Screening of cloud microorganisms isolated at the puy de Dôme (France) station for the production of biosurfactants

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Figure S1. Five-day backward trajectories and physicochemical characteristics of the cloud waters (Marine, Highly marine, Continental and Polluted) as described by Deguillaume et al. (2014) and summarized in the Supplement (Table S1). Backward trajectories of the air masses of 39 cloud events collected at the puy de Dôme are calculated using the HYSPLIT (Hybrid Single-Particle Lagrangian Integrated Trajectory) model with the GDAS1 meteorological data archive and default settings (Draxler and Rolph, 2010).

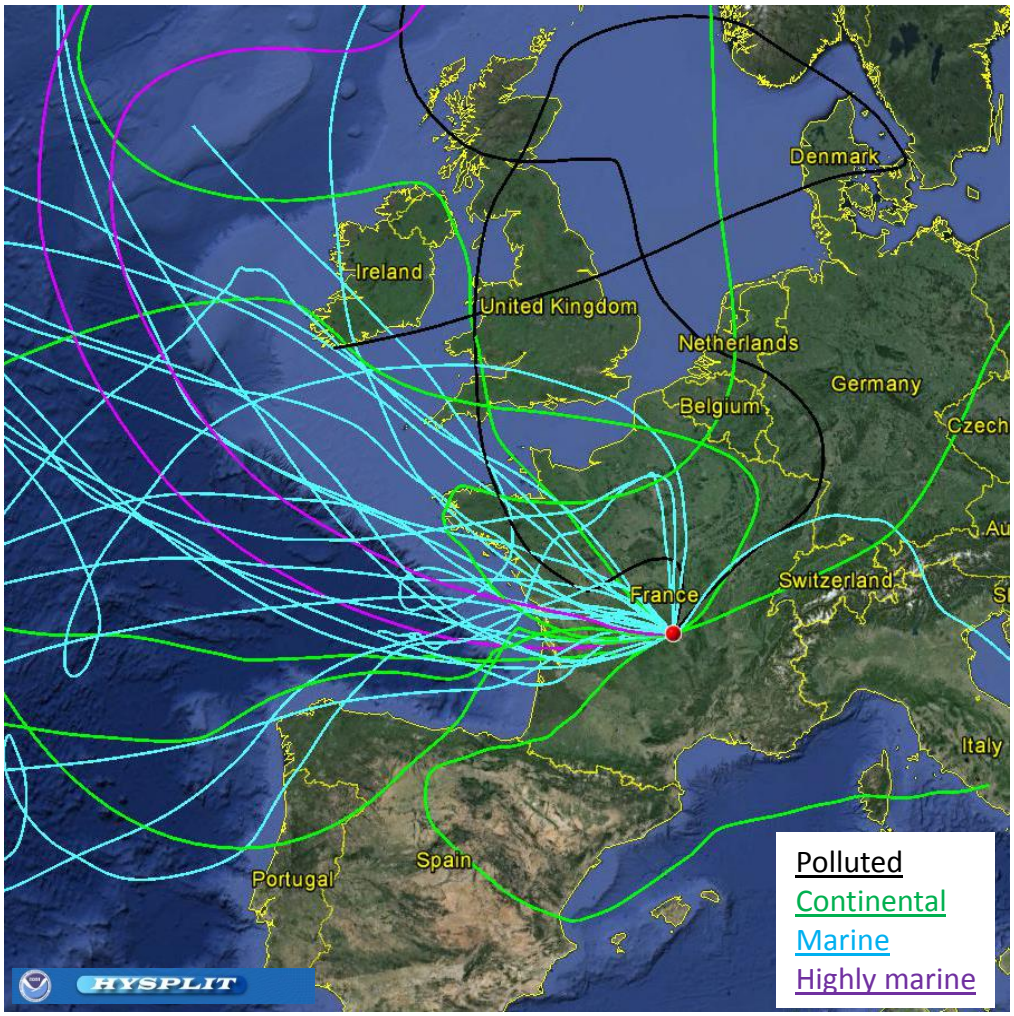

Table S1. Strains are isolated during 39 cloud events (from 2004 to 2014) gathered in four categories according to the physicochemical characteristics of the cloud waters (Blue: Marine, purple: Highly marine, green: Continental and black: Polluted) as described by Deguillaume et al. (2014). Cloud events origin (West, Northwest/North, Northeast and Southwest/South) are determined from their backward trajectory (See Figure S1).

Cloud Event	Composition	Date	Origin	pH	Ions (µM)												
					SO_4^{2-}	NO_3^-	Cl^-	Acetate	Formate	Oxalate	Succinate	Malonate	Na^+	NH_4^+	Mg^{2+}	K^+	Ca^{2+}
21	Marine	2004-01	W	5.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
23	Polluted	2004-02	NE	3.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
29	Marine	2004-07	W	5.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30	Marine	2004-09	NW/N	7.6	3.8	6.5	12.0	6.0	6.0	0.5	0.1	0.16	19.4	54.9	4.9	4.1	12.0
32	Continental	2004-12	SW/W	5.5	72.1	95.8	31.5	0.0	0.3	0.3	0.1	0.17	74.4	132.4	7.6	9.0	73.7
42	Continental	2007-12	NE	4.7	39.7	198.4	20.2	10.2	5.8	2.9	0.6	0.58	19.1	148.2	3.5	11.9	58.0
43	Highly marine	2008-01	W	5.9	9.4	21.4	81.4	11.4	6.7	1.2	0.2	0.28	315.7	35.9	11.8	13.7	26.0
44	Continental	2008-02	W	5.2	24.6	65.9	17.2	26.8	18.0	1.3	0.5	0.39	15.2	148.5	1.8	5.8	22.3
45	Continental	2008-04	SW/W	4.6	44.7	65.5	31.7	17.7	17.9	2.8	0.9	0.89	33.3	122.5	4.9	9.7	53.6
46	Continental	2008-10	SW/W	5.0	13.2	102.4	28.7	2.7	14.2	1.3	0.4	0.52	10.4	72.7	6.9	5.3	77.7
47	Marine	2008-11	NW/N	5.4	6.5	33.2	15.7	5.3	8.0	0.8	0.2	0.33	8.2	13.7	1.4	6.3	14.4
49	Marine	2009-01	NW/N	6.5	14.7	20.0	113.9	4.8	8.9	1.2	0.3	0.44	70.9	58.2	29.2	12.5	14.5
50	Marine	2009-02	W	4.9	7.1	23.3	72.5	22.2	13.4	0.8	0.2	0.56	NA	NA	NA	NA	NA
53	Polluted	2009-03	NE	4.0	73.8	516.5	193.8	41.2	13.7	3.5	1.2	0.62	171.9	363.2	13.5	71.6	52.3
54	Marine	2009-11	W	5.2	2.3	13.3	30.5	4.4	15.0	1.7	0.1	0.34	37.0	6.6	12.1	20.5	0.0
55	Marine	2009-11	W	5.8	9.3	34.8	97.5	6.7	10.1	3.3	0.3	0.36	95.1	31.1	12.6	17.2	0.0
60	Highly marine	2010-03	W	5.5	39.0	9.7	231.5	3.5	4.3	1.2	0.0	0.00	114.1	28.6	12.9	12.8	2.7
61	Marine	2010-05	NW/N	6.2	3.1	6.0	11.6	6.0	6.4	0.1	0.0	0.00	11.8	15.4	0.2	6.2	4.2
62	Marine	2010-06	W	6.1	3.5	4.5	2.3	3.4	6.2	1.4	0.0	0.00	1.8	6.0	0.0	0.0	0.0
66	Marine	2010-09	W	5.7	4.0	17.8	1.5	7.1	8.6	2.6	0.2	0.00	2.3	32.4	0.2	0.7	0.5
71	Marine	2011-03	SW/W	5.9	3.5	6.6	6.2	7.1	4.2	2.2	0.3	0.39	6.9	42.5	0.1	3.6	5.1
72	Marine	2011-03	W	7.0	12.7	26.0	26.4	16.6	12.7	1.8	0.5	0.53	40.2	75.1	0.4	12.5	15.2
75	Marine	2011-06	W	5.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
76	Continental	2011-06	NW/N	5.9	52.2	126.0	16.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
77	Continental	2011-07	W	6.0	19.6	47.9	12.8	58.3	109.6	12.3	NA	NA	124.8	408.5	26.8	22.8	148
78	Marine	2011-07	NW/N	5.5	7.1	10.4	24.1	3.3	11.3	3.1	NA	NA	22.7	32.7	12.3	9.2	7.1
79	Marine	2011-11	SW/W	4.6	1.3	5.0	0.3	4.3	5.6	1.0	NA	NA	0.6	52.7	0.8	1.6	3.2
80	Marine	2012-01	NW/N	4.9	1.8	2.2	13.4	7.4	5.3	1.1	NA	NA	80.6	39.3	12.0	6.1	5.2
81	Marine	2012-01	NW/N	5.8	4.8	11.2	23.4	15.3	15.6	6.7	NA	NA	145.7	188.6	20.3	6.2	9.3
82	Marine	2012-03	NW/N	5.3	1.6	2.0	0.2	4.2	6.2	3.0	NA	NA	1.0	75.4	1.0	0.1	6.1
83	Continental	2012-04	NW/N	5.6	10.7	49.9	12.2	0.0	39.0	6.5	NA	NA	93.5	531.1	14.3	10.7	34.6
84	Marine	2012-04	W	5.5	1.6	1.9	6.0	3.9	7.7	1.2	NA	NA	36.0	38.1	6.0	1.4	5.2
85	Marine	2012-06	W	5.5	1.2	3.0	0.9	0.0	18.2	3.3	NA	NA	6.0	77.9	2.2	4.0	4.3
86	Marine	2012-09	W	5.9	0.5	1.0	1.0	3.2	3.2	1.0	NA	NA	8.8	16.8	1.4	5.5	4.5
87	Marine	2012-10	SW/W	6.2	5.3	11.0	26.7	4.0	13.6	0.7	NA	NA	21.2	39.3	8.3	7.6	2.3
88	Polluted	2012-11	NW/N	4.6	111.1	346.5	47.6	18.5	13.1	6.5	NA	NA	17.6	59.3	15.8	53.6	6.6
89	Marine	2013-01	W	5.2	32.9	29.5	109.9	19.9	15.6	2.7	NA	NA	77.5	81.2	21.5	4.8	23.5
91	Marine	2013-05	NW/N	5.5	28.5	9.3	16.3	21.8	9.8	3.3	NA	NA	13.3	57.4	6.2	8.0	22.2
97	Marine	2014-02	W	5.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table S2. 480 strains tested for biosurfactant production. Strains are isolated during 39 cloud events (from 2004 to 2014) gathered in four categories according to the physicochemical characteristics of the cloud waters (Blue: Marine, purple: Highly marine, green: Continental and black: Polluted, see table S1) as described by Deguillaume et al. (2014). Strains are differentiated into four main categories, according to the measured surface tension (red: $\sigma \leq 30$, orange: $30 < \sigma \leq 45$, yellow: $45 < \sigma \leq 55$ and green: $\sigma > 55$ mN m^{-1}, see details in text). Phylum colors correspond to those of Figure 1. All surface tension measurements are performed using the pendant drop method with an OCA 15 Pro tensiometer (Data Physics, Germany). A.N, accession number in GenBank.

Cloud Events	Composition	Origin	Strain	Phylum (class)	Species	AN	σ (mN m^{-1})
76	Continental	NW/N	49b04	Ɣ-Proteobacteria	*Pseudomonas* sp.	KR922066	24.4
77	Continental	W	50b03	Ɣ-Proteobacteria	*Pseudomonas* sp.	KR922069	25.6
77	Continental	W	50b08	Ɣ-Proteobacteria	*Pseudomonas* sp.	KR922074	25.6
77	Continental	W	50b04	Ɣ-Proteobacteria	*Pseudomonas* sp.	KR922070	25.9
77	Continental	W	50b02	Ɣ-Proteobacteria	*Pseudomonas* sp.	KR922068	26.1
45	Continental	SW/S	26b18	Basidiomycota	*Udeniomyces* sp.	JF706566	33
44	Continental	W	25b01	Basidiomycota	*Bullera globispora*	HQ260318	36
77	Continental	W	50b07	Ɣ-Proteobacteria	*Pseudomonas syringae*	KR922073	36
42	Continental	NE	23b16	Actinobacteria	*Leifsonia* sp.	HQ256777	39
77	Continental	W	50b09	Ɣ-Proteobacteria	*Pseudomonas syringae*	KR922075	39
44	Continental	W	25b04	Basidiomycota	*Udeniomyces* sp.	HQ256877	39
76	Continental	NW/N	49b03	Unidentified yeast	*unidentified*		42
44	Continental	W	25b05	Ɣ-Proteobacteria	*Pseudomonas* sp.	HQ256806	43
45	Continental	SW/S	26b25	β-Proteobacteria	*Variovorax* sp.	HQ256810	44
44	Continental	W	25b07	Ɣ-Proteobacteria	*Erwinia billingiae*	HQ256807	46
44	Continental	W	25b11	Ɣ-Proteobacteria	*Erwinia billingiae*	HQ256802	46
44	Continental	W	25b13	Ɣ-Proteobacteria	*Erwinia billingiae*	HQ256804	46
77	Continental	W	50b05	Ɣ-Proteobacteria	*Pseudomonas* sp.	KR922071	48
42	Continental	NE	23b26	unidentified bacteria	*unidentified*		48
44	Continental	W	25b03	Actinobacteria	*Clavibacter michiganensis*	HQ256805	49
45	Continental	SW/S	26b30	Actinobacteria	*Clavibacter michiganensis*	HQ256811	49
45	Continental	SW/S	26b21	Actinobacteria	*Plantibacter* sp.	HQ260322	49
42	Continental	NE	23b05	Actinobacteria	*Rhodococcus* sp.	HQ256785	49
42	Continental	NE	23b27	Actinobacteria	*Rhodococcus* sp.	HQ256783	49
83	Continental	NW/N	56b23	Basidiomycota	*Udeniomyces* sp.		49
42	Continental	NE	23b28	unidentified bacteria	*unidentified*		49
45	Continental	SW/S	26b19	Basidiomycota	*Bullera globispora*	JF706567	50
45	Continental	SW/S	26b16	α-Proteobacteria	*Sphingomonas* sp.	HQ256808	50
46	Continental	SW/S	27b03	Ɣ-Proteobacteria	*Pseudomonas* sp.	HQ256813	51
77	Continental	W	50b10	Ɣ-Proteobacteria	*Pseudomonas* sp.		51
42	Continental	NE	23b25	Actinobacteria	*Rhodococcus* sp.	HQ256782	51
83	Continental	NW/N	56b01	Actinobacteria	*Plantibacter* sp.		52
83	Continental	NW/N	56b13	Actinobacteria	*Rhodococcus* sp.		52
44	Continental	W	25b09	Basidiomycota	*Udeniomyces* sp.	HQ256880	52
83	Continental	NW/N	56b08	Actinobacteria	*Clavibacter michiganensis*	KR922100	53
83	Continental	NW/N	56b03	Actinobacteria	*Rhodococcus* sp.	KR922098	53
44	Continental	W	25b14	Basidiomycota	*Dioszegia fristingensis*		54
42	Continental	NE	23b15	Actinobacteria	*Microbacterium oxydans*	HQ256776	54
42	Continental	NE	23b20	Actinobacteria	*Microbacterium* sp.	HQ256779	54
45	Continental	SW/S	26b08	Basidiomycota	*Cryptococcus* sp.	JF706563	55
77	Continental	W	50b06	Ɣ-Proteobacteria	*Pseudomonas syringae*	KR922072	55
42	Continental	NE	23b22	Basidiomycota	*Cryptococcus victoriae*	JF706548	56
44	Continental	W	25b06	Basidiomycota	*Dioszegia butyracea*	HQ256878	56
83	Continental	NW/N	56b25	Actinobacteria	*Frigoribacterium* sp.	KR922104	56
45	Continental	SW/S	26b32	Ascomycota	*Tetracladium* sp.	JF706575	56
45	Continental	SW/S	26b04	Basidiomycota	*Dioszegia* sp.	JF706560	57
42	Continental	NE	23b29	Actinobacteria	*Rhodococcus* sp.	HQ256784	57
77	Continental	W	50b11	α-Proteobacteria	*Sphingomonas* sp.		57
83	Continental	NW/N	56b21	α-Proteobacteria	*Sphingomonas* sp.	KR922103	57
45	Continental	SW/S	26b23	Actinobacteria	*Subtercola* sp.	HQ256809	57
45	Continental	SW/S	26b11	Basidiomycota	*Cryptococcus* sp.	JF706565	58
42	Continental	NE	23b18	Basidiomycota	*Cryptococcus victoriae*	JF706547	58
83	Continental	NW/N	56b14	Actinobacteria	*Plantibacter* sp.	KR922102	58
83	Continental	NW/N	56b04	α-Proteobacteria	*Sphingomonas* sp.	KR922099	58
42	Continental	NE	23b21	Actinobacteria	*Subtercola boreus*	HQ256780	58
45	Continental	SW/S	26b06	Basidiomycota	*Dioszegia* sp.	JF706562	59
45	Continental	SW/S	26b34	Basidiomycota	*Dioszegia xingshenensis*	JF706577	59
44	Continental	W	25b12	Actinobacteria	*Rhodococcus* sp.	HQ256803	59
44	Continental	W	25b10	Basidiomycota	*Dioszegia* sp.	HQ256875	60

42	Continental	NE	23b24	α-Proteobacteria	*Rhizobium* sp.	HQ256781	60
45	Continental	SW/S	26b03	Basidiomycota	*Cryptococcus* sp.	JF706559	61
42	Continental	NE	23b07	α-Proteobacteria	*Devosia* sp.	HQ256787	61
45	Continental	SW/S	26b09	Basidiomycota	*Dioszegia buhagiarii*	JF706564	61
45	Continental	SW/S	26b20	Basidiomycota	*Dioszegia* sp.	JF706568	62
45	Continental	SW/S	26b24	Basidiomycota	*Dioszegia* sp.	JF706570	62
45	Continental	SW/S	26b26	Basidiomycota	*Dioszegia* sp.	JF706571	62
45	Continental	SW/S	26b05	Basidiomycota	*Cryptococcus* sp.	JF706561	63
42	Continental	NE	23b13	Basidiomycota	*Dioszegia* sp.	JF706546	63
42	Continental	NE	23b03	Ascomycota	*Unidentified*	JF706545	63
44	Continental	W	25b02	Basidiomycota	*Udeniomyces* sp.	HQ256876	64
44	Continental	W	25b08	Basidiomycota	*Dioszegia butyracea*	HQ256879	65
77	Continental	W	50b01	Υ-Proteobacteria	*Pseudomonas grimondii*	KR922067	65
46	Continental	SW/S	27b01	α-Proteobacteria	*Sphingomonas* sp.	HQ256812	65
76	Continental	NW/N	49b02	α-Proteobacteria	*Sphingomonas* sp.	KR922065	65
76	Continental	NW/N	49b01	Unidentified yeast	*unidentified*		65
42	Continental	NE	23b09	Actinobacteria	*Streptomyces* sp.	HQ256788	66
42	Continental	NE	23b14	α-Proteobacteria	*Methylobacterium* sp.	HQ256775	67
42	Continental	NE	23b19	α-Proteobacteria	*Sphingomonas* sp.		67
83	Continental	NW/N	56b24	unidentified bacteria	*unidentified*		67
42	Continental	NE	23b12	Actinobacteria	*Streptomyces* sp.		68
42	Continental	NE	23b02	Ascomycota	*Unidentified*	JF706544	68
42	Continental	NE	23b06	α-Proteobacteria	*Sphingomonas* sp.	HQ256786	69
42	Continental	NE	23b17	Bacteroidetes	*Hymenobacter* sp.	HQ256778	70
45	Continental	SW/S	26b27	Basidiomycota	*Rhodotorula aurantiaca*	JF706572	70
42	Continental	NE	23b11	Actinobacteria	*Streptomyces* sp.	HQ256774	70
45	Continental	SW/S	26b31	Ascomycota	*Taphrina deformans*	JF706574	70
45	Continental	SW/S	26b33	Basidiomycota	*Dioszegia* sp.	JF706576	71
42	Continental	NE	23b01	α-Proteobacteria	*Sphingomonas* sp.	HQ256773	71
43	Highly marine	W	24b16	Ascomycota	*Wickerhamomyces anomalus*	JF706554	45
43	Highly marine	W	24b04	Actinobacteria	*Streptomyces microflavus*	HQ256797	47
43	Highly marine	W	24b12	Υ-Proteobacteria	*Pseudomonas* sp.	HQ260323	49
43	Highly marine	W	24b19	Actinobacteria	*Clavibacter michiganensis*	HQ260320	50
43	Highly marine	W	24b26	α-Proteobacteria	*Sphingomonas* sp.		50
43	Highly marine	W	24b10	Actinobacteria	*Streptomyces microflavus*	HQ256790	50
43	Highly marine	W	24b13	Ascomycota	*Wickerhamomyces anomalus*	JF706551	50
43	Highly marine	W	24b17	Actinobacteria	*Clavibacter michiganensis*	HQ256792	51
43	Highly marine	W	24b24	Actinobacteria	*Clavibacter michiganensis*	HQ256795	51
43	Highly marine	W	24b20	Actinobacteria	*Frigoribacterium* sp.	HQ256793	51
43	Highly marine	W	24b18	Basidiomycota	*Udeniomyces pannonicus*	JF706555	51
43	Highly marine	W	24b21	Basidiomycota	*Udeniomyces pannonicus*	JF706556	51
43	Highly marine	W	24b05	Actinobacteria	*Clavibacter michiganensis*	HQ256798	52
43	Highly marine	W	24b15	Basidiomycota	*Dioszegia fristigensis*	JF706553	52
43	Highly marine	W	24b07	Actinobacteria	*Curtobacterium flaccumfaciens*	HQ256800	53
43	Highly marine	W	24b23	Actinobacteria	*Curtobacterium flaccumfaciens*	HQ256794	53
60	Highly marine	W	35b43	Actinobacteria	*Rhodococcus* sp.	JF706519	53
60	Highly marine	W	35b14	Firmicutes	*Bacillus* sp.		55
43	Highly marine	W	24b06	Actinobacteria	*Curtobacterium flaccumfaciens*	HQ256799	55
43	Highly marine	W	24b09	Actinobacteria	*Aeromicrobium* sp.	HQ256801	57
43	Highly marine	W	24b01	Actinobacteria	*Clavibacter michiganensis*	HQ256789	58
60	Highly marine	W	35b15	α-Proteobacteria	*Sphingomonas* sp.	JF706508	58
60	Highly marine	W	35b22	unidentified bacteria	*unidentified*		58
60	Highly marine	W	35b13	Actinobacteria	*Frigoribacterium* sp.	JF706507	59
43	Highly marine	W	24b08	Basidiomycota	*Bullera armeniaca*	JF706550	60
60	Highly marine	W	35b18	Actinobacteria	*Curtobacterium herbarum*	JF706509	60
60	Highly marine	W	35b40	β-Proteobacteria	*Janthinobacterium* sp.	JF706518	60
43	Highly marine	W	24b02	Basidiomycota	*Bullera armeniaca*	JF706549	61
60	Highly marine	W	35b26	Basidiomycota	*Udeniomyces* sp.	JN176601	61
43	Highly marine	W	24b22	Basidiomycota	*Bullera armeniaca*	JF706557	62
60	Highly marine	W	35b45	Basidiomycota	*Dioszegia fristigensis*	JN176610	63
43	Highly marine	W	24b25	Basidiomycota	*Udeniomyces* sp.	JF706558	63
60	Highly marine	W	35b29	Basidiomycota	*Dioszegia butyracea*	JN176603	64
60	Highly marine	W	35b35	Basidiomycota	*Dioszegia crocea*	JN176606	64
60	Highly marine	W	35b30	Basidiomycota	*Dioszegia crocea*	JN176604	65
60	Highly marine	W	35b02	α-Proteobacteria	*Sphingomonas* sp.	JF706510	65
60	Highly marine	W	35b39	Basidiomycota	*Dioszegia crocea*	JN176607	66
60	Highly marine	W	35b42	Basidiomycota	*Dioszegia fristingensis*	JN176608	66
60	Highly marine	W	35b01	Actinobacteria	*Frigoribacterium* sp.	JF706506	66
60	Highly marine	W	35b17	Basidiomycota	*Dioszegia crocea*	JN176597	67
60	Highly marine	W	35b44	Basidiomycota	*Dioszegia crocea*	JN176609	67
43	Highly marine	W	24b14	Basidiomycota	*Dioszegia* sp.	JF706552	67

60	Highly marine	W	35b21	Basidiomycota	*Mastigobasidium intermedium*	JN176599	67
60	Highly marine	W	35b23	Basidiomycota	*Mastigobasidium intermedium*	JN176600	67
60	Highly marine	W	35b27	α-Proteobacteria	*Methylobacterium* sp.	JF706512	67
60	Highly marine	W	35b20	Actinobacteria	*Curtobacterium flaccumfaciens*	JF706511	68
60	Highly marine	W	35b33	β-Proteobacteria	*Massilia* sp.	JF706514	68
60	Highly marine	W	35b38	α-Proteobacteria	*Sphingomonas* sp.	JF706517	68
60	Highly marine	W	35b32	α-Proteobacteria	*Sphingomonas* sp.	JF706513	69
60	Highly marine	W	35b12	Basidiomycota	*Sporobolomyces roseus*	JF706594	69
43	Highly marine	W	24b03	Actinobacteria	*Streptomyces* sp.	HQ256796	69
60	Highly marine	W	35b04	Basidiomycota	*Cryptococcus* sp.	JN176596	70
60	Highly marine	W	35b19	Basidiomycota	*Dioszegia crocea*	JN176598	70
60	Highly marine	W	35b28	Basidiomycota	*Dioszegia fristigensis*	JN176602	70
60	Highly marine	W	35b34	Actinobacteria	*Rhodococcus* sp.	JF706515	71
60	Highly marine	W	35b37	Actinobacteria	*Rhodococcus* sp.	JF706516	71
60	Highly marine	W	35b31	Basidiomycota	*Dioszegia crocea*	JN176605	72
78	Marine	NW/N	51b07	Y-Proteobacteria	*Pseudomonas* sp.	KR922082	24.8
78	Marine	NW/N	51b04	Y-Proteobacteria	*Pseudomonas* sp.	KR922079	25.2
87	Marine	SW/S	60b24	Y-Proteobacteria	*Pseudomonas* sp.	KR922197	25.3
54	Marine	W	32b42	Y-Proteobacteria	*Pseudomonas* sp.	HQ256842	25.5
75	Marine	W	48b01	Y-Proteobacteria	*Pseudomonas* sp.	KR922057	25.7
78	Marine	NW/N	51b06	Y-Proteobacteria	*Pseudomonas* sp.	KR922081	26
87	Marine	SW/S	60b01	Y-Proteobacteria	*Pseudomonas* sp.	KR922180	26
85	Marine	W	58b28	Y-Proteobacteria	*Pseudomonas syringae*	KR922139	26
85	Marine	W	58b02	Y-Proteobacteria	*Pseudomonas syringae*	KR922125	26.4
86	Marine	W	59b12	Y-Proteobacteria	*Pseudomonas* sp.	KR922150	26.8
86	Marine	W	59b10	Y-Proteobacteria	*Pseudomonas* sp.	KR922148	27
54	Marine	W	32b53	Y-Proteobacteria	*Pseudomonas trivialis*	HQ256851	27
54	Marine	W	32b52	Y-Proteobacteria	*Xanthomonas campestris*	HQ256850	27
61	Marine	NW/N	36b03	Y-Proteobacteria	*Pseudomonas fluorescens*	JF706525	27.5
86	Marine	W	59b11	Y-Proteobacteria	*Pseudomonas* sp.	KR922149	27.5
91	Marine	NW/N	66b02	Y-Proteobacteria	*Pseudomonas syringae*	KR922247	27.5
75	Marine	W	48b02	Y-Proteobacteria	*Pseudomonas reinekei*		27.8
30	Marine	NW/N	14b02	Y-Proteobacteria	*Pseudomonas* sp.		27.8
72	Marine	W	47b07	Y-Proteobacteria	*Pseudomonas* sp.		27.8
78	Marine	NW/N	51b03	Y-Proteobacteria	*Pseudomonas* sp.	KR922078	28
54	Marine	W	32b32	Y-Proteobacteria	*Xanthomonas campestris*	JN176586	28.3
86	Marine	W	59b03	Y-Proteobacteria	*Pseudomonas syringae*	KR922141	28.4
54	Marine	W	32b22	Y-Proteobacteria	*Xanthomonas campestris*	JN176582	29
61	Marine	NW/N	36b05	Y-Proteobacteria	*Pseudomonas fluorescens*	JF706526	29.1
54	Marine	W	32b74	Y-Proteobacteria	*Pseudomonas syringae*	HQ256872	29.1
84	Marine	W	57b01	Y-Proteobacteria	*Pseudomonas* sp.	KR922105	30
86	Marine	W	59b37	Y-Proteobacteria	*Pseudomonas* sp.	KR922166	30
55	Marine	W	33b02	Y-Proteobacteria	*Pseudomonas syringae*	HQ256867	30
54	Marine	W	32b24	Y-Proteobacteria	*Xanthomonas* sp.	JN176583	30
91	Marine	NW/N	66b05	Y-Proteobacteria	*Pseudomonas graminis*	KR922249	33
78	Marine	NW/N	51b05	Y-Proteobacteria	*Pseudomonas syringae*	KR922080	33
82	Marine	NW/N	55b15	Y-Proteobacteria	*Pseudomonas syringae*	KR922097	34
86	Marine	W	59b32	Y-Proteobacteria	*Erwinia billingiae*	KR922162	35
75	Marine	W	48b05	Y-Proteobacteria	*Pseudomonas syringae*	KR922059	35
86	Marine	W	59b16	Y-Proteobacteria	*Pseudomonas syringae*	KR922153	36
54	Marine	W	32b27	Basidiomycota	*Dioszegia xingshenensis*	JN176593	39
21	Marine	W	05b01	Firmicutes	*Bacillus pumilus*		40
86	Marine	W	59b07	Y-Proteobacteria	*Pseudomonas* sp.	KR922145	40
86	Marine	W	59b25	Y-Proteobacteria	*Pseudomonas graminis*	KR922157	41
78	Marine	NW/N	51b01	Y-Proteobacteria	*Pseudomonas* sp.	KR922077	41
54	Marine	W	32b67	Y-Proteobacteria	*Pseudomonas syringae*	HQ256864	42
47	Marine	NW/N	28b11	Basidiomycota	*Udeniomyces pannonicus*	HQ256882	42
86	Marine	W	59b41	Y-Proteobacteria	*Erwinia* sp.	KR922170	43
47	Marine	NW/N	28b12	Basidiomycota	*Udeniomyces* sp.	HQ256883	43
86	Marine	W	59b14	Y-Proteobacteria	*Pseudomonas syringae*	KR922151	44
47	Marine	NW/N	28b02	Basidiomycota	*Bannoa* sp.	JN176592	45
85	Marine	W	58b01	Y-Proteobacteria	*Pseudomonas syringae*	KR922124	45
91	Marine	NW/N	66b14	α-Proteobacteria	*Sphingomonas* sp.	KR922251	45
84	Marine	W	57b26	Actinobacteria	*Clavibacter michiganensis*	KR922121	46
30	Marine	NW/N	14b13	Actinobacteria	*Frigoribacterium* sp.	DQ512796	46
86	Marine	W	59b02	Y-Proteobacteria	*Pseudomonas syringae*		46
85	Marine	W	58b25	Y-Proteobacteria	*Pseudomonas* sp.	KR922137	47
86	Marine	W	59b04	Y-Proteobacteria	*Pseudomonas* sp.	KR922142	47
78	Marine	NW/N	51b10	Y-Proteobacteria	*Pseudomonas syringae*	KR922084	47
86	Marine	W	59b05	Y-Proteobacteria	*Pseudomonas syringae*	KR922143	47
49	Marine	NW/N	29b06	Basidiomycota	*Udeniomyces pannonicus*	HQ256895	47

54	Marine	W	32b64	Basidiomycota	*Udeniomyces* sp.	JF706586	47
84	Marine	W	57b22	Actinobacteria	*Clavibacter michiganensis*	KR922119	48
86	Marine	W	59b58	Actinobacteria	*Clavibacter michiganensis*	KR922179	48
54	Marine	W	32b56	Bacteroidetes	*Flavobacterium* sp.	HQ256854	48
29	Marine	W	13b03	Y-Proteobacteria	*Pseudomonas graminis*	DQ512786	48
54	Marine	W	32b55	Y-Proteobacteria	*Pseudomonas graminis*	HQ256853	48
50	Marine	W	30b02	Actinobacteria	*Rhodococcus* sp.	HQ256817	48
50	Marine	W	30b05	Actinobacteria	*Rhodococcus* sp.	HQ256819	48
84	Marine	W	57b11	α-Proteobacteria	*Sphingomonas* sp.	KR922112	48
49	Marine	NW/N	29b04	Basidiomycota	*Sporobolomyces roseus*	HQ256893	48
49	Marine	NW/N	29b05	Basidiomycota	*Udeniomyces pannonicus*	HQ256894	48
21	Marine	W	05b02	Firmicutes	*Bacillus* sp.		49
47	Marine	NW/N	28b04	Basidiomycota	*Bensingtonia yucciola*	HQ256887	49
54	Marine	W	32b09	Basidiomycota	*Dioszegia hungarica*	HQ256898	49
75	Marine	W	48b10	Y-Proteobacteria	*Pseudomonas* sp.	KR922063	49
86	Marine	W	59b15	Y-Proteobacteria	*Pseudomonas syringae*	KR922152	49
84	Marine	W	57b16	Actinobacteria	*Clavibacter michiganensis*	KR922117	50
86	Marine	W	59b50	Actinobacteria	*Clavibacter* sp.	KR922173	50
87	Marine	SW/S	60b04	Actinobacteria	*Frigoribacterium* sp.	KR922183	50
85	Marine	W	58b20	Y-Proteobacteria	*Pseudomonas graminis*	KR922133	50
86	Marine	W	59b01	Y-Proteobacteria	*Pseudomonas* sp.	KR922140	50
86	Marine	W	59b06	Y-Proteobacteria	*Pseudomonas* sp.	KR922144	50
86	Marine	W	59b17	Y-Proteobacteria	*Pseudomonas* sp.	KR922154	50
86	Marine	W	59b40	Y-Proteobacteria	*Pseudomonas* sp.	KR922169	50
89	Marine	W	63b11	Actinobacteria	*Clavibacter* sp.	KR922218	51
85	Marine	W	58b05	Actinobacteria	*Curtobacterium* sp.	KR922127	51
86	Marine	W	59b26	Y-Proteobacteria	*Dyella* sp.	KR922158	51
75	Marine	W	48b07	Actinobacteria	*Frigoribacterium* sp.	KR922060	51
91	Marine	NW/N	66b01	Y-Proteobacteria	*Pseudomonas syringae*	KR922246	51
84	Marine	W	57b28	α-Proteobacteria	*Sphingomonas* sp.	KR922123	51
47	Marine	NW/N	28b10	Basidiomycota	*Udeniomyces pannonicus*	HQ256881	51
84	Marine	W	57b10	Firmicutes	*Bacillus* sp.	KR922111	52
86	Marine	W	59b30	Actinobacteria	*Clavibacter michiganensis*	KR922161	52
54	Marine	W	32b35	Actinobacteria	*Frigoribacterium* sp.	HQ256839	52
86	Marine	W	59b34	Actinobacteria	*Frigoribacterium* sp.	KR922164	52
86	Marine	W	59b57	Bacteroidetes	*Pedobacter agri*	KR922178	52
85	Marine	W	58b21	Bacteroidetes	*Pedobacter* sp.	KR922134	52
91	Marine	NW/N	66b03	Bacteroidetes	*Pedobacter* sp.	KR922248	52
86	Marine	W	59b38	Y-Proteobacteria	*Pseudomonas rhizosphaerae*	KR922167	52
86	Marine	W	59b29	Actinobacteria	*Rhodococcus* sp.		52
84	Marine	W	57b13	α-Proteobacteria	*Sphingomonas* sp.	KR922114	52
84	Marine	W	57b07	unidentified bacteria	*unidentified*		52
89	Marine	W	63b09	Actinobacteria	*Clavibacter michiganensis*	KR922216	53
84	Marine	W	57b12	Actinobacteria	*Curtobacterium* sp.	KR922113	53
55	Marine	W	33b11	Basidiomycota	*Dioszegia hungarica*	JF706591	53
50	Marine	W	30b01	Actinobacteria	*Frigoribacterium* sp.	HQ256816	53
82	Marine	NW/N	55b02	Y-Proteobacteria	*Pseudomonas* sp.	KR922096	53
86	Marine	W	59b53	Y-Proteobacteria	*Pseudomonas* sp.	KR922175	53
47	Marine	NW/N	28b15	Basidiomycota	*Rhodotorula* sp.	HQ256885	53
55	Marine	W	33b12	α-Proteobacteria	*Sphingomonas* sp.	HQ256874	53
87	Marine	SW/S	60b31	α-Proteobacteria	*Sphingomonas* sp.	KR922202	53
97	Marine	W	67b09	α-Proteobacteria	*Sphingomonas* sp.	KR922258	53
97	Marine	W	67b28	Actinobacteria	*Clavibacter michiganensis*	KR922268	54
47	Marine	NW/N	28b03	Basidiomycota	*Cryptococcus victoriae*	HQ256886	54
85	Marine	W	58b17	Actinobacteria	*Curtobacterium* sp.		54
86	Marine	W	59b28	Y-Proteobacteria	*Dyella* sp.	KR922160	54
85	Marine	W	58b04	Actinobacteria	*Frigoribacterium* sp.	KR922126	54
89	Marine	W	63b02	Actinobacteria	*Frigoribacterium* sp.	KR922209	54
86	Marine	W	59b08	Y-Proteobacteria	*Pseudomonas fluorescens*	KR922146	54
54	Marine	W	32b66	Y-Proteobacteria	*Pseudomonas graminis*	HQ256863	54
75	Marine	W	48b11	α-Proteobacteria	*Sphingomonas* sp.	KR922064	54
81	Marine	NW/N	54b07	α-Proteobacteria	*Sphingomonas* sp.	KR922094	54
87	Marine	SW/S	60b16	α-Proteobacteria	*Sphingomonas* sp.	KR922193	54
87	Marine	SW/S	60b22	α-Proteobacteria	*Sphingomonas* sp.	KR922195	54
97	Marine	W	67b22	Basidiomycota	*Udeniomyces pannonicus*	KR922311	54
54	Marine	W	32b05	Basidiomycota	*Udeniomyces* sp.	HQ256897	54
49	Marine	NW/N	29b03	Firmicutes	*Bacillus* sp.	JF706502	55
54	Marine	W	32b13	Actinobacteria	*Clavibacter* sp.	HQ256832	55
97	Marine	W	67b30	Actinobacteria	*Clavibacter* sp.	KR922269	55
86	Marine	W	59b27	Y-Proteobacteria	*Dyella* sp.	KR922159	55
75	Marine	W	48b09	Y-Proteobacteria	*Pantoe* sp.	KR922062	55

87	Marine	SW/S	60b12	Y-Proteobacteria	*Pseudomonas* sp.	KR922190	55
89	Marine	W	63b30	Y-Proteobacteria	*Pseudomonas* sp.	KR922230	55
49	Marine	NW/N	29b02	Actinobacteria	*Rhodococcus* sp.	HQ256815	55
87	Marine	SW/S	60b23	α-Proteobacteria	*Sphingomonas* sp.	KR922196	55
54	Marine	W	32b21	Basidiomycota	*Udeniomyces* sp.	JF706580	55
97	Marine	W	67b25	Basidiomycota	*Udeniomyces* sp.	KR922312	55
49	Marine	NW/N	29b01	Basidiomycota	*Bensingtonia yucciola*	HQ256892	56
87	Marine	SW/S	60b03	α-Proteobacteria	*Brevundimonas* sp.	KR922182	56
71	Marine	NW/N	46b09	Actinobacteria	*Curtobacterium* sp.		56
54	Marine	W	32b58	Y-Proteobacteria	*Ewingella americana*	JF706505	56
84	Marine	W	57b14	Actinobacteria	*Frigoribacterium* sp.	KR922115	56
86	Marine	W	59b54	Actinobacteria	*Frigoribacterium* sp.	KR922176	56
86	Marine	W	59b44	Y-Proteobacteria	*Pantoe agglomerans*	KR922172	56
54	Marine	W	32b60	Y-Proteobacteria	*Pseudomonas graminis*	HQ256858	56
86	Marine	W	59b42	α-Proteobacteria	*Sphingomonas* sp.	KR922171	56
54	Marine	W	32b12	Basidiomycota	*Udeniomyces pannonicus*	JF706578	56
85	Marine	W	58b23	Bacteroidetes	*Epiltholimonas sp.*		57
89	Marine	W	63b39	Bacteroidetes	*Pedobacter* sp.	KR922237	57
66	Marine	W	41b02	Actinobacteria	*Rhodococcus* sp.	JF706542	57
97	Marine	W	67b23	α-Proteobacteria	*Sphingomonas* sp.	KR922265	57
89	Marine	W	63b42	Actinobacteria	*Subtercola* sp.	KR922240	57
54	Marine	W	32b02	Actinobacteria	*Agreia* sp.	HQ256834	58
71	Marine	NW/N	46b08	Actinobacteria	*Curtobacterium* sp.	KR922054	58
89	Marine	W	63b08	Actinobacteria	*Frondihabitans* sp.	KR922215	58
85	Marine	W	58b22	Bacteroidetes	*Pedobacter* sp.	KR922135	58
50	Marine	W	30b06	Actinobacteria	*Rhodococcus* sp.	HQ256820	58
79	Marine	SW/S	52b02	Actinobacteria	*Rhodococcus* sp.	KR922085	58
87	Marine	SW/S	60b06	α-Proteobacteria	*Sphingomonas* sp.	KR922184	58
87	Marine	SW/S	60b11	α-Proteobacteria	*Sphingomonas* sp.	KR922189	58
89	Marine	W	63b43	α-Proteobacteria	*Sphingomonas* sp.	KR922241	58
85	Marine	W	58b06	unidentified bacteria	*unidentified*		58
87	Marine	SW/S	60b10	Y-Proteobacteria	*Xanthomonas* sp.	KR922188	58
50	Marine	W	30b04	Actinobacteria	*Agreia* sp.	HQ256818	59
84	Marine	W	57b27	Actinobacteria	*Clavibacter michiganensis*	KR922122	59
89	Marine	W	63b38	Actinobacteria	*Clavibacter michiganensis*	KR922236	59
84	Marine	W	57b03	Actinobacteria	*Clavibacter* sp.	KR922107	59
97	Marine	W	67b17	Actinobacteria	*Nocardioides* sp.		59
97	Marine	W	67b19	Y-Proteobacteria	*Pseudomonas* sp.		59
97	Marine	W	67b29	Actinobacteria	*Rhodococcus* sp.		59
86	Marine	W	59b39	α-Proteobacteria	*Sphingomonas* sp.	KR922168	59
87	Marine	SW/S	60b32	α-Proteobacteria	*Sphingomonas* sp.	KR922203	59
54	Marine	W	32b68	Basidiomycota	*Udeniomyces* sp.	JF706587	59
97	Marine	W	67b04	Firmicutes	*Bacillus* sp.	KR922255	60
86	Marine	W	59b20	α-Proteobacteria	*Brevundimonas* sp.	KR922156	60
87	Marine	SW/S	60b15	α-Proteobacteria	*Brevundimonas* sp.		60
47	Marine	NW/N	28b14	β-Proteobacteria	*Burkholderia* sp.	HQ256814	60
81	Marine	NW/N	54b02	Actinobacteria	*Clavibacter michiganensis*	KR922091	60
47	Marine	NW/N	28b07	Basidiomycota	*Cryptococcus* sp.	HQ256890	60
89	Marine	W	63b03	Actinobacteria	*Frigoribacterium* sp.	KR922210	60
54	Marine	W	32b61	α-Proteobacteria	*Sphingomonas* sp.	HQ256859	60
89	Marine	W	63b40	α-Proteobacteria	*Sphingomonas* sp.	KR922238	60
54	Marine	W	32b40	Basidiomycota	*Udeniomyces* sp.	JF706582	60
86	Marine	W	59b33	Firmicutes	*Bacillus* sp.	KR922163	61
47	Marine	NW/N	28b13	Basidiomycota	*Cryptococcus* sp.	HQ256884	61
85	Marine	W	58b16	Actinobacteria	*Curtobacterium* sp.	KR922130	61
54	Marine	W	32b59	Y-Proteobacteria	*Ewingella americana*	HQ256856	61
54	Marine	W	32b63	Actinobacteria	*Plantibacter* sp.	HQ256861	61
54	Marine	W	32b03	Actinobacteria	*Rathayibacter* sp.	JF706503	61
87	Marine	SW/S	60b07	α-Proteobacteria	*Sphingomonas* sp.	KR922185	61
87	Marine	SW/S	60b30	α-Proteobacteria	*Sphingomonas* sp.	KR922201	61
89	Marine	W	63b41	Actinobacteria	*Subtercola* sp.	KR922239	61
54	Marine	W	32b65	α-Proteobacteria	*Agrobacterium* sp.	HQ256862	62
97	Marine	W	67b21	Basidiomycota	*Cryptococcus* sp.	KR922310	62
54	Marine	W	32b36	Actinobacteria	*Curtobacterium* sp.	HQ256840	62
47	Marine	NW/N	28b05	Basidiomycota	*Dioszegia crocea*	HQ256888	62
54	Marine	W	32b33	Y-Proteobacteria	*Pseudoxanthomonas* sp.	HQ256838	62
54	Marine	W	32b45	α-Proteobacteria	*Sphingomonas* sp.	HQ256844	62
54	Marine	W	32b50	α-Proteobacteria	*Sphingomonas* sp.	HQ256848	62
55	Marine	W	33b06	Basidiomycota	*Udeniomyces* sp.	JF706589	62
86	Marine	W	59b55	β-Proteobacteria	*Variovorax paradoxus*	KR922177	62
89	Marine	W	63b05	Actinobacteria	*Arthrobacter nicotinovorans*	KR922212	63

97	Marine	W	67b08	Basidiomycota	*Cryptococcus* sp.	KR922308	63
55	Marine	W	33b07	Basidiomycota	*Cryptococcus victoriae*	JF706590	63
86	Marine	W	59b36	Actinobacteria	*Curtobacterium* sp.	KR922165	63
87	Marine	SW/S	60b28	Basidiomycota	*Dioszegia zslotii*		63
89	Marine	W	63b19	Actinobacteria	*Frigoribacterium* sp.	KR922223	63
54	Marine	W	32b31	ϒ-Proteobacteria	*Pseudomonas syringae*	JN176585	63
86	Marine	W	59b51	Actinobacteria	*Rathayibacter* sp.	KR922174	63
87	Marine	SW/S	60b29	α-Proteobacteria	*Sphingomonas* sp.	KR922200	63
89	Marine	W	63b15	α-Proteobacteria	*Sphingomonas* sp.	KR922221	63
91	Marine	NW/N	66b11	α-Proteobacteria	*Sphingomonas* sp.	KR922250	63
97	Marine	W	67b20	Basidiomycota	*Udeniomyces pannonicus*	KR922309	63
85	Marine	W	58b15	β-Proteobacteria	*Variovorax* sp.	KR922129	63
75	Marine	W	48b04	Bacteroidetes	*Chryseobacterium* sp.	KR922058	64
89	Marine	W	63b20	Actinobacteria	*Clavibacter michiganensis*	KR922224	64
89	Marine	W	63b47	Actinobacteria	*Clavibacter michiganensis*	KR922244	64
47	Marine	NW/N	28b06	Basidiomycota	*Dioszegia crocea*	HQ256889	64
54	Marine	W	32b15	Basidiomycota	*Dioszegia* sp.	JF706579	64
54	Marine	W	32b17	Actinobacteria	*Frigoribacterium* sp.	HQ256833	64
50	Marine	W	30b07	ϒ-Proteobacteria	*Psychrobacter sp.*	HQ256821	64
54	Marine	W	32b29	α-Proteobacteria	*Rhizobium* sp.	HQ256837	64
54	Marine	W	32b11	α-Proteobacteria	*Sphingomonas* sp.	HQ256831	64
87	Marine	SW/S	60b13	α-Proteobacteria	*Sphingomonas* sp.	KR922191	64
89	Marine	W	63b10	α-Proteobacteria	*Sphingomonas* sp.	KR922217	64
89	Marine	W	63b27	α-Proteobacteria	*Sphingomonas* sp.	KR922229	64
89	Marine	W	63b36	α-Proteobacteria	*Sphingomonas* sp.	KR922234	64
54	Marine	W	32b14	unidentified bacteria	*unidentified*		64
89	Marine	W	63b21	β-Proteobacteria	*Variovorax* sp.	KR922225	64
32	Marine	SW/S	16b01	Firmicutes	*Bacillus* sp.		65
97	Marine	W	67b11	α-Proteobacteria	*Brevundimonas* sp.	KR922259	65
89	Marine	W	63b34	Bacteroidetes	*Chryseobacterium* sp.		65
47	Marine	NW/N	28b01	Basidiomycota	*Dioszegia crocea*	HQ260319	65
54	Marine	W	32b41	Basidiomycota	*Dioszegia* sp.	JF706583	65
54	Marine	W	32b28	Actinobacteria	*Frondihabitans* sp.	HQ256836	65
80	Marine	NW/N	53b01	ϒ-Proteobacteria	*Moraxella* sp.	KR922089	65
97	Marine	W	67b16	Actinobacteria	*Promicromonospora sp.*	KR922263	65
84	Marine	W	57b25	α-Proteobacteria	*Sphingomonas* sp.	KR922120	65
86	Marine	W	59b19	α-Proteobacteria	*Sphingomonas* sp.	KR922155	65
54	Marine	W	32b51	Actinobacteria	*Subtercola* sp.	HQ256849	65
84	Marine	W	57b19	unidentified bacteria	*unidentified*		65
84	Marine	W	57b06	Actinobacteria	*Arthrobacter* sp.	KR922109	66
54	Marine	W	32b46	Actinobacteria	*Curtobacterium herbarum*	HQ256845	66
54	Marine	W	32b73	Basidiomycota	*Dioszegia fristigensis*	JN176595	66
54	Marine	W	32b37	Basidiomycota	*Dioszegia* sp.	JF706581	66
87	Marine	SW/S	60b27	β-Proteobacteria	*Duganella* sp.	KR922199	66
85	Marine	W	58b27	Bacteroidetes	*Flavobacterium* sp.	KR922138	66
86	Marine	W	59b35	Bacteroidetes	*Hymenobacter* sp.		66
89	Marine	W	63b13	β-Proteobacteria	*Janthinobacterium* sp.	KR922220	66
54	Marine	W	32b20	Actinobacteria	*Leifsonia* sp.	HQ256835	66
50	Marine	W	30b03	Actinobacteria	*Nocardioides* sp.		66
81	Marine	NW/N	54b03	Actinobacteria	*Rhodococcus* sp.	KR922092	66
30	Marine	NW/N	14b06	α-Proteobacteria	*Sphingomonas* sp.	DQ512790	66
84	Marine	W	57b15	α-Proteobacteria	*Sphingomonas* sp.	KR922116	66
97	Marine	W	67b13	Actinobacteria	*Streptomyces* sp.	KR922260	66
54	Marine	W	32b44	Basidiomycota	*Dioszegia hungarica*	JF706584	67
85	Marine	W	58b07	Bacteroidetes	*Epiltholimonas sp.*		67
97	Marine	W	67b15	Actinobacteria	*Janibacter* sp.	KR922262	67
54	Marine	W	32b54	Actinobacteria	*Rathayibacter* sp.	HQ256852	67
97	Marine	W	67b07	α-Proteobacteria	*Rhizobium* sp.	KR922257	67
84	Marine	W	57b04	α-Proteobacteria	*Sphingomonas* sp.	KR922108	67
87	Marine	SW/S	60b20	α-Proteobacteria	*Sphingomonas* sp.		67
89	Marine	W	63b35	α-Proteobacteria	*Sphingomonas* sp.	KR922233	67
89	Marine	W	63b45	α-Proteobacteria	*Sphingomonas* sp.	KR922242	67
97	Marine	W	67b24	α-Proteobacteria	*Sphingomonas* sp.	KR922266	67
54	Marine	W	32b71	Basidiomycota	*Udeniomyces puniceus*	JN176594	67
97	Marine	W	67b32	Unidentified yeast	*unidentified*		67
72	Marine	W	47b02	β-Proteobacteria	*Variovorax* sp.	KR922055	67
54	Marine	W	32b48	Basidiomycota	*Bullera globispora*	JF706585	68
85	Marine	W	58b19	Bacteroidetes	*Hymenobacter* sp.	KR922132	68
72	Marine	W	47b01	α-Proteobacteria	*Sphingomonas* sp.		68
79	Marine	SW/S	52b08	α-Proteobacteria	*Sphingomonas* sp.	KR922088	68
87	Marine	SW/S	60b08	α-Proteobacteria	*Sphingomonas* sp.	KR922186	68

87	Marine	SW/S	60b09	α-Proteobacteria	*Sphingomonas* sp.	KR922187	68
89	Marine	W	63b04	α-Proteobacteria	*Sphingomonas* sp.	KR922211	68
89	Marine	W	63b37	α-Proteobacteria	*Sphingomonas* sp.	KR922235	68
54	Marine	W	32b47	Υ-Proteobacteria	*Stenotrophomonas* sp.	HQ256846	68
55	Marine	W	33b05	Υ-Proteobacteria	*Stenotrophomonas* sp.	HQ256869	68
55	Marine	W	33b04	Unidentified yeast	*unidentified*		68
97	Marine	W	67b27	Basidiomycota	*Cryptococcus aquaticus*	KR922313	69
72	Marine	W	47b05	Bacteroidetes	*Hymenobacter* sp.	KR922056	69
91	Marine	NW/N	67b01	β-Proteobacteria	*Janthinobacterium* sp.	KR922252	69
62	Marine	W	37b05	Υ-Proteobacteria	*Pseudomonas fluorescens*	JF706535	69
78	Marine	NW/N	51b08	Υ-Proteobacteria	*Pseudomonas* sp.	KR922083	69
81	Marine	NW/N	54b04	α-Proteobacteria	*Sphingomonas* sp.		69
81	Marine	NW/N	54b06	α-Proteobacteria	*Sphingomonas* sp.	KR922093	69
84	Marine	W	57b02	α-Proteobacteria	*Sphingomonas* sp.	KR922106	69
84	Marine	W	57b08	α-Proteobacteria	*Sphingomonas* sp.	KR922110	69
89	Marine	W	63b07	α-Proteobacteria	*Sphingomonas* sp.	KR922214	69
89	Marine	W	63b12	α-Proteobacteria	*Sphingomonas* sp.	KR922219	69
89	Marine	W	63b26	α-Proteobacteria	*Sphingomonas* sp.	KR922228	69
89	Marine	W	63b33	α-Proteobacteria	*Sphingomonas* sp.	KR922232	69
97	Marine	W	67b03	α-Proteobacteria	*Sphingomonas* sp.	KR922254	69
97	Marine	W	67b14	Firmicutes	*Staphylococcus xylosus*	KR922261	69
79	Marine	SW/S	52b05	Υ-Proteobacteria	*Stenotrophomonas* sp.	KR922087	69
97	Marine	W	67b06	Actinobacteria	*Cellulomonas cellasea*	KR922256	70
87	Marine	SW/S	60b25	β-Proteobacteria	*Massilia* sp.		70
80	Marine	NW/N	53b06	Actinobacteria	*Nocardioides* sp.	KR922090	70
54	Marine	W	32b49	α-Proteobacteria	*Sphingomonas* sp.	HQ256847	70
75	Marine	W	48b08	α-Proteobacteria	*Sphingomonas* sp.	KR922061	70
79	Marine	SW/S	52b03	α-Proteobacteria	*Sphingomonas* sp.	KR922086	70
81	Marine	NW/N	54b05	α-Proteobacteria	*Sphingomonas* sp.		70
87	Marine	SW/S	60b19	α-Proteobacteria	*Sphingomonas* sp.	KR922194	70
97	Marine	W	67b26	α-Proteobacteria	*Sphingomonas* sp.	KR922267	70
54	Marine	W	32b70	Basidiomycota	*Sporobolomyces ruberrimus*	JF706588	70
54	Marine	W	32b43	Υ-Proteobacteria	*Stenotrophomonas* sp.	HQ256843	70
54	Marine	W	32b72	Υ-Proteobacteria	*Stenotrophomonas* sp.	HQ256871	70
55	Marine	W	33b03	Υ-Proteobacteria	*Xanthomonas campestris*	HQ256868	70
87	Marine	SW/S	60b02	Υ-Proteobacteria	*Xanthomonas* sp.	KR922181	70
54	Marine	W	32b06	Bacteroidetes	*Flavobacterium* sp.	HQ256857	71
81	Marine	NW/N	54b11	Bacteroidetes	*Hymenobacter* sp.	KR922095	71
54	Marine	W	32b57	α-Proteobacteria	*Sphingomonas* sp.	HQ256855	71
55	Marine	W	33b09	α-Proteobacteria	*Sphingomonas* sp.	HQ256873	71
72	Marine	W	47b03	α-Proteobacteria	*Sphingomonas* sp.		71
87	Marine	SW/S	60b33	α-Proteobacteria	*Sphingomonas* sp.	KR922204	71
54	Marine	W	32b69	Υ-Proteobacteria	*Stenotrophomonas* sp.	HQ256865	71
55	Marine	W	33b01	Υ-Proteobacteria	*Stenotrophomonas* sp.	HQ256866	71
79	Marine	SW/S	52b07	Υ-Proteobacteria	*Stenotrophomonas* sp.		71
87	Marine	SW/S	60b14	α-Proteobacteria	*Brevundimonas* sp.	KR922192	72
97	Marine	W	67b02	Bacteroidetes	*Chryseobacterium* sp.	KR922253	72
47	Marine	NW/N	28b09	Basidiomycota	*Dioszegia hungarica*	HQ256891	72
84	Marine	W	57b18	Bacteroidetes	*Flavobacterium* sp.	KR922118	72
54	Marine	W	32b04	α-Proteobacteria	*Sphingomonas* sp.	HQ256841	72
54	Marine	W	32b39	α-Proteobacteria	*Sphingomonas* sp.	JF706504	72
54	Marine	W	32b30	Υ-Proteobacteria	*Stenotrophomonas* sp.	JN176584	72
54	Marine	W	32b38	Υ-Proteobacteria	*Stenotrophomonas* sp.	JN176587	72
55	Marine	W	33b08	Υ-Proteobacteria	*Stenotrophomonas* sp.	HQ256870	72
23	Polluted	NE	07b11	Firmicutes	*Bacillus* sp.		31
53	Polluted	NE	31b07	Actinobacteria	*Rhodococcus* sp.	HQ256828	50
53	Polluted	NE	31b08	Actinobacteria	*Frigoribacterium* sp.	HQ256829	52
88	Polluted	NW/N	61b06	Υ-Proteobacteria	*Stenotrophomonas* sp.	KR922206	54
53	Polluted	NE	31b04	Υ-Proteobacteria	*Pseudomonas* sp.	HQ256826	56
53	Polluted	NE	31b03	Actinobacteria	*Kocuria palustris*	HQ256825	60
23	Polluted	NE	07b06	Firmicutes	*Paenibcillus* sp.		60
53	Polluted	NE	31b02	Actinobacteria	*Rhodococcus* sp.	HQ256824	62
88	Polluted	NW/N	61b10	Bacteroidetes	*Chryseobacterium* sp.	KR922207	66
53	Polluted	NE	31b01	Firmicutes	*Bacillus megaterium*	HQ256822	68
53	Polluted	NE	31b09	Actinobacteria	*Streptomyces* sp.	HQ256830	68
53	Polluted	NE	31b10	β-Proteobacteria	*Massilia* sp.	HQ256823	71

Table S3. Mann-Whitney test allows us to compare surface tension distribution of all 480 strains tested for BS production: **(a)** according to air mass origin of the cloud events (West, Northwest/North, Northeast and Southwest/South), **(b)** according to physicochemical characteristics of the cloud waters (Marine, Highly marine, Continental and Polluted). The lowest p-values (<< 0.05) are highlighted in red. Statistics are performed by means of PAST software version 3.09 (Hammer et al., 2001).

(a)	NE	NW/N	SW/S	W
NE		0.009	0.730	0.368
NW/N	0.009		0.001	0.005
SW/S	0.730	0.001		0.157
W	0.368	0.005	0.157	

(b)	Continental	Highly marine	Marine	Polluted
Continental		0.001	0.073	0.143
Highly marine	0.001		0.047	0.911
Marine	0.073	0.047		0.485
Polluted	0.143	0.911	0.485	

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