AVHRR operational cloud masks intercomparison

Adam Dybbroe[1], Andrew Heidinger[2], Lydie Lavanant[3]

[1]SMHI, Norrköping, Sweden
[2]NOAA/NESDIS at the University of Wisconsin–Madison
[3]Meteo-France, Lannion, France

METOP-A is due to be launched on 17th July 2006 and will carry an AVHRR imager onboard. With almost 30 years of continuous global coverage data from the same instrument, and more to come, the AVHRR provides unique possibilities for cloud climate studies. Global AVHRR 1km cloud cover analysis is also a key input for other AVHRR applications like sea surface temperature (SST) analysis and will also serve as a first guess for HIRS and IASI sounding profile retrievals.

This paper focuses on the intercomparison on a global scale of three operational AVHRR cloud masks:

- CLAVR-x is the NOAA AVHRR Operational Cloud Processing System and has been validated by comparing their derived SST products to those from microwave sensors and by comparing their results to in-situ measurements (pyranometers, surface based radar..) and to cloud products from other imagers (MODIS, SEVIRI).
- MAIA is operational at Meteo-France. It has strongly inherited from the NWCSAF/MSG Cloud Mask. It will be the operational mask for the O&SISAF global Metop SST production and is implemented in the NWPSAF AAPP package. It has been validated over Europe by comparing their derived SST products to in-situ Buoys SST, and by comparing their results to interactive land and sea classified targets.
- The PPS cloudmask is developed in the frame of the NWCSAF. It is operational at six European Met Services including the O&SISAF HL center and the CMSAF for cloud parameters at high latitudes. Recently the scope of the NWCSAF/PPS has been widened to the global scale. It has been validated over Europe by comparing results to interactive classified targets, and using a large database of European Synop reports.

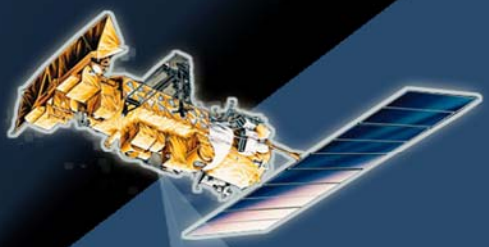
This intercomparison is based on global land/sea data collected and classified by experienced nephanalysists. It attempts to demonstrate and improve when necessary the accuracy of the different algorithms in all conditions. The purpose is to enlarge our confidence in their operational production.

INTERNATIONAL ATOVS WORKING GROUP

Sharing ideas, plans and techniques

to study the earth's weather

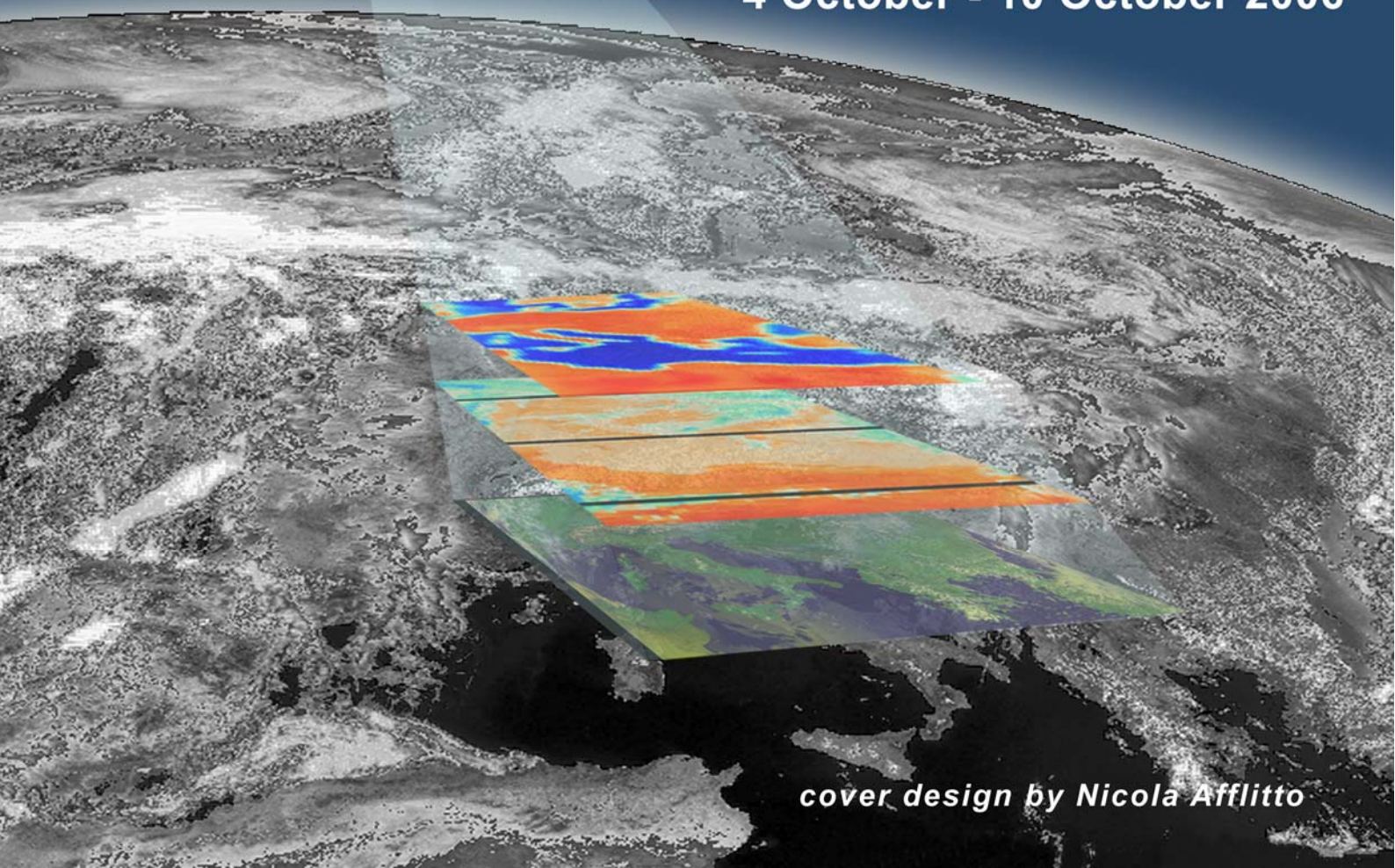
using space-based observations



Proceedings of the Fifteenth International TOVS Study Conference

Maratea, Italy

4 October - 10 October 2006



cover design by Nicola Afflitto