

ESTIMATION OF AEROSOL AND AIR QUALITY FIELDS WITH PM MAPPER - AN OPTICAL MULTISPECTRAL DATA PROCESSING PACKAGE

T. Nguyen^{*a b} S. Mantovani^{a c} M. Bottoni^c

^c SISTEMA GmbH, , Währingerstrasse 61, A-1090, Vienna, Austria

^b University of Ferrara, Department of Mathematics, Via Saragat 1, I-44122, Ferrara, Italy

^a MEEO S.r.l., , Via Saragat 9, I-44122, Ferrara, Italy

Technical Commission VII Symposium 2010

KEY WORDS: Atmosphere, Pollution, Monitoring, Retrieval, Systems, Global, Multispectral

ABSTRACT:

In the frame of the Remote Sensing applications applied to MODIS data collected by the polar orbiting satellites Terra and Aqua, operated by the NASA, we present PM MAPPER, a novel data processing system developed for air pollution monitoring. Our system has derived from the MODIS data an updated set of information consisting of AOT, PM_{2.5/10}, AQI, and surface information with increased spatial resolutions up to 3x3 km². With the fine spatial resolution and augmented background information, the software is effective in monitoring air pollution at local scale, especially over small urban areas with complicated topography. We carried out a validation on the data set covering Italy in a period of six months to evaluate the system's performance. The validation outcomes show that our results have good quality in comparison with MODIS standard products and a higher capacity in retrieving AOT information over land areas, especially coastlines where are nearly empty in the MODIS products. Besides, integrated surface information could be useful for further improvements of aerosol derivation.

TOPIC: Remote sensing applications

ALTERNATIVE TOPIC: Remote sensing applications