Geophysical Research Abstracts,
Vol. 11, EGU2009-1000, 2009
EGU General Assembly 2009

Monitoring Chlorophyll-a with remote sensing techniques in the Tagus Estuary

A.A. Benali

Department of Environmental Sciences and Engineering, New University of Lisbon, Faculty of Science and Tecnology, Caparica, Portugal (aabenali@fct.unl.pt)

At the present there is a major challenge to monitor coastalsystems in a robust, frequent, systematic and accurate fashion. With the implementation of the Water Framework Directive (WFD), the EU Member States must monitor regularly the most relevant physical and biological parameters.

The work assessed the applicability and accuracy of chl-a products from the MODIS Terra sensor in the Tagus estuary, comparing them with simulations of an ecological model (EcoWin2000), at a box scale, which was previously calibrated and validated. It is proposed a conceptual and methodological framework for future monitoring of the estuary using remote sensing data, concerning data processing, handling and integration.

Typical Case 1 algorithms were pre-assessed and Case 2 empirical algorithms were regionally calibrated. The GSM and Clark algorithms had the best performances, with errors of approximately of 1.1 µg chl-a l-1 (or 20%) and correlations ranging 0.4-0.5. During calibration, the ratio R678/R551 had good correlation (r = 0.83) and low errors (Ĩµg chl-a l-1), however, its evaluation showed low performances. In agreement with the pre-assessment, the GSM algorithm had the best correlation (r0̃.50) and errors of approximately 0.8µg chl-a l-1.

Remote sensing is a tool with high potential to assist the EU Member States to accomplish the WFD objectives, however, extensive future work is still needed. Systematic chl-a monitoring in the Tagus estuary is feasible and future work should also be aimed at developing multisource monitoring procedures integrating model, in-situ and remote sensing data thus, minimizing their individual limitations and flaws.