**Biogeosciences
Discussions**

Interactive comment on "Distribution of calcifying and silicifying phytoplankton in relation to environmental and biogeochemical parameters during the late stages of the 2005 North East Atlantic Spring Bloom" *by* K. Leblanc et al.

Anonymous Referee #3

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Comments

This manuscript discusses various stages of the spring bloom in the NE Atlantic over the latitudes 45-66oN, primarily the alternation between diatom and prymnesio-phyte/cocolithophore dominance in relation to changing silicate, nitrogen and phosphate nutrients. The paper is well written and interesting to read and I support publication, but some details need to be considered before final acceptance.

The authors proportion the Chla into the 3 size fractions according to Uitz (2006). This

method uses both Zea and Chlb in the pico fraction. In the southern part of the study area, Chlb probably indicates pico-eukaryotes, but is this the case in the northern sector where the waters are colder? Do the authors have any other information that might indicate that Chlb should perhaps be included in the nano fraction for the north? Is the elevated pico Chla in the IS in Fig 8b really picoplankton?

Most of the discussion in the paper revolves around the diatoms and the prymnesio-phyte/cocolithophore and the authors use Fuc and Hex as the main pigment signatures. In this context, using both the diagnostic indices and pigment concentrations seems rather a luxury with 3 pigment figures (Figs 8, 9, 10). I suggest the authors' use either the straight pigment concentrations for the key indicator pigments or use pigment/Chla ratios. Fig 10 shows quite clearly the distribution of diatom and prymnesiophyte indicator pigments and other phytoplankton types could be similarly displayed. Pigment/Chla ratios may be even more useful for displaying the patterns, or some mathematical or statistical approach could be used to specifically estimate the diatom and prymnesio-phyte fractions from the pigment data set.

The satellite images in Fig 14 are a useful indication of the phytoplankton distribution during the study period, but one month composites don't really fit the more variable daily or weekly conditions encountered during the cruise. Weekly composites for the month of June 2005 would be a more useful comparison with the in situ data.

Information on pre-bloom conditions might be useful for placing the bloom development in a larger seasonal context. What were the nitrate and silicate concentrations/ratios before the onset of the bloom? Maybe this information can be gleaned from the literature for previous investigations in the NE Atlantic in both the winter and spring.

Table 2 is a difficult table to read and understand. The data needs to be presented in a much simpler table, or in another form of presentation.