Supplementary Materials

Table S1, first part. Hydrocarbon composition of sinking particles collected by drifting sediment traps of the A and B series, in percent of identified hydrocarbons, and total hydrocarbon flux in μg m^{-2} d^{-1}. n.d.: non detected. [(a)] Hydrocarbon fractions of three samples were lost.

	Series A										**Series B**					
Date	Sept 17th			Sept 18th		Sept 21st				Sept 22nd	Sept 28th				Sept 29th	
Starting time (hours)	8	14	20	2	8	2[(a)]	8	14	20	2[(a)]	2	8	14	20	2	8
Compounds:																
C_{12}	n.d.	n.d.	n.d.	6.7	15.3		n.d.	n.d.	9.8		n.d.	3.0	1.4	1.0	3.5	n.d.
C_{13}	n.d.	n.d.	n.d.	n.d.	0.2		n.d.	10.5	0.2		n.d.	n.d.	n.d.	0.4	n.d.	n.d.
C_{14}	n.d.	n.d.	n.d.	n.d.	n.d.		n.d.	n.d.	1.1		n.d.	0.7	n.d.	n.d.	n.d.	n.d.
C_{15}	0.8	0.7	1.9	2.9	1.2		1.9	1.3	0.4		n.d.	3.4	0.9	0.9	n.d.	2.7
C_{16}	2.2	1.6	3.5	4.0	1.3		1.9	2.0	0.8		2.9	2.9	1.6	0.8	1.9	3.2
C_{17}	0.8	0.8	3.2	4.0	1.5		3.0	2.8	2.1		1.6	3.0	2.1	1.1	2.0	2.9
Pristane	n.d.	1.0	2.7	n.d.	1.2		2.2	3.4	1.3		2.5	2.6	2.1	2.0	1.7	1.3
C_{18}	2.5	2.9	5.4	4.7	1.9		5.4	5.3	7.0		4.6	4.3	2.6	2.0	2.3	3.4
Phytane	1.0	0.4	1.0	n.d.	0.9		1.4	1.5	1.2		2.2	n.d.	1.2	1.2	1.6	1.1
C_{20}	9.1	7.9	7.6	11.4	7.8		16.8	11.1	15.0		12.6	8.7	3.4	4.0	4.8	5.3
C_{21}	5.1	3.5	6.2	8.5	3.9		10.6	8.4	9.2		5.9	6.8	2.9	3.5	6.8	4.0
C_{22}	7.0	5.9	6.1	5.2	3.0		5.0	6.5	4.3		5.3	5.0	2.9	2.9	5.9	3.3
C_{24}	4.9	5.2	3.3	5.2	15.7		1.8	3.0	1.1		6.4	4.8	2.1	2.6	3.3	1.5
C_{25}	4.0	2.3	2.7	4.5	12.8		5.5	2.7	1.5		3.8	2.3	4.0	3.0	2.8	3.4
C_{26}	3.9	4.5	2.5	0.9	0.7		0.9	0.8	0.6		1.9	2.1	1.3	1.1	n.d.	0.8
Squalane	14.9	9.8	11.0	2.5	2.4		3.0	3.4	5.1		11.1	11.6	4.4	1.7	4.8	4.0
C_{27}	4.5	6.4	4.5	6.3	2.3		9.2	4.6	4.4		5.4	5.1	8.9	10.2	6.9	9.2
C_{28}	3.7	4.8	2.9	1.5	1.1		1.2	0.9	1.1		2.0	2.1	1.7	1.6	1.6	1.3
Squalene	13.5	11.7	12.9	7.3	4.5		2.1	2.6	4.1		7.0	7.6	13.5	5.8	16.9	13.4
C_{29}	2.8	3.6	5.4	5.3	4.1		8.8	12.2	7.5		6.7	6.9	15.0	18.0	12.3	13.1
C_{30}	3.9	4.6	3.0	1.2	0.7		0.9	1.1	1.1		2.0	2.0	1.2	1.4	n.d.	1.1
C_{31}	2.8	3.2	3.6	3.4	2.6		4.0	5.2	4.0		3.4	3.4	6.5	8.1	5.0	6.5
C_{32}	2.0	2.7	1.7	0.9	1.8		0.4	n.d.	0.8		1.7	n.d.	n.d.	n.d.	n.d.	0.9
Diploptene	n.d.	n.d.	n.d.	n.d.	1.0		tr	n.d.	0.3		n.d.	n.d.	0.4	0.6	n.d.	n.d.
C_{33}	1.6	1.8	2.1	1.4	1.1		0.8	1.6	1.5		1.4	2.0	2.5	2.6	1.9	2.1
C_{34}	1.1	1.4	0.8	n.d.	n.d.		0.4	n.d.	0.4		n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Lycopane	0.8	0.8	0.9	1.1	0.6		2.2	2.2	1.4		n.d.	n.d.	2.3	2.9	1.7	2.1
C_{35}	0.4	0.8	0.9	n.d.	1.3		0.4	n.d.	0.5		n.d.	n.d.	n.d.	n.d.	n.d.	0.9
C_{36}	n.d.	n.d.	0.5	n.d.	n.d.		n.d.	n.d.	n.d.		n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
$C_{37:3}$	2.3	4.2	2.6	6.9	5.0		7.4	6.7	8.8		5.9	6.6	9.0	12.1	6.9	9.0
C_{37}	n.d.	n.d.	n.d.	n.d.	n.d.		n.d.	n.d.	n.d.		n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
$C_{38:3}$	4.6	7.7	1.0	4.4	4.1		2.7	n.d.	3.1		3.5	2.9	6.0	8.6	5.4	3.3
Total hydrocarbon flux (μg m^{-2} d^{-1})	5.6	4.9	5.5	5.9	15.8		14.9	8.9	29.7		12.4	9.5	16.3	14.0	9.3	14.3

Table S1, continued. Hydrocarbon composition of sinking particles collected by drifting sediment traps of the C and D series, in percent of identified hydrocarbons, and total hydrocarbon flux in μg m^{-2} d^{-1}. n.d.: non detected. [(a)] Hydrocarbon fractions of three samples were lost.

	Series C									**Series D**					
Date	Oct 3rd		Oct 4th				Oct 5th			Oct 12th	Oct 13th				Oct 14th
Starting time (hours)	14	20	2	8	14	20	2	8	14[(a)]	20	2	8	14	20	2
Compounds:															
C_{12}	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.		n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
C_{13}	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.		n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
C_{14}	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.		n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
C_{15}	3.3	1.7	2.4	0.6	1.9	0.7	0.6	0.8		4.9	4.3	1.7	1.1	1.3	1.8
C_{16}	6.8	3.4	4.3	1.2	2.3	1.9	2.3	0.8		7.5	29.0	4.0	4.2	2.5	2.5
C_{17}	1.5	3.0	3.1	1.8	2.1	2.0	2.9	1.5		5.2	4.5	2.3	1.8	1.3	1.7
Pristane	n.d.	1.6	1.8	n.d.	1.3	1.0	2.2	1.0		2.1	1.4	3.5	3.3	0.7	n.d.
C_{18}	6.0	5.2	5.5	3.3	4.8	3.0	3.6	2.3		6.3	4.3	6.2	7.1	2.8	3.8
Phytane	n.d.	0.8	0.9	0.7	n.d.	0.6	1.6	0.4		1.0	n.d.	0.4	1.4	0.3	1.5
C_{20}	4.6	8.5	10.0	9.3	11.4	7.8	6.2	6.5		9.6	6.2	7.0	9.4	13.6	15.3
C_{21}	8.5	5.4	6.7	7.4	7.8	6.3	5.3	6.2		6.9	4.6	2.9	3.8	12.3	14.2
C_{22}	2.7	7.0	9.0	6.3	8.2	7.1	7.0	6.9		5.5	4.6	6.0	8.7	8.1	9.7
C_{24}	33.6	5.6	6.6	3.0	5.0	5.3	5.2	5.0		5.0	4.4	5.0	7.5	3.1	3.1
C_{25}	9.2	2.5	2.8	2.9	2.9	2.9	1.8	4.1		3.4	3.8	1.8	2.1	1.9	6.8
C_{26}	0.6	2.1	2.5	1.7	2.3	1.9	1.9	1.9		2.1	2.9	3.4	4.3	2.4	1.7
Squalane	n.d.	4.3	5.4	10.4	12.0	6.1	3.9	12.4		4.7	0.9	13.4	16.5	7.5	8.5
C_{27}	3.2	5.9	4.7	4.8	4.8	6.9	8.9	8.1		3.7	3.9	2.4	3.0	3.7	2.2
C_{28}	1.7	1.9	2.0	1.9	1.7	1.9	1.8	1.9		1.4	2.4	6.9	3.9	2.7	1.9
Squalene	5.2	22.5	11.8	23.9	6.2	11.3	11.8	9.4		14.7	5.6	17.2	4.0	12.2	14.3
C_{29}	1.9	8.1	6.7	7.2	9.3	11.3	12.7	12.2		4.1	5.0	2.4	2.8	6.0	3.3
C_{30}	3.8	1.4	1.9	1.7	2.2	2.9	2.9	0.7		1.3	2.8	2.8	3.5	2.5	2.5
C_{31}	0.8	2.8	3.9	3.6	4.9	5.2	4.0	3.1		3.9	4.4	3.0	4.6	4.2	1.6
C_{32}	2.7	0.9	1.3	1.2	1.3	1.1	0.8	0.9		0.7	1.5	2.2	n.d.	2.2	0.8
Diploptene	n.d.	0.3	n.d.	n.d.	n.d.	0.7	n.d.	0.8		n.d.	n.d.	n.d.	2.4	n.d.	n.d.
C_{33}	3.8	1.1	1.6	1.7	1.7	3.5	1.5	2.1		1.4	1.7	2.0	1.8	2.7	0.9
C_{34}	n.d.	0.6	0.6	0.9	n.d.	0.7	n.d.	0.6		n.d.	0.5	1.3	1.5	1.4	n.d.
Lycopane	n.d.	1.1	1.5	1.6	3.4	2.1	0.4	2.6		0.3	n.d.	0.3	0.5	0.7	1.5
C_{35}	n.d.	0.6	0.5	0.5	n.d.	0.6	0.3	0.7		1.6	0.9	0.4	0.8	0.9	0.2
C_{36}	n.d.	0.4	n.d.	n.d.	n.d.	1.0	n.d.	n.d.		n.d.	n.d.	n.d.	n.d.	1.4	n.d.
$C_{37:3}$	n.d.	1.2	2.4	1.9	2.6	3.2	7.9	5.1		1.5	0.4	n.d.	n.d.	0.8	n.d.
C_{37}	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.		n.d.	n.d.	n.d.	n.d.	0.5	n.d.
$C_{38:3}$	n.d.	0.2	n.d.	0.6	n.d.	1.1	2.6	1.7		1.3	n.d.	1.6	n.d.	n.d.	n.d.
Total hydrocarbon flux (μg m^{-2} d^{-1})	1.4	7.6	6.7	7.0	4.7	8.5	7.8	9.3		10.2	21.1	9.9	7.0	8.4	8.1

Table S2. Fluxes of long chain alkenones and alkenoates recorded by drifting sediment traps during the DYNAPROC2 cruise, in μg m^{-2} d^{-1} and values of the alkenone unsaturation index, UK'_{37}. Results from the Series A and B are given on the top table, and results from the series C and D are presented in the table below. Methyl alkenones and ethyl alkanones are designated by the the corresponding prefixes. The OMethyl prefix stands for methyl alkanoate. n.d.: non detected. a: The UK'_{37} values are not calculated because of the too small peak area of $C_{37:3}$.

	Series A										**Series B**					
Date	Sept 17th			Sept 18th		Sept 21st				Sept 22nd	Sept 28th				Sept 29th	
Starting time (hours)	8	14	20	2	8	2	8	14	20	2	2	8	14	20	2	8
Compounds:																
Methyl C37:3	0.1	0.1	0.2	0.4	1.1	1.7	2.5	2.3	4.1	1.9	1.0	0.4	3.7	5.9	0.6	0.3
Methyl C37:2	0.4	0.7	0.5	0.5	1.6	3.1	4.5	3.7	7.4	3.3	1.2	0.6	4.9	7.4	0.6	0.4
OMethyl C36:2	n.d.	0.0	0.1	0.1	0.2	0.4	0.6	0.3	1.0	0.2	0.1	0.2	0.4	0.8	0.2	n.d.
Ethyl C38:3	0.05	0.0	0.2	0.3	0.5	0.8	1.1	1.3	2.7	1.2	0.7	0.02	1.8	3.2	0.1	0.1
Methyl C38:3	0.03	0.1	0.1	0.0	0.1	1.0	1.3	1.2	2.2	1.0	0.6	0.1	2.2	3.5	0.3	0.2
Ethyl C38:2	0.3	0.4	0.5	0.2	0.7	2.4	3.3	3.2	6.1	2.7	1.1	0.1	3.9	6.4	0.3	0.1
Methyl C38:2	n.d.	n.d.	n.d.	n.d.	n.d.	1.7	2.7	1.7	3.6	1.6	0.6	0.2	3.1	3.8	0.4	0.2
Methyl C39:3	n.d.	0.03	0.03	0.1	0.2	0.2	0.3	0.3	0.6	0.2	0.1	n.d.	0.4	0.9	n.d.	n.d.
Methyl C39:2	0.2	0.1	0.3	0.4	0.3	0.7	1.0	0.9	1.7	0.7	0.3	0.3	1.2	1.8	n.d.	n.d.
UK'_{37} (RU)	a	a	0.68	0.60	0.59	0.64	0.64	0.62	0.64	0.64	0.55	0.61	0.57	0.56	0.50	0.57

	Series C									**Series D**					
Date	Oct 3rd		Oct 4th				Oct 5th			Oct 12th	Oct 13th				Oct 14th
Starting time (hours)	14	20	2	8	14	20	2	8	14	20	2	8	14	20	2
Compounds:															
Methyl C37:3	0.3	0.3	0.2	0.4	0.4	1.1	1.2	1.7	2.6	n.d.	n.d.	n.d.	n.d.	0.1	0.1
Methyl C37:2	0.8	0.7	0.4	0.7	0.8	2.0	1.6	3.5	4.6	n.d.	n.d.	n.d.	n.d.	0.3	0.3
OMethyl C36:2	n.d.	0.2	n.d.	0.04	0.1	0.1	0.1	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Ethyl C38:3	0.2	0.2	0.2	0.2	0.3	1.6	0.6	2.1	4.4	n.d.	n.d.	n.d.	n.d.	0.5	0.1
Methyl C38:3	0.1	n.d.	n.d.	0.2	0.2	0.6	0.7	n.d.	1.7	n.d.	n.d.	n.d.	n.d.	n.d.	0.1
Ethyl C38:2	0.7	0.7	0.5	1.0	1.1	2.7	2.0	4.2	6.1	n.d.	n.d.	n.d.	n.d.	n.d.	0.2
Methyl C38:2	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Methyl C39:3	0.03	0.05	0.09	0.1	0.1	0.2	0.2	0.3	0.6	n.d.	n.d.	n.d.	n.d.	n.d.	0.0
Methyl C39:2	0.1	0.3	0.1	0.2	0.3	0.6	0.4	0.9	1.0	n.d.	n.d.	n.d.	n.d.	0.3	0.2
UK'_{37} (RU)	0.75	0.70	0.70	0.66	0.66	0.64	0.57	0.67	0.64					a	0.67

Table S3, first part. Fluxes of sterols, *n*-alkanols, alkane diol and steroidal ketones in sinking particles collected by drifting sediment traps series A and B during the DYNAPROC2 cruise, in μg m^{-2} d^{-1}. n.d.: non detected. Sterols are designed by xΔy,z, where x indicates substituents and their location on the side chain or on the A ring; x can also indicate the 24-*nor* or 27-*nor* configuration. In this nomenclature, y and z indicate double bond locations. Δ0 is used to design 5α-(H)stanols. (a): coeluting with an isomer of cholestan-3β-one in minor amounts. (b) Coeluting with minor amounts of a cholesta-4,22E-dien-3β-one isomer in some samples. (c): coelutiong with 24-methylcholesta-5,24(28)-dien-3β-ol. (d) : coeluting with 4α–24dimethyl Δ22 in minor amounts. (e): Coeluting with 4α,4β,24-trimethyl Δ0 .

	Series A										**Series B**					
Date	Sept 17th			Sept 18th		Sept 21st				Sept 22nd	Sept 28th				Sept 29th	
Starting time (hours)	8	14	20	2	8	2	8	14	20	2	2	8	14	20	2	8
C22-OH	0.7	0.3	0.1	0.4	0.4	0.4	0.6	0.4	0.9	0.5	0.6	0.5	1.0	1.1	0.4	0.6
C24-OH	n.d.	n.d.	0.1	0.6	0.3	0.3	0.5	0.3	0.7	0.3	0.3	0.2	0.6	0.5	0.2	0.4
C26-OH	0.4	0.1	0.2	0.9	1.5	0.6	0.9	0.5	0.6	0.5	0.3	0.3	1.0	1.3	0.3	0.7
24-*nor*Δ5,22E	0.7	0.8	0.6	1.0	2.1	2.9	4.5	2.8	5.0	2.6	2.4	1.9	4.8	6.4	2.1	3.6
24-*nor*Δ5	0.2	0.3	0.3	0.4	1.0	0.8	1.5	0.8	1.5	0.6	0.3	0.3	0.8	1.0	0.3	0.7
24-*nor*-cholesta-4,22E-dienone	0.3	0.1	0.2	0.3	0.7	0.6	1.5	1.2	1.6	1.1	0.7	0.8	2.1	2.4	0.6	1.7
Cholestan-3-one	0.4	0.3	0.3	0.1	0.3	0.3	0.8	0.6	0.8	0.5	n.d.	0.4	1.2	1.3	0.3	1.1
27-*nor*-24me Δ5,22E	3.6	3.7	3.8	5.5	13.2	16.9	25.8	16.0	29.4	17.1	14.3	11.8	27.6	35.2	11.8	20.3
27-*nor*-24me Δ5	0.6	1.0	0.9	1.7	4.2	3.6	5.5	3.5	5.8	2.5	1.6	1.5	3.7	5.7	1.6	3.1
Δ5,22E	3.3	3.3	5.2	3.6	9.0	12.0	16.8	10.5	18.1	23.5	11.4	7.6	18.8	21.2	8.4	12.6
Δ22E	0.8	1.7	1.5	1.7	3.5	3.6	5.2	2.9	5.7	2.4	1.9	1.7	4.4	5.6	1.8	3.3
C28-OH	0.1	0.1	0.1	2.9	2.1	1.5	2.5	1.8	0.7	1.0	n.d.	0.4	2.5	7.7	16.7	2.1
Δ5	11.5	11.1	9.9	7.2	17.9	18.9	23.7	18.3	47.6	16.5	22.0	13.0	34.6	25.0	3.0	20.3
Δ0 [(a)]	1.3	1.3	2.2	2.1	3.8	4.9	7.0	4.2	8.6	3.8	3.2	2.7	8.4	8.7	0.6	5.2
Δ5,24(25)	0.3	0.2	0.3	1.2	1.4	1.3	1.9	1.2	1.9	0.9	0.8	0.9	1.2	1.8	1.9	1.1
4αMeΔ24(25) [(b)]	n.d.	n.d.	n.d.	1.1	1.4	0.9	1.8	2.9	3.5	2.9	1.8	2.5	4.0	5.4	0.7	4.5
Cholesta-4,22E-dien-3-one	0.3	n.d.	0.3	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	0.6	n.d.	n.d.	n.d.	n.d.
24-Methyl Δ5,22E	6.5	7.6	7.8	12.4	29.5	36.1	52.9	35.4	62.2	38.7	34.1	28.1	65.1	83.0	26.6	51.2
24-MethylΔ22E	1.9	2.3	2.4	2.8	6.9	7.2	10.1	5.4	10.5	4.7	3.4	3.1	13.2	9.9	3.0	8.8
Cholestediol	0.1	0.1	0.1	1.4	0.4	0.1	n.d.	0.2	0.2	0.2	0.1	n.d.	0.3	n.d.	0.1	n.d.
Cholest-4-en-3-one	3.8[(c)]	4.2[(c)]	4.4[(c)]	3.4	9.3	6.0	12.3	14.5	17.1	12.6	12.6	14.4	33.8	35.2	11.8	28.8
24-Methyl Δ5,24(28)	n.d.	n.d.	n.d.	2.4	6.2	8.8	11.5	6.8	13.1	6.3	5.1	4.4	15.1	14.5	4.3	10.5
24-Methyl Δ5	0.5	0.9	0.9	1.7	4.0	3.5	5.6	3.9	6.3	3.1	2.1	1.9	4.9	5.3	1.0	3.3
24-MethylΔ5,7,22E	n.d.	n.d.	n.d.	0.3	0.5	0.6	0.8	0.4	0.9	0.4	0.5	0.6	1.2	1.4	0.4	0.8
23, 24-Dimethyl Δ5,22E	0.6	0.7	0.7	1.3	3.3	2.2	4.3	3.5	6.1	2.5	3.0	3.1	5.8	7.9	2.3	3.9
23, 24-Dimethyl Δ22E	0.3	0.2	0.2	0.3	1.1	0.8	1.7	2.4	1.3	2.5	1.5	2.1	2.7	2.4	1.3	2.7
24-Ethyl Δ5,22E	1.7	2.1	2.5	3.5	8.6	10.1	15.7	9.3	17.7	11.6	7.9	7.5	20.3	24.7	7.7	5.1
24-Ethyl Δ22E [(d)]	0.8	1.0	1.0	1.5	3.8	4.1	5.5	3.5	5.5	3.4	2.7	2.8	6.8	8.6	2.3	1.0
24-Methyl Δ7,24(28)	0.1	0.3	0.3	1.2	0.6	0.6	1.2	0.8	2.6	0.9	0.3	0.8	1.3	9.8	1.4	0.6
23,24-dimethyl Δ5	n.d.	n.d.	n.d.	2.4	3.6	2.8	4.1	2.8	3.2	2.6	1.1	1.5	3.9	9.4	1.8	3.5
24-Ethyl Δ5	4.5	4.7	5.2	6.8	17.2	17.8	26.4	17.3	31.0	17.6	14.3	13.5	30.2	38.1	12.7	24.1
24-Ethyl Δ0	0.5	0.4	0.3	1.8	5.5	4.3	7.4	4.6	7.6	4.0	3.1	3.0	7.0	9.0	2.4	6.3
24 -Ethyl Δ5,24(28)	1.7	1.8	2.1	1.7	2.2	3.2	3.3	2.1	4.3	2.6	2.4	2.6	5.0	6.8	2.3	3.3
4α,23,24-Trimethyl Δ22,24(28)	n.d.	n.d.	n.d.	1.0	1.6	1.7	2.5	1.9	3.6	1.4	1.2	1.6	1.3	3.1	0.8	1.6
4α,23,24-Trimethyl Δ22	1.1	1.8	1.6	2.0	5.3	5.8	8.4	5.6	10.4	5.5	4.0	4.8	9.9	13.4	4.0	8.0
24-Propyl Δ5,24(28) isomer	n.d.	n.d.	n.d.	0.2	0.2	0.2	0.4	n.d.	0.4	0.1	0.1	n.d.	0.3	0.2	0.1	0.2
4α,23,24-Trimethyl Δ7	0.1	0.2	0.2	n.d.	n.d.	0.2	n.d.	0.1	0.9	n.d.	n.d.	n.d.	0.3	n.d.	0.1	0.2
24-Propyl Δ5,24(28)	0.4	0.7	0.7	0.7	2.2	1.8	2.8	1.3	2.4	2.3	2.4	2.9	2.5	4.1	1.5	2.8
4α,23,24-Trimethyl Δ7	n.d.	0.1	0.1	0.4	1.2	1.1	0.7	0.4	0.6	0.2	1.2	1.5	1.0	2.7	1.0	2.0
4α,23,24-Trimethyl Δ5 [(e)]	0.4	0.4	0.4	0.4	1.2	1.0	1.0	0.7	1.5	0.5	0.5	0.8	0.8	1.4	0.5	0.9
4α,23,24-Trimethyl Δ0	0.6	0.4	0.7	0.4	1.9	1.0	1.7	2.2	3.1	2.3	1.4	2.2	3.0	3.5	1.3	2.6
4α,24-Dimethyl Δ0	n.d.	0.2	n.d.	0.4	1.5	0.9	1.7	0.5	1.6	0.5	0.6	1.0	2.4	2.7	0.8	1.9
C30 alkane 1,15 diol (+1,14 + 1,13)	0.4	0.8	0.6	1.3	3.3	3.8	7.9	4.5	7.7	4.1	2.0	2.6	4.4	7.5	2.0	4.1
C30 kétol	1.3	0.7	1.0	1.2	3.3	4.4	6.7	4.0	5.8	3.5	1.9	2.4	3.2	9.3	1.7	3.5
Mid-chain alkanol	0.2	0.1	0.1	0.3	1.0	0.8	1.1	0.4	0.6	0.5	0.2	0.6	0.5	2.1	0.3	0.9

Table S3, continued. Fluxes of sterols, n-alkanols, alkane diol and steroidal ketones in sinking particles collected by drifting sediment traps of the series C and D during the DYNAPROC2 cruise, in μg m^{-2} d^{-1}. n.d.: non detected. Sterols are designed by xΔy,z, where x indicates substituents and their location on the side chain or on the A ring; x can also indicate the 24-nor or 27-nor configuration. In this nomenclature, y and z indicate double bond locations. Δ0 is used to design 5α-(H)stanols. (a): coeluting with an isomer of cholestan-3β-one in minor amounts. (b) Coeluting with minor amounts of a cholesta-4,22E-dien-3β-one isomer in some samples. (c): coelutiong with 24-methylcolesta-5,24(28)-dien-3β-ol. (d) : coeluting with 4α–24dimethyl Δ22 in minor amounts. (e): Coeluting with 4α,4β,24-trimethyl Δ0 .

	Series C									**Series D**					
Date	Oct 3rd		Oct 4th				Oct 5th			Oct 12th	Oct 13th				Oct 14th
Starting time (hours)	14	20	2	8	14	20	2	8	14	20	2	8	14	20	2
C22-OH	n.d.	0.1	0.5	0.4	0.5	0.8	n.d.	0.7	0.6	0.2	0.7	0.3	0.2	0.6	0.4
C24-OH	0.1	0.1	0.1	n.d.	n.d.	n.d.	n.d.	n.d.	0.1	n.d.	0.1	0.1	n.d.	0.0	0.1
C26-OH	0.1	0.2	0.2	0.1	n.d.	0.1	n.d.	0.2	n.d.	n.d.	0.3	n.d.	0.1	0.3	0.2
24-*nor* Δ5,22E	0.9	0.9	1.4	1.4	1.5	2.7	1.8	2.4	3.3	0.7	0.8	0.7	0.3	0.8	0.5
24-*nor* Δ5	0.1	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.6	0.1	0.2	0.2	0.1	0.2	0.1
24-*nor*-cholesta-4,22E-dienone	0.2	0.3	0.3	0.6	0.3	1.0	0.2	0.5	0.5	n.d.	0.2	n.d.	n.d.	0.3	0.1
Cholestan-3-one	0.5	0.3	0.2	0.3	0.1	0.4	1.2	1.1	0.4	n.d.	0.1	0.1	n.d.	0.1	0.1
27-*nor*-24-me Δ5,22E	5.3	4.7	8.5	7.7	8.3	14.5	10.5	13.7	18.2	4.3	6.5	4.0	2.5	4.3	3.5
27-*nor*-24me Δ5	0.4	0.4	0.6	0.6	0.7	1.5	1.5	2.9	2.0	0.7	0.8	0.7	0.3	0.6	0.3
Δ5,22E	5.6	5.3	11.1	8.0	8.6	13.2	7.9	11.7	13.1	3.3	5.8	2.6	1.5	3.6	3.7
Δ22E	1.4	1.4	1.5	1.5	1.3	3.1	3.2	5.0	3.5	1.3	1.3	0.9	0.5	1.3	0.6
C28-OH	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	0.4	n.d.	0.2	0.7	0.1	0.1	n.d.	n.d.
Δ5	13.8	12.8	23.3	20.2	21.1	36.6	12.9	22.1	44.4	6.0	10.1	16.4	6.9	21.9	9.6
Δ0 [(a)]	1.6	1.6	2.2	2.3	2.5	3.6	2.7	4.2	4.2	1.4	1.6	1.3	1.0	1.7	1.1
Δ5,24(25)	1.6	1.3	1.4	1.7	1.2	1.3	3.2	1.1	3.8	0.3	0.2	0.6	0.3	0.9	n.d.
4αMeΔ24(25) [(b)]	0.3	0.3	0.5	0.5	0.4	0.6	0.5	0.9	0.8	0.3	0.9	0.8	0.3	0.5	0.4
Cholesta-4,22E-dien-3-one	0.6	0.5	0.3	1.5	n.d.	2.5	4.2	2.2	0.8	0.2	n.d.	n.d.	n.d.	0.7	0.2
24-Methyl Δ5,22E	9.8	9.0	17.3	14.5	16.1	27.7	22.7	29.7	39.5	10.6	17.7	10.2	5.1	9.4	8.1
24-MethylΔ22E	2.7	2.4	2.1	4.8	2.6	7.7	11.3	8.3	6.3	2.2	2.8	1.6	0.9	3.2	1.4
Cholestediol	0.4	0.4	0.2	0.2	0.2	n.d.	0.8	0.8	1.0	n.d.	0.0	0.1	0.1	0.4	0.1
Cholest-4-en-3-one	9.1[(c)]	8.7[(c)]	5.6(c)	15.0[(c)]	7.5[(c)]	24.1[(c)]	37.0[(c)]	20.0[(c)]	15.0[(c)]	3.6	4.5	2.3	1.2	11.3[(c)]	4.2[(c)]
24-Methyl Δ5,24(28)	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	2.8	3.5	1.5	0.7	n.d.	n.d.
24-Methyl Δ5	0.8	0.5	0.8	0.7	0.7	0.8	2.3	2.7	0.9	1.0	0.4	0.4	0.2	0.4	0.4
24-MethylΔ5,7,22E	0.3	0.4	0.5	0.6	n.d.	1.6	n.d.	1.3	2.2	0.4	0.3	0.2	0.1	0.6	0.3
23, 24-Dimethyl Δ5,22E	0.9	0.9	1.5	1.8	1.5	3.1	3.0	3.6	4.9	1.4	1.6	1.4	1.2	1.2	0.7
23, 24-Dimethyl Δ22E	0.3	0.3	0.3	0.4	0.2	0.5	0.6	0.7	0.6	0.3	0.2	0.2	0.1	0.3	0.2
24-Ethyl Δ5,22E	2.5	2.5	5.5	4.6	5.0	11.3	8.8	12.8	15.9	3.8	5.4	4.1	1.9	3.3	2.5
24-Ethyl Δ22E [(d)]	2.9	2.7	1.0	3.3	2.9	4.1	8.3	3.1	2.8	1.1	1.1	0.9	0.5	4.5	0.8
24-Methyl Δ7,24(28)	0.2	0.1	0.2	0.2	0.2	0.4	0.9	1.1	0.7	0.9	0.9	0.1	0.2	0.2	0.1
23,24-dimethyl Δ5	1.3	1.4	1.5	1.8	1.0	3.0	1.8	3.6	5.2	0.4	0.9	0.6	0.2	1.4	0.4
24-Ethyl Δ5	4.9	4.8	8.5	7.4	7.6	14.4	11.9	17.1	20.5	5.4	7.2	5.3	3.4	6.0	4.3
24-Ethyl Δ0	0.6	0.5	0.3	1.3	0.1	1.1	2.2	0.8	1.5	1.4	1.3	1.3	0.8	0.9	0.3
24 -Ethyl Δ5,24(28)	1.8	1.9	3.0	2.3	1.9	4.8	5.2	7.0	7.5	1.1	2.0	1.1	0.7	n.d.	n.d.
4α,23,24-Trimethyl Δ22,24(28)	n.d.	n.d.	n.d.	0.1	0.7	0.3	n.d.	n.d.	n.d.	0.3	0.3	0.6	0.2	3.4	1.8
4α,23,24-Trimethyl Δ22	1.5	1.3	2.1	2.1	1.8	4.1	5.2	6.2	7.2	1.3	1.7	1.4	0.7	1.7	0.9
24-Propyl Δ5,24(28) isomer	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	0.0	n.d.	n.d.
4α,23,24-Trimethyl Δ7	0.4	0.3	0.6	0.5	0.4	0.5	0.9	2.9	1.2	0.2	n.d.	n.d.	0.0	0.5	0.2
24-Propyl Δ5,24(28)	0.9	1.0	1.7	1.0	1.8	2.1	5.1	3.7	2.9	0.4	1.3	1.0	0.4	1.1	0.4
4α,23,24-Trimethyl Δ7	0.2	0.1	0.1	0.1	0.3	n.d.	n.d.	0.5	0.7	0.1	0.6	0.5	0.3	0.2	0.2
4α,23,24-Trimethyl Δ5 [(e)]	0.4	0.3	0.5	0.5	0.7	0.9	0.5	1.3	1.3	0.3	0.3	0.5	0.3	0.5	0.2
4α,23,24-Trimethyl Δ0	1.1	0.9	1.2	1.7	0.8	3.5	0.6	4.5	3.4	0.3	0.6	0.4	0.2	1.1	0.4
4α,24-Dimethyl Δ0	n.d.	n.d.	n.d.	n.d.	0.5	n.d.	n.d.	n.d.	n.d.	0.3	0.5	0.3	0.1	n.d.	n.d.
C30 Alkane 1,15 diol (+1,14 + 1,13)	0.8	0.6	1.2	1.4	1.5	3.6	5.2	5.1	7.1	0.6	0.5	0.6	0.5	0.7	0.3
C30 Kéto-ol	0.8	1.0	1.4	1.2	1.4	4.2	4.5	4.7	5.9	0.3	0.3	0.7	0.4	1.1	2.2
Mid-chain alkanol	0.1	0.2	0.3	0.2	0.1	0.4	0.2	n.d.	0.7	n.d.	n.d.	0.3	n.d.	0.2	0.1

Table S4 Pearson matrix of correlation between OC-normalized concentrations of selected of biomarkers. Sigma expresses the probability of non correlation (p=1 - sigma).

		C37 alkenones	Δ5,22	Δ5	24MeΔ5,22	24 Me Δ5,24(28)	24 Et Δ5	4α,23,24 triMe Δ22	C30 alkyl diol	Sum C22-C26-OH	Alcene C37:3	Sum odd HNA C≥25
C37 alkenones	Pearson Correlation coeff.	1	.376	.712**	-.008	.221	.205	.158	-.161	.346	-.134	.308
	Sigma (bilateral)		.053	.000	.967	.267	.305	.430	.422	.077	.531	.143
	N	27	27	27	27	27	27	27	27	27	24	24
Δ5,22	Pearson Correlation coeff.	.376	1	.432*	.682**	.409*	.692**	.597**	.356*	.390*	.419*	.589**
	Sigma (bilateral)	.053		.015	.000	.022	.000	.000	.050	.030	.027	.001
	N	27	31	31	31	31	31	31	31	31	28	28
Δ5	Pearson Correlation coeff.	.712**	.432*	1	.292	.146	.442*	.307	.082	.380*	-.146	.399*
	Sigma (bilateral)	.000	.015		.111	.435	.013	.093	.662	.035	.459	.035
	N	27	31	31	31	31	31	31	31	31	28	28
24MeΔ5,22	Pearson Correlation coeff.	-.008	.682**	.292	1	.523**	.945**	.885**	.631**	.573**	.683**	.737**
	Sigma (bilateral)	.967	.000	.111		.003	.000	.000	.000	.001	.000	.000
	N	27	31	31	31	31	31	31	31	31	28	28
24 Me Δ5,24(28)	Pearson Correlation coeff.	.221	.409*	.146	.523**	1	.639**	.630**	.512**	.900**	.596**	.424*
	Sigma (bilateral)	.267	.022	.435	.003		.000	.000	.003	.000	.001	.025
	N	27	31	31	31	31	31	31	31	31	28	28
24 Et Δ5	Pearson Correlation coeff.	.205	.692**	.442*	.945**	.639**	1	.930**	.681**	.670**	.662**	.763**
	Sigma (bilateral)	.305	.000	.013	.000	.000		.000	.000	.000	.000	.000
	N	27	31	31	31	31	31	31	31	31	28	28
4α,23,24 triMe Δ22	Pearson Correlation coeff.	.158	.597**	.307	.885**	.630**	.930**	1	.806**	.590**	.798**	.569**
	Sigma (bilateral)	.430	.000	.093	.000	.000	.000		.000	.000	.000	.002
	N	27	31	31	31	31	31	31	31	31	28	28
C30 alkyl diol	Pearson Correlation coeff.	-.161	.356*	.082	.631**	.512**	.681**	.806**	1	.354	.744**	.282
	Sigma (bilateral)	.422	.050	.662	.000	.003	.000	.000		.051	.000	.147
	N	27	31	31	31	31	31	31	31	31	28	28
Sum C22-C26-OH	Pearson Correlation coeff.	.346	.390*	.380*	.573**	.900**	.670**	.590**	.354	1	.440*	.554**
	Sigma (bilateral)	.077	.030	.035	.001	.000	.000	.000	.051		.019	.002
	N	27	31	31	31	31	31	31	31	31	28	28
Alcene C37:3	Pearson Correlation coeff.	-.134	.419*	-.146	.683**	.596**	.662**	.798**	.744**	.440*	1	.261
	Sigma (bilateral)	.531	.027	.459	.000	.001	.000	.000	.000	.019		.179
	N	24	28	28	28	28	28	28	28	28	28	28
Sum odd HNA C≥25	Pearson Correlation coeff.	.308	.589**	.399*	.737**	.424*	.763**	.569**	.282	.554**	.261	1
	Sigma (bilateral)	.143	.001	.035	.000	.025	.000	.002	.147	.002	.179	
	N	24	28	28	28	28	28	28	28	28	28	28

**. The correlation is significant at the 0,01 level (2-paired).

*. The correlation is significant at the 0,05 level (2-pairedl).

Figure S1. Comparison of sterol quantification carried out on separated split fractions, each of 1/10th of the samples. Each group of samples was extracted and analyzed separately. Time series fluxes of sterols determined by GC-FID and time series fluxes of sterols determined by Iatroscan (Data from Marty et al., 2009)

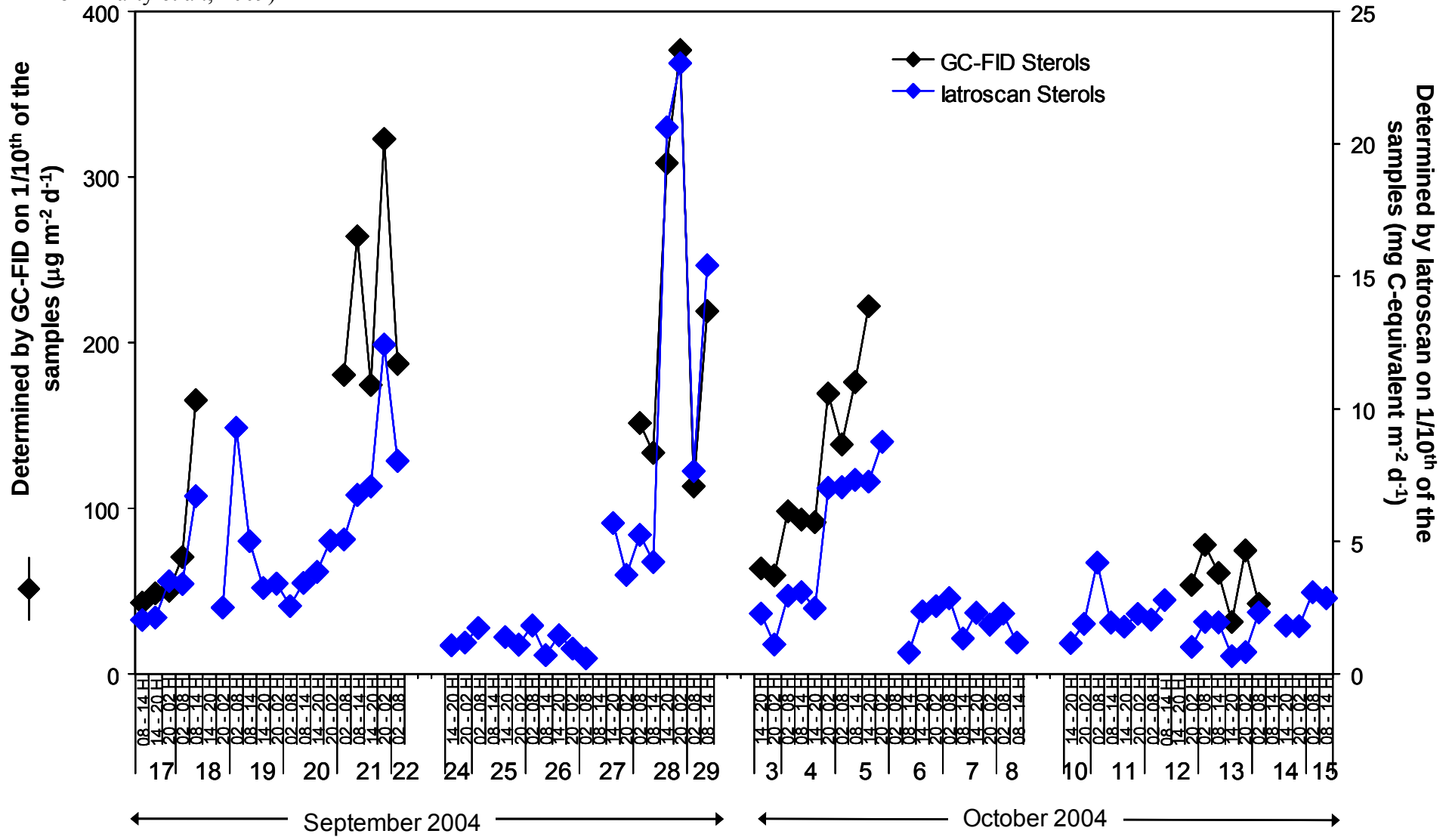

Figure S2. Fluxes of biomarkers of alkenone-producing Haptophytes, mainly of the genera *Emiliana* and *Gephyrocapsa*. C37: sum of C37 alkenones and alkenoates; C38: sum of C38 alkenones and alkenoates. C37:3 alkene and C38:3 alkene are the fluxes of the corresponding long-chain alkenes. Red triangles indicate the ratio of C37 alkenones and alkenoates to the alkene C37:3. The x axis represents the time of collection of drifting sediment traps and is discontinuous. Grey filling indicate night-time collection of particles.

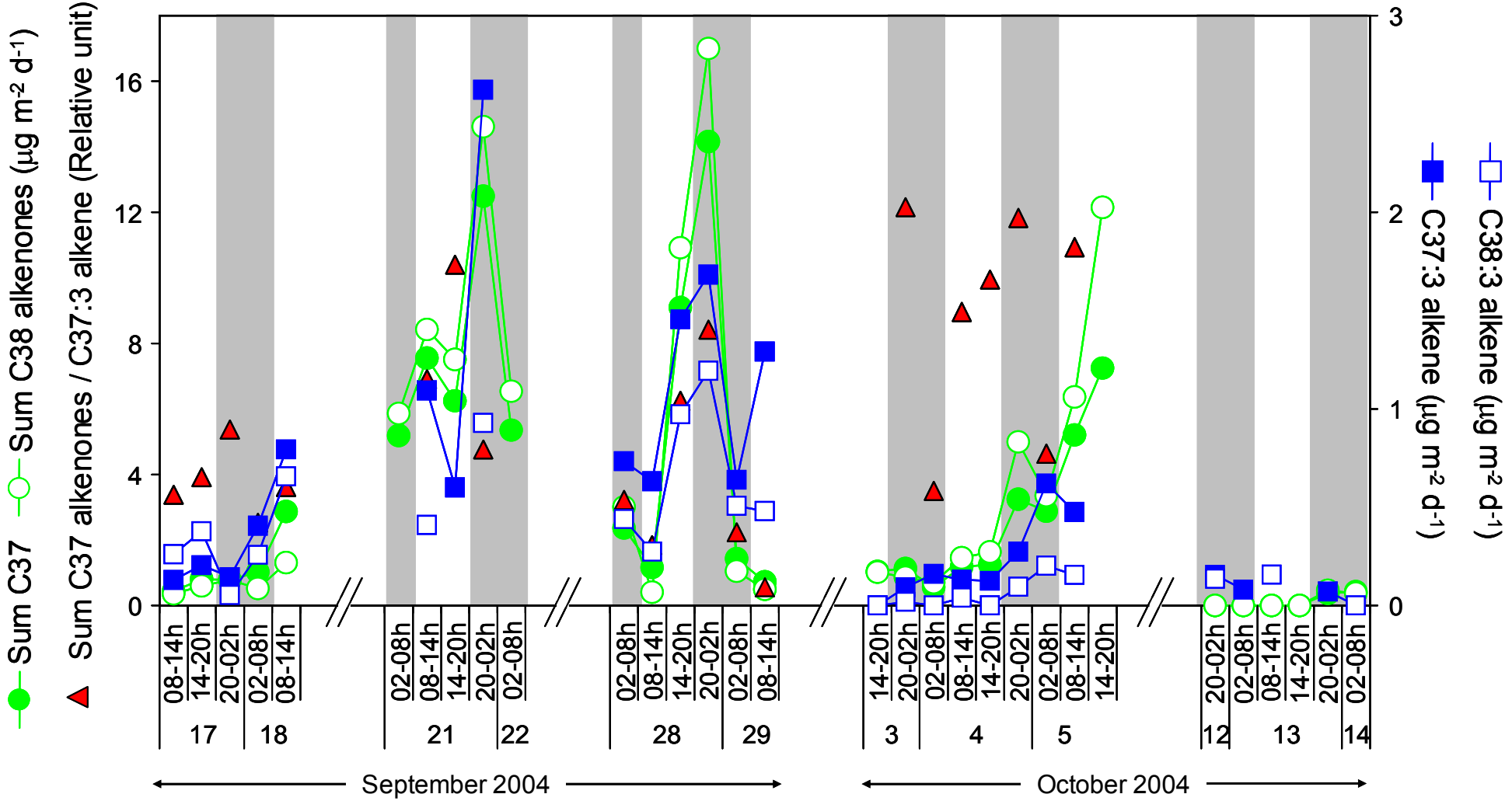

Figure S3. Average composition of sterols. Sterol abundance are given in percent of all identified compounds in the alcohol fractions: sterols, *n*-alkanols, alkane diols, hydroxy alkenones and steroidal ketones. Sterols percentages of the 31 samples analyzed have been averaged. The error bars represent the standard deviation of percentages of the 31 samples."

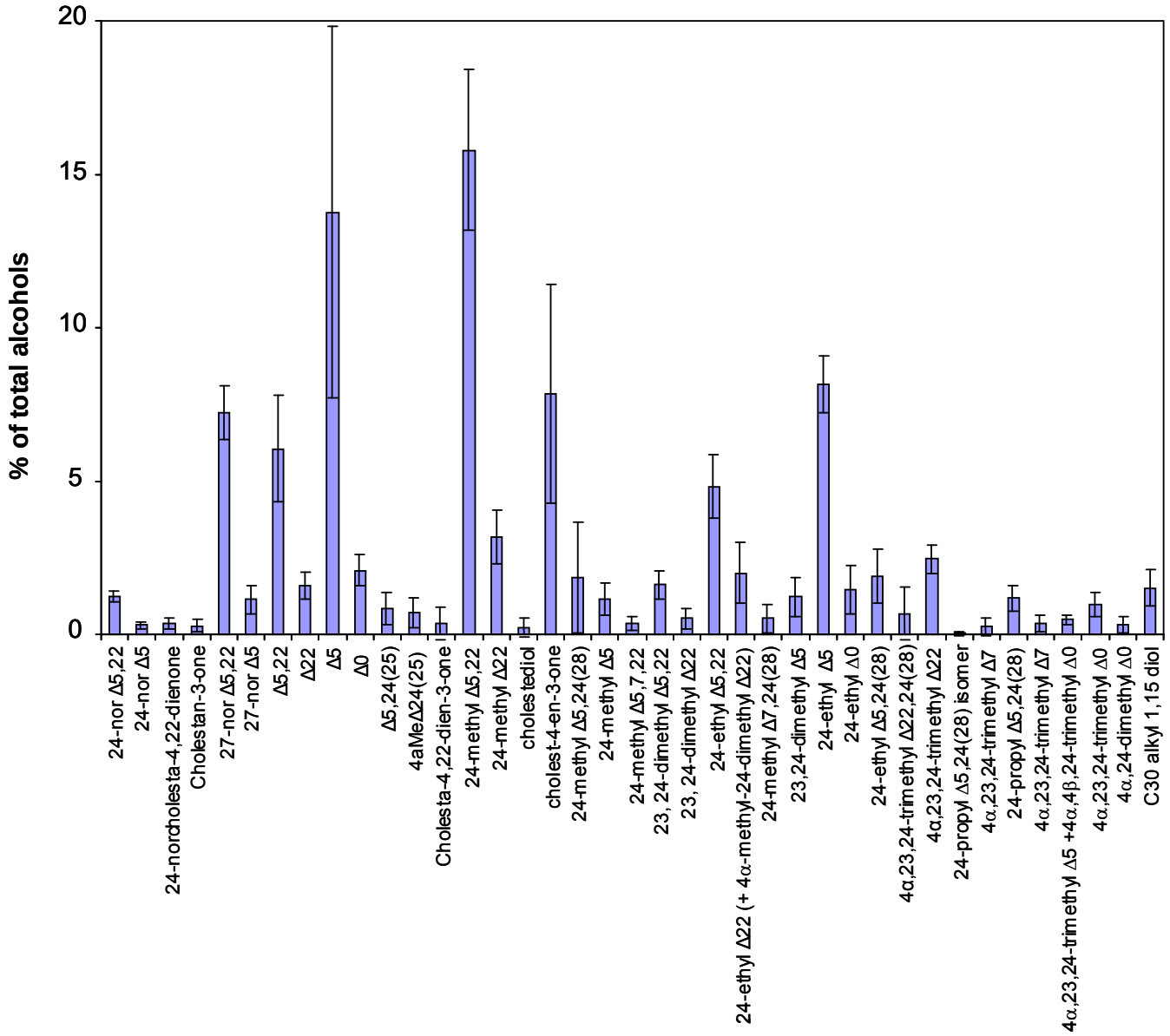

Figure S4. Time series fluxes of phaeopigments and of sterols during DYNAPROC 2. Phaeopigments flux is from Marty et al. (2009).