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الرسالة رقم: OBS/OSD/IMO/RQQI جنيف، 15 تشرين الثاني/ نوفمبر 2011

عدد المرفقات: 2 (متوافران بالإنكليزية فقط)

الموضوع: المشاركة في أول عملية تنظمها لجنة أدوات وطرق الرصد (CIMO) التابعة للمنظمة (WMO) بشأن مراقبة جودة الرادارات وتجربة التقدير الكمي للهطول (RQQI)

الإجراء المطلوب: إخطار أمانة المنظمة (WMO) باعتزامكم المشاركة في مراقبة جودة الرادارات ومقارنة التقدير الكمي للهطول (RQQI)، في موعد لا يتجاوز **15 كانون الأول/ ديسمبر 2011**

تحية طيبة وبعد،

لقد زاد في السنوات الأخيرة استعمال بيانات رادارات الطقس في العديد من تطبيقات الأرصاد الجوية، وزادت بناء على ذلك متطلبات جودة البيانات وتوحيدها قياسياً. ومع بدء تمثيل بيانات رادارات الطقس في نماذج التنبؤ العددي بالطقس تتطلب التطبيقات الهيدرولوجية الإقليمية بيانات رادارات نظيفة ومتسقة، كما تحتاج التطبيقات المناخية إلى أن تقدم بيانات الرادارات معلومات بشأن الهطول أكثر تنوعاً مما تقدمه شبكات قياس الأمطار، وقد بدأ استخدام بيانات الرادارات لاعتماد مجموعات البيانات فضائية القاعدة. وأدى كل هذا إلى زيادة صرامة متطلبات جودة البيانات لاستخدام بيانات رادارات الطقس استخداماً كمياً وتبادلها إقليمياً/ عالمياً.

وقررت الدورة الخامسة عشرة للجنة أدوات وطرق الرصد (هلسنكي، 2-8 أيلول/ سبتمبر 2010) أن تقارن خوارزميات رادرات الطقس بغية تحديد أفضل خوارزميات لمراقبة الجودة، وللتحديد الكمي لجودة نواتج الرادارات، مثل التقدير الكمي للهطول (QPE). وقدم المجلس التنفيذي في دورته الثانية والستين (جنيف، 8-18 حزيران/ يونيو 2010) الدعم لهذا الاقتراح.

إلى: الممثلين الدائمين لأعضاء المنظمة (أو مديري مرافق الأرصاد الجوية أو الأرصاد الجوية الهيدرولوجية التابعة لأعضاء المنظمة) (PR-6602)

السيد Bruce Sumner، رابطة صناعة معدات الأرصاد الجوية الهيدرولوجية (HMEI)

صورة إلى: أعضاء لجنة التنظيم الدولية – العملية (RQQI)
الخبراء المدعوين للمشاركة في الدورة الأولى للجنة التنظيم الدولية – العملية (RQQI)
أعضاء فرقة الخبراء المعنية بمقارنة الأدوات
رئيس لجنة أدوات وطرق الرصد (CIMO)
(للعلم)

وعلى ذلك، تم اختيار لجنة تنظيم دولية وفرقة المشروع لأول عملية تقوم بها لجنة أدوات وطرق الرصد (CIMO) التابعة للمنظمة (WMO) بشأن مراقبة جودة الرادارات وتجربة التقدير الكمي للهطول (RQQI). وأعدت خطط مفصلة للمقارنة، بما في ذلك إعداد اتفاق بروتوكول البيانات، الذي سيُطلب من جميع المشاركين التوقيع عليه قبل مشاركتهم. والعملية (RQQI) ليست مثل أي مشروع مقارنة سابق من حيث إنها تتضمن مقانة لخوارزميات الحاسوب وليس للأدوات في حد ذاتها، ولذا لا يتطلب الأمر اجتماع المشاركين من أجل تنفيذ المقارنة.

ومن المتوقع أن تجري العملية (RQQI) بين كانون الثاني/ يناير وأيار/ مايو 2012. ويرد مزيد من التفاصيل عن المقترحات بشأن العملية (RQQI) في التقرير النهائي للدورة الأولى للجنة التنظيم الدولية للجنة (CIMO) التابعة للمنظمة (WMO) بشأن مراقبة جودة الرادارات والمقارنات الكمية للهطول (إكستر، المملكة المتحدة، 14-15 نيسان/ أبريل 2011)، الذي يمكن الوصول إليه على الموقع الشبكي: http://www.wmo.int/pages/prog/www/IMOP/reports.html. كما ستتوافر قريباً خطط تفصيلية وجداول زمنية محدّثة ووثائق أخرى ذات صلة على الموقع الشبكي للجنة (CIMO): http://www.wmo.int/pages/prog/www/IMOP/intercomparisons.html

وترغب الآن لجنة التنظيم الدولية المعنية بالعملية (RQQI) دعوة أعضاء المنظمة (WMO) وأعضاء رابطة صناعة معدات الأرصاد الجوية الهيدرولوجية (HMEI) إلى الإعراب عن اهتمامهم بالمشاركة في العملية (RQQI)، إما باعتبارهم مقدمين لبيانات اختبارية وإما كمعالجين لبيانات اختبارية، أو بكلتا الصفتين. ويُرجى من الموجَّه إليهم هذه الرسالة استيفاء الاستبيان الوارد في المرفق 1 والتوقيع على اتفاق بروتوكول البيانات الوارد في المرفق 2، وإعادتهما إلى أمانة المنظمة (WMO) في موعد لا يتجاوز **15 كانون الأول/ ديسمبر 2011**.

وكما يرد في تقرير الاجتماع سالف الذكر وفي اتفاق بروتوكول البيانات، ستختار فرقة المشروع المعنية بالعملية (RQQI) الأطراف التي تجيب عن الاستبيان بشكل جيد، على أساس القيمة المتوقع أن تستفيد بها العملية (RQQI) من مشاركتهم، وستُخطر كل جهة بقرار فرقة المشروع في هذا الصدد قبل بدء فترة التجربة. ويجب على المشاركن المحتملين الاستعداد لاستكمال مساهمتهم في العملية (RQQI) بين كانون الثاني/ يناير وأيار/ مايو 2012، ويُنتظر منهم أن يتحملوا كافة تكاليف مشاركتهم إذ إن المنظمة (WMO) لن تكون في وضع يسمح لها بتقديم مساعدة مالية.

وأخيراً، فإنني أنتهز هذه الفرصة لأعرب عن تقديري لمساهمتكم في أنشطة برنامج أدوات وطرق الرصد.

وتفضلوا بقبول فائق الاحترام،

(ج. لنغواسا)
عن الأمين العام

W O R L D M E T E O R O L O G I C A L O R G A N I Z A T I O N
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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 based on completeness of the information provided and the diverse but also pragmatic requirements of the project.

General Questions

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

Are you interested in participating in RQQI?	
☐	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 am interested in participating in RQQI in the following roles (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:

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 RQQI 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 RQQI 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 RQQI **Project Participants,** based on the perceived value to RQQI 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.

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