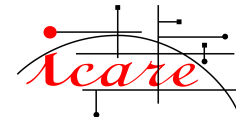


Aerosol_cci perspectives 2018ff





- **Objective: Respond to GCOS-154 and Aerosol_cci2 URD user requirements**
 - AOD (4λ), absorption, layer height, extinction profile
 - Fine / coarse AOD, Dust AOD, Ångström, size / aerosol index (= AOD * Ångström)
- **C3S: Operational tasks (if funded / selected by C3S-ITTs)**
 - Extend existing Aerosol ECV time series into future with current algorithm
 - Reprocess full Aerosol ECV time series with new algorithm versions from CCI+



- **CCI+: improvement towards requirements (if CCI+ approved and in scope)**
 - Aerosol ECVs in C3S
 - Improve algorithms to better meet requirements
 - Adapt algorithms to similar but different Sentinel capabilities
 - Extend algorithms to utilize new Sentinel capabilities
 - Additional required Aerosol ECVs
 - First full time series processing + evaluation based on prior round robins
 - Round robin exercises for new required variables / specifications
 - Integration of several ECVs for climate applications
 - Consistency, joint histograms, precursors, Earth system cycles



- **As expected end of 2017**
- **Based on mature (independently) well-qualified algorithms + ECV time series dataset**
- **No NRT orientation**
- **Maturity matrix level 3-4**

- **AOD (4λ), FM-AOD / 3 algorithms from ATSR-2 / AATSR / SLSTR**
 - Datasets available 1995 – 2012 + 2016 SLSTR extension demonstrated
 - Assess consistency of SLSTR with AATSR (similar but different specifications)

- **Stratospheric extinction profile + PSCs from GOMOS**
 - Dataset available 2002 - 2012
 - No successor sensor / temporal extension

- **Dust AOD / 4 algorithms from IASI**
 - Datasets available 2006 – 2015 (“Greater Sahara”)
 - Extension to full globe and further into the future

- **AOD, SSA, non-spherical AOD from POLDER**
 - Dataset available 2006-2013 (4 selected regions)
 - On-demand processing of further regions / global extension (if feasible)



- **Based on prototypes / earlier round robins**
- **Maturity matrix level 1-2**

- **Improve mature ECV datasets / algorithms**
 - AOD ATSR/SLSTR: better accuracy and coverage, new SLSTR channels, ensemble, ...
 - Extinction GOMOS: improve size, PSCs; integrate with OSIRIS, OMPS, SAGE-III, ...
 - Dust IASI: for better consistency improve treatment of size / mineralogy, nighttime validation, ensemble, ...
 - AOD, SSA, non-spherical AOD POLDER: improve processing throughput, prepare for 3MI

- **Additional required variables based on prior round robins**
 - Absorption (AAI, component mixing, glint): first full processing + evaluation
 - Layer height (IASI, spectrometer O2A-band): first full processing + evaluation

- **New round robins / demonstrations for additional required variables / specifications**
 - Aerosol type from instrument synergies
 - AOD extended coverage with MERIS / OLCI
 - AOD daily cycle from MSG + METEOSAT
 - Vertical profiles (troposphere, stratosphere) from SCIAMACHY limb
 - Extended AOD coverage: high latitudes, back to 1980s (AVHRR), AOD over clouds

- **Integration of several ECVs**
 - Aerosol cloud: consistency, joint histograms
 - Aerosol and trace gases: precursors, anthropogenic aerosols
 - Stratospheric aerosol and trace gases: ozone and precursors
 - Surface radiation budget (direct, diffuse) with aerosols, clouds, surface ECVs
 - Carbon and nitrogen cycles with other ECVs
 - Aerosols and SST: consistency