

Interactive comment on “NW Adriatic Sea variability in relation to chlorophyll-a dynamics in the last 20 years (1986–2005)” by L. Tedesco et al.

L. Tedesco et al.

Received and published: 6 June 2007

General comments

We thank Referee 1 for his/her further clarification on his/her previous comment.

The correlations between the Po discharge and the physical variables have, instead, been done on daily scale. However, we also think that a correlation within a 1-week time lag may be more informative. We have thus followed Referee 1 suggestion and we have re-computed the correlation in such a way. Test results and data scatterplots are also soon available as electronical supplemental material (<http://flux.ve.ismar.cnr.it/ibm/html/socal/data/aem.htm>). We have added in the revised version of the ms the following comment to the results: "Both stations are generally influenced by the Po river's spreading. C10 is mostly affected by temperature fields,

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since a larger effect may be detected during spring and summertime, when it feels the effect of the Po maximum in May, due mostly to snow melting, that slackens the thermocline formation. E06 is, instead, equally affected by temperature and salinity fields, since the impact of the river may be detected all year round and it is closer than at C10: thus, salinity and temperature values faster decrease than at C10."

However, correlation values did not significantly change. We explain it since, considering the seasonal cycle of the properties, correlation between the river and the physical variables are changing in sign depending on the time of the year. This is especially true for temperature. During winter Po minimum, temperature can also decrease for effect of cold winds at the sea surface and/or for reduced air-sea heat fluxes.

The papers that Referee 1 mentioned about NAO correlations in the northern Adriatic have taken in consideration only restricted areas of the eastern Adriatic coast, located on the opposite side of the Po delta, and less influenced by its effects. We believe that the local, small-scale effects of the river influence are stronger than any large-scale pressure index in the NW Adriatic. Furthermore, both works have related air temperature or sea surface temperature to NAO index to confirm their findings on a temperature trend in the long term. Since we also have detected a temporal trend in the physical oceanic variables that we have related to EMTS, but not in the chlorophyll-a, we already obtained enough information to explain that the biology of the northern Adriatic has a much more complex answer than the mere physical hydrology.

We also believe that it may be interesting to investigate this other aspect of the northern Adriatic hydrology, as well as the effect of different wind forcing, but it is also important to remain focusing on the main aims of our work, that are a better understanding of the northern Adriatic biogeochemistry and the analysis of the variability connected to ocean physical features, and not to explore the climate-related variability of a coastal region.

Interactive comment on Biogeosciences Discuss., 4, 651, 2007.