Wildfire history of the boreal forest of southwestern Yakutia (Siberia) over the last two millennia documented by a lake-sedimentary charcoal record

Supplement

Overview of the different charcoal size classes (S1–S3) and morphotype classes (S4–S6) in both the classic and robust analysis approach, separated by vertical dashed lines representing the different phases of the fire regime.

For each figure: (a) Classic CHAR peak component (dark grey bars = signal, light grey bars = noise, dashed horizontal line = threshold). (b) SNI of the classic CHAR peak component after Kelly et al. (2011) (red horizontal line = SNI cutoff value of 3). (c) Classic CHAR sum (black line = interpolated CHAR, blue line = LOESS representing the CHAR background component, red vertical lines = fire episodes with SNI >3, grey vertical lines = fire episodes with SNI <3). (d) Robust CHAR background component. (e) Robust CHAR peak component (red areas = above-average values). (f) Robust CHAR sum. For (d)–(f): black line = median, grey area = interquartile range.

S1: Size class 150–300 μm
S2: Size class 300–500 μm
S3: Size class >500 μm
S4: Angular morphotypes (S, B, C)
S5: Elongated morphotypes (F, D, E)
S6: Irregular morphotypes (M, P, X)
S1: Size class 150–300 µm

(a) Classic CHAR peak

(b) SNI

(c) Classic CHAR

(d) Robust CHAR background

(e) Robust CHAR peak

(f) Robust CHAR
S2: Size class 300–500 µm

Phase 1
Phase 2
Phase 3
Phase 4

(a) Classic CHAR peak
(b) SNI
(c) Classic CHAR
(d) Robust CHAR background
(e) Robust CHAR peak
(f) Robust CHAR
S3: Size class >500 µm

(a) Classic CHAR peak

(b) SNI

(c) Classic CHAR

(d) Robust CHAR background

(e) Robust CHAR peak

(f) Robust CHAR

Age (CE)
S4: Angular morphotypes

(a) Classic CHAR peak
(b) SNI
(c) Classic CHAR
(d) Robust CHAR background
(e) Robust CHAR peak
(f) Robust CHAR

Age (CE)
S5: Elongated morphotypes

(a) Classic CHAR peak

(b) SNI

(c) Classic CHAR

(d) Robust CHAR background

(e) Robust CHAR peak

(f) Robust CHAR

Phase 1 | Phase 2 | Phase 3 | Phase 4

particles cm$^{-2}$ yr$^{-1}$

Age (CE)
S6: Irregular morphotypes

(a) Classic CHAR peak
(b) SNI
(c) Classic CHAR
(d) Robust CHAR background
(e) Robust CHAR peak
(f) Robust CHAR

Age (CE)