Minutes of NCEO-ORAC meeting, 10th March 2010, RAL

Present: Haiyan Huang, Caroline Poulsen, Andy Sayer, Richard Siddans, Gareth Thomas.

1. Status of GRAPE

Caroline has acquired all needed ECMWF data for the rest of 2009 and the start of 2010. Andy has generated the remaining RTMs for 2009 and begun processing the year. This should hopefully be completed by the end of March. Andy will update the BADC at this point. Following this, 2010 will be processed every month or so, a couple of months after real-time (as this is the NEODC acquisition speed).

There was a brief discussion as to whether it's worthwhile producing the current (not very useful) level 3 files, or just providing the GEWEX-style files. Andy and Caroline recommend just creating the GEWEX-style files.

By the next meeting, Andy will create some combined time series of ATSR-2 and AATSR data for discussion.

2. Discussion of GEWEX results

The GEWEX assessment meeting will be in June. Caroline has created plots of the type which Claudia Stubenrauch will analyse, giving regional time series of cloud properties from different instruments (ATSR, ISCCP, PATMOS-x, MODIS science team, MODIS CERES science team).

Cloud fraction is similar between all instruments, although we may be missing some cloud over land. ISCCP sees quite high cloud fractions over deserts (~0.3) compared to others.

All instruments give different results for cloud optical depth. Differences partially a result of averaging method (mean used rather than mean of log values, etc). Question about what is the most meaningful quantity to compare.

Liquid water path is similar between all instruments. Ice water path is not. Liquid effective radii show similar seasonality although ours are lower than others; ice effective radii are, again, more different between the instruments.

Relative high cloud amount is similar between all instruments over sea. Over land we're a bit lower.

Cloud emissivity is calculated using a formula provided by Claudia, but isn't really the true cloud emissivity. Our values are higher than others, could be an artefact of some approximations/errors in the formula.

3. ORAC/GEOS-Chem/AERONET intercomparison

Andy has been revisiting Paul Palmer's ORAC/GEOS-Chem/AERONET intercomparison after being actioned to do so at the previous NCEO theme meeting. He has reproduced most of what Paul did (aside from aerosol composition comparison), and included some extra AERONET sites. The conclusion is that the two seem comparable in quality to AERONET. GEOS-Chem aerosol optical depths are too low over some open ocean regions.

Richard suggests an additional comparison of GlobAer data with the newest version of ORAC to show the impact of improvements. One year (thought to be 2007—will be checked) needs to be processed soon for the initial aerosol ECV intercomparisons. Andy will begin processing that year and then do some comparisons with GlobAer. Although there's unlikely to be enough time before the NCEO student/PDRA conference at the end of March, there should hopefully be sufficient time before the next NCEO theme meeting (end of April).

4. Student progress

Haiyan has been working on implementing IR channels in the ORAC aerosol retrieval. She has made some progress. She is using SEVIRI LUTs for the moment; Elisa will create AATSR ones when she gets back.

Chris (absent) has been working on IR-only retrievals, use of median radiances instead of means, and improvements to the cloud retrieval in polar conditions.

5. Publications

Caroline has implemented Don's corrections to the cloud algorithm paper. She will ask John Remedios if it can make it into the RSE ATSR special issue.

Andy submitted his paper on the ATSR sea surface reflectance model to AMT. He also submitted the second ship track paper to Meteorologische Zeitschrift.

Gareth has been addressing reviewer comments on the GRAPE aerosol validation paper.

Haiyan has been addressing reviewer comments on her oceanic aerosol and wind speed paper. One reviewer comments that the aerosol optical depths are too high and wants a theoretical calculation of the expected optical depth. It was suggested to include a PDF of the GlobAerosol optical depths, and calculating using median optical depths (as the median may be significantly lower than the mean if the tail of the distribution is long).

6. Date of next meeting

Tentatively scheduled for Tuesday, 20th April, 10 am, AOPP Brewer Room (Gareth unavailable the week before). Andy to book room.

7. Any other business

Elisa is expected to return in early April.

Phil Watts has spoken about a possible extension to the SEVIRI cloud model study. This would take two parts: an improved forward model for the 3.9 micron channel (it's too wide to be treated as monochromatic, and is affected by water vapour), and generation of RTTOV coefficients for clear-sky solar channel transmittances (for consistency with the way the thermal IR channels are calculated, as opposed to the current method of using MODTRAN).

We are becoming increasingly limited by being unable to change the GRAPE executable and getting it running on the cluster. Andy is intending to try recoding it to output NetCDF at some point in the next few months, which is (apparently) less flaky than HDF libraries and is something which needs doing for the cloud ECV anyway. Getting the HDF libraries working ('statically linked?') is something which should in theory be very easy but none have been are able to do. An ideal solution would be someone knowing how to do it. The next question is, if the retrieval output is recoded, whether we want to change what's stored in the output files. For the moment it was decided to keep these as-is, as extra diagnostics would cause bloat. Andy Smith (RAL) will eventually be doing recoding as part of the cloud ECV anyway so additions/improved diagnostics could be implemented then.