

Minutes of ORAC meeting, Tuesday 18th May 2010, 10 am, RAL

Present: Chris Arnold, Elisa Carboni, Caroline Cox, Dan Fisher, Don Grainger, Haiyan Huang, Tim Nightingale, Caroline Poulsen, Andy Sayer, Gareth Thomas

GRAPE/GEWEX

Caroline (Poulsen) has finished processing ATSR-2/AATSR GEWEX files and is going to upload them and send updated documentation to Claudia Stubenrauch. The differences from the files previously submitted are that this includes AATSR, and a better snow mask over the poles.

At EGU, Claudia told Gareth that she didn't think GRAPE was very good although did not explain why she thought that. Caroline is going to follow up with Claudia about that.

Andy is fixing the level 2 files such that the 'retrieval quality' variable is using our current quality control preferences, and the 'version' information in the file indicates version 3.2 (as opposed to previously saying 1.5). This will be uploaded to the BADC when ready.

Andy has been looking at 15 year time series of ATSR cloud properties and determining trends. Due to offsets in retrieved quantities between the instruments, trends from the joint time series are frequently inconsistent in sign with those derived from the instruments individually.

Gareth confirms the offset in AODs between instruments is similar in GRAPE and GlobAEROSOL (AATSR higher over ocean). We are becoming more confident this is a calibration issue, although a decline in the ATSR-2 cloud flag may also contribute over land (particularly over North America: ATSR-2 AODs are higher, looking like more cloud contamination).

OE SST research funding at RAL

Chris Mutlow has acquired funds for 1 staff year at RAL to be spent on OE SST research from the ATSRs. Some product (even if not final) should come out at the end of it. Caroline (Cox) will be working on this, under guidance from Tim.

It is suggested that Caroline might usefully focus on a sea surface emissivity model, ideally as an extension of Andy's sea surface reflectance work in the visible. Haiyan can continue to work from the aerosol/atmosphere point of view.

Haiyan and Tim have both spent time looking at trace gases which will need to be accounted for. Tim mentioned CFCs, which we had not previously considered. Haiyan is to circulate the list she had drawn up.

To minimise some potential error sources, Don suggests the measurement vector might be set up using the radiance difference (F-2N) between the two views (rather than the BTs themselves).

Richard has been developing a fast version of RTTOV which might be useful for the IR retrieval; Andrew Birks additionally may have newer RTTOV coefficients than we are currently using.

Student progress

Don reminds students to make sure they bring plots to show at these meetings.

Chris

Keen to add 3.7 um channel.

Checking for consistency between forward-view and nadir-view cloud retrievals as a first step to attempting dual-view retrievals.

Looking at orographic clouds over New Zealand. Gareth suggests that the Canterbury University cloud radar may be useful as a source of ground truth data.

Dan

Implementing the M4 stereo matching algorithm (Herman Mannstein) for AATSR files (previously used ATSR-2 SADIST UBTs).

Looking at alternative stereo algorithms (e.g. DAISY implementation of SIFT technique) and improvements (e.g. Wallis filter for contrast enhancement).

Also been deriving wind vectors (Fred Prata method) using the two views, and the two ATSRs in concert, to improve the matcher. Peter Muller thinks these wind vectors may be a useful product in

themselves.

Finally been looking at stereo height applied to Icelandic volcano eruption. For 15th April scene, estimates height 4-6 km, which is similar to Gareth's estimate (fitting stereo BTDs rather than BTs themselves). Gareth's also considering writing a paper showing his results.

Haiyan

Debugging the IR aerosol retrieval. Currently switched off forward view to make nadir-view work first.

Publications

Richard is looking at Caroline's GRAPE cloud algorithm paper and should be done by the end of the week. Caroline wants to submit before the GEWEX meeting (1 month from now).

The GRAPE aerosol validation paper (Gareth, ACP) is in press.

The GRAPE cloud validation paper is in progress and Andy will talk more about that at the next meeting.

Claire Bulgin has submitted the DODO/ORAC paper to JGR.

Elisa's SEVIRI IR aerosol retrieval is close to submission.

Andy has submitted the sampling paper (GEOS-Chem and GlobAerosol) to GRL.

Any other business

Don said he'd like version control sorted for ORAC soon. Gareth suggests it may be better to wait until the ECV projects have started so we're working with just 1 version of ORAC. Don says that's fine but we need an idea for the structure of that code in advance. Gareth tasked to provide the basic structure for the next meeting.

Caroline has been continuing comparing AATSR and simulated GLOMAP radiances. Results are suggesting cloud contamination in the Southern Ocean in GlobAerosol as the radiance is higher than modelled, although the data volume is low.

We have received confirmation from ESA that the bids from the ECV consortia we are part of are 'of interest' to them. Some details require negotiation. ESA are thinking of removing the SACURA component (fast forward model for better first guess); Alex Kokhanovsky has asked Don to write a letter of support for this, which he is intending to do.

Date of next meeting

Set to Tuesday, 6th July, 10 am, RAL