Geophysical Research Abstracts
Vol. 17, EGU2015-13563-1, 2015
EGU General Assembly 2015

Suspended solid material (SSM) monitoring in coastal areas by satellite data

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The variation in Suspended Solid Material (SSM) concentration influences the penetration of light in the water column and therefore water quality, especially in terms of phytoplankton and benthic algae productivity. Remote sensing data have already demonstrated their potential for monitoring SSM in coastal areas. Anyway, an integration of satellite data/products with in situ measurements may further improve the accuracy of the techniques used for SSM retrieval.
Such an approach has been used in this work. The studied area was the Ionian sea Basilicata coastal area (South of Italy), where five rivers have their mouths: Bradano, Basento, Cavone, Agri and Sinni. In particular, in this work we integrated in situ measurement carried out in the framework of IOSMOS (IOnian Sea water quality MOnitoring by Satellite data, OP ERDF Basilicata) and MOMEDAS (MOnitoraggio delle acque del mar MEditerraneo mediante DAti Satellitari, OP Basilicata ERF) projects, with historical series of satellite data. Three in situ measurement campaign were carried out on: 18-19 April 2013, 15-16 July 2013 and 1-2 July 2014, collecting SSM information and Spectroradiometers measurements in the Visible - Near InfraRed (VNIR) spectral region. We compared these in situ data with MODIS (Moderate Resolution Imaging Spectroradiometer) data. In detail MODIS data acquired in band 1 (red) and 2 (near infrared) from 2002 to 2014 were analyzed by a specific methodology, the Robust Satellite techniques (RST).
In this paper, preliminarily results achieved by such a comparison will be shown.