Supporting information

Figure S1

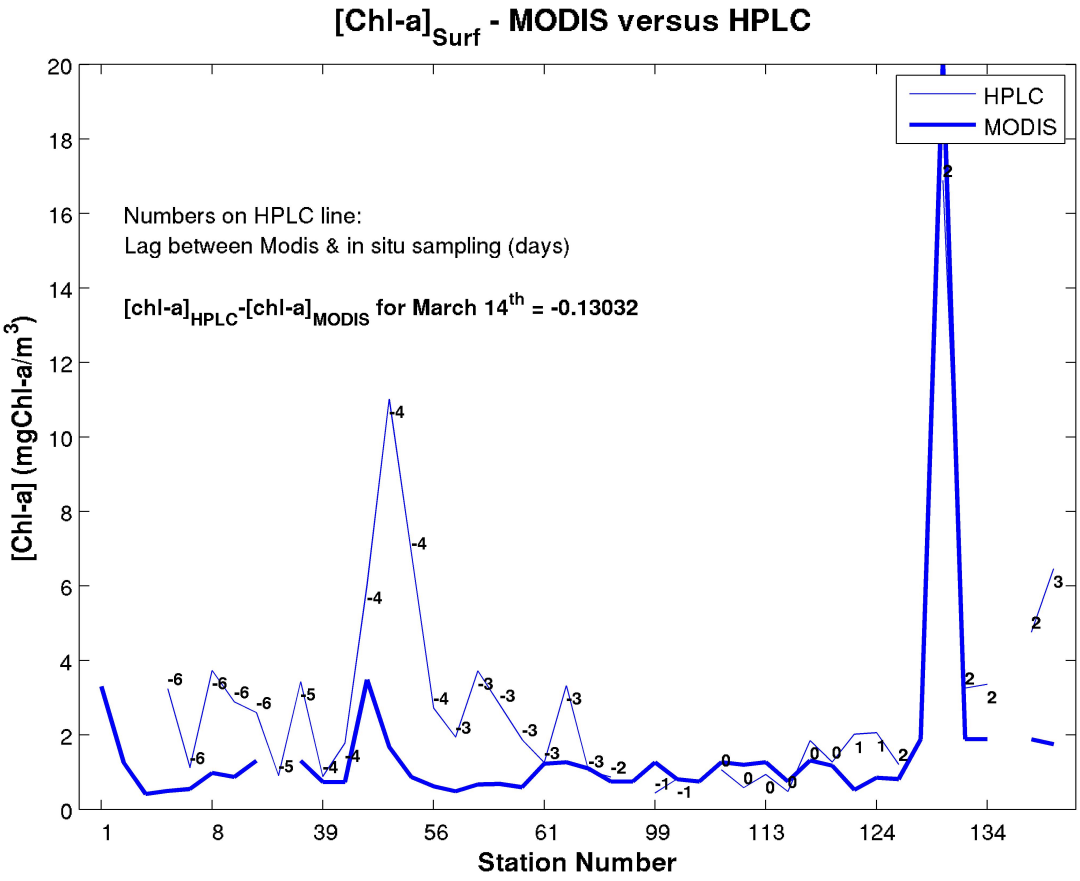

Figure S1: Chlorophyll-a concentrations (mgChl-a/m^3) measured by HPLC (thin line) and retrieved by Modis (thick line; SOM-neuro-variational treatment) at UPSEN-2012 sampling stations. Lag in days between Modis image (March 14th, 2012) and sampling is indicated for each station (between -6 and +3 days). The difference between the two estimates for the 14th of March 2012 is given in bold within the panel. Modis chlorophyll-a concentrations are set to 20 mgChl-a/m^3 when estimates are above this threshold during SOM-NV treatment.

For the determination of pigments, 1–2 L of sea water was filtered onto 25 mm Whatman GF/F filters (folded and stored at −80°C until analysis). Samples were measured by HPLC (High Performence Liquid Chromatography). The pigments were separated and quantified according to the method described by Ras et al. (2008), adapted from Van Heukelem and Thomas (2001). The analyses were performed with a complete Agilent Technologies system comprising a LC Chemstation software. After extraction in methanol, samples were injected on a C8 Zorbax Eclipse XDB column (3x150 mm; 3.5 µm particle size). Pigment concentrations were calculated from the peak areas with external calibration standards which were provided by DHI Water and environment (Denmark).

Figure S2

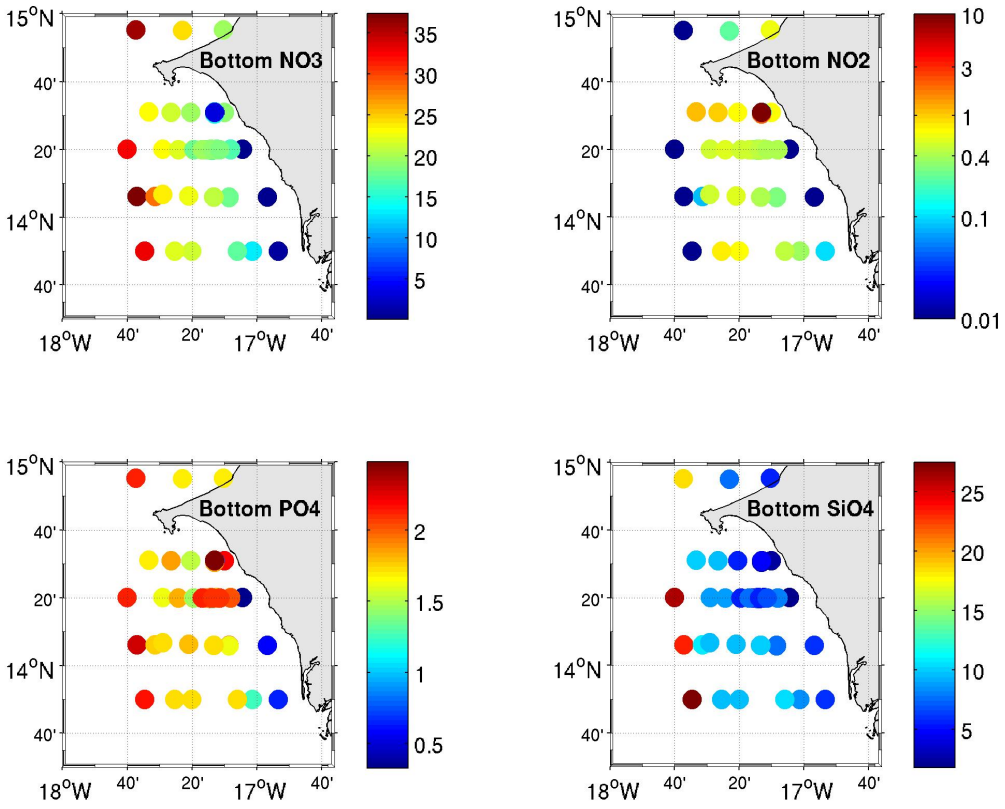

Figure S2-a: Distribution of nitrate (top left panel), nitrite (top right), phosphate (bottom left) and silicate (bottom right) concentrations (mmol/m³) for the deeper samples collected during rosette casts (~5 m above the sea floor).

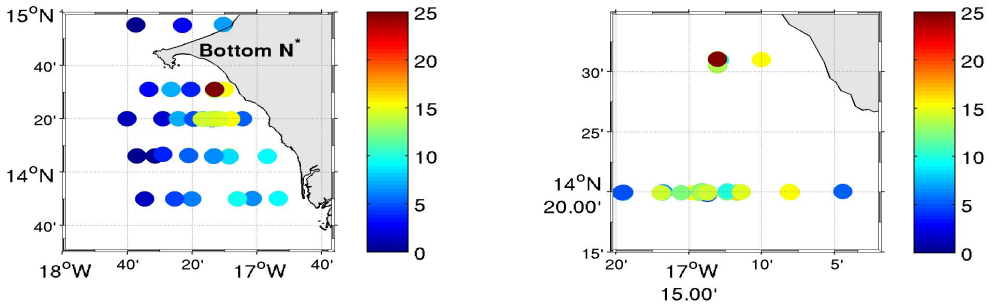

Figure S2-b: Distribution of N-deficit (mmol/m³; left panel) for the deeper samples collected (~5 m above the sea floor) during the whole UPSEN survey. Right panel: zoom of “bottom” samples collected at 14°20'N and 14°31'N.