

Subsurface iron accumulation and rapid aluminium removal in the Mediterranean following African dust deposition

Matthieu Bressac, Thibaut Wagener, Nathalie Leblond, Antonio Tovar-Sánchez, Céline Ridame, Samuel Albani, Sophie Guasco, Aurélie Dufour, Stéphanie H. M. Jacquet, François Dulac, Karine Desboeufs, and Cécile Guieu

Supplementary Information

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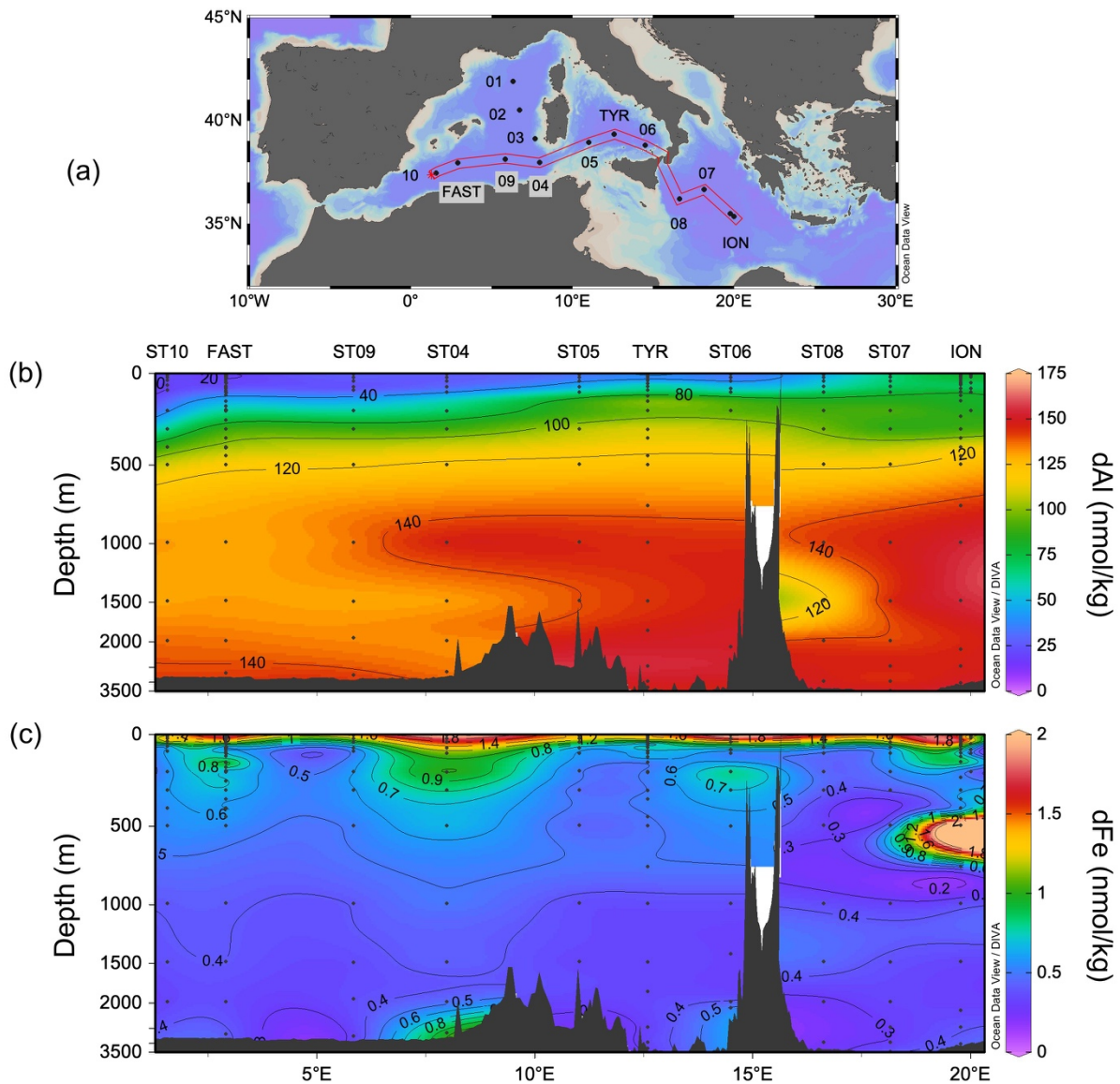
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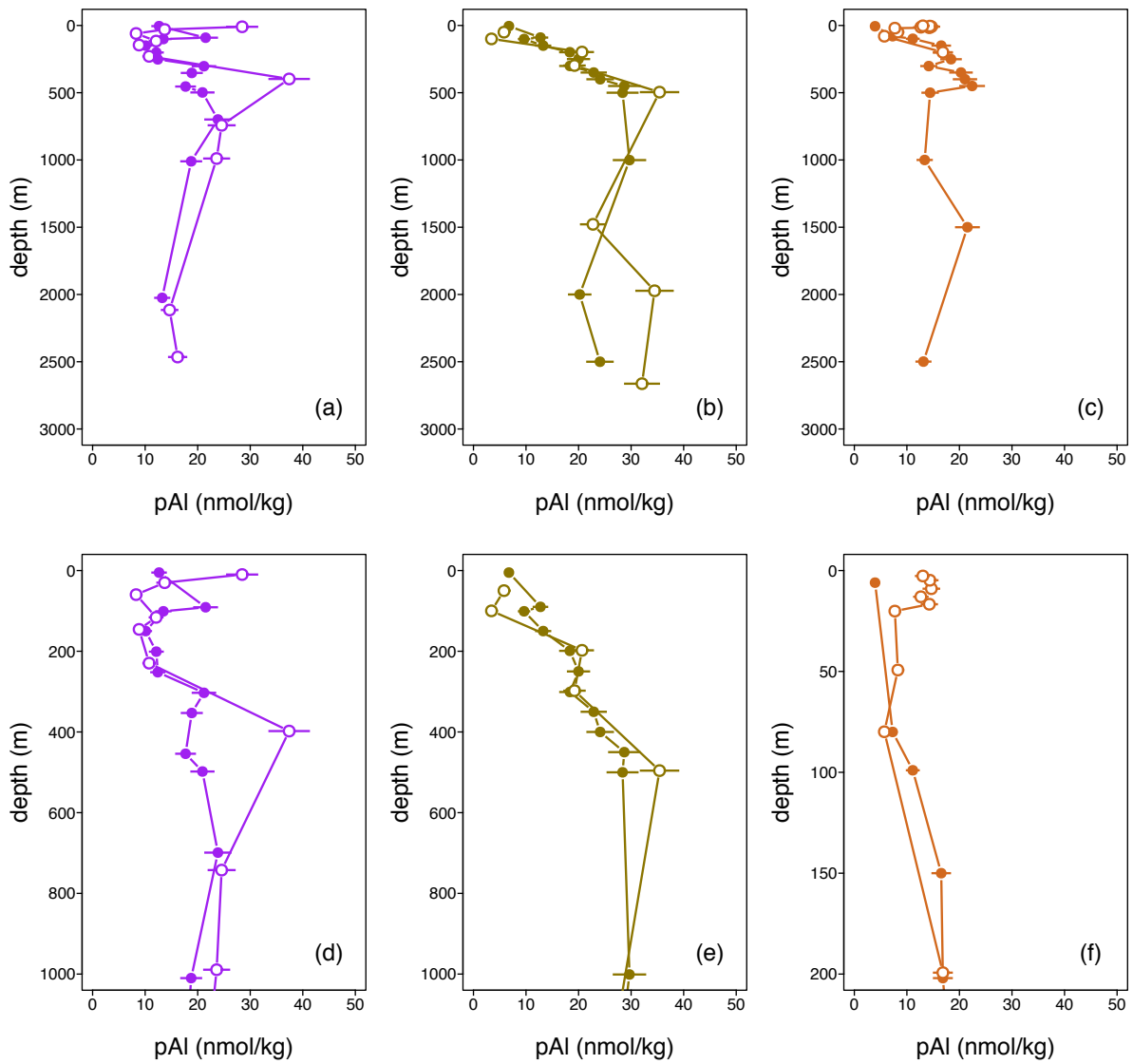
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Supp. Table 1 – Certified reference material recoveries (%) for Al and Fe obtained during the analysis of the suspended and sinking particulate fractions.

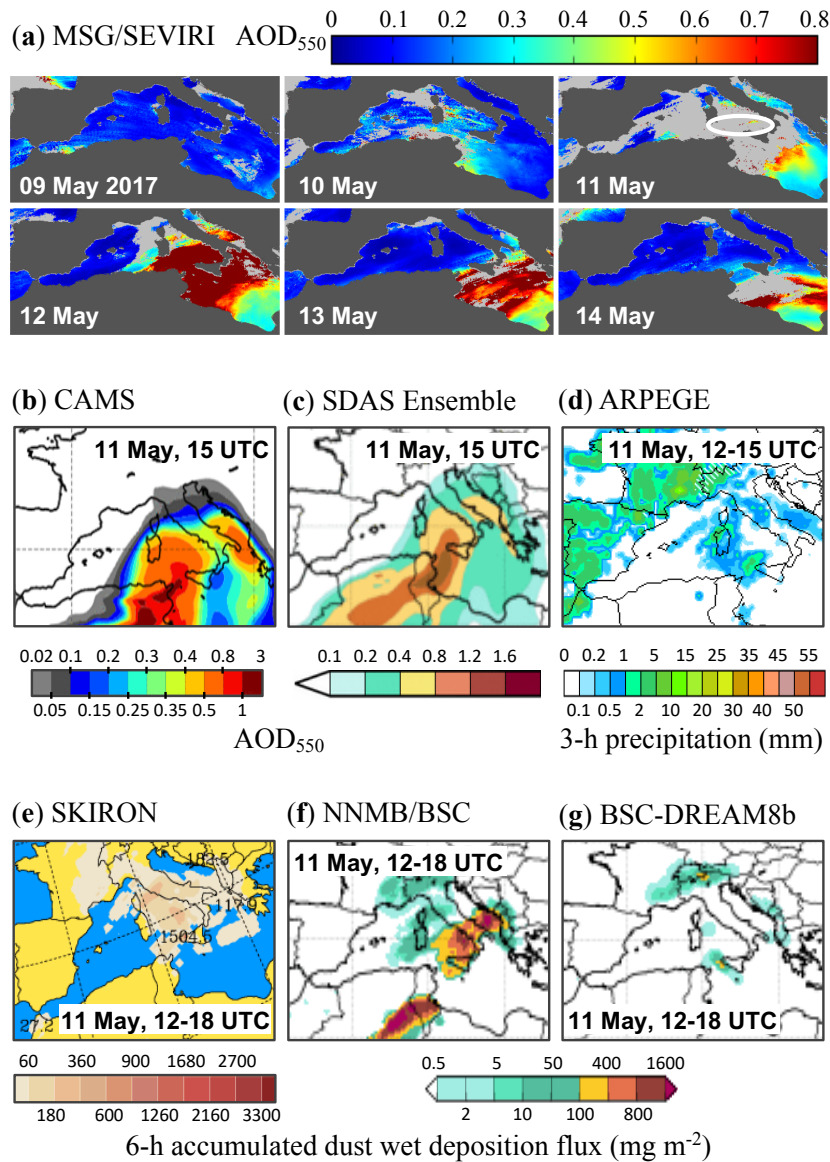
	Suspended fraction		Sinking fraction
	MESS-4 (<i>n</i> = 5)	PACS-3 (<i>n</i> = 3)	GBW 07313 (<i>n</i> = 3)
Al	105.9 ± 16.5	131.5 ± 11.3	93.5 ± 0.7
Fe	105.1 ± 16.5	119.4 ± 10.3	95.7 ± 1.7



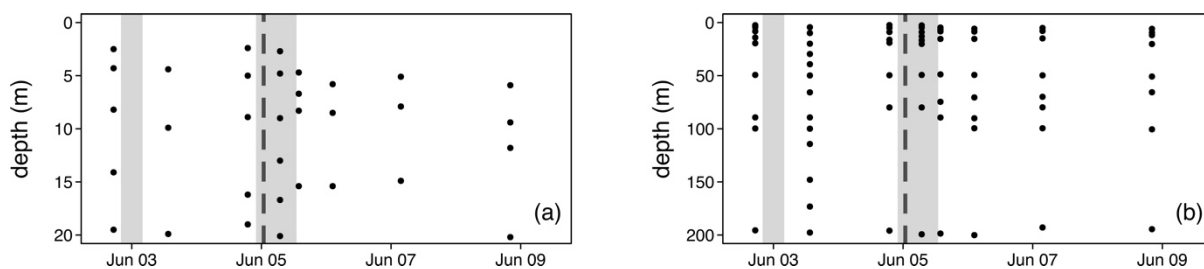
Supp. Fig. 1 – (a) Sampling locations during the PEACETIME cruise. The red line corresponds to the southern route of the cruise used to represent the longitudinal and vertical distributions of (b) dAl and (c) dFe concentrations. Note the non-linear y-axis in (b) and (c). This figure was created using Ocean Data View (Schlitzer, R., Ocean Data View, 2017, <http://odv.awi.de/>, last access: 02/04/2021).



Supp. Fig. 2 – Comparison of the pAl vertical profiles obtained with the trace metal-clean (open circles) and classical rosette (filled circles) at the stations ION (**a** and **d**) and FAST the 03/06/2017 (**b** and **e**) and 05/06/2017 (**c** and **f**). The upper panels correspond to the entire vertical profile, and the lower panels correspond to the upper 1000 m (**d** and **e**) and 200 m (**f**). Note that trace metal-clean and classical rosettes were deployed a few hours apart.



Supp. Fig. 3 – Quick-looks of near real-time satellite (top) and forecast model products of the 11 May dust deposition event in the Tyrrhenian Sea produced during the PEACETIME cruise: (a) MSG/SEVIRI-derived daily (daytime) mean aerosol optical depth at 550 nm (AOD₅₅₀); the white ellipse on the 11th of May image includes the location of the 5 Tyrrhenian stations reported in Fig. 1; (b) dust AOD₅₅₀ on 11 May, 15 UTC from ECMWF/CAMS model run of 10 May 0Z; (c) dust AOD₅₅₀ on 11 May, 18 UTC from WMO SDAS-WAS ensemble model run of 9 May; (d) 3-h accumulated precipitation on 11 May, 15 UTC from Météo-France/ARPEGE model run of 10 May, 6Z; (e), (f) and (g) 6-h accumulated dust wet deposition (mg m⁻²) on 11 May, 18 UTC from SKIRON/AM&WFG model run of 9 May, 0Z, from NNMB/BSC model run of 10 May, 12Z, and from BSC-DREAM8b model run of 10 May, 0Z, respectively.



Supp. Fig. 4 – Temporal and vertical resolutions of dissolved and particulate Fe and Al measurements performed at the FAST station within the (a) 0-20 m and (b) 0-200 m depth ranges. Grey vertical bars indicate the two dusty rain events that occurred in the FAST station area. The grey-dotted vertical line corresponds to the time of the dusty rainfall sampled on board the R/V. Note that only dissolved concentrations were measured the 03/06/17 (2nd profile).