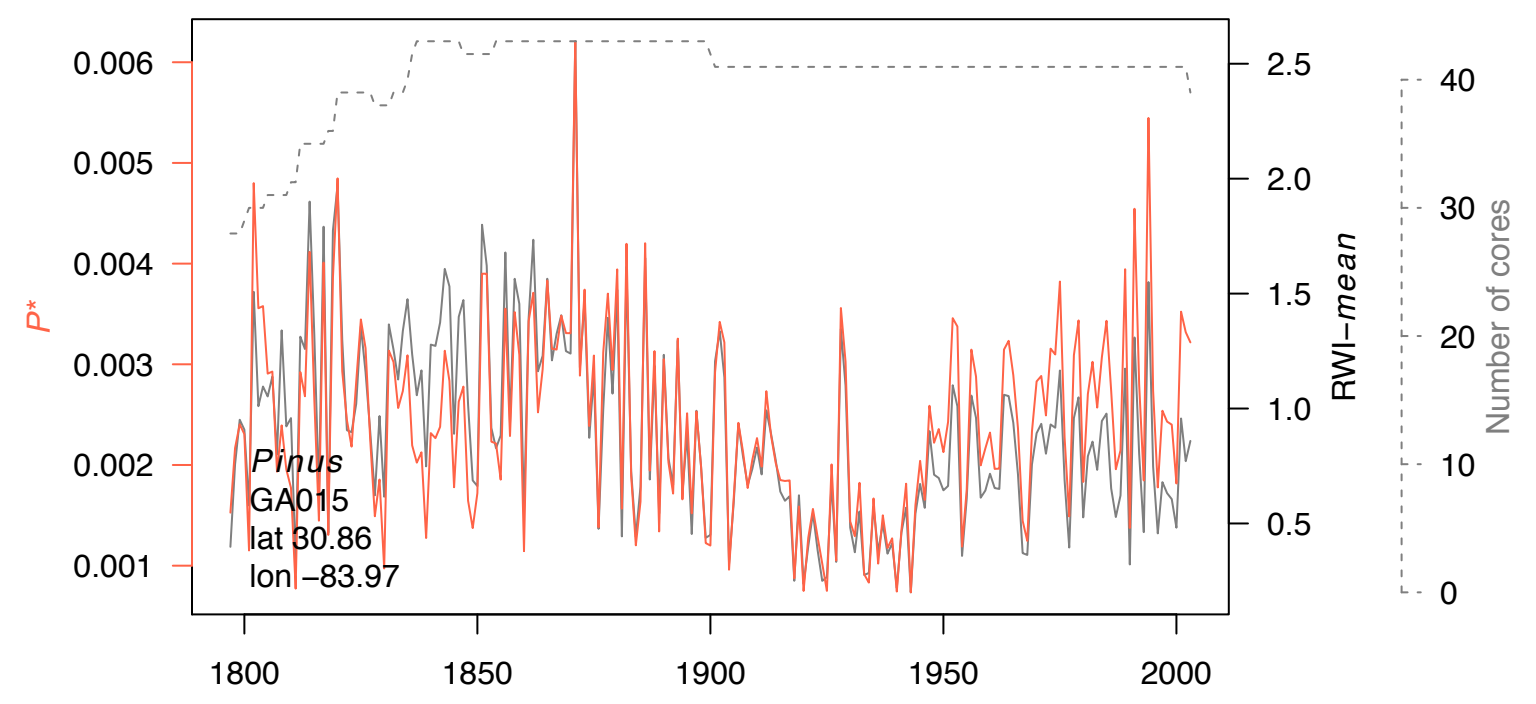

P*
0.007
0.006
0.005
0.004
0.003
0.002
Pinus
WY051
lat 44.73
lon −110.72
1800
1850
1900
1950
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
15
10
5
0
Number of cores

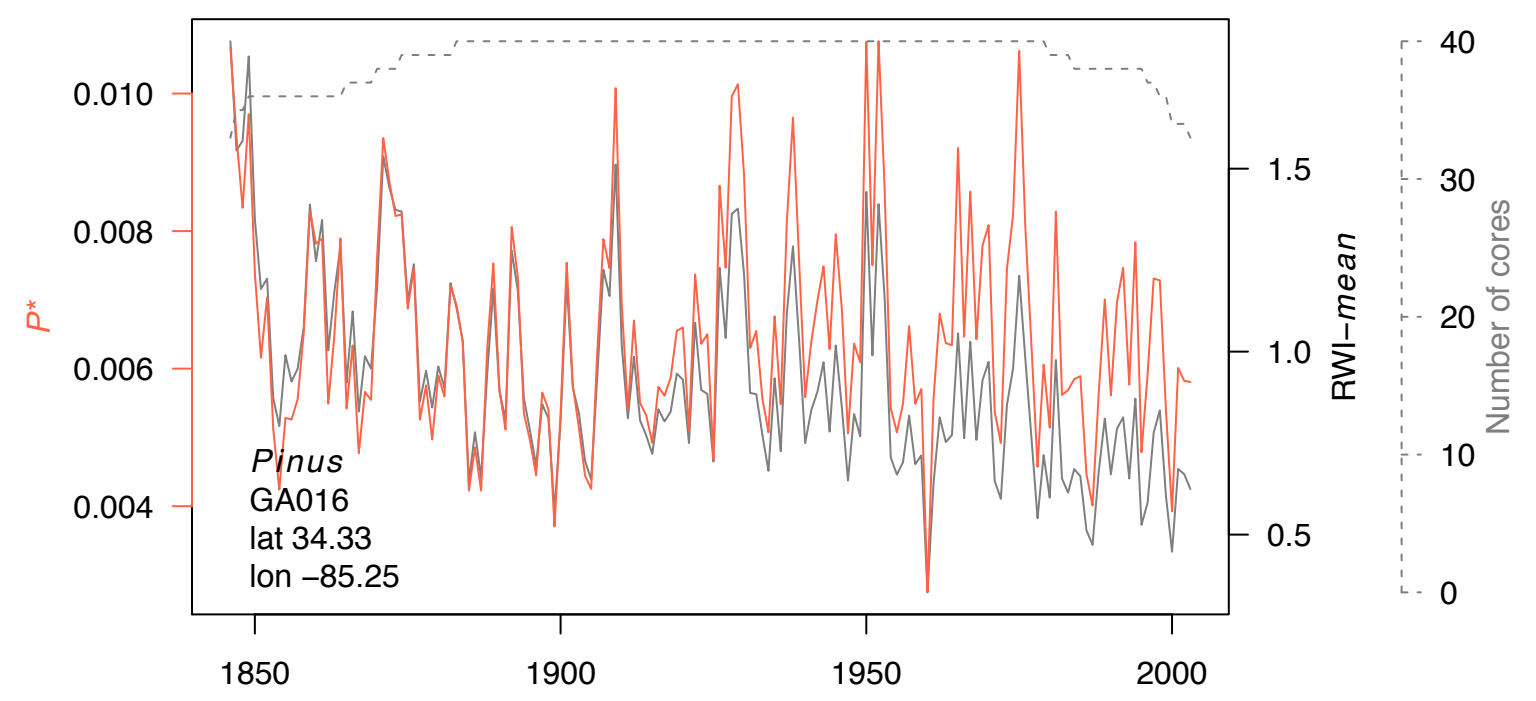

P*
0.0020
0.0015
0.0010
Pinus
MT111
lat 45.3
lon −111.33
1200
1400
1600
1800
2000
RWI–mean
1.6
1.4
1.2
1.0
0.8
0.6
Number of cores
20
15
10
5
0

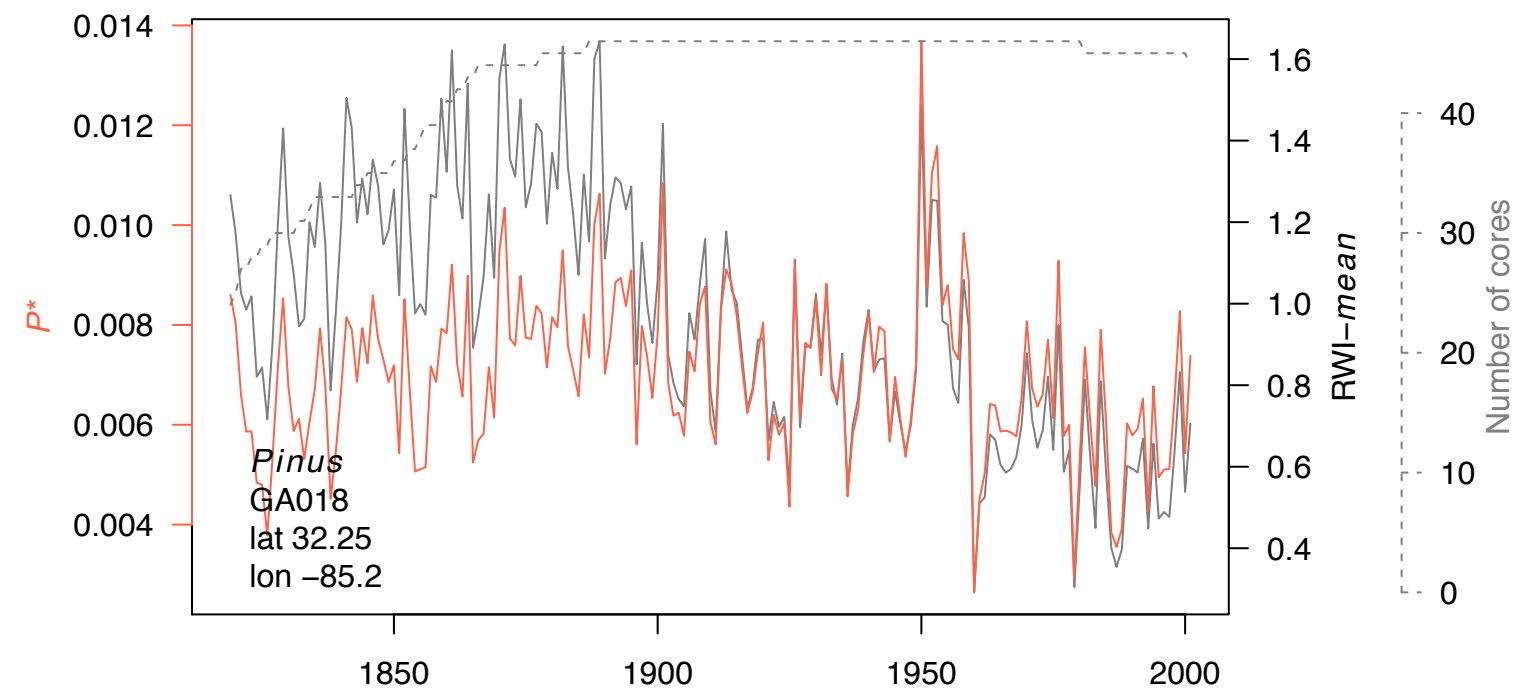

P*
0.012
0.010
0.008
0.006
0.004
Pinus
CA643
lat 37.87
lon −119.37
1800
1850
1900
1950
2000
RWI–mean
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
40
30
20
10
0

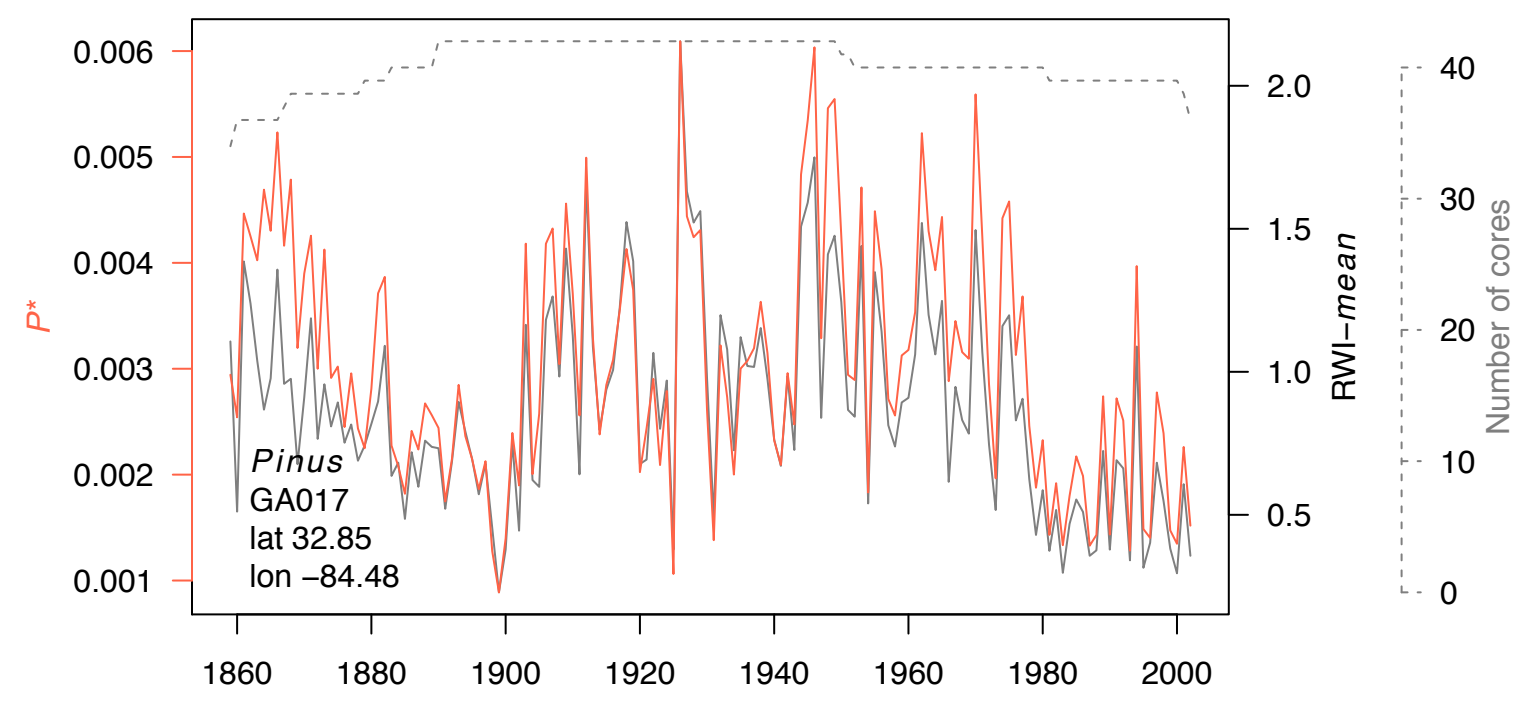

P*
0.010
0.008
0.006
0.004
0.002
Pinus
MT128
lat 46.95
lon −114.33
1800
1850
1900
1950
2000
2.0
1.5
1.0
0.5
RWI–mean
40
30
20
10
0
Number of cores

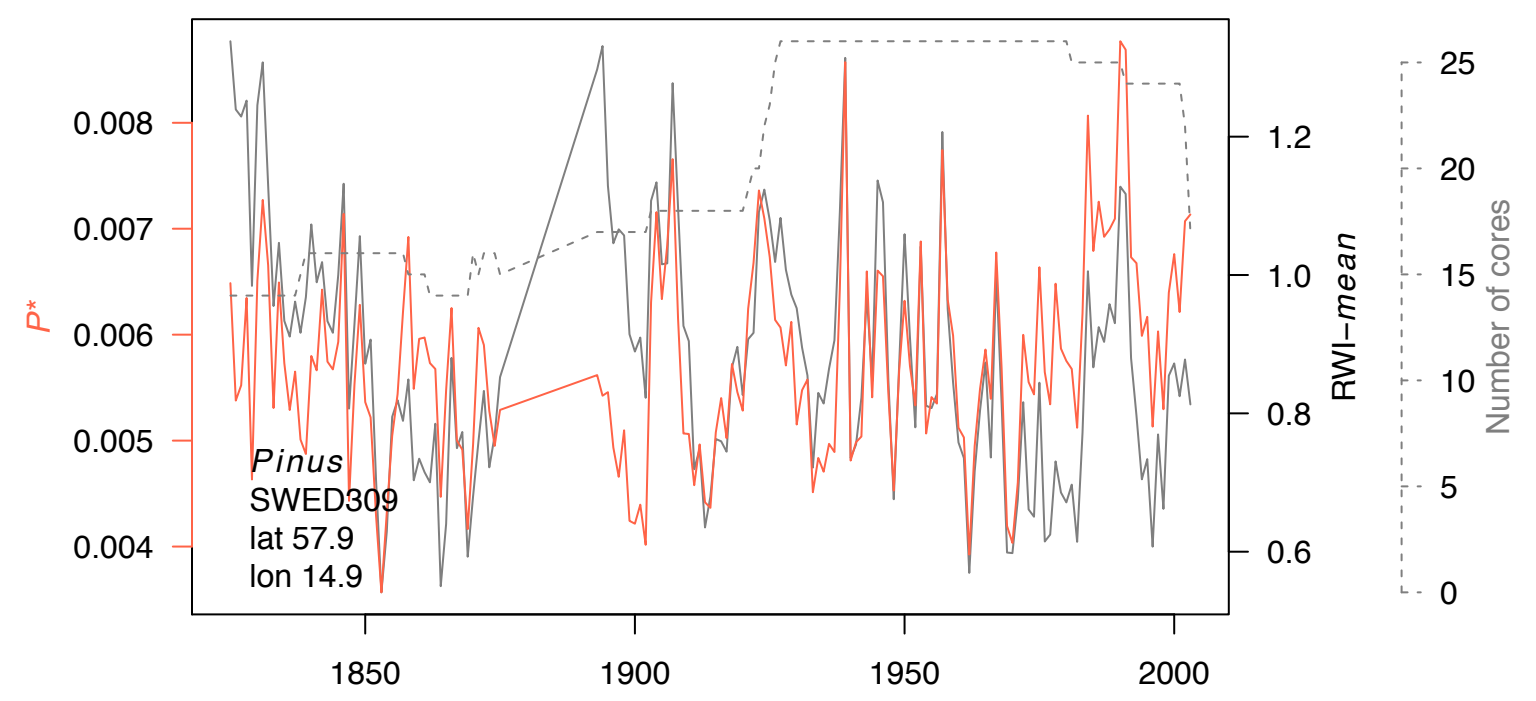

P*
0.008
0.007
0.006
0.005
0.004
0.003
0.002
Pinus
ID016
lat 48.37
lon −116.79
1700
1750
1800
1850
1900
1950
2000
2.0
1.5
1.0
0.5
RWI–mean
40
30
20
10
0
Number of cores

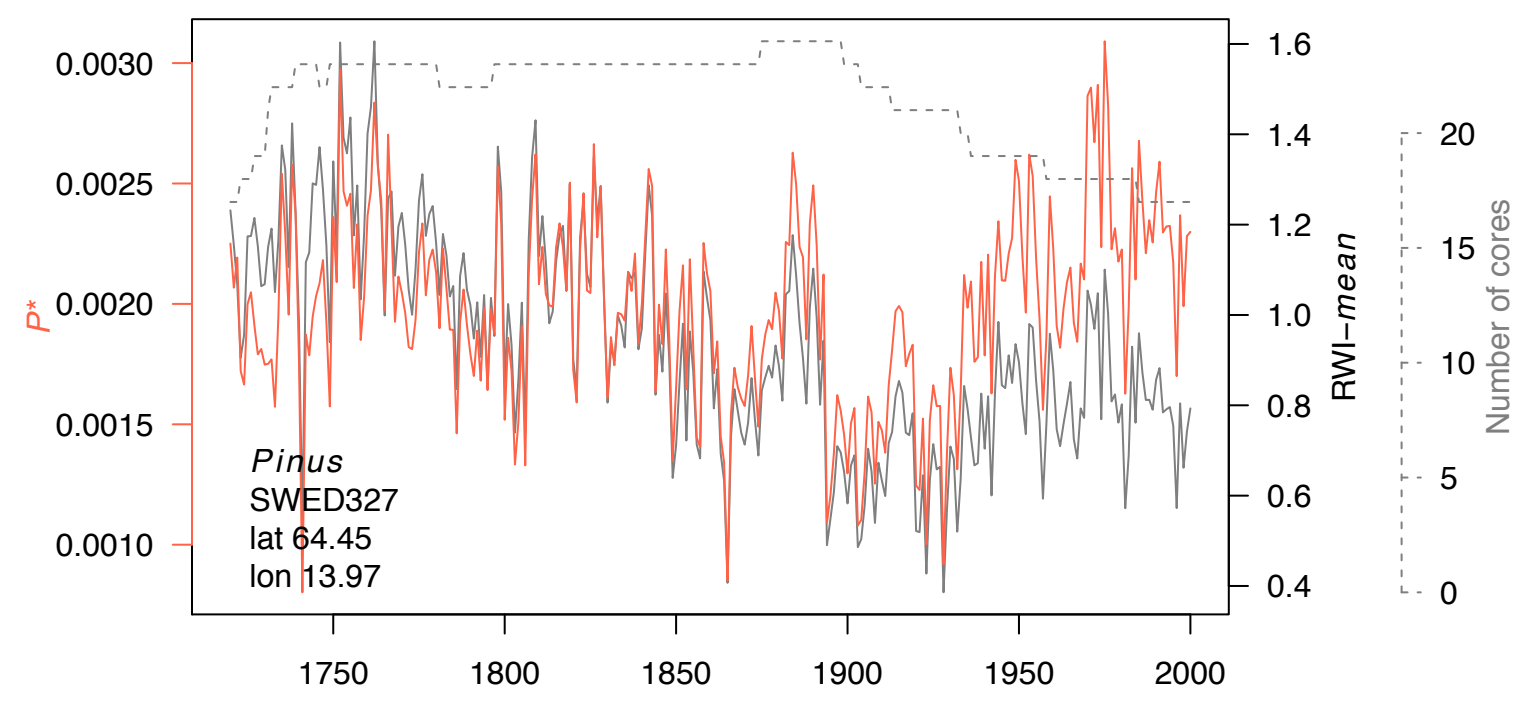

P*
0.006
0.005
0.004
0.003
0.002
0.001
Pinus
GA015
lat 30.86
lon −83.97
2.5
2.0
1.5
1.0
0.5
RWI–mean
40
30
20
10
0
Number of cores
1800
1850
1900
1950
2000

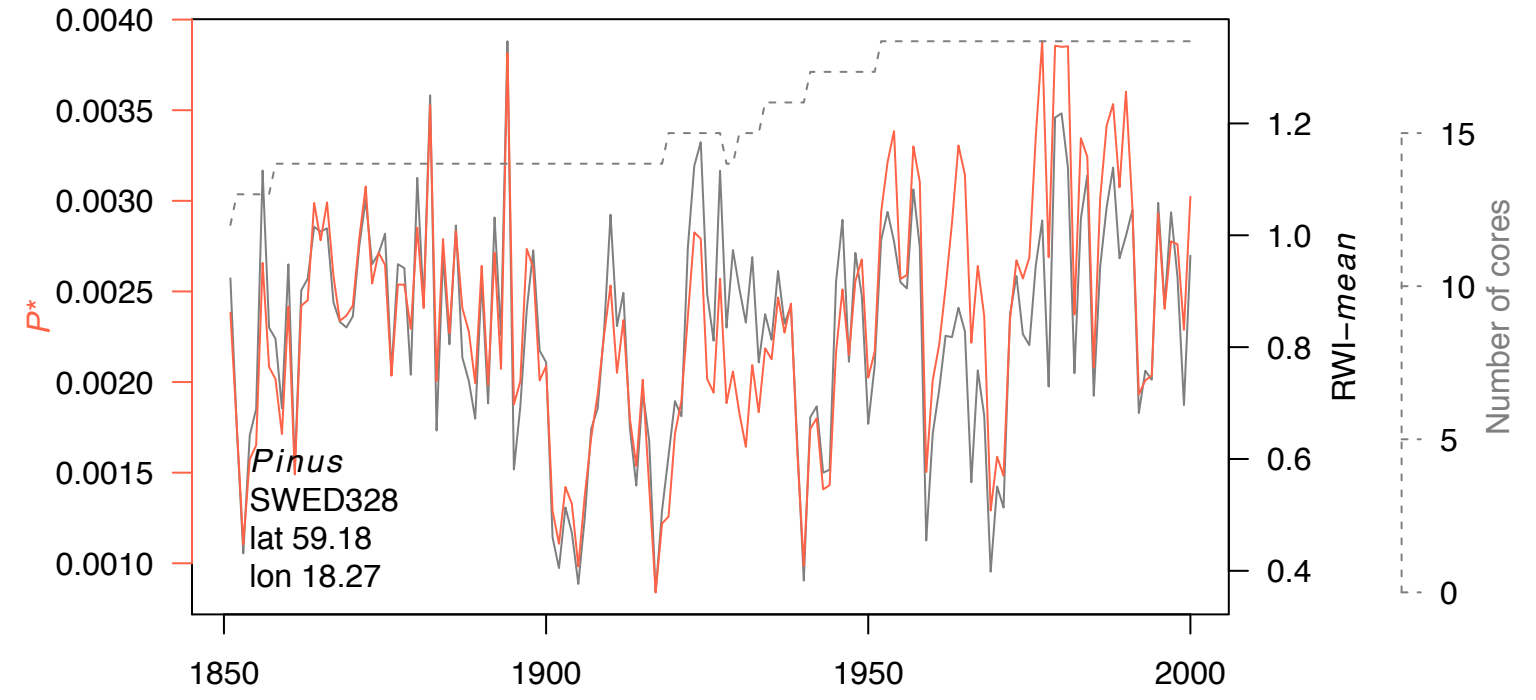

P*
0.010
0.008
0.006
0.004
Pinus
GA016
lat 34.33
lon −85.25
1850
1900
1950
2000
RWI–mean
1.5
1.0
0.5
Number of cores
40
30
20
10
0

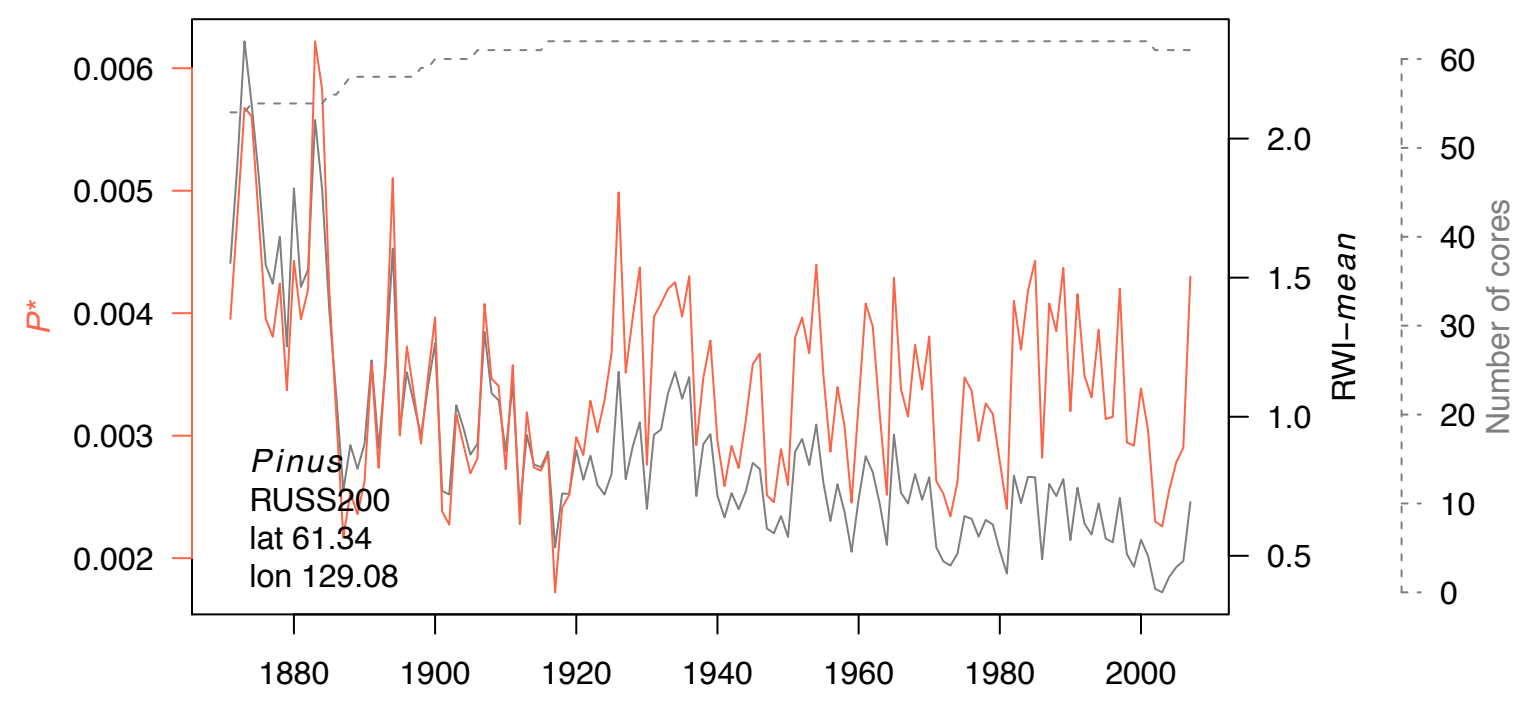

0.014
0.012
0.010
0.008
0.006
0.004
P*
1.6
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
40
30
20
10
0
Number of cores
Pinus
GA018
lat 32.25
lon –85.2
1850
1900
1950
2000

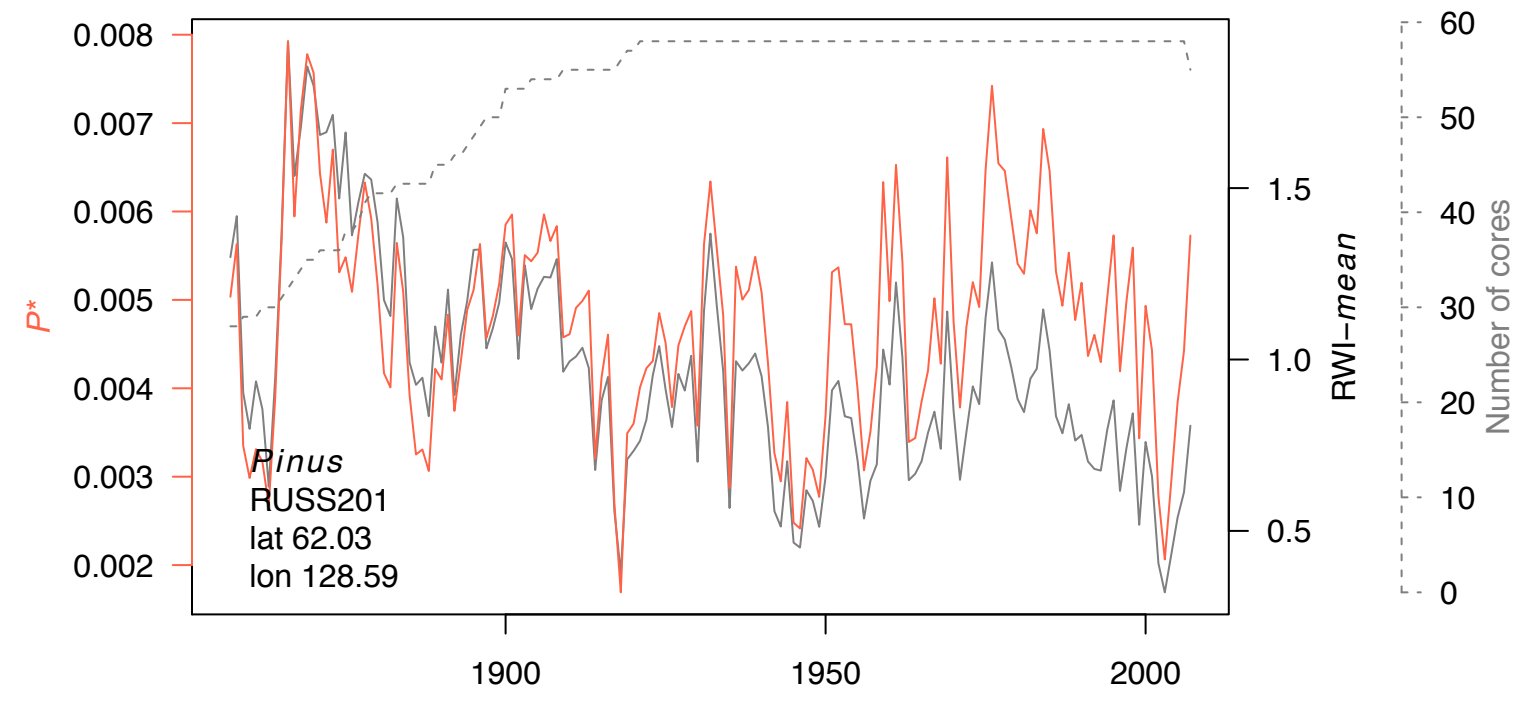

P*
0.006
0.005
0.004
0.003
0.002
0.001
Pinus
GA017
lat 32.85
lon –84.48
2.0
1.5
1.0
0.5
RWI–mean
40
30
20
10
0
Number of cores
1860
1880
1900
1920
1940
1960
1980
2000

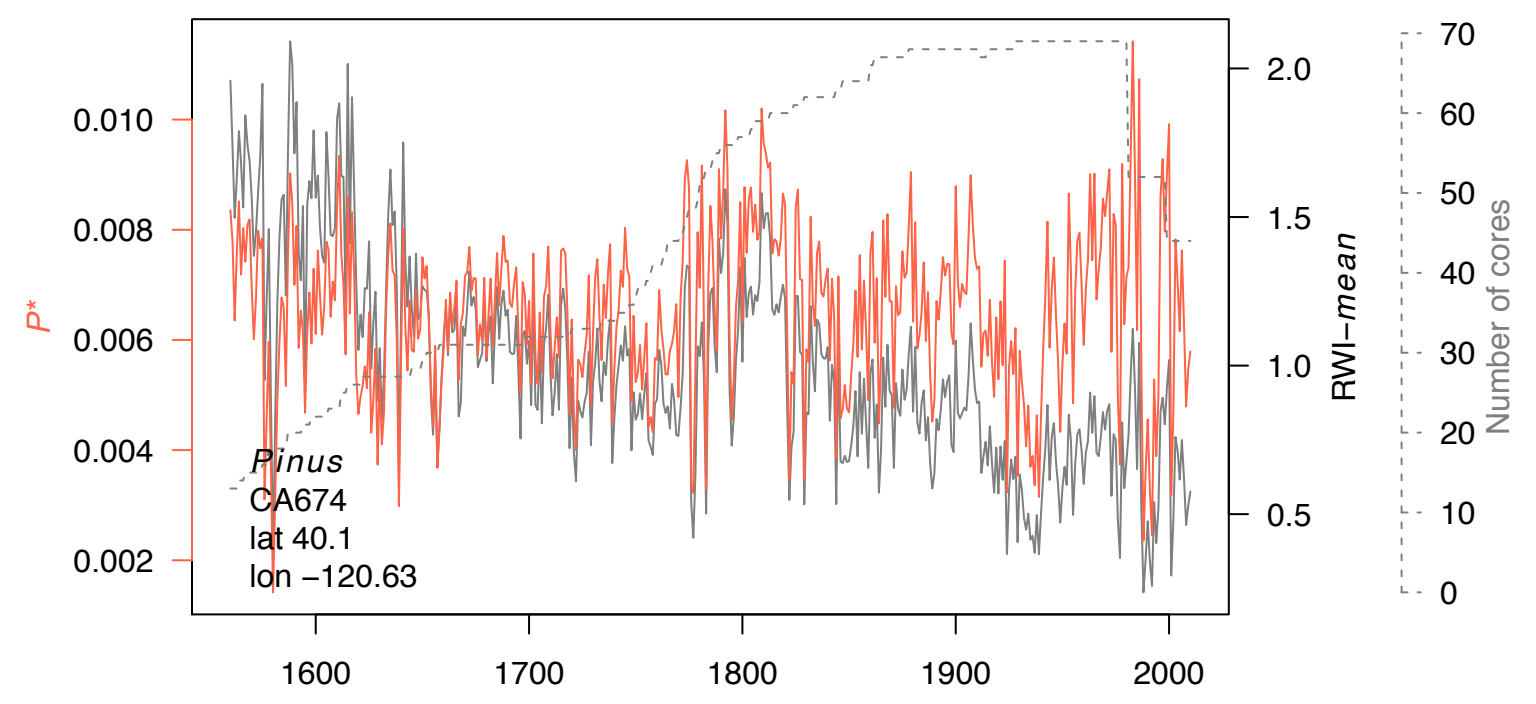

P*
0.008
0.007
0.006
0.005
0.004
Pinus
SWED309
lat 57.9
lon 14.9
1850
1900
1950
2000
1.2
1.0
0.8
0.6
RWI–mean
25
20
15
10
5
0
Number of cores

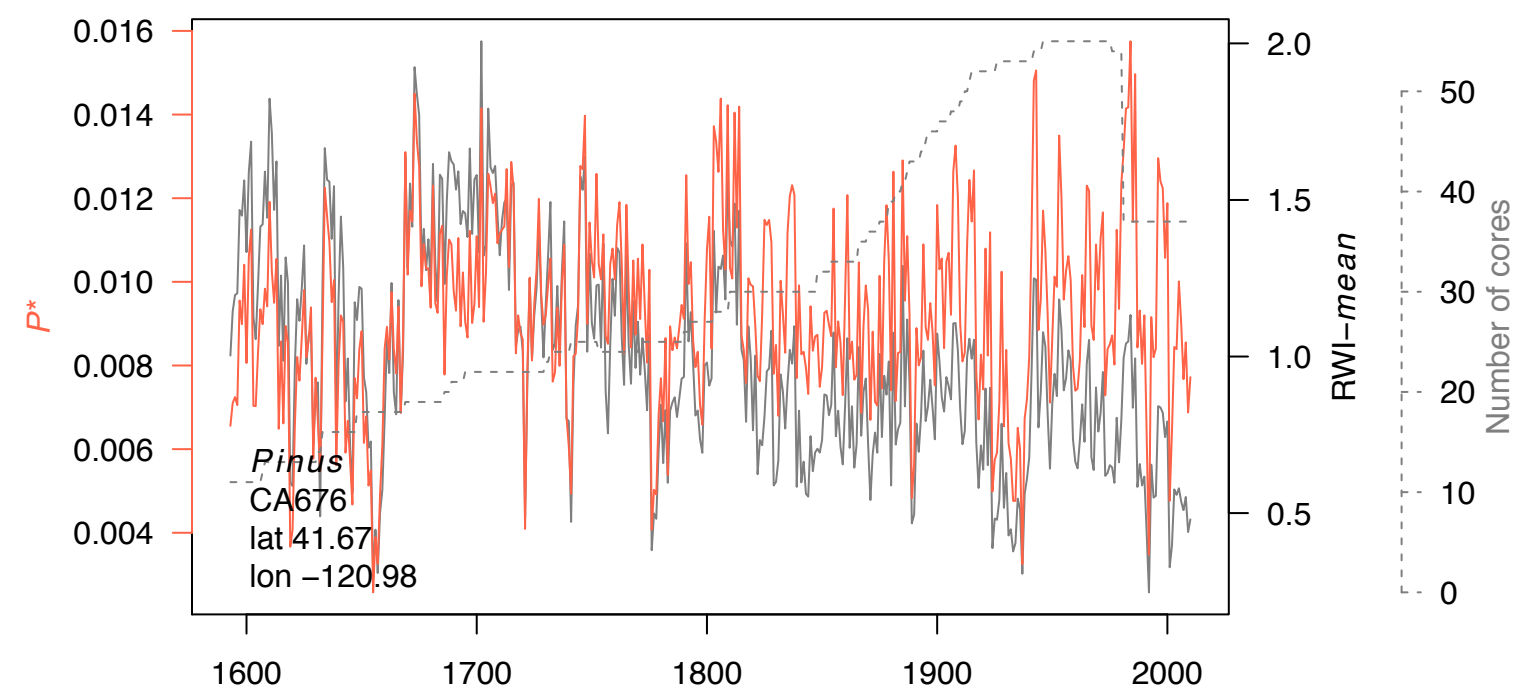

P*
0.0030
0.0025
0.0020
0.0015
0.0010
RWI–mean
1.6
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
20
15
10
5
0
Pinus
SWED327
lat 64.45
lon 13.97
1750
1800
1850
1900
1950
2000

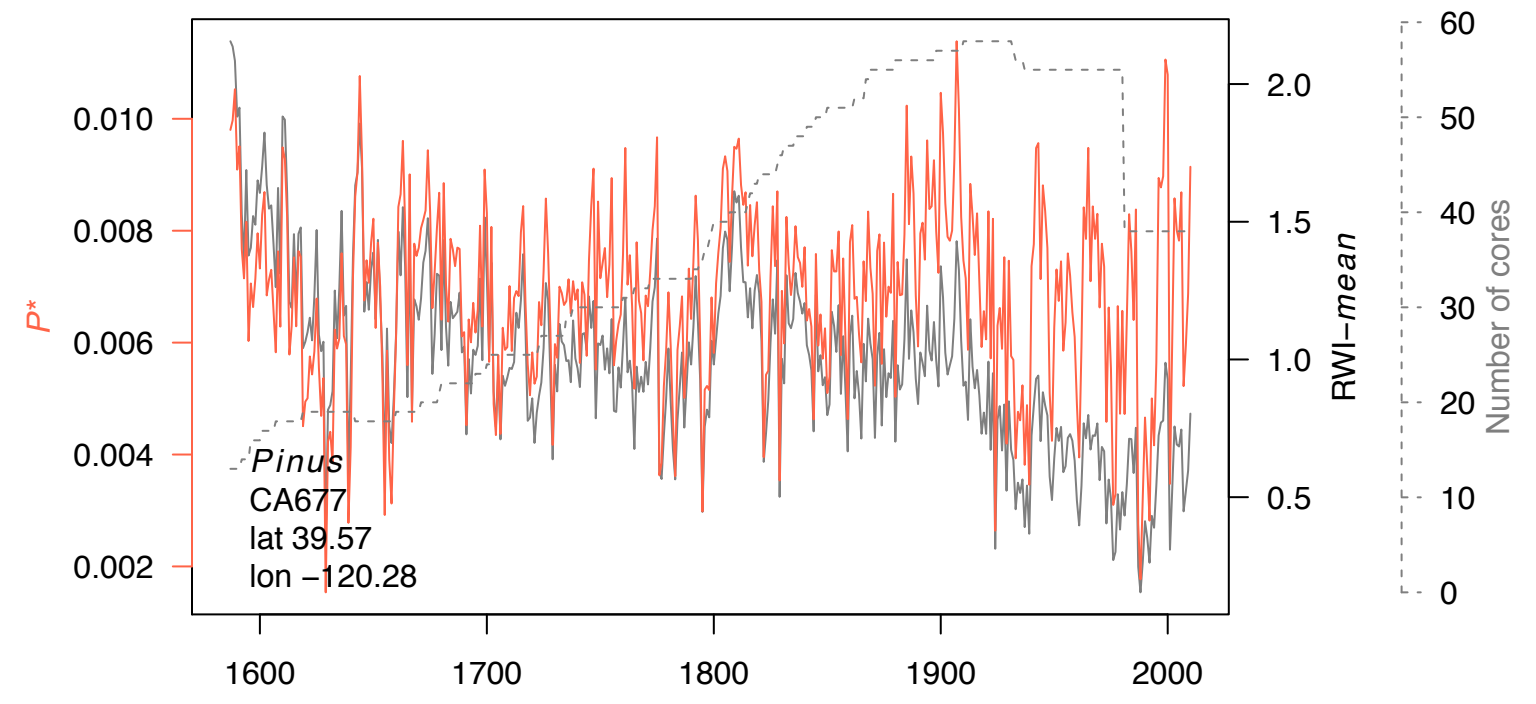

0.0040
0.0035
0.0030
0.0025
0.0020
0.0015
0.0010
P*
1.2
1.0
0.8
0.6
0.4
RWI–mean
15
10
5
0
Number of cores
Pinus
SWED328
lat 59.18
lon 18.27
1850
1900
1950
2000

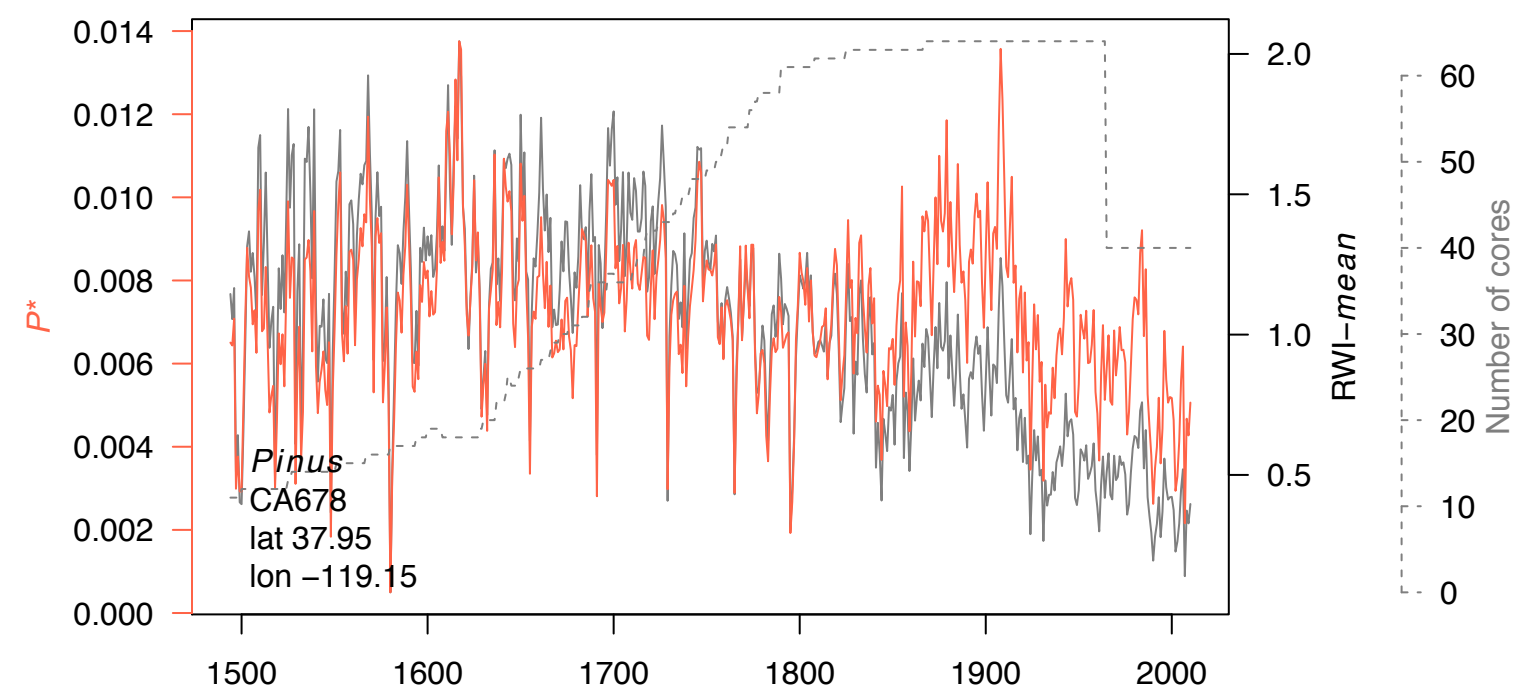

P*
0.006
0.005
0.004
0.003
0.002
RWI–mean
2.0
1.5
1.0
0.5
Number of cores
60
50
40
30
20
10
0
Pinus
RUSS200
lat 61.34
lon 129.08
1880
1900
1920
1940
1960
1980
2000

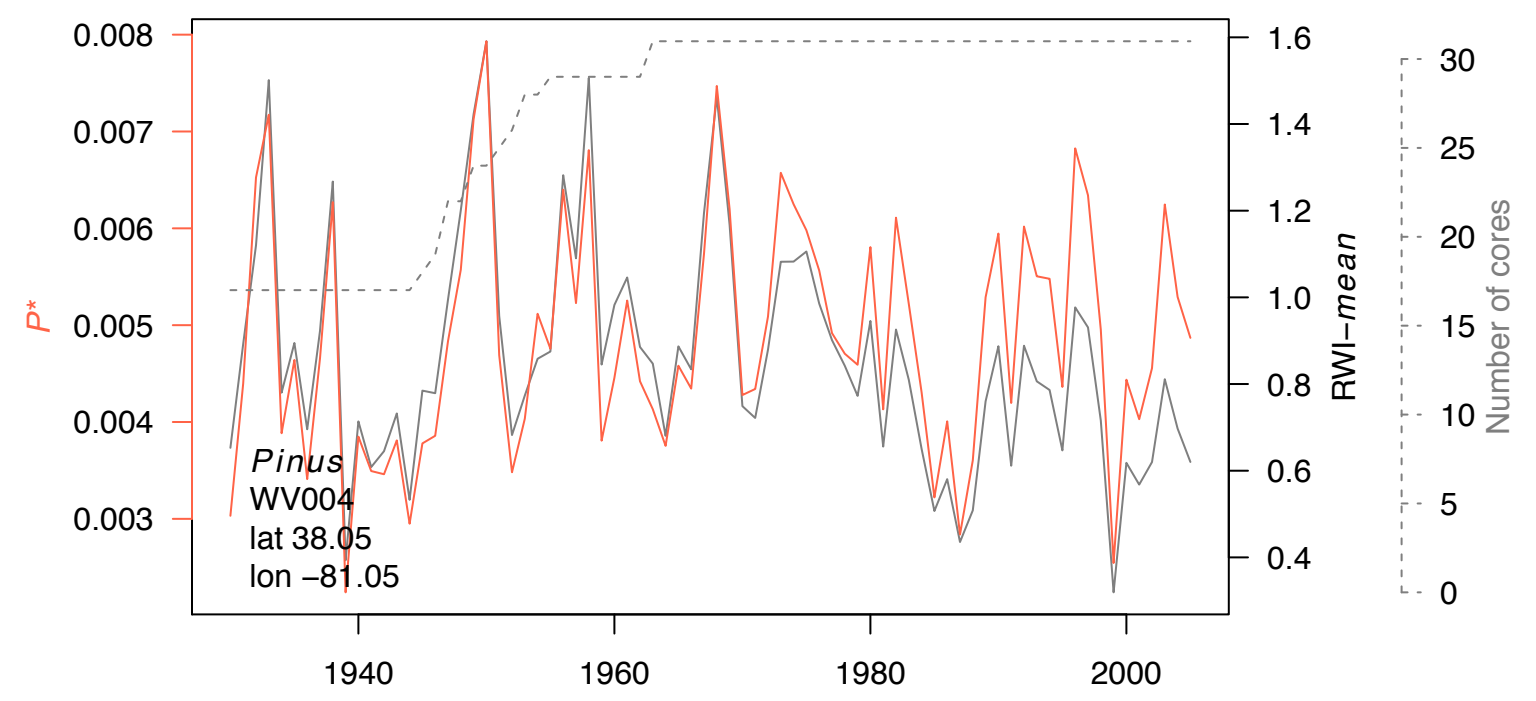

P*
0.008
0.007
0.006
0.005
0.004
0.003
0.002
Pinus
RUSS201
lat 62.03
lon 128.59
1900
1950
2000
1.5
1.0
0.5
RWI–mean
60
50
40
30
20
10
0
Number of cores

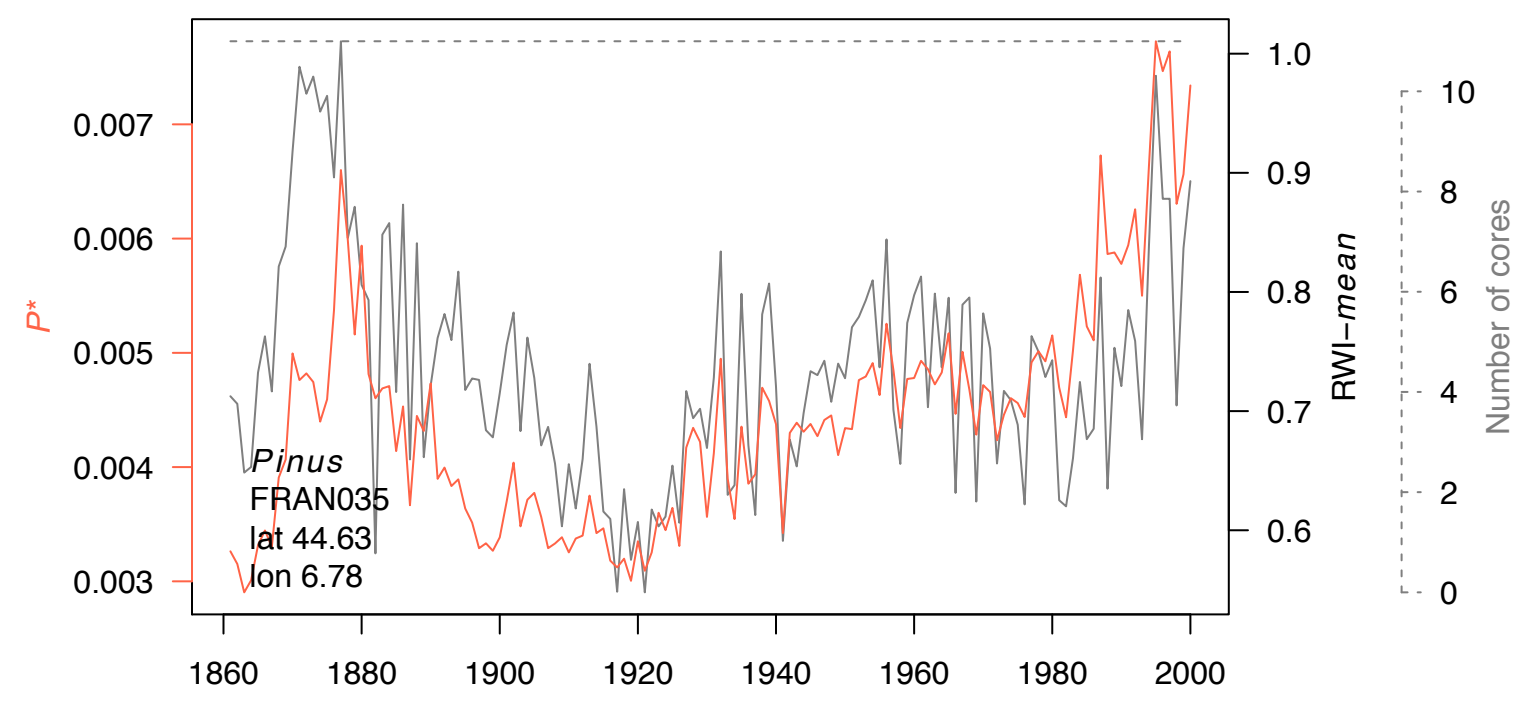

P*
0.010
0.008
0.006
0.004
0.002
Pinus
CA674
lat 40.1
lon −120.63
1600
1700
1800
1900
2000
2.0
1.5
1.0
0.5
RWI–mean
70
60
50
40
30
20
10
0
Number of cores

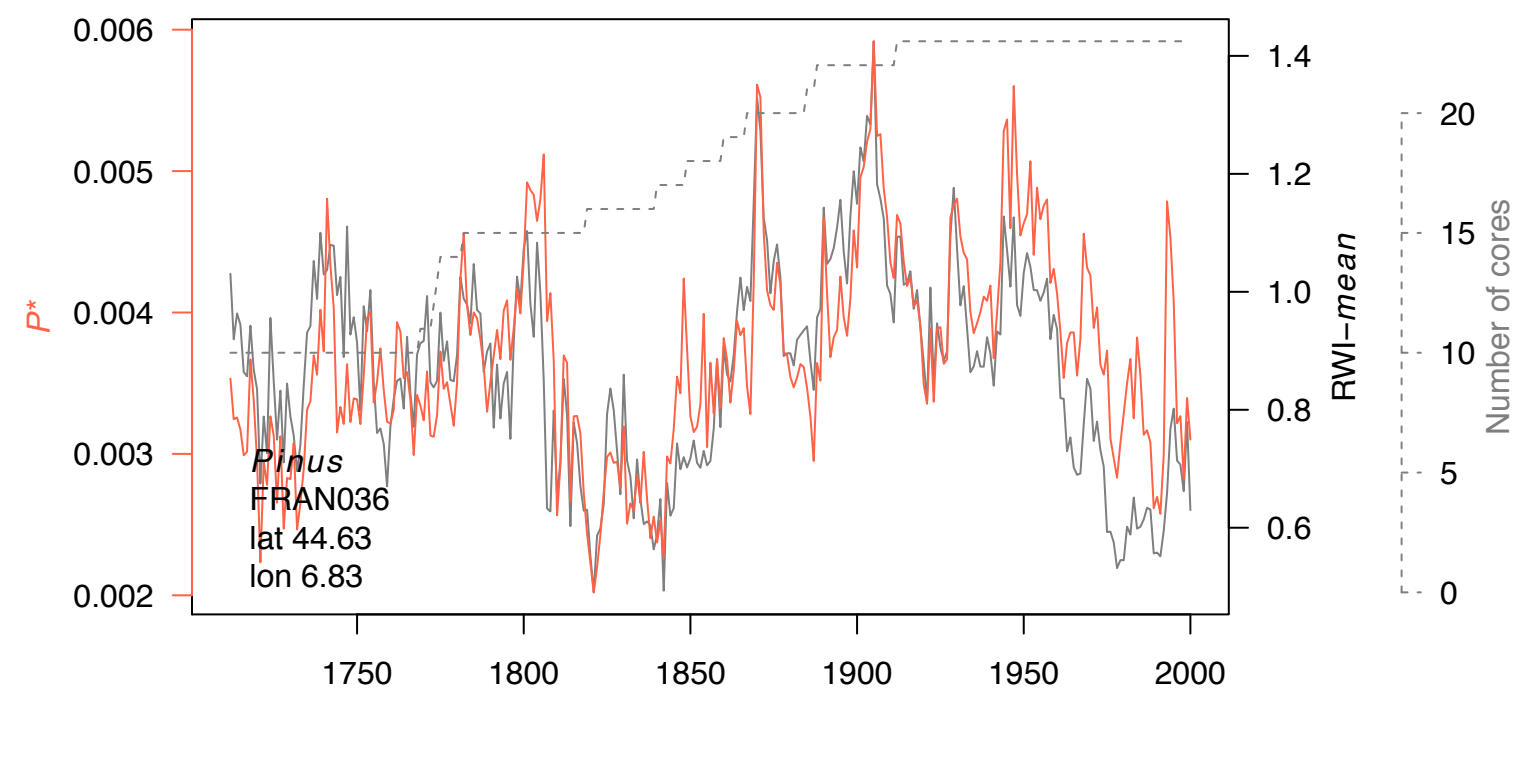

P*
0.016
0.014
0.012
0.010
0.008
0.006
0.004
RWI–mean
2.0
1.5
1.0
0.5
Number of cores
50
40
30
20
10
0
Pinus
CA676
lat 41.67
lon −120.98
1600
1700
1800
1900
2000

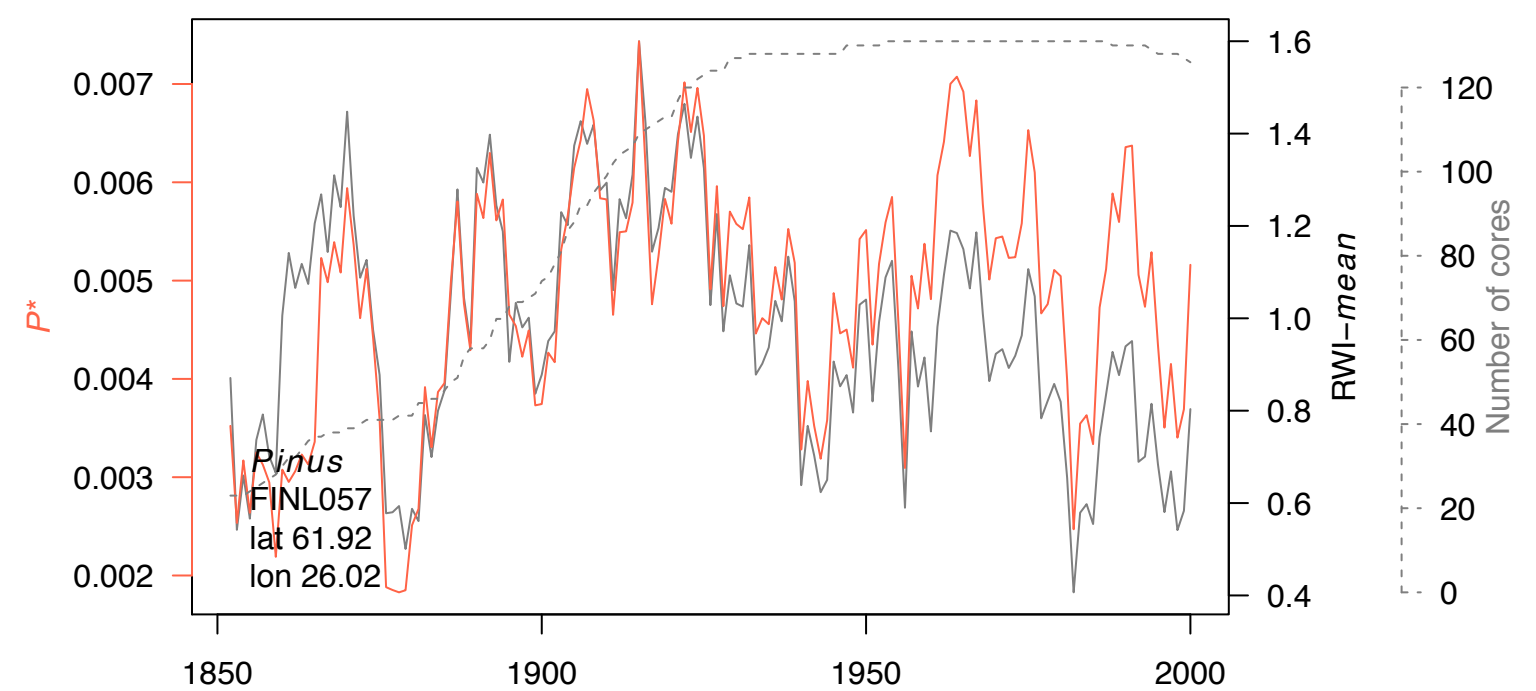

P*
0.010
0.008
0.006
0.004
0.002
RWI–mean
2.0
1.5
1.0
0.5
Number of cores
60
50
40
30
20
10
0
1600
1700
1800
1900
2000
Pinus
CA677
lat 39.57
lon −120.28

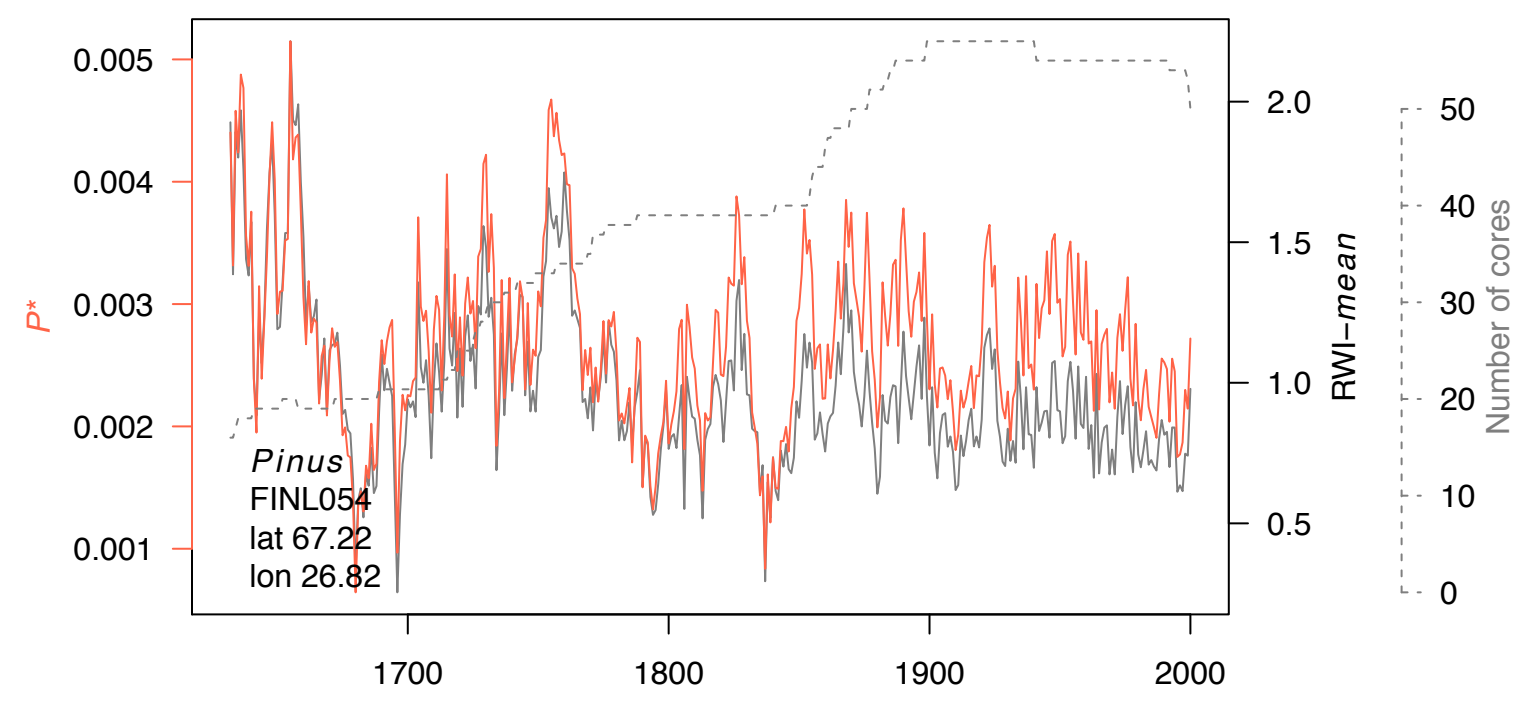

P*
0.014
0.012
0.010
0.008
0.006
0.004
0.002
0.000
Pinus
CA678
lat 37.95
lon −119.15
1500
1600
1700
1800
1900
2000
RWI–mean
2.0
1.5
1.0
0.5
Number of cores
60
50
40
30
20
10
0

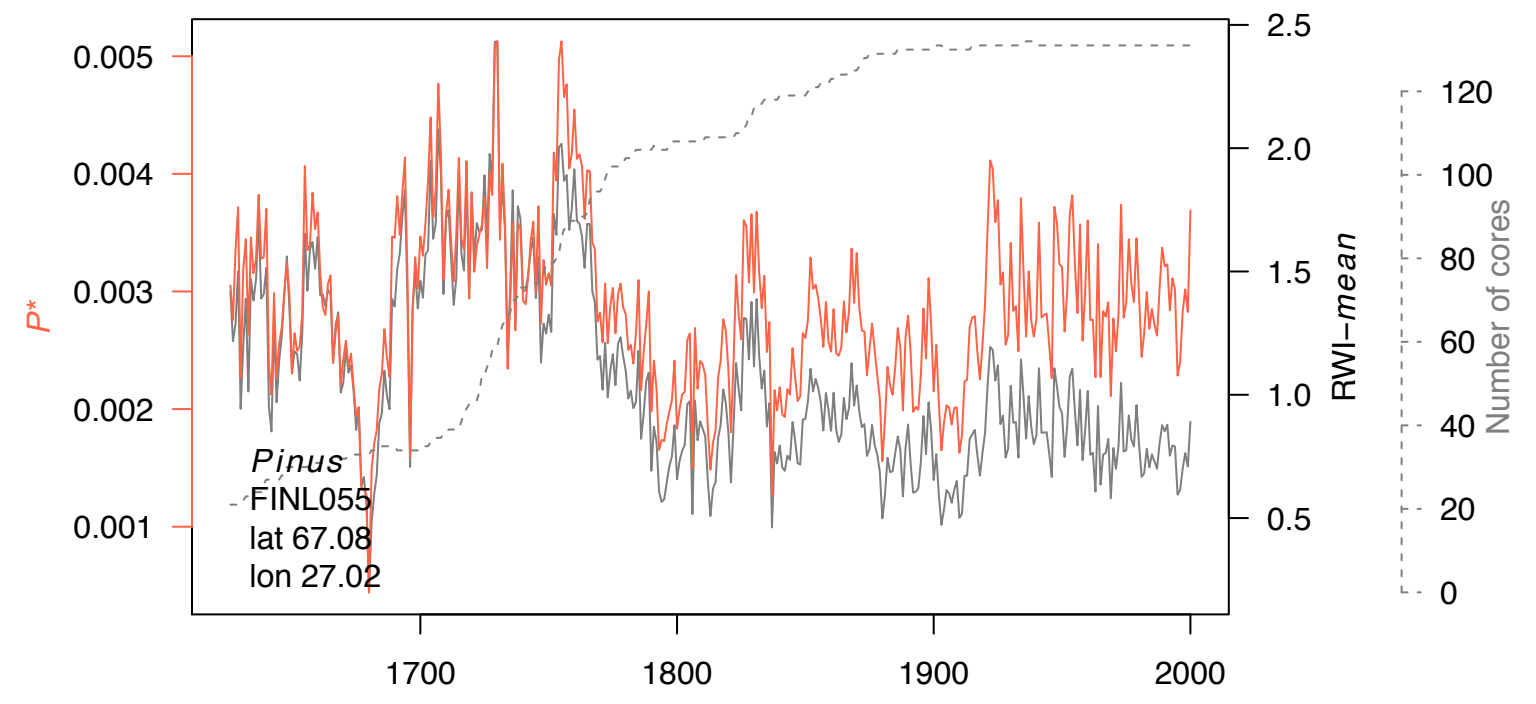

P*
0.008
0.007
0.006
0.005
0.004
0.003
Pinus
WV004
lat 38.05
lon −81.05
1940
1960
1980
2000
RWI–mean
1.6
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
30
25
20
15
10
5
0

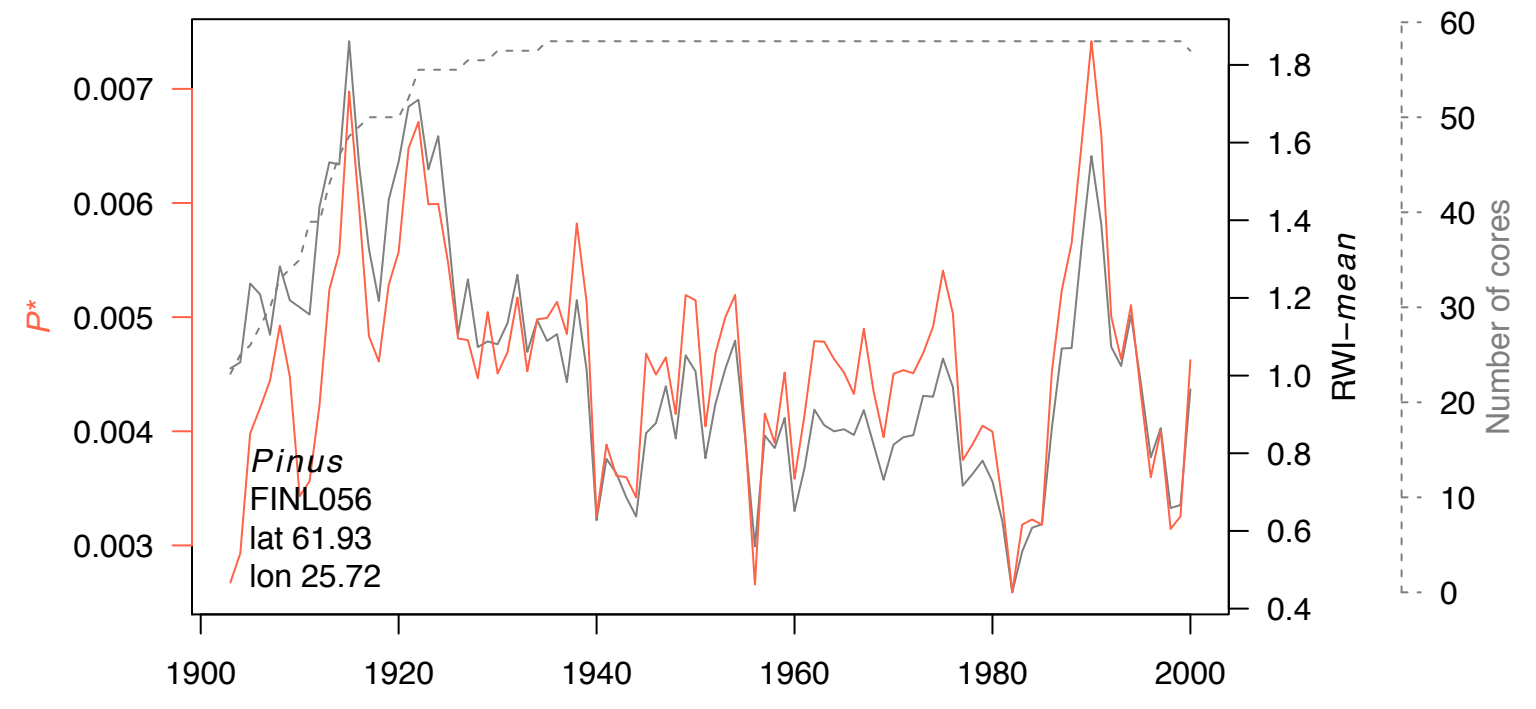

P*
0.007
0.006
0.005
0.004
0.003
Pinus
FRAN035
lat 44.63
lon 6.78
1860
1880
1900
1920
1940
1960
1980
2000
1.0
0.9
0.8
0.7
0.6
RWI–mean
10
8
6
4
2
0
Number of cores

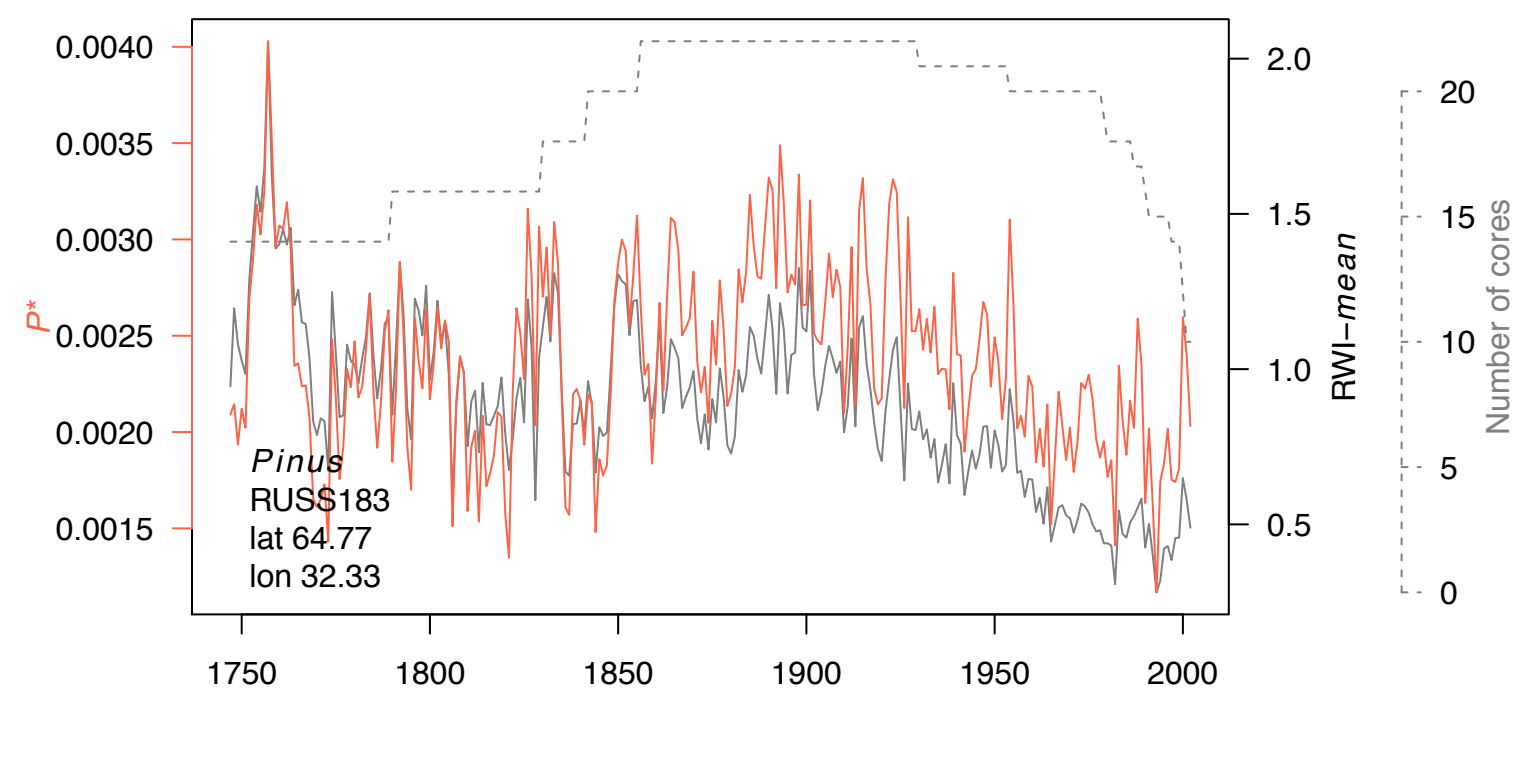

P*
0.006
0.005
0.004
0.003
0.002
Pinus
FRAN036
lat 44.63
lon 6.83
1750
1800
1850
1900
1950
2000
RWI–mean
1.4
1.2
1.0
0.8
0.6
Number of cores
20
15
10
5
0

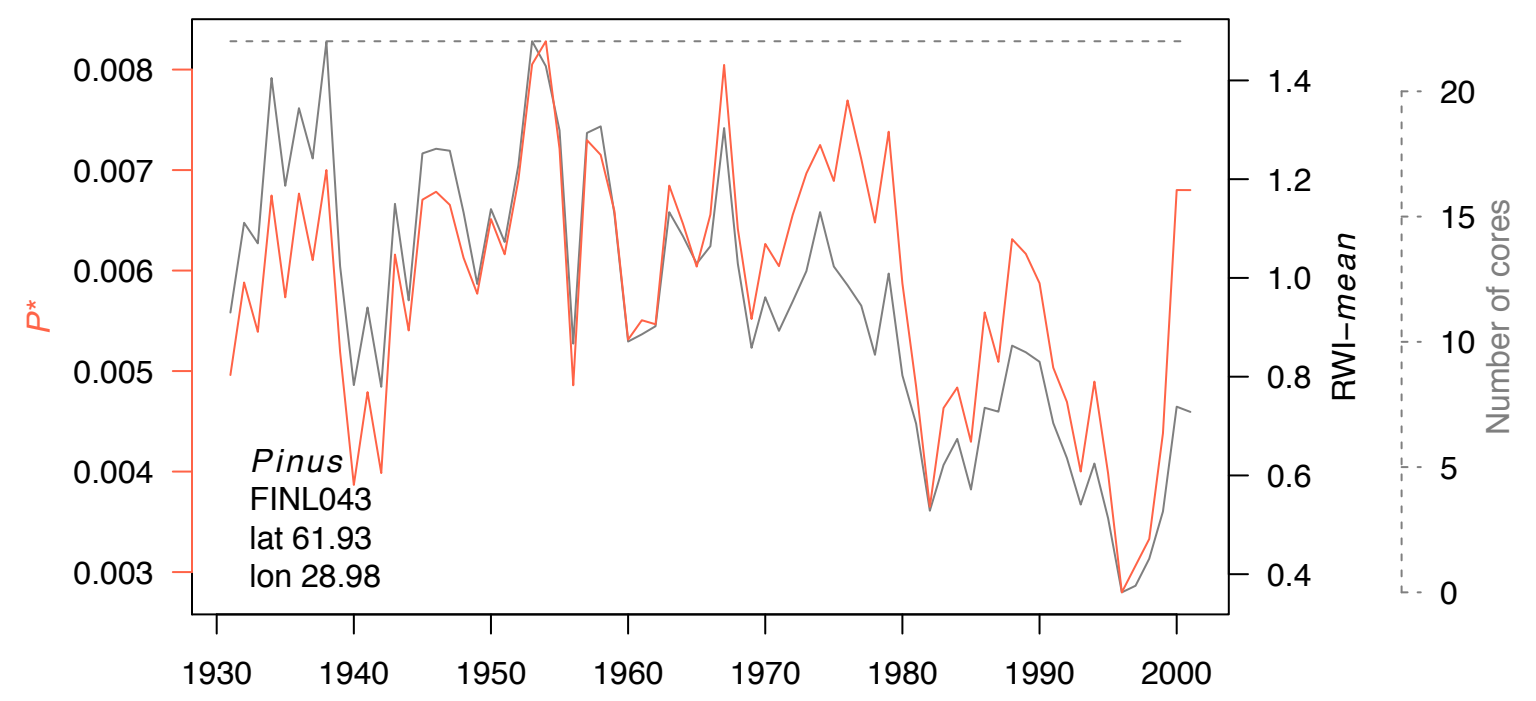

P*
0.007
0.006
0.005
0.004
0.003
0.002
Pinus
FINL057
lat 61.92
lon 26.02
1850
1900
1950
2000
1.6
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
120
100
80
60
40
20
0
Number of cores

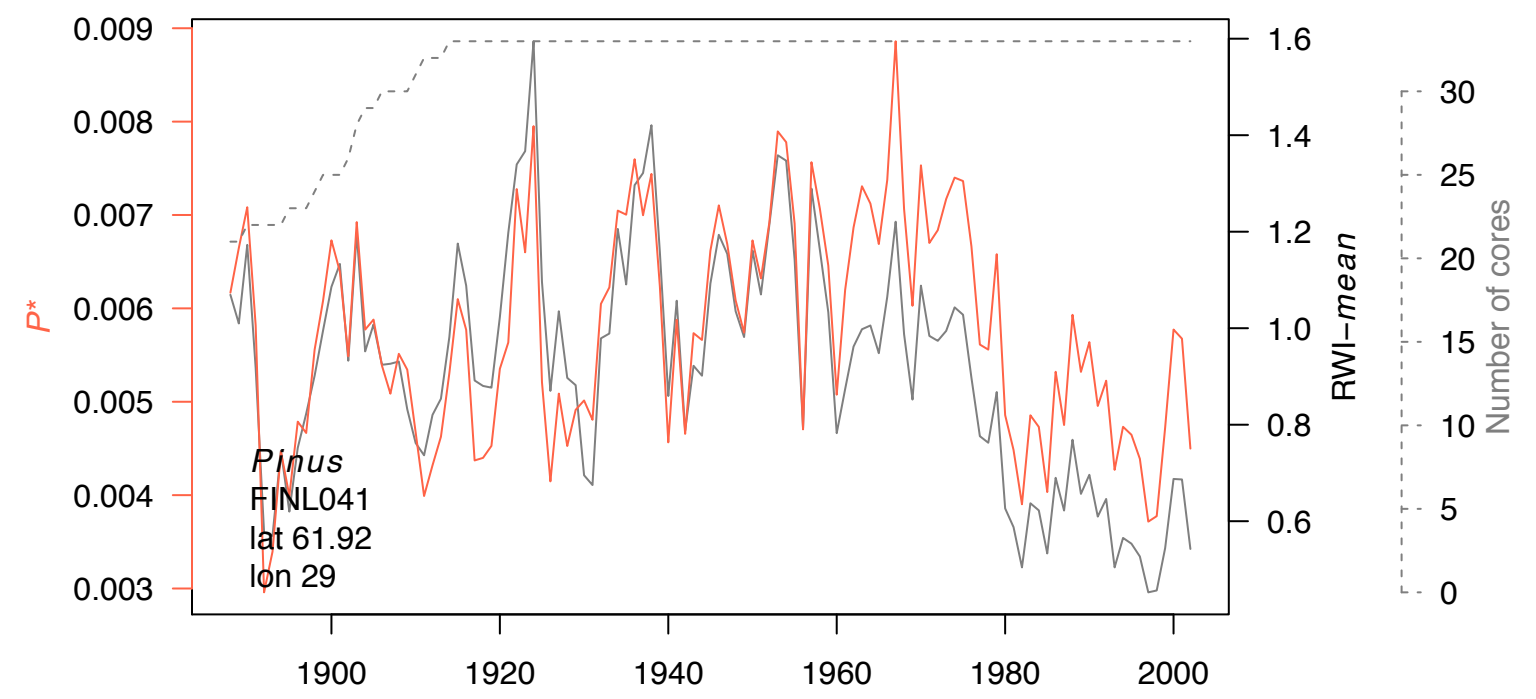

P*
0.005
0.004
0.003
0.002
0.001
RWI–mean
2.0
1.5
1.0
0.5
Number of cores
50
40
30
20
10
0
1700
1800
1900
2000
Pinus
FINL054
lat 67.22
lon 26.82

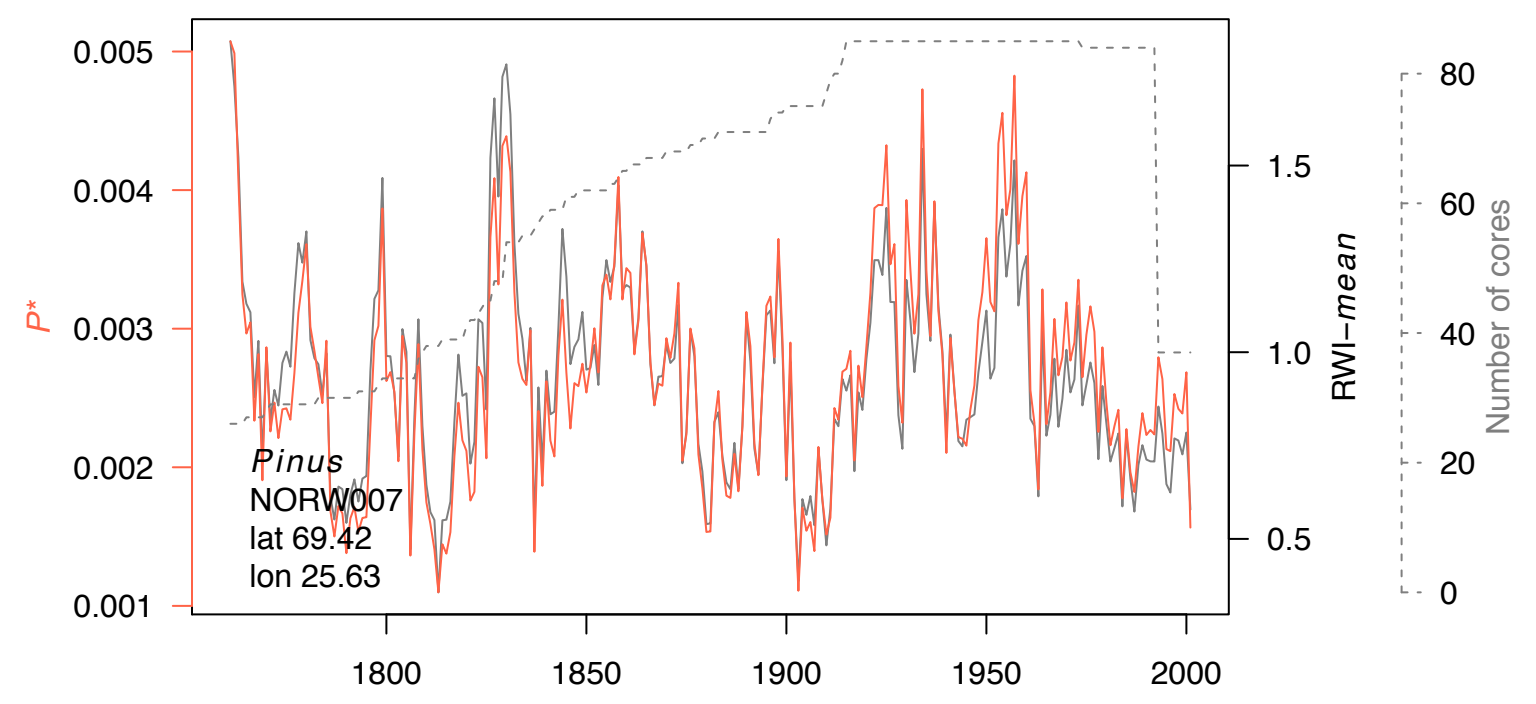

P*
0.005
0.004
0.003
0.002
0.001
2.5
2.0
1.5
1.0
0.5
RWI–mean
120
100
80
60
40
20
0
Number of cores
Pinus
FINL055
lat 67.08
lon 27.02
1700
1800
1900
2000

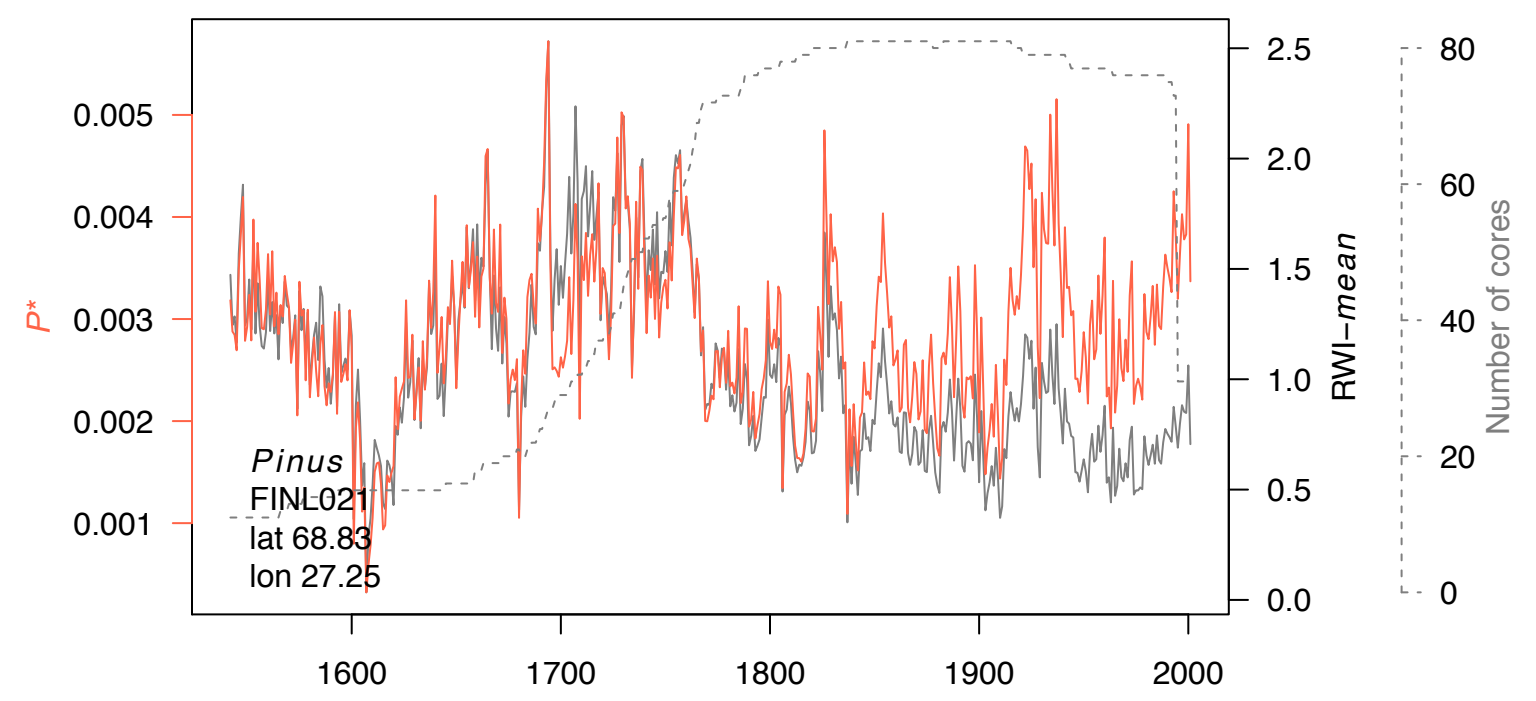

P*
0.007
0.006
0.005
0.004
0.003
Pinus
FINL056
lat 61.93
lon 25.72
1900
1920
1940
1960
1980
2000
RWI–mean
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
60
50
40
30
20
10
0

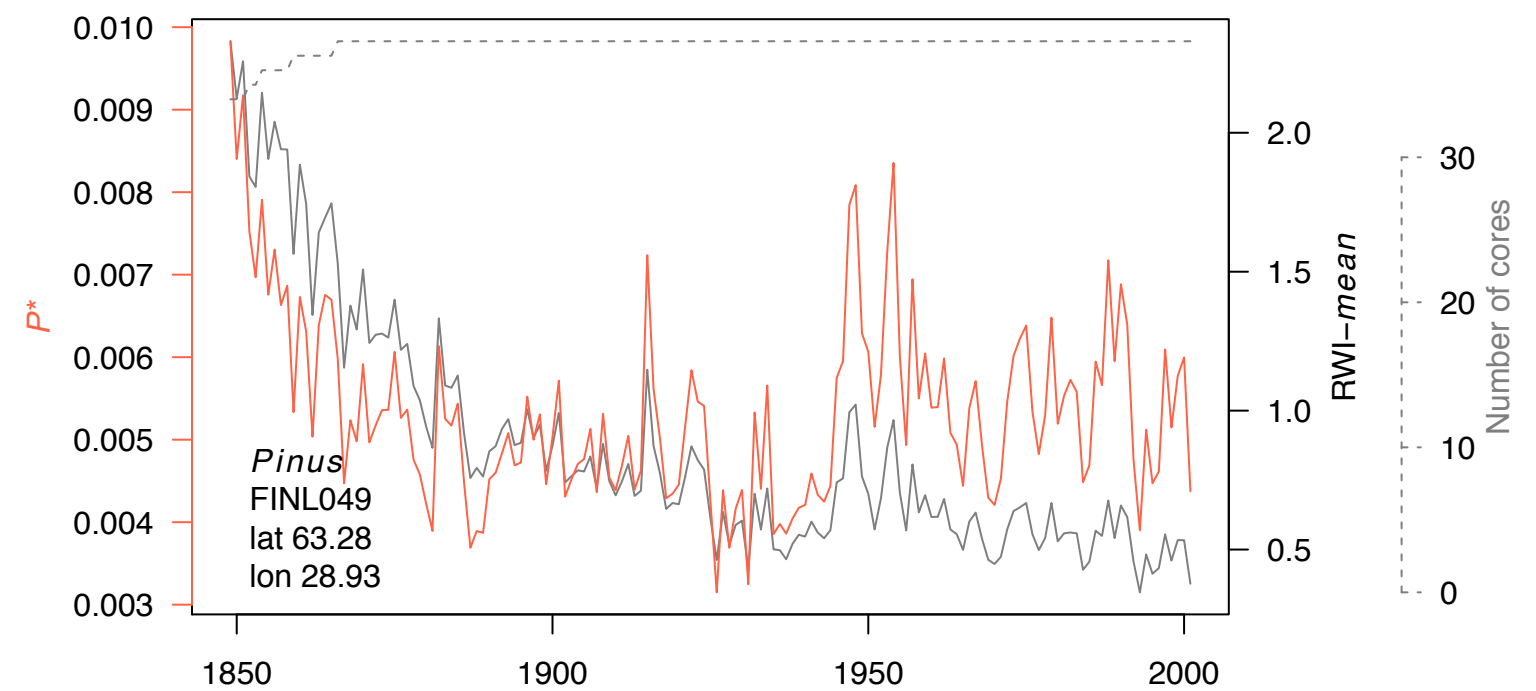

0.0040
0.0035
0.0030
0.0025
0.0020
0.0015
P*
2.0
1.5
1.0
0.5
RWI–mean
20
15
10
5
0
Number of cores
Pinus
RUS$183
lat 64.77
lon 32.33
1750
1800
1850
1900
1950
2000

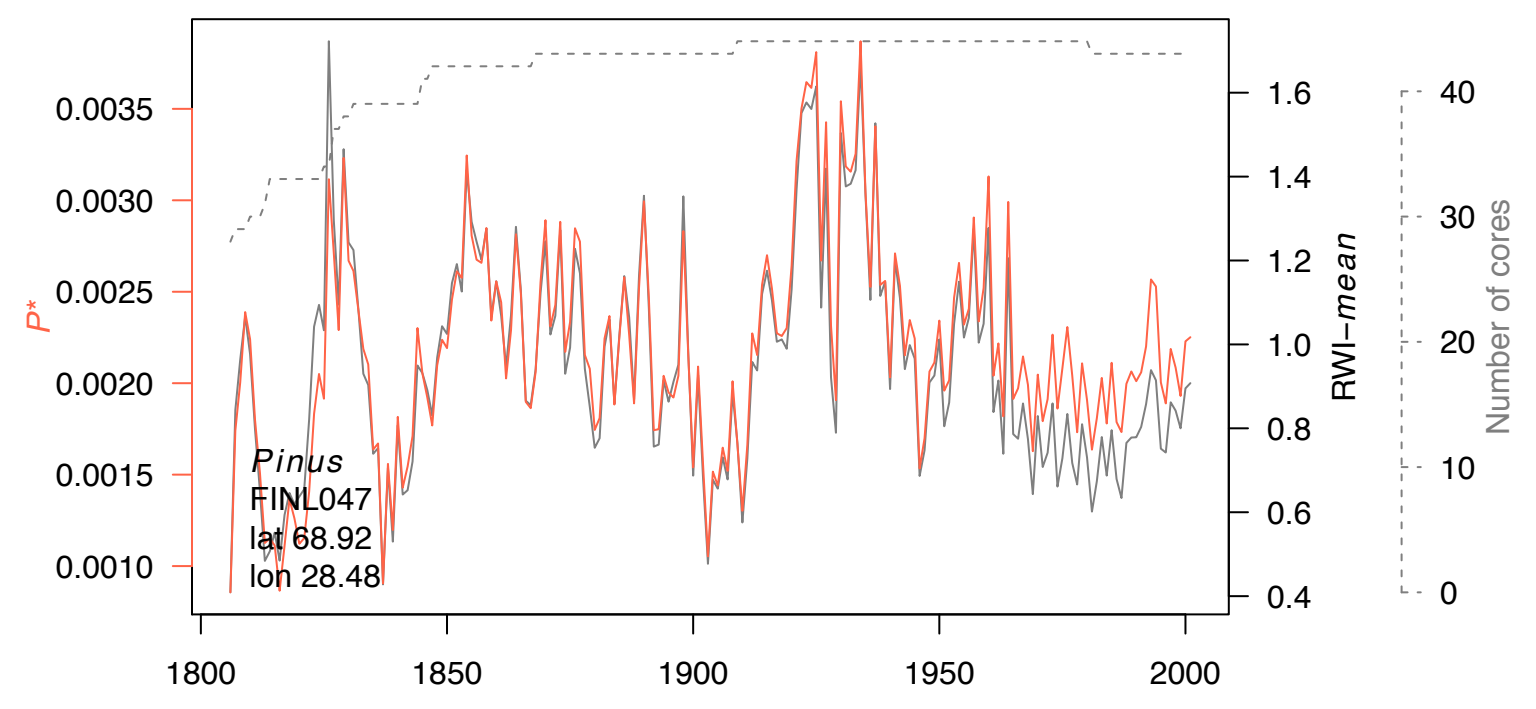

P*
0.008
0.007
0.006
0.005
0.004
0.003
Pinus
FINL043
lat 61.93
lon 28.98
1930
1940
1950
1960
1970
1980
1990
2000
RWI–mean
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
20
15
10
5
0

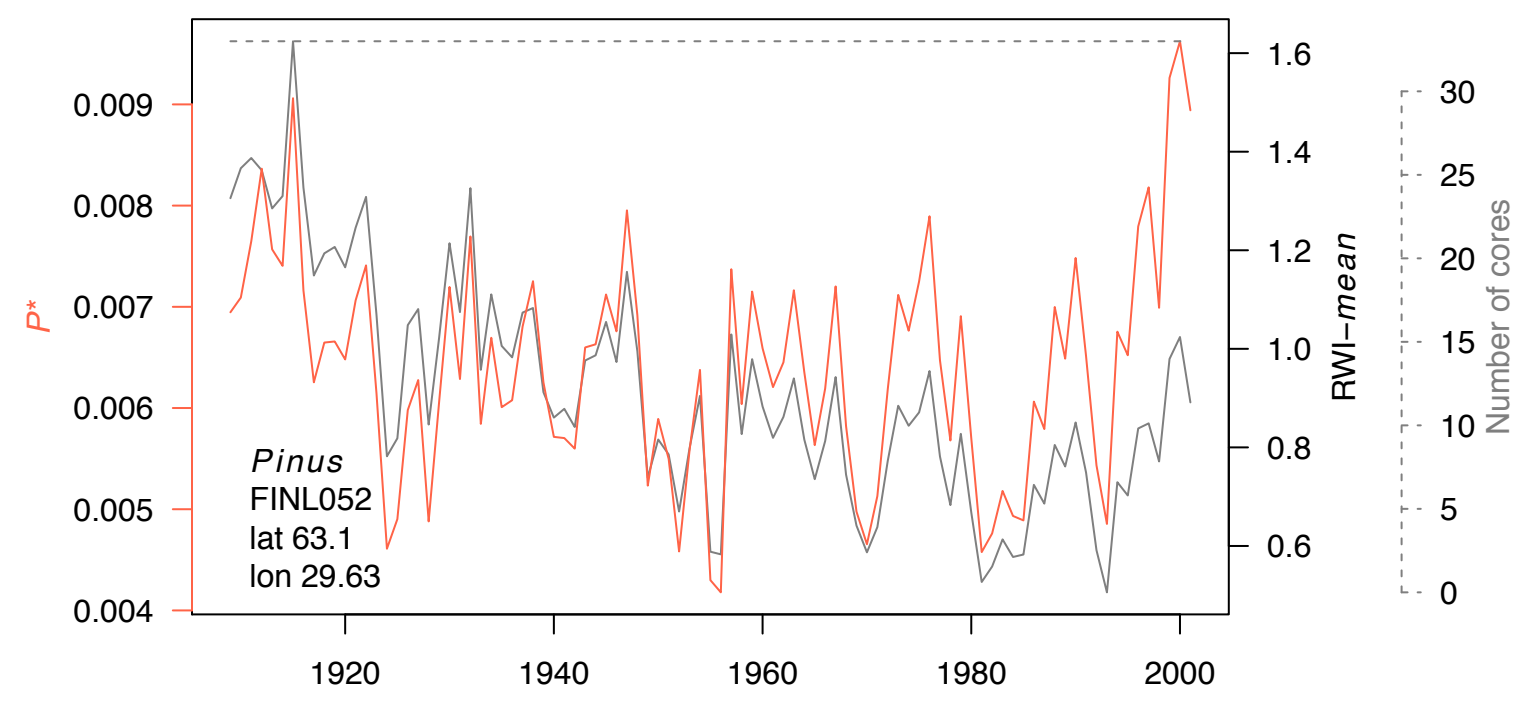

P*
0.009
0.008
0.007
0.006
0.005
0.004
0.003
RWI–mean
1.6
1.4
1.2
1.0
0.8
0.6
Number of cores
30
25
20
15
10
5
0
1900
1920
1940
1960
1980
2000
Pinus
FINL041
lat 61.92
lon 29

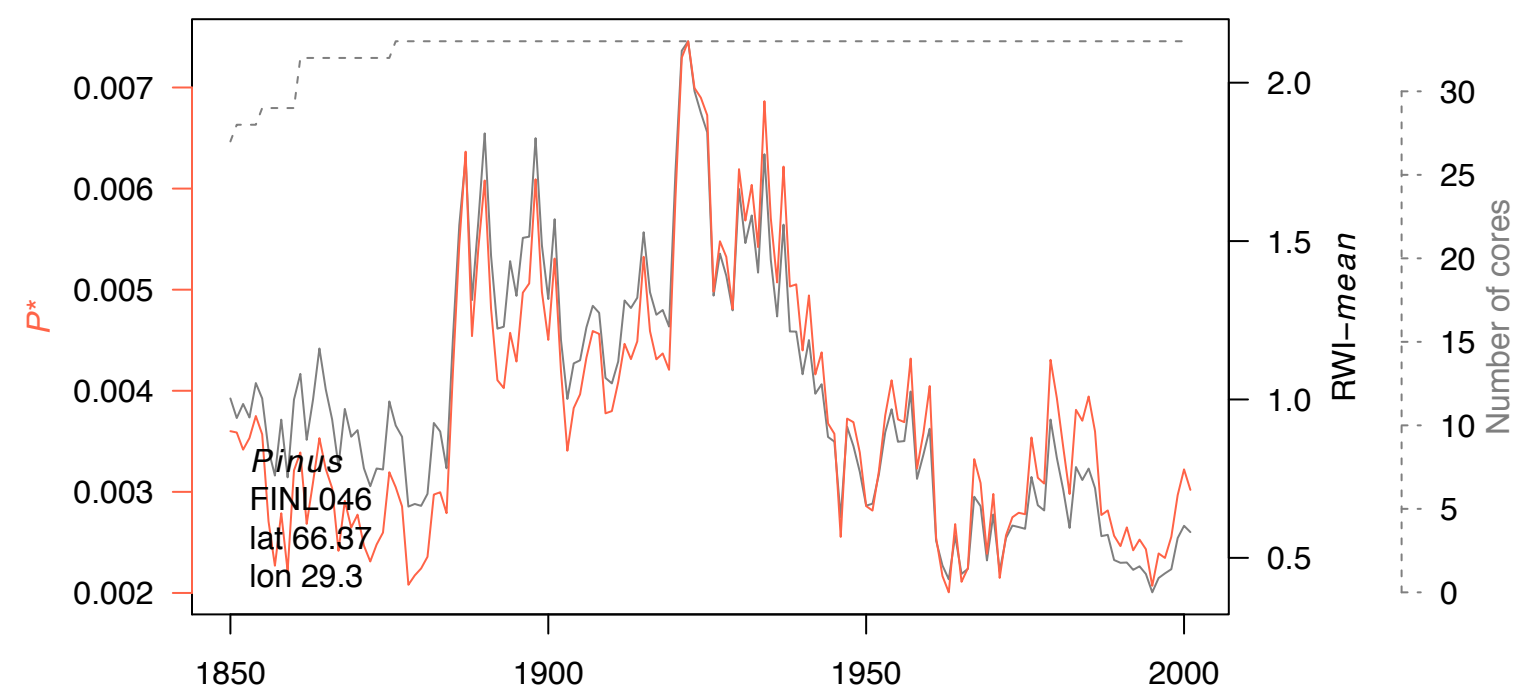

P*
0.005
0.004
0.003
0.002
0.001
Pinus
NORW007
lat 69.42
lon 25.63
1800
1850
1900
1950
2000
1.5
1.0
0.5
RWI–mean
80
60
40
20
0
Number of cores

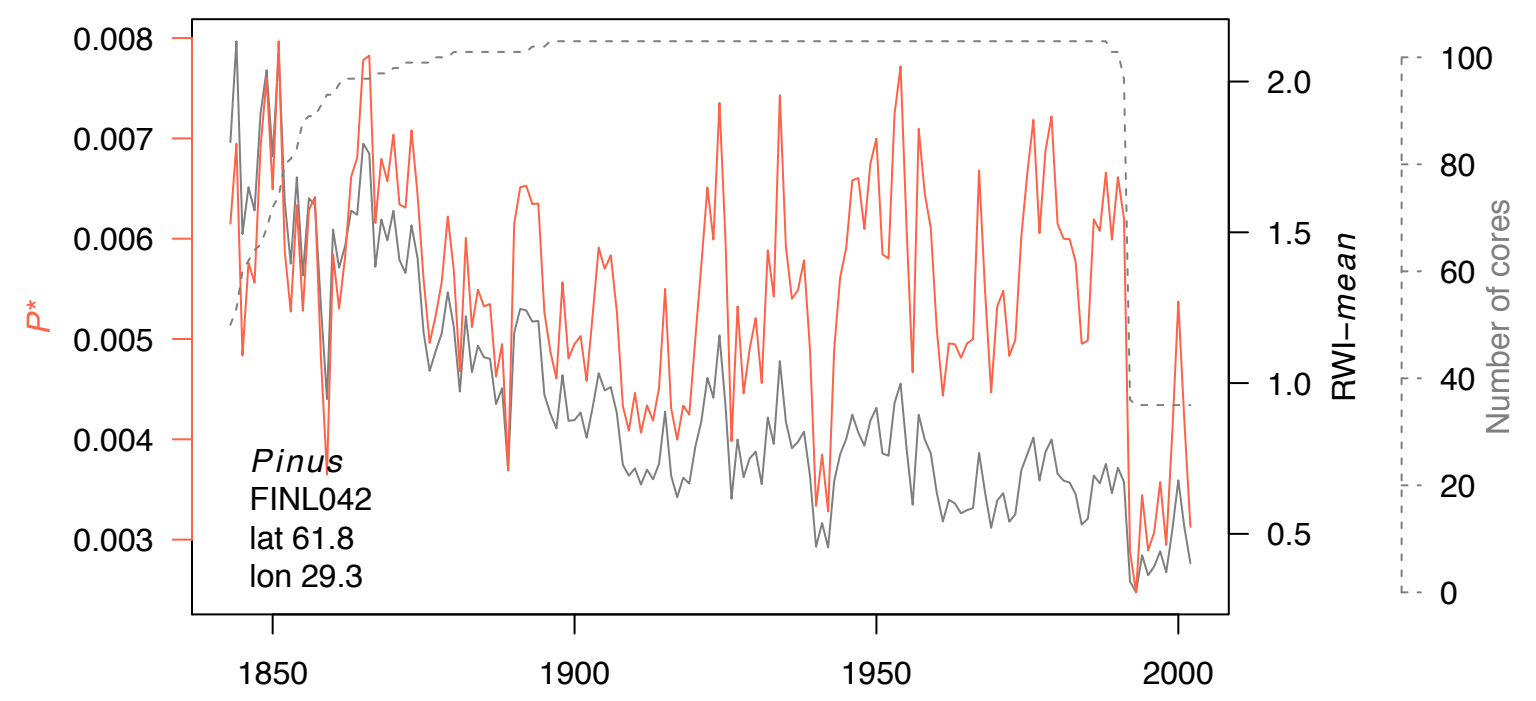

P*
0.005
0.004
0.003
0.002
0.001
Pinus
FINL021
lat 68.83
lon 27.25
2.5
2.0
1.5
1.0
0.5
0.0
RWI–mean
80
60
40
20
0
Number of cores
1600
1700
1800
1900
2000

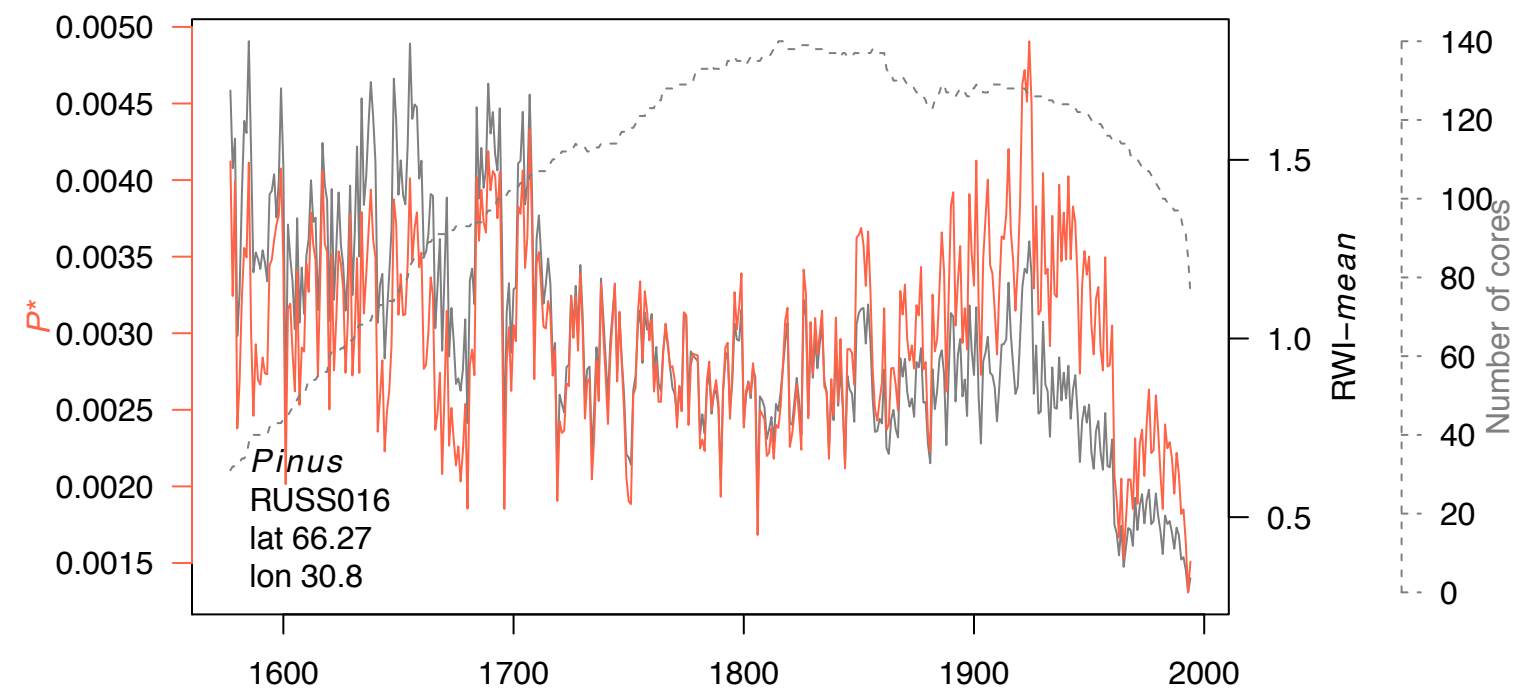

P*
0.010
0.009
0.008
0.007
0.006
0.005
0.004
0.003
Pinus
FINL049
lat 63.28
lon 28.93
1850
1900
1950
2000
RWI–mean
2.0
1.5
1.0
0.5
Number of cores
30
20
10
0

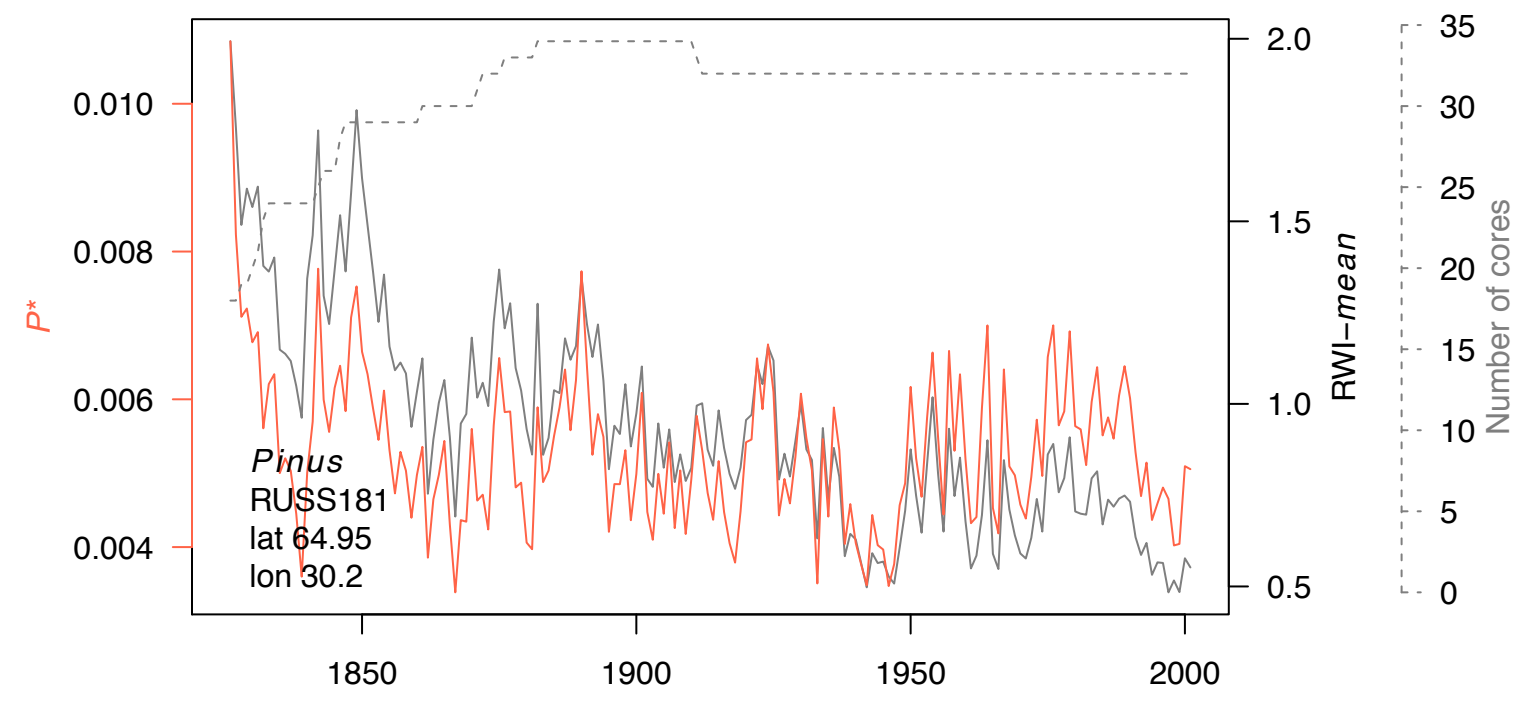

P*
0.0035
0.0030
0.0025
0.0020
0.0015
0.0010
Pinus
FINL047
lat 68.92
lon 28.48
1800
1850
1900
1950
2000
RWI–mean
1.6
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
40
30
20
10
0

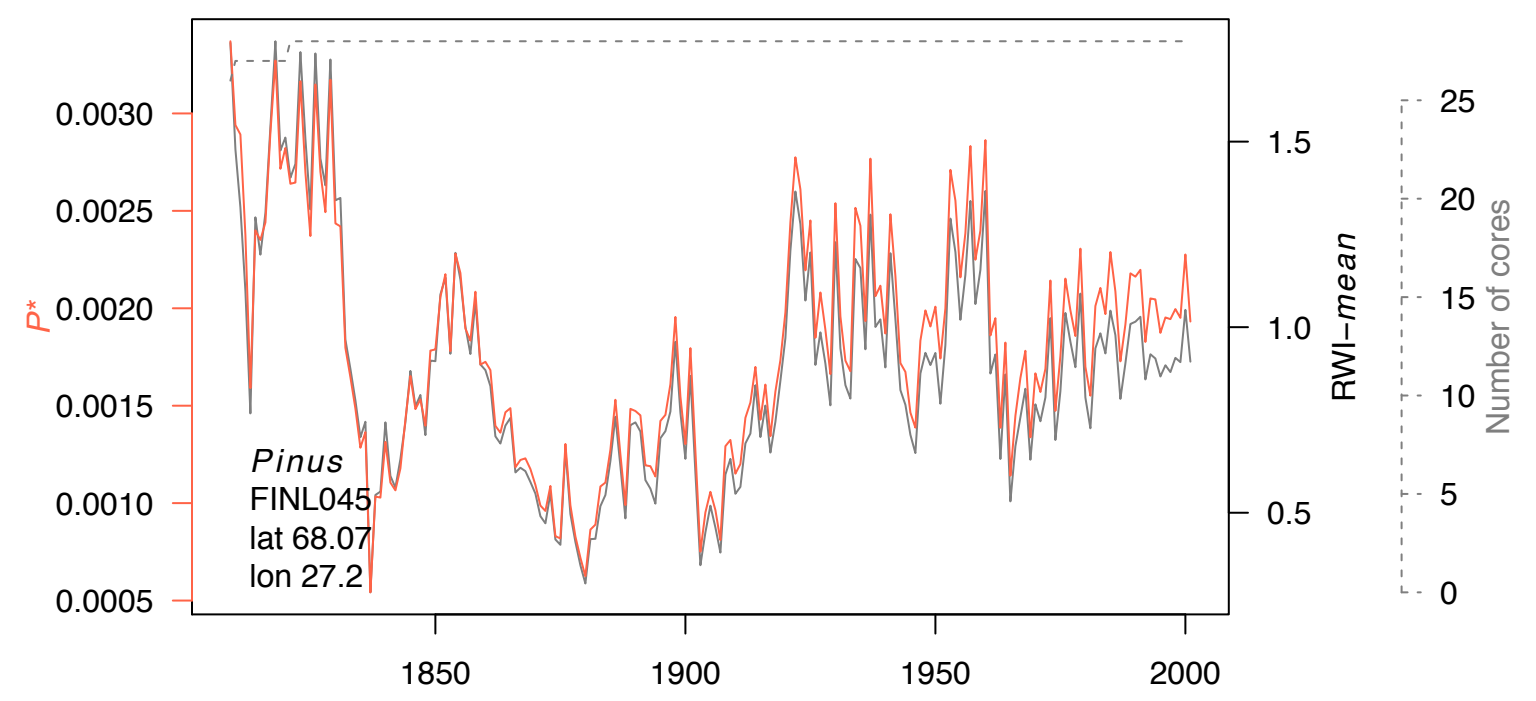

P*
0.009
0.008
0.007
0.006
0.005
0.004
Pinus
FINL052
lat 63.1
lon 29.63
1920
1940
1960
1980
2000
1.6
1.4
1.2
1.0
0.8
0.6
RWI–mean
30
25
20
15
10
5
0
Number of cores

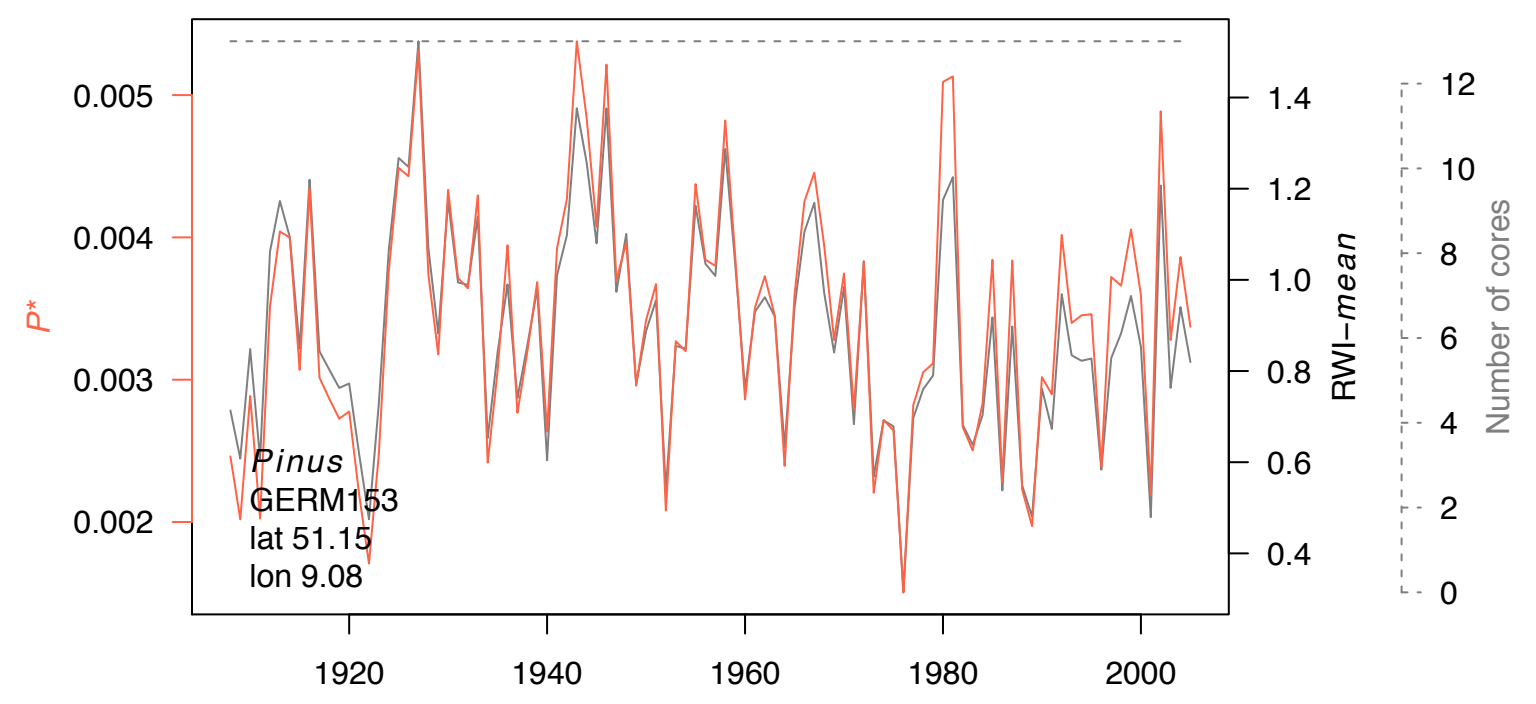

P*
0.007
0.006
0.005
0.004
0.003
0.002
Pinus
FINL046
lat 66.37
lon 29.3
2.0
1.5
1.0
0.5
RWI–mean
30
25
20
15
10
5
0
Number of cores
1850
1900
1950
2000

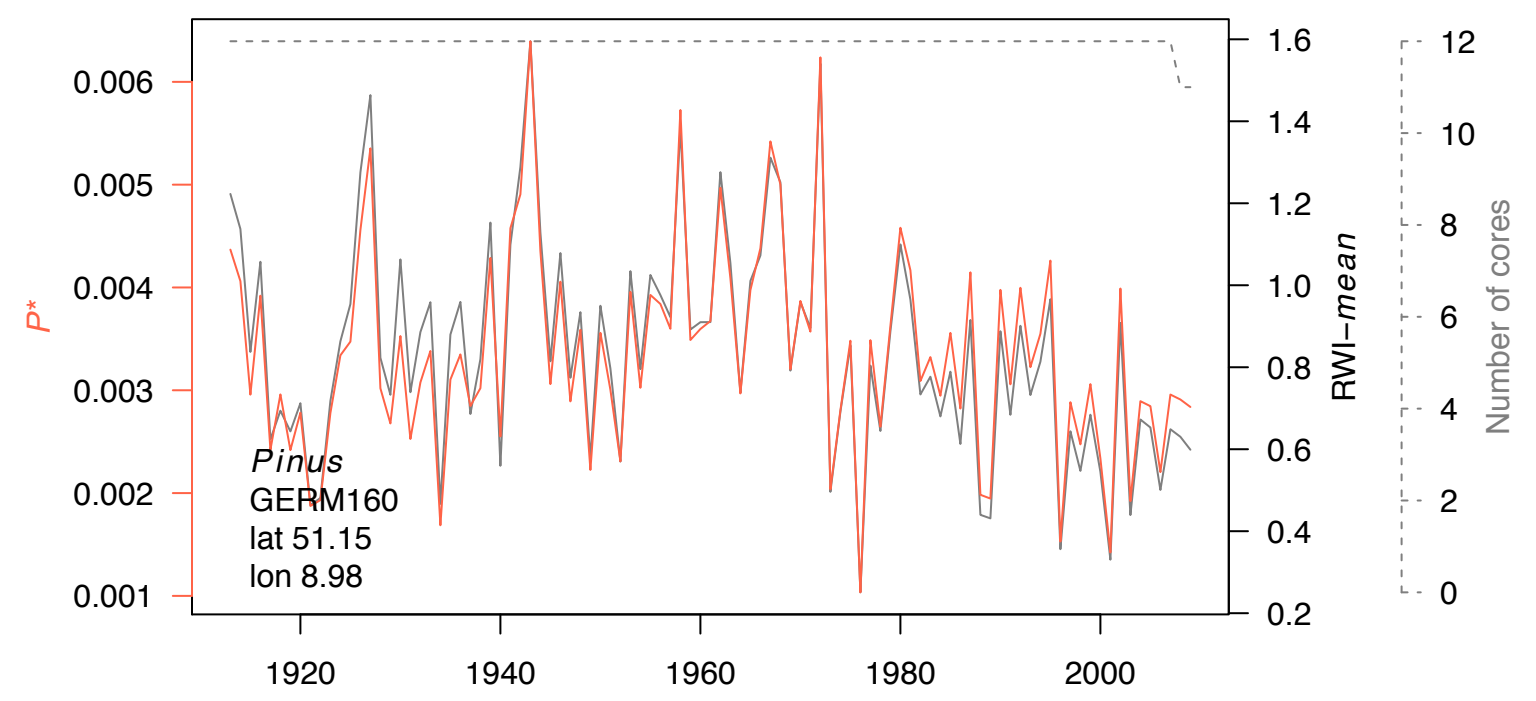

P*
0.008
0.007
0.006
0.005
0.004
0.003
RWI–mean
2.0
1.5
1.0
0.5
Number of cores
100
80
60
40
20
0
1850
1900
1950
2000
Pinus
FINL042
lat 61.8
lon 29.3

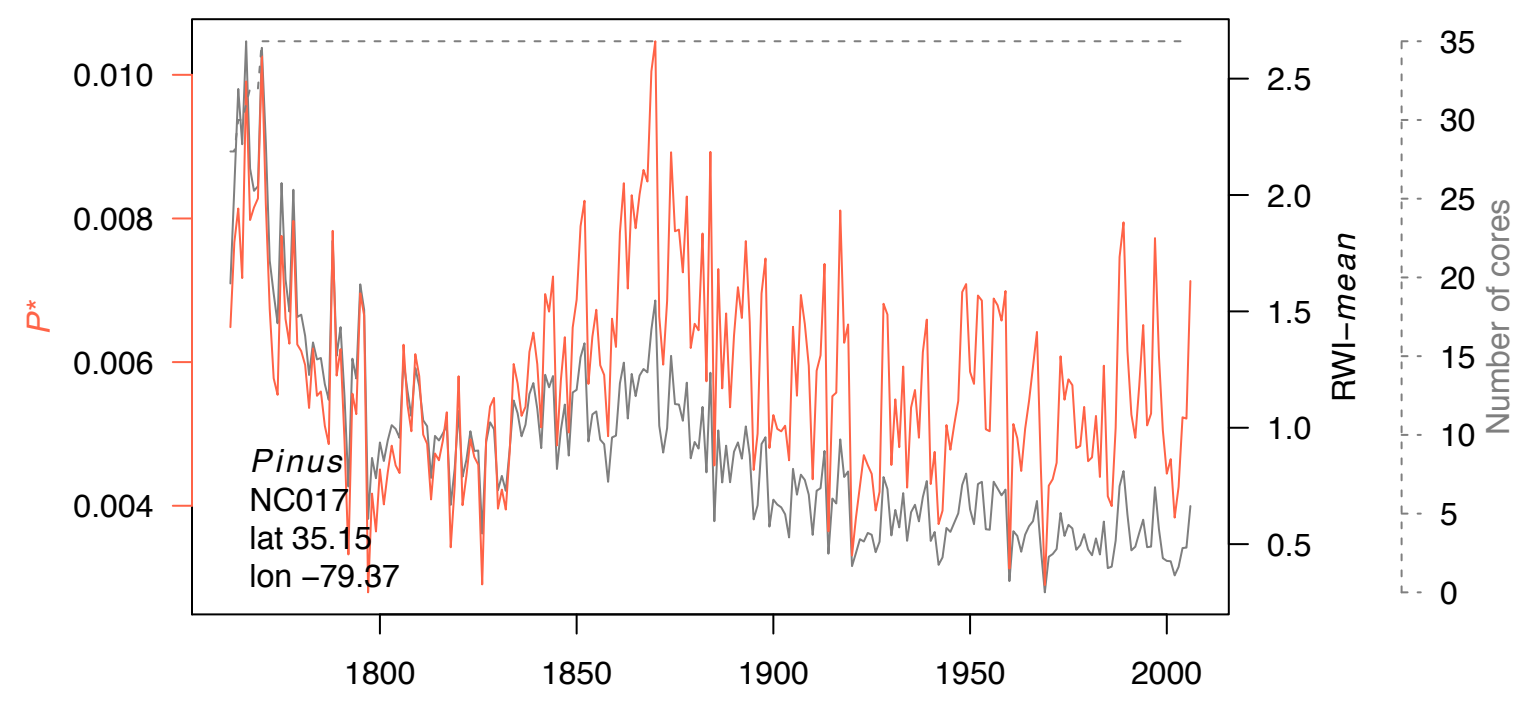

0.0050
0.0045
0.0040
0.0035
0.0030
0.0025
0.0020
0.0015
P*
1.5
1.0
0.5
RWI–mean
140
120
100
80
60
40
20
0
Number of cores
Pinus
RUSS016
lat 66.27
lon 30.8
1600
1700
1800
1900
2000

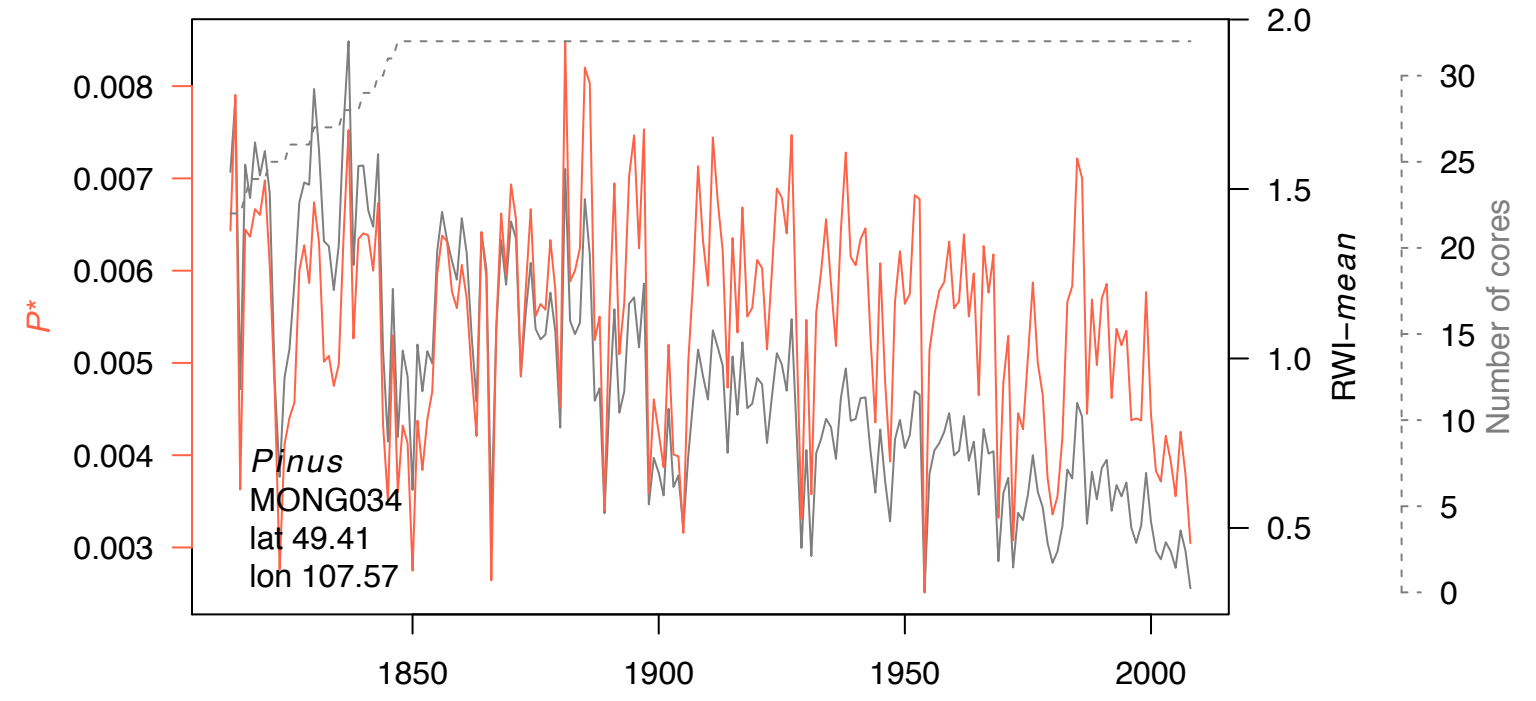

P*
0.010
0.008
0.006
0.004
Pinus
RUSS181
lat 64.95
lon 30.2
2.0
1.5
1.0
0.5
RWI–mean
35
30
25
20
15
10
5
0
Number of cores
1850
1900
1950
2000

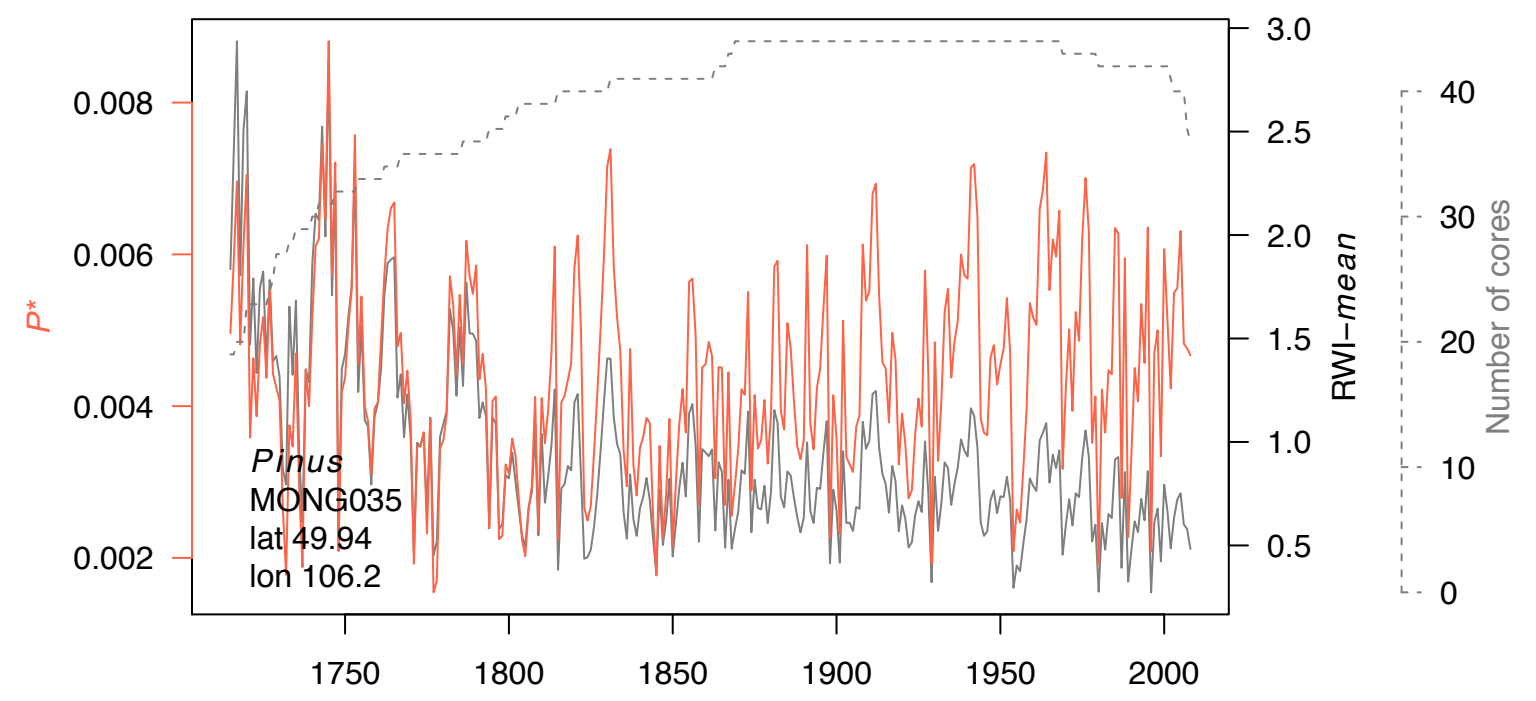

P*
0.0030
0.0025
0.0020
0.0015
0.0010
0.0005
Pinus
FINL045
lat 68.07
lon 27.2
1850
1900
1950
2000
RWI–mean
1.5
1.0
0.5
Number of cores
25
20
15
10
5
0

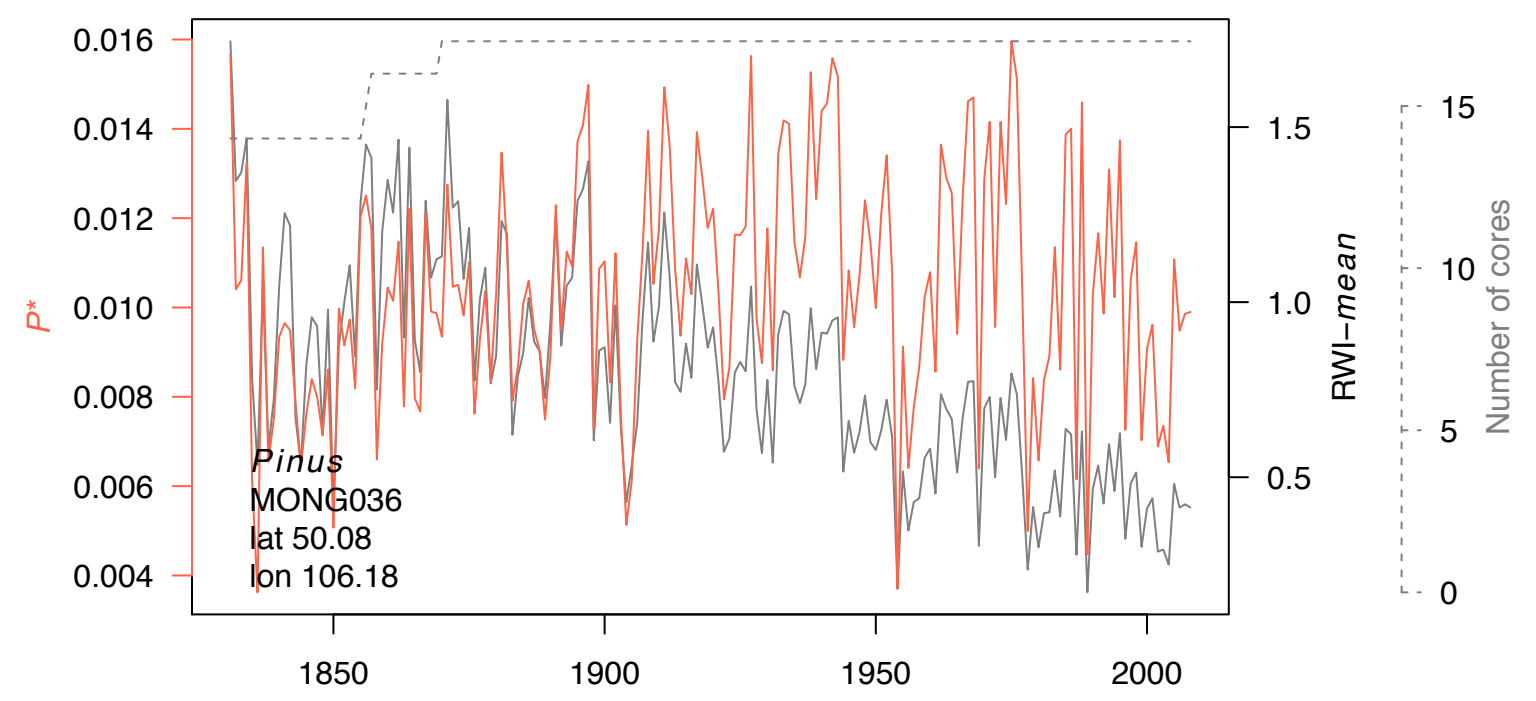

P*
0.005
0.004
0.003
0.002
Pinus
GERM153
lat 51.15
lon 9.08
1920
1940
1960
1980
2000
RWI–mean
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
12
10
8
6
4
2
0

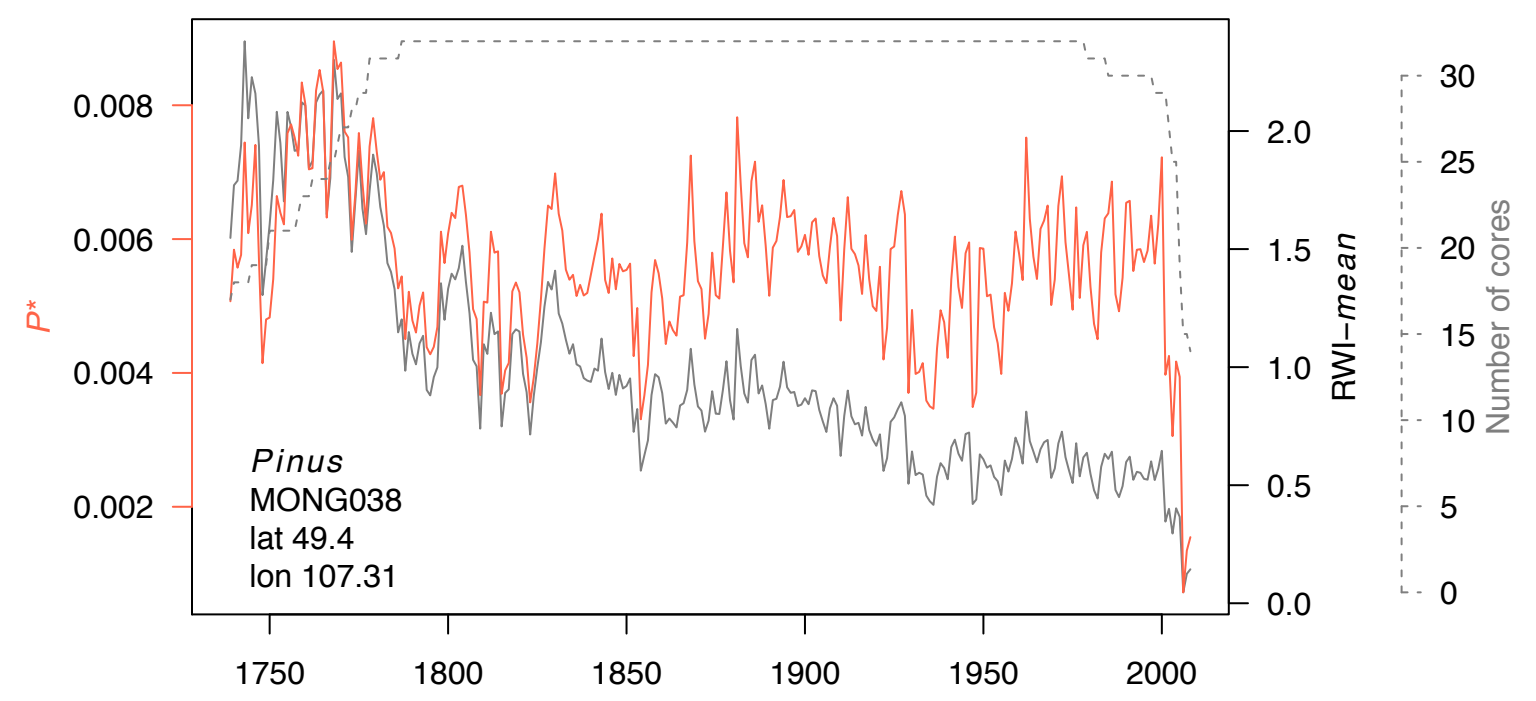

P*
0.006
0.005
0.004
0.003
0.002
0.001
Pinus
GERM160
lat 51.15
lon 8.98
1920
1940
1960
1980
2000
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
RWI–mean
12
10
8
6
4
2
0
Number of cores

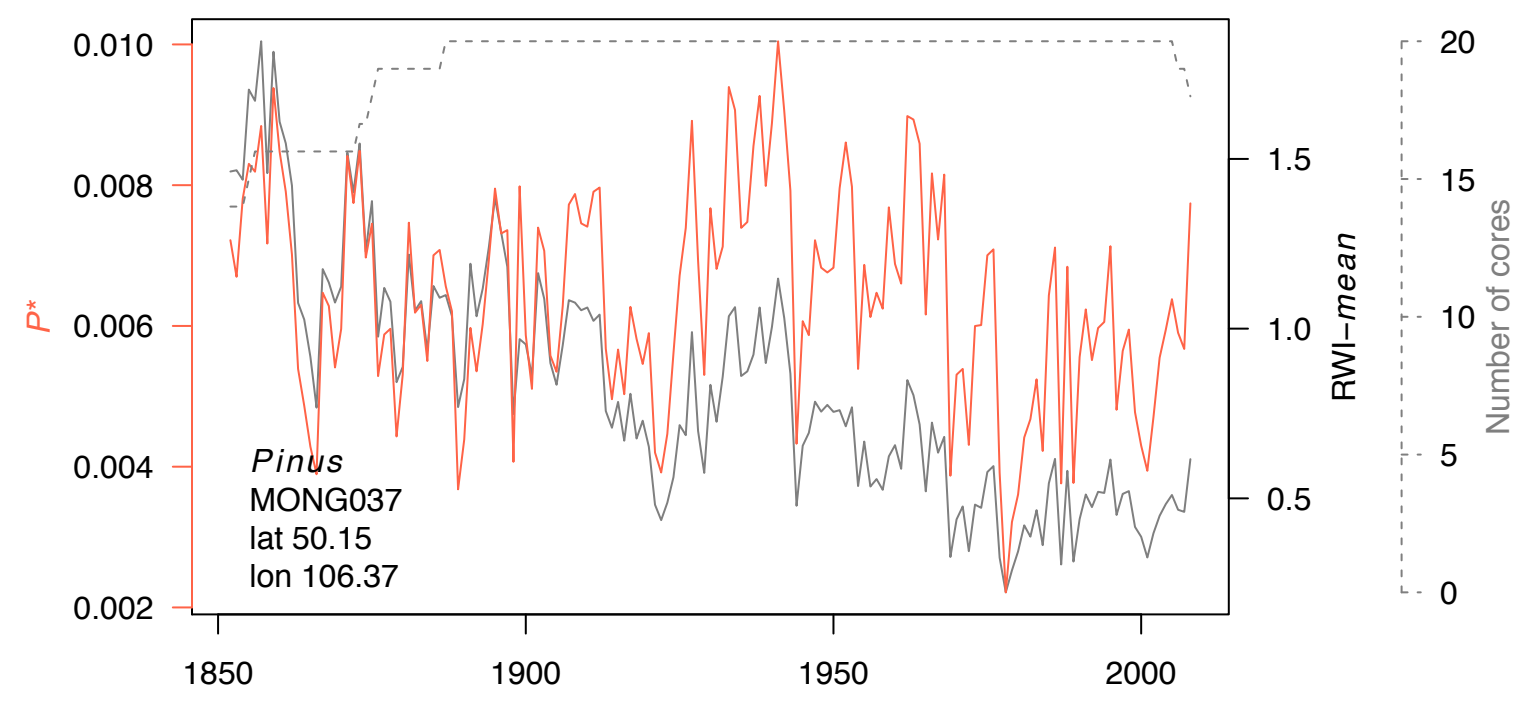

P*
0.010
0.008
0.006
0.004
RWI–mean
2.5
2.0
1.5
1.0
0.5
Number of cores
35
30
25
20
15
10
5
0
Pinus
NC017
lat 35.15
lon −79.37
1800
1850
1900
1950
2000

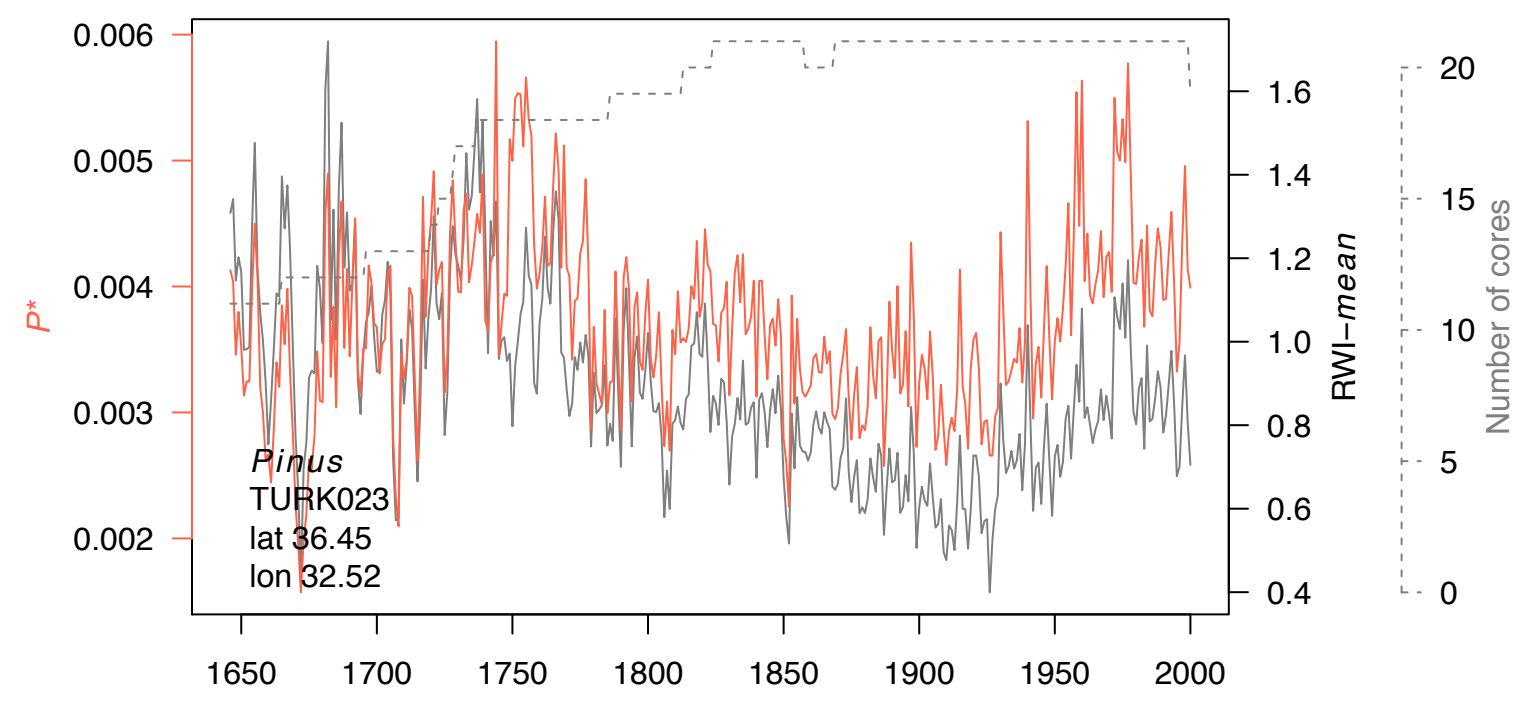

P*
0.008
0.007
0.006
0.005
0.004
0.003
Pinus
MONG034
lat 49.41
lon 107.57
2.0
1.5
1.0
0.5
RWI–mean
30
25
20
15
10
5
0
Number of cores
1850
1900
1950
2000

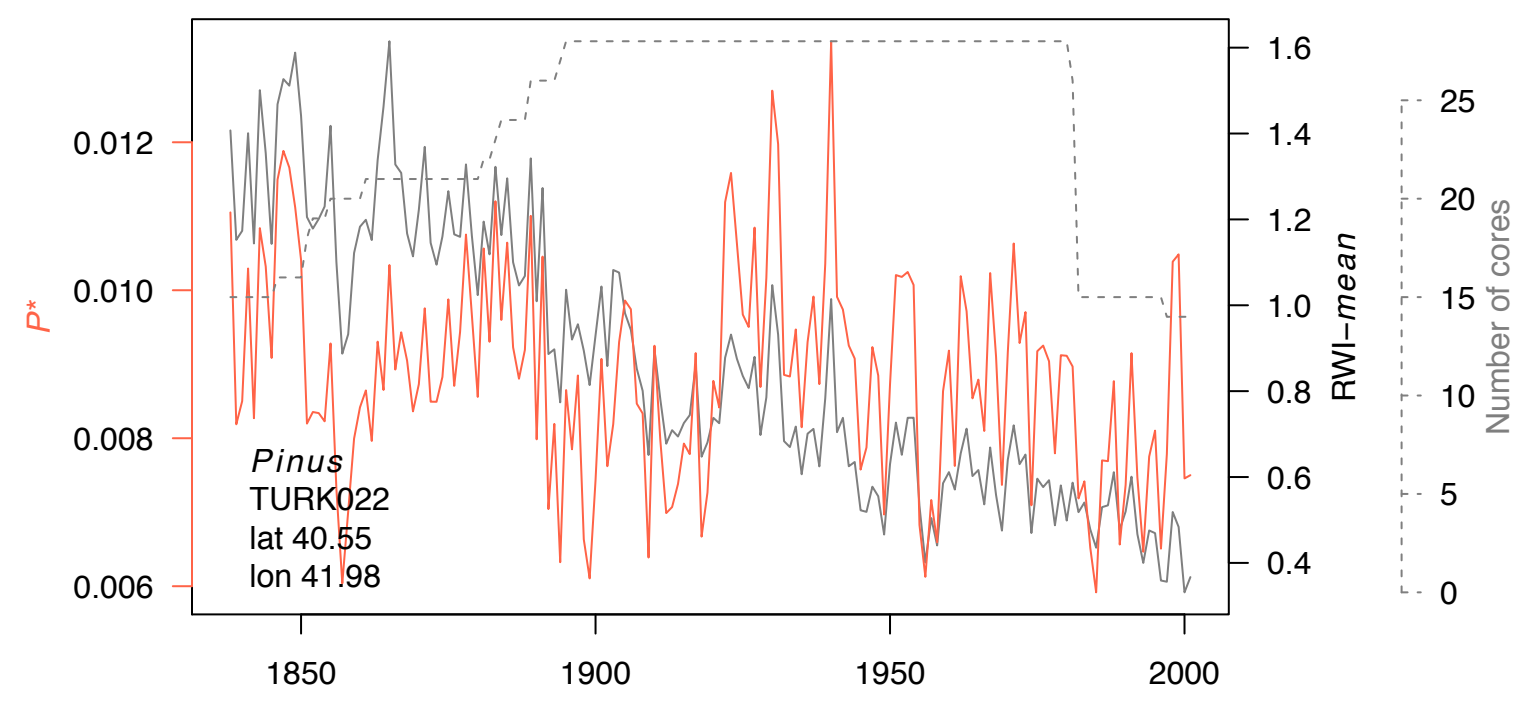

P*
0.008
0.006
0.004
0.002
3.0
2.5
2.0
1.5
1.0
0.5
RWI–mean
40
30
20
10
0
Number of cores
Pinus
MONG035
lat 49.94
lon 106.2
1750
1800
1850
1900
1950
2000

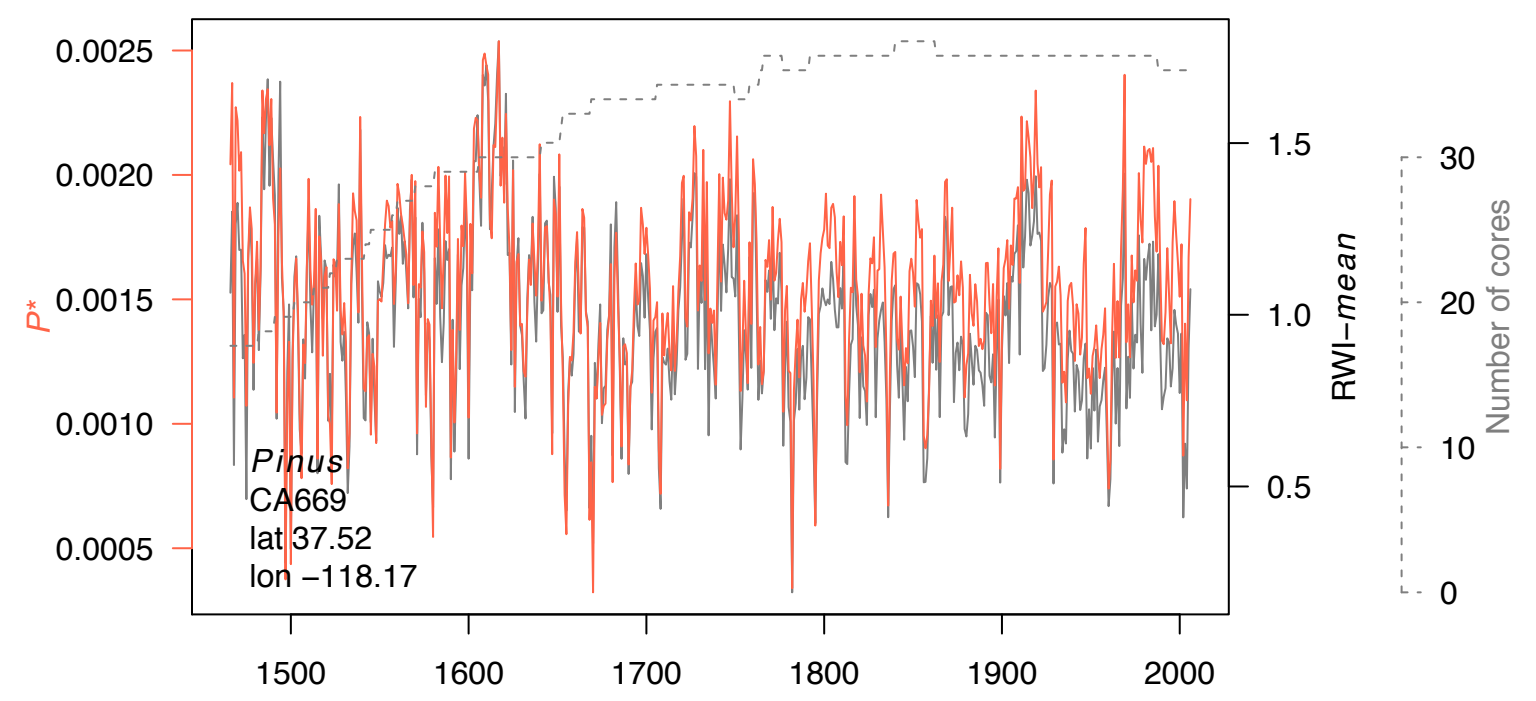

P*
0.016
0.014
0.012
0.010
0.008
0.006
0.004
Pinus
MONG036
lat 50.08
lon 106.18
1850
1900
1950
2000
RWI–mean
1.5
1.0
0.5
Number of cores
15
10
5
0

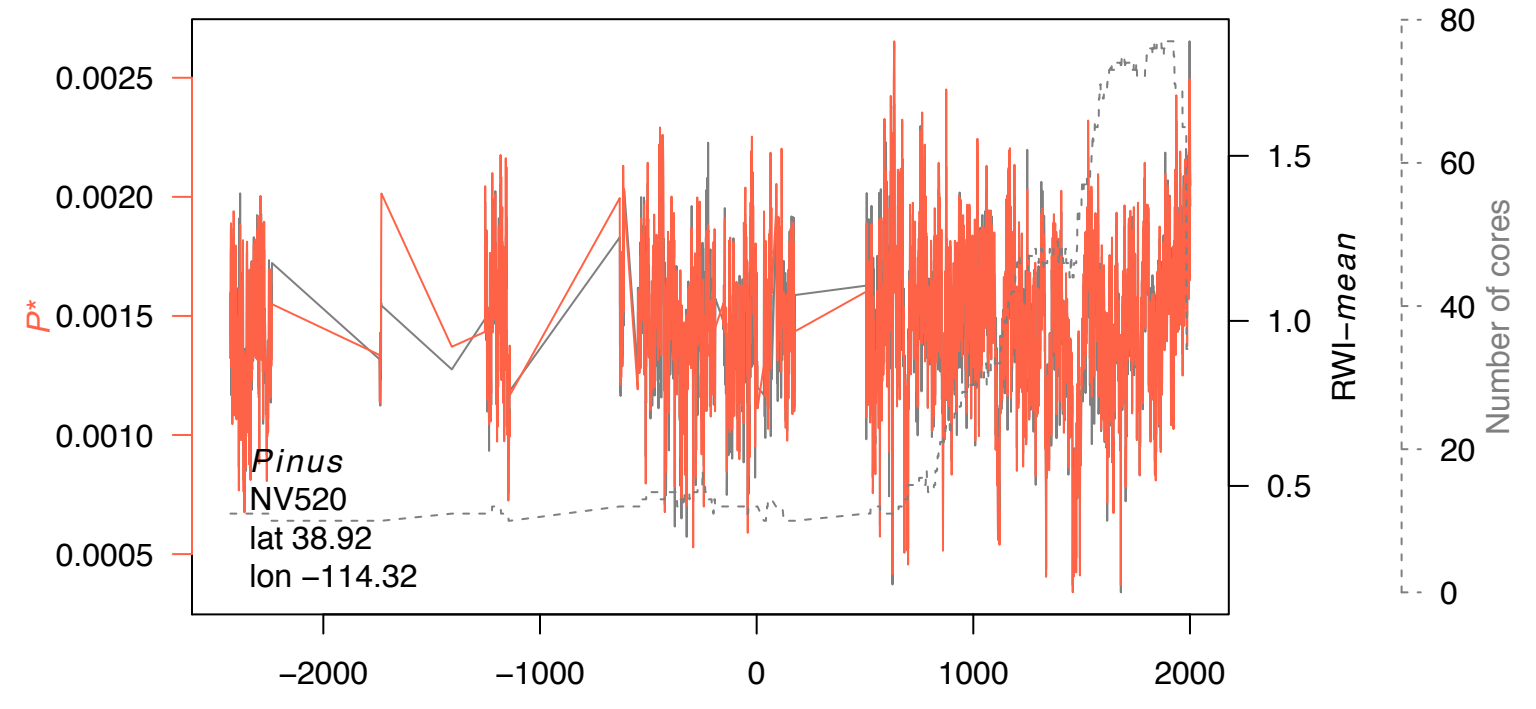

P*
0.008
0.006
0.004
0.002
Pinus
MONG038
lat 49.4
lon 107.31
1750
1800
1850
1900
1950
2000
RWI–mean
2.0
1.5
1.0
0.5
0.0
Number of cores
30
25
20
15
10
5
0

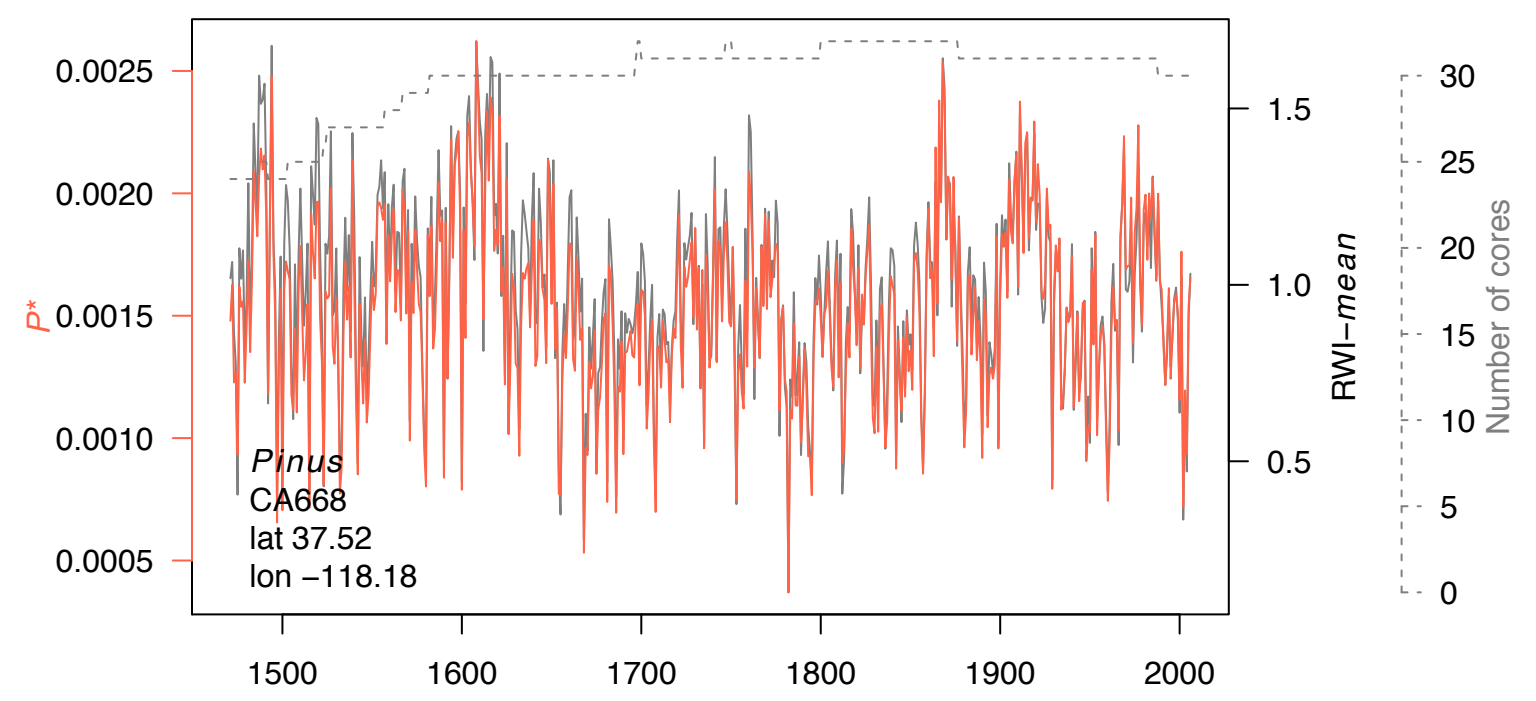

0.010
0.008
0.006
0.004
0.002
P*
1.5
1.0
0.5
RWI–mean
20
15
10
5
0
Number of cores
Pinus
MONG037
lat 50.15
lon 106.37
1850
1900
1950
2000

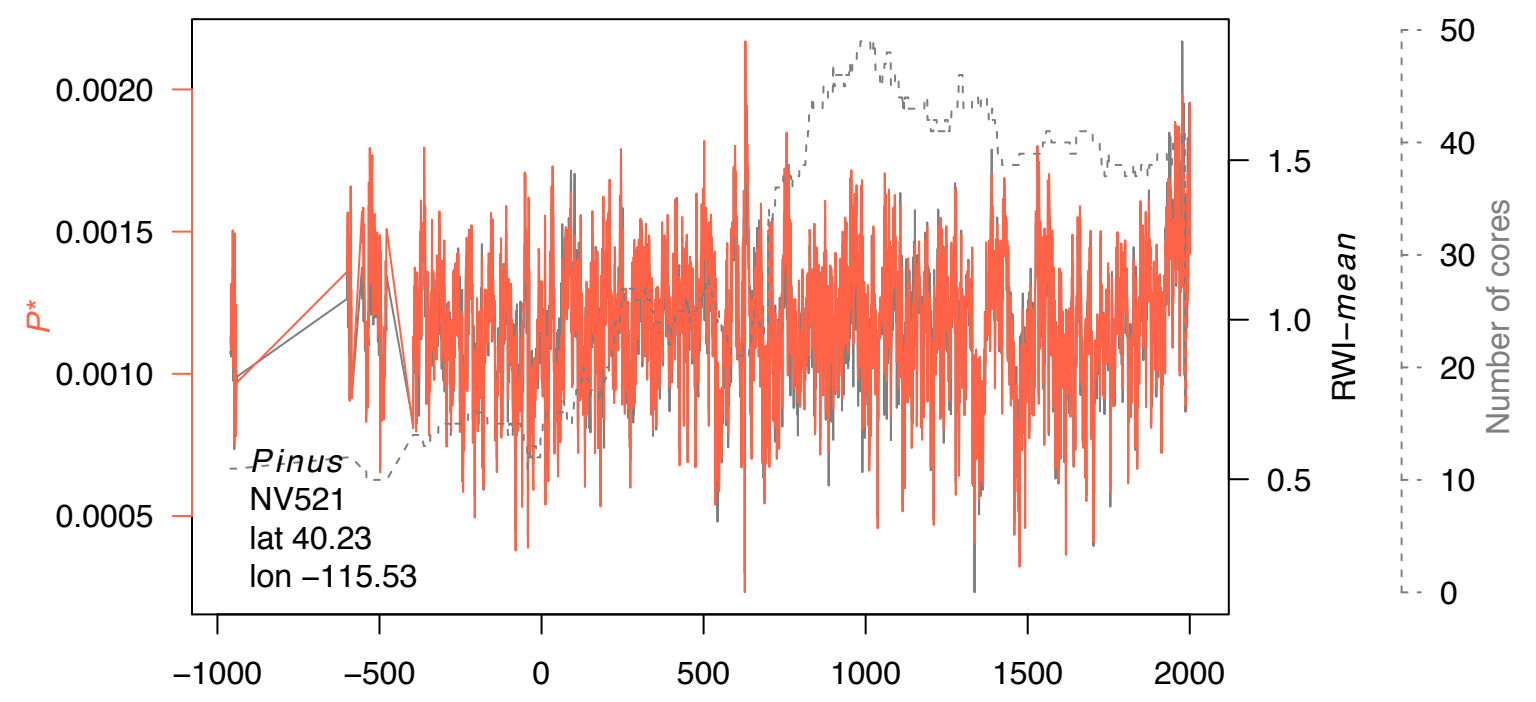

P*
0.006
0.005
0.004
0.003
0.002
RWI–mean
1.6
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
20
15
10
5
0
Pinus
TURK023
lat 36.45
lon 32.52
1650
1700
1750
1800
1850
1900
1950
2000

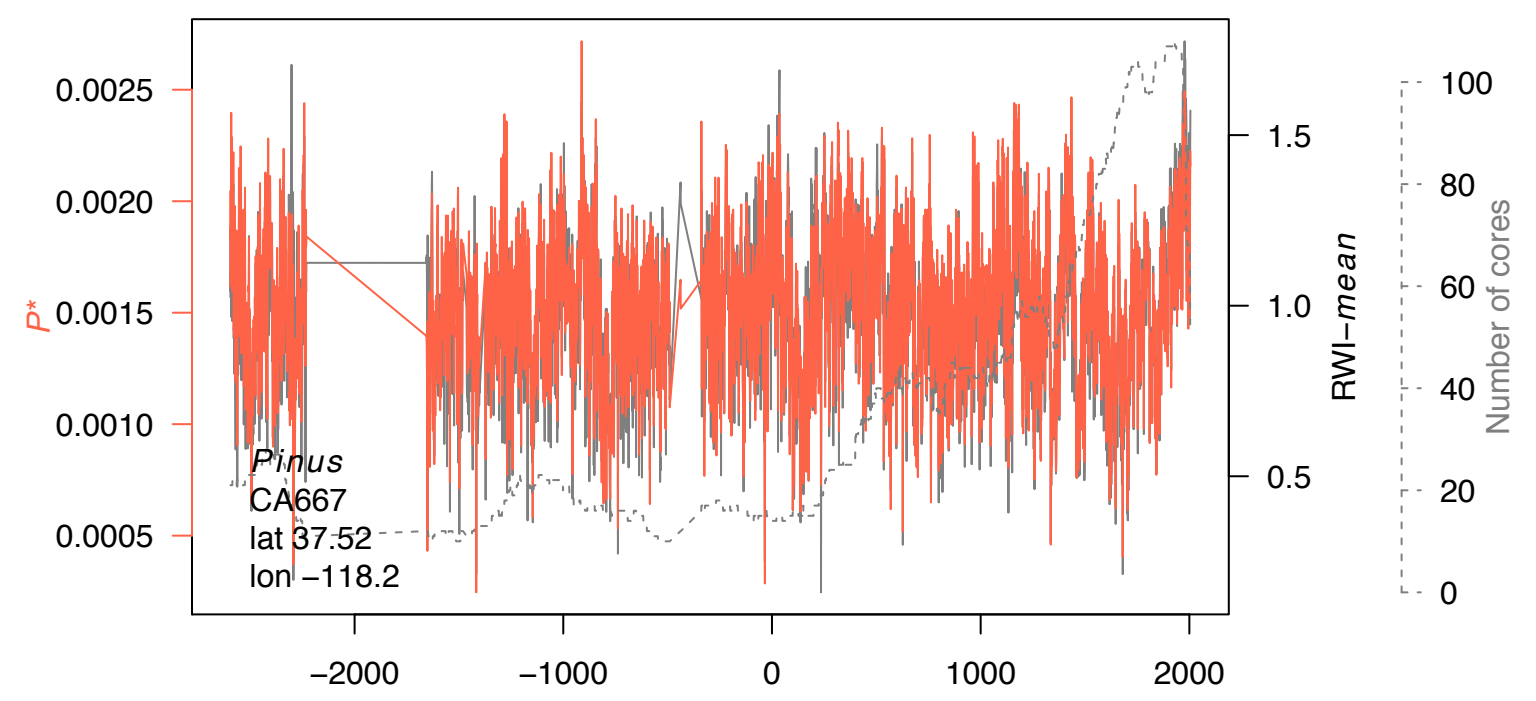

P*
0.012
0.010
0.008
0.006
Pinus
TURK022
lat 40.55
lon 41.98
1850
1900
1950
2000
1.6
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
25
20
15
10
5
0
Number of cores

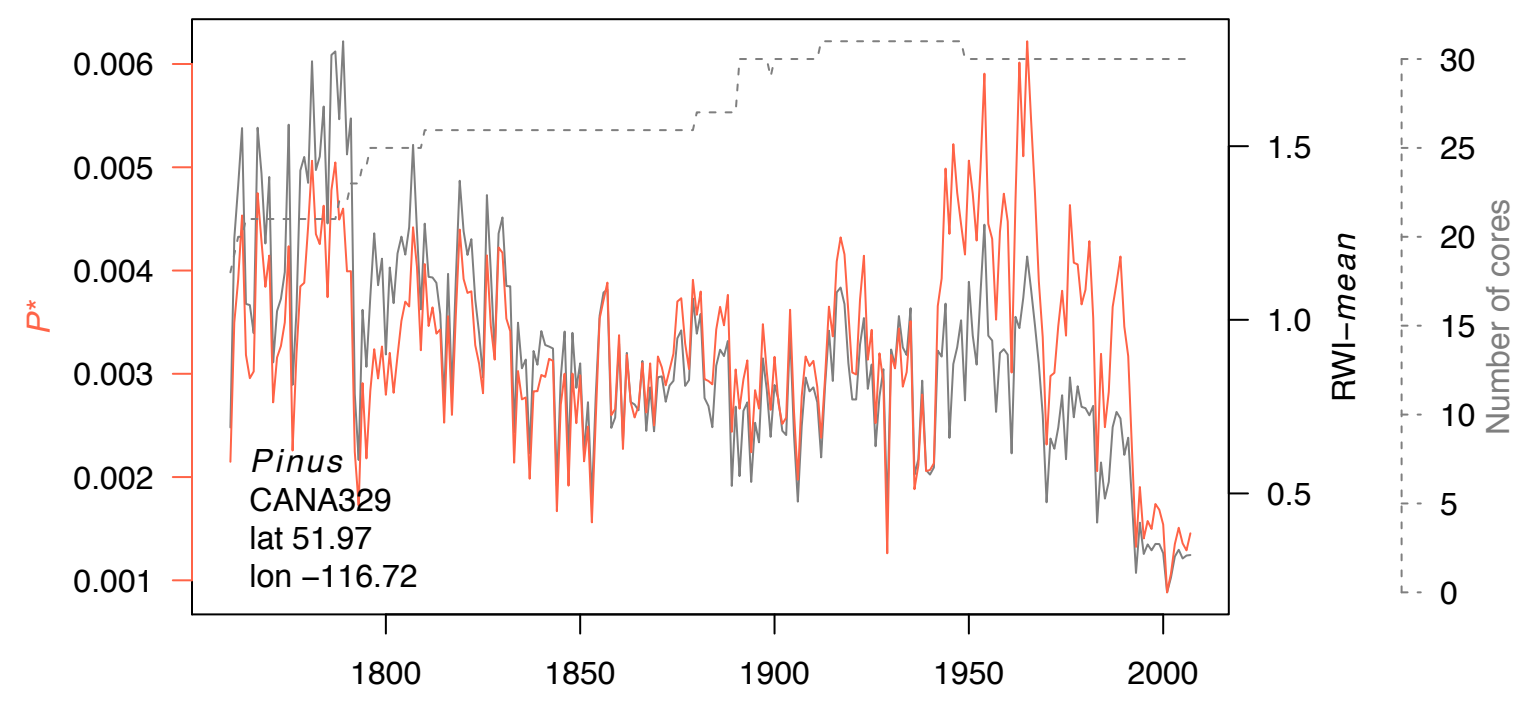

0.0025
0.0020
0.0015
0.0010
0.0005
P*
1.5
1.0
0.5
RWI–mean
30
20
10
0
Number of cores
Pinus
CA669
lat 37.52
lon –118.17
1500
1600
1700
1800
1900
2000

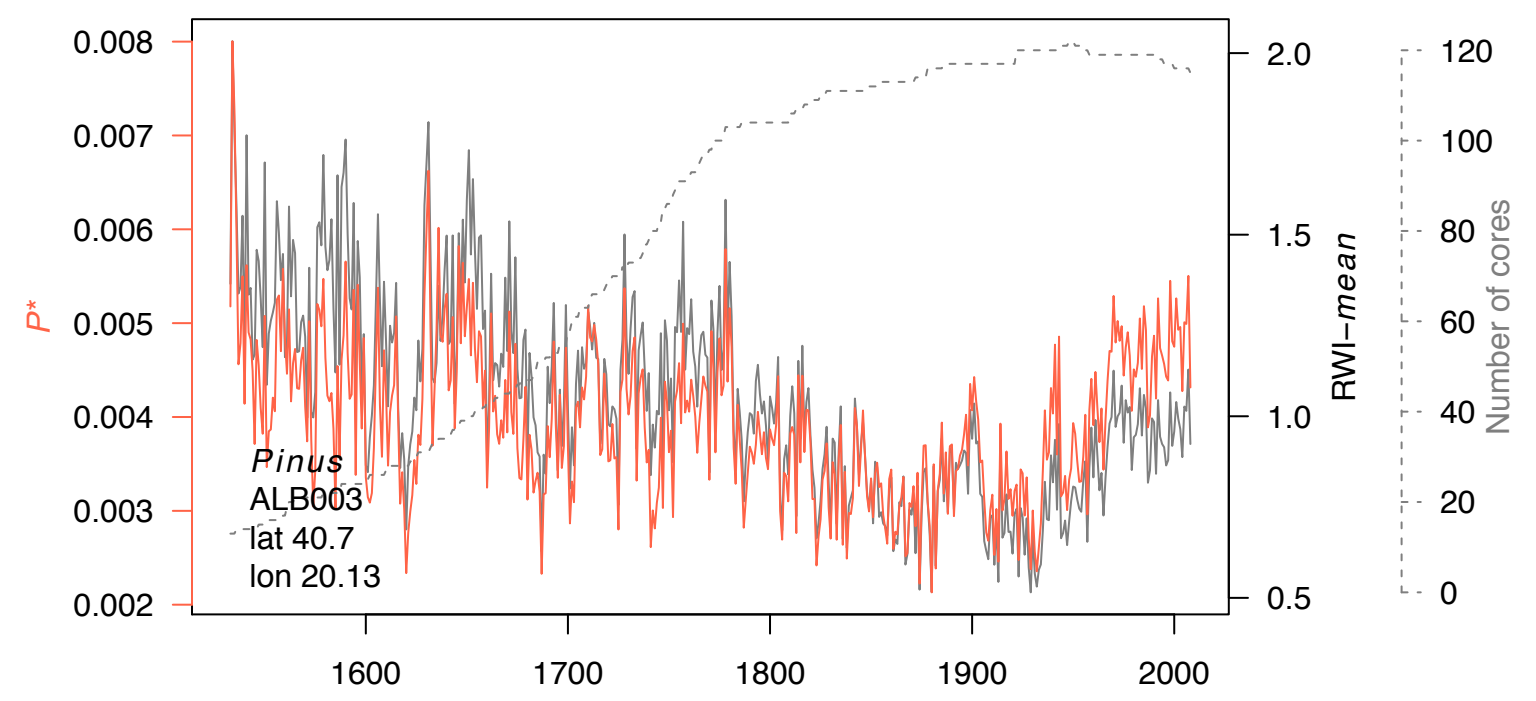

0.0025
0.0020
0.0015
0.0010
0.0005
P*
1.5
1.0
0.5
RWI–mean
80
60
40
20
0
Number of cores
Pinus
NV520
lat 38.92
lon −114.32
−2000
−1000
0
1000
2000

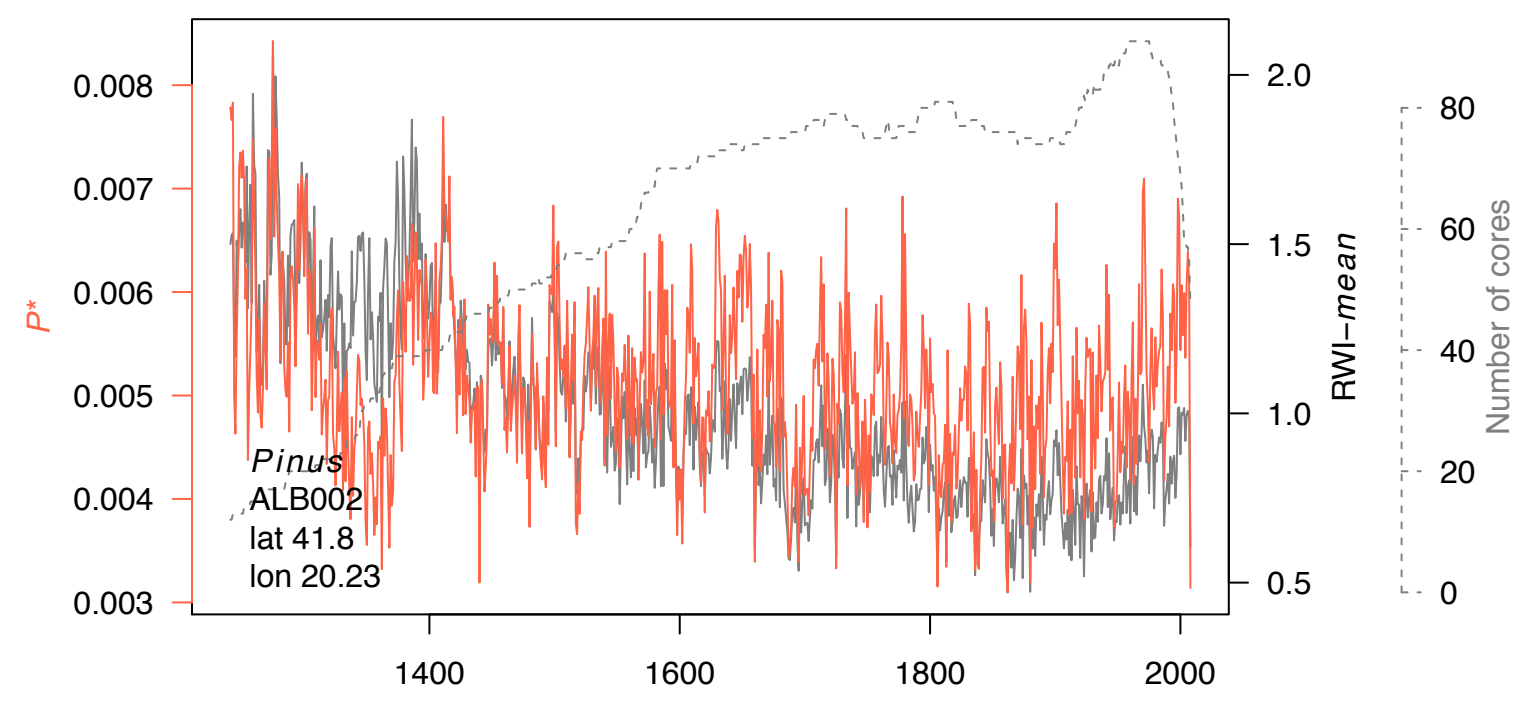

P*
0.0025
0.0020
0.0015
0.0010
0.0005
Pinus
CA668
lat 37.52
lon −118.18
1500
1600
1700
1800
1900
2000
1.5
1.0
0.5
RWI–mean
30
25
20
15
10
5
0
Number of cores

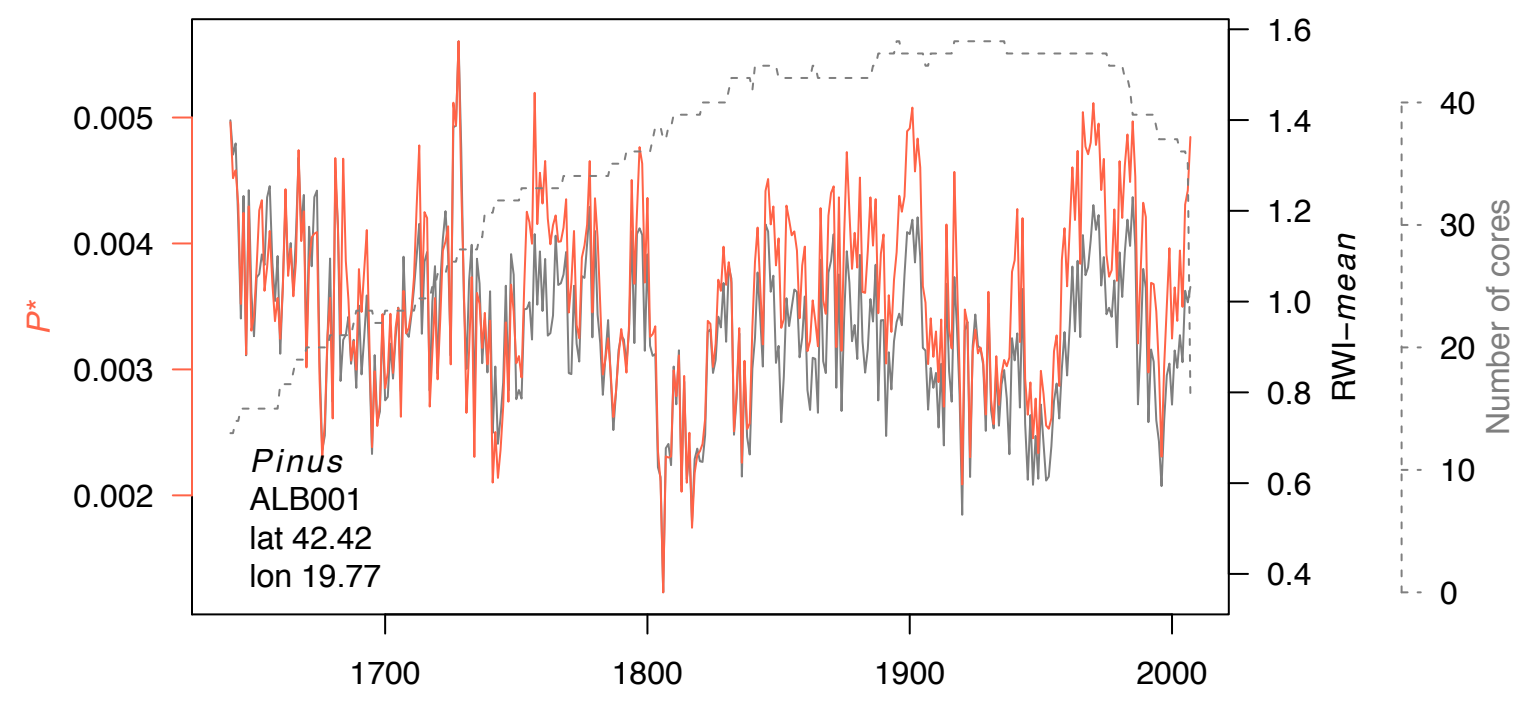

P*
0.0020
0.0015
0.0010
0.0005
Pinus
NV521
lat 40.23
lon −115.53
−1000
−500
0
500
1000
1500
2000
RWI–mean
1.5
1.0
0.5
Number of cores
50
40
30
20
10
0

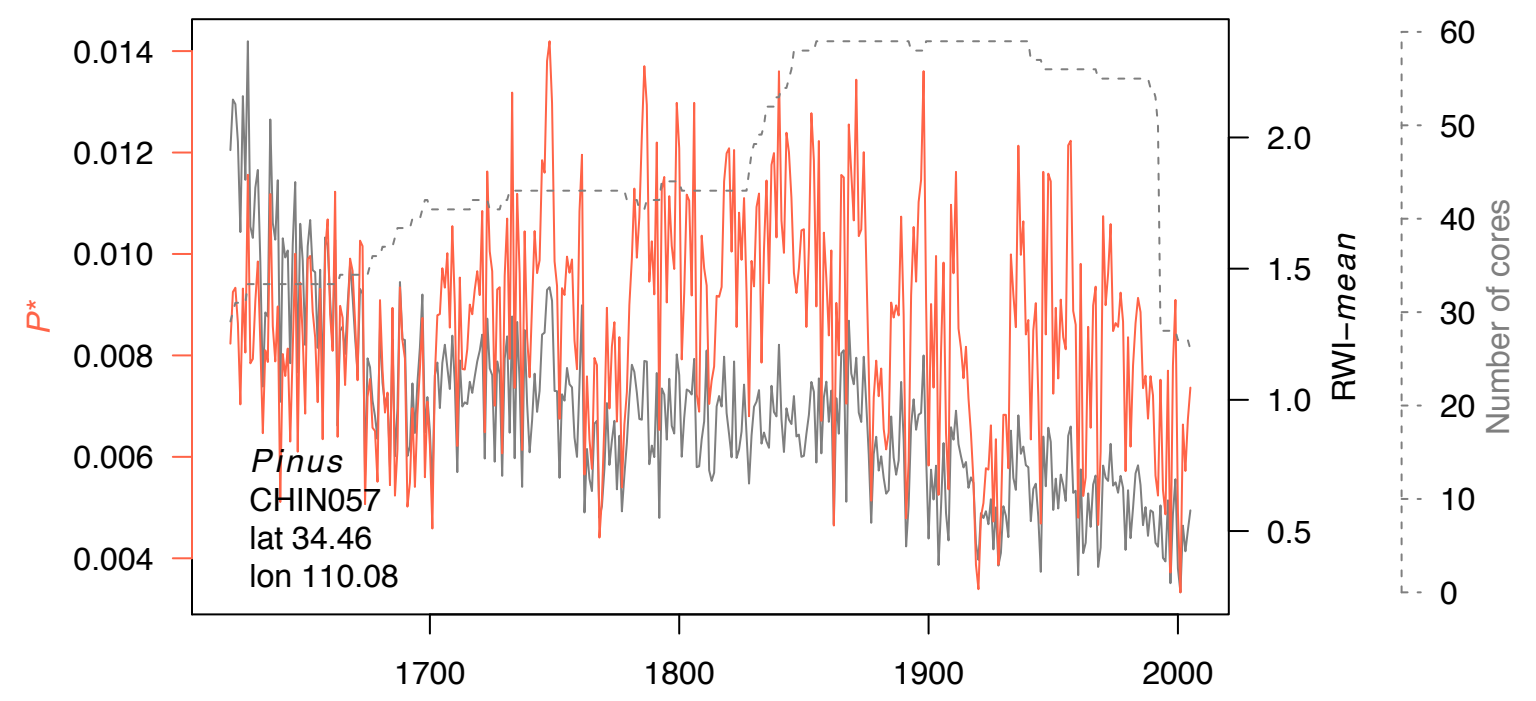

P*
0.0025
0.0020
0.0015
0.0010
0.0005
Pinus
CA667
lat 37.52
lon −118.2
−2000
−1000
0
1000
2000
1.5
1.0
0.5
RWI–mean
100
80
60
40
20
0
Number of cores

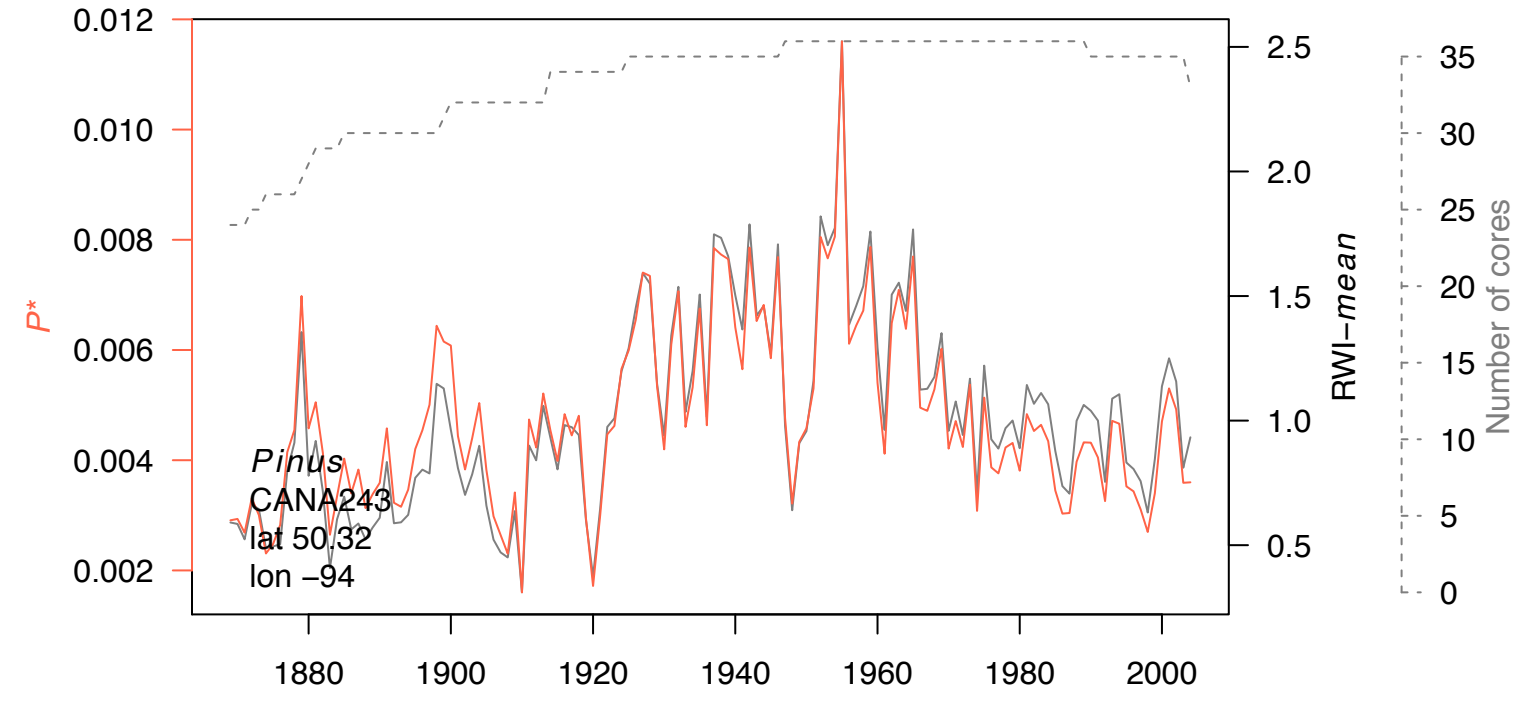

P*
0.006
0.005
0.004
0.003
0.002
0.001
Pinus
CANA329
lat 51.97
lon −116.72
1800
1850
1900
1950
2000
1.5
1.0
0.5
RWI–mean
30
25
20
15
10
5
0
Number of cores

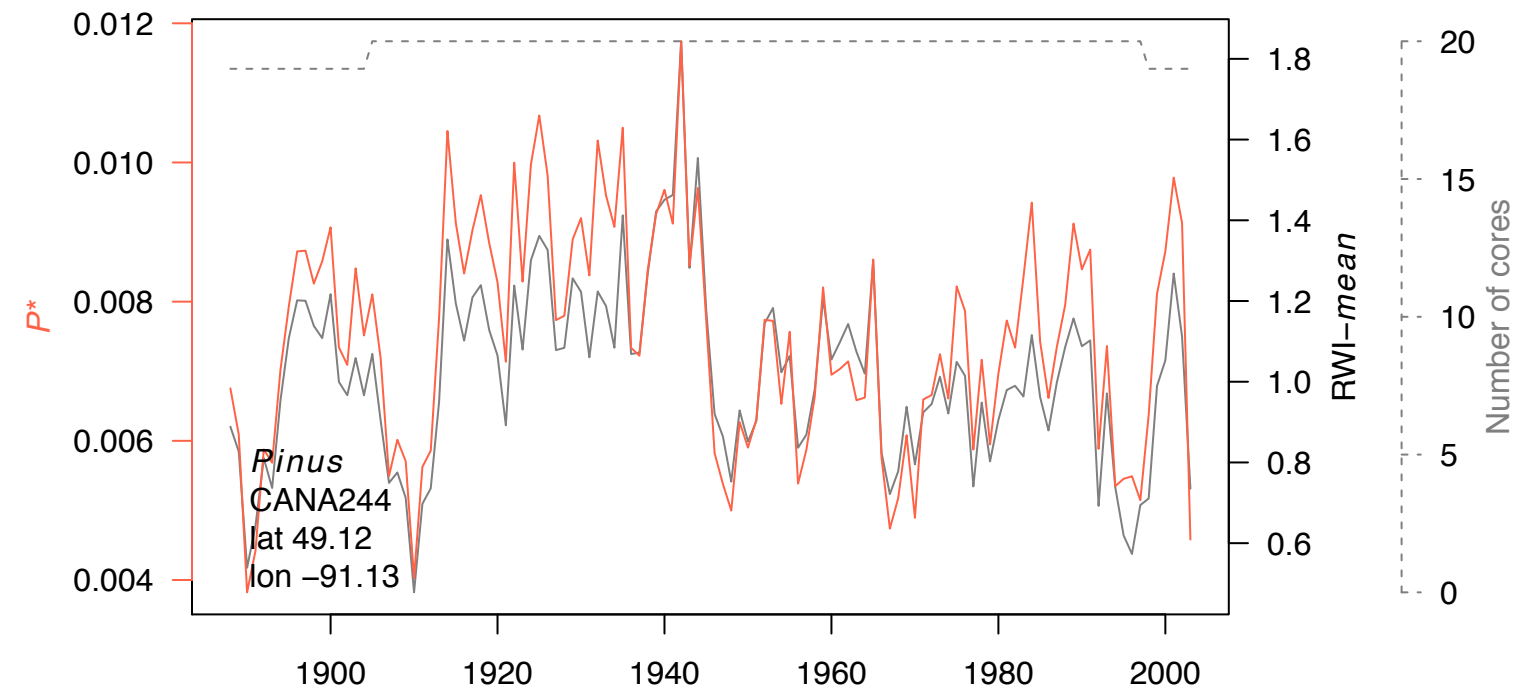

P*
0.008
0.007
0.006
0.005
0.004
0.003
0.002
Pinus
ALB003
lat 40.7
lon 20.13
1600
1700
1800
1900
2000
RWI–mean
2.0
1.5
1.0
0.5
Number of cores
120
100
80
60
40
20
0

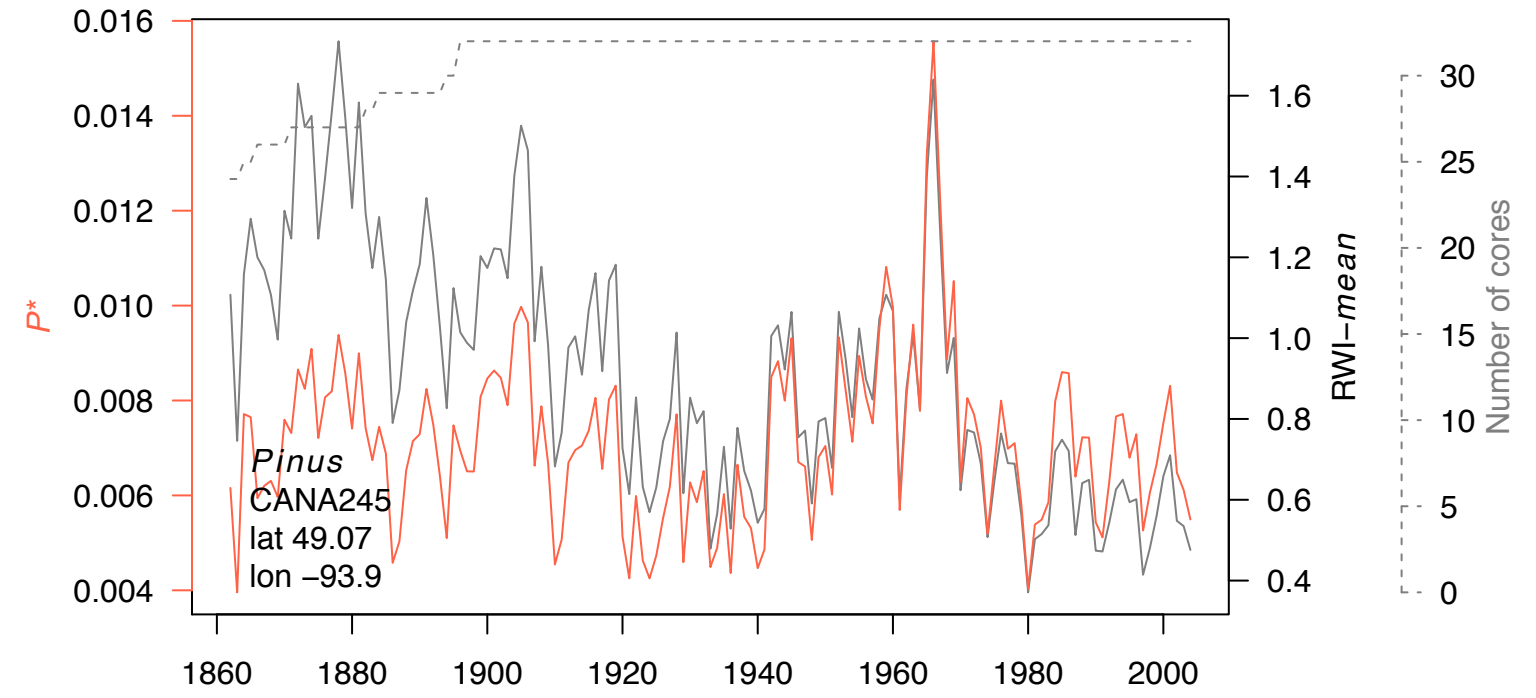

P*
0.008
0.007
0.006
0.005
0.004
0.003
Pinus
ALB002
lat 41.8
lon 20.23
1400
1600
1800
2000
2.0
1.5
1.0
0.5
RWI–mean
80
60
40
20
0
Number of cores

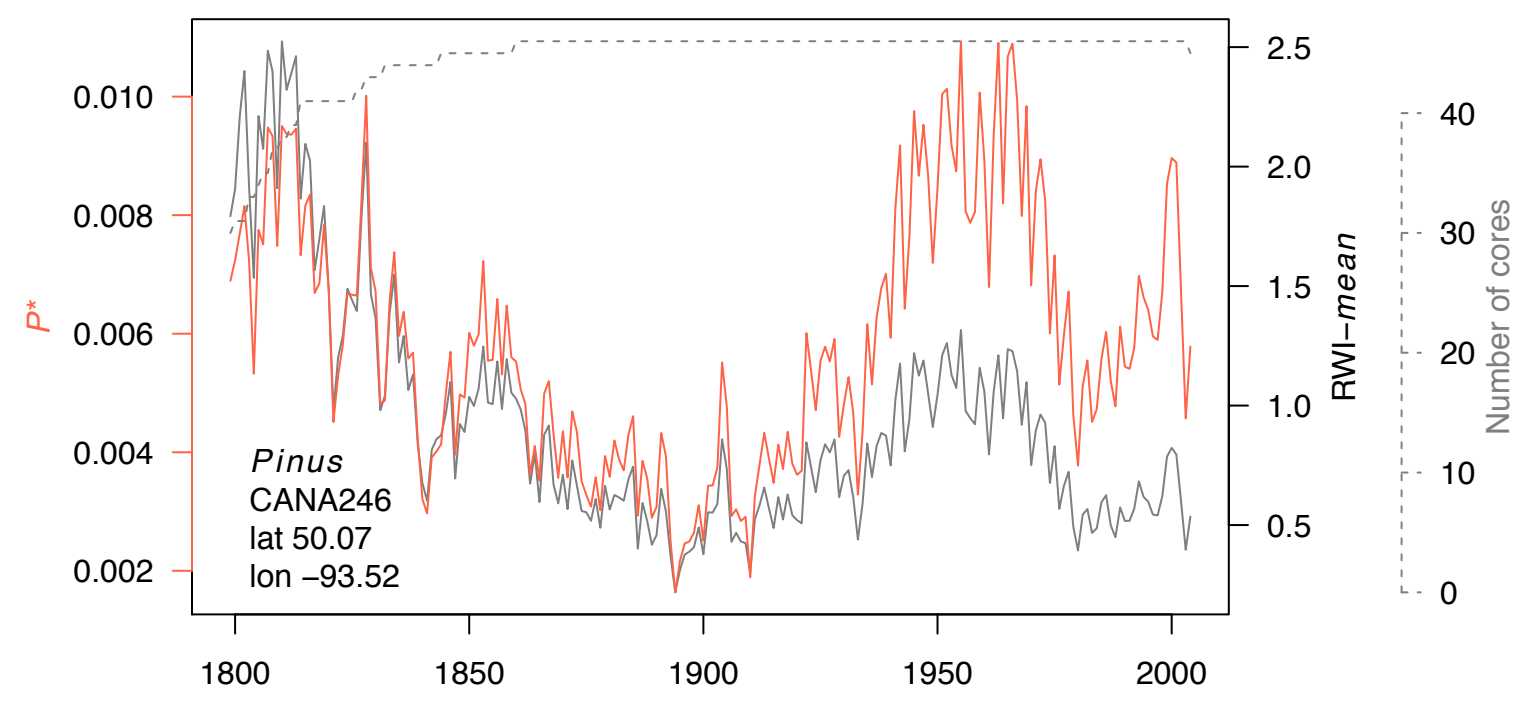

P*
0.005
0.004
0.003
0.002
Pinus
ALB001
lat 42.42
lon 19.77
1700
1800
1900
2000
1.6
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
40
30
20
10
0
Number of cores

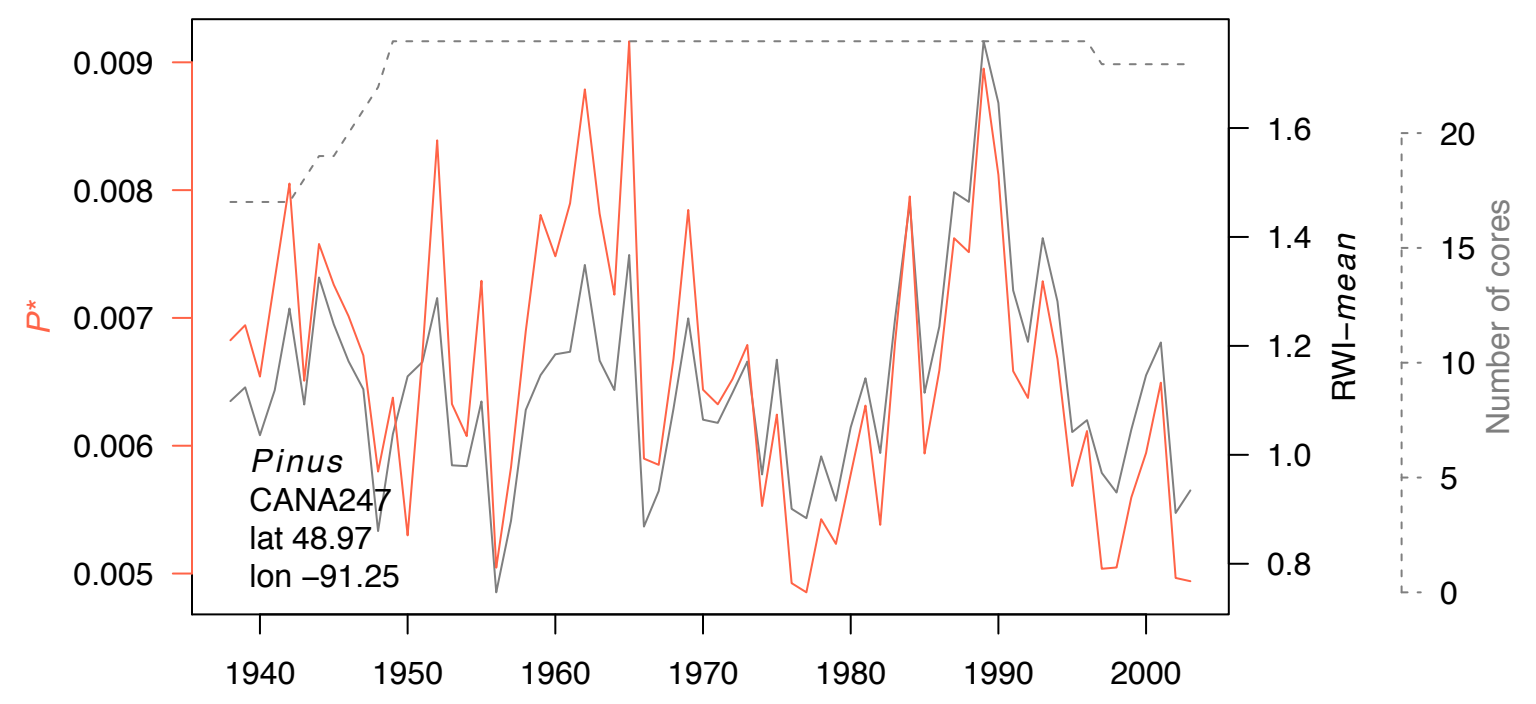

0.014
0.012
0.010
0.008
0.006
0.004
P*
2.0
1.5
1.0
0.5
RWI–mean
60
50
40
30
20
10
0
Number of cores
Pinus
CHIN057
lat 34.46
lon 110.08
1700
1800
1900
2000

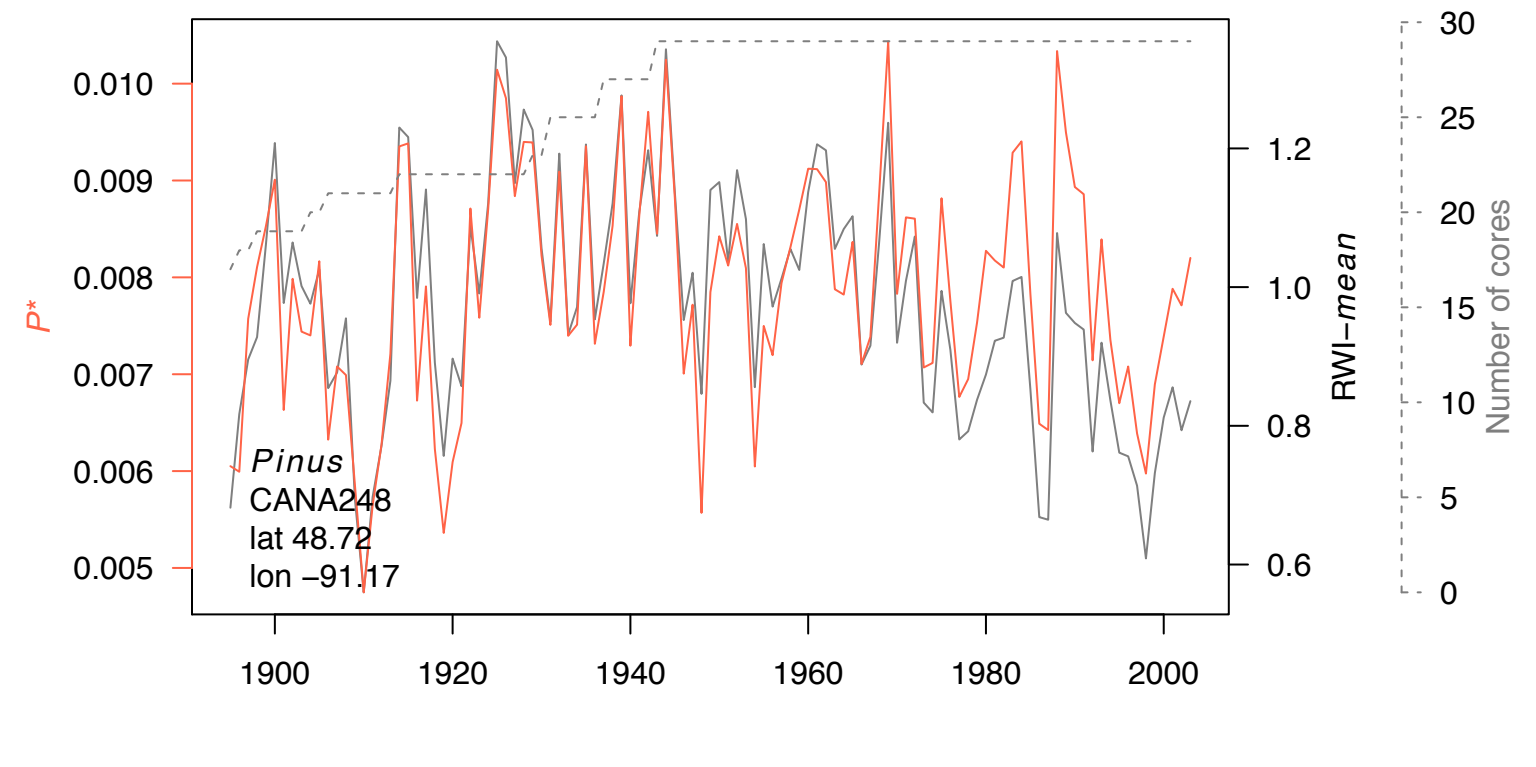

P*
0.012
0.010
0.008
0.006
0.004
0.002
RWI–mean
2.5
2.0
1.5
1.0
0.5
Number of cores
35
30
25
20
15
10
5
0
1880
1900
1920
1940
1960
1980
2000
Pinus
CANA243
lat 50.32
lon –94

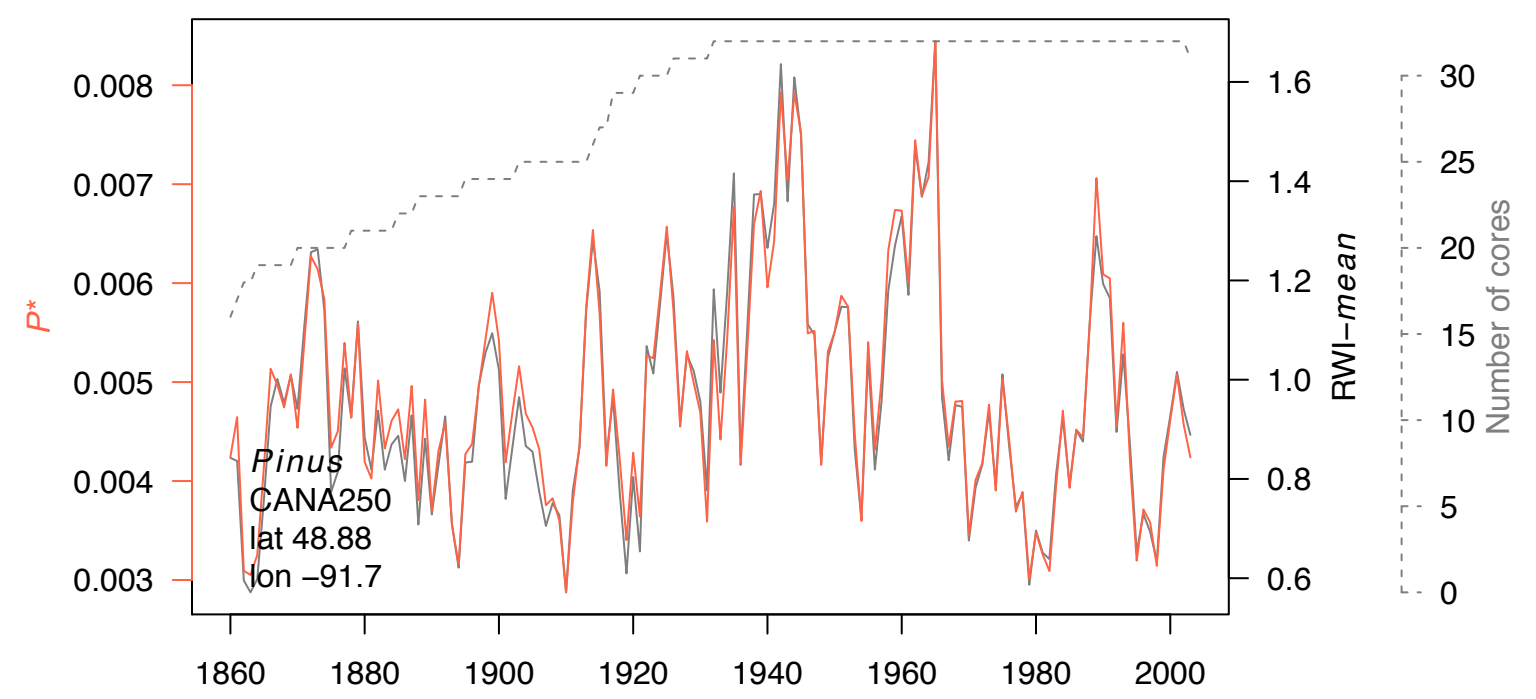

0.012
0.010
0.008
0.006
0.004
P*
1.8
1.6
1.4
1.2
1.0
0.8
0.6
RWI–mean
20
15
10
5
0
Number of cores
1900
1920
1940
1960
1980
2000
Pinus
CANA244
lat 49.12
lon –91.13

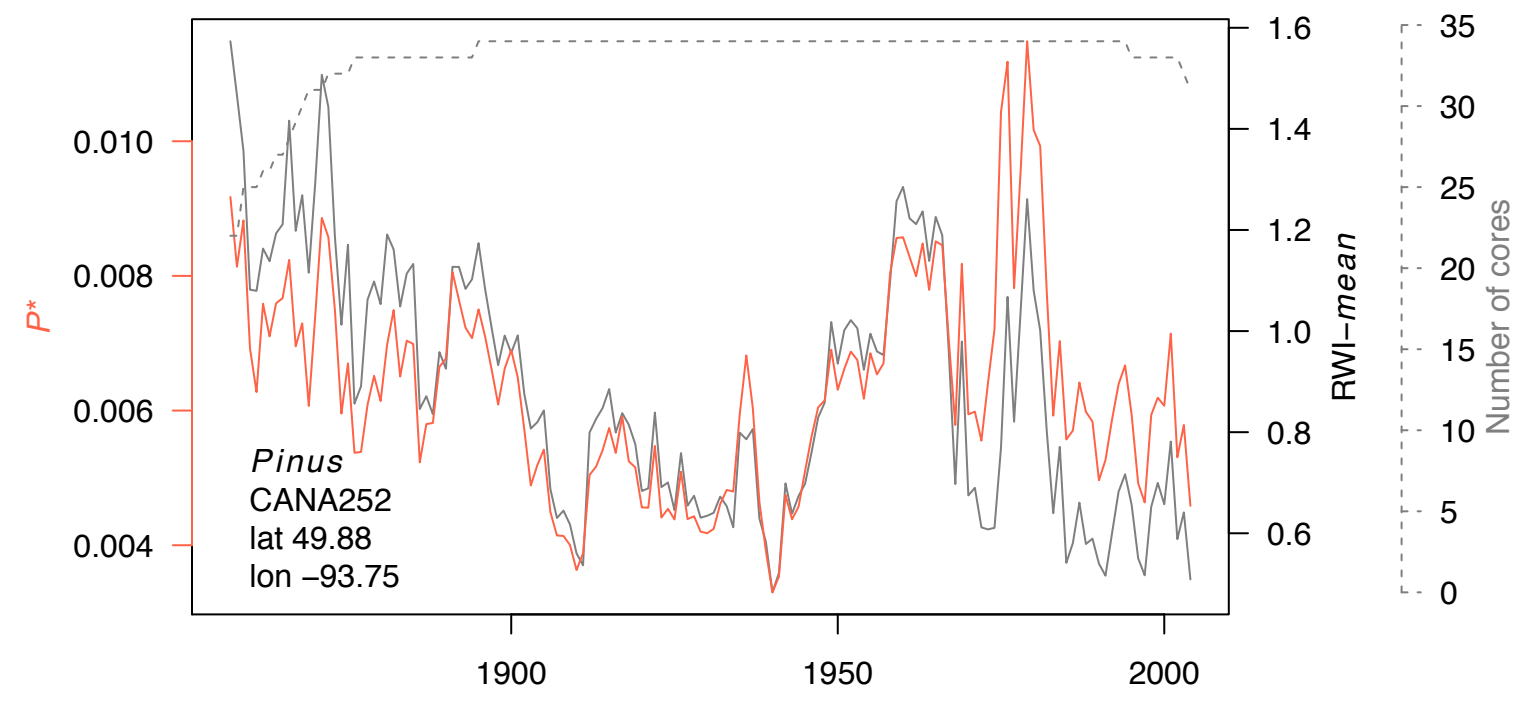

P*
0.016
0.014
0.012
0.010
0.008
0.006
0.004
Pinus
CANA245
lat 49.07
lon −93.9
1860
1880
1900
1920
1940
1960
1980
2000
RWI–mean
1.6
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
30
25
20
15
10
5
0

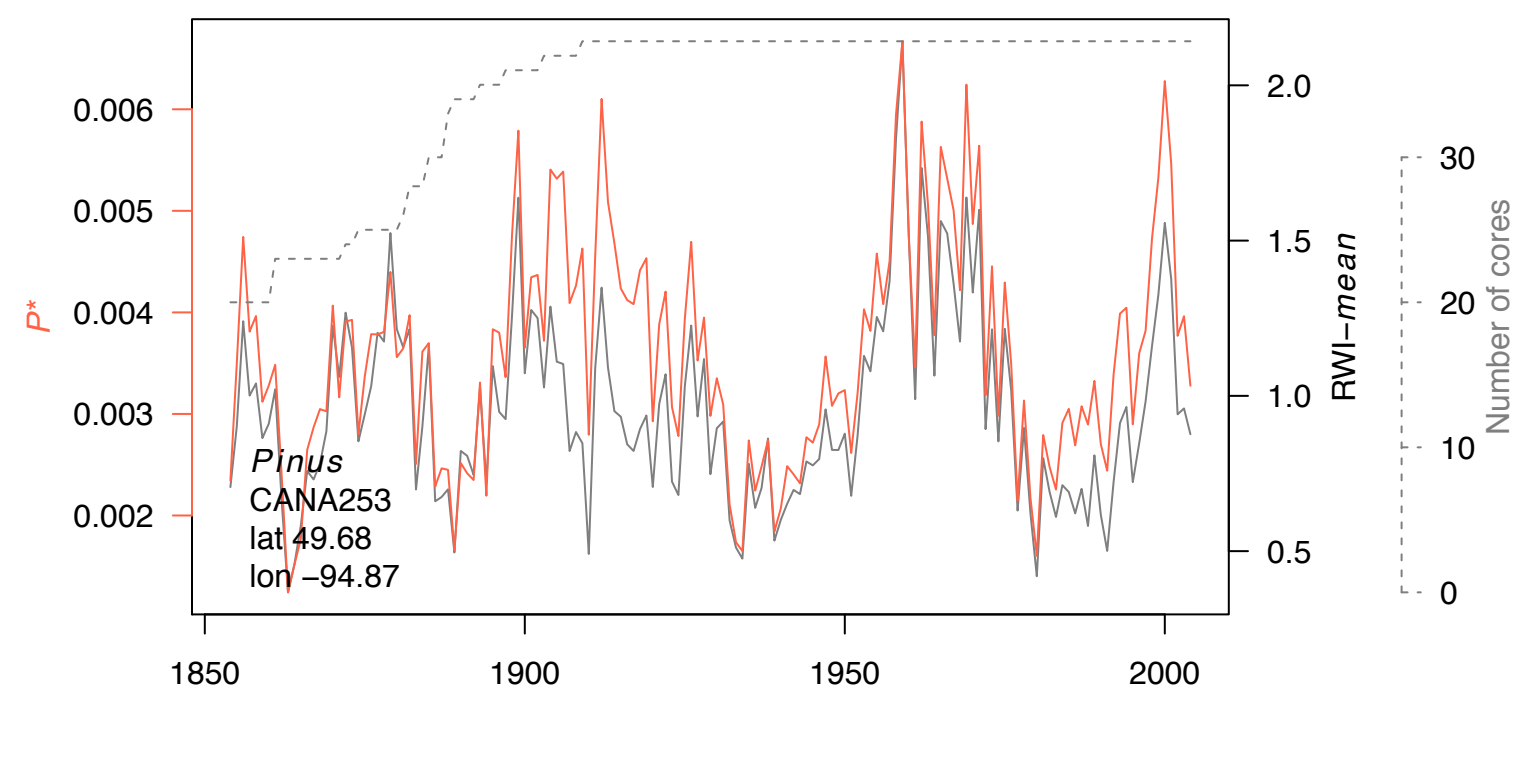

P*
0.010
0.008
0.006
0.004
0.002
Pinus
CANA246
lat 50.07
lon −93.52
2.5
2.0
1.5
1.0
0.5
RWI–mean
40
30
20
10
0
Number of cores
1800
1850
1900
1950
2000

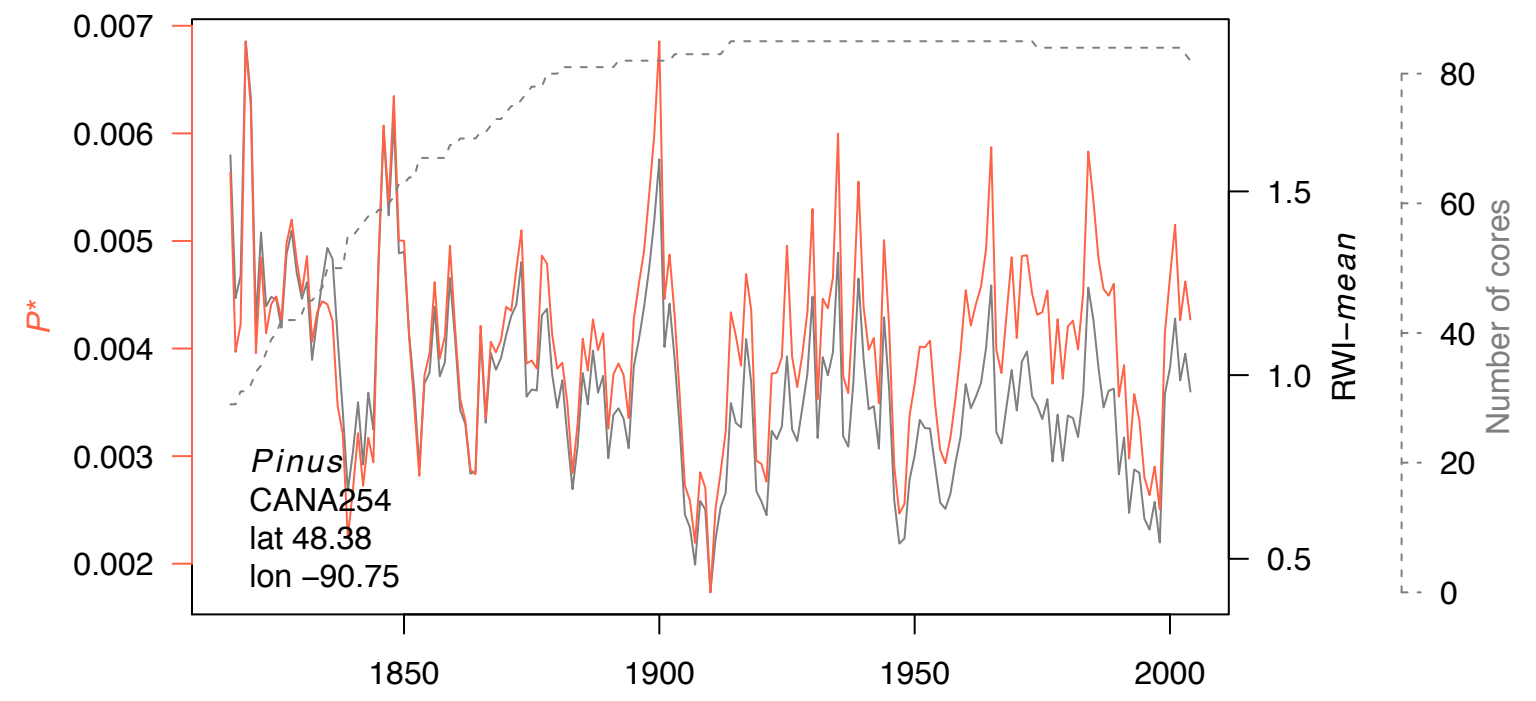

P*
0.009
0.008
0.007
0.006
0.005
Pinus
CANA247
lat 48.97
lon −91.25
1940
1950
1960
1970
1980
1990
2000
RWI–mean
1.6
1.4
1.2
1.0
0.8
Number of cores
20
15
10
5
0

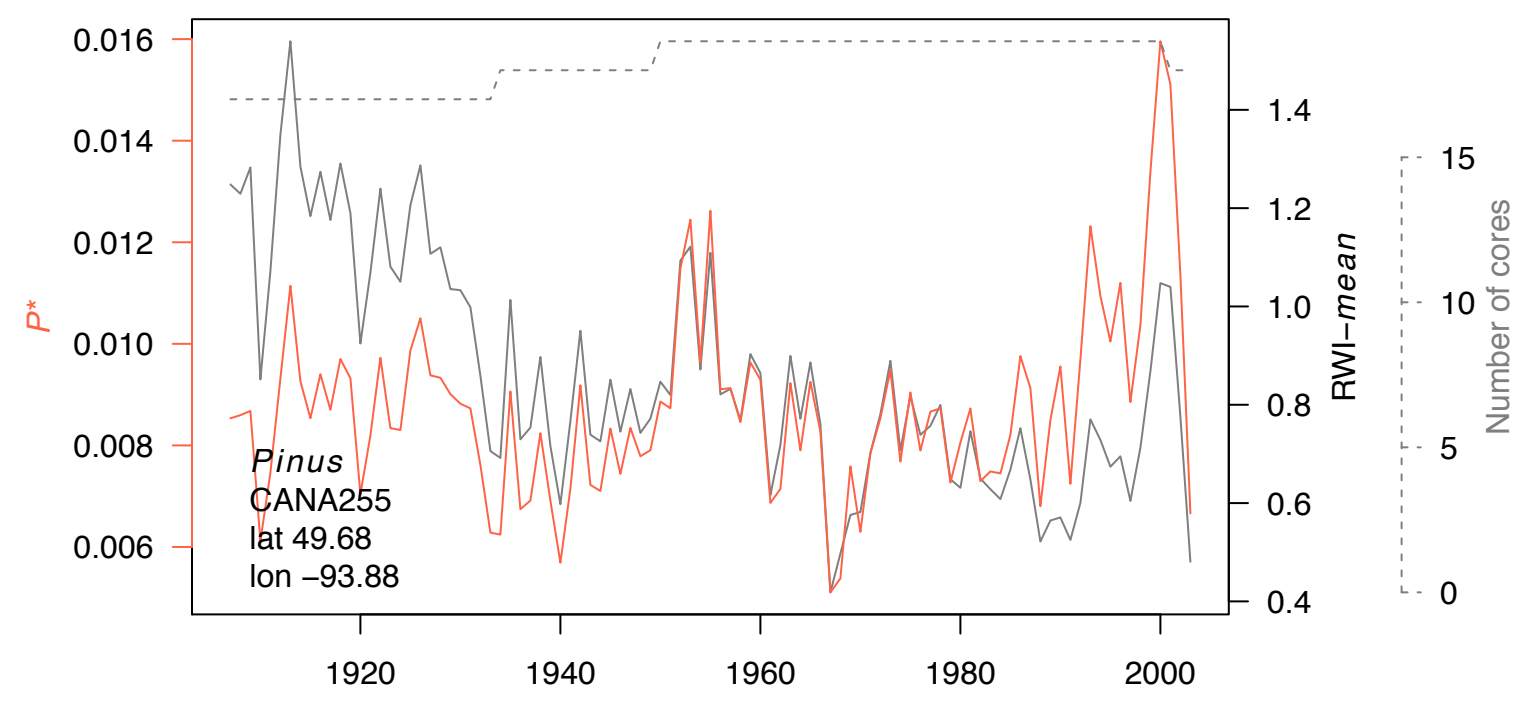

P*
0.010
0.009
0.008
0.007
0.006
0.005
Pinus
CANA248
lat 48.72
lon –91.17
1900
1920
1940
1960
1980
2000
RWI–mean
1.2
1.0
0.8
0.6
Number of cores
30
25
20
15
10
5
0

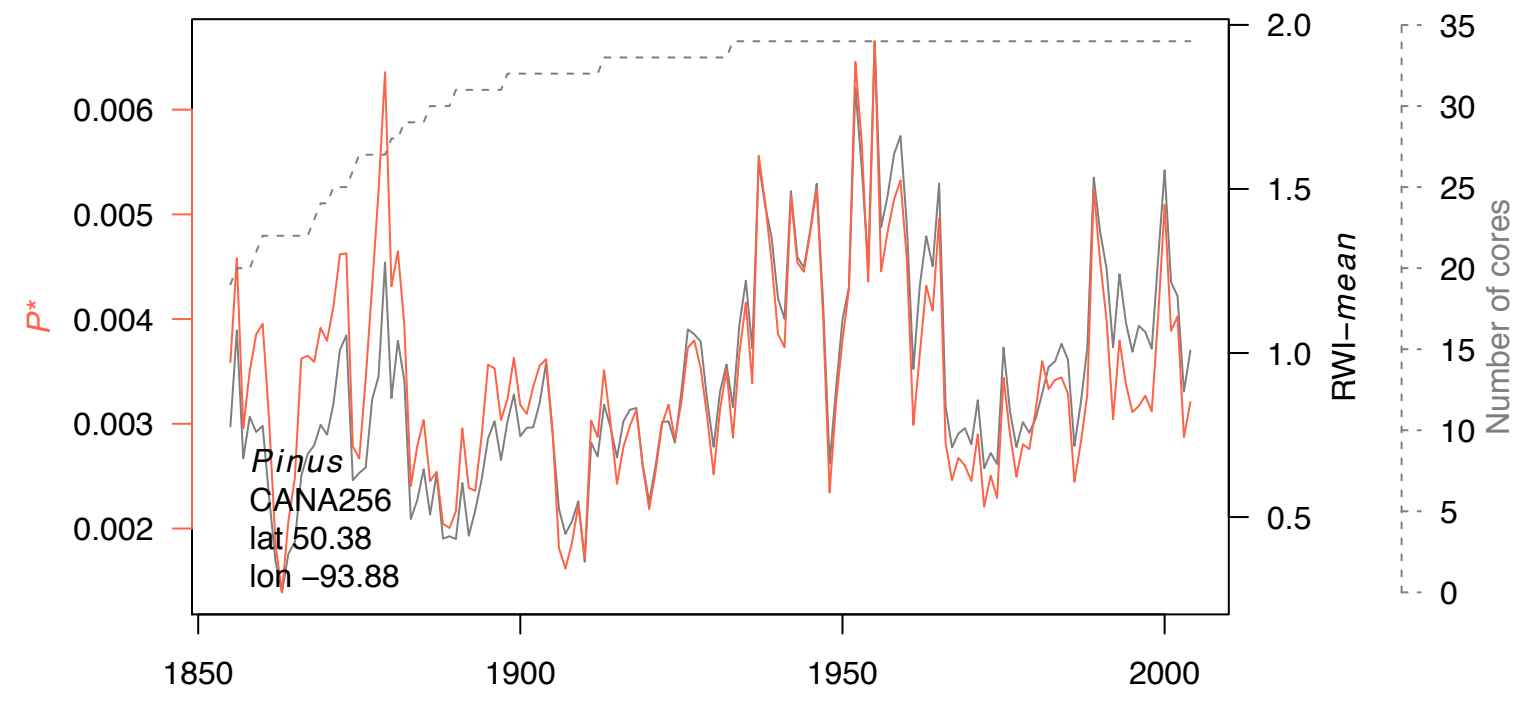

P*
0.008
0.007
0.006
0.005
0.004
0.003
Pinus
CANA250
lat 48.88
lon −91.7
1860
1880
1900
1920
1940
1960
1980
2000
RWI–mean
1.6
1.4
1.2
1.0
0.8
0.6
Number of cores
30
25
20
15
10
5
0

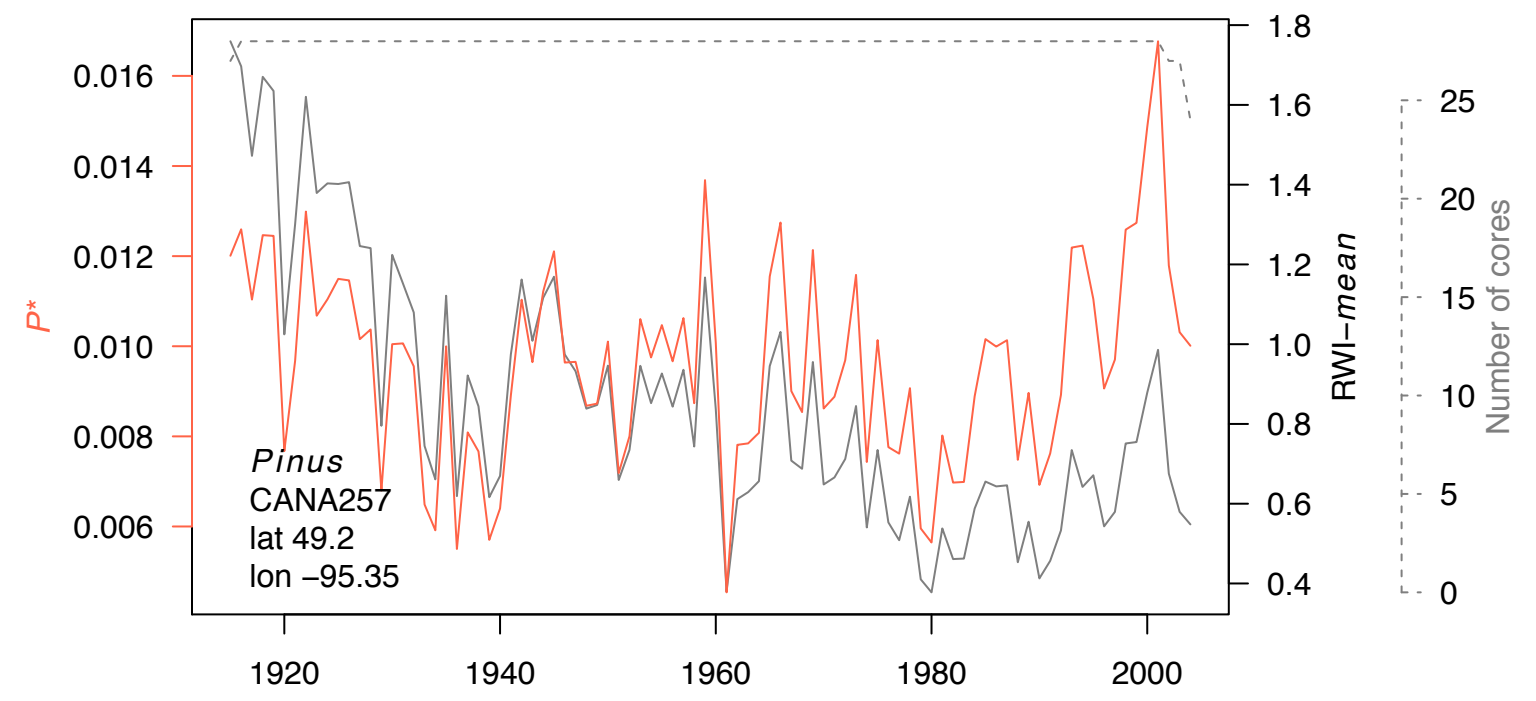

P*
0.010
0.008
0.006
0.004
Pinus
CANA252
lat 49.88
lon −93.75
1900
1950
2000
1.6
1.4
1.2
1.0
0.8
0.6
RWI–mean
35
30
25
20
15
10
5
0
Number of cores

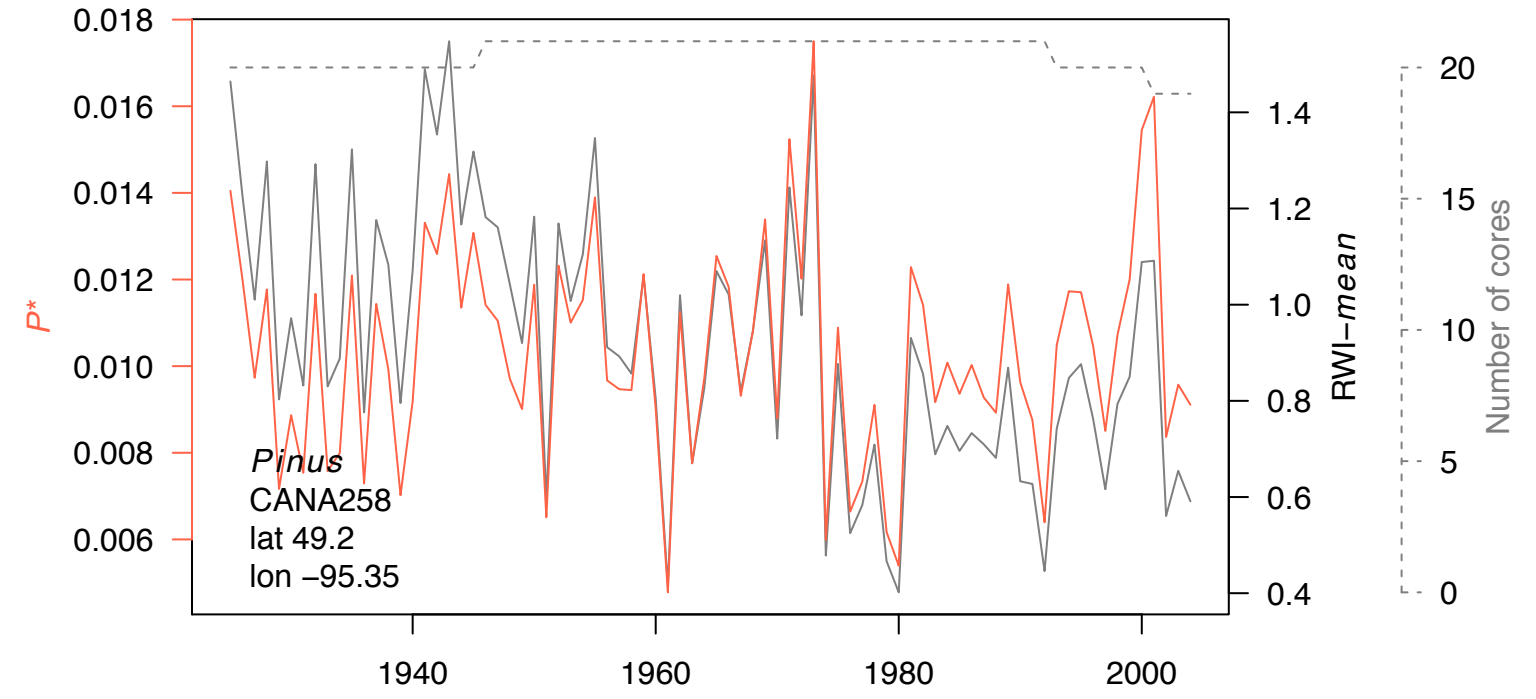

P*
0.006
0.005
0.004
0.003
0.002
Pinus
CANA253
lat 49.68
lon −94.87
1850
1900
1950
2000
2.0
1.5
1.0
0.5
RWI–mean
30
20
10
0
Number of cores

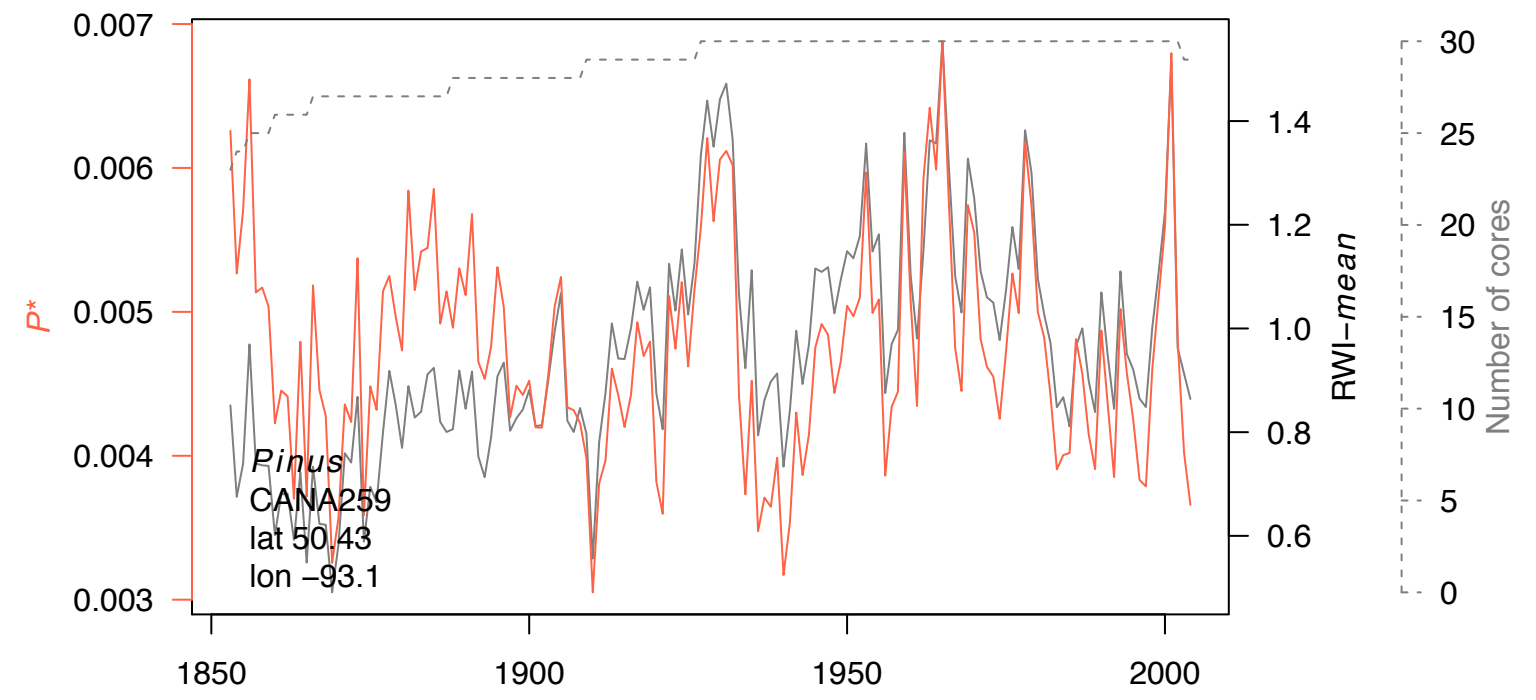

0.007
0.006
0.005
0.004
0.003
0.002
P*
Pinus
CANA254
lat 48.38
lon –90.75
1850
1900
1950
2000
1.5
1.0
0.5
RWI–mean
80
60
40
20
0
Number of cores

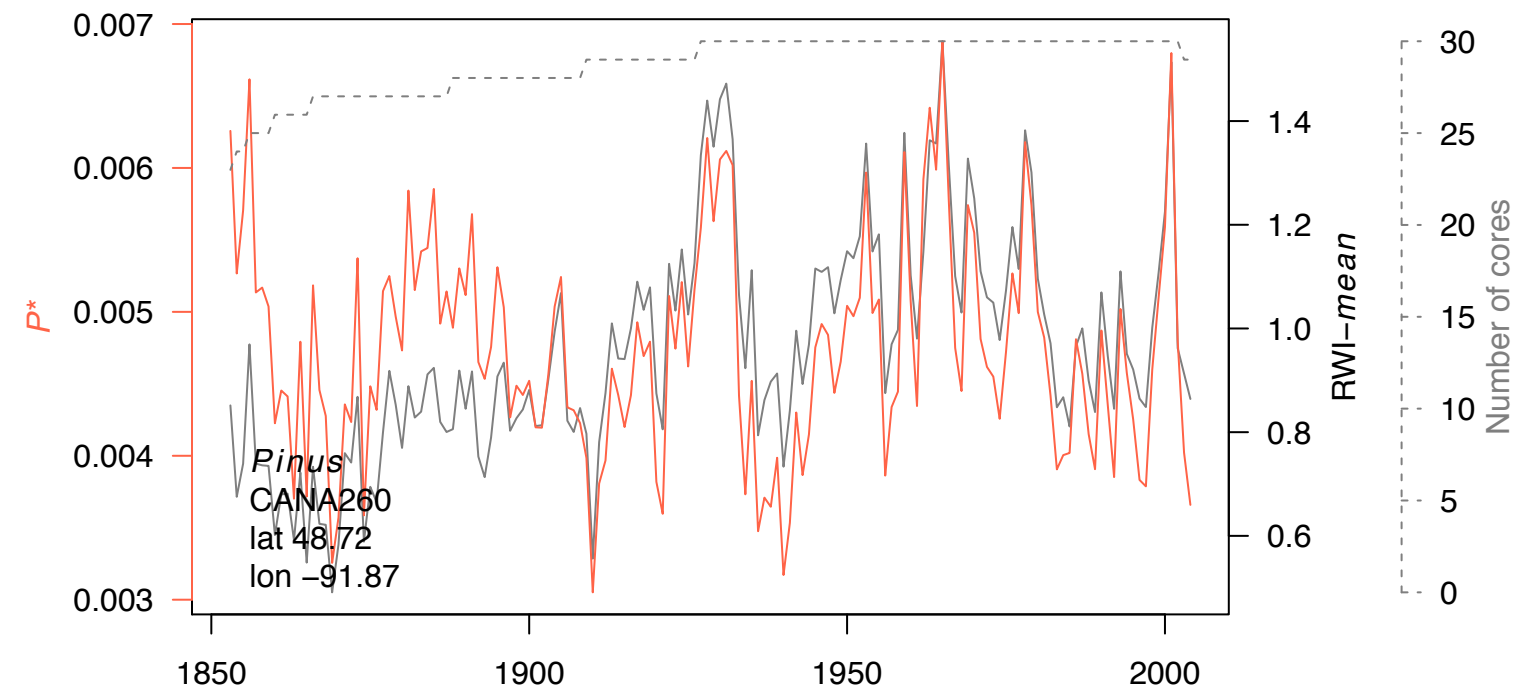

P*
0.016
0.014
0.012
0.010
0.008
0.006
Pinus
CANA255
lat 49.68
lon −93.88
1920
1940
1960
1980
2000
RWI–mean
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
15
10
5
0

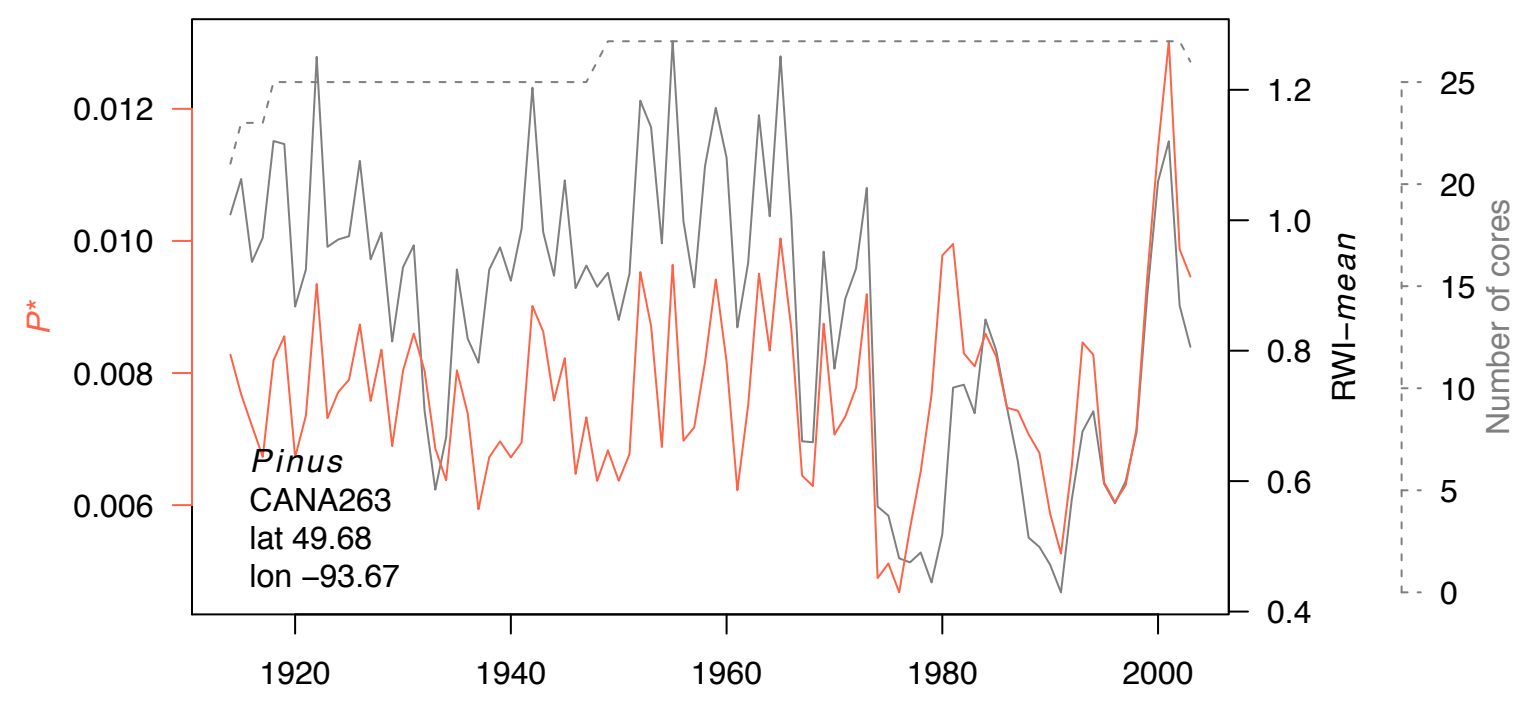

P*
0.006
0.005
0.004
0.003
0.002
Pinus
CANA256
lat 50.38
lon −93.88
1850
1900
1950
2000
2.0
1.5
1.0
0.5
RWI–mean
35
30
25
20
15
10
5
0
Number of cores

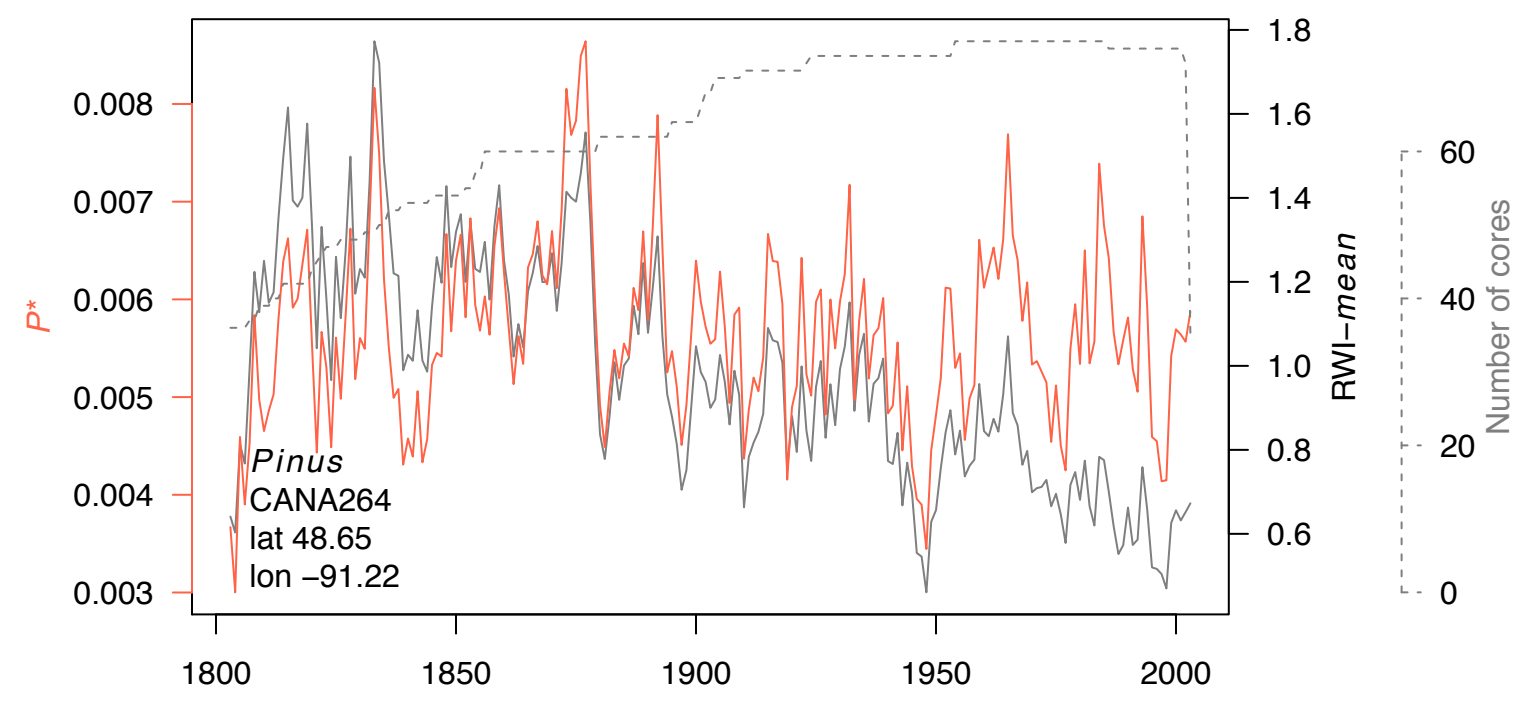

P*
0.016
0.014
0.012
0.010
0.008
0.006
Pinus
CANA257
lat 49.2
lon −95.35
1920
1940
1960
1980
2000
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
25
20
15
10
5
0
Number of cores

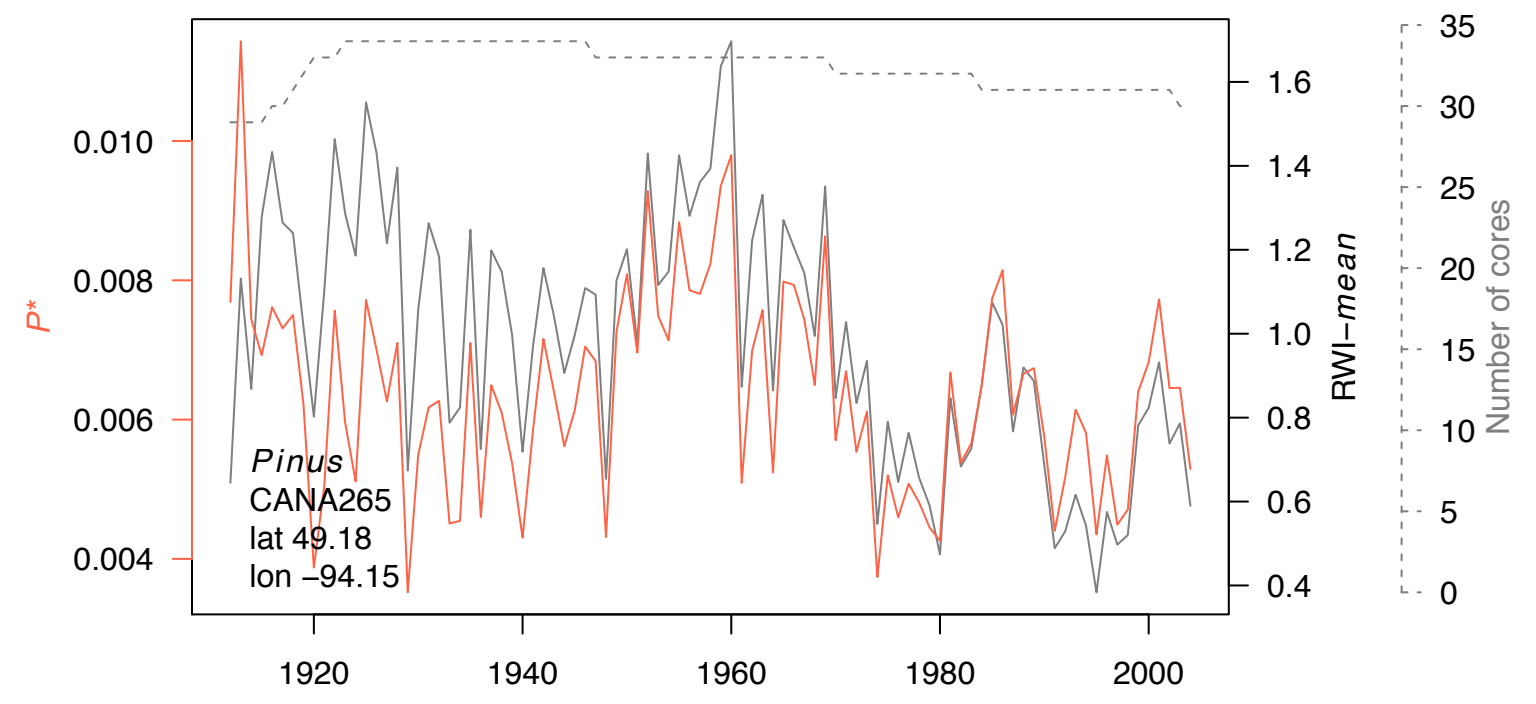

P*
0.018
0.016
0.014
0.012
0.010
0.008
0.006
Pinus
CANA258
lat 49.2
lon −95.35
1940
1960
1980
2000
RWI–mean
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
20
15
10
5
0

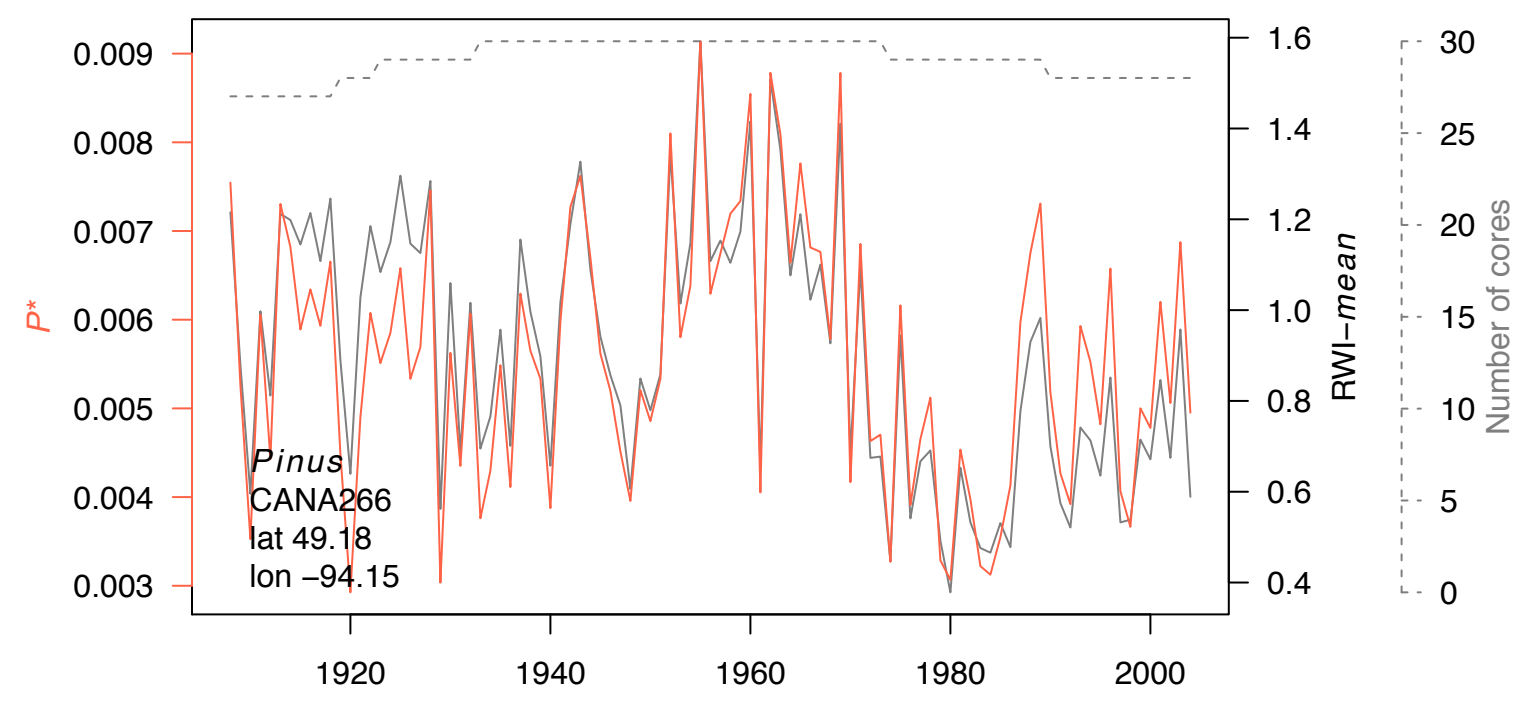

P*
0.007
0.006
0.005
0.004
0.003
Pinus
CANA259
lat 50.43
lon −93.1
1850
1900
1950
2000
RWI–mean
1.4
1.2
1.0
0.8
0.6
Number of cores
30
25
20
15
10
5
0

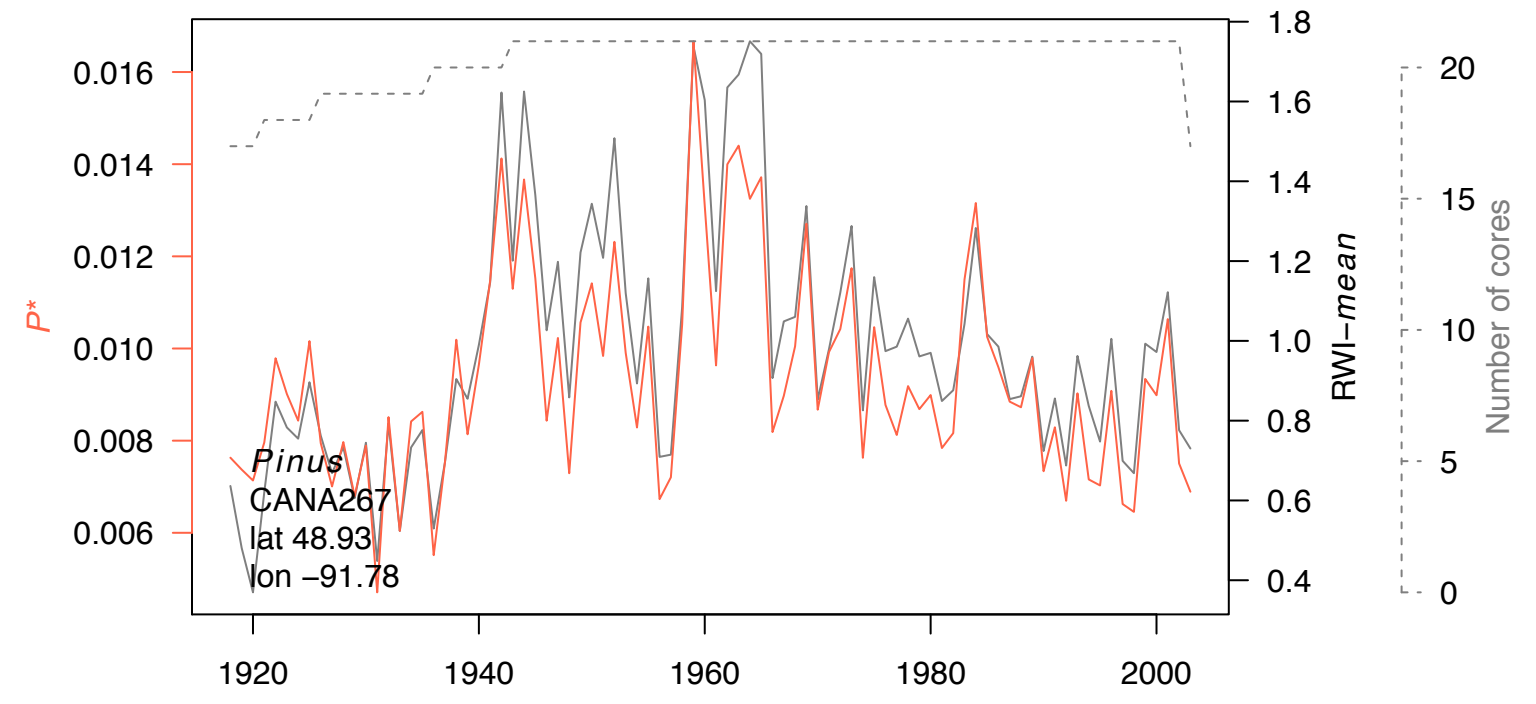

0.007
0.006
0.005
0.004
0.003
P*
1.4
1.2
1.0
0.8
0.6
RWI–mean
30
25
20
15
10
5
0
Number of cores
1850
1900
1950
2000
Pinus
CANA260
lat 48.72
lon −91.87

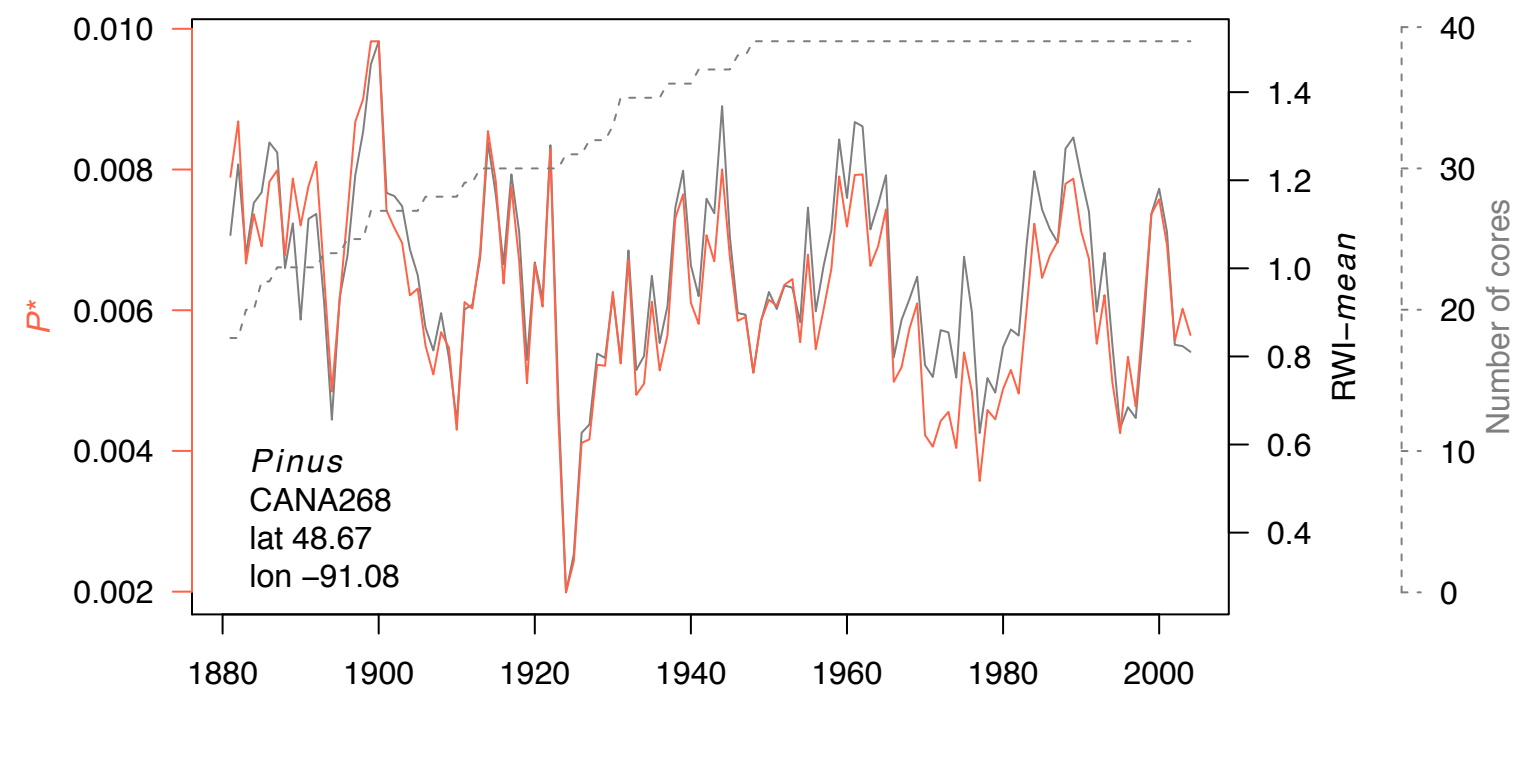

P*
0.012
0.010
0.008
0.006
Pinus
CANA263
lat 49.68
lon −93.67
1920
1940
1960
1980
2000
1.2
1.0
0.8
0.6
0.4
RWI–mean
25
20
15
10
5
0
Number of cores

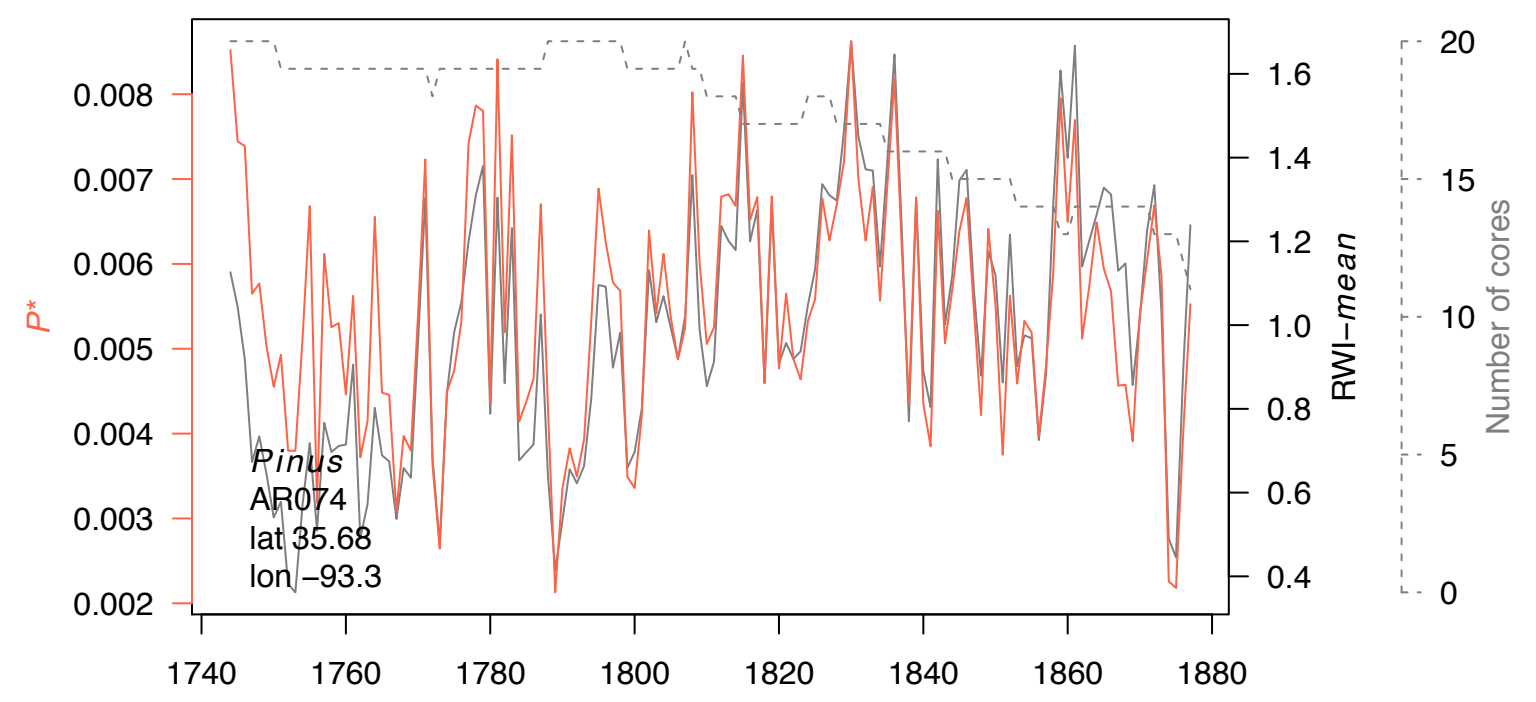

P*
0.008
0.007
0.006
0.005
0.004
0.003
Pinus
CANA264
lat 48.65
lon −91.22
1800
1850
1900
1950
2000
1.8
1.6
1.4
1.2
1.0
0.8
0.6
RWI–mean
60
40
20
0
Number of cores

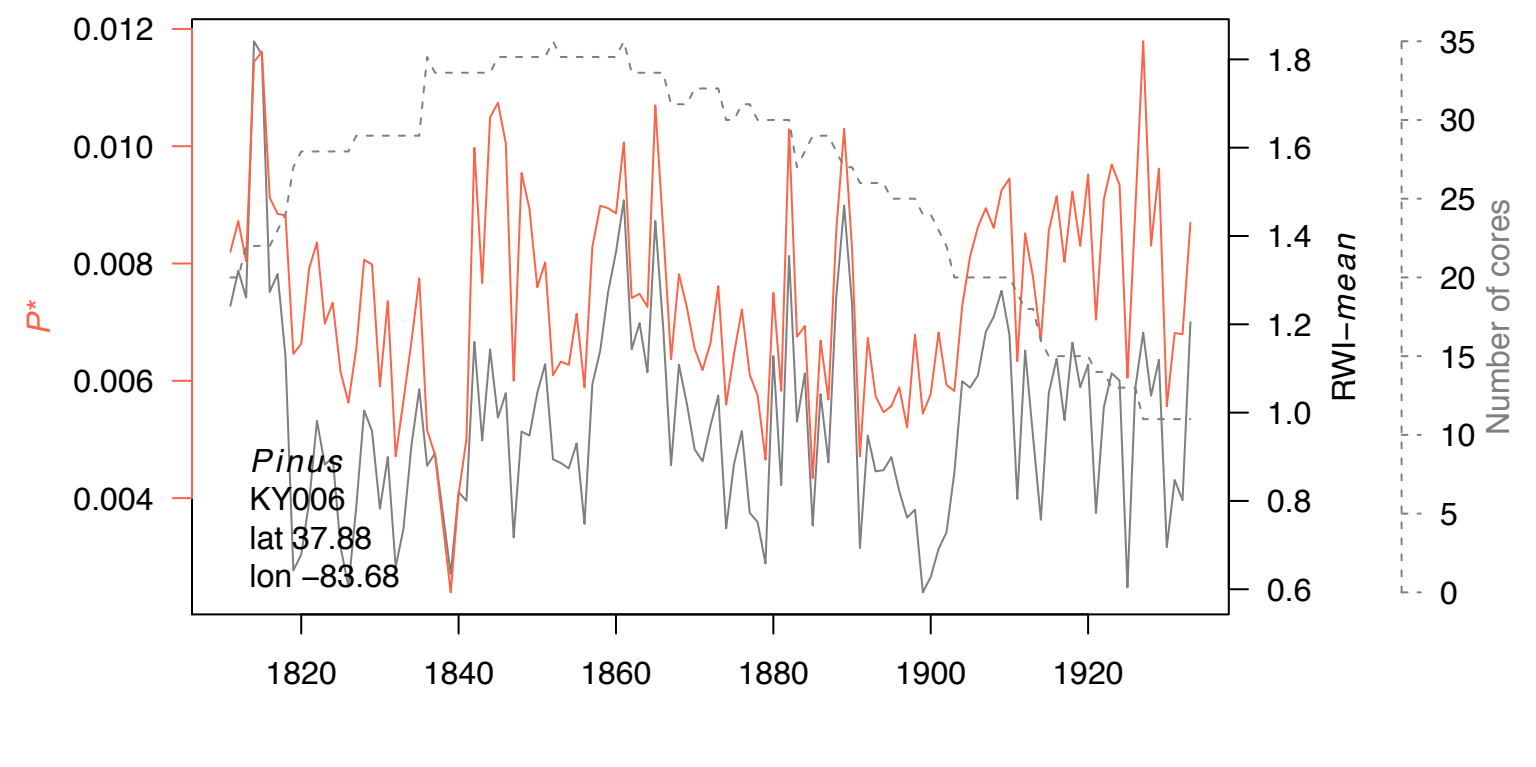

P*
0.010
0.008
0.006
0.004
Pinus
CANA265
lat 49.18
lon −94.15
1920
1940
1960
1980
2000
1.6
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
35
30
25
20
15
10
5
0
Number of cores

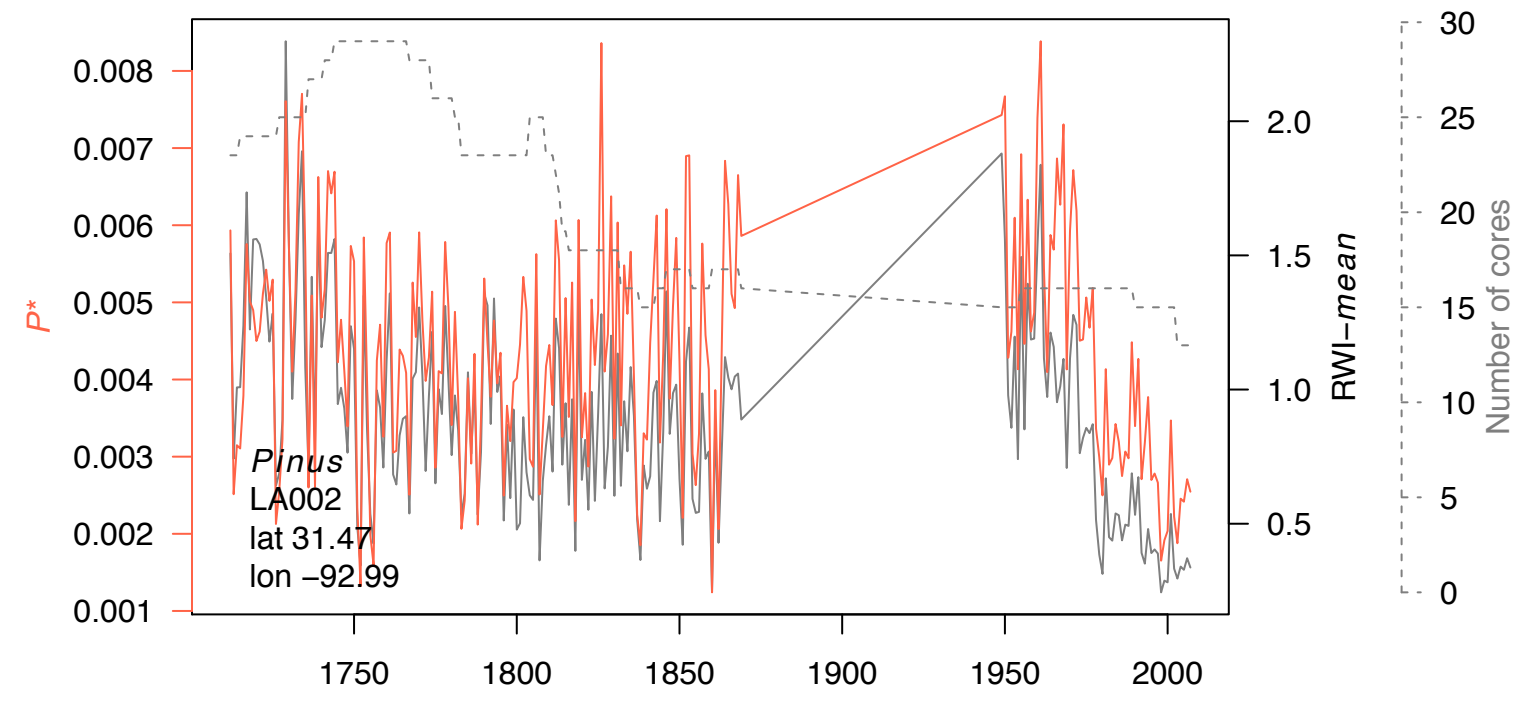

P*
0.009
0.008
0.007
0.006
0.005
0.004
0.003
Pinus
CANA266
lat 49.18
lon −94.15
1920
1940
1960
1980
2000
1.6
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
30
25
20
15
10
5
0
Number of cores


P*
0.016
0.014
0.012
0.010
0.008
0.006
Pinus
CANA267
lat 48.93
lon −91.78
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
20
15
10
5
0
Number of cores
1920
1940
1960
1980
2000


0.010
0.008
0.006
0.004
0.002
P*
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
40
30
20
10
0
Number of cores
Pinus
CANA268
lat 48.67
lon –91.08
1880
1900
1920
1940
1960
1980
2000


P*
0.008
0.007
0.006
0.005
0.004
0.003
0.002
Pinus
AR074
lat 35.68
lon −93.3
1740
1760
1780
1800
1820
1840
1860
1880
RWI–mean
1.6
1.4
1.2
1.0
0.8
0.6
0.4
Number of cores
20
15
10
5
0


P*
0.012
0.010
0.008
0.006
0.004
RWI–mean
1.8
1.6
1.4
1.2
1.0
0.8
0.6
Number of cores
35
30
25
20
15
10
5
0
Pinus
KY006
lat 37.88
lon −83.68
1820
1840
1860
1880
1900
1920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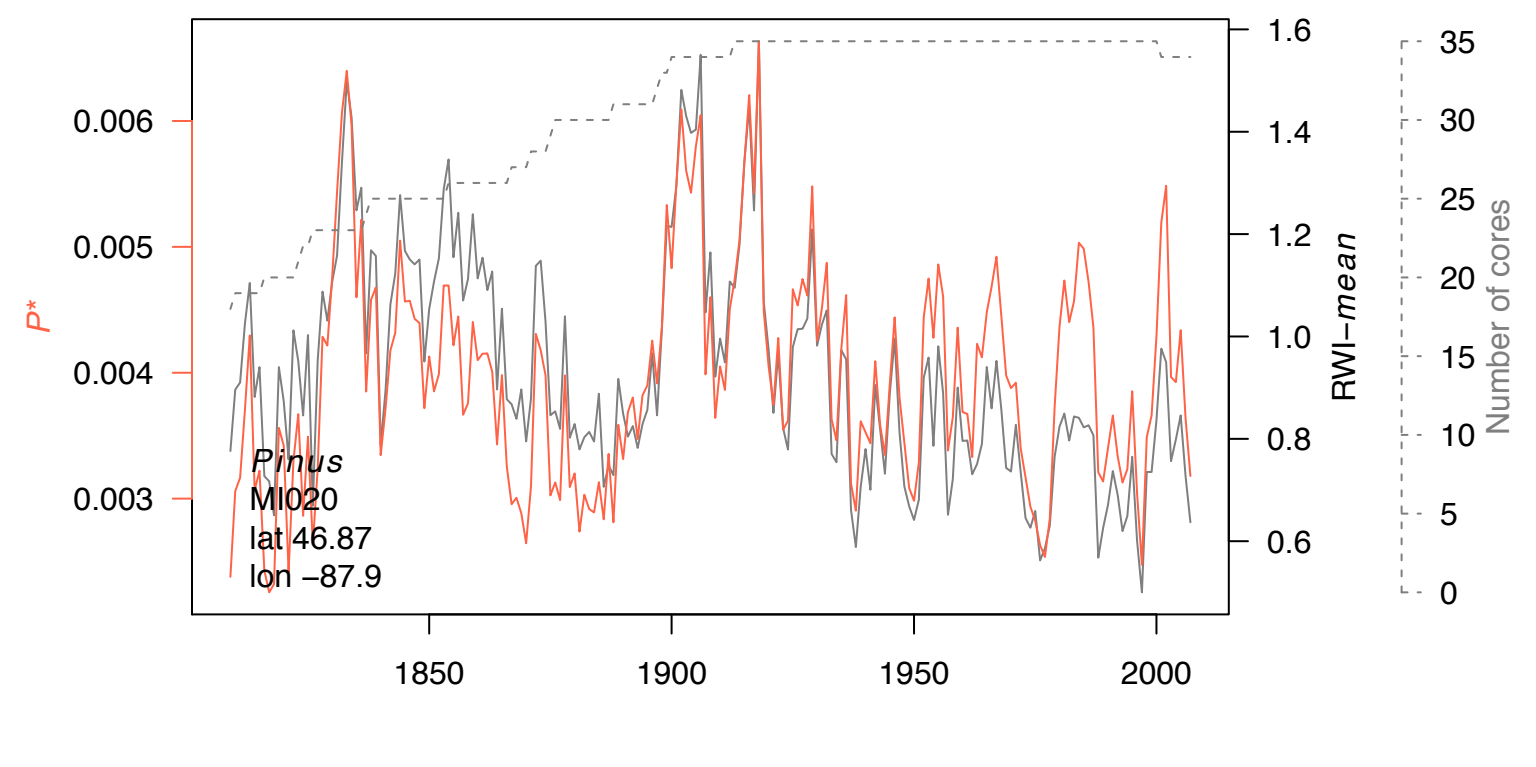
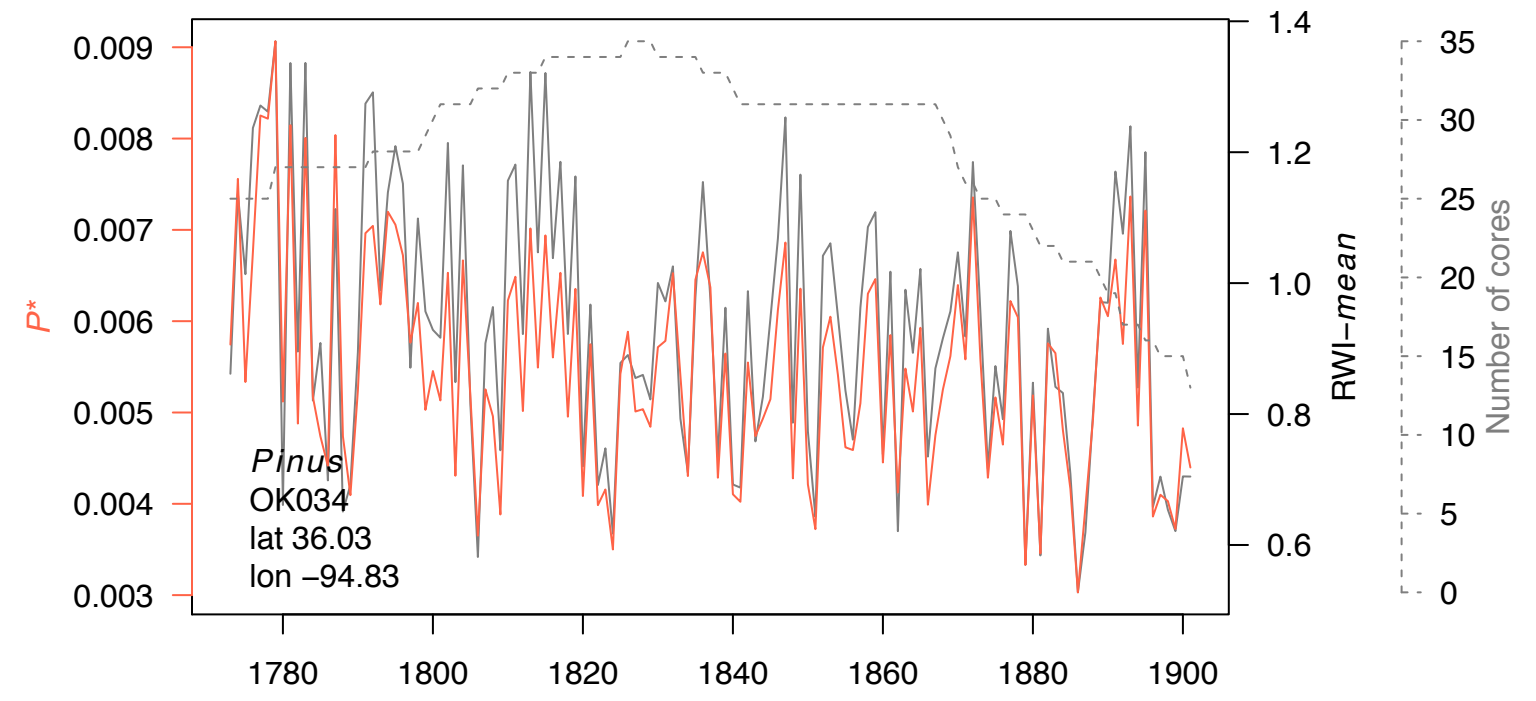
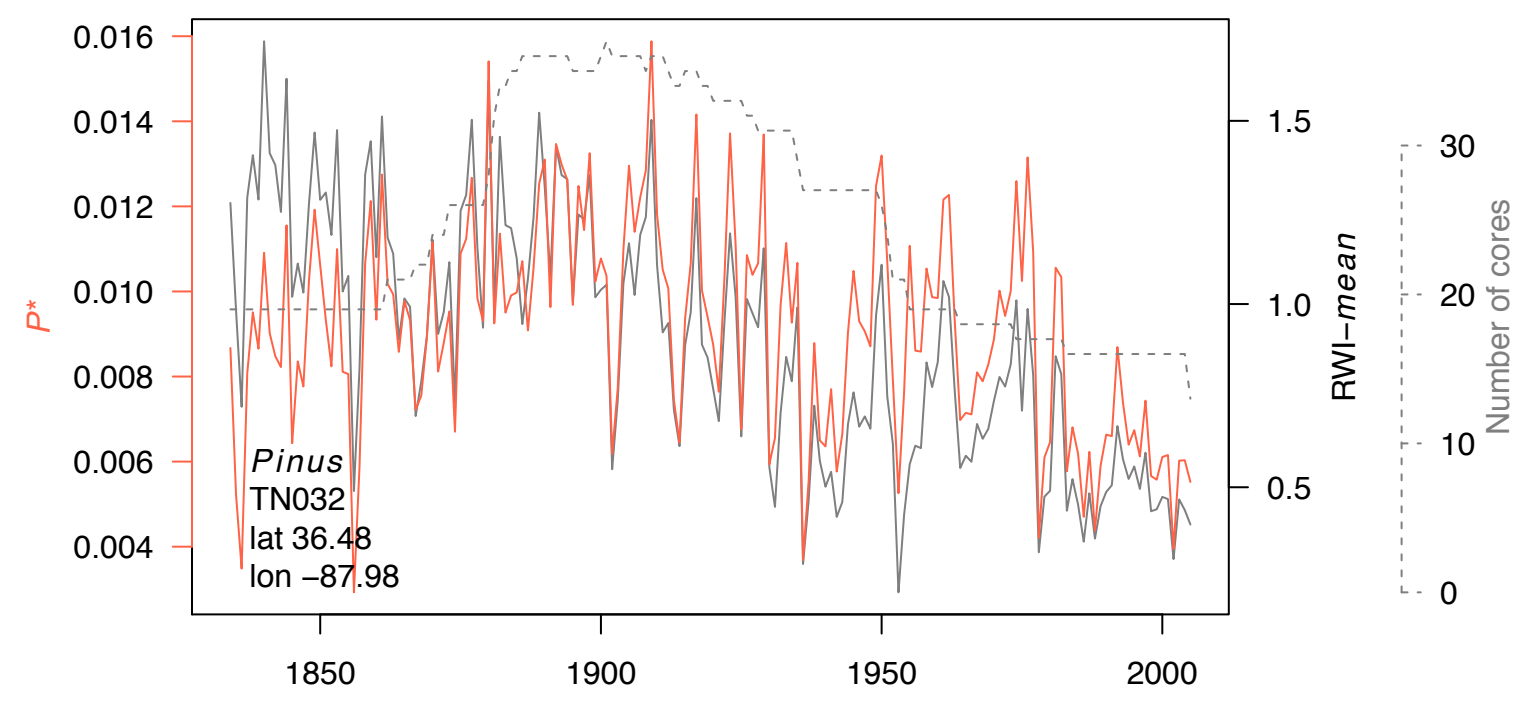
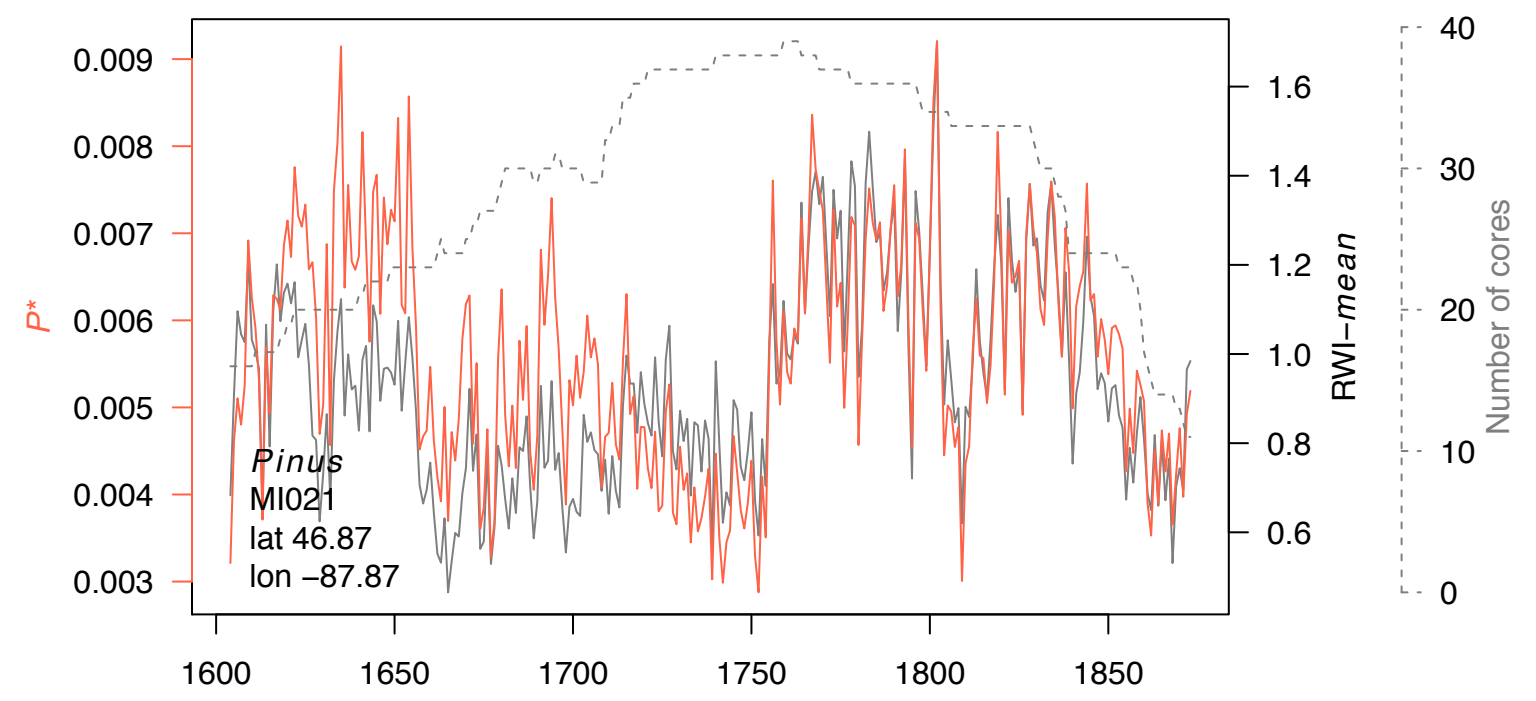
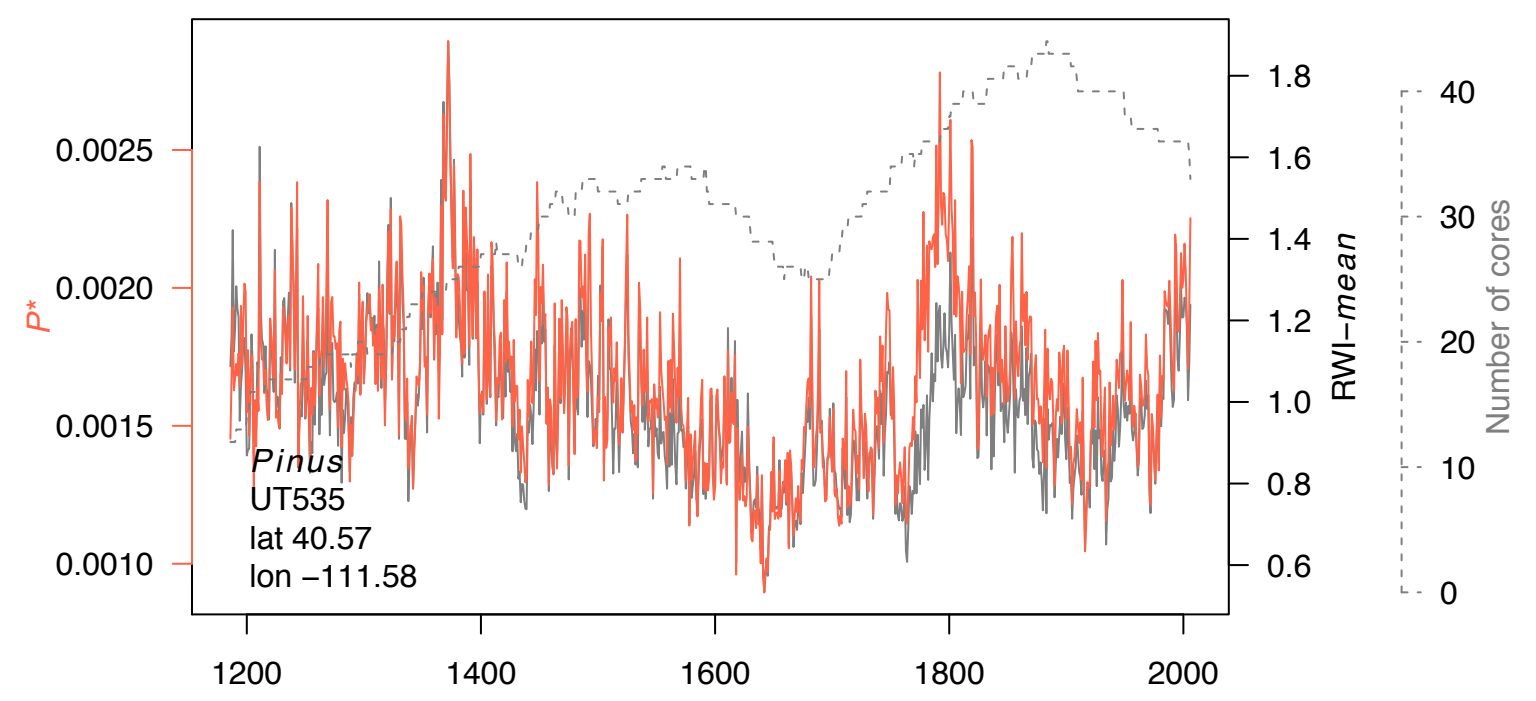
0.008
0.007
0.006
0.005
0.004
0.003
0.002
0.001
RWI–mean
2.0
1.5
1.0
0.5
Number of cores
30
25
20
15
10
5
0
1750
1800
1850
1900
1950
2000
Pinus
LA002
lat 31.47
lon –92.99

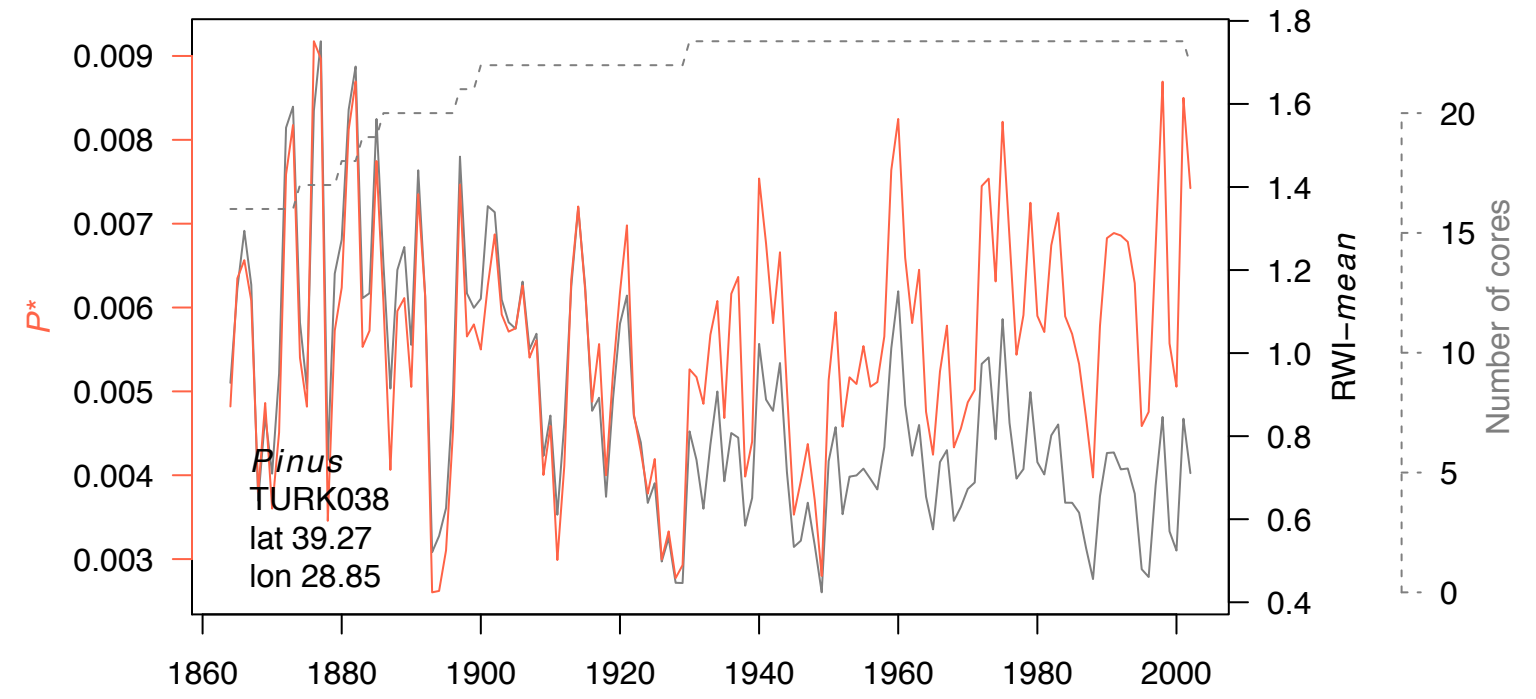

P*
0.006
0.005
0.004
0.003
Pinus
MI020
lat 46.87
lon −87.9
1850
1900
1950
2000
1.6
1.4
1.2
1.0
0.8
0.6
RWI–mean
35
30
25
20
15
10
5
0
Number of cores

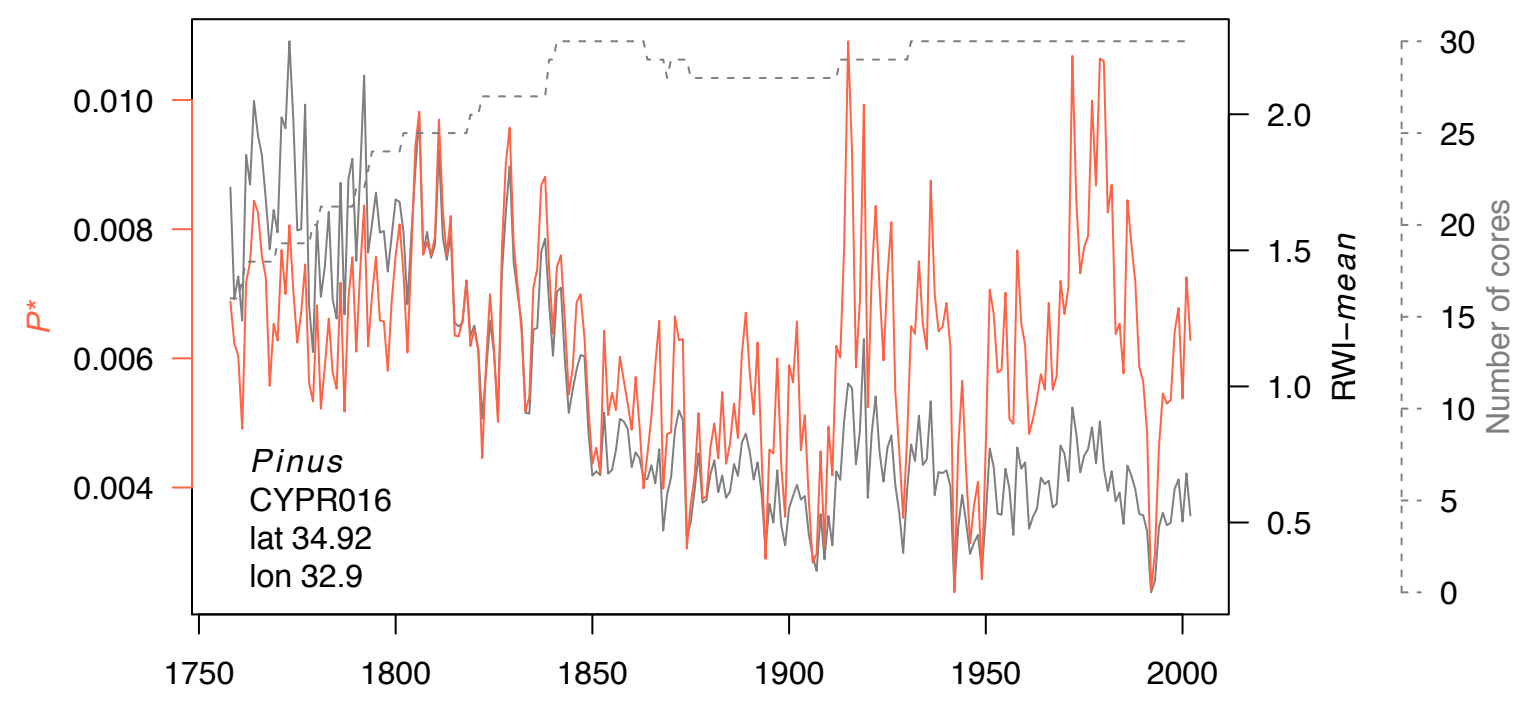

P*
0.009
0.008
0.007
0.006
0.005
0.004
0.003
1.4
1.2
1.0
0.8
0.6
RWI–mean
35
30
25
20
15
10
5
0
Number of cores
Pinus
OK034
lat 36.03
lon –94.83
1780
1800
1820
1840
1860
1880
1900

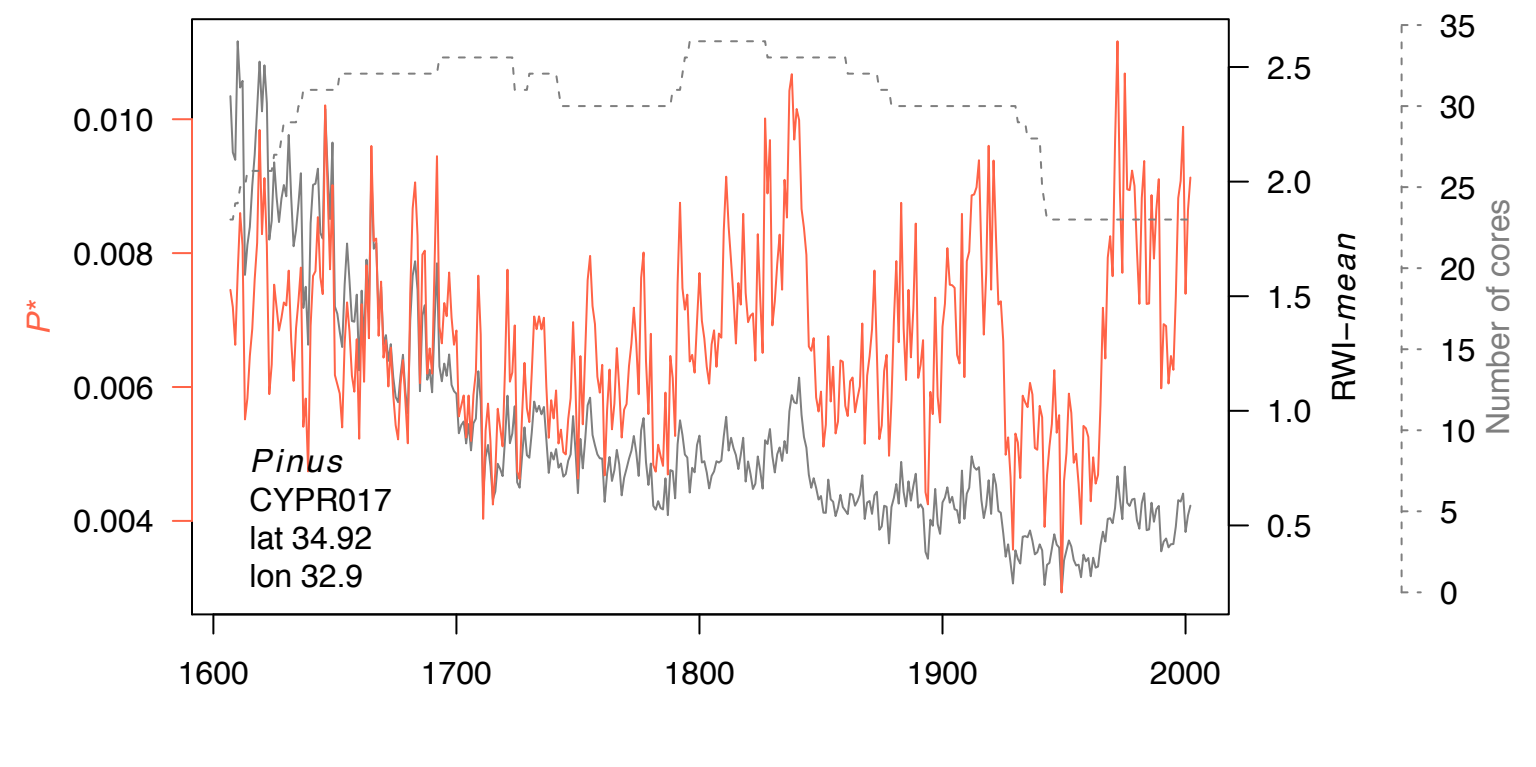

P*
0.016
0.014
0.012
0.010
0.008
0.006
0.004
Pinus
TN032
lat 36.48
lon −87.98
1850
1900
1950
2000
RWI–mean
1.5
1.0
0.5
Number of cores
30
20
10
0

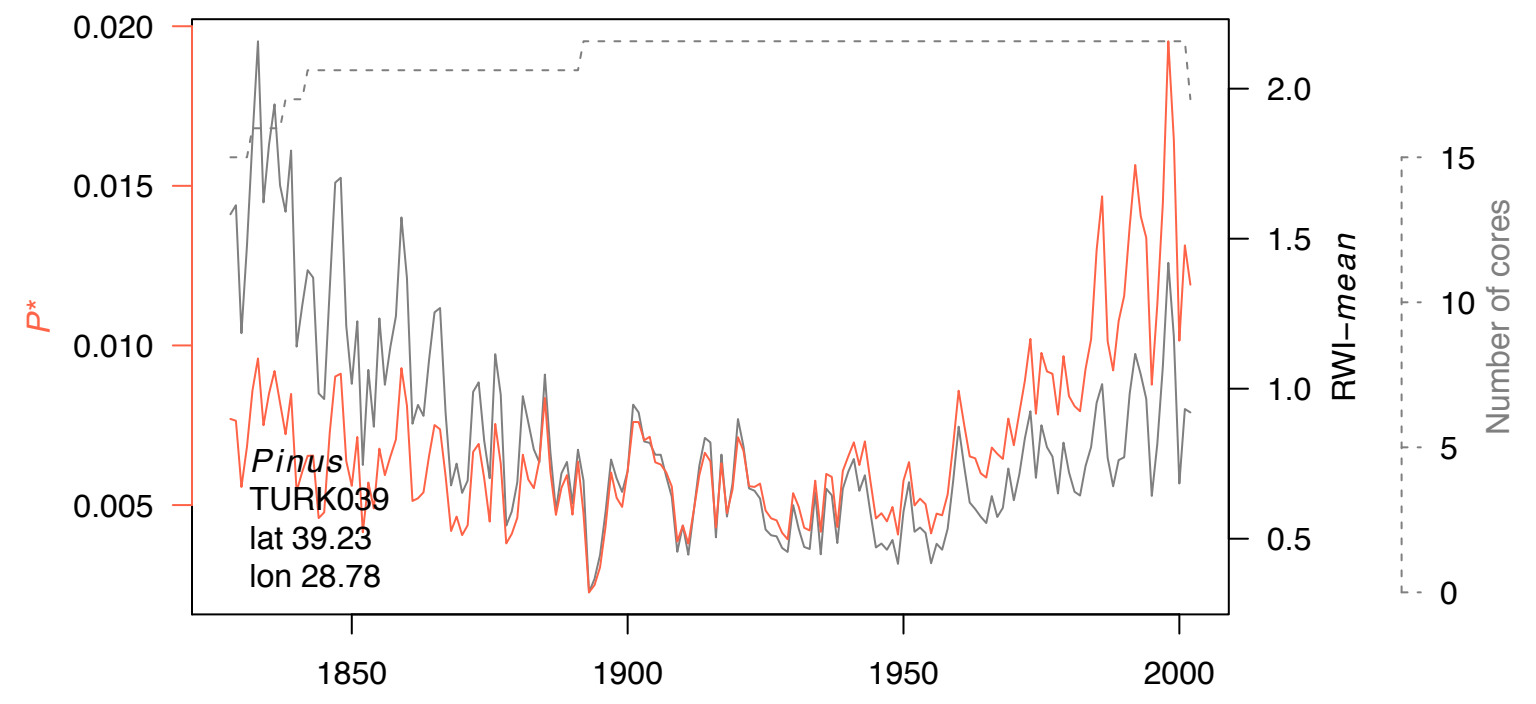

P*
0.009
0.008
0.007
0.006
0.005
0.004
0.003
Pinus
MI021
lat 46.87
lon −87.87
1600
1650
1700
1750
1800
1850
RWI–mean
1.6
1.4
1.2
1.0
0.8
0.6
Number of cores
40
30
20
10
0

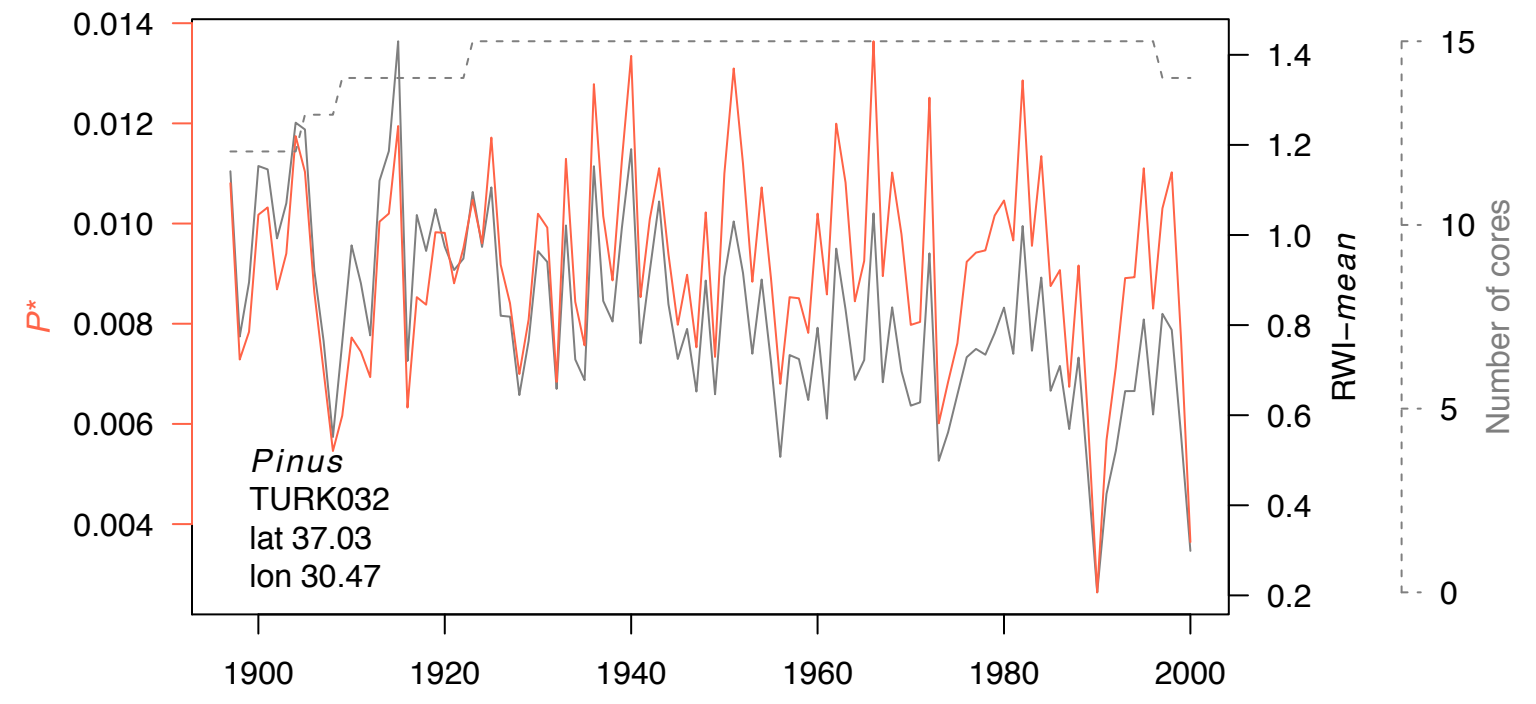

P*
0.0025
0.0020
0.0015
0.0010
Pinus
UT535
lat 40.57
lon −111.58
1200
1400
1600
1800
2000
1.8
1.6
1.4
1.2
1.0
0.8
0.6
RWI–mean
40
30
20
10
0
Number of cores

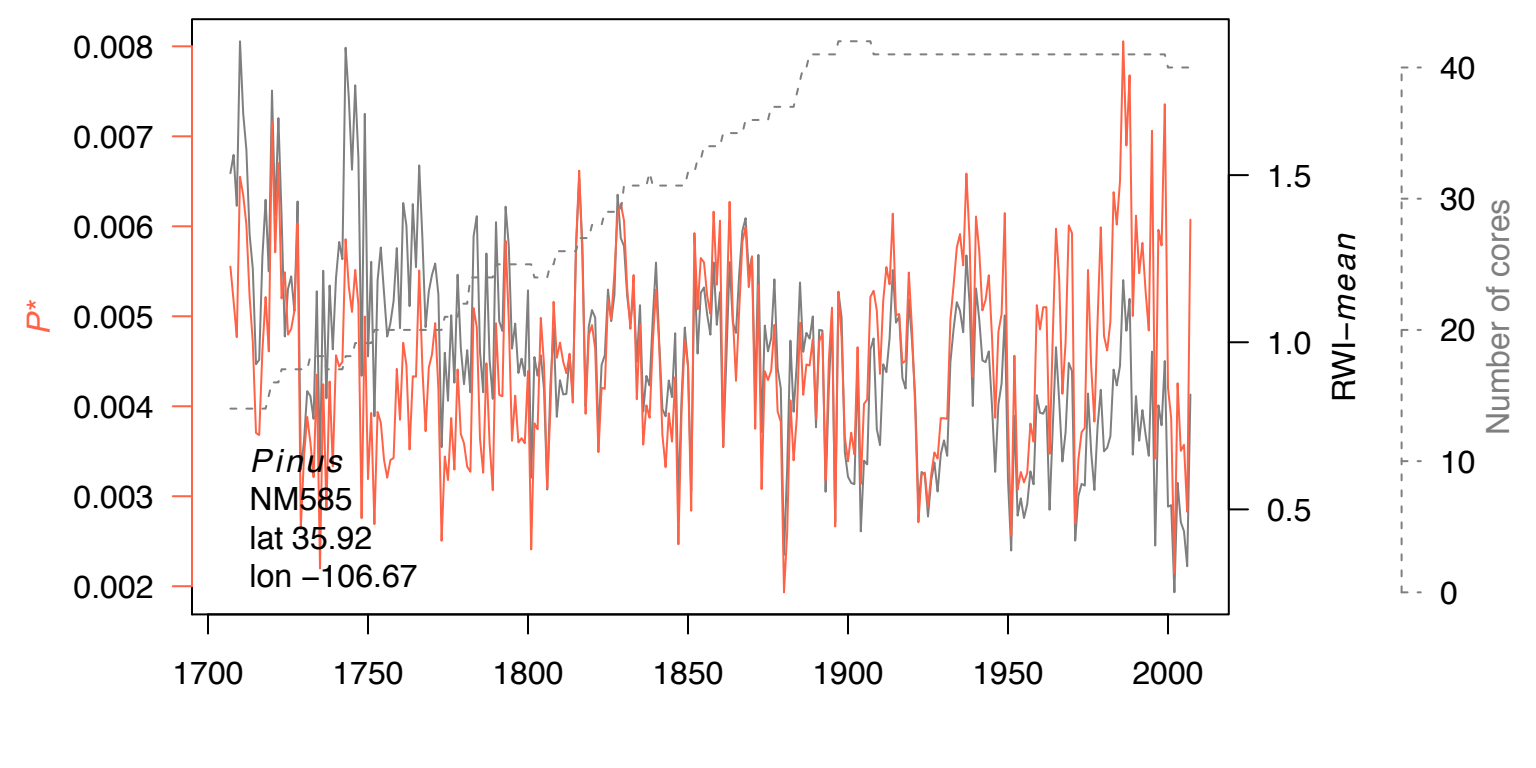

P*
0.009
0.008
0.007
0.006
0.005
0.004
0.003
Pinus
TURK038
lat 39.27
lon 28.85
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
20
15
10
5
0
Number of cores
1860
1880
1900
1920
1940
1960
1980
2000

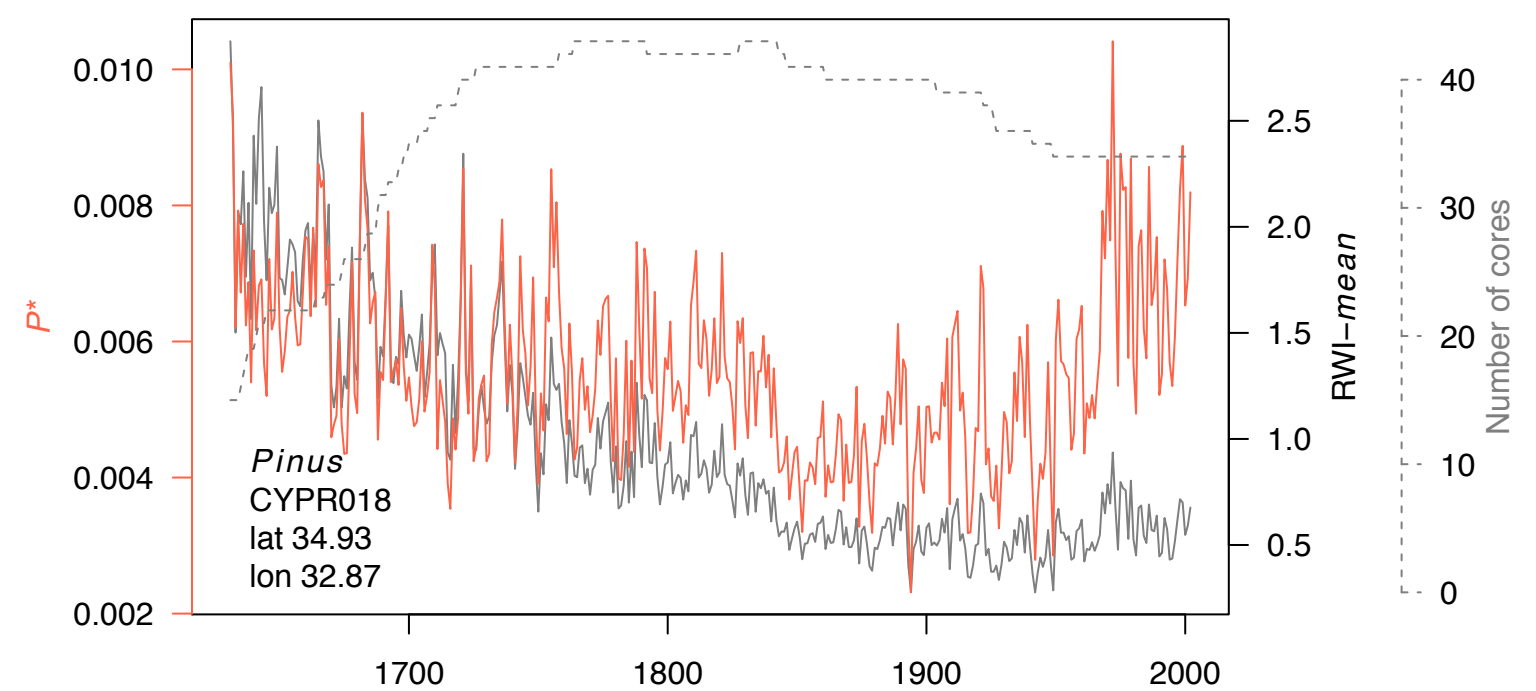

P*
0.010
0.008
0.006
0.004
Pinus
CYPR016
lat 34.92
lon 32.9
2.0
1.5
1.0
0.5
RWI–mean
30
25
20
15
10
5
0
Number of cores
1750
1800
1850
1900
1950
2000

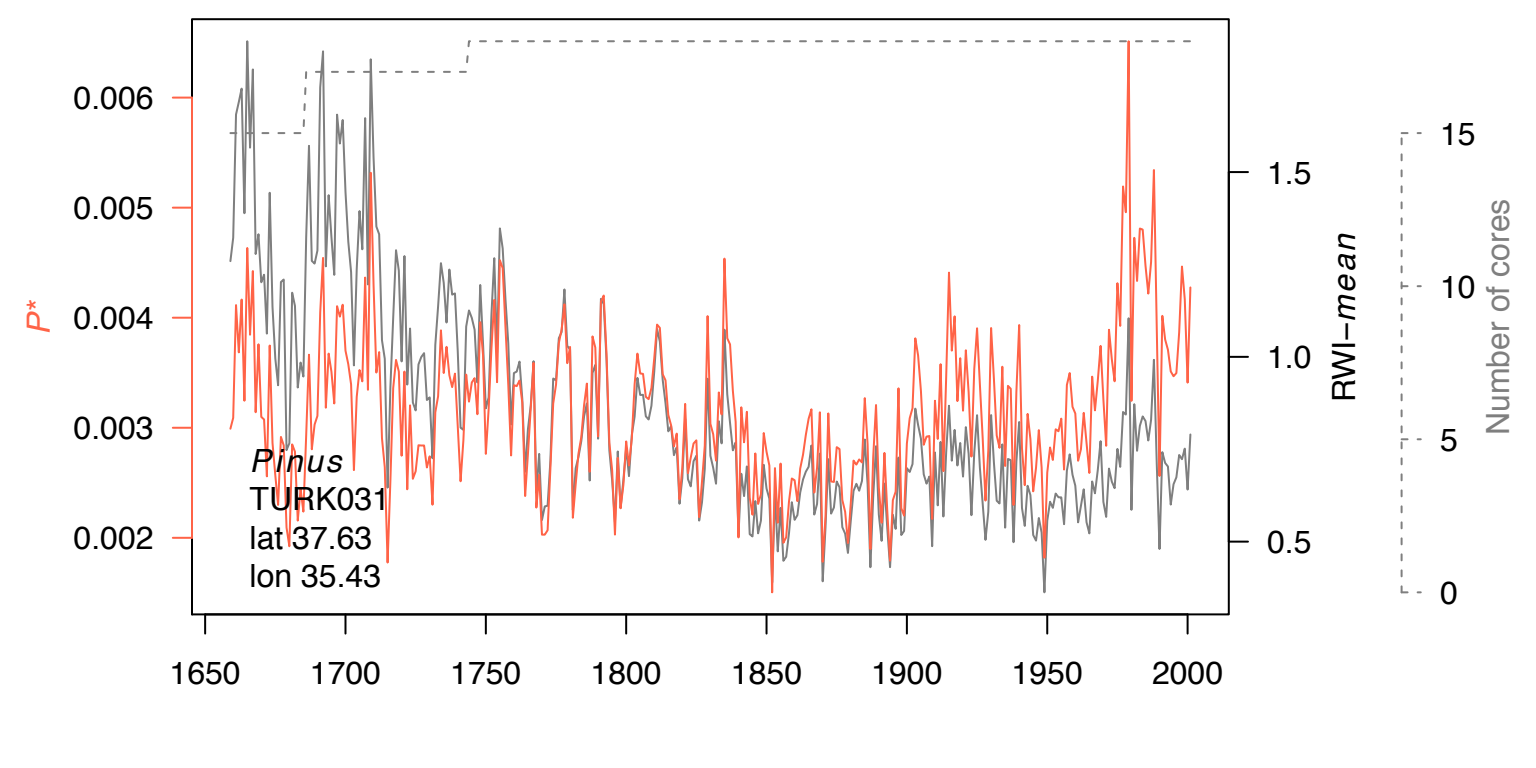

P*
0.010
0.008
0.006
0.004
Pinus
CYPR017
lat 34.92
lon 32.9
2.5
2.0
1.5
1.0
0.5
RWI–mean
35
30
25
20
15
10
5
0
Number of cores
1600
1700
1800
1900
2000

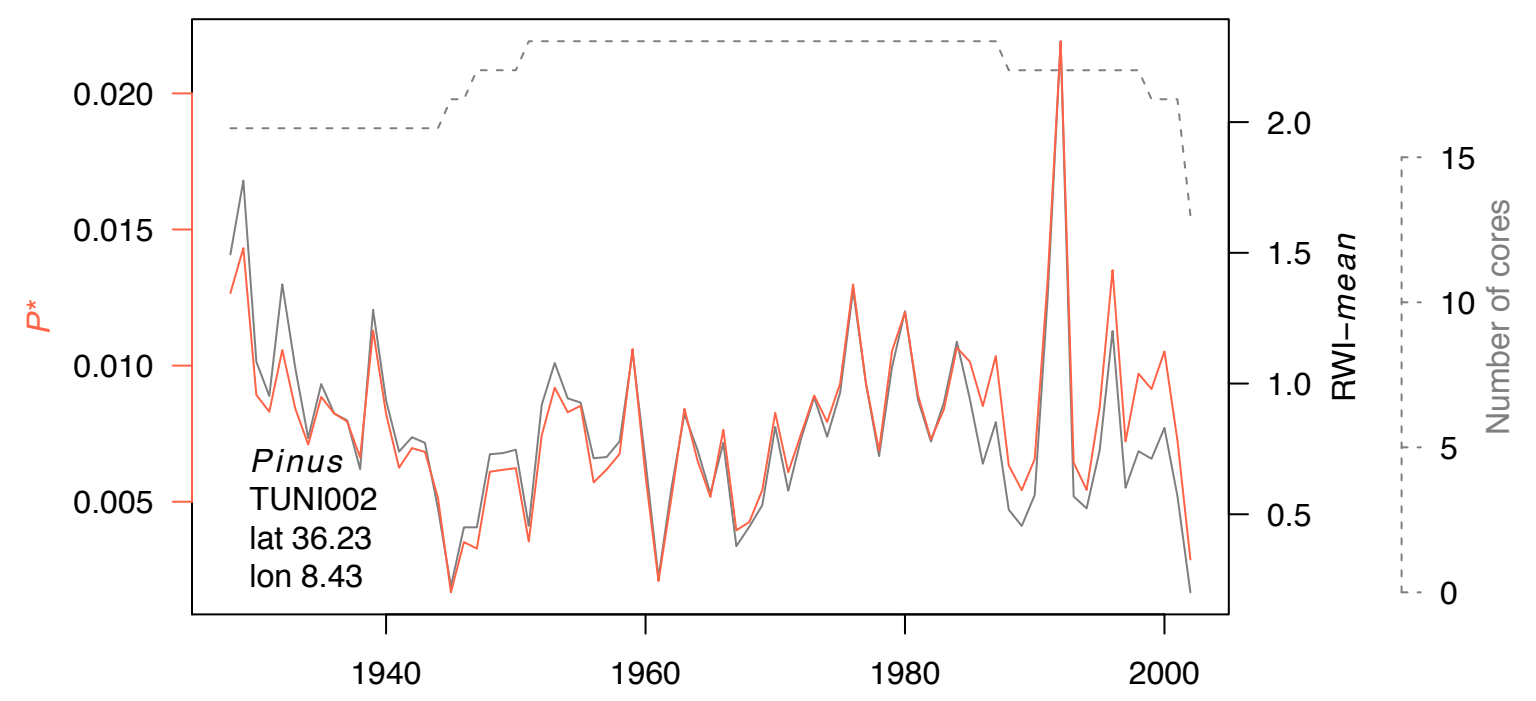

0.020
0.015
0.010
0.005
P*
2.0
1.5
1.0
0.5
RWI–mean
15
10
5
0
Number of cores
1850
1900
1950
2000
Pinus
TURK039
lat 39.23
lon 28.78

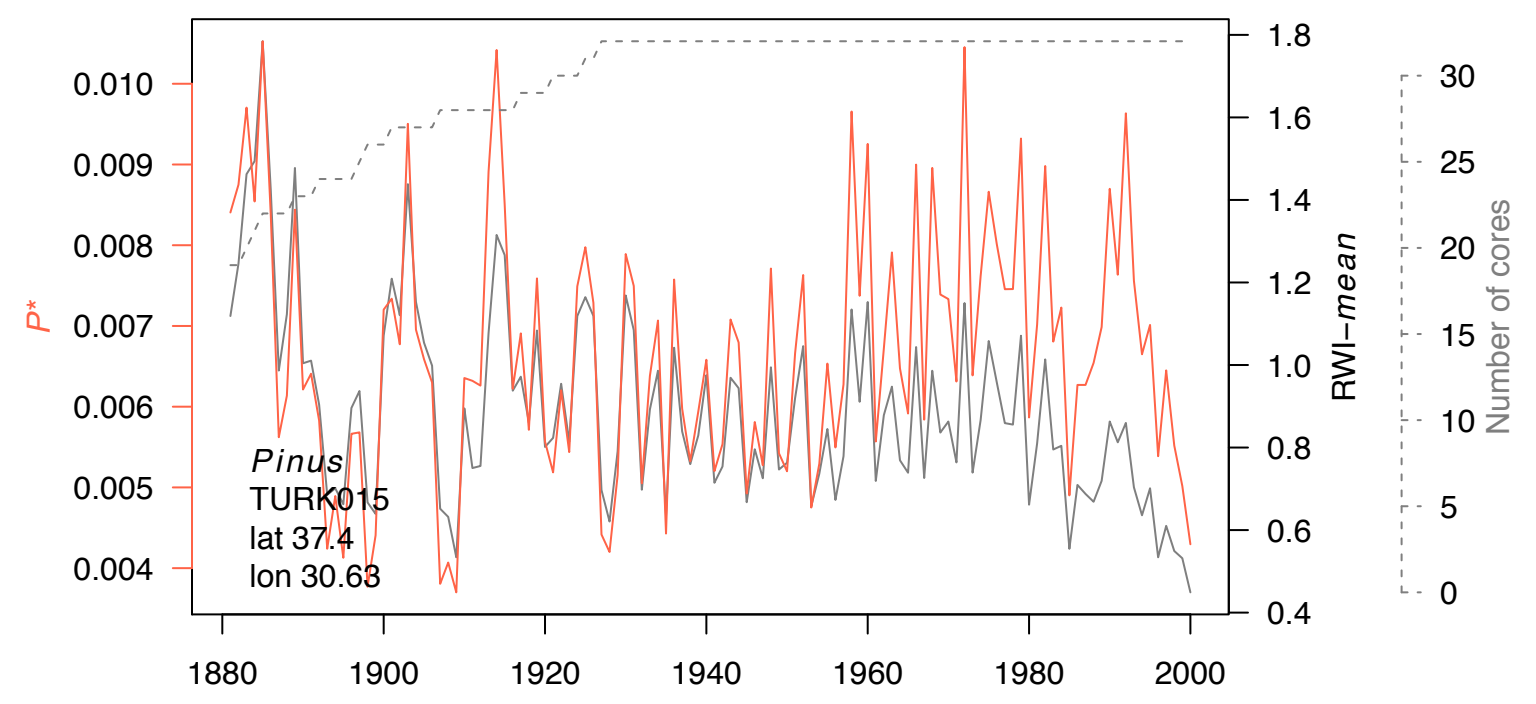

P*
0.014
0.012
0.010
0.008
0.006
0.004
Pinus
TURK032
lat 37.03
lon 30.47
1900
1920
1940
1960
1980
2000
RWI–mean
1.4
1.2
1.0
0.8
0.6
0.4
0.2
Number of cores
15
10
5
0

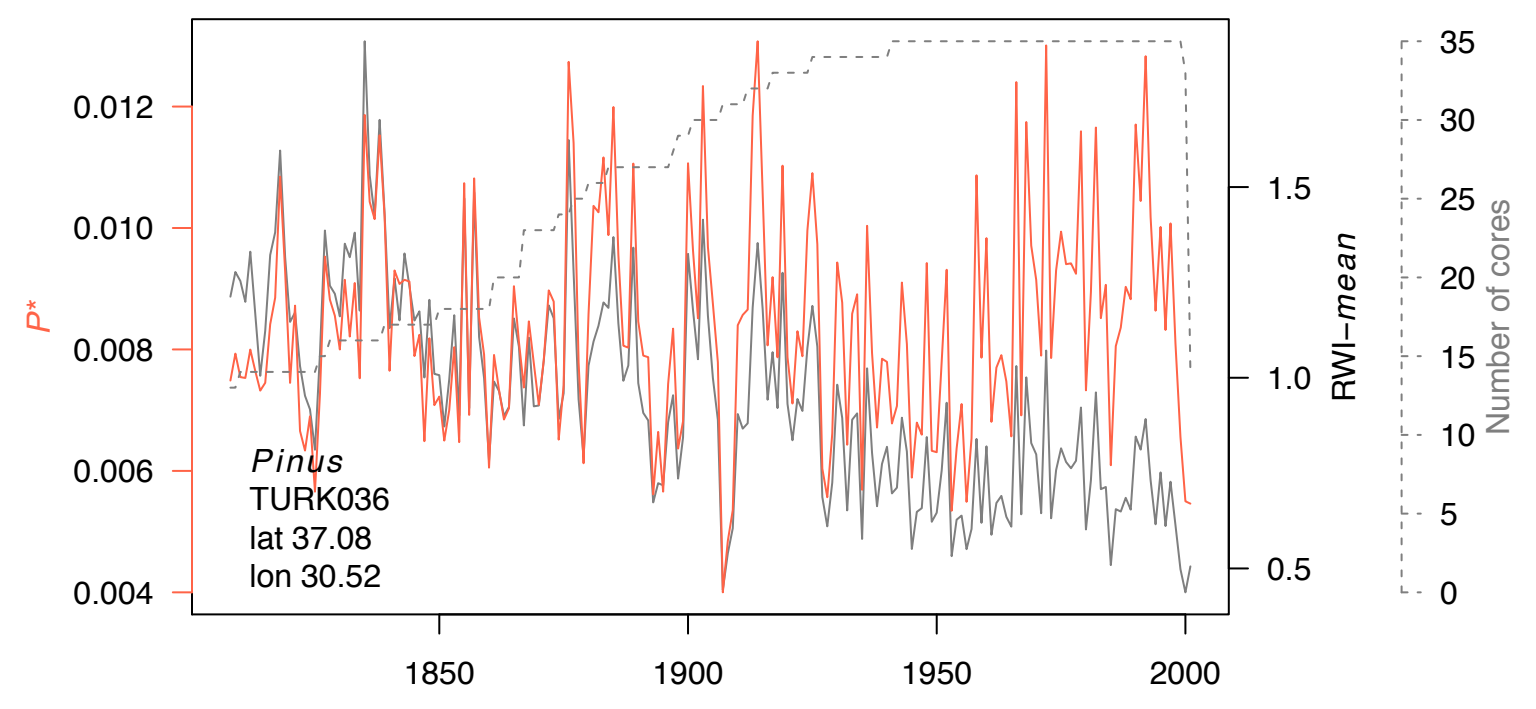

P*
0.008
0.007
0.006
0.005
0.004
0.003
0.002
Pinus
NM585
lat 35.92
lon −106.67
1700
1750
1800
1850
1900
1950
2000
RWI–mean
1.5
1.0
0.5
Number of cores
40
30
20
10
0

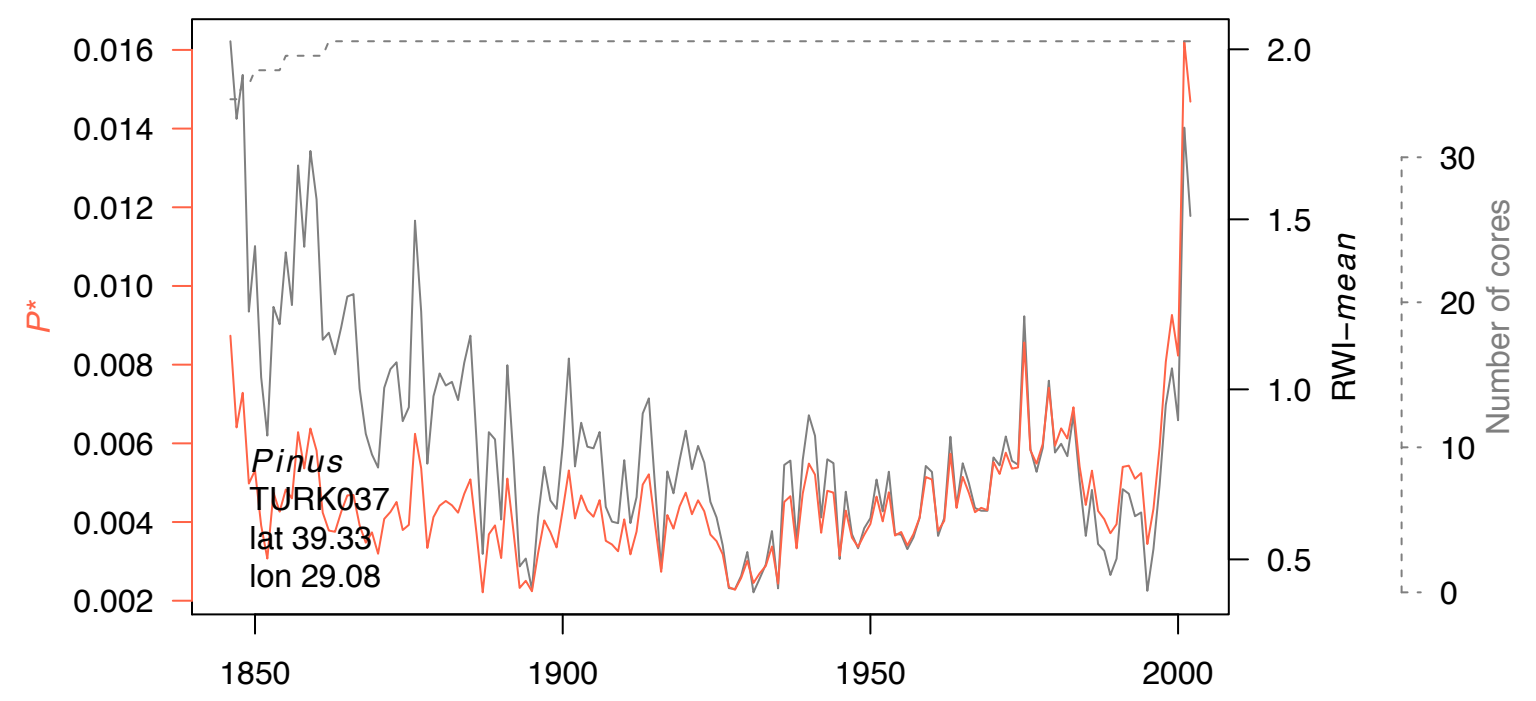

P*
0.010
0.008
0.006
0.004
0.002
RWI–mean
2.5
2.0
1.5
1.0
0.5
Number of cores
40
30
20
10
0
1700
1800
1900
2000
Pinus
CYPR018
lat 34.93
lon 32.87

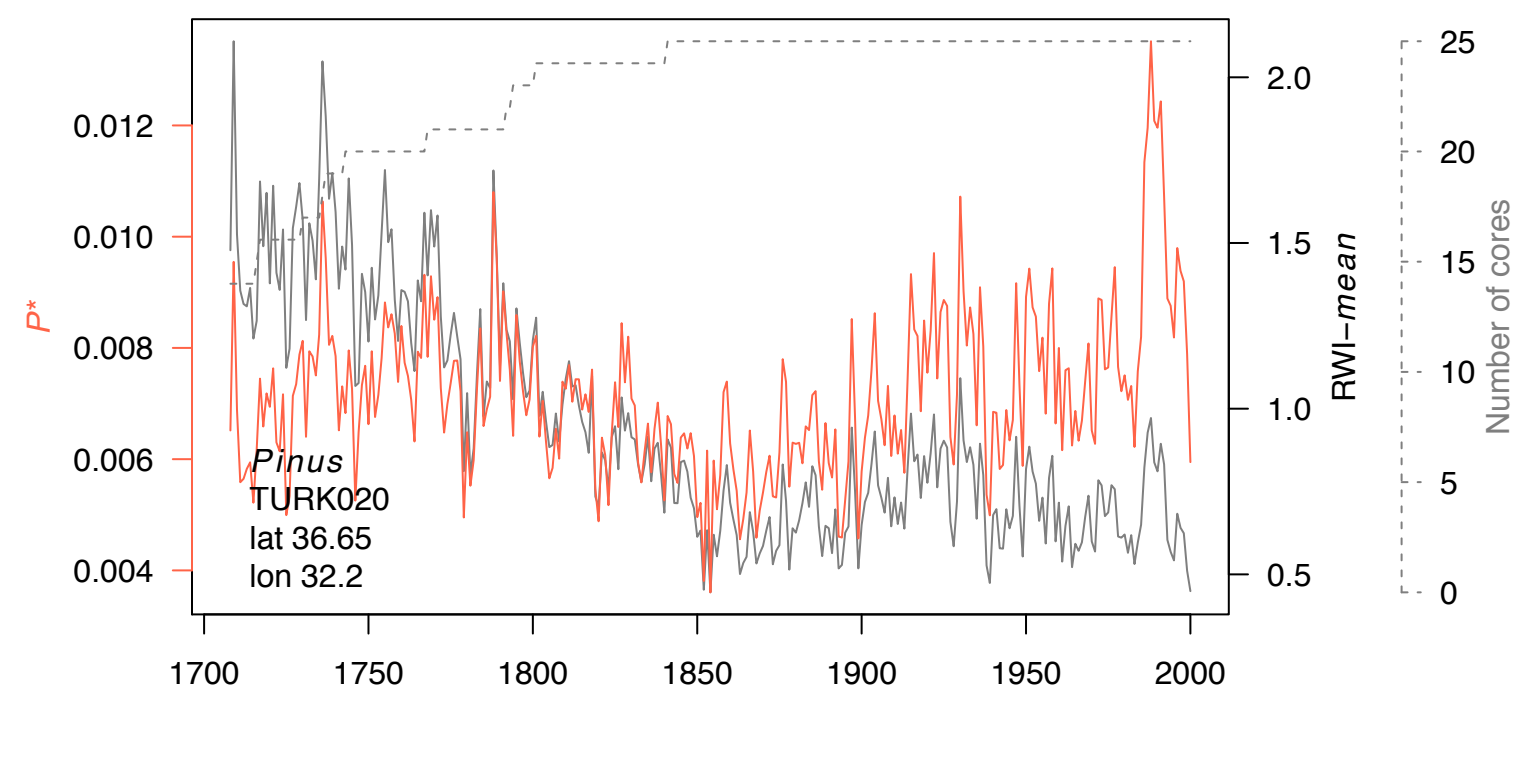

P*
0.006
0.005
0.004
0.003
0.002
Pinus
TURK031
lat 37.63
lon 35.43
1.5
1.0
0.5
RWI–mean
15
10
5
0
Number of cores
1650
1700
1750
1800
1850
1900
1950
2000

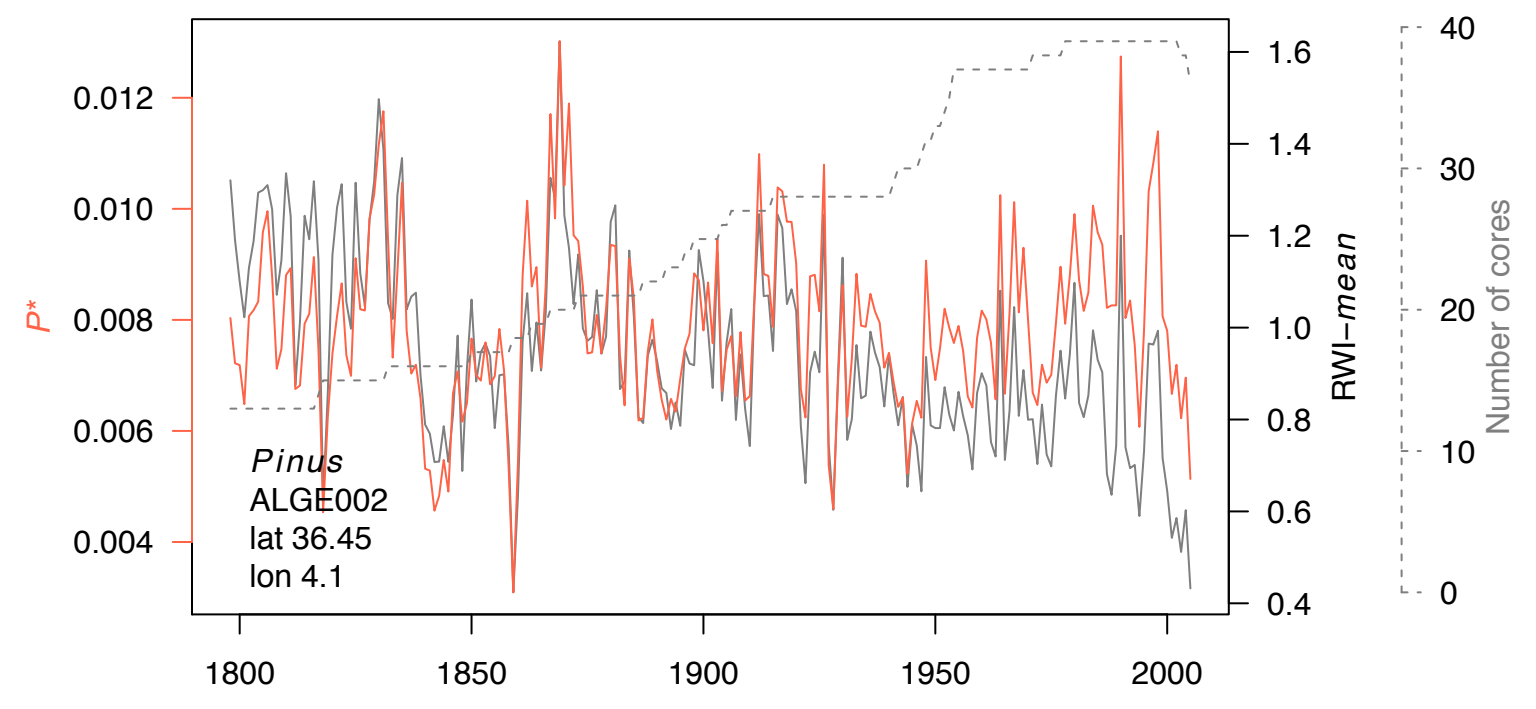

P*
0.020
0.015
0.010
0.005
Pinus
TUNI002
lat 36.23
lon 8.43
1940
1960
1980
2000
RWI–mean
2.0
1.5
1.0
0.5
Number of cores
15
10
5
0

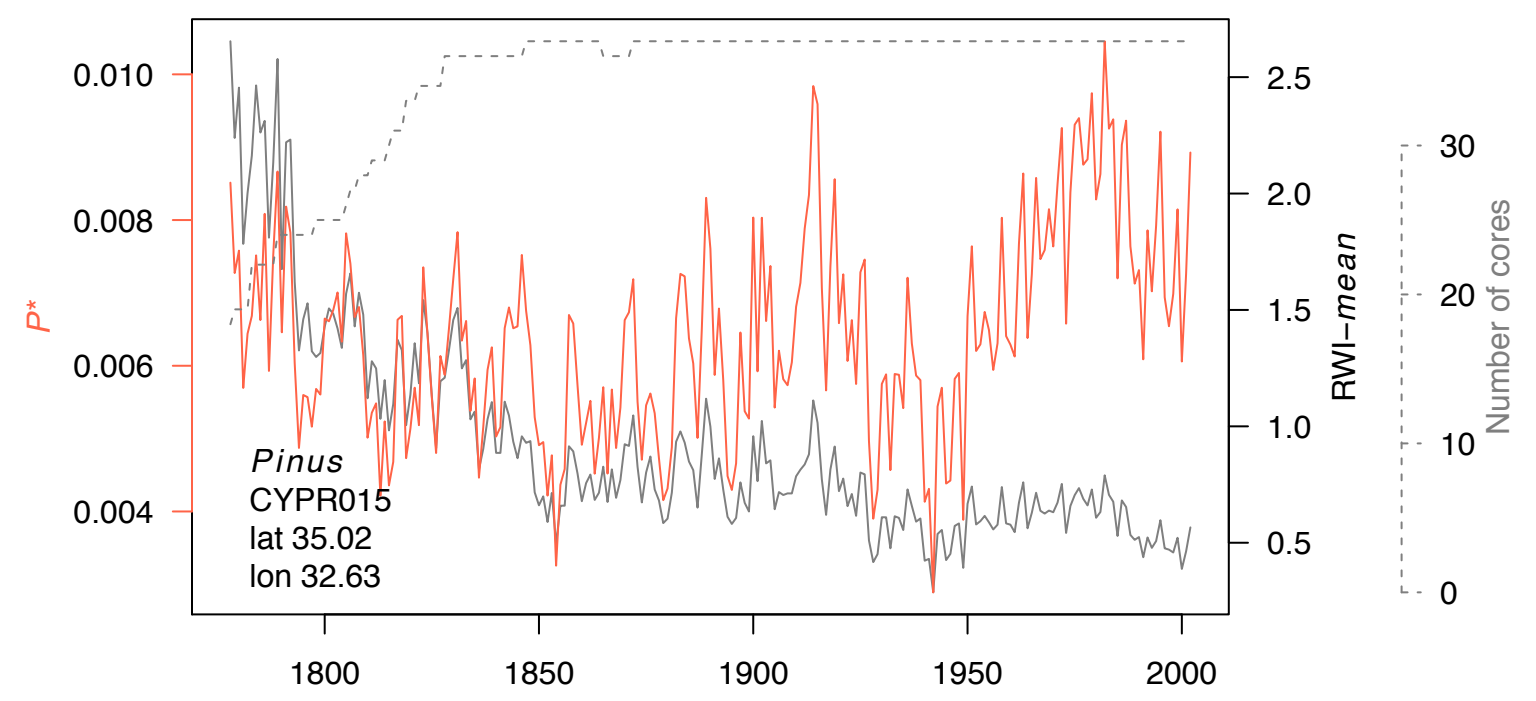

P*
0.010
0.009
0.008
0.007
0.006
0.005
0.004
Pinus
TURK015
lat 37.4
lon 30.63
1880
1900
1920
1940
1960
1980
2000
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
30
25
20
15
10
5
0
Number of cores

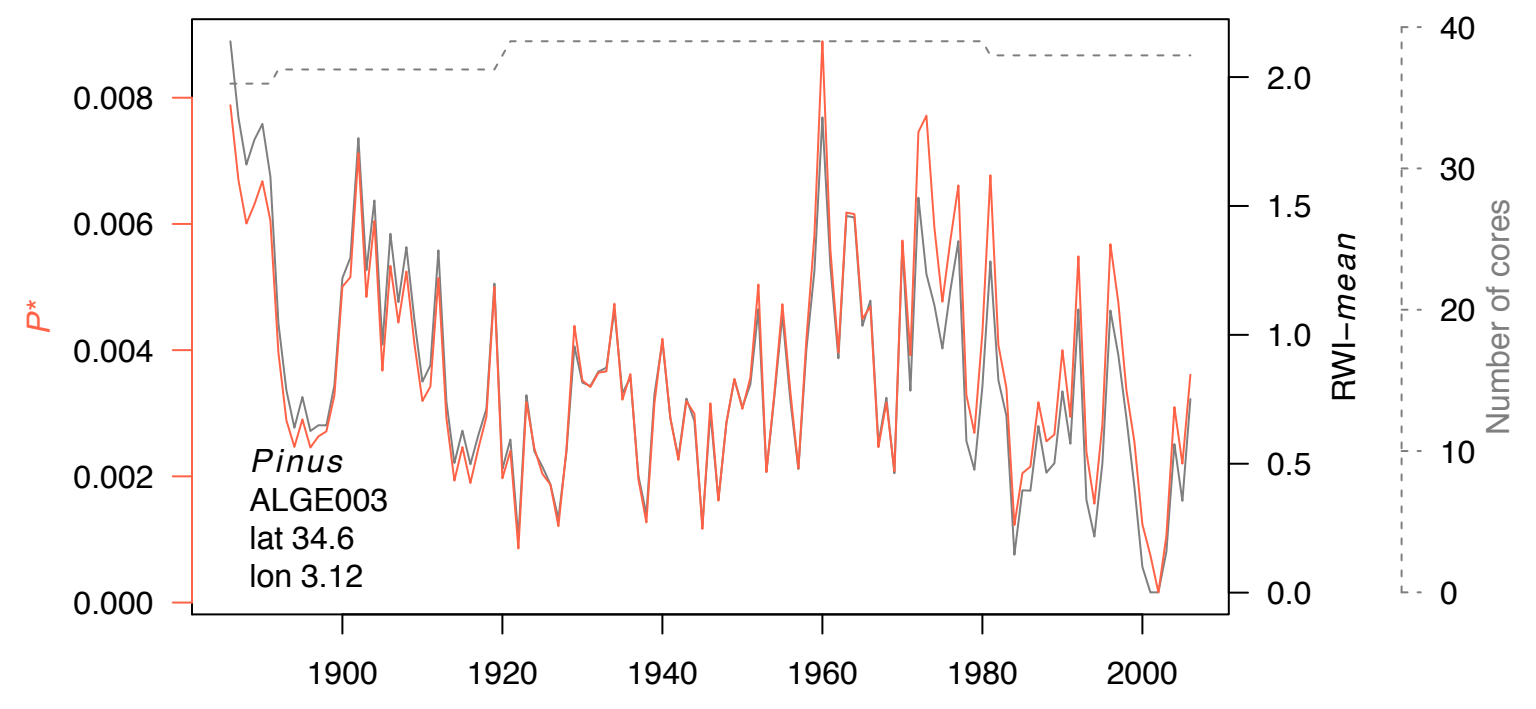

P*
0.012
0.010
0.008
0.006
0.004
Pinus
TURK036
lat 37.08
lon 30.52
1850
1900
1950
2000
RWI–mean
1.5
1.0
0.5
Number of cores
35
30
25
20
15
10
5
0

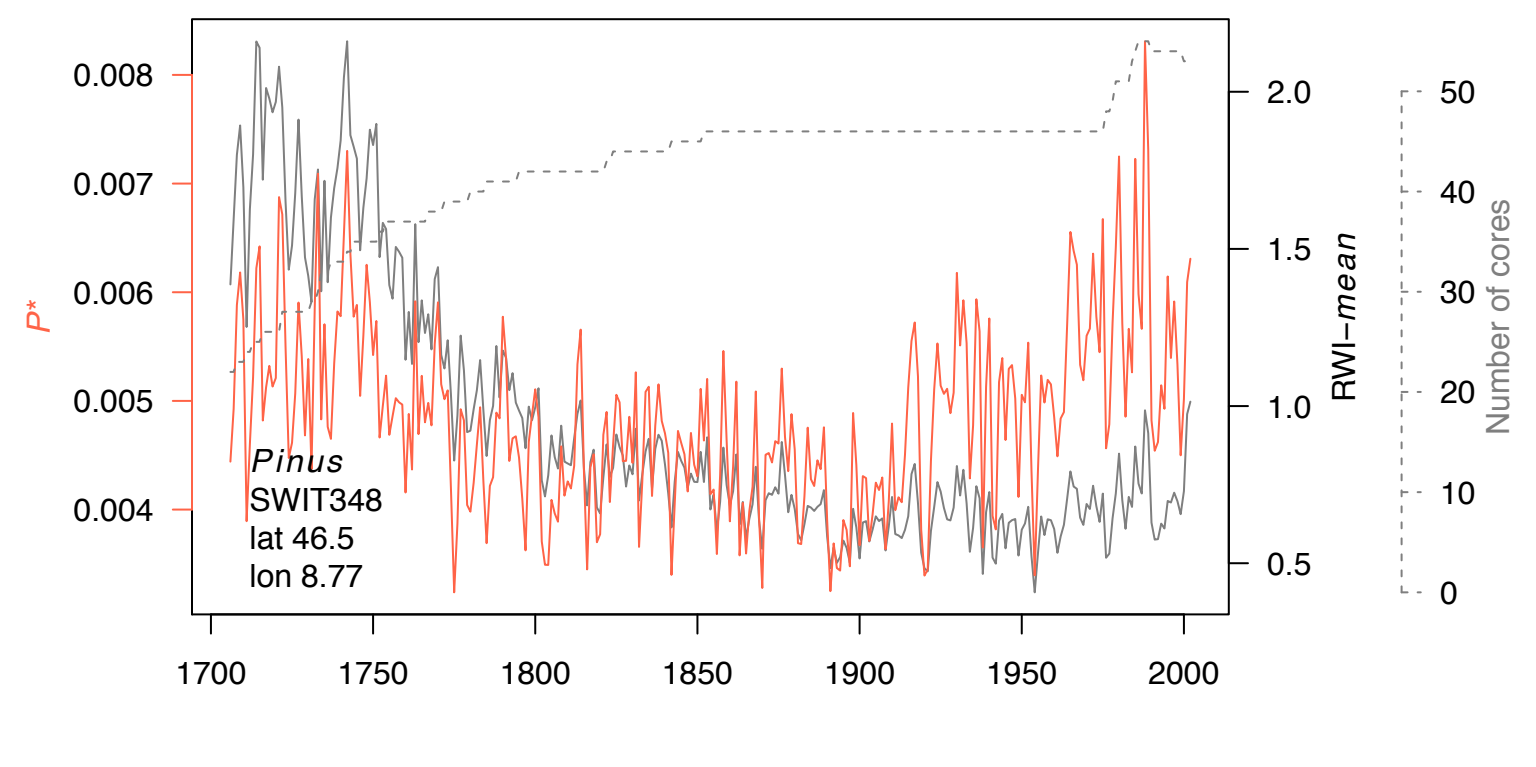

P*
0.016
0.014
0.012
0.010
0.008
0.006
0.004
0.002
RWI–mean
2.0
1.5
1.0
0.5
Number of cores
30
20
10
0
1850
1900
1950
2000
Pinus
TURK037
lat 39.33
lon 29.08

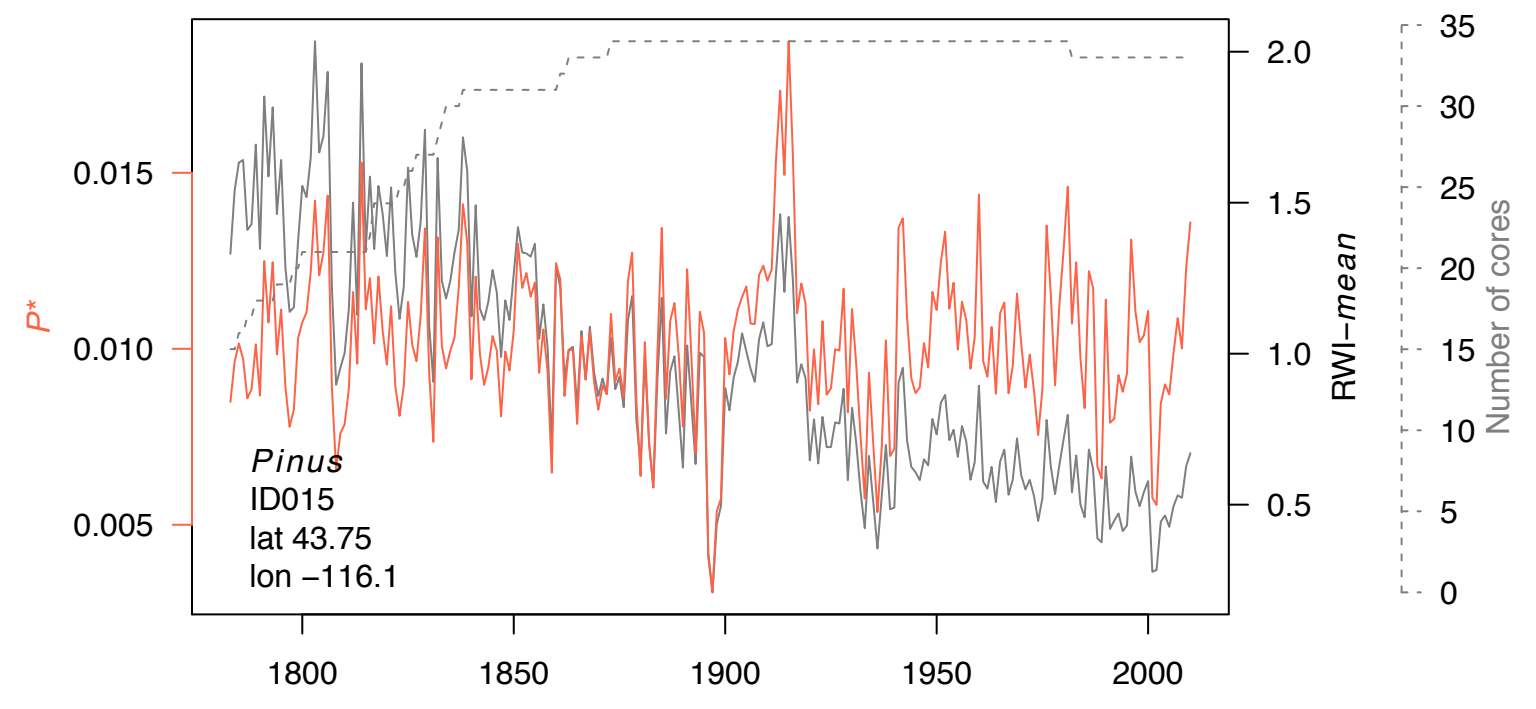

P*
0.012
0.010
0.008
0.006
0.004
Pinus
TURK020
lat 36.65
lon 32.2
2.0
1.5
1.0
0.5
RWI–mean
25
20
15
10
5
0
Number of cores
1700
1750
1800
1850
1900
1950
2000

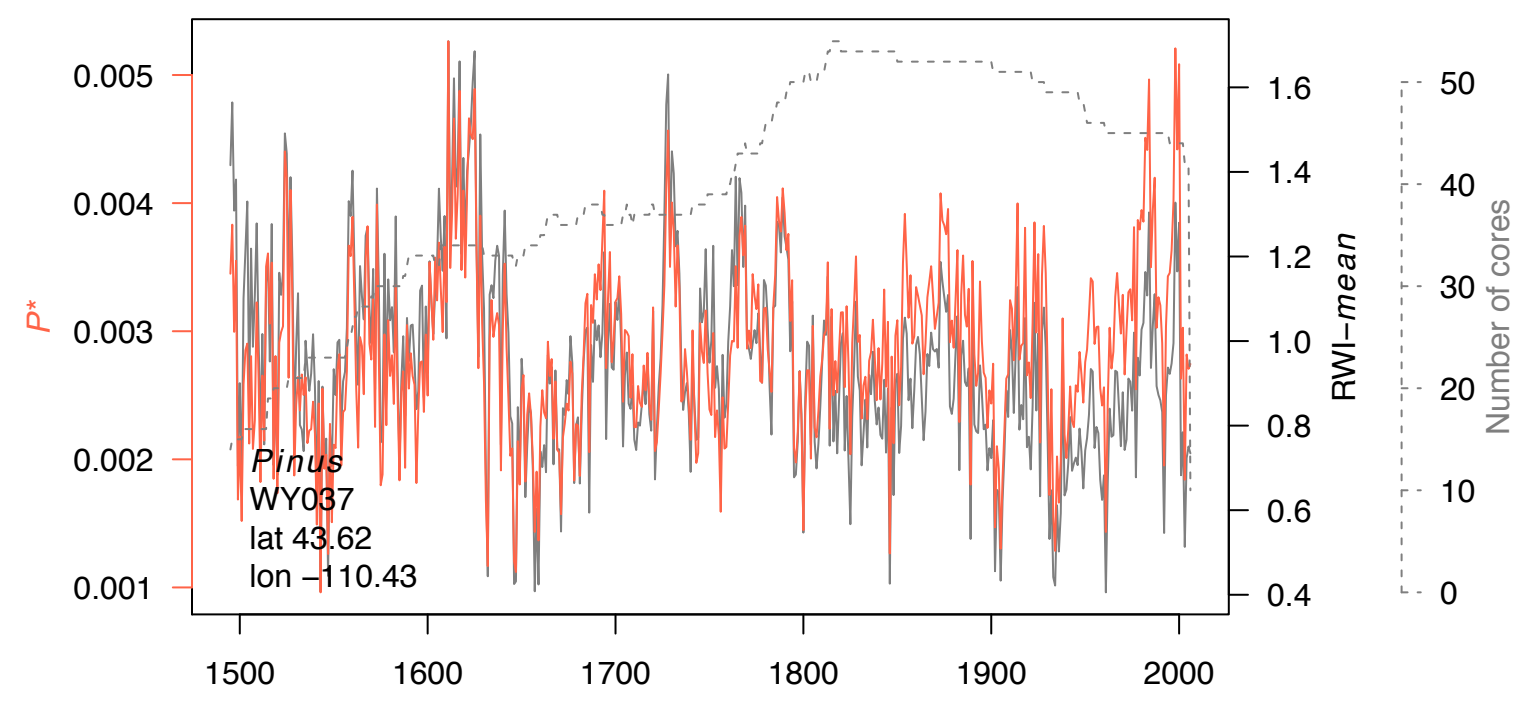

P*
0.012
0.010
0.008
0.006
0.004
Pinus
ALGE002
lat 36.45
lon 4.1
1800
1850
1900
1950
2000
1.6
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
40
30
20
10
0
Number of cores

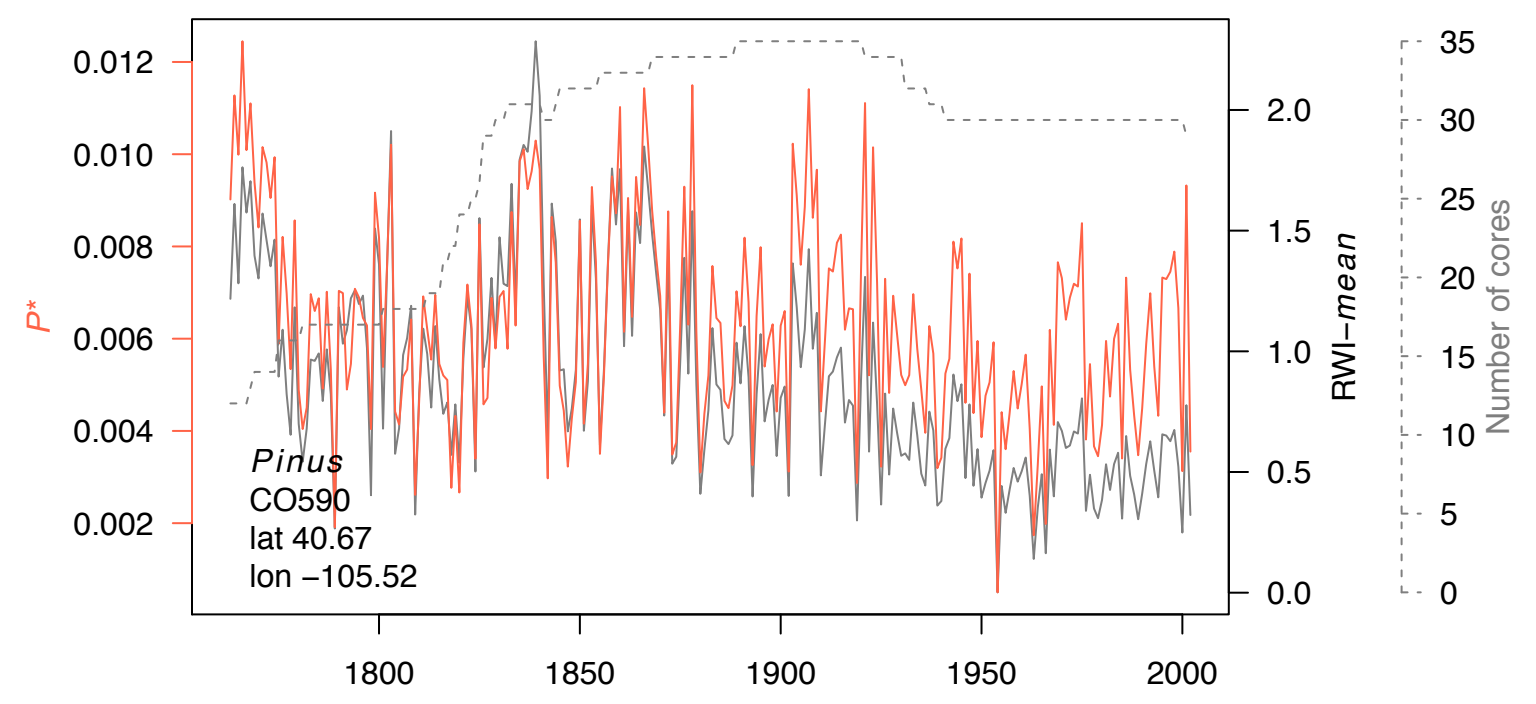

P*
0.010
0.008
0.006
0.004
RWI–mean
2.5
2.0
1.5
1.0
0.5
Number of cores
30
20
10
0
Pinus
CYPR015
lat 35.02
lon 32.63
1800
1850
1900
1950
2000

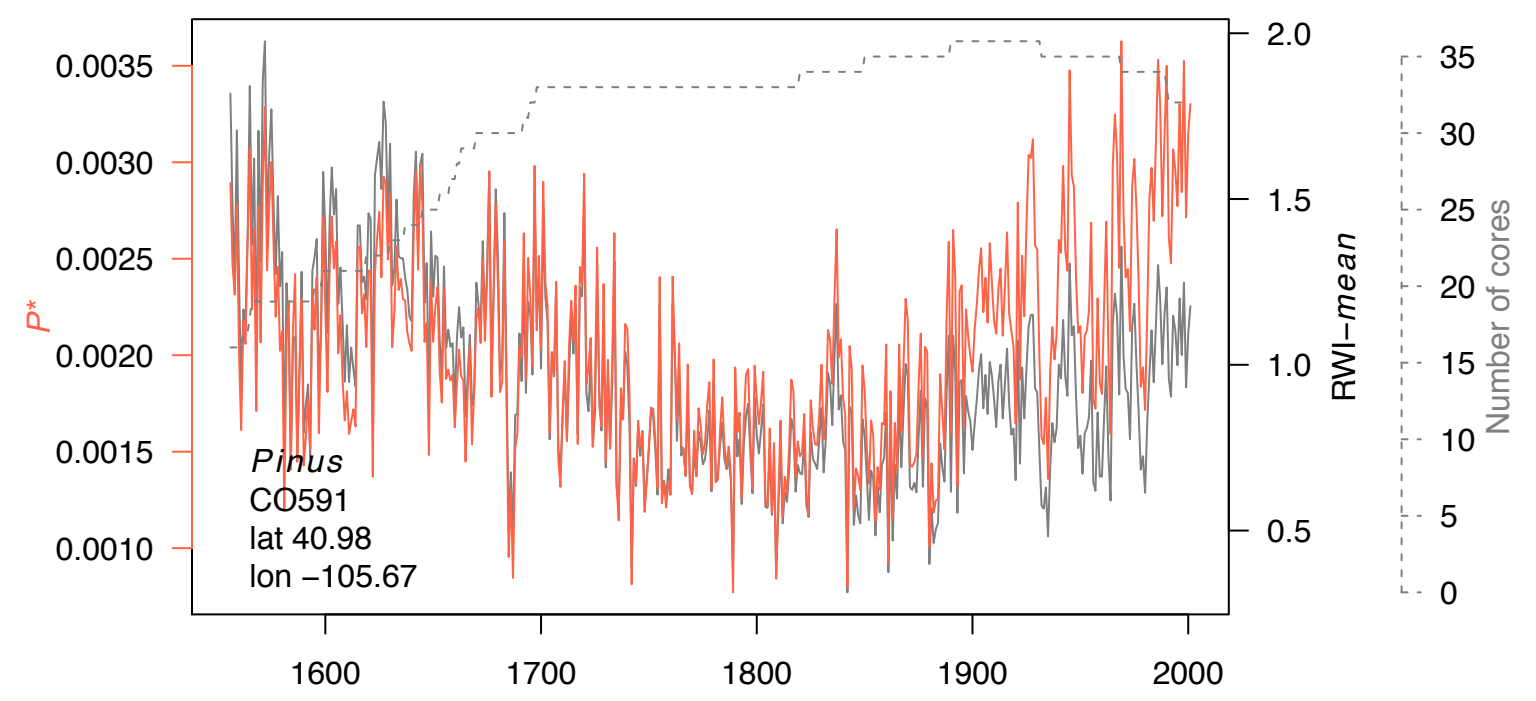

P*
0.008
0.006
0.004
0.002
0.000
Pinus
ALGE003
lat 34.6
lon 3.12
1900
1920
1940
1960
1980
2000
2.0
1.5
1.0
0.5
0.0
RWI–mean
40
30
20
10
0
Number of cores

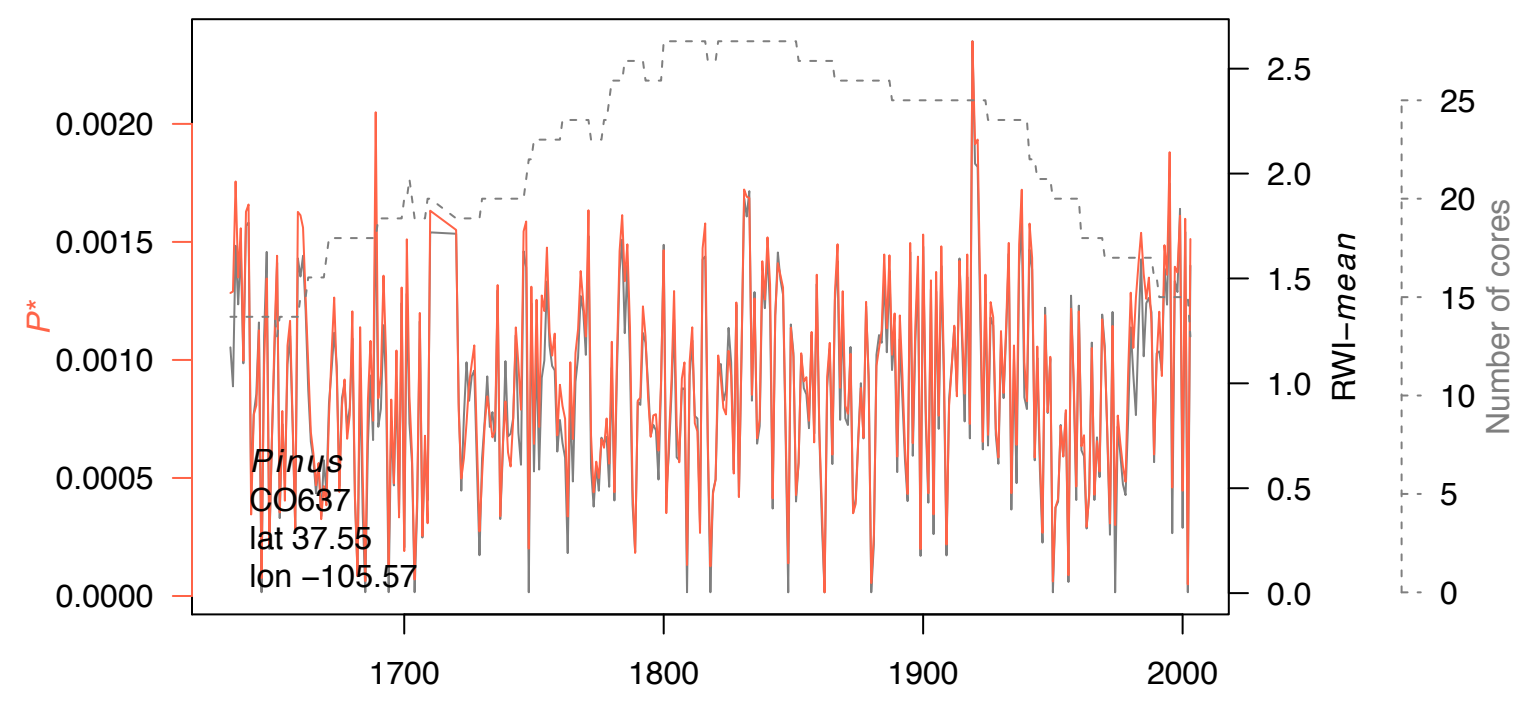

P*
0.008
0.007
0.006
0.005
0.004
Pinus
SWIT348
lat 46.5
lon 8.77
RWI–mean
2.0
1.5
1.0
0.5
Number of cores
50
40
30
20
10
0
1700
1750
1800
1850
1900
1950
2000

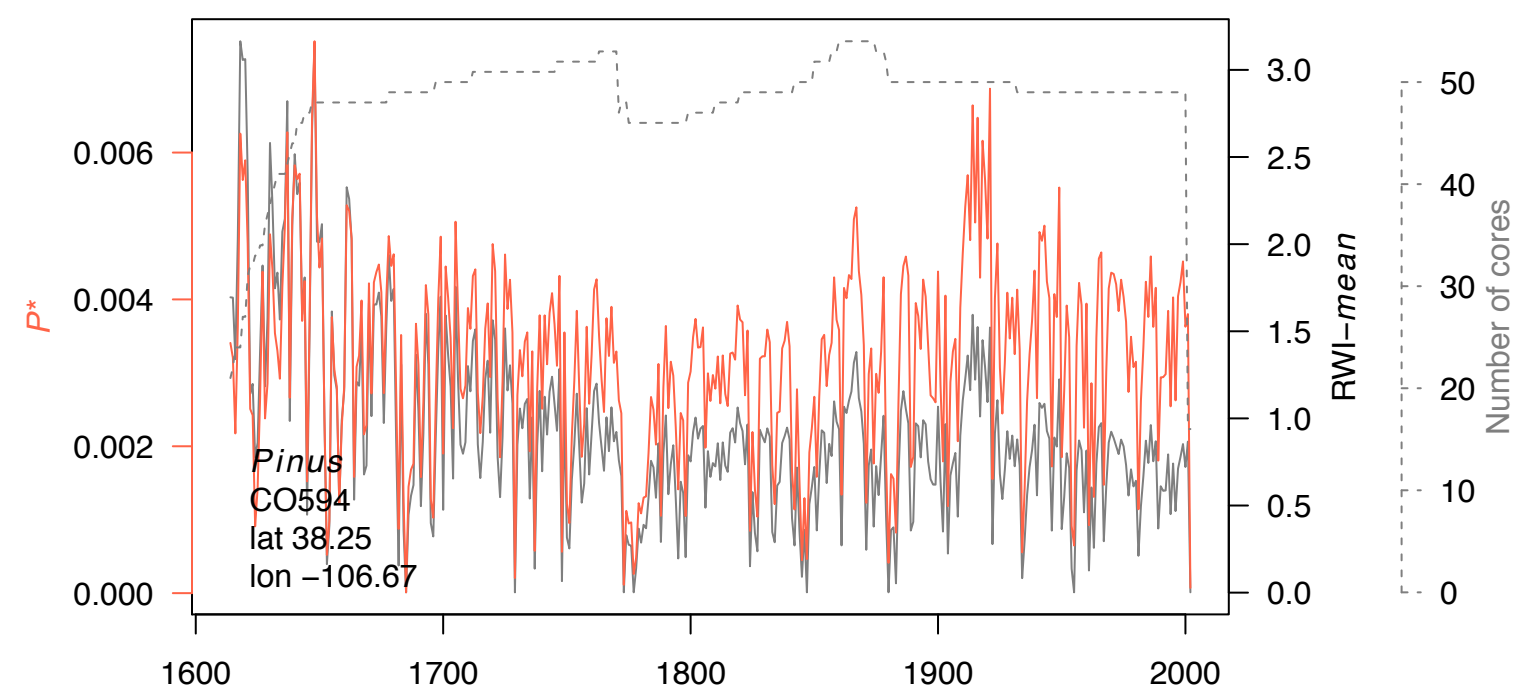

P*
0.015
0.010
0.005
RWI–mean
2.0
1.5
1.0
0.5
Number of cores
35
30
25
20
15
10
5
0
Pinus
ID015
lat 43.75
lon –116.1
1800
1850
1900
1950
2000

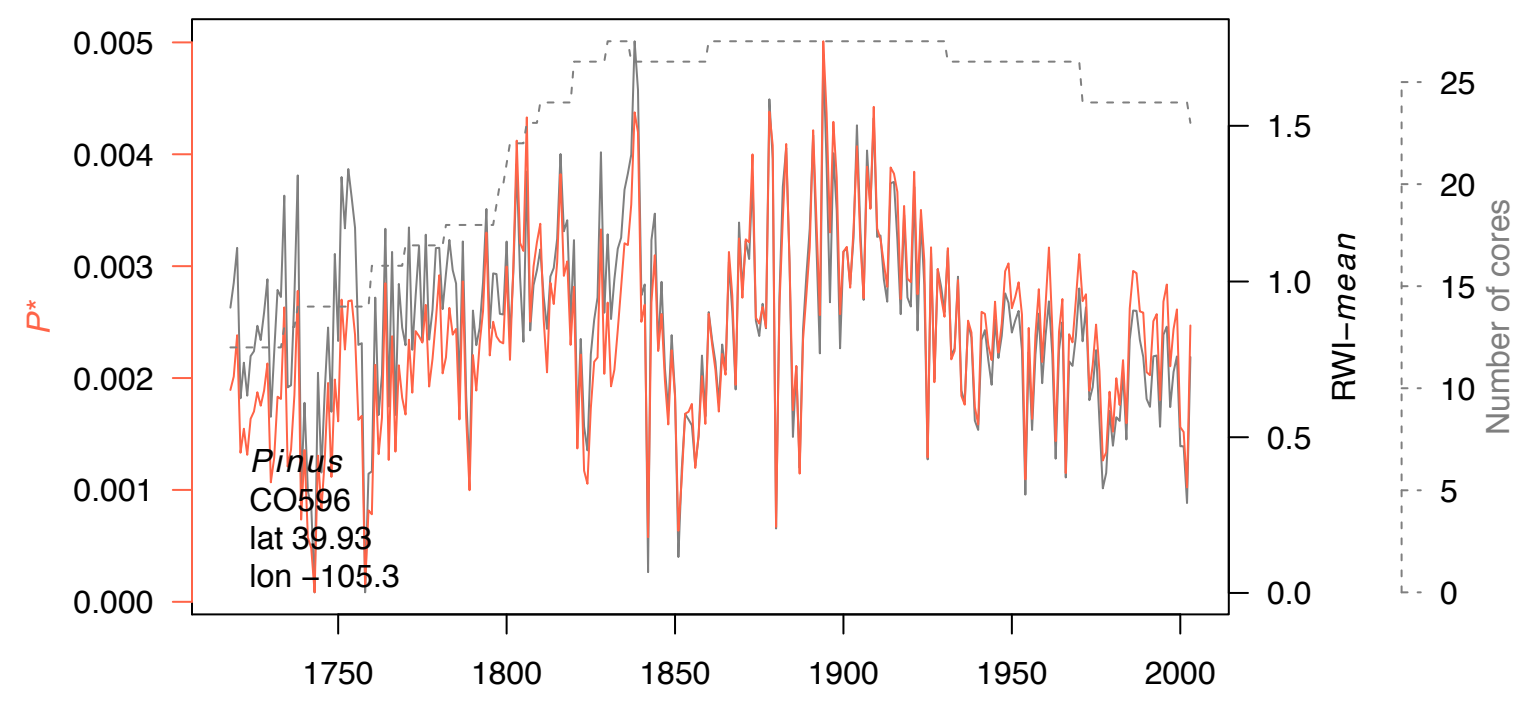

P*
0.005
0.004
0.003
0.002
0.001
Pinus
WY037
lat 43.62
lon −110.43
1.6
1.4
1.2
1.0
0.8
0.6
0.4
RWI–mean
50
40
30
20
10
0
Number of cores
1500
1600
1700
1800
1900
2000

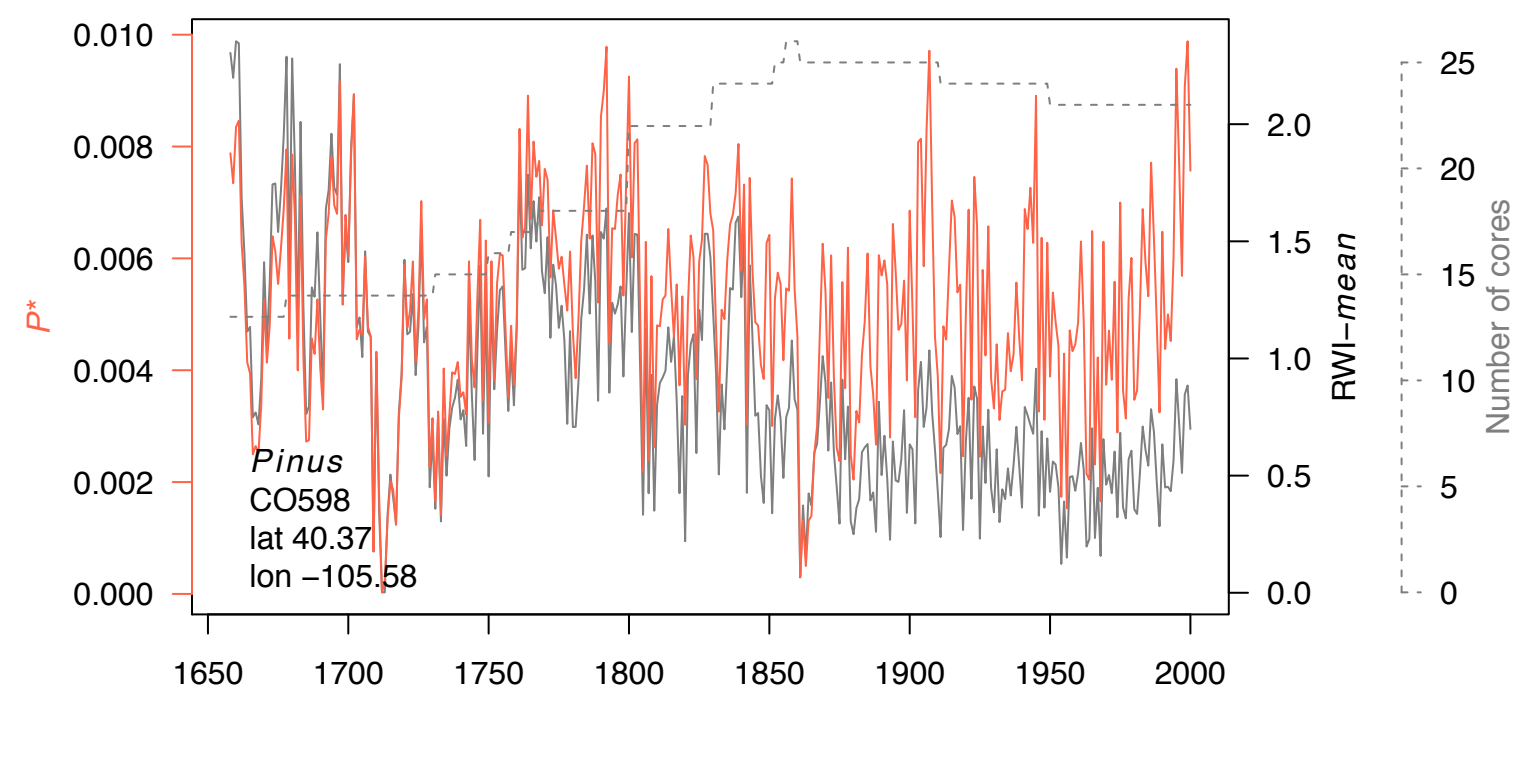

P*
0.012
0.010
0.008
0.006
0.004
0.002
Pinus
CO590
lat 40.67
lon −105.52
1800
1850
1900
1950
2000
RWI–mean
2.0
1.5
1.0
0.5
0.0
Number of cores
35
30
25
20
15
10
5
0

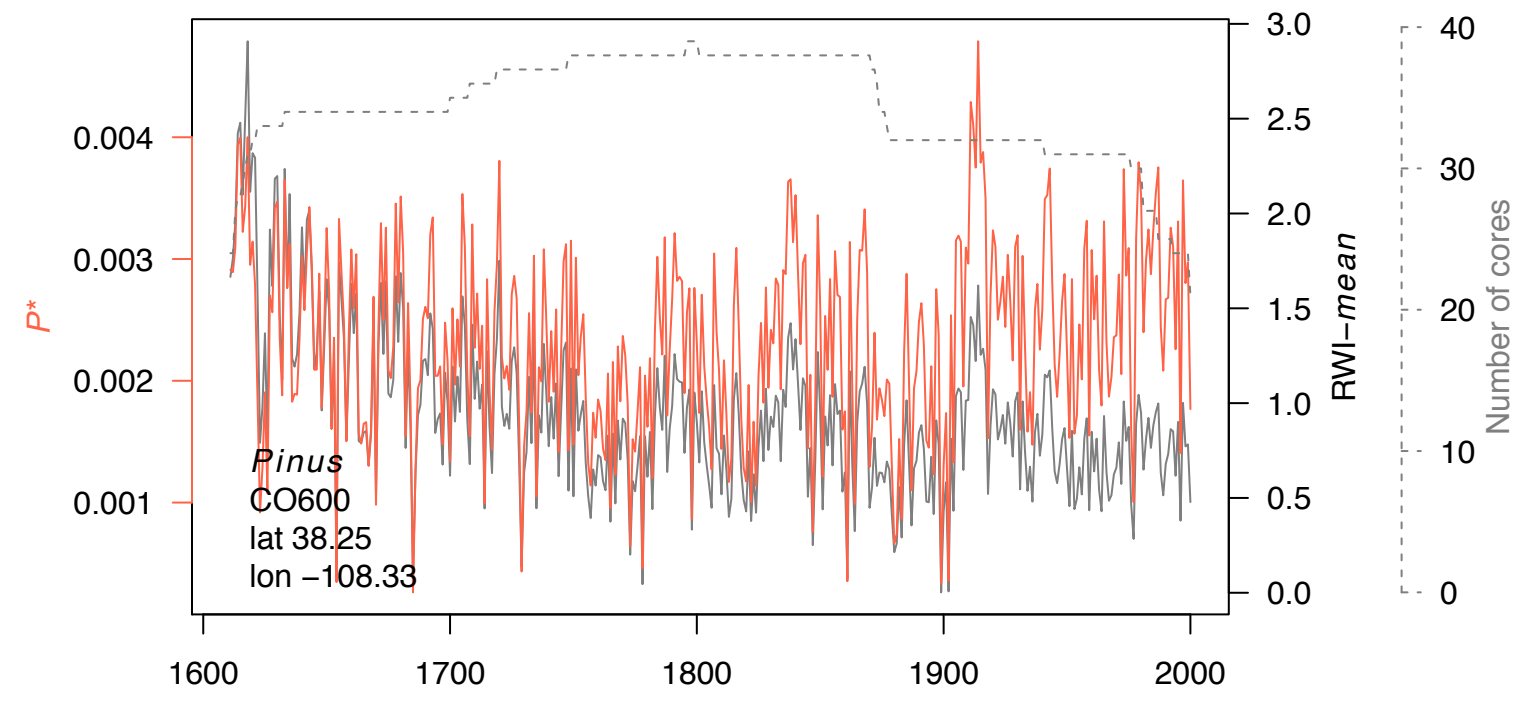

P*
0.0035
0.0030
0.0025
0.0020
0.0015
0.0010
Pinus
CO591
lat 40.98
lon −105.67
1600
1700
1800
1900
2000
2.0
1.5
1.0
0.5
RWI–mean
35
30
25
20
15
10
5
0
Number of cores

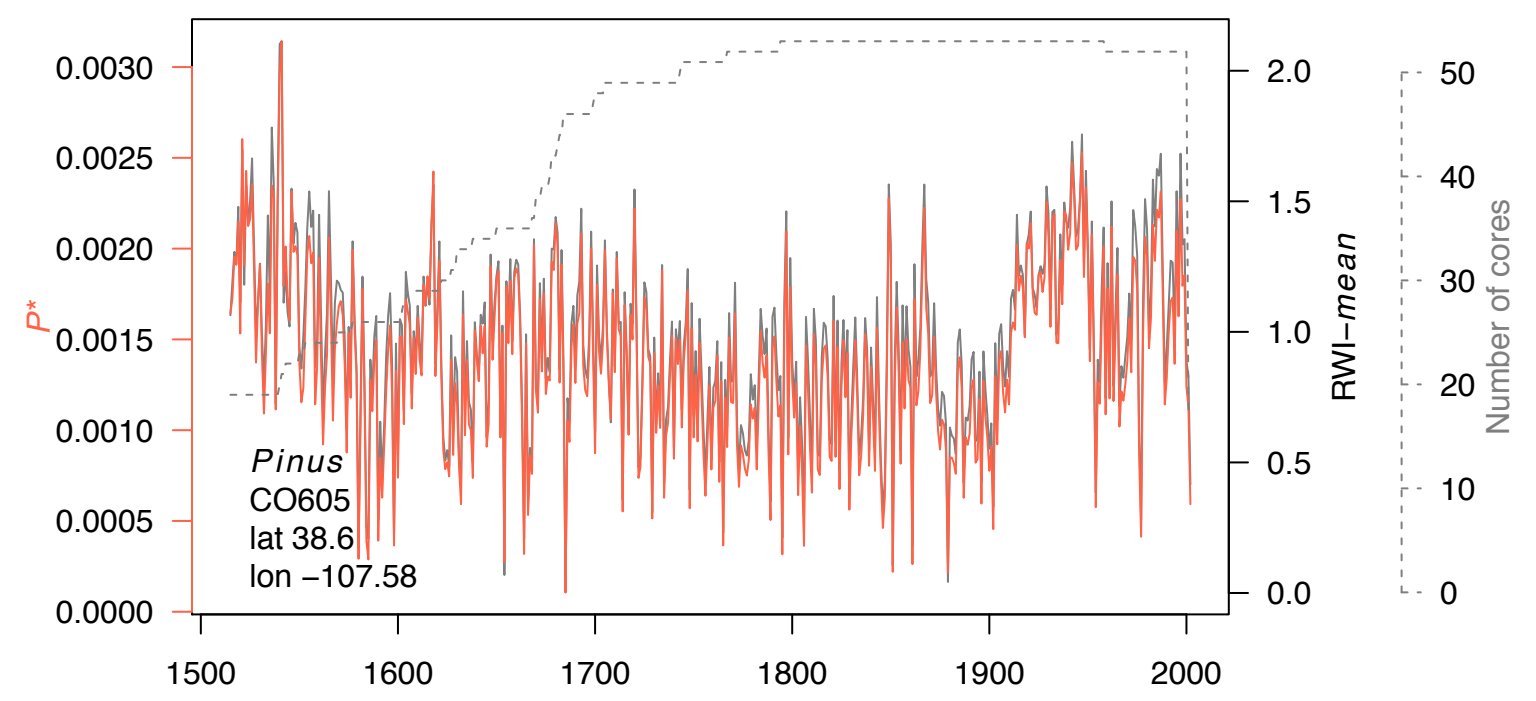

P*
0.0020
0.0015
0.0010
0.0005
0.0000
Pinus
CO637
lat 37.55
lon −105.57
1700
1800
1900
2000
2.5
2.0
1.5
1.0
0.5
0.0
RWI–mean
25
20
15
10
5
0
Number of cores

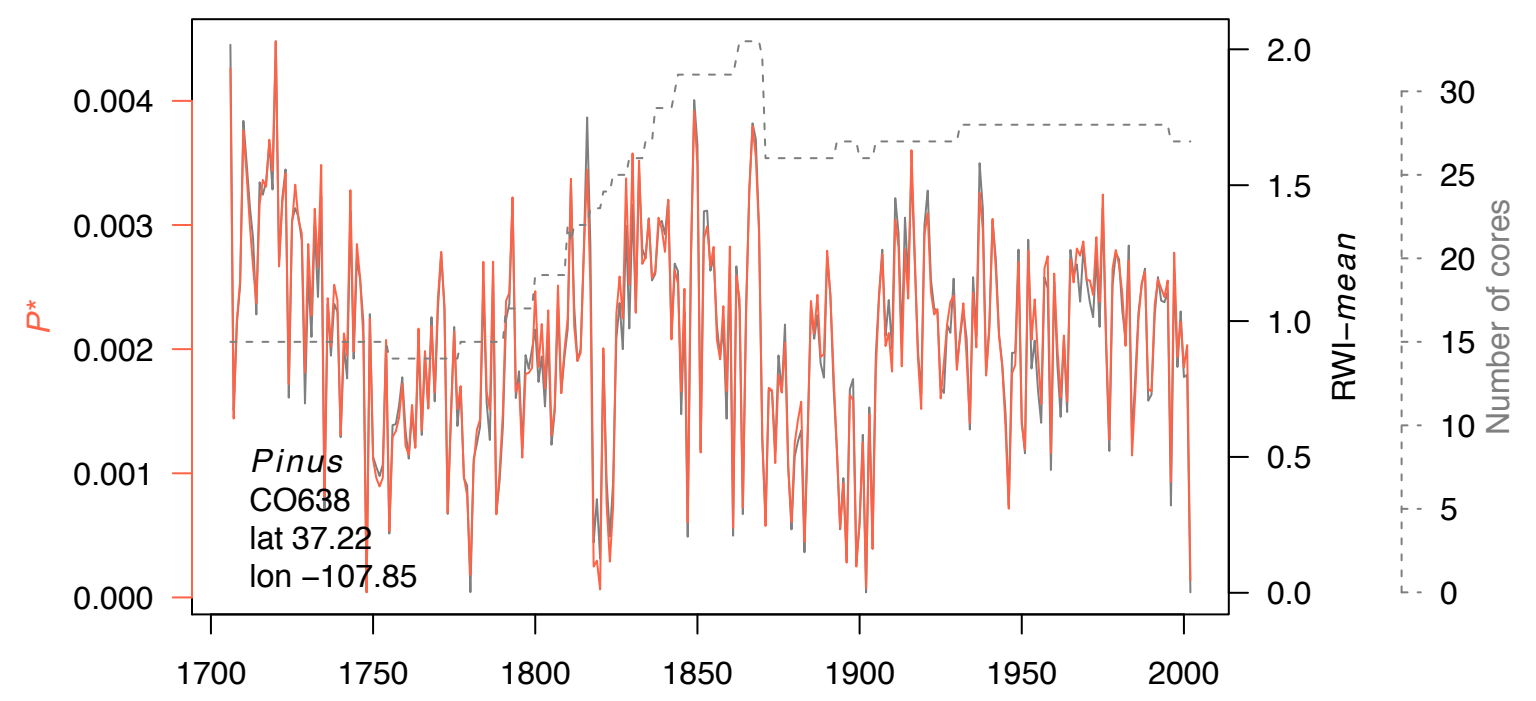

P*
0.006
0.004
0.002
0.000
Pinus
CO594
lat 38.25
lon −106.67
3.0
2.5
2.0
1.5
1.0
0.5
0.0
RWI–mean
50
40
30
20
10
0
Number of cores
1600
1700
1800
1900
2000

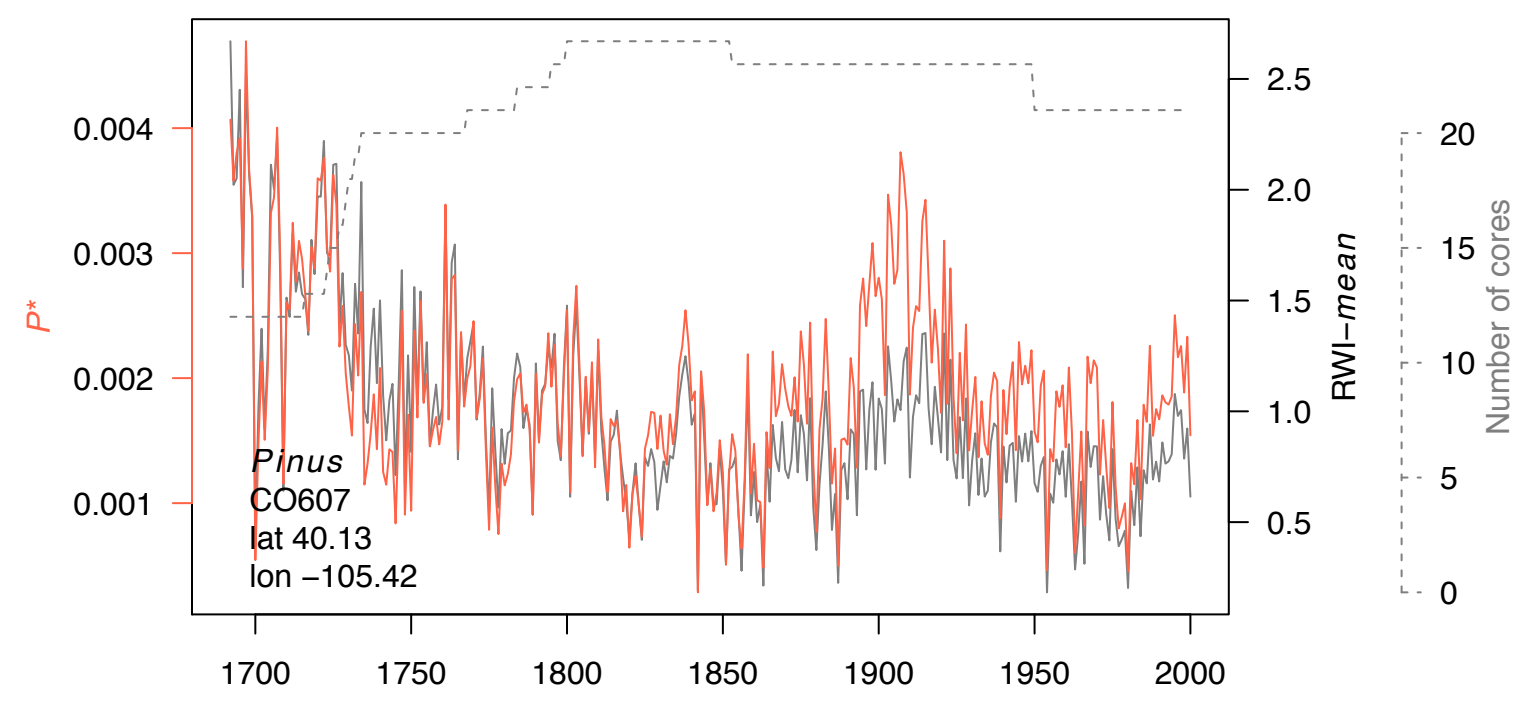

P*
0.005
0.004
0.003
0.002
0.001
0.000
Pinus
CO596
lat 39.93
lon −105.3
1750
1800
1850
1900
1950
2000
RWI–mean
1.5
1.0
0.5
0.0
Number of cores
25
20
15
10
5
0

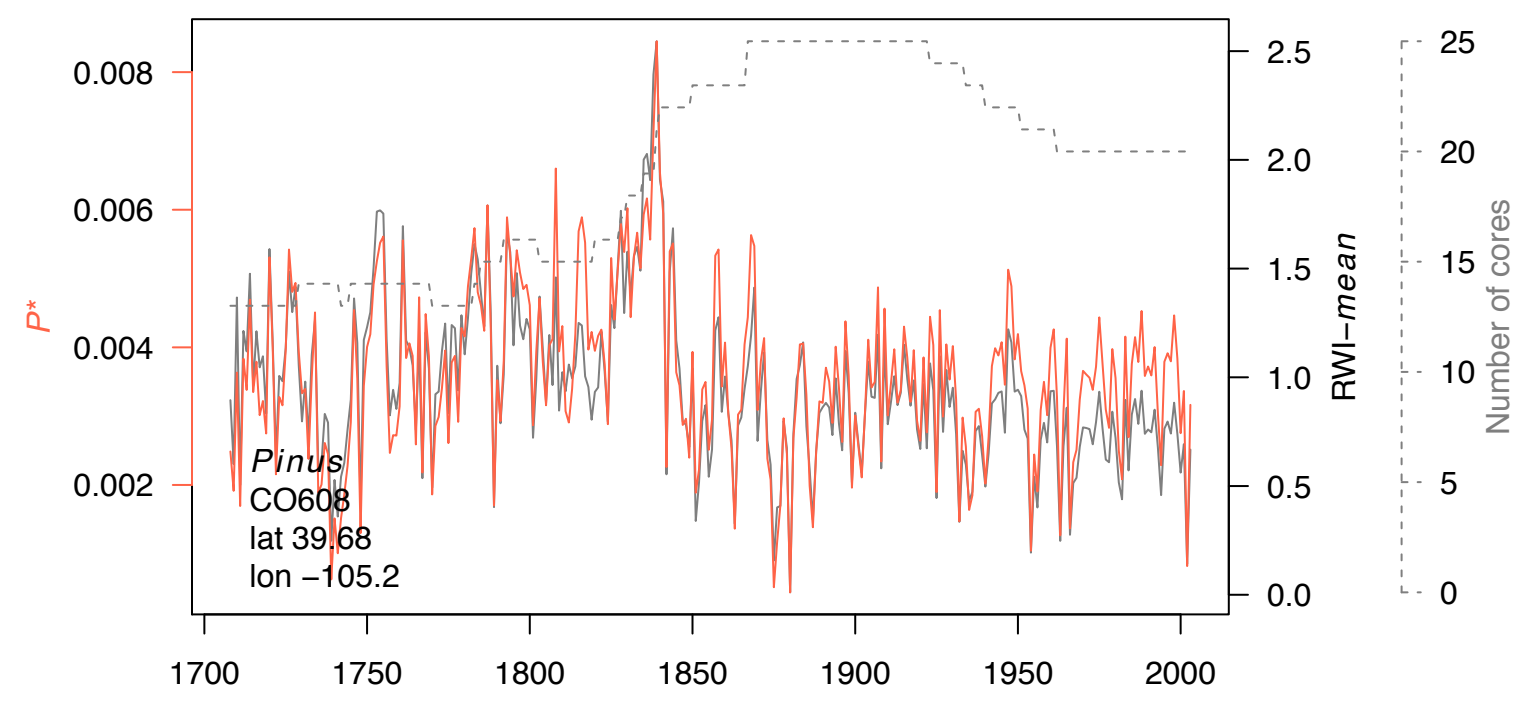

P*
0.010
0.008
0.006
0.004
0.002
0.000
Pinus
CO598
lat 40.37
lon −105.58
RWI–mean
2.0
1.5
1.0
0.5
0.0
Number of cores
25
20
15
10
5
0
1650
1700
1750
1800
1850
1900
1950
2000

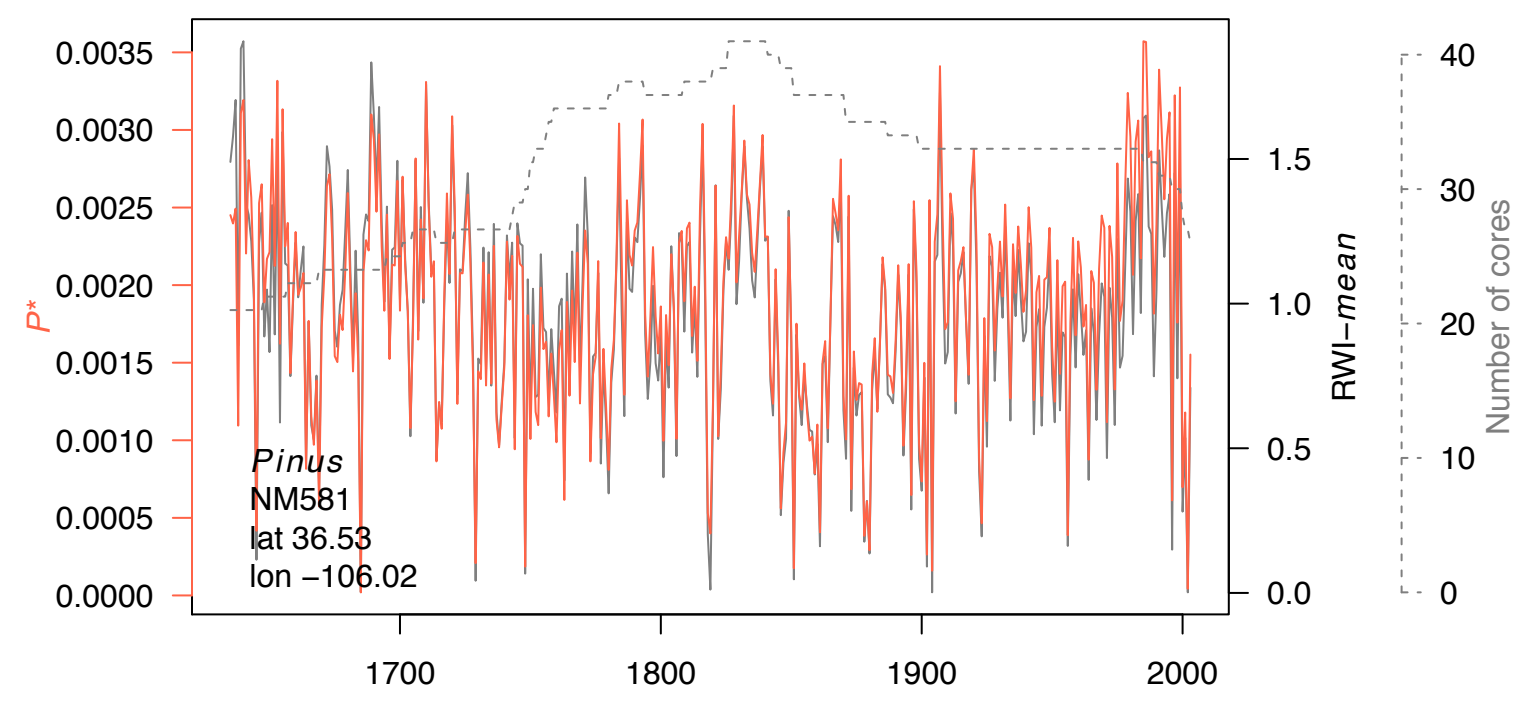

P*
0.004
0.003
0.002
0.001
Pinus
CO600
lat 38.25
lon −108.33
3.0
2.5
2.0
1.5
1.0
0.5
0.0
RWI–mean
40
30
20
10
0
Number of cores
1600
1700
1800
1900
2000

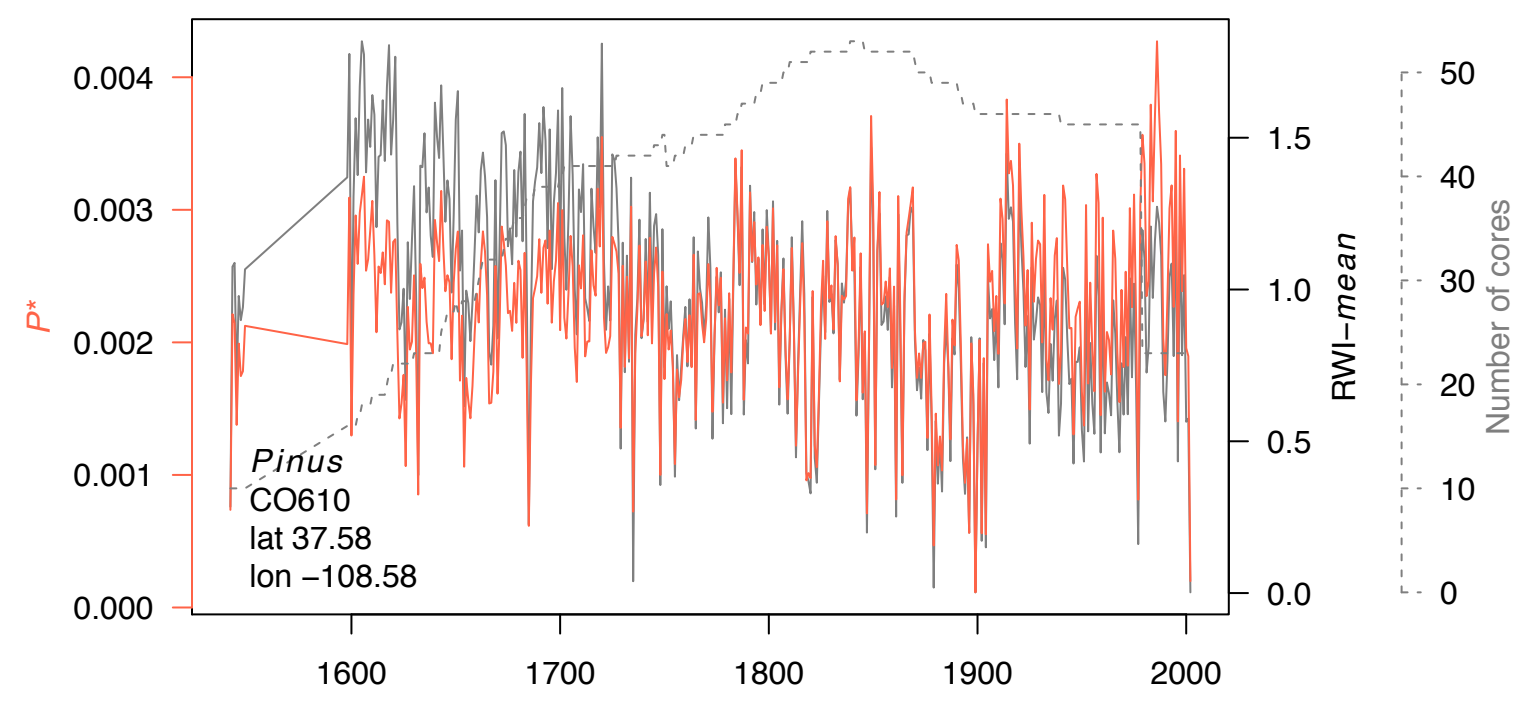

P*
0.0030
0.0025
0.0020
0.0015
0.0010
0.0005
0.0000
Pinus
CO605
lat 38.6
lon −107.58
2.0
1.5
1.0
0.5
0.0
RWI–mean
50
40
30
20
10
0
Number of cores
1500
1600
1700
1800
1900
2000

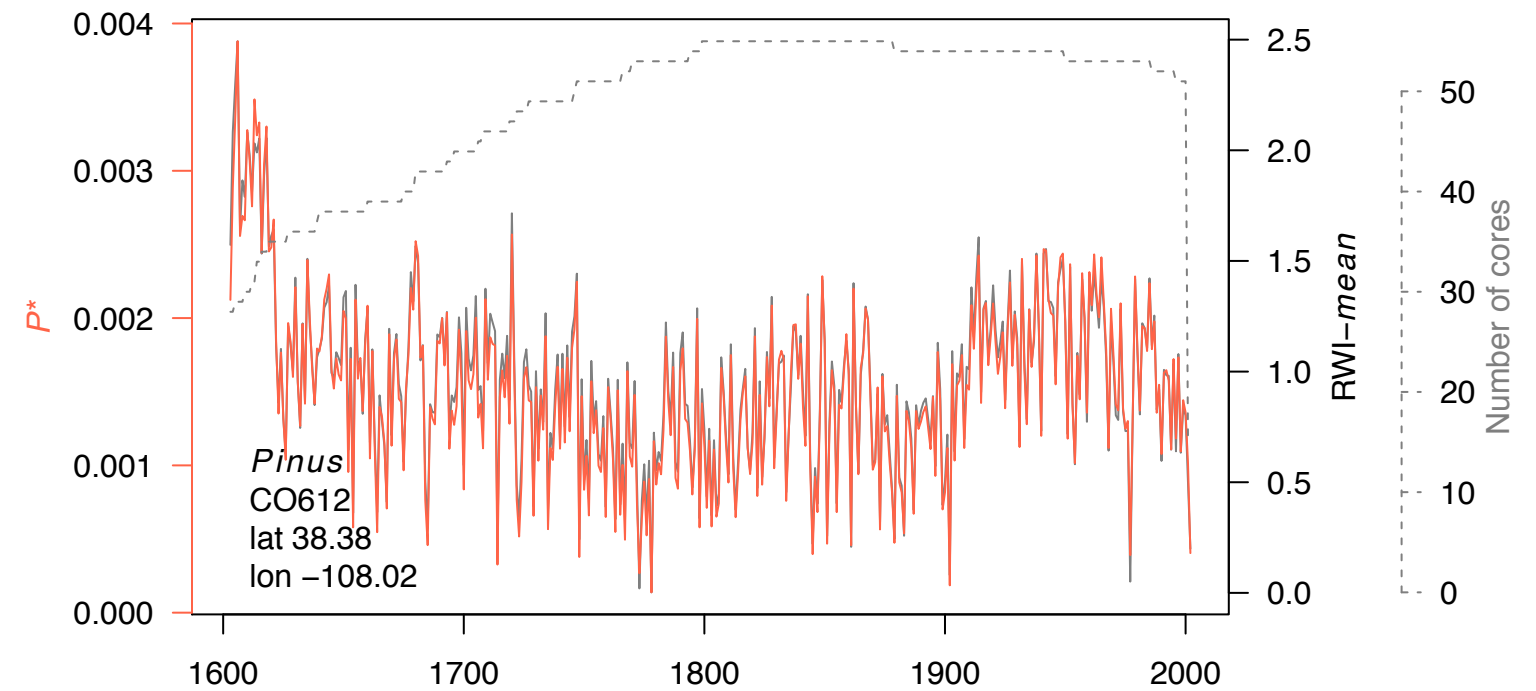

P*
0.004
0.003
0.002
0.001
0.000
Pinus
CO638
lat 37.22
lon −107.85
1700
1750
1800
1850
1900
1950
2000
2.0
1.5
1.0
0.5
0.0
RWI–mean
30
25
20
15
10
5
0
Number of cores

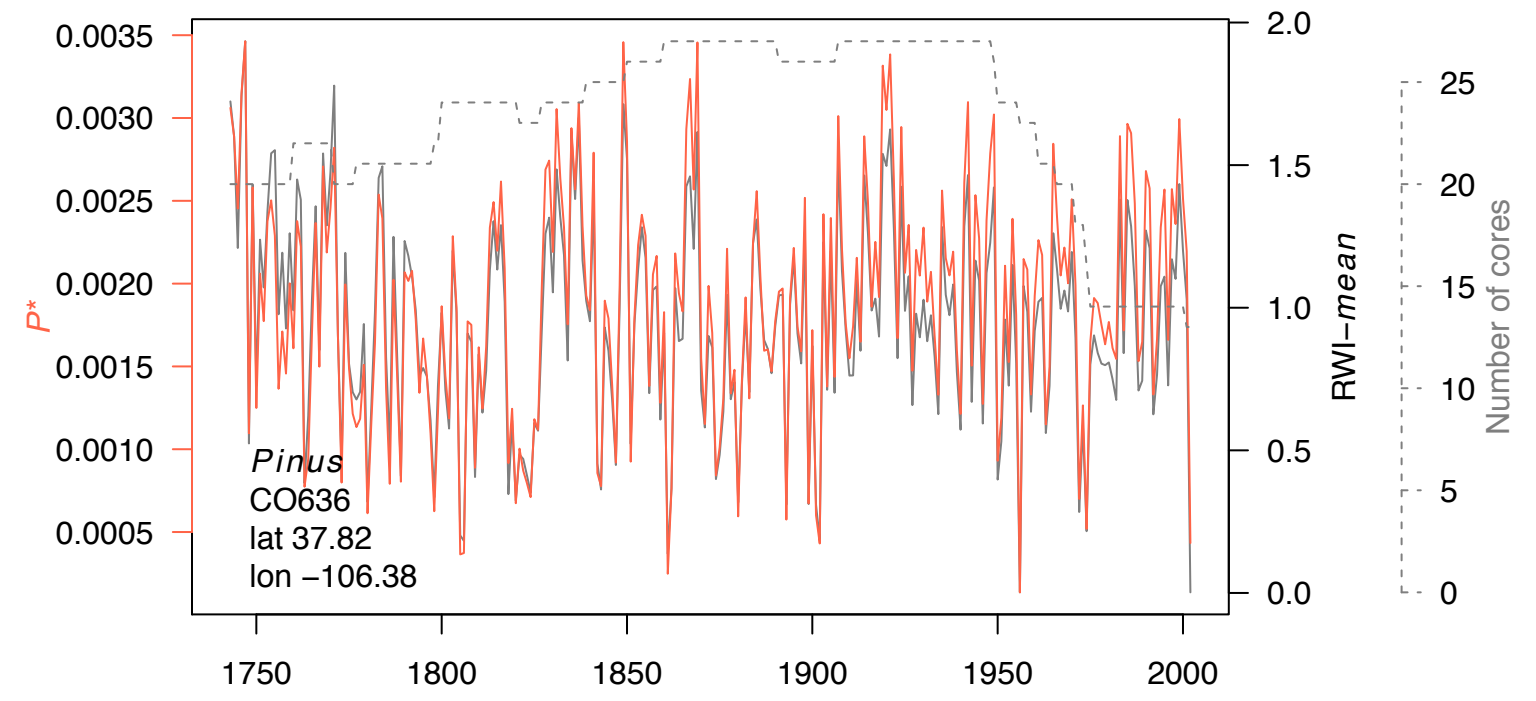

P*
0.004
0.003
0.002
0.001
Pinus
CO607
lat 40.13
lon −105.42
1700
1750
1800
1850
1900
1950
2000
2.5
2.0
1.5
1.0
0.5
RWI–mean
20
15
10
5
0
Number of cores

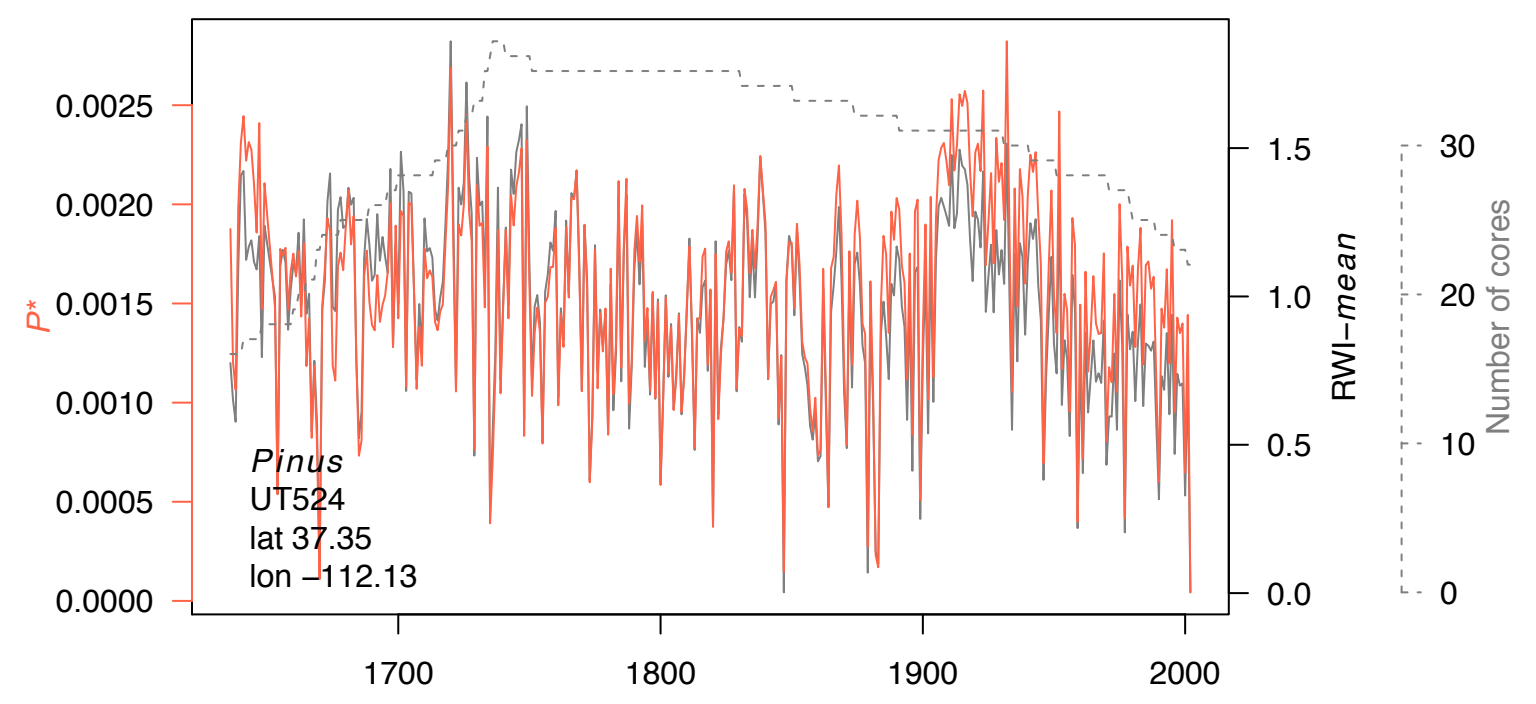

P*
0.008
0.006
0.004
0.002
Pinus
CO608
lat 39.68
lon −105.2
2.5
2.0
1.5
1.0
0.5
0.0
RWI–mean
25
20
15
10
5
0
Number of cores
1700
1750
1800
1850
1900
1950
2000

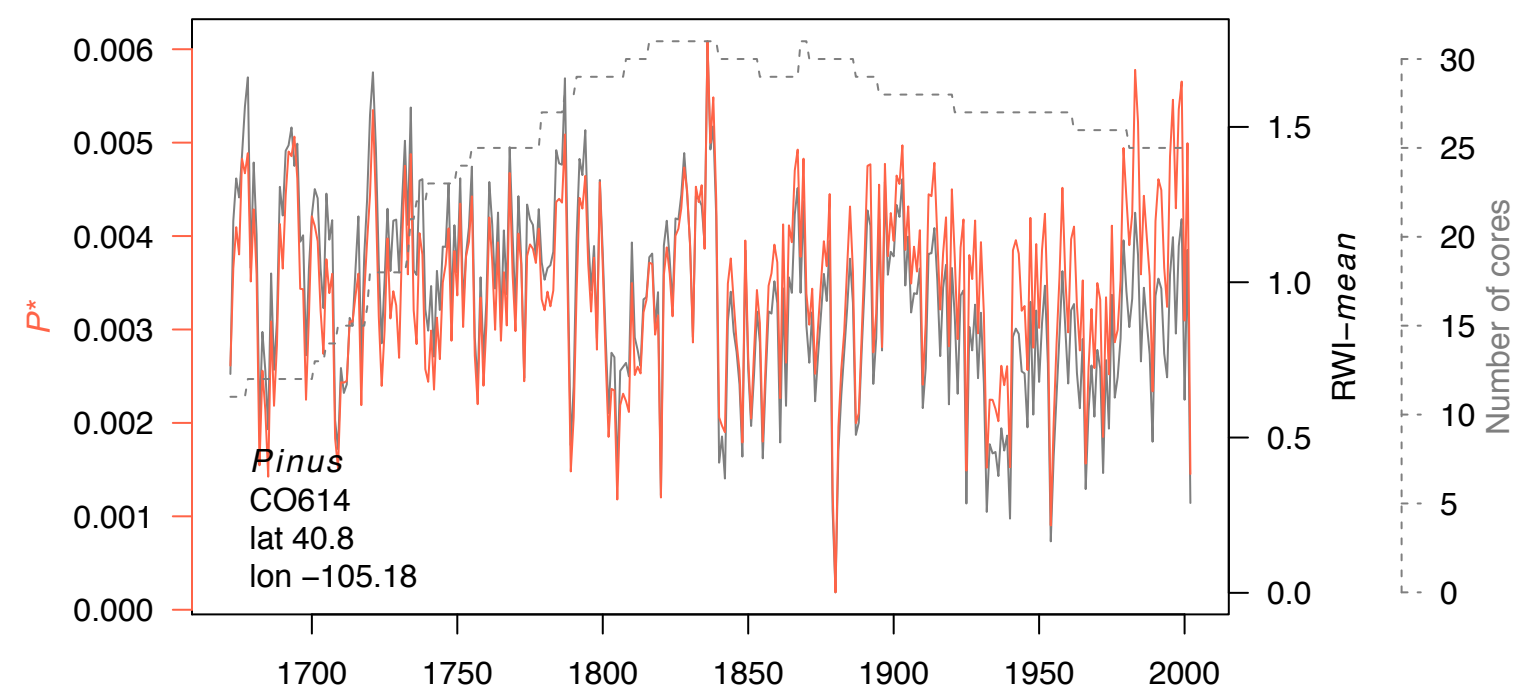

P*
0.0035
0.0030
0.0025
0.0020
0.0015
0.0010
0.0005
0.0000
Pinus
NM581
lat 36.53
lon −106.02
1700
1800
1900
2000
RWI–mean
1.5
1.0
0.5
0.0
Number of cores
40
30
20
10
0

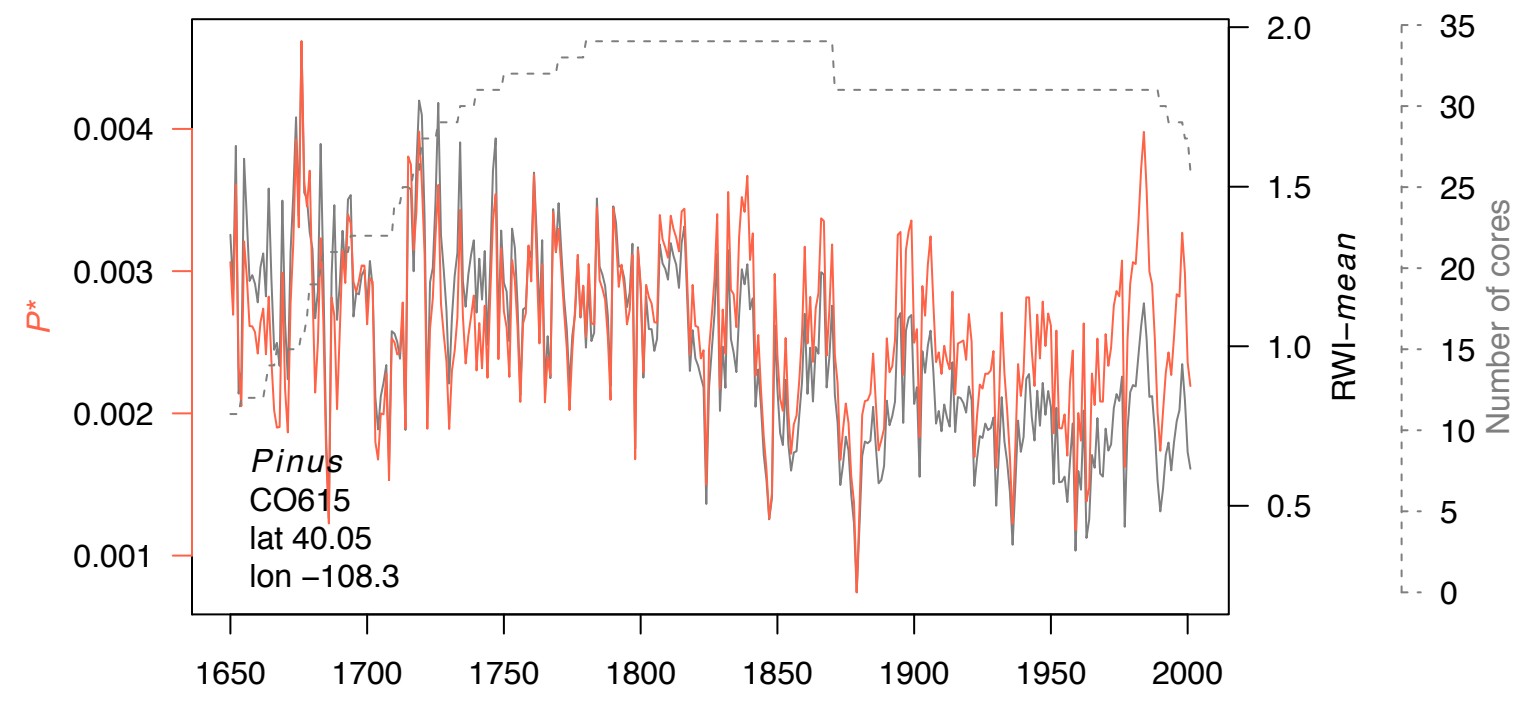

P*
0.004
0.003
0.002
0.001
0.000
RWI–mean
1.5
1.0
0.5
0.0
Number of cores
50
40
30
20
10
0
Pinus
CO610
lat 37.58
lon –108.58
1600
1700
1800
1900
2000

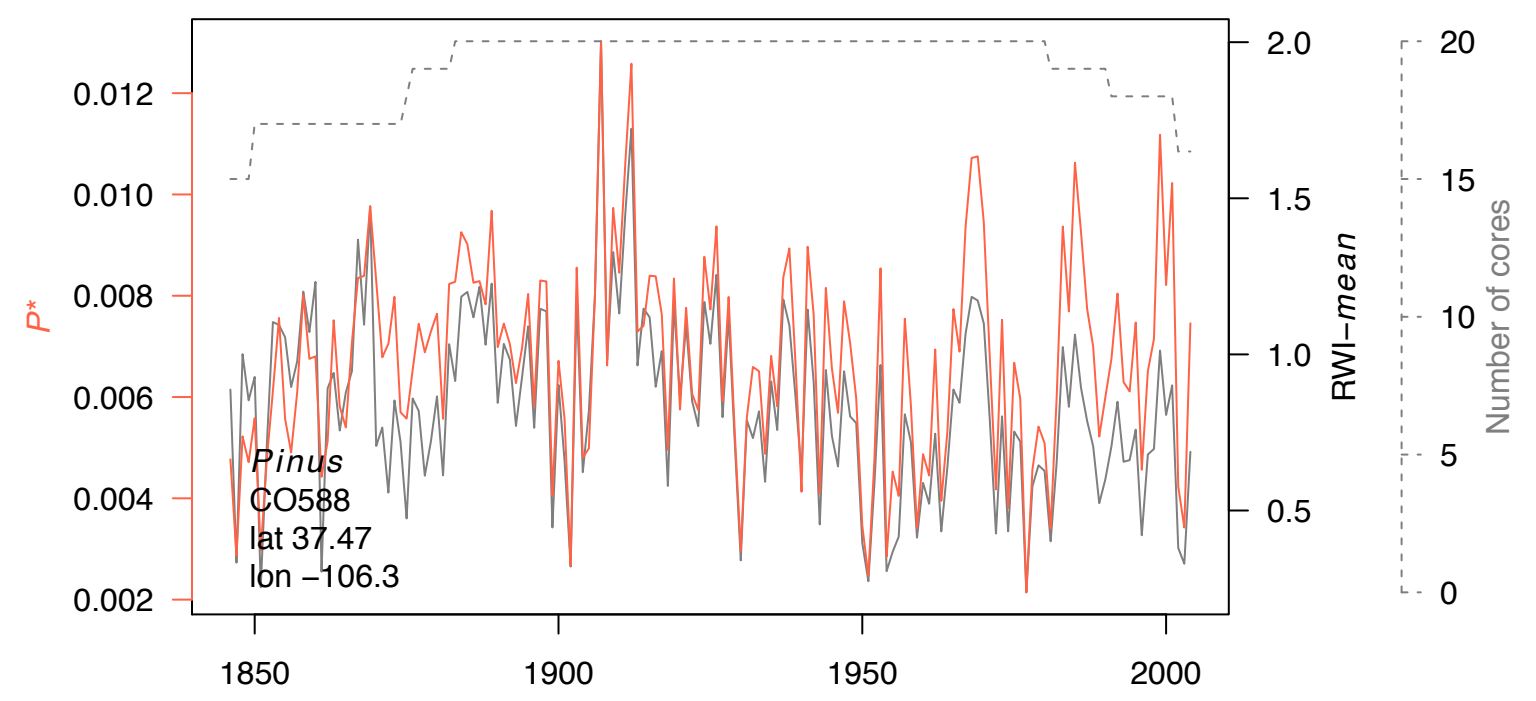

P*
0.004
0.003
0.002
0.001
0.000
Pinus
CO612
lat 38.38
lon −108.02
1600
1700
1800
1900
2000
RWI–mean
2.5
2.0
1.5
1.0
0.5
0.0
Number of cores
50
40
30
20
10
0

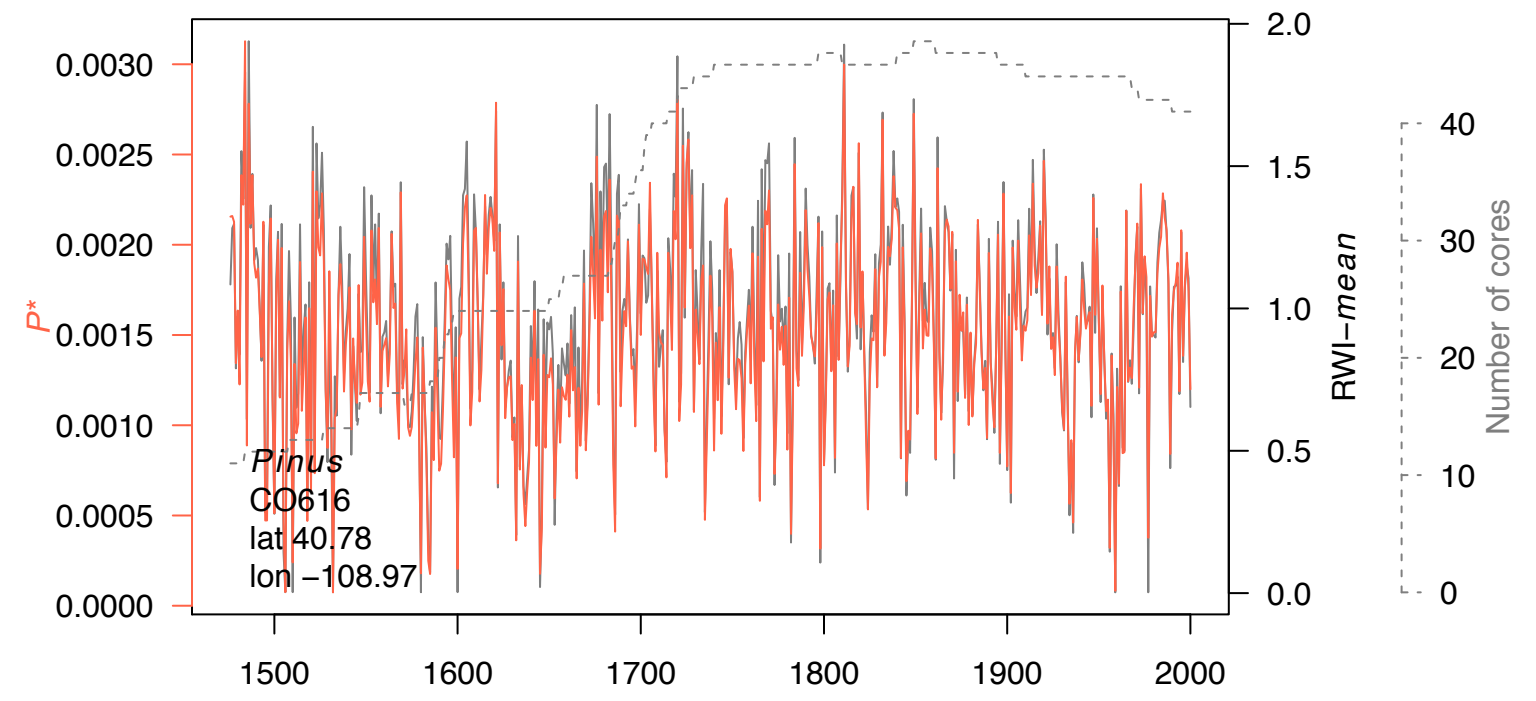

P*
0.0035
0.0030
0.0025
0.0020
0.0015
0.0010
0.0005
Pinus
CO636
lat 37.82
lon −106.38
2.0
1.5
1.0
0.5
0.0
RWI–mean
25
20
15
10
5
0
Number of cores
1750
1800
1850
1900
1950
2000

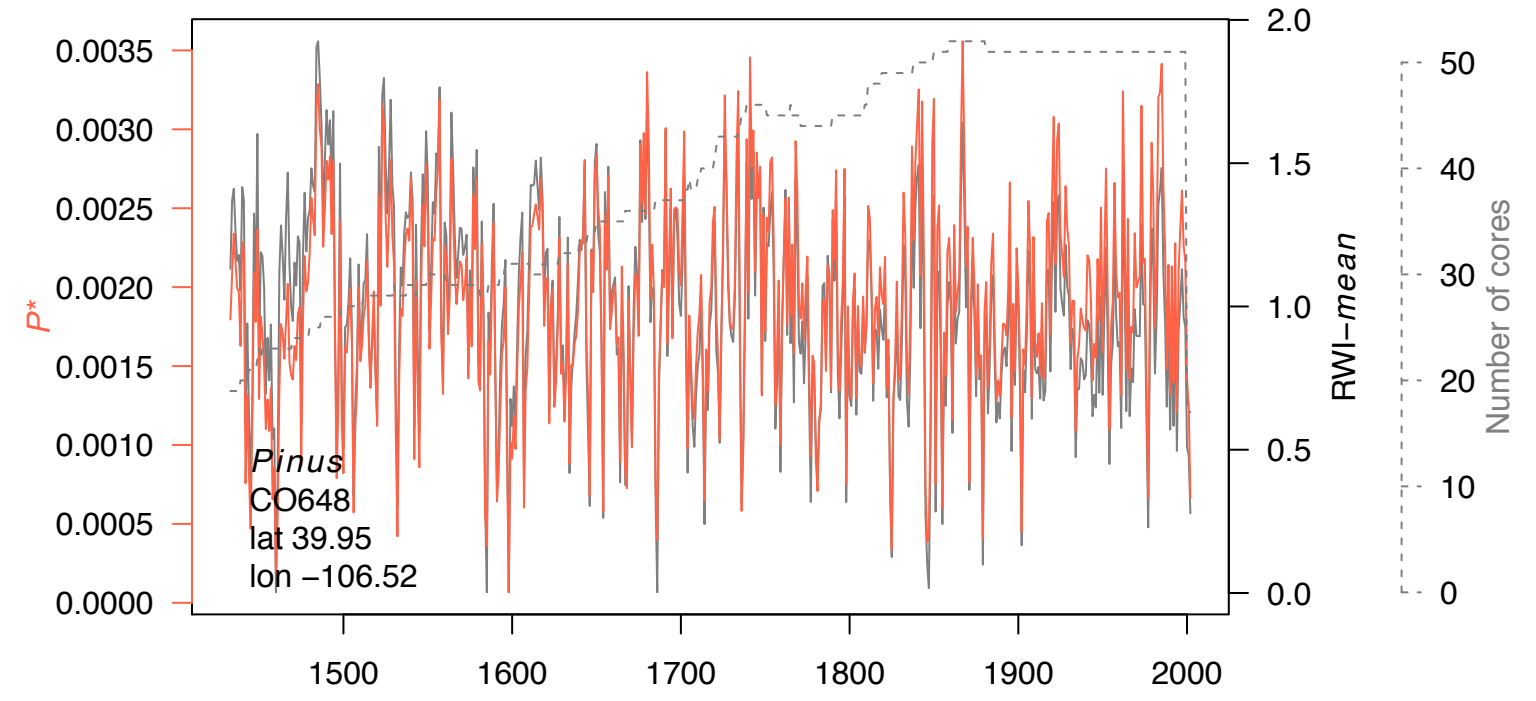

P*
0.0025
0.0020
0.0015
0.0010
0.0005
0.0000
Pinus
UT524
lat 37.35
lon –112.13
1700
1800
1900
2000
1.5
1.0
0.5
0.0
RWI–mean
30
20
10
0
Number of cores

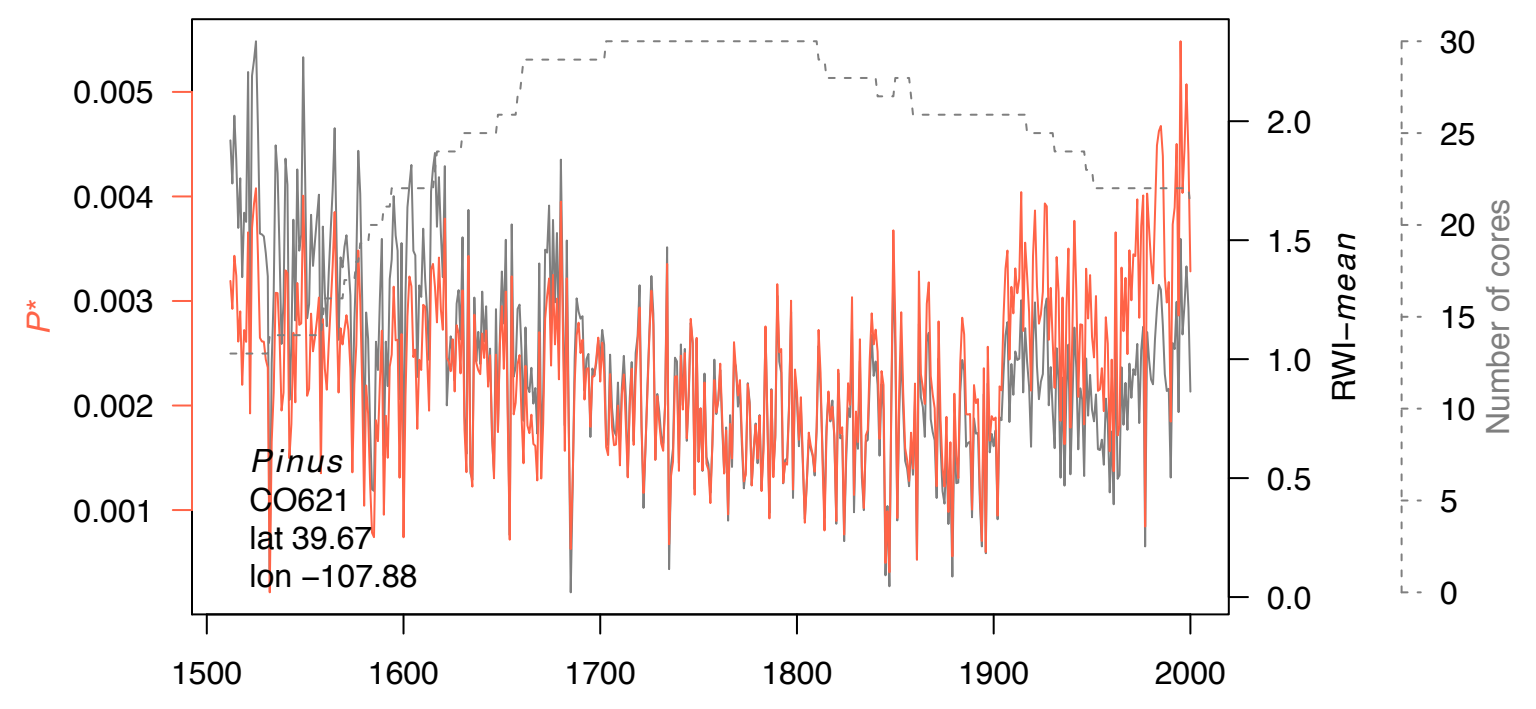

P*
0.006
0.005
0.004
0.003
0.002
0.001
0.000
Pinus
CO614
lat 40.8
lon −105.18
1700
1750
1800
1850
1900
1950
2000
RWI–mean
1.5
1.0
0.5
0.0
Number of cores
30
25
20
15
10
5
0

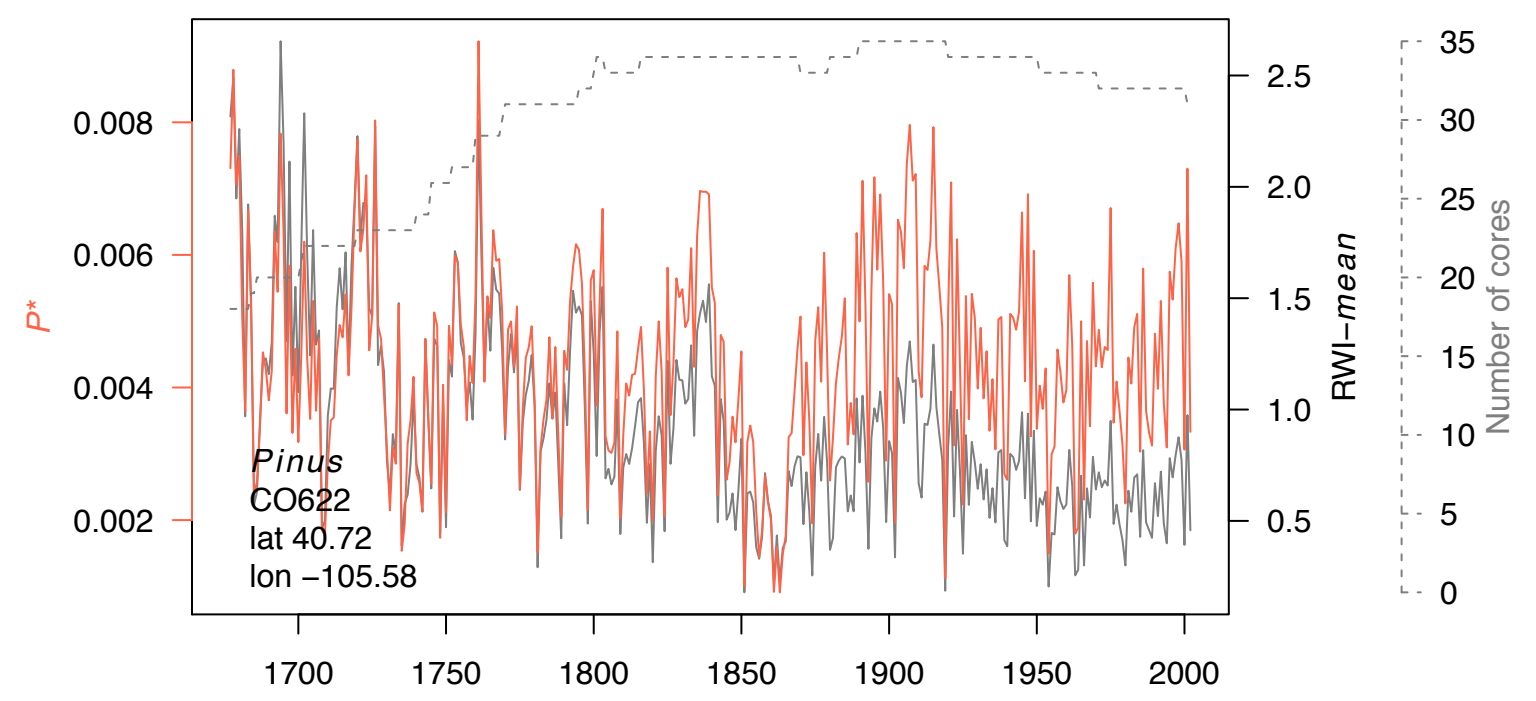

P*
0.004
0.003
0.002
0.001
Pinus
CO615
lat 40.05
lon −108.3
1650
1700
1750
1800
1850
1900
1950
2000
2.0
1.5
1.0
0.5
RWI–mean
35
30
25
20
15
10
5
0
Number of cores

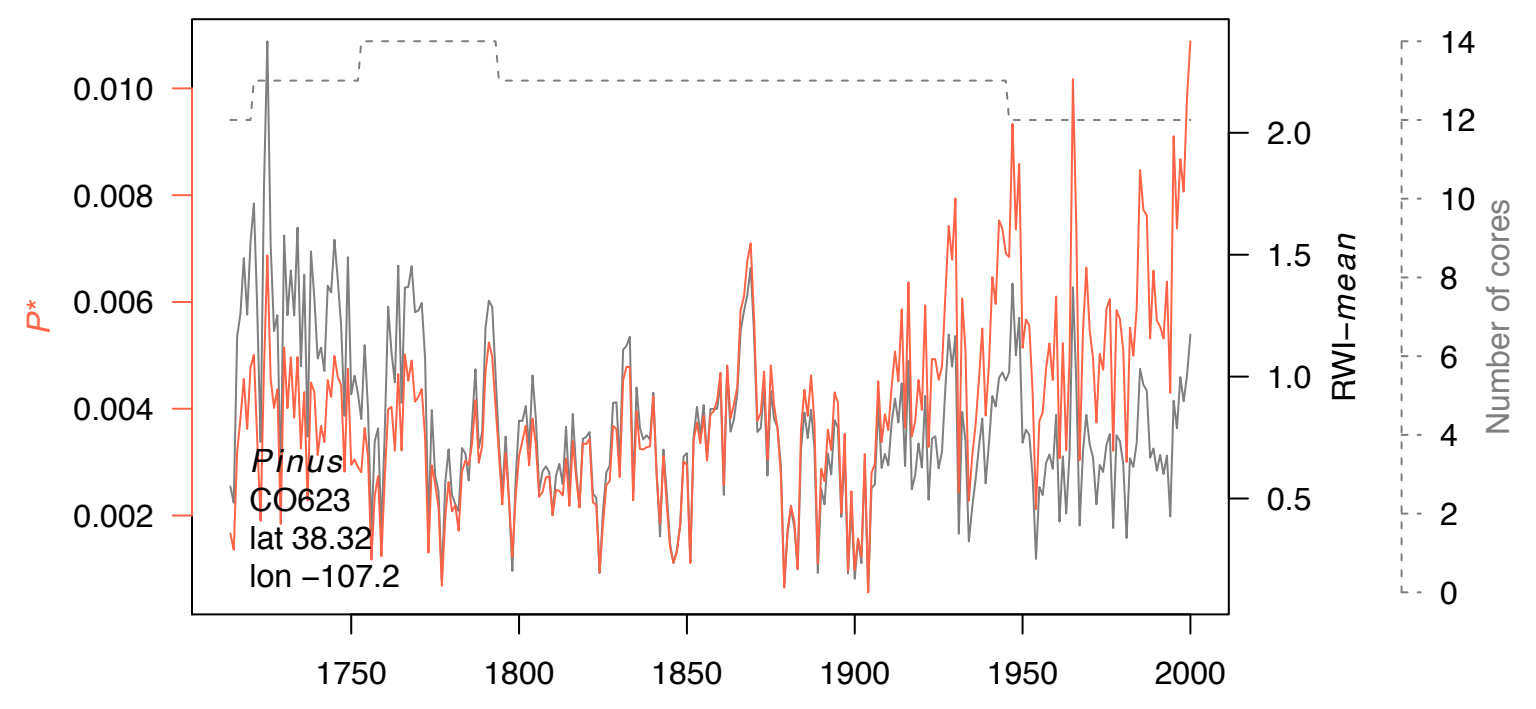

P*
0.012
0.010
0.008
0.006
0.004
0.002
Pinus
CO588
lat 37.47
lon –106.3
1850
1900
1950
2000
2.0
1.5
1.0
0.5
RWI–mean
20
15
10
5
0
Number of cores

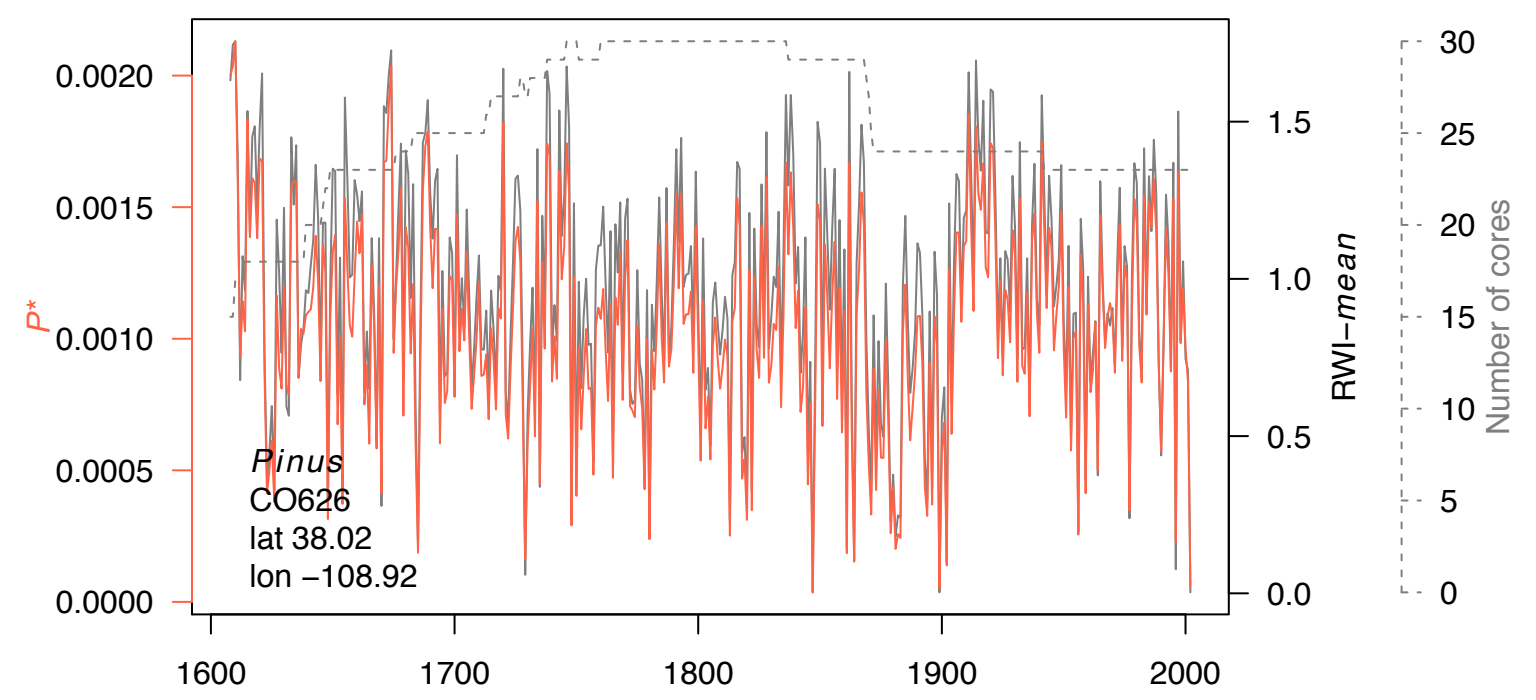

P*
0.0030
0.0025
0.0020
0.0015
0.0010
0.0005
0.0000
Pinus
CO616
lat 40.78
lon −108.97
2.0
1.5
1.0
0.5
0.0
RWI–mean
40
30
20
10
0
Number of cores
1500
1600
1700
1800
1900
2000

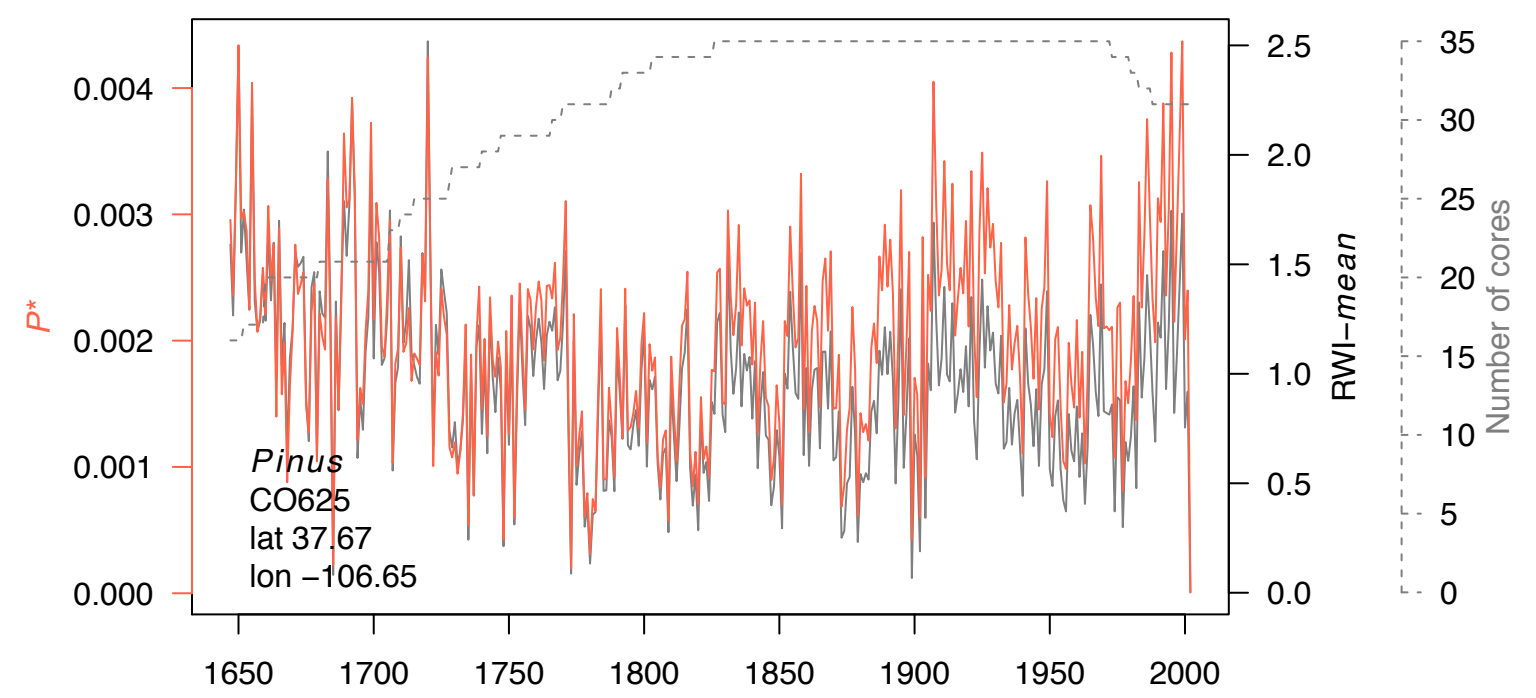

P*
0.0035
0.0030
0.0025
0.0020
0.0015
0.0010
0.0005
0.0000
Pinus
CO648
lat 39.95
lon −106.52
1500
1600
1700
1800
1900
2000
2.0
1.5
1.0
0.5
0.0
RWI–mean
50
40
30
20
10
0
Number of cores

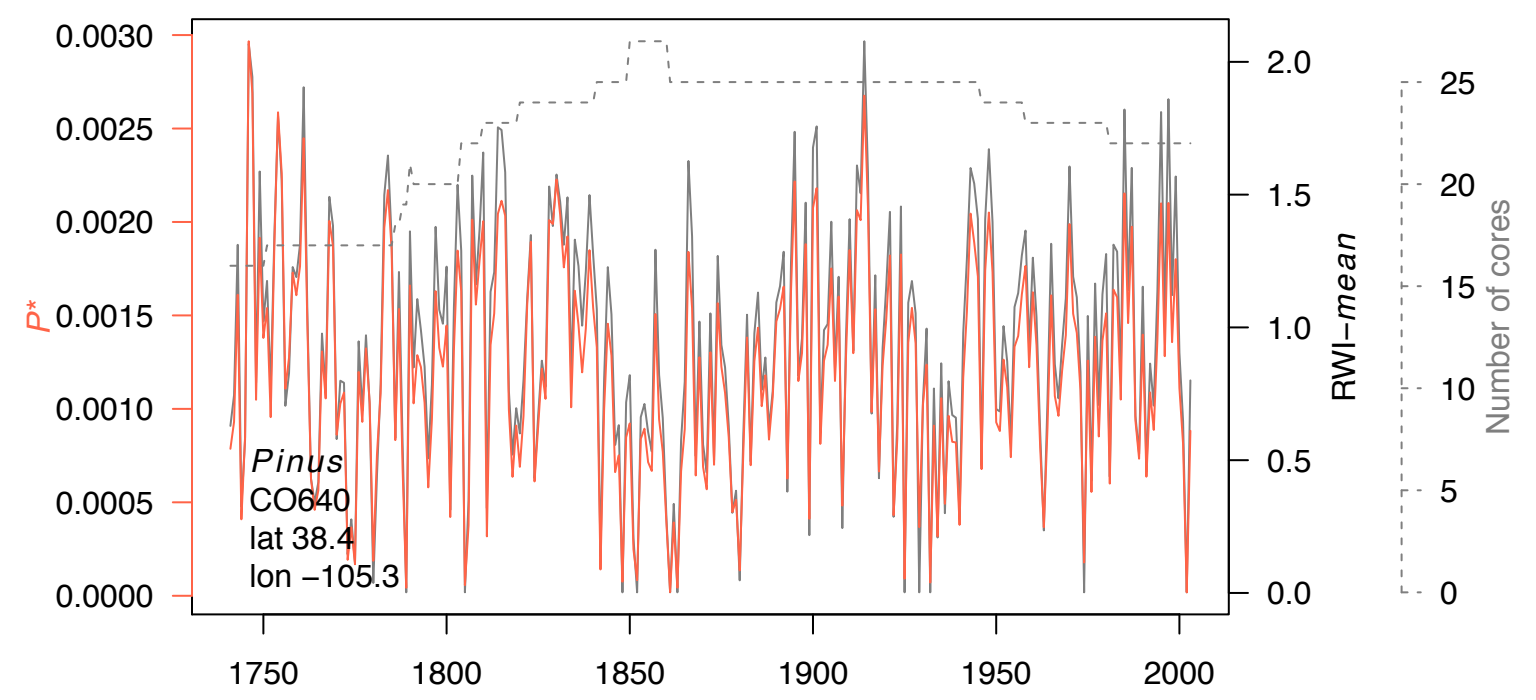

P*
0.005
0.004
0.003
0.002
0.001
Pinus
CO621
lat 39.67
lon −107.88
2.0
1.5
1.0
0.5
0.0
RWI–mean
30
25
20
15
10
5
0
Number of cores
1500
1600
1700
1800
1900
2000


P*
0.008
0.006
0.004
0.002
Pinus
CO622
lat 40.72
lon −105.58
2.5
2.0
1.5
1.0
0.5
RWI–mean
35
30
25
20
15
10
5
0
Number of cores
1700
1750
1800
1850
1900
1950
2000


P*
0.010
0.008
0.006
0.004
0.002
Pinus
CO623
lat 38.32
lon −107.2
2.0
1.5
1.0
0.5
RWI–mean
14
12
10
8
6
4
2
0
Number of cores
1750
1800
1850
1900
1950
2000


P*
0.0020
0.0015
0.0010
0.0005
0.0000
Pinus
CO626
lat 38.02
lon −108.92
1600
1700
1800
1900
2000
RWI–mean
1.5
1.0
0.5
0.0
Number of cores
30
25
20
15
10
5
0


P*
0.004
0.003
0.002
0.001
0.000
RWI–mean
2.5
2.0
1.5
1.0
0.5
0.0
Number of cores
35
30
25
20
15
10
5
0
1650
1700
1750
1800
1850
1900
1950
2000
Pinus
CO625
lat 37.67
lon −106.65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0.0025
0.0020
0.0015
0.0010
0.0005
0.0000
P*
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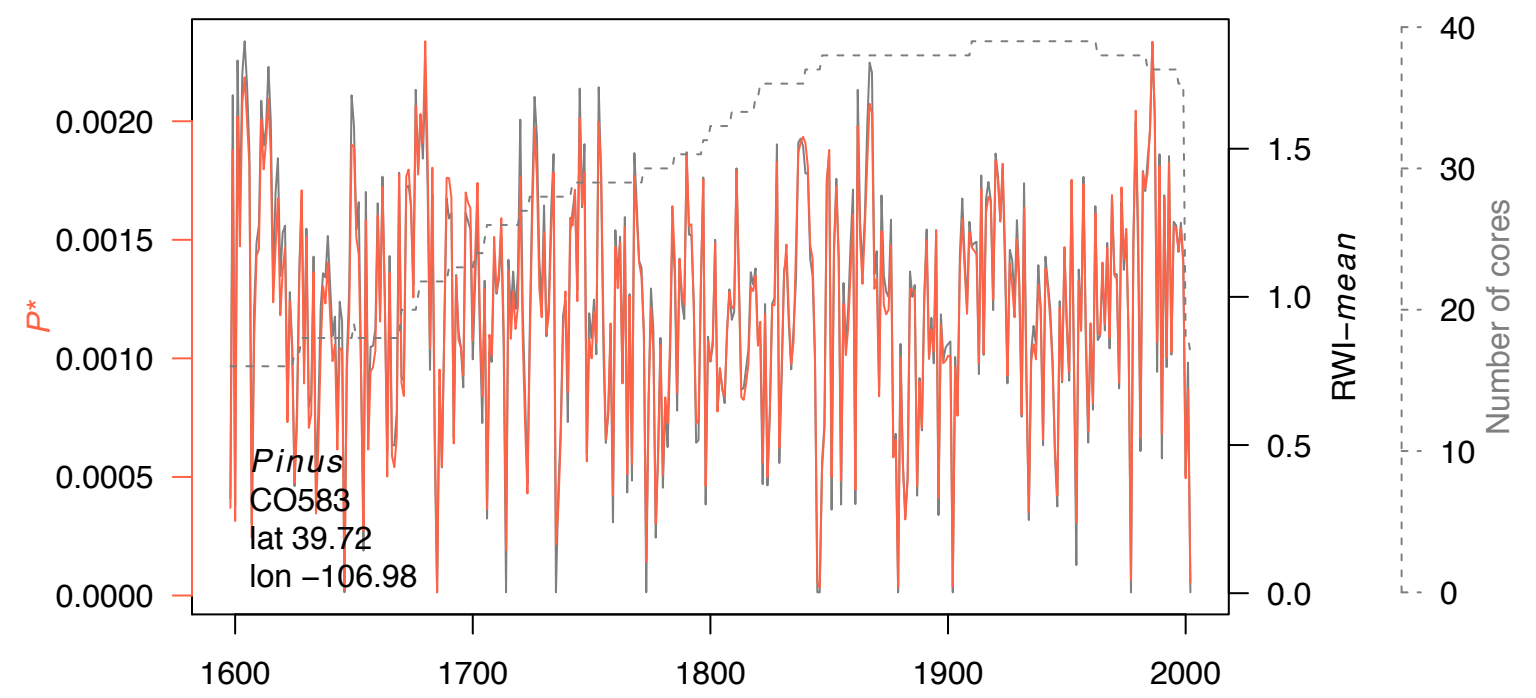
1.5
1.0
0.5
0.0
RWI–mean
25
20
15
10
5
0
Number of cores
Pinus
CO640
lat 38.4
lon –105.3
1750
1800
1850
1900
1950
2000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0.0005
0.0000
Pinus
CO583
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1700
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1900
2000
RWI–mean
1.5
1.0
0.5
0.0
Number of cores
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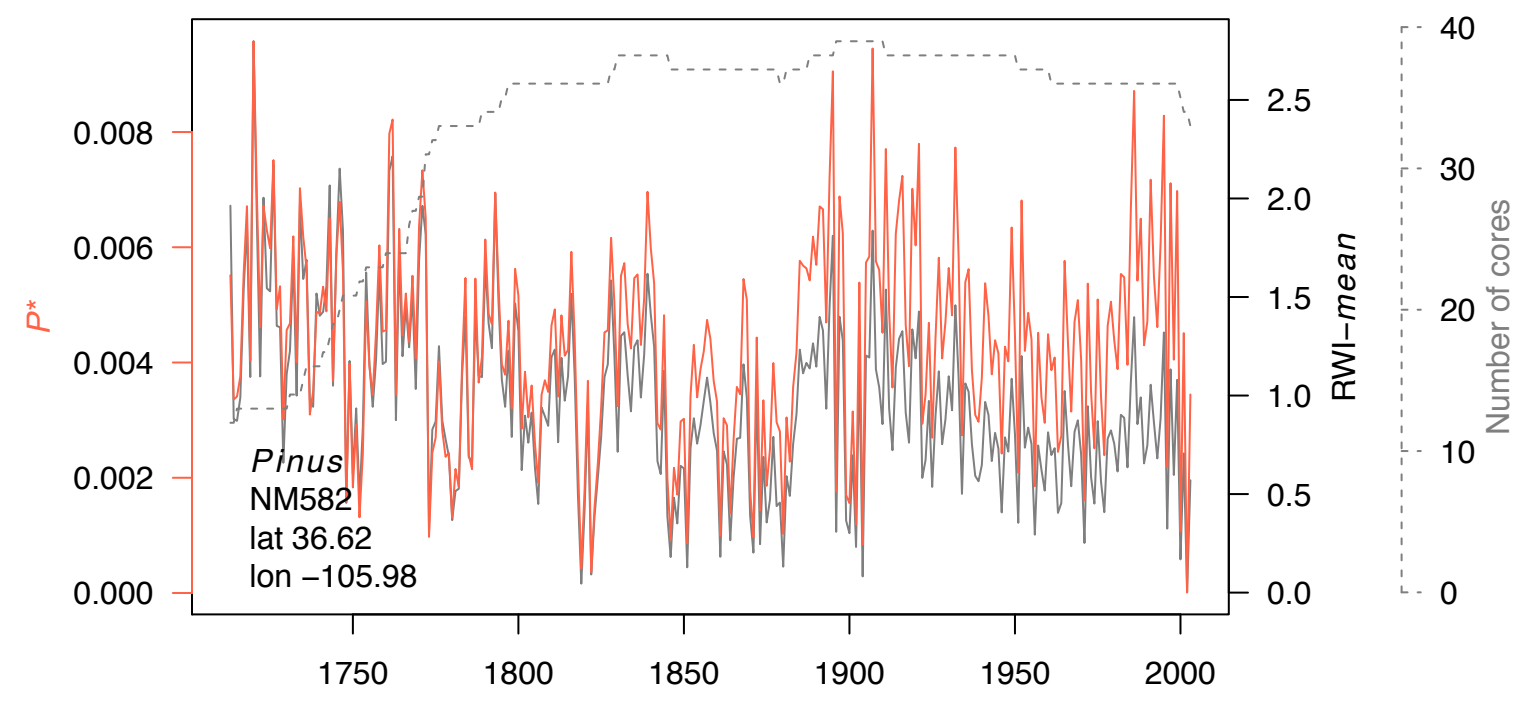
30
20
10
0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0.004
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0.000
Pinus
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1800
1850
1900
1950
2000
RWI–mean
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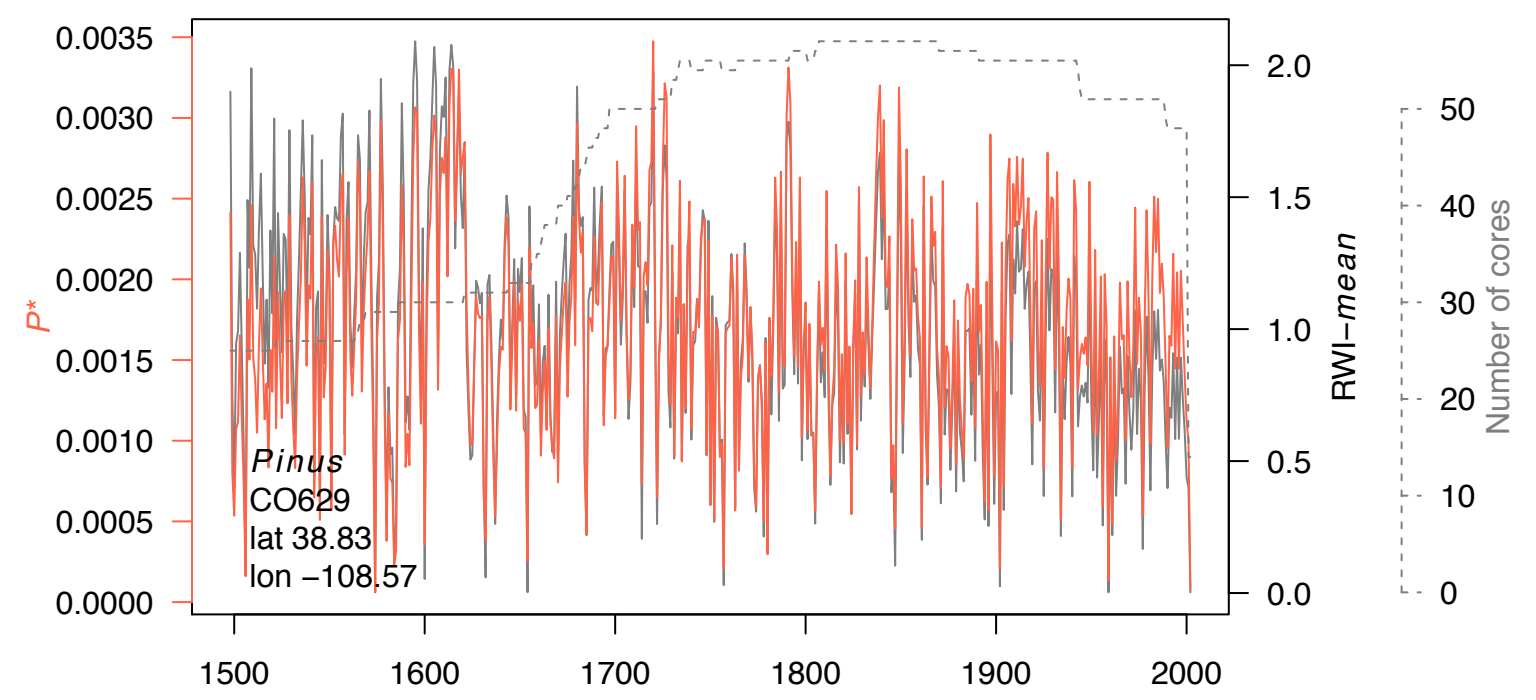
2.0
1.5
1.0
0.5
0.0
Number of cores
40
30
20
10
0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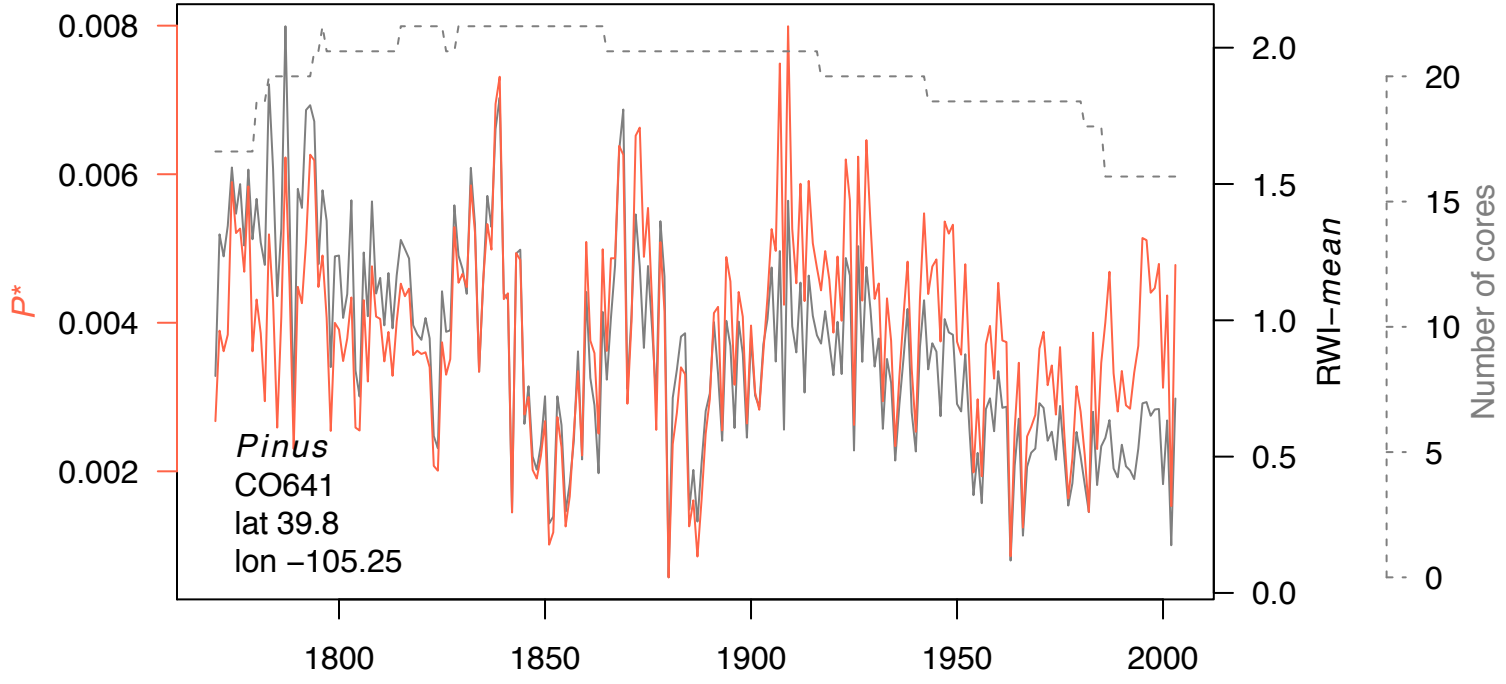
0.0030
0.0025
0.0020
0.0015
0.0010
0.0005
0.0000
Pinus
CO629
lat 38.83
lon −108.57
1500
1600
1700
1800
1900
2000
RWI–mean
2.0
1.5
1.0
0.5
0.0
Number of cores
50
40
30
20
10
0


P*
0.008
0.006
0.004
0.002
RWI–mean
2.0
1.5
1.0
0.5
0.0
Number of cores
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15
10
5
0
Pinus
CO641
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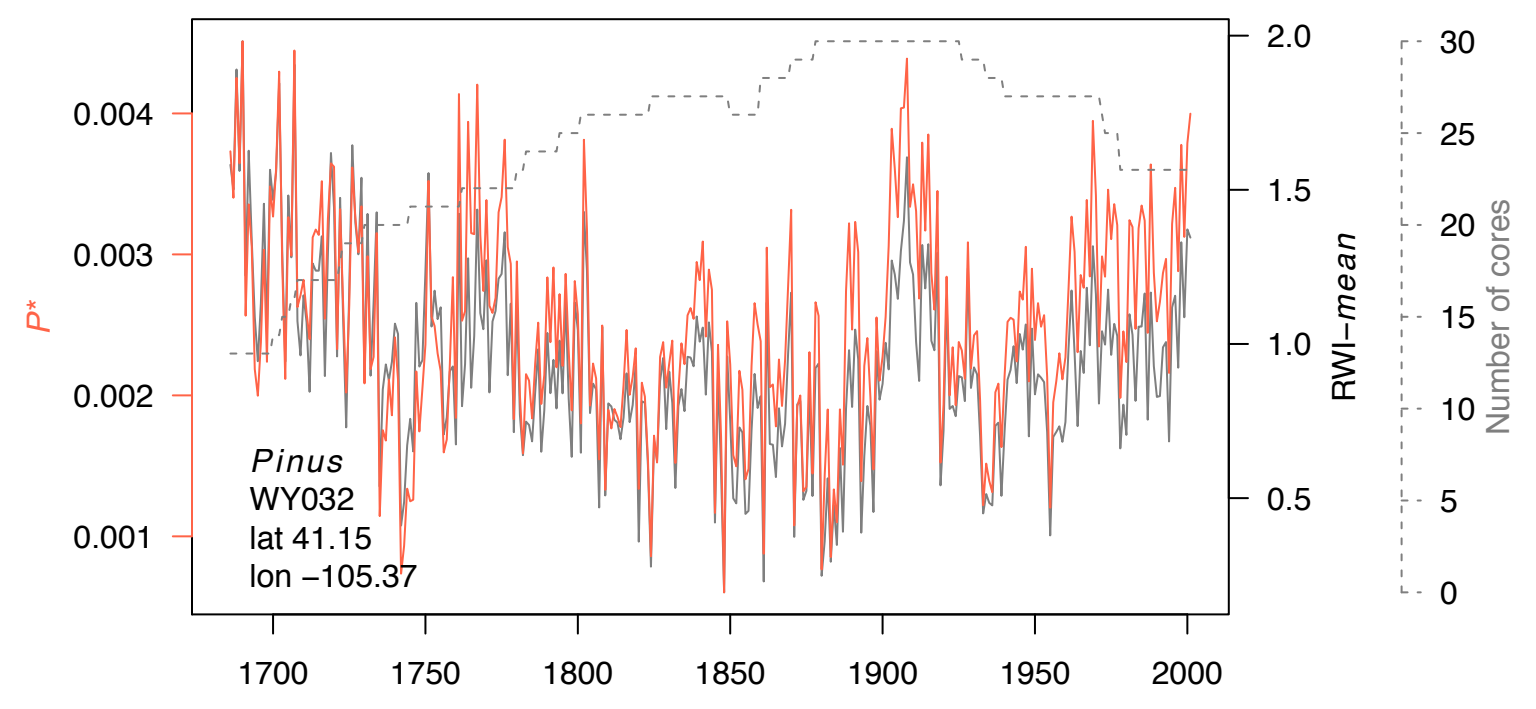
lon −105.25
1800
1850
1900
1950
2000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0.003
0.002
0.001
Pinus
WY032
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lon −105.37
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1750
1800
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1950
2000
2.0
1.5
1.0
0.5
RWI–mean
30
25
20
15
10
5
0
Number of cores

SI Table 2: Parameter values used in the calculation of peak-growth year (Appendix C).

Parameter	Code	*Pinus*	SD or range	Data source or Reference	*Picea*	SD or range	Data source or Reference
Initial slope of height–diameter relationship (–)	a	125.39	±0.54	ICP	110.35	±0.29	ICP
Initial ratio of crown area to stem cross-sectional area (–)	c	384.15	±3.14	ICP	306.48	±2.86	ICP
Sapwood density (kgC m^3)	ρ	200	-	www.wood-database.com	202.5	–	www.wood-database.com
Leaf area index within the crown (–)	L	3.11	±1.13	ICP	3.51	±0.31	ICP
Specific leaf area (m^2 kg^{-1}C)	σ	12.73	±5.64	ICP	9.06	±2.05	ICP
Sapwood-specific respiration rate ($year^{-1}$)	r_s	0.0315 (1 nmol mol^{-1} s^{-1})	0.5-2.7, 5, 10 nmol mol^{-1} s^{-1}	Ryan, 1989	0.0315 (1 nmol mol^{-1} s^{-1})	0.5-2.7 nmol mol^{-1} s^{-1}	Lavigne and Ryan, 1997
Ratio of fine-root mass to foliage area (kgC m^{-2})	ζ	0.018	0.018-0.03; 0.05	Jach et al., 2000; Schoonmaker et al 2016	0.0172	0.023; 0.0172-0.0525; 0.0735-0.0408	B. Konôpka and J. Pajtík, 2013; Helmisaari et al, 2007; Schoonmaker, 2016
D^2:(dD/dt) at peak growth	R	0.97	0.097-2.59	-	1.31	0.49-3.11	-

Reference

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