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Ocean Science
Discussions

Interactive comment on "High-resolution physical-biogeochemical structure of a filament and an eddy of upwelled water off Northwest Africa" *by* W.-J. von Appen et al.

Anonymous Referee #1

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This article presents the results of high resolution observations made in May 2018 with a towed instrument (Triaxus). Satellite observations are used to obtain a synoptic image to interpret the results. An almost straight, almost meridional section is realized offshore Cape Blanc (Mauritania). Water samples and CTD casts were collected. Surface currents were measured from VMADCP and a X-band marine radar. In situ temperature and salinity are measured. Concentrations of biogechemistry elements such as nitrate, phosphate, silicate, particulate organic carbon, phytoplankton and chlorophyll-a of seven major phytoplankton groups are obtained.

The section went through a mesoscale anticyclonic eddy and an upwelling filament. A

special focus is also given to a frontal region where symmetric instability could have been a source of nutriments in the euphotic layer. This is a good example of interdisciplinary research in the context of coastal upwelling.

This manuscript is clear and well written. observations and results are clearly explained. This article deserves publication with minor revision.

Specific comments:

Line 217 "VMADCP and the WaMoS radar (green/magenta in Figure 2b) agree well with the geostrophic flow" This is actually not the case, they are significant differences in magnitudes and directions throughout the section. This should be discussed in more details for the different processes. Since WaMoS radar current observation is a promising method, a proper assesment against VMADCP is valuable.

Figure 2: A high resolution infrared and/or ocean color image should provide a much better synoptic view of the eddy and upwelling filament.

Line 270: "This large scale (order of 50 km) coherent flow structure" - this is of the order of the Rossby radius (40-50 km) so this is not large scale, but mesoscale.

Line 322: "filament that came from the west" rather from the east, doesn't it ?

Line 345 "envrionmental"

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