

MERIS/(A)ATSR atmospheric products – Clouds and Aerosols

(A)ATSR

- more work needed for ocean cloud detection in areas of heterogeneous SST
- significant efforts needed to improve cloud detection over land:
 - APOLLO
 - Stereo
- CTP retrieval not sufficient for high clouds?
- increase dynamic range of 11 and 12 micron channels so they no longer saturate over cold clouds in the tropics without reducing the sensitivity of SST observations

MERIS

- more work needed for cloud detection over ocean and land
 - cloud-snow discrimination
 - cloud-glint discrimination
 - thin cirrus detection
- more work needed to enhance the aerosol retrieval (land and water)
- Cloud top pressure algorithm fails for high clouds <200 hPa
- Validation of the MERIS METEO WV-product ?? now no value for assimilation !
- Use of Albedomap land-surface albedos to improve MERIS products !
- For future MERIS follow-on instruments increase spectral range to include 1.6 microns to improve accuracy of both aerosol and cloud products

Synergy of (A)ATSR and MERIS

- work required to start inter-comparison of AATSR and MERIS cloud/aerosol products:
 - Cloud Top Pressure
 - Cloud Optical Thickness
 - Aerosol properties
- ESA should consider systematic processing of (A)ATSR and MERIS cloud products to provide Level 3 products comparable to ISCCP
 - Validation of ISCCP (at least over Europe)
 - Further validation of different approaches of Aerosol Optical Thickness (A)ATSR and MERIS products
 - Satellite inter-comparison
 - AERONET
- Need for error characterisation of MERIS aerosol products

Tools

- A possible mechanism for users to assess the strengths and weaknesses of different atmospheric products would be to incorporate the algorithms/codes within BEAM and offer this as an environment for inter-comparison
- Include more satellites into BEAM in order to ease satellite inter-comparison (especially MISR for cloud top heights and aerosol and MODIS for land surface albedo)

Communication with other communities

- Weather forecast (validation, assimilation)
- Climate studies (validation, assimilation)
- Environmental, ...

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Funding

- National agencies
- Environmental bureaux,
- EU / ESA / EUMETSAT