

Radio Occultation based gridded Climate Data Sets (RO-CLIM)

Hans Gleisner & the RO-CLIM Project Team

Outline

RO-CLIM

- project and objectives;
- 2014 project plan;
- status per November 2014.

RO-CLIM: Project Partners

Name and title	Institute	Address
K. Lauritsen, S. Syndergaard	ROM SAF / DMI	Danish Meteorological Institute, Copenhagen, Denmark
S. Healy	ECMWF	European Centre for Medium Range Weather Forecasts, Reading, UK
C. Marquardt, R.A. Roebeling, A. von Engeln	EUMETSAT	EUMETSAT, Eumetsat Allee 1, Darmstadt, Germany
T. Schmidt, J. Wickert	GFZ	GeoForschungsZentrum, Helmholtz Centre Potsdam, Germany
C. Ao, T. Mannucci	JPL	Jet Propulsion Laboratory/NASA, Pasadena, California, US
M. Ringer	Met Office	Met Office, Exeter, UK
R. Kursinski	Moog	Moog Broad Reach, Boulder, USA
B. Schreiner, S.-P. Ho, D. Hunt	UCAR	COSMIC Program Office, University Corporation for Atmospheric Research, Boulder, Colorado, USA
A. Steiner, U. Foelsche, G. Kirchengast	WEGC	Wegener Center for Climate and Global Change, University of Graz, Graz, Austria

From RO-CLIM Project Description, available at:
<http://irowg.org/projects/ro-clim-under-scope-cm/>

RO-CLIM: Summary of Project

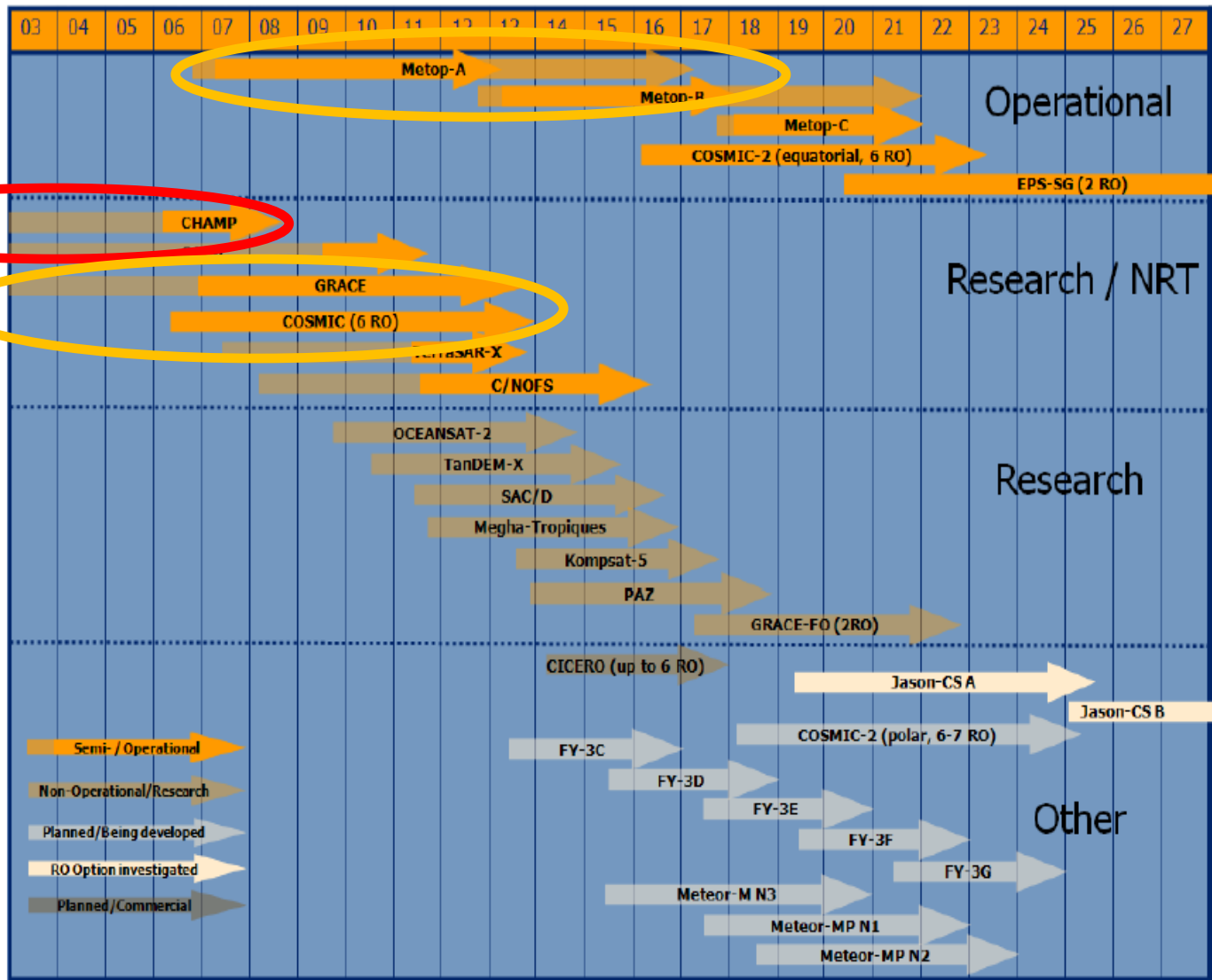
c. Summary of proposed project

While ROTrends provided a very valuable data set over the CHAMP period, an extension of that initial period to include the most recent radio occultation observations and build up a long term climate data record is one focus of this project. It will in addition also make use of the more dense coverage of recent satellites, to provide a shorter duration, higher resolution data set. By including model data from both ECMWF and the Met Office Hadley Centre an assessment of the model performance against radio occultation data is also possible. The SCOPE-CM used maturity matrix provides a very valuable reference for the currently available ROTrends data set, this set will be evaluated and “matured” against that matrix.

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RO-CLIM: GNSS-RO data



Initial RO-CLIM Focus
 Extended RO-CLIM Focus
 > 13 years of coverage

Note: Figure from proposal, now outdated for dates > 2013!

See also:
 Status of the Global Observing System for Radio Occultation (Update 2013), IROWG/DOC/2013/02, available at:
<http://irowg.org/workshops/irowg-3/>

RO-CLIM: 2014 Project Plan and Status

5. Annual Project Plans

a. 2014

The following development steps are foreseen for the 1st year, the lead institute/scientist is given in brackets:

- Increase maturity level of CHAMP ROTrends data set by:
 - re-assess implemented processing software at center, in particular with respect to the initialization of bending angles at higher altitudes, re-process data set if required, investigate outlier statistics (all centres);
 - cross-check data set against radio occultation data from more recent missions that overlap with CHAMP, such as COSMIC, GRACE, GRAS (WEGC);
 - provide information on the structural uncertainty of the CHAMP data set in form of tables (Andrea Steiner);
 - generate an ensemble of products, i.e. RO data are provided by each centre, including uncertainty information (representative of each centre);
 - generate a re-analysis based data set that uses the same processing and gridding setup as the instrument one, using e.g. ERA-Interim data or ERA-CLIM if available (Sean Healy, Axel von Engel, Hans Gleisner);
 - improve documentation of data set (representative of each centre);
 - make information publicly available through <http://www.scope-cm.org>, pointing to a dedicated project page at <http://www.irowg.org> which includes links to the individual centres. The download data will be hosted at <http://www.romsaf.org>. (Andrea Steiner, Ben Ho, Hans Gleisner, Axel von Engel).

Start the generation of the extended ROTrends data set that includes more recent missions and will be updated throughout the project:

- develop a common Level 1A format that can be used across the different centers (Christian Marquardt, Doug Hunt, DMI, representative of each centre);
- develop capability at the different centers to ingest this format into their processing (representative of each centre)

- Ongoing
- Ongoing
- Done
- Ongoing
- Not yet started
- Not yet started
- Soon done

- Discontinued
- Discontinued

RO-CLIM: status per November 2014

- RO-CLIM project slowly proceeding according to plan;
- Change of project lead in March 2014;
- Held 2 telecons + 1 short meeting;
- Project web page, common access to documents;
- Collected data at an FTP server – will be linked to web site;
- Short contribution to WGClimate report (John Bates)
- Maturity levels still those in project proposal, new assessment can be expected during 2015