



Nuestra ref.: OBS/OSD/IMO/RQQI

GINEBRA, 15 de noviembre de 2011

Anexos: 2 (disponibles solamente en inglés)

Asunto: Participación en la primera intercomparación relativa al control de la calidad de los radares y la estimación cuantitativa de la precipitación

Finalidad: Informar a la Secretaría de la OMM sobre la participación prevista en la intercomparación relativa al control de la calidad de los radares y la estimación cuantitativa de la precipitación, a más tardar el **15 de diciembre de 2011**

Estimado señor/Estimada señora:

En años recientes, el uso de datos de radar meteorológicos en numerosas aplicaciones meteorológicas ha aumentado mucho y, con ello, la calidad de los datos y las necesidades de normalización también han aumentado. Los datos de radar meteorológicos han comenzado a ser asimilados en los modelos de predicción numérica del tiempo (PNT); las aplicaciones hidrológicas regionales requieren datos de radar claros y coherentes, y las aplicaciones climáticas exigen que los datos de radar proporcionen más información generalizada sobre la precipitación que las redes de pluviómetros, y se ha comenzado a utilizar los datos de radar para la validación de conjuntos de datos obtenidos desde el espacio. Todo esto ha exigido requisitos de calidad de los datos más estrictos para el uso cuantitativo de los datos de radar meteorológicos y su intercambio a escala regional y mundial.

Durante la decimoquinta reunión de la Comisión de Instrumentos y Métodos de Observación (CIMO-XV), celebrada en Helsinki del 2 al 8 de septiembre de 2010, se decidió efectuar una intercomparación de los algoritmos de radar meteorológicos, con miras a determinar los mejores algoritmos del control de la calidad, y a cuantificar la calidad de los productos de radar como la estimación cuantitativa de la precipitación (ECP). Durante la 62ª reunión del Consejo Ejecutivo se apoyó esta propuesta (EC-LXII, Ginebra, 8 a 18 de junio de 2010).

A los Representantes Permanentes (o Directores de los Servicios Meteorológicos o Hidrometeorológicos) de los Miembros de la OMM (PR-6602)
Sr. Bruce Sumner, HMEI

copias: Miembros del Comité internacional de organización (CIO))
de intercomparación relativa al control de la calidad de)
los radares y la estimación cuantitativa de la precipitación)
Expertos invitados a la primera reunión del Comité internacional)
de organización (CIO) de intercomparación relativa al control)
de la calidad de los radares y la estimación cuantitativa) (para información)
de la precipitación)
Miembros del Equipo de expertos sobre intercomparaciones)
de instrumentos)
Presidente de la CIMO)

En consecuencia, se han establecido ya un Comité internacional de organización y un Equipo encargado del proyecto de la primera intercomparación relativa al control de la calidad de los radares y la estimación cuantitativa de la precipitación de la CIMO de la OMM. Los planes detallados de la intercomparación ya se han diseñado, en particular la preparación de un Acuerdo del protocolo de datos que deberán firmar todos los participantes antes de iniciar su colaboración. La intercomparación relativa al control de la calidad de los radares y la estimación cuantitativa de la precipitación se diferencia de cualquier otro proyecto de intercomparación anterior de la CIMO, en cuanto a que consta de una intercomparación de algoritmos informáticos, en lugar de instrumentos *per se*, de modo que no requiere la reunión de los participantes para efectuar la intercomparación.

Se prevé que la intercomparación se lleve a cabo entre enero y mayo de 2012. En el informe final de la Primera reunión del Comité internacional de organización de intercomparación relativa al control de la calidad de los radares y la estimación cuantitativa de la precipitación (Exeter, Reino Unido, 14 a 15 de abril de 2011) aparece más información sobre las propuestas de tal intercomparación, la cual puede consultarse en la página web siguiente: <http://www.wmo.int/pages/prog/www/IMOP/reports.html>. Los planes detallados actualizados, las fechas previstas y otros documentos pertinentes también podrán consultarse pronto en el sitio web de la CIMO en:

<http://www.wmo.int/pages/prog/www/IMOP/intercomparisons.html>.

El Comité internacional de organización (CIO) de intercomparación relativa al control de la calidad de los radares y la estimación cuantitativa de la precipitación solicita a los Miembros de la OMM y a los miembros de la Asociación de la Industria de Equipos Hidrometeorológicos (HMEI) a que manifiesten su interés para participar en dicha intercomparación, ya sea en calidad de proveedores de datos de prueba o de procesadores de datos de prueba, o de ambos. Se invita a los interesados a que rellenen el Cuestionario que figura en el anexo I y a que firmen el Acuerdo del protocolo de datos que aparece en el anexo II, y a que envíen la documentación completa a la Secretaría de la OMM a más tardar el **15 de diciembre de 2011**.

Conforme se indica en el informe de la reunión mencionado anteriormente y en el Acuerdo del protocolo de datos, el Equipo encargado del proyecto de la intercomparación elegirá a los interesados aptos sobre la base del valor que su participación aportaría a la intercomparación, y se informará a cada interesado sobre la decisión de dicho Equipo al respecto antes del inicio del período de la intercomparación. Las personas que deseen participar deberán estar dispuestas a aportar la totalidad de sus respectivas contribuciones a la intercomparación entre enero y mayo de 2012, y se espera que sufraguen todos los costos de su participación, puesto que la OMM no podrá brindar asistencia financiera.

Por último, quisiera aprovechar esta oportunidad para expresarle mi agradecimiento por sus contribuciones a las actividades del Programa de Instrumentos y Métodos de Observación.

Le saluda atentamente.



(J. Lengoasa)
por el Secretario General

WORLD METEOROLOGICAL ORGANIZATION

=====

OBS/OSD/IMO/RQQI, ANNEX I

WMO/CIMO Radar Quality Control and Quantitative Precipitation Estimation Intercomparison (RQQI)

QUESTIONNAIRE

Introduction

The Radar QC QPE Inter-comparison (RQQI) project is described in the project plan which is available on the WMO website at:

<http://www.wmo.int/pages/prog/www/IMOP/reports.html>

An updated version will soon be available at:

<http://www.wmo.int/pages/prog/www/IMOP/intercomparisons.html>

This questionnaire is intended to identify potential participants in the RQQI project and to gather information regarding the nature of that participation. You are requested to complete this questionnaire and return it to the WMO Secretariat, to the attention of Dr Roger Atkinson (ratkinson@wmo.int) with a copy to Dr Paul Joe, Chairman of the IOC-RQQI, (paul.joe@ec.gc.ca), by 15 December 2011. Follow up (in weeks) with further detail as requested will be acceptable. There are two ways to participate in this project:

- Data Provider
- Data Processor - Algorithm

On receipt of your completed questionnaire, the International Organizing Committee (IOC)-RQQI will contact you to obtain further information if required. Selection of participants in RQQI will be based on completeness of the information provided and the diverse but also pragmatic requirements of the project.

General Questions

<i>Identification of Respondent/Contact Person for RQQI Participation:</i>	
Name:	
Organization:	
Email:	

<i>Are you interested in participating in RQQI?</i>	
☐	Yes (continue with the survey)
☐	No (skip the rest of the survey)
☐	Possibly, I need more information (please provide questions at the end of the survey)
☐	I am only interested in the final report (skip the rest of the survey)

<i>I am interested in participating in RQQI in the following roles</i> (Check those boxes that apply and continue on in the survey):	
☐	Data Provider
☐	Data Processor - Algorithm

Data Provider Question:

If you indicated that you would participate as a **Data Provider**, please read and complete this section. Otherwise, skip to the **Data Processor** section below.

The objective of RQQI is to quantitatively evaluate various algorithms that improve the quality of the radar data for QPE, NWP and Nowcasting in a wide variety of environments (geographical, meteorological, electronic and scan strategies) using criteria of spatial continuity or smoothness (see project plan). This requires the processing of “raw data” to produce “processed data”. Depending on the meteorological environment, the “raw” data set length is variable. For example, very short data sets (~1 hour) can be used for analysis of widespread precipitation events and very long data sets (1 or more seasons) are needed for analysis of convective weather events. This first Intercomparison will focus on the removal of ground clutter, anomalous propagation, electromagnetic interference, target classification and partial blockage (see project plan).

☐	I will provide a short description of the radar hardware and provide a more detailed description in a separate document. - Short Description:
☐	I will provide a short description of the radar configuration, particularly the signal and data processing already performed to generate the “raw data”. I will provide a more detailed description in a separate document. - Short Description:
☐	I have a challenging case and I am providing a short description of the case. - Short Description:
☐	I have several good cases and these are described in a separate document that I will attach or submit shortly.
☐	My data is or can be provided in ODIM_H5 (EUMETNET OPERA HDF5) HDF5 format.
☐	My data will be provided in the following format: Radar Format: ☐ I can provide a description of the radar format.
☐	I can provide synthetic or simulated radar data for this and will describe this in a separate document.

Data Processor Participant

If you indicated that you would participate as a **Data Processor**, please read and complete this section of the survey.

☐	I attach or will submit the following document(s) to describe the data processing system or algorithm(s):
☐	I can or will be able to process data in ODIM_H5 (EUMETNET OPERA HDF5) format.
☐	I can process many other formats including: Formats that I can process:
☐	My data processing system requires the following conditions or ancillary data: Requirements:

Any Additional Comments or Questions that you may have:

WORLD METEOROLOGICAL ORGANIZATION

=====

OBS/OSD/IMO/RQQI, ANNEX II

ACCEPTANCE OF DATA PROTOCOLS FOR RQQI

I, (insert your name), ... (insert your title/function) hereby declare that I and my organization/company, (insert your org/co name), shall abide by the Data Protocols for RQQI as set out below.

Signature:

Date: Place:

DATA PROTOCOLS FOR RQQI

1. INTRODUCTION

1.1 The Radar Quality Control and Quantitative Precipitation Intercomparison (RQQI) is an international intercomparison project being conducted as part of the work programme of the Commission for Instruments and Methods of Observation (CIMO) of the World Meteorological Organization (WMO).

1.2 RQQI aims to quantify the similarities and differences in effectiveness of various automated techniques in use around the globe for improving the quality of output weather radar data used for quantitative precipitation analysis, data assimilation and nowcasting, using different radar signal and data processing systems, under different weather scenarios, climate regimes, geographical and topographical features and in the presence of different data-degrading phenomena, such as radiofrequency interference and clutter. It focuses on C and S band radars operated in conventional mode (relectivity only), Doppler mode, and dual polarization mode.

2. PROJECT GOVERNANCE AND EXECUTION

2.1 RQQI is being conducted under the leadership of its **Project Leader**, Dr Paul Joe, who was selected by CIMO's Management Group to fulfil this role.

2.2 Overall project governance is the responsibility of an **International Organizing Committee (IOC)**, which is chaired by the RQQI **Project Leader**. The IOC is responsible for project governance, broad organization and planning, including setting of project terms of reference, goals and objectives, for ensuring the scientific integrity of the project, for taking pragmatic steps to promote the project, for approval of the project conclusions and output recommendations for WMO Members, for reviewing the draft Final Report and for approving the Final Report. The IOC reports, through its Chair, to WMO through the CIMO Secretariat.

2.3 Membership of the **IOC** was proposed by the **Project Leader** in consultation with the CIMO Secretariat and has been approved by the Secretary-General of WMO. The **IOC** for RQQI comprises:

Paul JOE	Env. Canada	Canada (Chair)
Yoshihisa KIMATA	JMA	Japan
Liping LIU	CAMS/CMA	China
Alan W. SEED	BOM	Australia
Daniel B. MICHELSON	SMHI	Sweden, Representing BALTRAD
Timothy D. CRUM	NOAA/NWS/ROC	USA
Roberto CALHEIROS	IPMET/UNESP	Brazil
Estelle de CONING	SAWS	South Africa
John C. HUBBERT	NCAR	USA
Nicolas GAUSSIAT	Met Office	UK, Representing OPERA
Vincenzo LEVIZZANI	ISAC-CNR	Italy, Representing WCRP/IPWG
Daniel SEMPERE-TORRES	University of. Barcelona	Spain

2.4 The main work of RQOI is being performed by its **Project Team**, a small group of experts selected by the **IOC** for this purpose. The **Project Team** is responsible for the selection of **Test Datasets** for the project, for organizing the processing and analysis of those datasets by participants, for analysis and review of all results, for preparation of draft conclusions and recommendations, and for drafting the Final Report. The **Project Team** reports, through its Chair, the **Project Leader**, to the **IOC**. The **Project Team** comprises:

Paul JOE	Env. Canada	Canada (Chair and Project Leader)
Norman DONALDSON	Env. Canada	Canada
Liping LIU	CAMS/CMA	China
Alan W. SEED	BOM	Australia
Daniel B. MICHELSON	SMHI	Sweden
John HUBBERT	NCAR	USA.

3. SELECTION OF TEST DATASETS AND PROJECT PARTICIPANTS

3.1 WMO will call for expressions of interest in participation in RQOI from CIMO Members and from weather radar manufacturers (via HMEI) as prospective **Project Participants**: either **Test Dataset Providers**, and/or **Test Dataset Processors** (processors of **Test Datasets**, using their automated radar data processing software).

3.2 Prospective **Test Dataset Providers** will be requested to submit to the CIMO Secretariat their proposed **Test Dataset(s)**, and **Input Documentation** that describes it, including the respective weather radar system(s), the data processing steps already applied to the data, and the features of each submitted dataset that are likely to make it suitable for use as a **Test Dataset**.

3.3 Prospective **Test Dataset Processors** will be requested to submit to the CIMO Secretariat **Input Documentation** that describes the relevant algorithms used within their automated radar data processing software.

3.4 All proposed **Test Datasets** and/or **Input Documentation** that are/is received from prospective **Project Participants** will be provided to the **Project Team**, which will then select the RQOI **Project Participants**, based on the perceived value to RQOI of the participation of

that proposed **Test Dataset** and/or prospective **Project Participant's** automated radar data processing algorithms.

4. THE INTERCOMPARISON PROCESS

4.1 Once the **Project Team** has selected **Project Participants** and **Test Datasets**, **Test Dataset Processors** will be requested to process each of the **Test Datasets** using their automated radar data processing algorithms, to produce **Processed Datasets**.

4.2 The resulting **Processed Datasets** are to be submitted by each **Test Dataset Processor** to the **Project Team** for:

- (a) **Individual Analysis and Assessment** (analysis and assessment of the **Processed Dataset(s)** from a single **Test Dataset Processor**, which resulted from the application of one or more of their algorithms); and
- (b) **Comparative Analysis and Assessment** (i.e. comparative analysis and assessment of the **Processed Dataset(s)** from some or all **Test Dataset Processors**, which resulted from the application of one or more of their respective algorithms). This analysis and assessment will be performed using **Analysis and Assessment Algorithms and/or Software** (hereafter **AAAS**) developed for this purpose by the Project Team. The resulting **Analysis and Assessment Data and Information** (hereafter **AADI**) will then be used by the **Project Team** in drafting the **Final Report**.

5. PROTOCOLS

5.1 Test Datasets and Input Documentation

5.1.1 All proposed **Test Datasets** and/or **Input Documentation** provided by prospective **Project Participants** shall remain the intellectual property of the respective provider.

5.1.2 WMO will destroy copies of proposed **Test Datasets** and **Input Documentation** which are not selected for participation.

5.1.3 **Test Dataset Providers** agree to WMO retaining, using and publishing part or all of the selected **Test Datasets** and accompanying **Input Documentation**, as part of this and any similar future intercomparison project(s) that WMO may conduct. WMO will acknowledge the source of the data and/or information used in any resulting publication(s).

5.1.4 **Test Dataset Processors** agree to WMO retaining, using and publishing part or all of their **Input Documentation** as part of this intercomparison project, and for any repeat or follow-on analysis using the same or improved **AAAS**. WMO will acknowledge the source of the information in any resulting publication(s).

5.2 Processed Datasets

5.2.1 No manual intervention or software tuning is permitted in the production of **Processed Datasets**, and **Test Dataset Processors** agree to abide by this requirement.

5.2.2 **Processed Datasets** shall be the intellectual property of the **Test Dataset Processor** who produced them. **Test Dataset Processors** may independently publish their own **Processed Dataset(s)**, but not that of others, prior to the publication of the **Final Report**. Should they do so, they shall obtain prior permission of the **Test Dataset Processor** who produced the **Processed Dataset**.

5.2.3 **Test Dataset Processors** agree to WMO retaining, using and publishing part or all of their **Processed Datasets** in this intercomparison project and for possible future reanalysis using the same or improved **AAAS**. WMO will acknowledge the source of the data used in any resulting publication(s).

5.3 Analysis and Assessment Algorithms and/or Software (AAAS)

5.3.1 Pre-existing **AAAS** provided to RQQI by members of the **Project Team** will remain the intellectual property of the provider.

5.3.2 **AAAS** developed and published as part of RQQI by the **Project Team** will be in the public domain.

5.4 Analysis and Assessment Data and Information (AADI)

5.4.1 WMO shall be entitled to publish in the **Final Report** part or all of the **AADI** produced from the **Processed Datasets** using **AAAS** as part of RQQI, irrespective of the source of the **AAAS**. WMO shall also be entitled to publish some or all **AADI** on its website after the publication of the **Final Report**.

5.4.2 The **Project Team** will provide to each **Test Dataset Processor** a copy of the **Individual AADI** corresponding to their **Processed Dataset(s)**. This **Individual AADI** will not be provided to other **Test Dataset Processors** or **Test Dataset Providers** before the publication of the **Final Report**.

5.4.3 Notwithstanding the foregoing, **Test Dataset Processors** may independently publish the **Individual AADI** corresponding to their **Processed Dataset(s)**, prior to the publication of the **Final Report**, on condition that WMO is acknowledged as the source of the **AADI**. However, in so doing, they agree to make neither statement(s) either directly or indirectly comparing the performance of their automated radar data processing algorithms to those of any other **Test Dataset Processor(s)**, nor statement(s) comparing the relative value of any of the various **Test Datasets**.

5.4.4 After publication of the **Final Report**, WMO will make all **AADI** available to whoever may request it, on condition that it is used solely for the purposes of scientific research and not in order to gain commercial advantage.
