Geophysical Research Abstracts
Vol. 14, EGU2012-12442, 2012
EGU General Assembly 2012

Results of instrumental and operative implementation of T-Flap

M. Marcelli, A. Madonia, V. Piermattei, and U. Mainardi
University of Tuscia, Laboratory of Experimental Oceanology and Marine Ecology, DECOS, Italy (alice_madonia@unitus.it)

The development of new technologies for the study of the ocean processes is one of the most innovative aspects of oceanographic research that increasingly requires a large amount of data for an integrated approach to in situ observations, forecasting models and remotely sensed data. At now the marine measurement technologies are too expensive for an extensive utilization. The T-Flap technology (Temperature-Fluorescence LAunchable Probe) meets these needs by providing low cost and user-friendly in situ measuring of physical and bio-optical variables of water bodies, as opposed to traditional methods.
Many experimental laboratory tests were carried out in order to increase the instrumental sensitivity of the fluorimetric sensor for the detection of chlorophyll a concentration. To test the selected components (LEDs, diodes, filters) and their new configurations, an optical circuit has been realized consisting on three prototypes of the measuring cell. Fluorescence excitation and detection efficiency of the new electro-optical assemblages were also tested by the comparison between the voltage output signals and spectroscopic in vivo fluorescence measures both of natural seawater samples and marine cultures at different concentrations. The upgraded sensors were tested during different oceanographic surveys performed in the last years both in the Tyrrhenian Sea and Adriatic Sea.
The technological achievements were applied in different operative conditions: profiler along the water column (not expendable) and stand alone (in continuous surface acquisitions along tracks, in continuous acquisition on a buoy).
In this work we present the results of the latest research activities on T-Flap evolution.
In addition preliminary results about new sensors currently under development are shown, such as CDOM (Cromophoric Dissolved Organic Matter) fluorimetric sensor, based on T-Flap fluorescence technology, and conductivity sensor.