Supporting Information for

The Amazon River – a major source of organic plastic additives to the tropical North Atlantic?

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CONTENTS: 26 pages including 1 text, 6 figures and 7 tables.

SUPPLEMENTARY TEXTS

Text S1: Method details concerning GC-MS and LC-HRMS analysis.

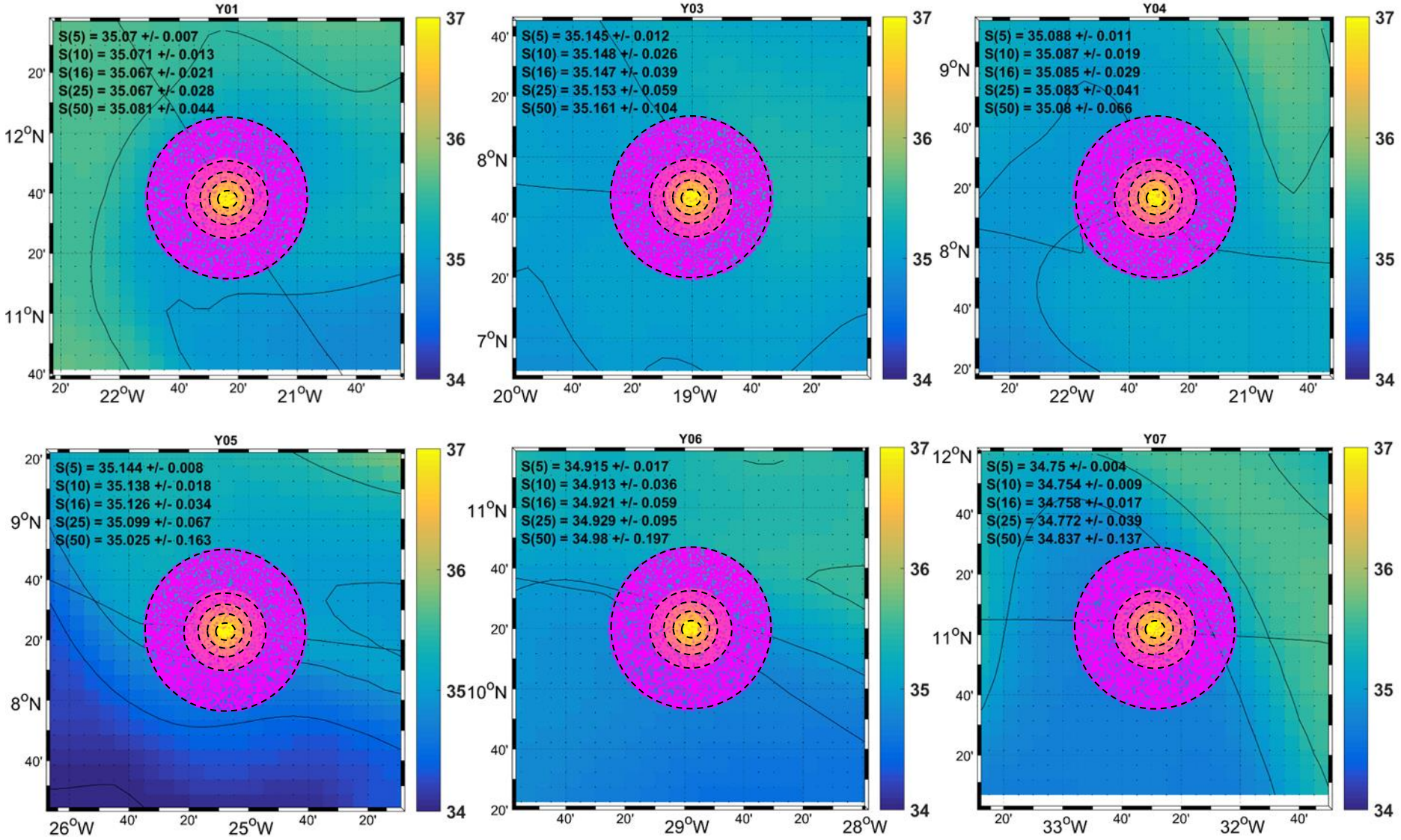
GC-MS analysis (Organophosphate ester analysis)

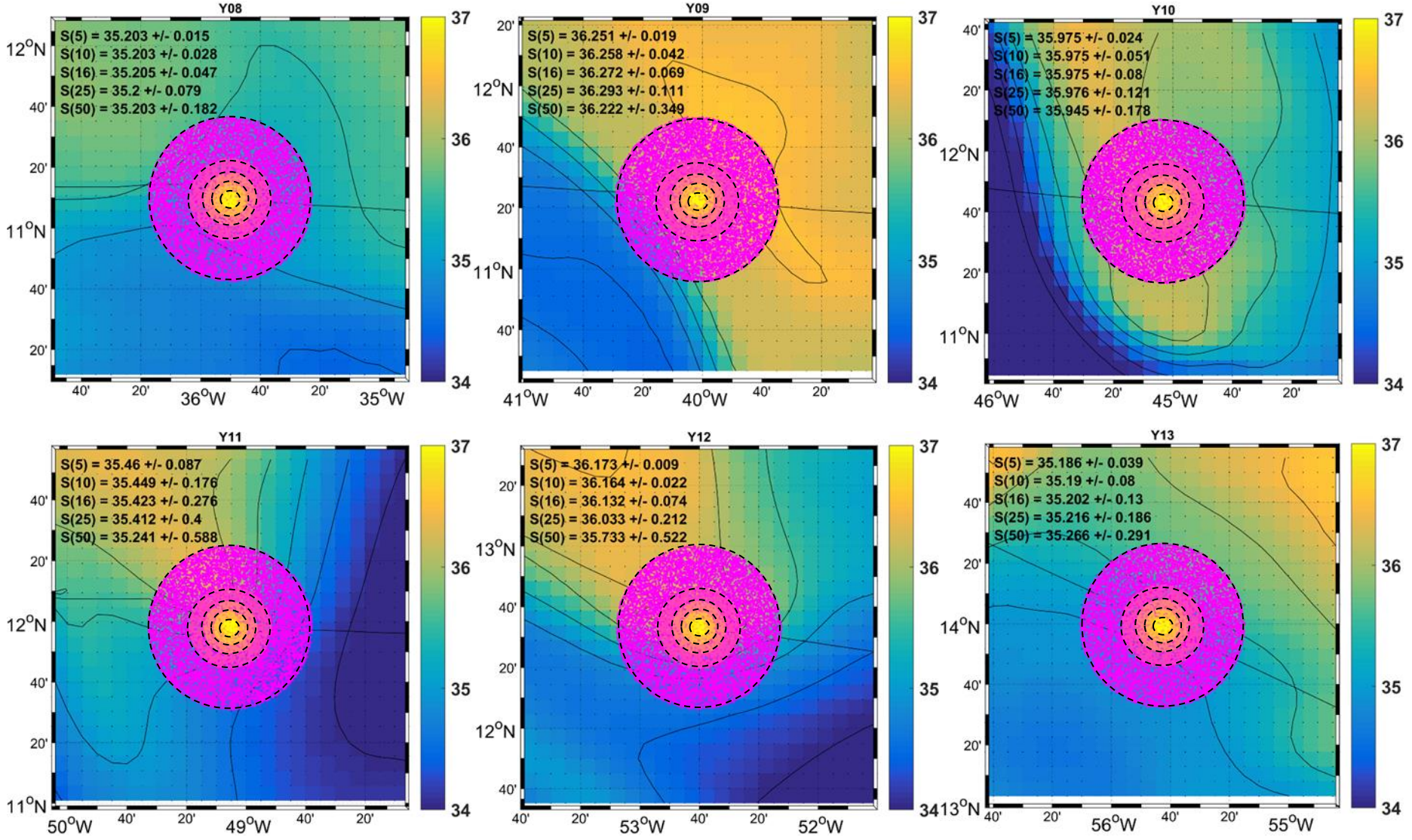
GC analyses were conducted with an Agilent 7820A Series GC coupled with an Agilent 5977E MS, operating in SIM and electron impact (EI, 70 eV) modes. The separation was achieved in a 30 m x 0.25 mm i.d. x 0.25 µm HP-5MS capillary column (Agilent J&W). All target contaminants were quantified by the internal standard (IS) procedure. The injection volume was 2 µL and the helium carrier gas flow was 1 mL min^{-1}. The temperatures of the MS transfer line, the ion source and the quadrupole was set to 300, 230 and 150 ºC, respectively. The following conditions were applied: injector temperature: 270 ºC (splitless) and the oven was programmed from 90 ºC to 132 ºC at 3 ºC min^{-1}, to 166 ºC at 10 ºC min^{-1}, to 175 at 1 ºC min^{-1} (holding time 2 min), to 232 ºC at 2 ºC min^{-1}, and then to 300 °C at 25 ºC min^{-1} (holding time 5 min).

LC-QTOF analysis (bisphenol and perfluorinated compound analysis)

Ten microliters of the extract were injected for simultaneous quantification of BPs and PFCs using LC-electrospray ionization quadrupole time of flight mass spectrometry (LC-ESI-QTOF, Agilent 1290 Infinity LC system coupled with Agilent 6530 Accurate-Mass Q-TOF, Agilent Technologies, Les Ulis, France). The syringe was washed externally with MeOH for 20 s before injection to avoid contamination of the injection port or following samples. Separation was achieved on an Agilent Zorbax Eclipse XDB reversed phase column (50 mm x 2.1 mm, 1.8 µm), with the temperature set at 30 °C. Elution was performed with MQ (A) and MeOH (B) under gradient conditions: 0 min 95:5 A/B, 1 min 95:5 A/B, 10 min 0:100 A/B, 15 min 0:100 A/B, 15.1 min 95:5 A/B, 20 min 95:5 A/B. ESI interface was operated in negative mode (3.5 kV capillary voltage), and MS TOF mass acquisition was performed in the range of 50-600 m/z at a rate of 1 spectrum s^{-1}. ESI parameters were set as follows: 300 °C gas temperature, 11 L min^{-1} drying gas, 40 psig nebulizer, 350 °C sheath gas temperature, 11 L min^{-1} sheath gas flow. TOF parameters were: 1500 V nozzle voltage, 175 V fragmentor voltage, 65 V skimmer voltage, 750 V octopole voltage. Ion chromatogram extraction was performed with 10 ppm mass tolerance, based on exact monoisotopic mass and retention time.

SUPPLEMENTARY FIGURES




Y08
S(5) = 35.203 +/- 0.015
S(10) = 35.203 +/- 0.028
S(16) = 35.205 +/- 0.047
S(25) = 35.2 +/- 0.079
S(50) = 35.203 +/- 0.182
12°N
40'
20'
11°N
40'
20'
40'
20'
36°W
40'
20'
35°W
37
36
35
34
Y09
S(5) = 36.251 +/- 0.019
S(10) = 36.258 +/- 0.042
S(16) = 36.272 +/- 0.069
S(25) = 36.293 +/- 0.111
S(50) = 36.222 +/- 0.349
20'
12°N
40'
20'
11°N
40'
41°W
40'
20'
40°W
40'
20'
37
36
35
34
Y10
S(5) = 35.975 +/- 0.024
S(10) = 35.975 +/- 0.051
S(16) = 35.975 +/- 0.08
S(25) = 35.976 +/- 0.121
S(50) = 35.945 +/- 0.178
40'
20'
12°N
40'
20'
11°N
46°W
40'
20'
45°W
40'
20'
37
36
35
34
Y11
S(5) = 35.46 +/- 0.087
S(10) = 35.449 +/- 0.176
S(16) = 35.423 +/- 0.276
S(25) = 35.412 +/- 0.4
S(50) = 35.241 +/- 0.588
40'
20'
12°N
40'
20'
11°N
50°W
40'
20'
49°W
40'
20'
37
36
35
34
Y12
S(5) = 36.173 +/- 0.009
S(10) = 36.164 +/- 0.022
S(16) = 36.132 +/- 0.074
S(25) = 36.033 +/- 0.212
S(50) = 35.733 +/- 0.522
20'
13°N
40'
20'
12°N
40'
40'
20'
53°W
40'
20'
52°W
37
36
35
34
Y13
S(5) = 35.186 +/- 0.039
S(10) = 35.19 +/- 0.08
S(16) = 35.202 +/- 0.13
S(25) = 35.216 +/- 0.186
S(50) = 35.266 +/- 0.291
40'
20'
14°N
40'
20'
13°N
40'
20'
56°W
40'
20'
55°W
37
36
35
34

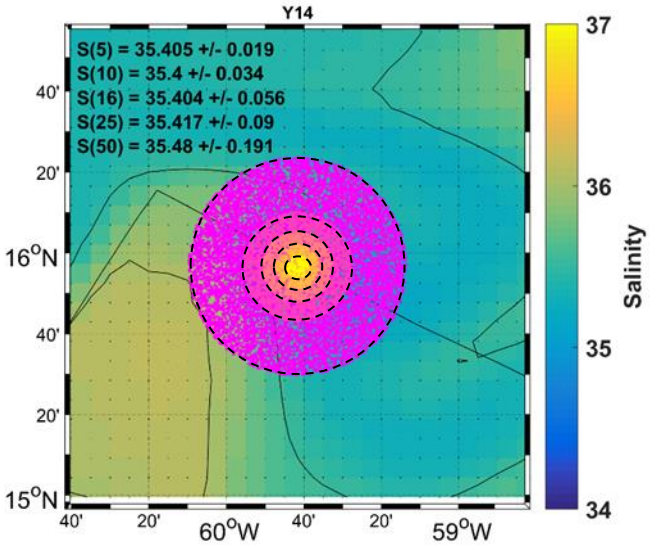


Figure S1: Comparisons between salinity maps of stations Y01-Y14 and different sizes of seeded particle patches (5 km, 10 km, 16 km, 25 km and 50 km). For each patch size, the mean salinity inside the patch and the standard deviation are reported. Black solid lines represent salinity contours for salinity values of 34, 35, 36 and 37. It can be observed that for a patch radius of 50 km, the particles are seeded over a high range of salinities, likely representing different water masses.

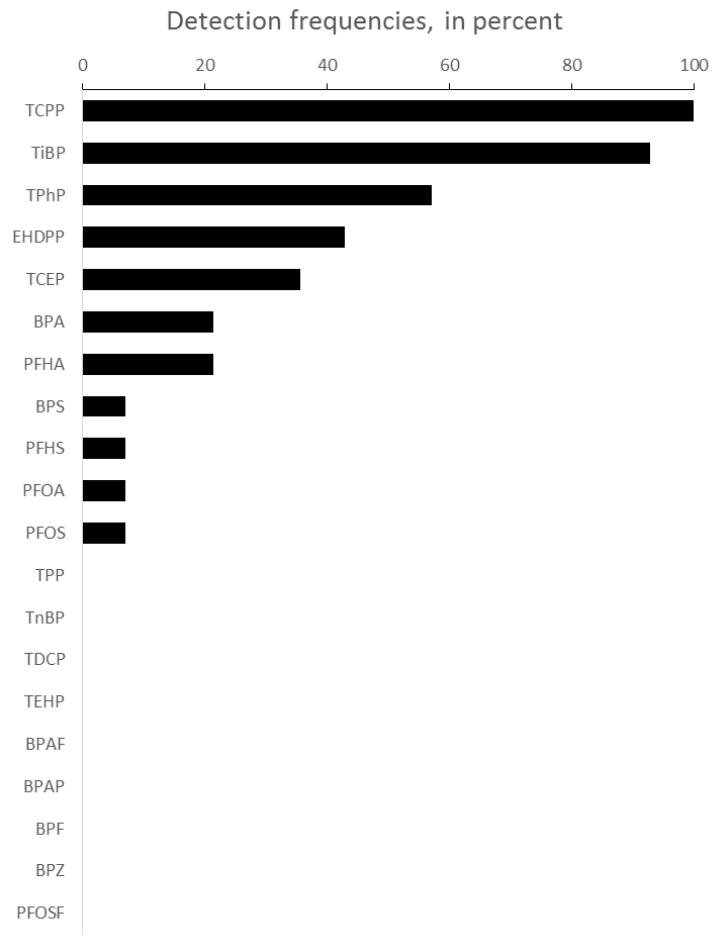
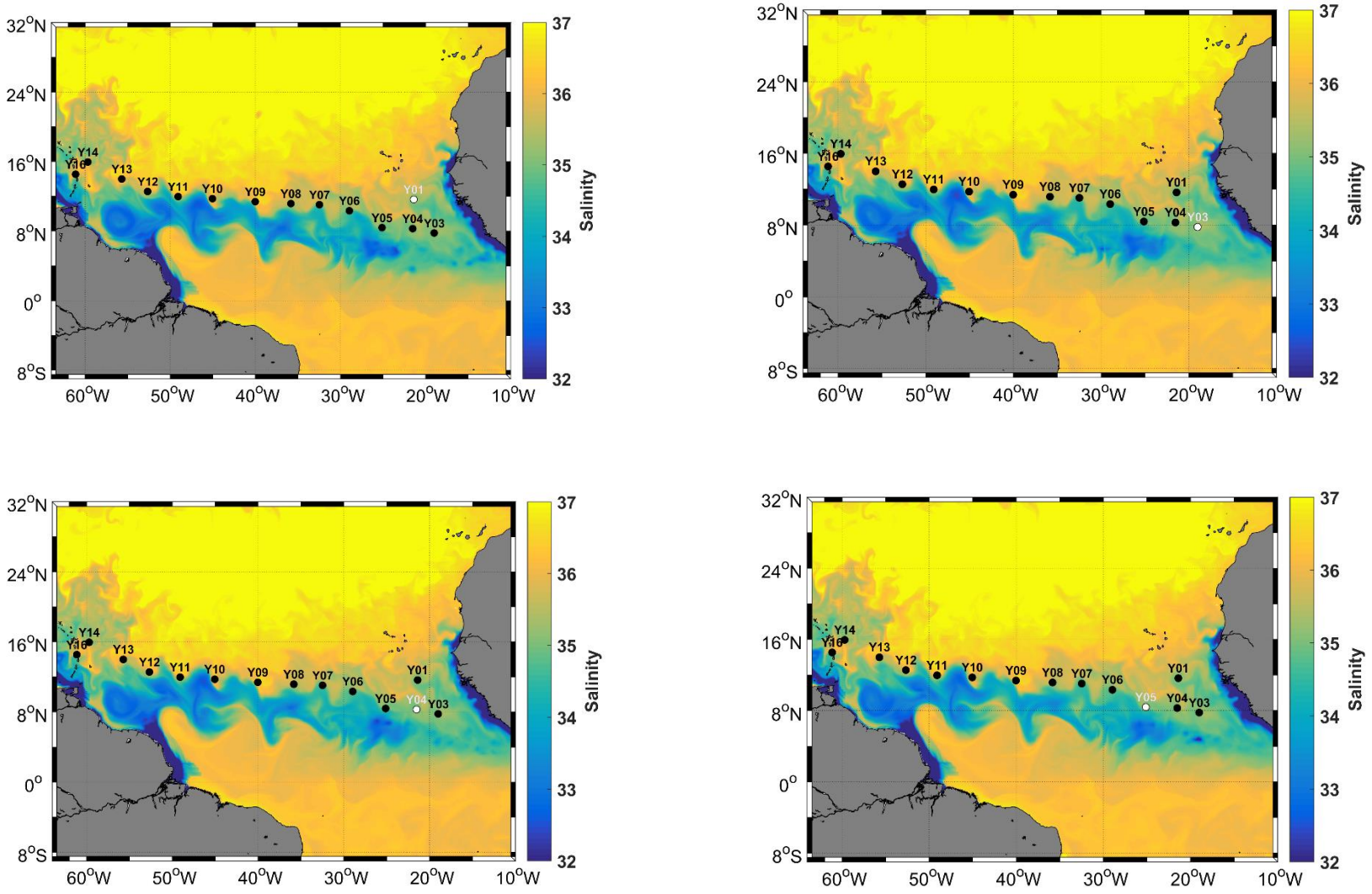
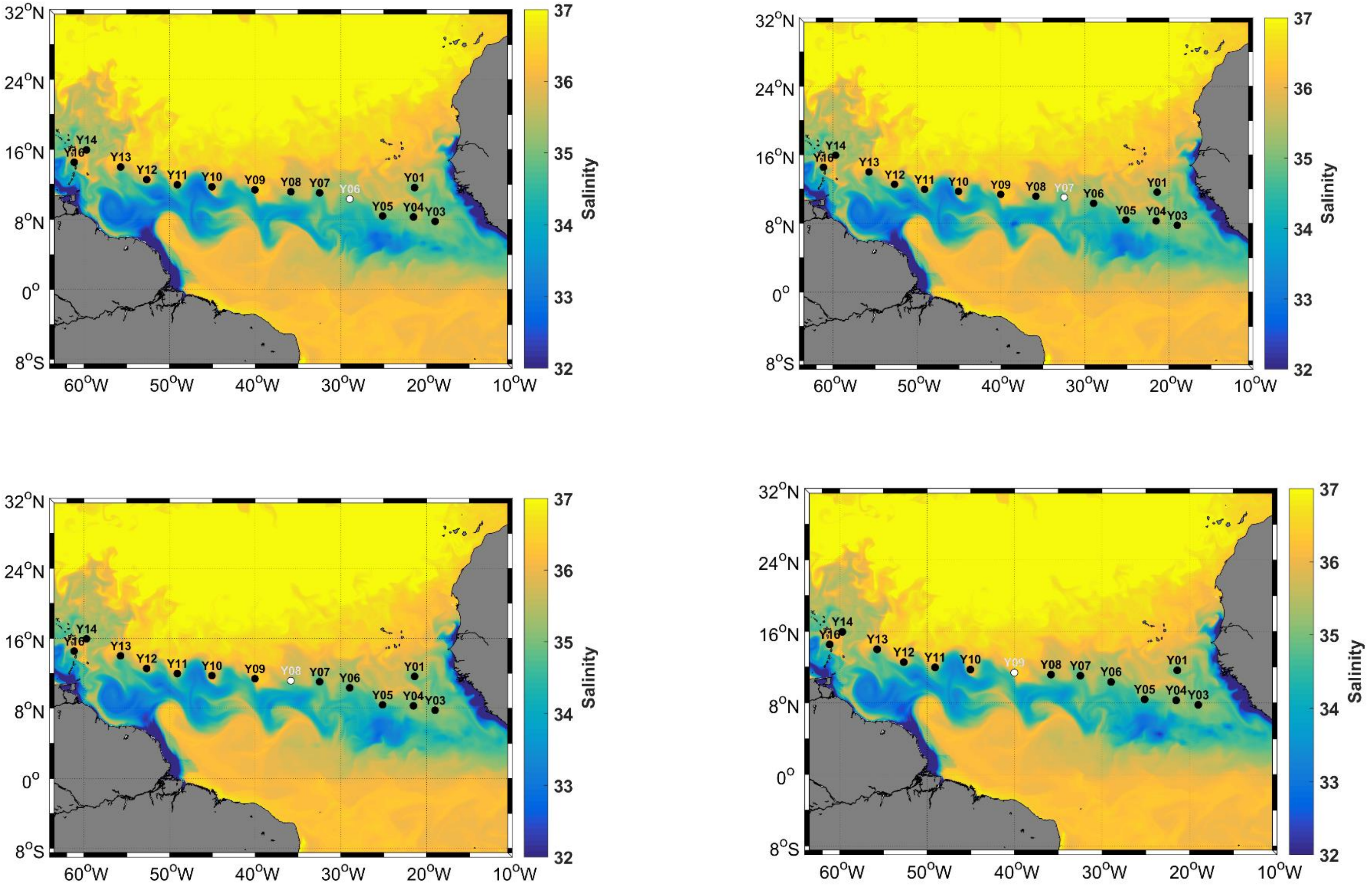
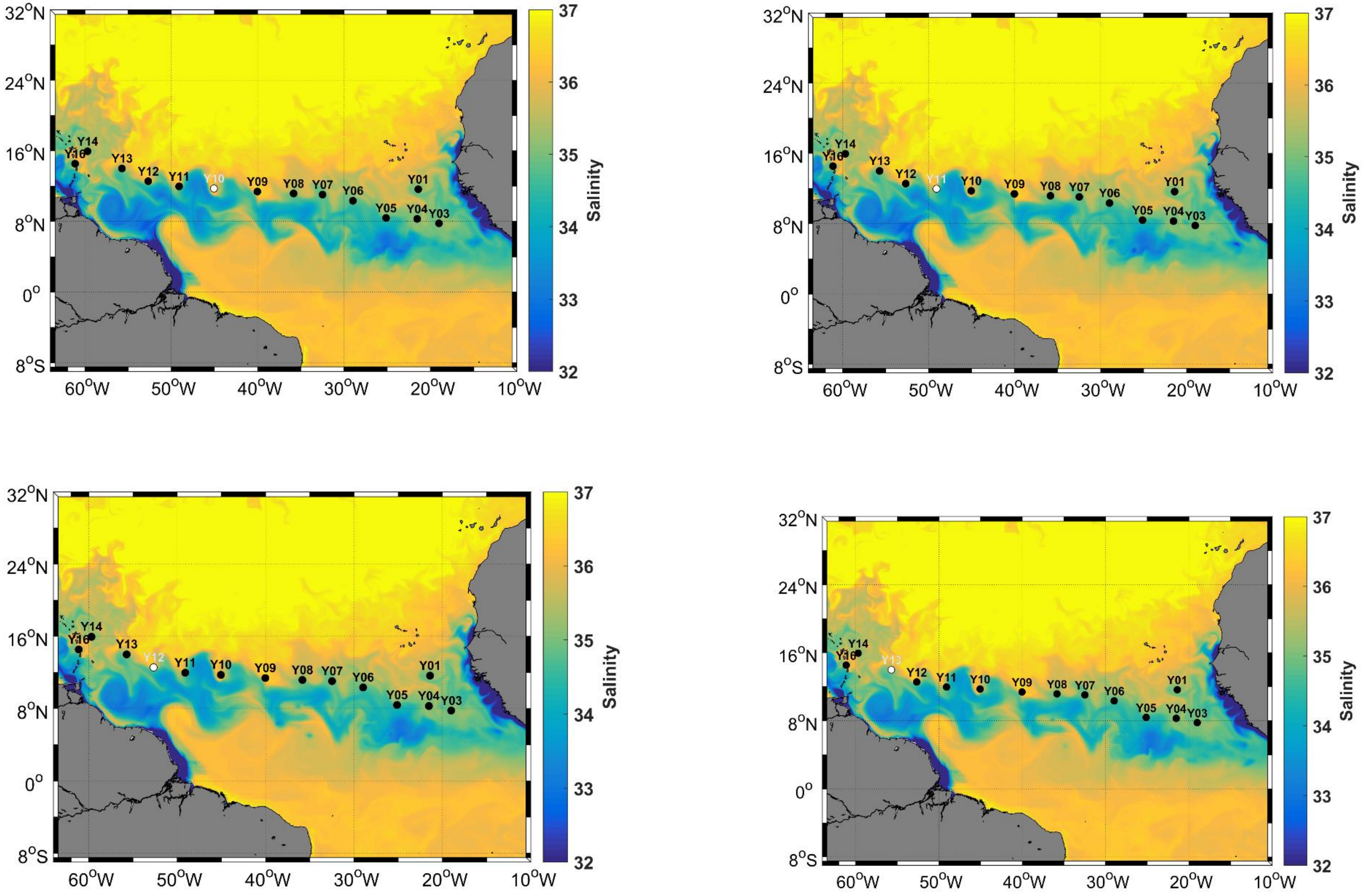


Figure S2: Detection frequencies (in %) of the 20 organic compounds analyzed. Abbreviations: TPP: Tripropyl phosphate, TiBP: Tri-iso-buthyl phosphate, TnBP: Tri-n-butyl phosphate, TCEP: Tris-(2-chloroethyl) phosphate, TCPP: Tris-(2-chloro, 1-methylethyl) phosphate, TDCP: Tris-(2-chloro-, 1-chloromethylethyl) phosphate, TPhP: Triphenyl phosphate, EHDPP: 2-ethylhexyl-diphenyl phosphate, TEHP: Tris(2-ethylhexyl) phosphate, BPA: Bisphenol A, BPAF: Bisphenol AF, BPAP: Bisphenol AP, BPF: Bisphenol F, BPS: Bisphenol S, BPZ: Bisphenol Z, PFHA: Perfluoro hexanoic acid, PFHS: Perfluorohexane sulfonic acid, PFOA: Perfluorooctanoic acid, PFOS: Perfluorooctane sulfonic acid, PFOSF: Perfluoro octane sulfonyl fluoride.


32°N
24°N
16°N
8°N
0°
8°S
60°W
50°W
40°W
30°W
20°W
10°W
Y01
Y03
Y04
Y05
Y06
Y07
Y08
Y09
Y10
Y11
Y12
Y13
Y14
Y16
Salinity
37
36
35
34
33
32


32°N
24°N
16°N
8°N
0°
8°S
60°W
50°W
40°W
30°W
20°W
10°W
Salinity
37
36
35
34
33
32
Y14
Y16
Y13
Y12
Y11
Y10
Y09
Y08
Y07
Y06
Y05
Y04
Y03
Y01


32°N
24°N
16°N
8°N
0°
8°S
60°W
50°W
40°W
30°W
20°W
10°W
Y01
Y03
Y04
Y05
Y06
Y07
Y08
Y09
Y10
Y11
Y12
Y13
Y14
Y16
Salinity
37
36
35
34
33
32

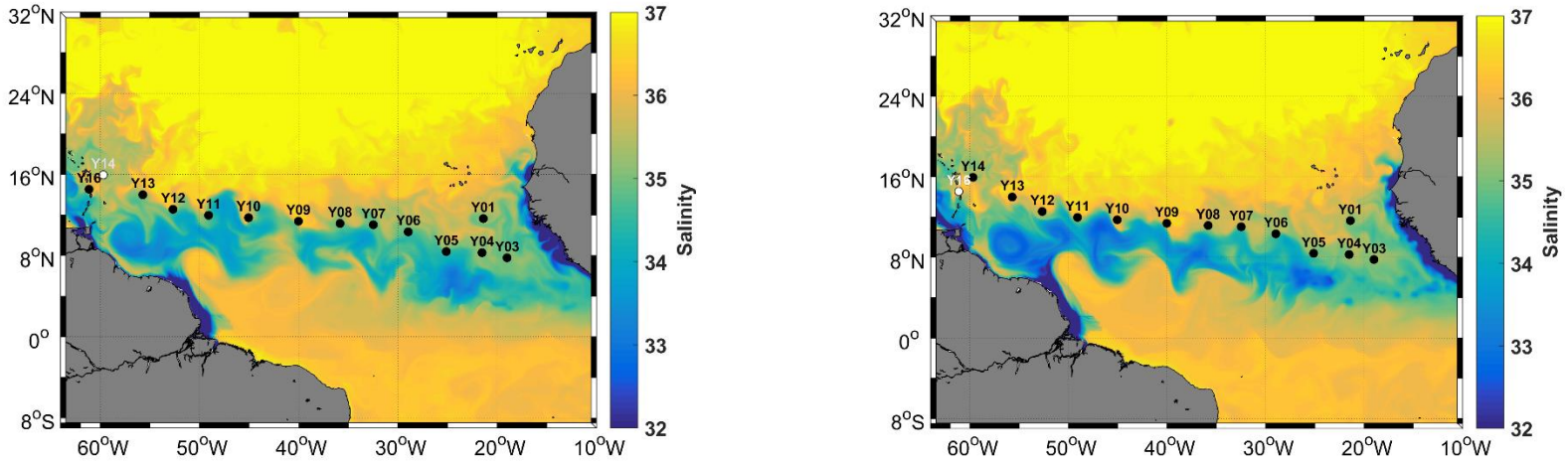


Figure S3: Spatial salinity distribution of the surface waters of the study area during each sampling day. The stations indicated in white are the ones sampled the day from which the MERCATOR salinity data originates.

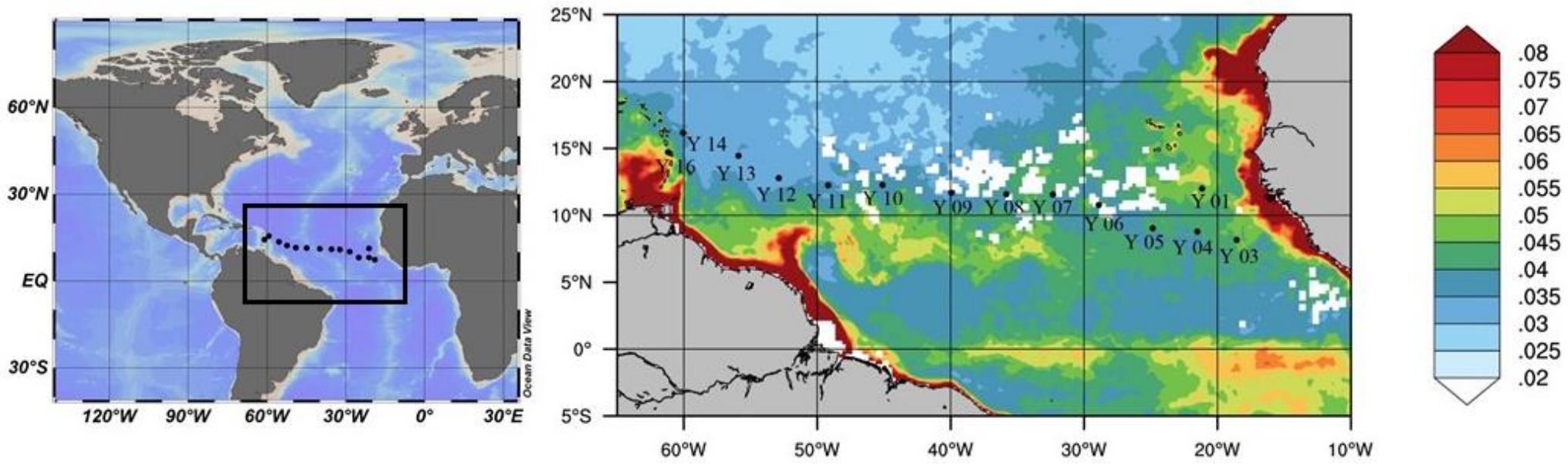
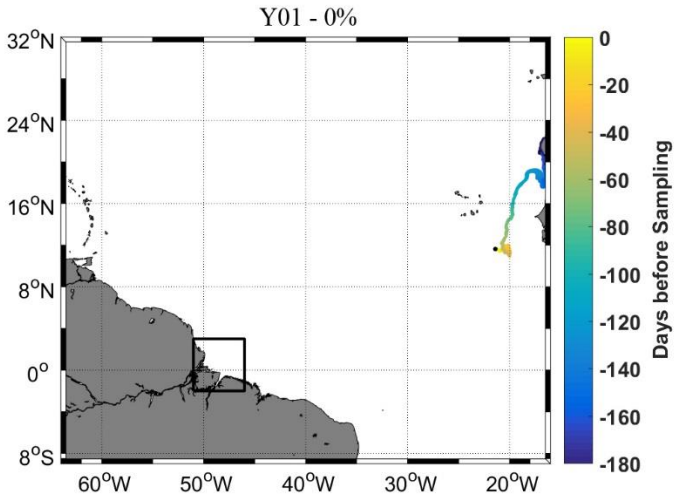
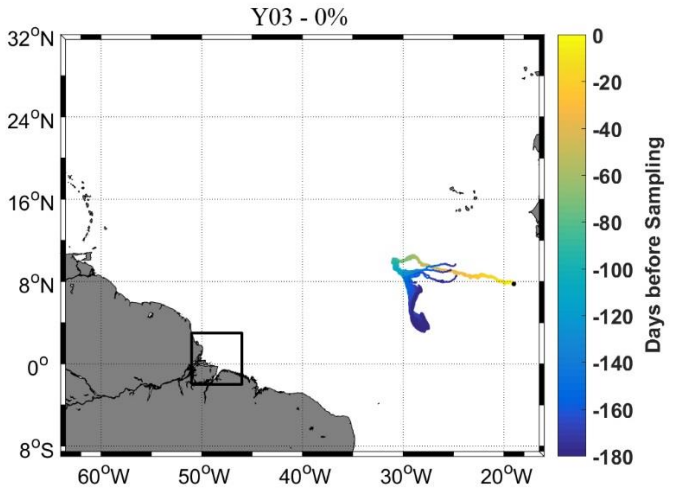
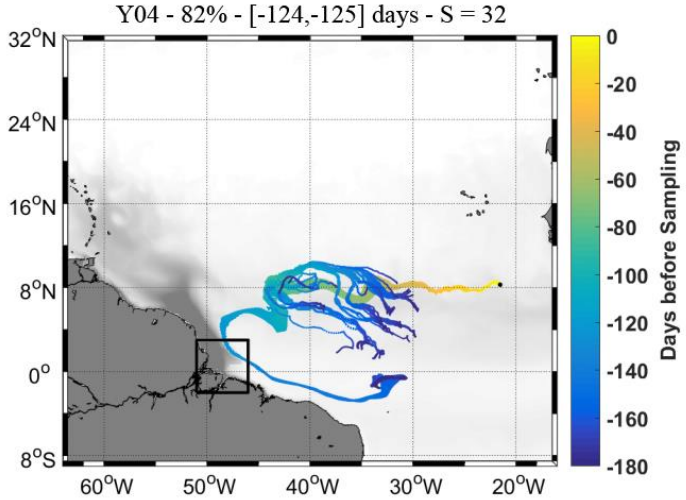
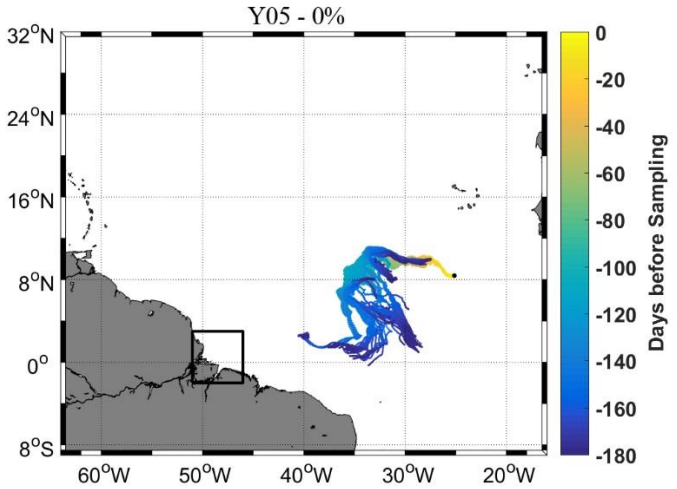


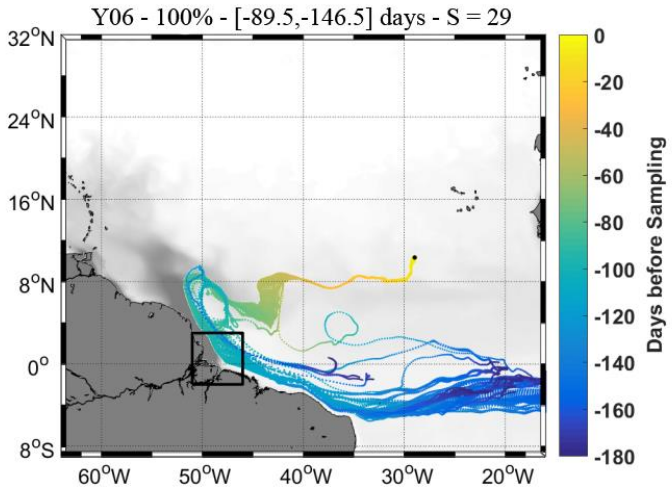
Figure S4: Map showing the position of the sampling area (left) and a zoom (right) showing the sampling stations with the spatial distribution of Kd490 (unit 1/m) in October 2017. Kd490 is a proxy for colored suspended matter and can be used to assess the chlorophyll a distribution.

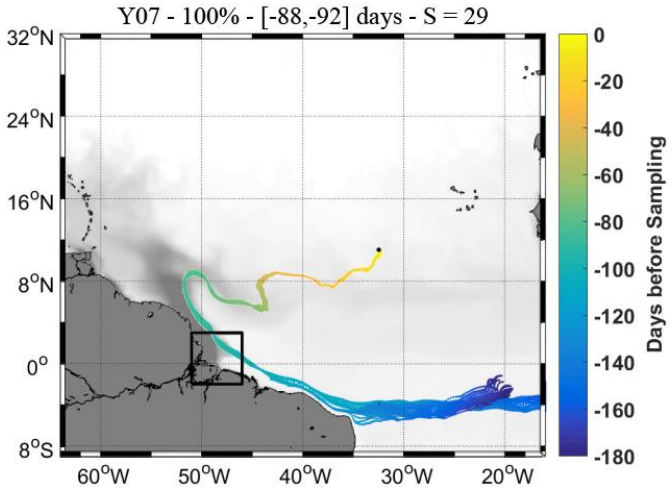

Y01 - 0%
32°N
24°N
16°N
8°N
0°
8°S
60°W
50°W
40°W
30°W
20°W
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
Days before Sampling

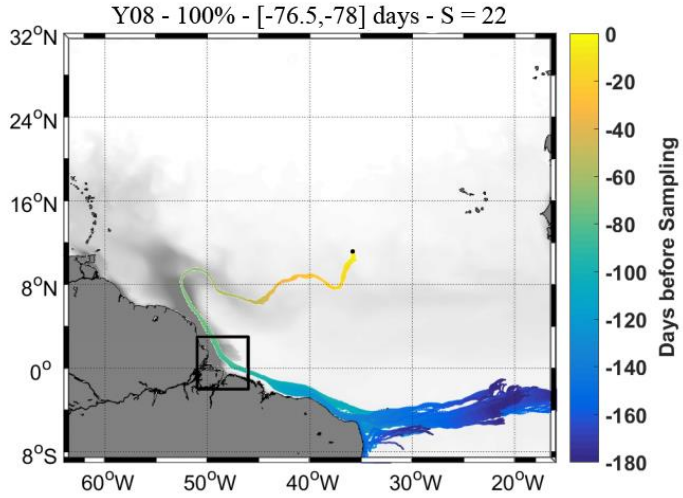

Y03 - 0%
32°N
24°N
16°N
8°N
0°
8°S
60°W
50°W
40°W
30°W
20°W
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
Days before Sampling

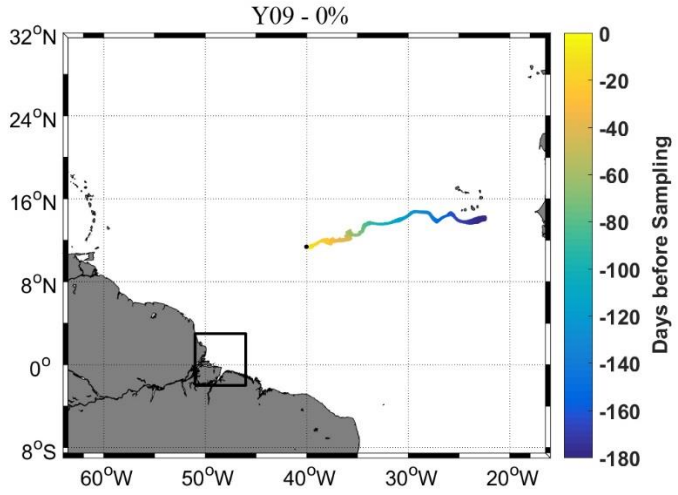

Y04 - 82% - [-124,-125] days - S = 32
32°N
24°N
16°N
8°N
0°
8°S
60°W
50°W
40°W
30°W
20°W
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
Days before Sampling

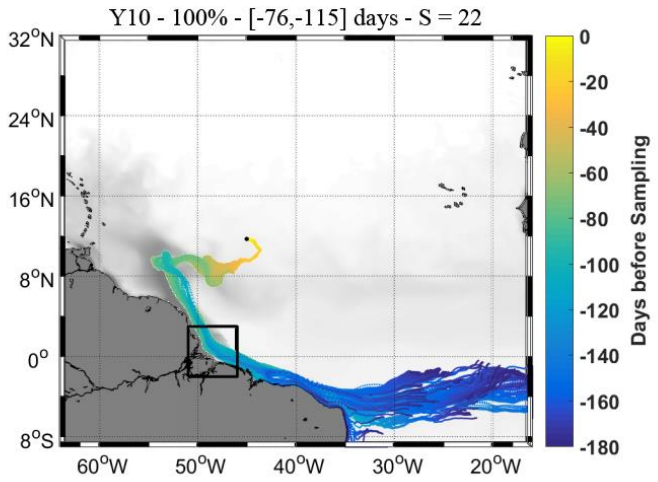

Y05 - 0%
32°N
24°N
16°N
8°N
0°
8°S
60°W
50°W
40°W
30°W
20°W
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
Days before Sampling

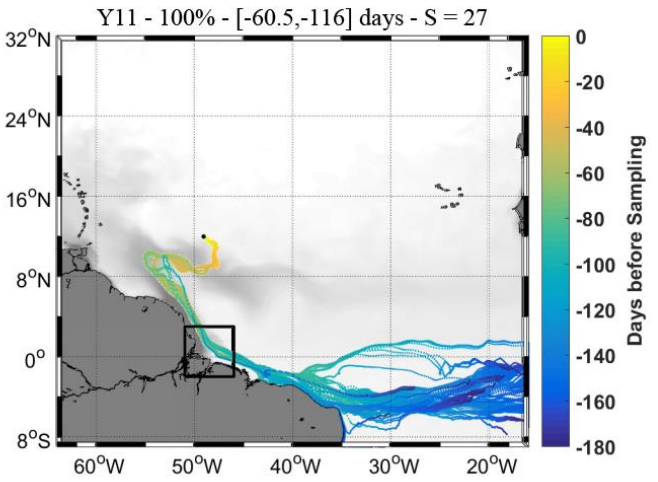

Y06 - 100% - [-89.5,-146.5] days - S = 29
32°N
24°N
16°N
8°N
0°
8°S
60°W
50°W
40°W
30°W
20°W
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
Days before Sampling

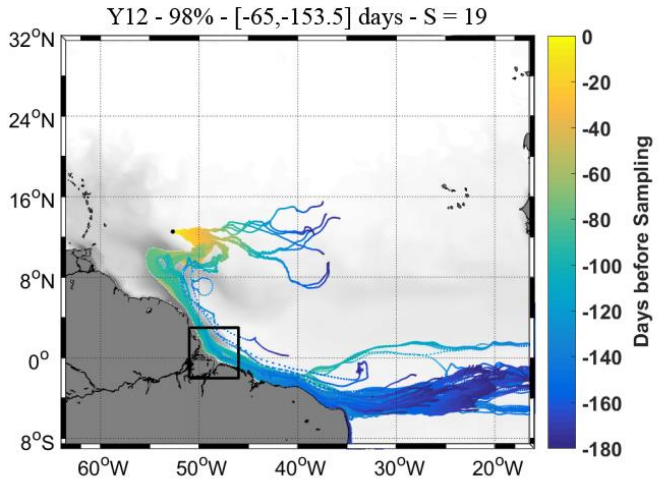

Y07 - 100% - [-88,-92] days - S = 29
32°N
24°N
16°N
8°N
0°
8°S
60°W
50°W
40°W
30°W
20°W
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
Days before Sampling

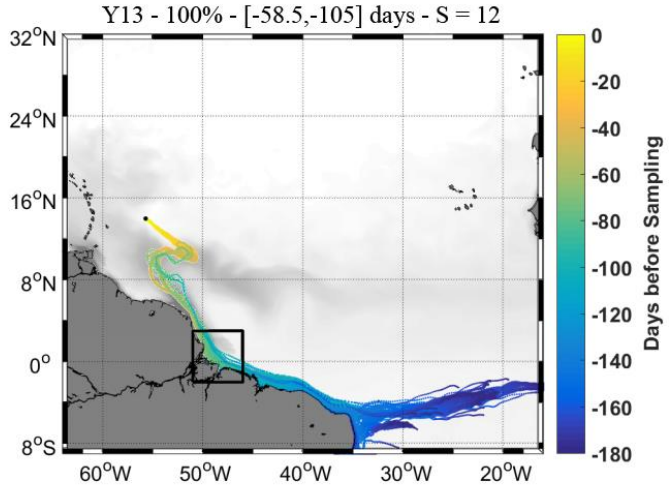

Y08 - 100% - [-76.5,-78] days - S = 22
32°N
24°N
16°N
8°N
0°
8°S
60°W
50°W
40°W
30°W
20°W
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
Days before Sampling


Y09 - 0%
32°N
24°N
16°N
8°N
0°
8°S
60°W
50°W
40°W
30°W
20°W
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
Days before Sampling


Y10 - 100% - [-76,-115] days - S = 22
32°N
24°N
16°N
8°N
0°
8°S
60°W
50°W
40°W
30°W
20°W
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
Days before Sampling


Y11 - 100% - [-60.5,-116] days - S = 27
32°N
24°N
16°N
8°N
0°
8°S
60°W
50°W
40°W
30°W
20°W
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
Days before Sampling


Y12 - 98% - [-65,-153.5] days - S = 19
32°N
24°N
16°N
8°N
0°
8°S
60°W
50°W
40°W
30°W
20°W
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
Days before Sampling


Y13 - 100% - [-58.5,-105] days - S = 12
32°N
24°N
16°N
8°N
0°
8°S
60°W
50°W
40°W
30°W
20°W
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
Days before Sampling

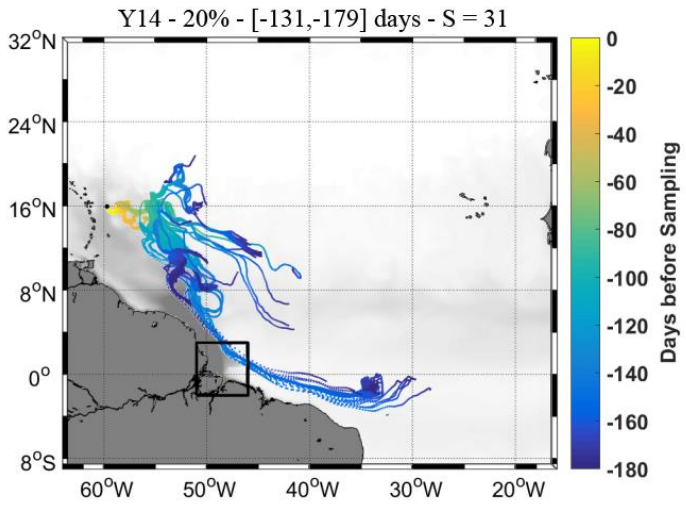
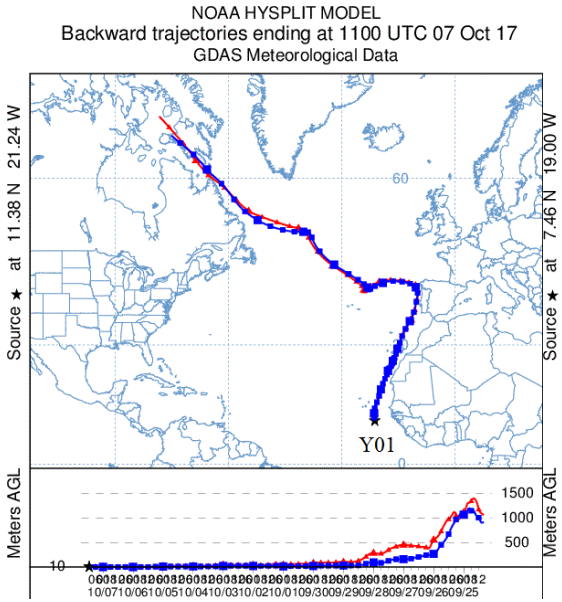
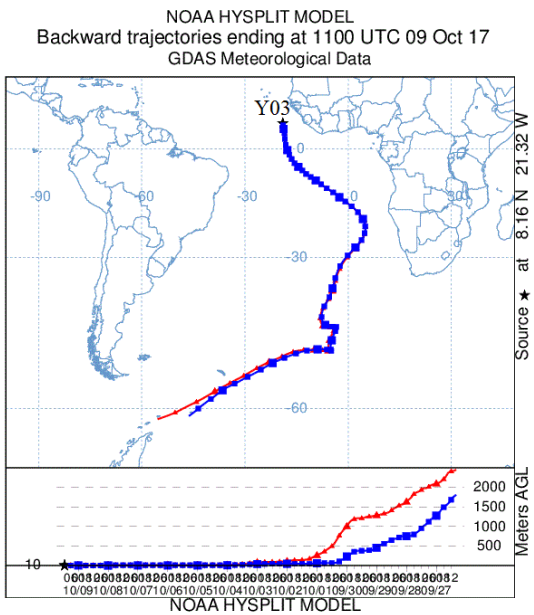
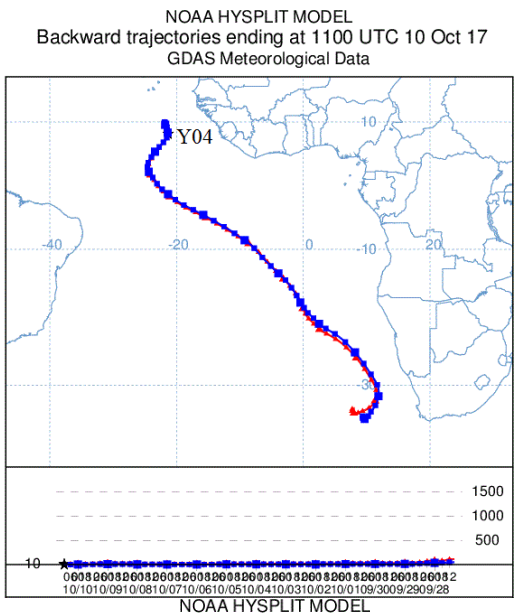
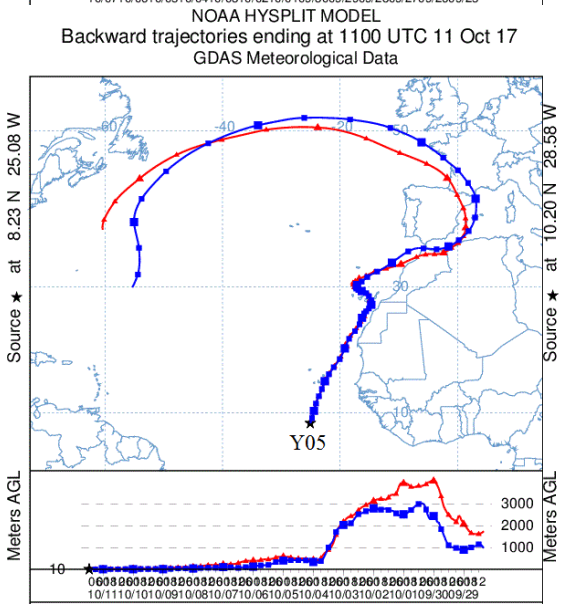


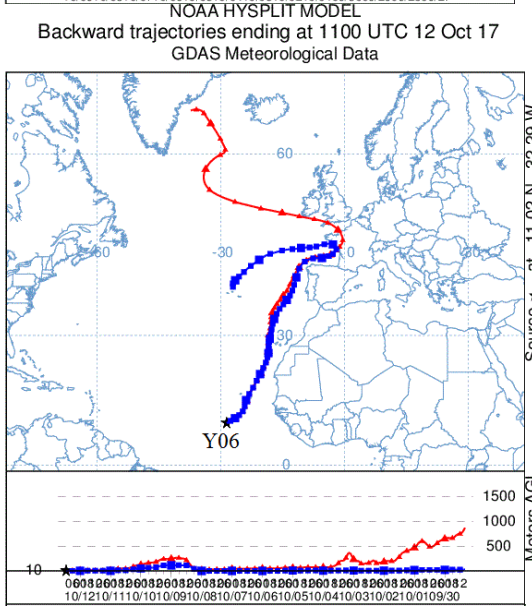
Figure S5: Water mass backwards trajectories of all stations (Y01-Y14, from upper left to lower right) except Y16, which is too close to the coast for reliable simulation results. Each map has a caption indicating the station ID, the percentage of particles that passed through the black box (indicating the Amazon Estuary) and the number of days that passed between the sampling of the water masses and their journey in the black box (indicated in brackets). The minimum of salinity (S) reached by particles during their journey in the black box is indicated as well as the river plume (in grey).

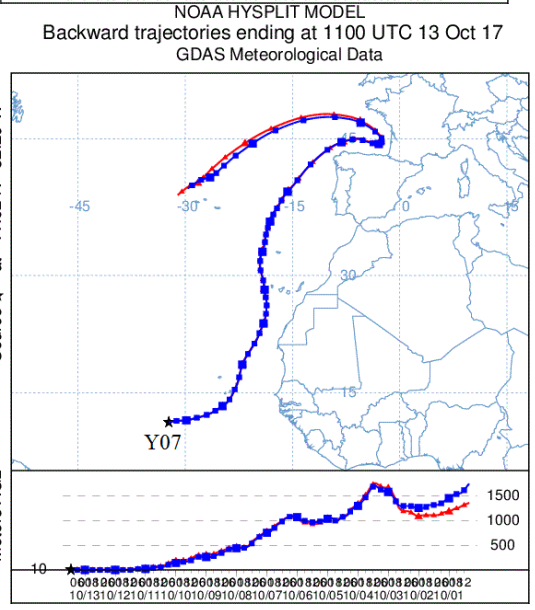

NOAA HYSPLIT MODEL
Backward trajectories ending at 1100 UTC 07 Oct 17
GDAS Meteorological Data
Source ★ at 11.38 N 21.24 W
Y01
Meters AGL
1500
1000
500
10
10/0710/0610/0510/0410/0310/0210/0109/3009/2909/2809/2709/2609/25

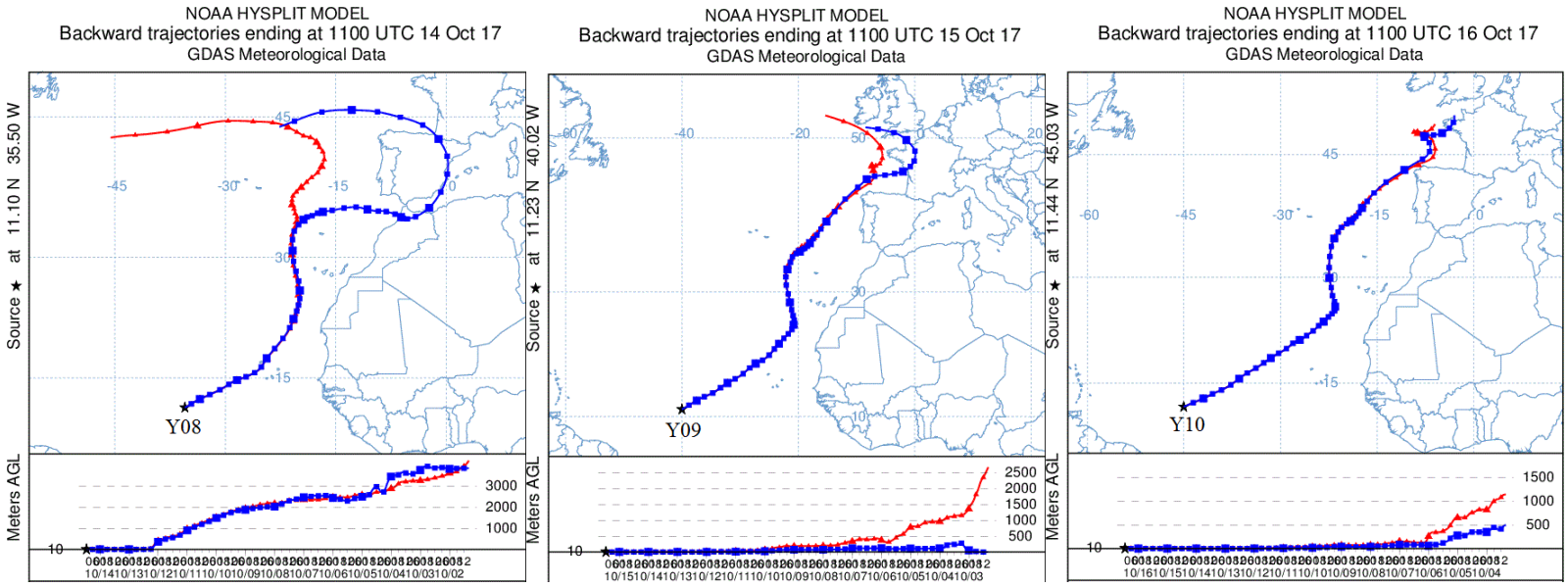

NOAA HYSPLIT MODEL
Backward trajectories ending at 1100 UTC 09 Oct 17
GDAS Meteorological Data
Source ★ at 7.46 N 19.00 W
Y03
Meters AGL
2000
1500
1000
500
10
10/0910/0810/0710/0610/0510/0410/0310/0210/0109/3009/2909/2809/27

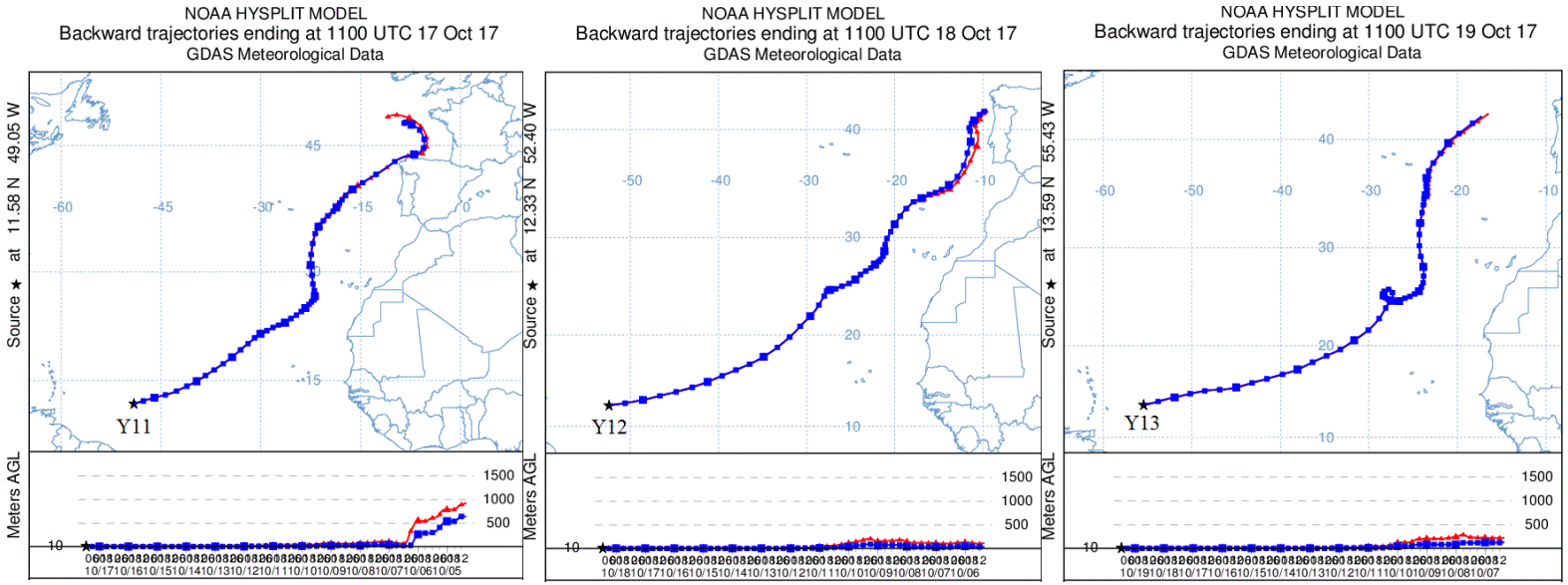

NOAA HYSPLIT MODEL
Backward trajectories ending at 1100 UTC 10 Oct 17
GDAS Meteorological Data
Source ★ at 8.16 N 21.32 W
Y04
Meters AGL
1500
1000
500
10
10/1010/0910/0810/0710/0610/0510/0410/0310/0210/0109/3009/2909/28


NOAA HYSPLIT MODEL
Backward trajectories ending at 1100 UTC 11 Oct 17
GDAS Meteorological Data
Source ★ at 8.23 N 25.08 W
Y05
Meters AGL
3000
2000
1000
10
10/1110/1010/0910/0810/0710/0610/0510/0410/0310/0210/0109/3009/29


NOAA HYSPLIT MODEL
Backward trajectories ending at 1100 UTC 12 Oct 17
GDAS Meteorological Data
Source ★ at 10.20 N 28.58 W
Y06
Meters AGL
1500
1000
500
10
10/1210/1110/1010/0910/0810/0710/0610/0510/0410/0310/0210/0109/30


NOAA HYSPLIT MODEL
Backward trajectories ending at 1100 UTC 13 Oct 17
GDAS Meteorological Data
Source ★ at 11.02 N 32.29 W
Y07
Meters AGL
1500
1000
500
10
10/1310/1210/1110/1010/0910/0810/0710/0610/0510/0410/0310/0210/01


NOAA HYSPLIT MODEL
Backward trajectories ending at 1100 UTC 14 Oct 17
GDAS Meteorological Data
Source ★ at 11.10 N 35.50 W
Y08
Meters AGL
3000
2000
1000
10
10/1410/1310/1210/1110/1010/0910/0810/0710/0610/0510/0410/0310/02
NOAA HYSPLIT MODEL
Backward trajectories ending at 1100 UTC 15 Oct 17
GDAS Meteorological Data
Source ★ at 11.23 N 40.02 W
Y09
Meters AGL
2500
2000
1500
1000
500
10
10/1510/1410/1310/1210/1110/1010/0910/0810/0710/0610/0510/0410/03
NOAA HYSPLIT MODEL
Backward trajectories ending at 1100 UTC 16 Oct 17
GDAS Meteorological Data
Source ★ at 11.44 N 45.03 W
Y10
Meters AGL
1500
1000
500
10
10/1610/1510/1410/1310/1210/1110/1010/0910/0810/0710/0610/0510/04


NOAA HYSPLIT MODEL
Backward trajectories ending at 1100 UTC 17 Oct 17
GDAS Meteorological Data
Source ★ at 11.58 N 49.05 W
Y11
Meters AGL
1500
1000
500
10
10/1710/1610/1510/1410/1310/1210/1110/1010/0910/0810/0710/0610/05
NOAA HYSPLIT MODEL
Backward trajectories ending at 1100 UTC 18 Oct 17
GDAS Meteorological Data
Source ★ at 12.33 N 52.40 W
Y12
Meters AGL
1500
1000
500
10
10/1810/1710/1610/1510/1410/1310/1210/1110/1010/0910/0810/0710/06
NOAA HYSPLIT MODEL
Backward trajectories ending at 1100 UTC 19 Oct 17
GDAS Meteorological Data
Source ★ at 13.59 N 55.43 W
Y13
Meters AGL
1500
1000
500
10
10/1910/1810/1710/1610/1510/1410/1310/1210/1110/1010/0910/0810/07

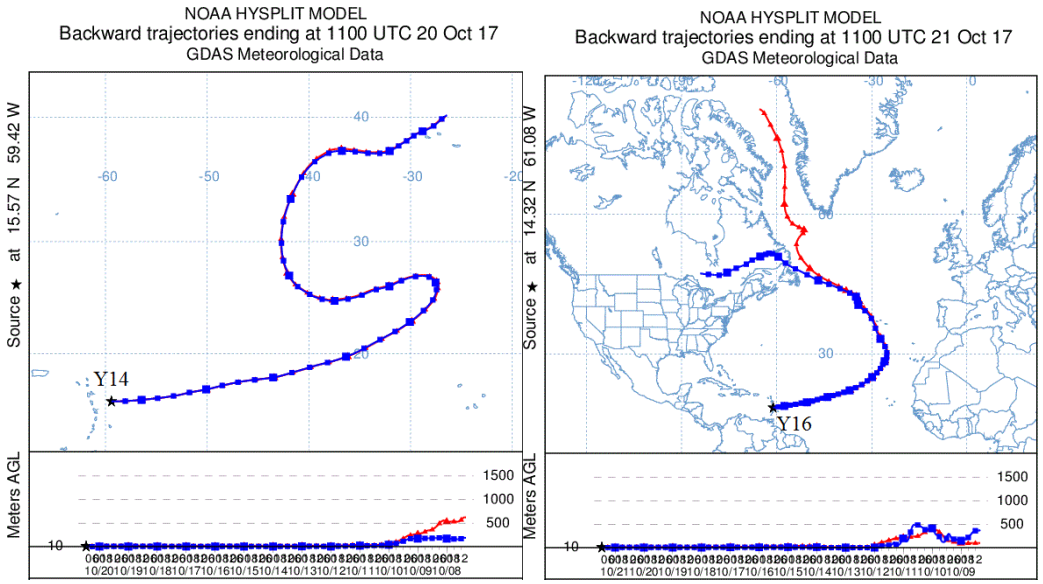


Figure S6: Air mass backward trajectories modelled for each sampling station using the NOAA HYSPLIT Model (https://www.arl.noaa.gov/hysplit/hysplit/). Black stars indicate the location of the sampling stations. The model was set to start at 10 m altitude and to run for 315 hours

SUPPLEMENTARY TABLES

Table S1: GPS positions of the sampling stations, collection dates and surface salinity.

Station ID	Latitude	Longitude	Date	Salinity
Y 01	11°38.2081' N	21°23.8295' W	10/07/2017	34.4
Y 03	7°46.3369' N	19°00.1133' W	10/09/2017	34.8
Y 04	8°16.5055' N	21°31.5612' W	10/10/2017	33.8
Y 05	8°23.2678' N	25°07.6840' W	10/11/2017	35.1
Y 06	10°19.9553' N	28°58.0255' W	10/12/2017	34.6
Y 07	11°01.9355' N	32°28.8749' W	10/13/2017	34.3
Y 08	11°09.4697' N	35°50.0678' W	10/14/2017	34.8
Y 09	11°22.7072' N	40°01.6629' W	10/15/2017	34.7
Y 10	11°43.4907' N	45°03.1796' W	10/16/2017	35.0
Y 11	11°57.9510' N	49°05.2901' W	10/17/2017	34.5
Y 12	12°33.1485' N	52°40.1368' W	10/18/2017	34.6
Y 13	13°59.3505' N	55°42.7139' W	10/19/2017	35.1
Y 14	15°56.6274' N	59°41.6454' W	10/20/2017	33.7
Y 16	14°32.1003' N	61°07.9776' W	10/21/2017	33.2

Table S2: Quantification and confirmation ions of OPEs (GC/MS).

Compound	Full name	Q1	Q2	Q3	Q4
TPP	Tripropyl phosphate	99	141	123	183
TiBP	Tri-iso-buthyl phosphate	99	155	139	
TnBP	Tri-n-butyl phosphate	99	155	211	
TCEP	Tris-(2-chloroethyl) phosphate	249	251	143	99
TCPP-1	Tris-(2-chloro, 1-methylethyl) phosphate	125	99	157	277
TCPP-2	Tris-(2-chloro, 1-methylethyl) phosphate	125	99	157	277
TDCP	Tris-(2-chloro-, 1-chloromethylethyl) phosphate	191	99	381	209
TPhP	Triphenyl phosphate	326	325	215	170
EHDPP	2-ethylhexyl-diphenyl phosphate	251	250	326	
TEHP	Tris(2-ethylhexyl) phosphate	99	113	112	
TBP-*d27*	Tri-n-butyl-d27 phosphate	103	167	231	
TPhP-*d15*	Triphenyl-d15 phosphate	341	339	223	180
TCPP-*d18*	Tris-(2-chloro, 1-methylethyl)-d18 phosphate	131	164	193	
TDCP-*d15*	Tris-(2-chloro-, 1-chloromethylethyl)-d15 phosphate	197	199	217	394
TPrP-*d21*	Tri-n-propyl-d21 phosphate	103	131	151	199
TCEP-*d12*	Tris-(2-chloroethyl)-d12 phosphate	261	263	148	231
MAL-*d7*	Malathion-d7	174	131	128	164

Table S3: $[M-H]^-$ values for BPs and PFCs quantification by LC-HRMS Agilent LC-QTOF 6530.

Compound	**Full name**	**[M-H]-**
BPA	Bisphenol A	227.1078
BPAF	Bisphenol AF	335.0512
BPAP	Bisphenol AP	289.1234
BPF	Bisphenol F	199.0765
BPS	Bisphenol S	249.0227
BPZ	Bisphenol Z	267.1391
BPA-*d16*	Bisphenol A-d16	243.2082
PFHA	Perfluoro hexanoic acid	312.9728
PFHS	Perfluorohexane sulfonic acid	398.9366
PFOA	Perfluorooctanoic acid	412.9664
PFOS	Perfluorooctane sulfonic acid	498.9302
PFOSF	Perfluorooctane sulfonyl fluoride	500.9259
PFHA-*13C*	Perfluoro hexanoic acid-13C	317.9896
PFHS-*13C*	Perfluorohexane sulfonic acid-13C	401.9467
PFOA-*13C*	Perfluorooctanoic acid-13C	420.9933
PFOS-*13C*	Perfluorooctane sulfonic acid-13C	506.9571

Table S4: Limits of quantification (LOQ) expressed as absolute amounts (pg) and ng L^{-1} in seawater.

Compound	LOQ	
	(pg)	(ng L^{-1})
TPP (CAS 513-08-6)	5	0.13
TiBP (CAS 126-71-6)	1	0.03
TnBP (CAS 126-73-8)	2	0.05
TCEP (CAS 115-96-8)	10	0.19
TCPP (CAS 13674-84-5)	10	0.25
TDCP (CAS 13674-87-8)	10	0.25
TPhP (CAS 115-86-6)	5	0.10
EHDPP (CAS 1241-94-7)	5	0.13
TEHP (CAS 78-42-2)	10	0.20
TBP-*d27* (CAS 61196-26-7)	2	0.05
TPhP-*d15* (CAS 1173020-30-8)	5	0.13
TCPP-*d18*	30	0.75
TDCP-*d15* (CAS 1447569-77-8)	11	0.28
BPA (CAS 80-05-7)	10	1.0
BPAF (CAS 14878-61-1)	1	0.1
BPAP (CAS 1571-75-1)	20	2.0
BPF (CAS 620-92-8)	10	1.0
BPS (CAS 80-09-1)	1	0.1
BPZ (CAS 843-55-0)	50	5.0
PFHA (CAS 307-24-4)	80	8.0
PFHS (CAS 3871-99-6)	1	0.1
PFOA (CAS 335-67-1)	20	2.0
PFOS (CAS 1763-23-1)	1	0.1
PFOSF (CAS 307-35-7)	10	1.0

Table S5: Concentrations (in ng L^{-1}) of all 20 molecules analyzed for each sampling station as well as extraction, transport and laboratory blank values. Sampling station data are already blank-corrected. For each sampling station, the average of the concentrations measured in the two replicates is given.

	Extraction Blank	*Extraction Blank*	*Extraction Blank*	*Transport Blank*	*Laboratory Blank*	*Y 01*	*Y 03*	*Y 04*	*Y 05*	*Y 06*	*Y 07*	*Y 08*	*Y 09*	*Y 10*	*Y 11*	*Y 12*	*Y 13*	*Y 14*	*Y 16*
TPP	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.	n.d.	n.d.	n.d.	n.d.
TiBP	<LOQ	n.d.	n.d.	n.d.	n.d.	3.9	6.5	1.8	2.7	2.0	5.2	6.2	11	33	38	30	17	1.7	<LOQ
TnBP	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.	n.d.	n.d.	n.d.	n.d.
TCEP	n.d.	n.d.	n.d.	n.d.	n.d.	<LOQ	1.0	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	1.3	n.d.	1.6	1.2	1.6	<LOQ	<LOQ
TCPP	29	7.9	31	5.4	6.7	203	248	141	142	205	290	577	466	921	1300	966	596	104	74
TDCP	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.	n.d.	n.d.	n.d.	n.d.
TPhP	<LOQ	<LOQ	<LOQ	n.d.	<LOQ	2.2	6.9	1.5	1.0	<LOQ	<LOQ	<LOQ	1.3	<LOQ	1.5	1.6	1.3	<LOQ	<LOQ
EHDPP	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	2.4	5.4	2.4	1.2	<LOQ	<LOQ	<LOQ	1.2	1.0	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
TEHP	n.d.	n.d.	n.d.	15	16	<LOQ	<LOQ	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Σ_9 OPEs	**29**	**7.9**	**31**	**20.4**	**22.7**	**211.5**	**267.8**	**146.7**	**146.9**	**207.0**	**295.2**	**583.2**	**480.8**	**955.0**	**1341.1**	**998.8**	**615.9**	**105.7**	**74.0**
BPA	1.0	1.0.	<LOQ	n.d.	n.d.	1.2	n.d.	n.d.	n.d.	n.d.	n.d.	<LOQ	1.8	1.8	<LOQ	<LOQ	<LOQ	n.d.	n.d.
BPAF	<LOQ	<LOQ	1.0	<LOQ	<LOQ	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.
BPAP	n.d.	<LOQ	<LOQ	<LOQ	<LOQ	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.
BPF	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	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.
BPS	<LOQ	n.d.	<LOQ	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	<LOQ	n.d.	1.1	<LOQ	n.d.	n.d.	n.d.	n.d.
BPZ	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.	n.d.	n.d.	n.d.	n.d.
Σ_6 BPs	**1.0**	**1.0**	**1.0**			**1.2**							**1.8**	**2.9**					
PFHA	2.2	<LOQ	1.0	<LOQ	<LOQ	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	9.7	16	11	n.d.	n.d.	n.d.
PFHS	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.	4.4	n.d.	n.d.	n.d.	n.d.
PFOA	<LOQ	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.	2.9	n.d.	n.d.	n.d.	n.d.
PFOS	<LOQ	n.d.	<LOQ	<LOQ	<LOQ	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	2.3	n.d.	n.d.	n.d.	n.d.
PFOSF	n.d.	n.d.	n.d.	<LOQ	<LOQ	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.
Σ_5 PFCs	**2.2**		**1.0**											**9.7**	**25.6**	**11.0**			
Total						**212.7**	**267.8**	**146.7**	**146.9**	**207.0**	**295.2**	**583.2**	**482.6**	**967.6**	**1366.7**	**1009.8**	**615.9**	**105.7**	**74.0**

n.d. = not detected; LOQ = limit of quantification

Abbreviations: TPP: Tripropyl phosphate, TiBP: Tri-iso-buthyl phosphate, TnBP: Tri-n-butyl phosphate, TCEP: Tris-(2-chloroethyl) phosphate, TCPP: Tris-(2-chloro, 1-methylethyl) phosphate, TDCP: Tris-(2-chloro-, 1-chloromethylethyl) phosphate, TPhP: Triphenyl phosphate, EHDPP: 2-ethylhexyl-diphenyl phosphate, TEHP: Tris(2-ethylhexyl) phosphate, BPA: Bisphenol A, BPAF: Bisphenol AF, BPAP: Bisphenol AP, BPF: Bisphenol F, BPS: Bisphenol S, BPZ: Bisphenol Z, PFHA: Perfluoro hexanoic acid, PFHS: Perfluorohexane sulfonic acid, PFOA: Perfluorooctanoic acid, PFOS: Perfluorooctane sulfonic acid, PFOSF: Perfluorooctane sulfonyl fluoride.

Table S6: Surrogate recovery rates (in %) for each sampling station and the extraction blanks. Transport and laboratory blanks were not spiked with surrogate standards, which is why no data are available in this case.

	Extraction Blank	*Extraction Blank*	*Extraction Blank*	*Transport Blank*	*Laboratory Blank*	*Y 01*	*Y 03*	*Y 04*	*Y 05*	*Y 06*	*Y 07*	*Y 08*	*Y 09*	*Y 10*	*Y 11*	*Y 12*	*Y 13*	*Y 14*	*Y 16*
D27-TBP	83.0	84.4	77.6	n.a.	n.a.	87.7	74.9	81.6	75.8	64.4	74.4	72.1	79.9	82.7	82.0	87.7	86.2	63.2	82.2
D18-TCPP	63.8	62.4	62.2	n.a.	n.a.	69.5	67.3	66.7	68.5	67.8	74.5	69.4	71.6	73.4	75.5	79.1	67.0	59.8	72.1
D15-TDCP	106.9	89.1	54.4	n.a.	n.a.	76.0	74.9	81.5	69.2	63.3	74.4	71.3	80.4	64.8	71.1	81.9	82.8	67.0	85.1
D15-TPhP	94.4	82.6	63.2	n.a.	n.a.	64.5	62.0	69.9	56.5	48.7	67.4	61.7	73.3	62.0	71.9	101.9	82.8	77.8	83.5

n.a. = not available

Abbreviations: D27-TBP: D27-Tri-n-butyl phosphate, D18-TCPP: D18-Tris (2-chloroisopropyl) phosphate, D15-TDCP: D15-Tris (1,3-dichloro-2-propyl) phosphate, D15-TPhP: D15-Triphenyl phosphate.

Table S7: Sensitivity tests results for radii from 5 to 25 km and densities from 0.5 to 2.5 particles km^{-2}.

	0.5 particles km^{-2}		1.3 particles km^{-2}		2.5 particles km^{-2}		Sensitivity
Y 01	% of particles	travel time (days)	% of particles	travel time (days)	% of particles	travel time (days)	
5 km	0%		0%		0%		0 %
10 km	0%		0%		0%		
16 km	0%		0%		0%		
25 km	0%		0%		0%		
Y 03							
5 km	0%		0%		0%		0%
10 km	0%		0%		0%		
16 km	0%		0%		0%		
25 km	0%		0%		0%		
Y 04							
5 km	100%	[-124,-125]	100%	[-124,-125]	100%	[-124,-125]	40%
10 km	74%	[-124,-125]	82%	[-124,-125]	80%	[-124,-125]	
16 km	67%	[-124,-126]	70%	[-124,-125]	68%	[-124,-128]	
25 km	60%	[-124,-180]	60%	[-124,-126]	61%	[-124,-127]	
Y 05							
5 km	0%		0%		0%		8%
10 km	0%		0%		0%		
16 km	0%		0%		0%		
25 km	7%	[-92,-126]	8%	[-92,-126]	7%	[-92,-126]	
Y 06							
5 km	100%	[-90,-146]	100%	[-90,-113]	100%	[-90,-146]	0%
10 km	100%	[-90,-146]	100%	[-89,-147]	100%	[-83,-151]	
16 km	100%	[-88,-151]	100%	[-88,-147]	100%	[-84,-147]	
25 km	100%	[-88,-147]	100%	[-82,-148]	100%	[-81,-162]	
Y 07							
5 km	100%	[-88,-92]	100%	[-88,-92]	100%	[-88,-92]	0%
10 km	100%	[-88,-92]	100%	[-88,-92]	100%	[-88,-92]	
16 km	100%	[-88,-92]	100%	[-88,-92]	100%	[-88,-92]	
25 km	100%	[-88,-114]	100%	[-88,-117]	100%	[-88,-127]	
Y 08							
5 km	100%	[-77,-78]	100%	[-76,-78]	100%	[-76,-78]	0%
10 km	100%	[-76,-78]	100%	[-76,-78]	100%	[-76,-78]	
16 km	100%	[-76,-78]	100%	[-76,-78]	100%	[-76,-78]	
25 km	100%	[-76,-85]	100%	[-76,-85]	100%	[-76,-85]	
Y 09							

5 km	0%		0%		0%		0%
10 km	0%		0%		0%		
16 km	0%		0%		0%		
25 km	0%		0%		0%		
Y 10							
5 km	100%	[-76,-115]	100%	[-76,-115]	100%	[-76,-115]	4%
10 km	100%	[-76,-115]	100%	[-76,-115]	100%	[-76,-120]	
16 km	100%	[-76,-115]	100%	[-76,-115]	100%	[-76,-115]	
25 km	96%	[-76,-119]	96%	[-76,-119]	96%	[-76,-119]	
Y 11							
5 km	100%	[-61,-65]	100%	[-61,-65]	100%	[-61,-65]	3%
10 km	100%	[-60,-91]	100%	[-60,-116]	100%	[-60,-116]	
16 km	100%	[-60,-115]	100%	[-60,-96]	100%	[-60,-116]	
25 km	97%	[-60,-116]	97%	[-60,-122]	97%	[-60,-120]	
Y 12							
5 km	100%	[-66,-105]	100%	[-65,-111]	100%	[-65,-139]	8%
10 km	99%	[-65,-140]	98%	[-65,-154]	97%	[-65,-153]	
16 km	93%	[-52,-140]	92%	[-52,-153]	92%	[-52,-159]	
25 km	94%	[-37,-159]	95%	[-37,-140]	95%	[-37,-159]	
Y 13							
5 km	100%	[-59,-81]	100%	[-59,-106]	100%	[-59,-107]	0%
10 km	100%	[-58,-106]	100%	[-58,-105]	100%	[-58,-106]	
16 km	100%	[-57,-107]	100%	[-57,-107]	100%	[-57,-107]	
25 km	100%	[-54,-107]	100%	[-54,-107]	100%	[-54,-107]	
Y 14							
5 km	33%	[-138,-141]	30%	[-138,-156]	29%	[-132,-159]	26%
10 km	23%	[-133,-156]	20%	[-131,-179]	21%	[-131,-174]	
16 km	23%	[-78,-157]	26%	[-78,-168]	25%	[-78,-179]	
25 km	46%	[-78,-175]	46%	[-78,-180]	46%	[-78,-179]	