Minutes of ORAC-NCEO meeting: Friday 23/4/10, 10 am, AOPP Dobson Room

Present: Chris Arnold, Elisa Carboni, Haiyan Huang, Caroline Poulsen, Andy Sayer, Richard Siddans, Andy Smith

Status of GRAPE processing

Andy Sayer has finished processing 2009 for level 1->2. He has also fixed the cloud water path bugs in the dataset. Code is running to explicitly set the number of retrievals to -999 and the data type flag to 3 ('no data') for those scenes with missing channels, to try and decrease potential for 'blind user' error. Will update the BADC when done.

Caroline has almost finishing processing level 2->3 in the GEWEX format, and will circulate time series when done. This will also be uploaded to the BADC.

Consistency between ATSR-2 and AATSR cloud retrievals

Andy Sayer discussed results from the ERS-2/Envisat overlap period showing that AATSR retrieves higher cloud optical depths and effective radii than ATSR-2, which can be traced to large (up to about 10%) differences in relative calibration between the instruments for the 660 nm and 870 nm channels. This is consistent with Dave Smith's calibration report. Richard suggests some tests to see which instrument is more likely to be correct (we think it is ATSR-2).

The next question is whether to very soon begin reprocessing AATSR with any relative bias removed (so we get a consistent record, even if the absolute calibration might not be quite right) or wait for calibration to be improved in future level 1 products.

Development of new dust aerosol models

Andy Smith discussed the results of applying some new desert dust aerosol models (nonspherical coarse modes and varying relative humidities [RH]) to aerosol retrievals over the Sahara and Atlantic from March 2006.

Compared to the maritime class, OPAC spherical dust is very similar but the nonspherical dust at different RH tends to retrieve lower AOD. The model with 80% RH tends to give the lowest cost, irrespective of the true RH.

For the first aerosol ECV round robin (processing the year 2008), it is faster to process with a small number of aerosol models therefore ideally would only have 1 dust model in. Discussed removing the present OPAC spherical and nonspherical (A03 and A36) classes and replacing with Andy Smith's new 80% RH one but no decision reached.

Andy will look at AERONET comparisons and see whether matching to the true RH has an impact on the quality of the comparison.

Eyjafjallajoekull eruption (Iceland): opportunities?

David Pyle from Earth Science is holding a meeting next Friday 30th to discuss possible opportunities and collaborations. Several of us will attend.

Andy Sayer has been doing aerosol retrievals and other assorted stuff with AATSR. Dan Peters' ash refractive indices seem to fit aerosol in the plume better than the Volz refractive indices (or the other aerosol models), which is nice. Data volume is currently not great. He will reprocess at finer resolution (5 km) and soon have up-to-date ECMWF and MODIS data to ingest into the retrieval. Lots of retrievals failed over the UK so presently no direct comparison with Chilbolton AERONET.

Comparison of AATSR radiances with GLOMAP

Caroline has been forward modelling GLOMAP aerosol profiles to simulate AATSR radiances. The radiances are coming out lower than what AATSR sees. The calculation requires an independent derivation of the GLOMAP AOD from the model size distributions and optical properties, which is not consistent with the AOD reported by GLOMAP itself (differences of 0.05-0.1 in continental

outflow regions and the storm tracks). Additionally, their aerosol type maps are unrealistic. Caroline has told Leeds about this and they are looking into it (we think they may have mislabelled files).

Student progress
Chris has been simulating nighttime retrievals from ATSR-2 and comparing with daytime to check their consistency. He thinks a retrieval of CTP should be reasonable. Richard suggests some simulation studies and wonders whether adding the 3.7 micron channel would add useful information, or whether conversely a single IR channel would be enough in this case. Chris has also been looking at orographic cloud over New Zealand and showed some plots. Finally he has added a sea ice mask and snow depth as output files to the GRAPE preprocessing in preparation for improving retrievals in these conditions. He plans to create and circulate some plots summarising the various changes made, and also for his second-year report.
Haiyan has been working on implementation of the IR channels in the aerosol retrieval. At present she is working on 2 issues. The first is that something in her code is setting all output to -999 after the retrievals have been performed but before they're written to the HDF files. The second is that she needs to call RTTOV twice (second time for the forward-view geometry) instead of once to calculate outgoing longwave radiation. She is also wondering about the most appropriate resolution to process at as SST demands are for data at 1 km or so rather than 10 km.

Upcoming Meetings
Gareth is going to EGU in early May.
Andy Sayer, Caroline, Richard, Elisa and Haiyan are going to the NCEO theme meeting next week.
Andy is down to go to the ESA Living Planet symposium in June/July.
Caroline, Chris and perhaps Richard are going to the GEWEX cloud comparison in late June. Chris needs to register for it.

Publications
Richard is giving Caroline comments on the GRAPE cloud algorithm paper, which she hopes to submit before the GEWEX cloud comparison meeting (later June).
Claire Bulgin has not yet submitted her DODO/ORAC paper; Richard has spoken with her and discovered some calculations were not done correctly so this is being revised.
Andy Sayer has written a paper to submit to GRL on implications of sampling choices on aerosol comparisons between models and satellites. He's going to discuss this with Paul Palmer (who provided GEOS-Chem data as input) next week.

Any other business
None.

Next meeting
Set for Tuesday May 18th, 10 am, RAL. The one after will also be at RAL (as we've had 2 in a row at AOPP).