

RADIO OCCULTATION WORKING GROUP

In response to Action 36.17

As an outcome of the workshop on applications of Radio Occultation held at ECMWF in June 2008, the Radio Occultation user community proposed establishing an International Radio Occultation Working Group (IROWG) in order to foster scientific development and applications of radio occultation to areas such as global and regional numerical weather prediction and climate research.

Following the successful example of the International TOVS Working Group (ITWG), the International Winds Working Group (IWWG) and the International Precipitation Working Group (IPWG), it was furthermore proposed that the IROWG be established under the auspices of CGMS and be sponsored by WMO.

Whilst the successful demonstration provided by the COSMIC constellation is planned to fly up to about 2011, several follow-on missions involving either constellations or individual Radio Occultation (RO) instruments are currently discussed. Plans for constellations are ranging from data-buy options to semi-operational, with varying degrees of maturity. For research missions, it ranges from opportunity missions to dedicated RO observations, generally not considering near-real-time data provision. International coordination of efforts is needed to maximize coverage, avoid gaps in the observation system, and ensure a sufficient data flow.

Furthermore, there is a need to foster the development of standard software for operational and scientific use, maintain standard datasets for processing harmonization and validation, promote best practices for the effective use of this data and organize ongoing re-processing of RO data for climate use.

The proposed IROWG is expected to play a key role in this respect.

In response to CGMS-36 Action 36.17 the draft Terms of Reference for such a group have been reviewed by a small group involving EUMETSAT, NOAA and WMO.

CGMS-37 is invited to approve the establishment of an International Radio Occultation Working Group with the Terms of Reference included in the annex to this paper, and to provide guidance as appropriate.

DRAFT TERMS OF REFERENCE FOR THE INTERNATIONAL RADIO OCCULTATION WORKING GROUP (IROWG)

Focus

The initial focus of the IROWG will be to exchange experiences in the exploitation of Radio Occultation (RO) data and express common recommendations for RO observations and relevant infrastructures like the Ground Support Network.

RO is already an important information source for Numerical Weather Prediction models, being an effective bias correction and climate benchmarking reference as a consequence of its calibration free nature. It is desirable to have many RO instruments providing data by either flying a constellation or several individual instruments at the same time. International coordination of efforts is needed to maximize coverage, to avoid gaps in the observation system, and ensure a sufficient data flow.

Furthermore, the IROWG will foster the development of standard software for operational and scientific use, maintain standard datasets for processing harmonization and validation, promote best practices for the effective use of this data and organize ongoing re-processing of RO data for climate use.

Objectives

The objectives of the IROWG are to:

- (a) Make recommendations to national and international agencies regarding the utilization of current RO data and the development of future RO systems;
- (b) Suggest and promote studies aiming at the definition of future RO satellite constellations that fulfil the expected operational and research user requirements;
- (c) Promote standard operational procedures and common software to the scientific community for processing and assimilating radio occultation measurements from satellites;
- (d) Stimulate increased international scientific research and development in this field and establish routine means of exchanging scientific studies and verification results;
- (e) Support and stimulate the training and education of the scientific community at large for the exploitation of RO product information;
- (f) Promote the exploitation of RO observations and their unique capability in the context of climate applications;
- (g) Foster communication between the RO scientific community, space agencies and science policy institutions such as the IPCC.

The Working Group shall be comprised of representatives nominated by the satellite operators of the CGMS, other members of CGMS and relevant research satellite operators. Following the current highly successful practice in ITWG, IWWG and IPWG, the Working Group, shall also be widely open to participation from any representative of the user community expressing interest and/or willing to contribute to RO science and its applications.

Working arrangements

The Working Group will be co-chaired by two chairpersons appointed by the CGMS Plenary. The Co-chairs shall compile a report on relevant activities for the regular plenary meetings of the CGMS. The active dialogue with satellite operators will be supported by a Rapporteur who will attend and report to the CGMS meetings.

Under the lead of the two Co-chairs, the IROWG will organize workshops every two years, co-sponsored by CGMS and WMO. The workshops will be open to the widest community involving RO users and suppliers, with the aim of promoting the exchange of scientific and operational information between the RO data producers, the research community and the user community.