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Supplement of

Microbial food web dynamics during spring phytoplankton blooms in the naturally iron-fertilized Kerguelen area (Southern Ocean)

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Supplementary Table 1. Comparison of fluxes of organic matter production and demand by the microbial food web in HNLC waters (Station R-2 and C11), in Fe-fertilized waters off (Stations F-L, E-4W, E-1, E-3, E-4E, and E-5) and above the Kerguelen plateau (Stations A3). Above the plateau (A3 station), fluxes are given for the early (A3-2, KEOPS2) and the late phase (A3-1, A3-3, A3-4 and A3-5, KEOPS1) of the bloom. PP and GCP are integrated fluxes for the Ze and BP and BCD are integrated fluxes for the mixed layer. The Z_{ML} was lower than the Ze at all sites, except E-3 and E-5. For the % loss of BP by HNF and viral lysis mean values for the mixed layer are given.

Z_{ML} – depth of the Mixed Layer; Ze – Euphotic Layer depth (1% surface irradiance); PP – Primary Production, GCP - Gross Community Production, BP – Bacterial Production, BCD – Bacterial Carbon Demand= Bacterial Production + Bacterial Respiration, measured at each station, HNF – Heterotrophic Nanoflagellates

KEOPS 2 PP and GCP –KEOPS2 unpublished data.

KEOPS 1 data are from Christaki et al. (2008), Lefèvre et al. (2008) and Obernosterer et al. (2008), Malits et al. this volume.

	Z_{ML} (m)	Ze (m)	PP (mmol C $m^{-2} d^{-1}$)	GCP (mmol C $m^{-2} d^{-1}$)	BP (mmol C $m^{-2} d^{-1}$)	BCD (mmol C $m^{-2} d^{-1}$)	BCD : PP	BCD :GCP	% loss of BP by HNF grazing	% loss of BP by viral lysis
KEOPS 2										
R-2	105	92	11	49	0.5	27	2.49	0.26	69	20
F-L	38	29	285	324	5.2	46	0.16	0.14	53	8
E-4W	61	31	218	343	4.2	41	0.19	0.12	27	11
E-1	72	64	44	83	2.5	18	0.42	0.22	41	18
E-3	38	68	57	59	1.5	32	0.56	0.54	46	ns
E-4E	74	34	77	108	5.1	42	0.55	0.39	32	24
E-5	46	54	79	158	2.8	54	0.68	0.34	56	3
A3-2	153	38	158	344	5.8	72	0.46	0.23	50	3
KEOPS 1										
A3-1	52	42	88	138	9.2	55	0.63	0.40	27	86 ± 82 (9-228)
A3-3	51	40	85	80	4.9	54	0.64	0.68	29	
A3-4	79	46	89	80	11.2	28	0.31	0.35	52	
A3-5	84	44	81	101	10.2	32	0.40	0.32	34	
C11	73	98	21	25	2.4	31	1.48	1.24	95	27 ± 19 (6-59)

Suppl. Fig. 1. Cytograms of the typical viral and bacterial community (a) and of heterotrophic nanoflagellates (b) during KEOPS2. The communities were discriminated based on the intensity of their green fluorescence (F-L) after staining with the nucleic acid-specific dye SYBR Green I versus the side-scatter signal (SSC). The viral and bacterial community is composed of 2 groups: (R1, R2), and (R3, R4). R1, R2 groups correspond in the text to 'low' and 'high' green fluorescence viral like particles (VLP). R3 and R4 correspond in the text to LNA (low nucleic acid) and HNA (high nucleic acid) bacteria. The heterotrophic nanoflagellate community (HNF) is composed of three groups: HNF 1, 2, and 3 (see table 2).

Suppl. Fig. 2. Transmission electron micrographs (TEM) bacteria and virus particles in samples collected during KEOPS 2. The flagellated bacterial morphotype was the dominant morphotype below 200 m, and was not seen in surface waters.

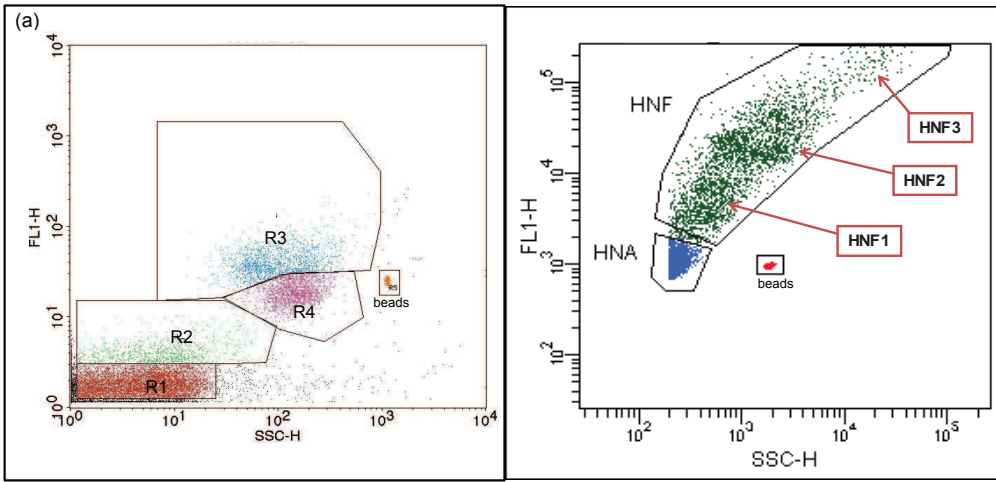


Figure S1

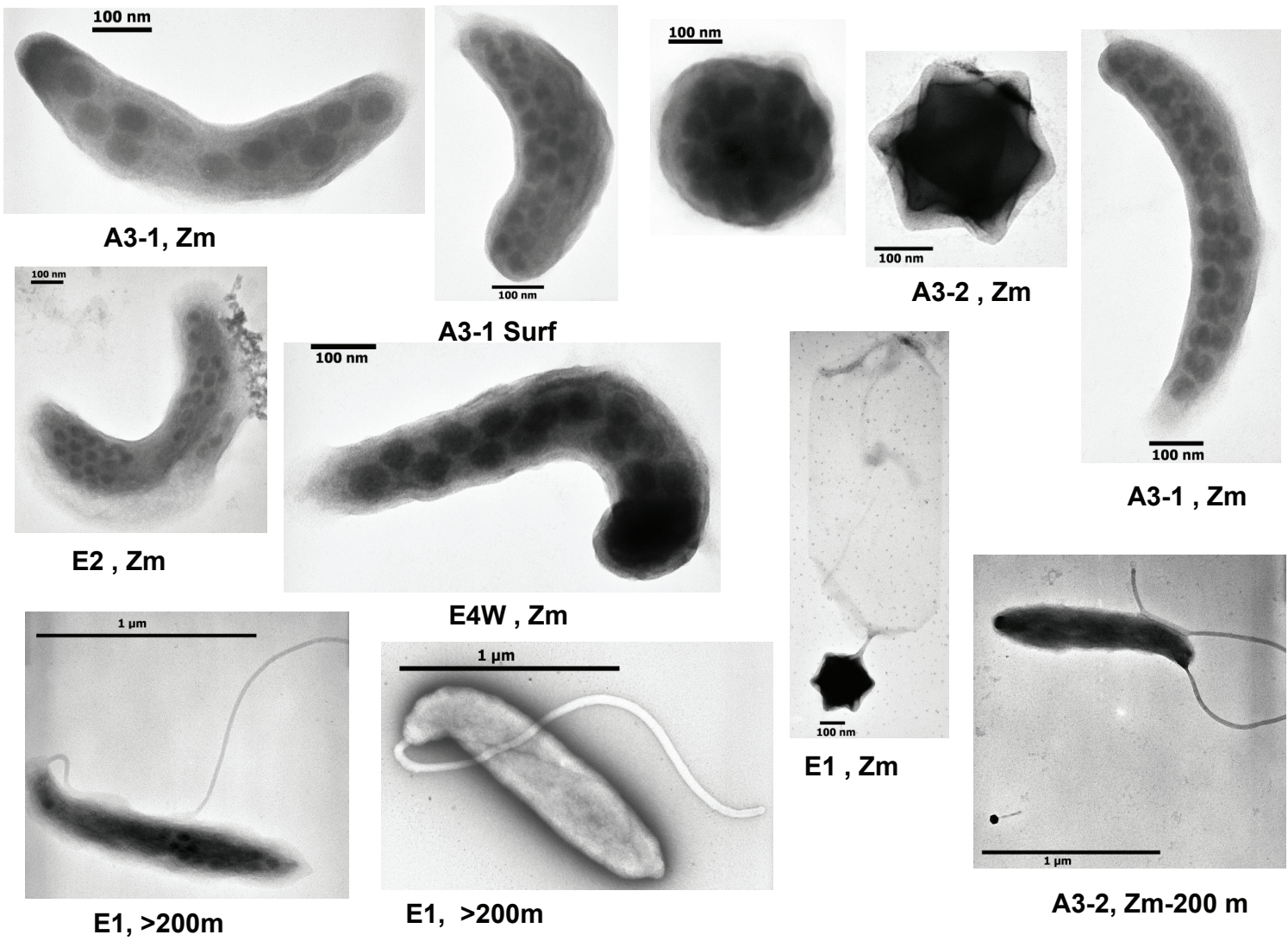


Figure S2