

Fig. S1. Comparison between pump and bottle concentrations of (a) DMSPt, (b) DMSPPp, (c) DMSPd and (d) DMS (nM). Samples were collected in January-February 2005 during the KEOPS cruise (Belviso et al. 2008), so several days before the Kerguelen-La Réunion transect aboard R/V Marion Dufresne II.

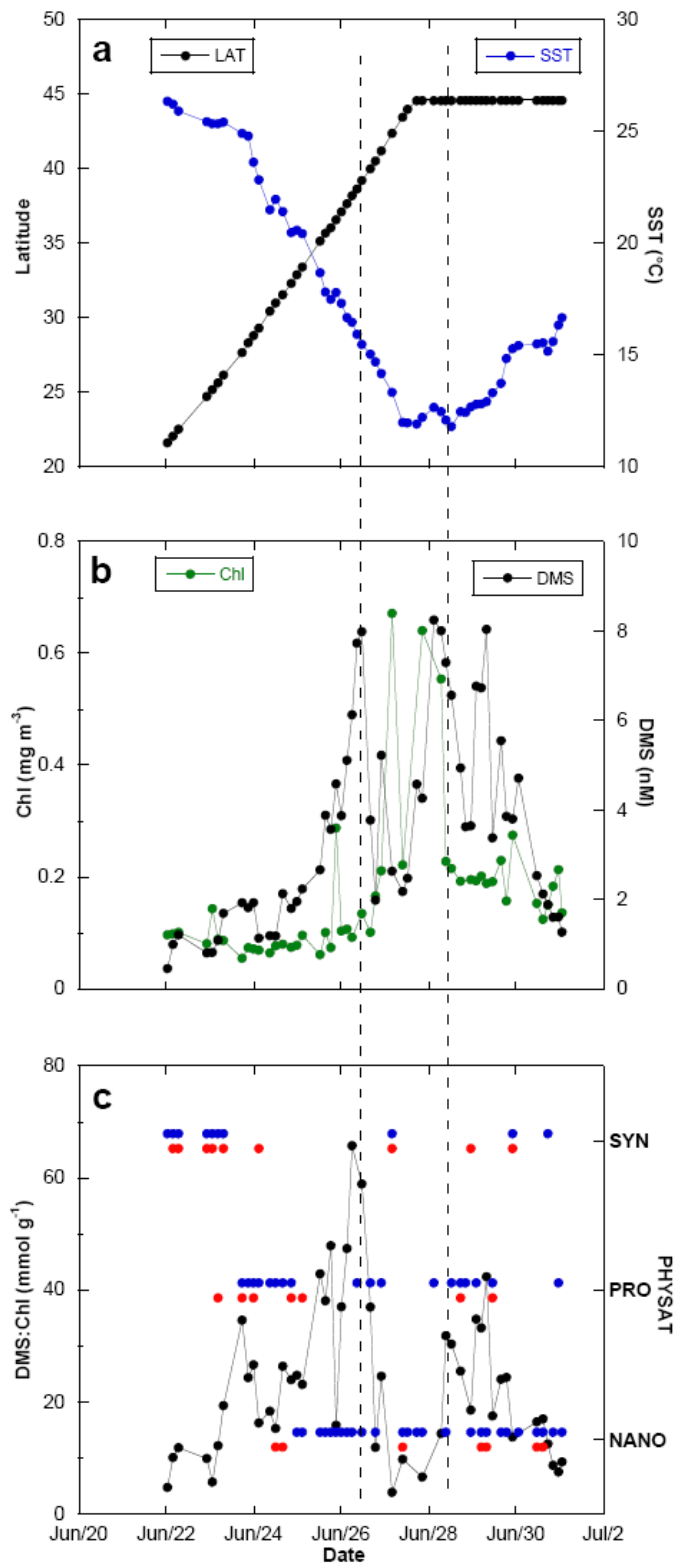


Fig. S2. Spatio-temporal variations of Sea Surface Temperature (SST: °C), phytoplankton biomass (Chl: mg m⁻³), DMS concentration (nM), DMS normalized to Chl (DMS:Chl, mmol g⁻¹) and observed (red dots) and climatological (blue dots) monthly PFT composition along the DMS transect carried out in the Pacific basin by Marandino et al. (2007).

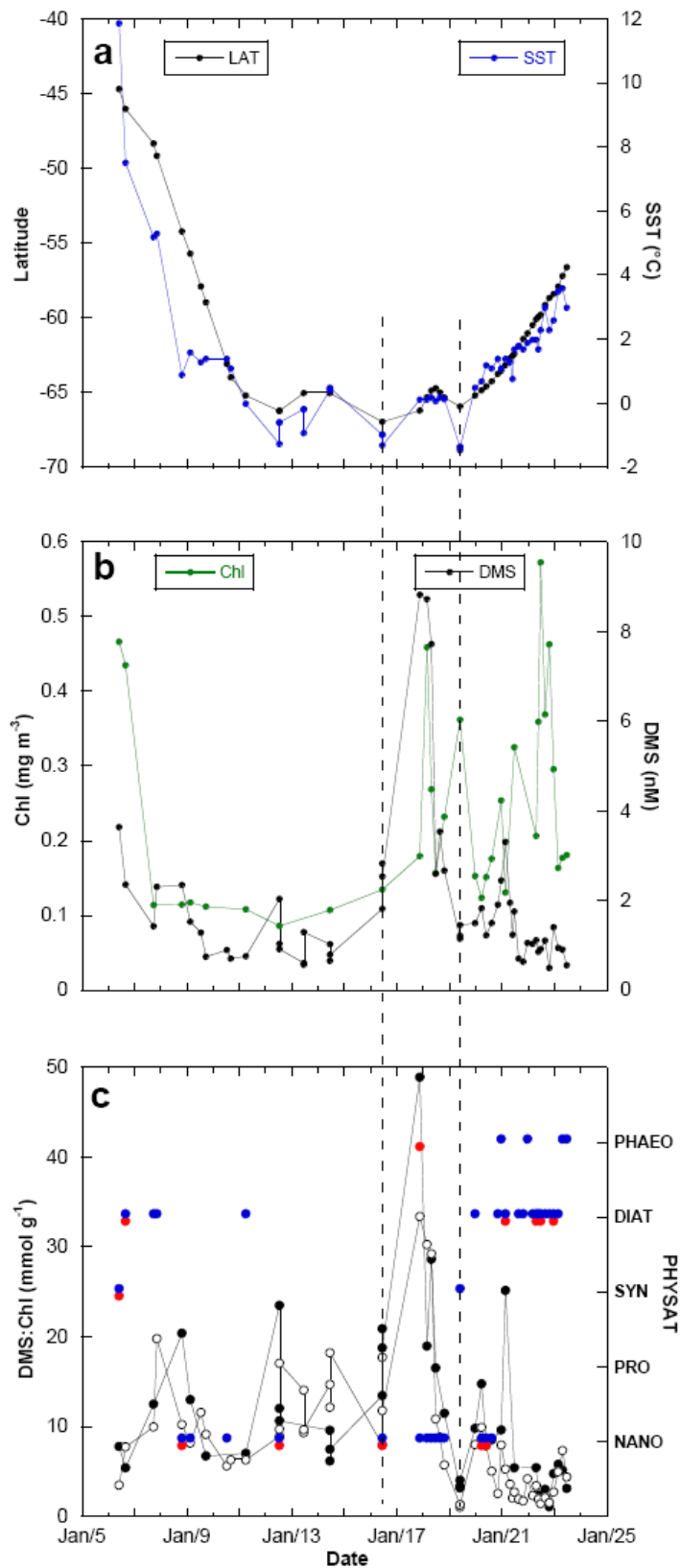


Fig. S3. Same as Fig. S2 but along the DMS transect of R/V Umitaka Maru in the Indian sector of the Southern Ocean. In (c) DMS:Chl ratios were calculated using in situ Chl (empty circles) and satellite Chl (full circles).

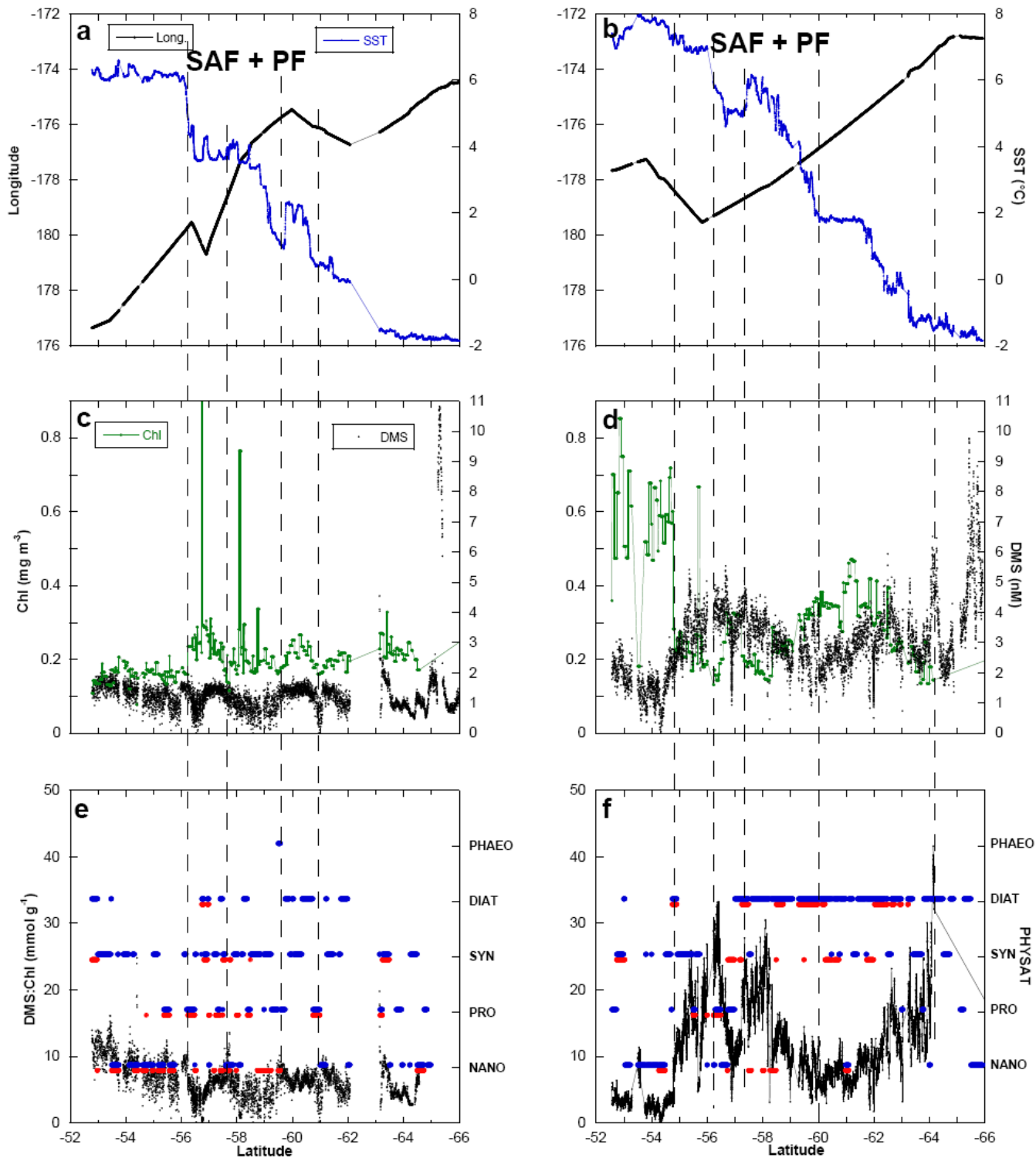


Fig. S4. Same as Fig. S2 but along the DMS transect carried out in the Pacific sector of the Southern Ocean by Tortell and Long (2009).

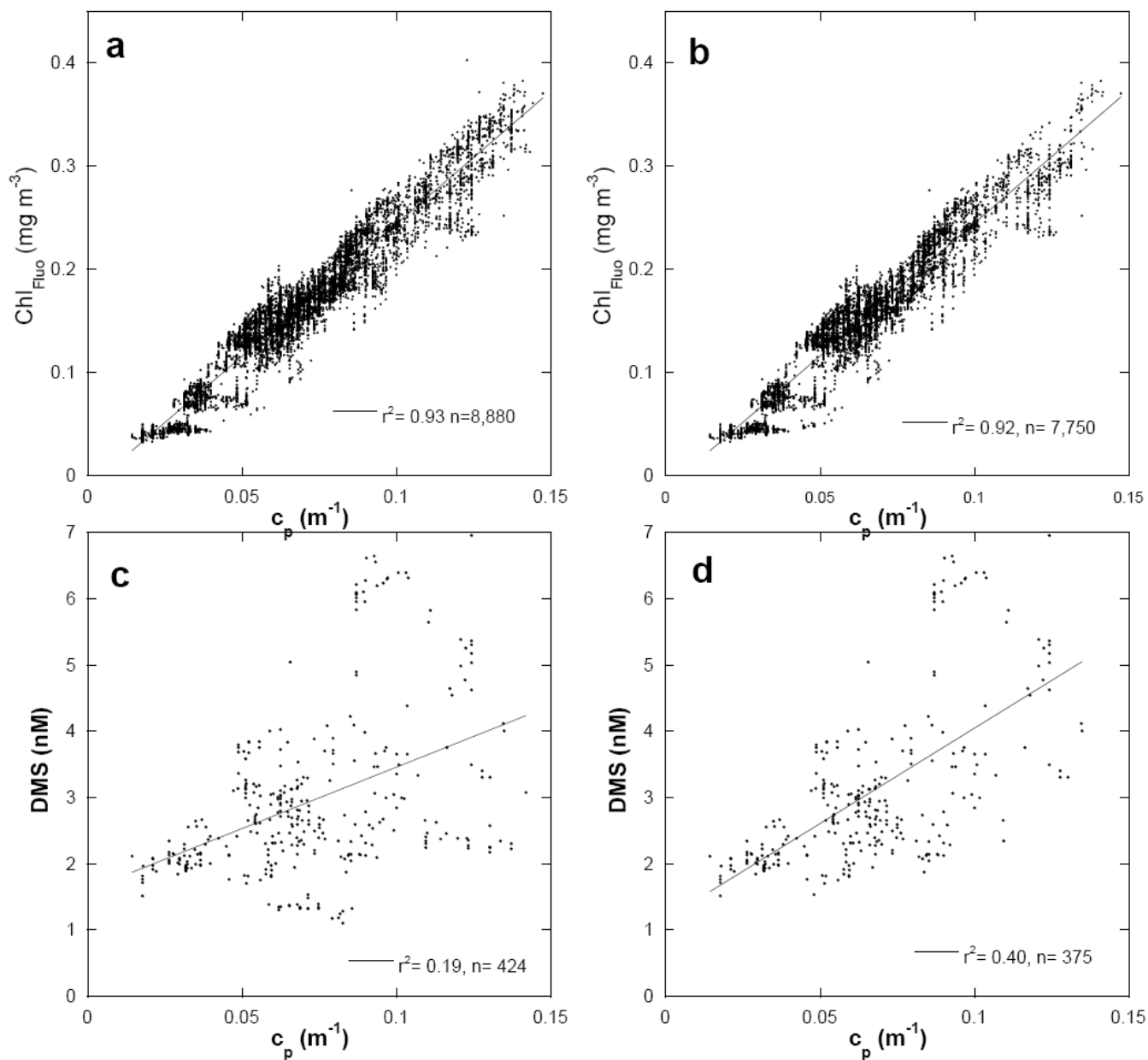


Fig. S5. Correlation between nocturnal beam attenuation coefficient (c_p) measured at 660 nm and (a, c) fluorescence-based chlorophyll (Chl_{Fluo}) and (b, d) DMS concentrations. Comparison between c_p and Chl_{Fluo} were restricted to nighttime data because diurnal fluorescence values exhibited strong light-dependent depressions each day (Behrenfeld and Boss, 2006). Some data deviating from the general c_p -Chl trend were removed as discussed in Behrenfeld and Boss (2006). (a, c): full data set, (b,d) with EU data removed.