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

COMMISSION FOR INSTRUMENTS AND METHODS OF OBSERVATION

JOINT

CIMO EXPERT TEAM ON SURFACE-BASED INSTRUMENT INTERCOMPARISONS AND CALIBRATION METHODS

Sixth (reduced) Session

AND

INTERNATIONAL ORGANIZING COMMITTEE ON RAINFALL INTENSITY INTERCOMPARISON

Sixth (reduced) Session

Vigna di Valle, Italy
15 – 17 September 2008

FINAL REPORT

CONTENTS

AGENDA

1. **ORGANIZATION OF THE SESSION**

   1.1 Opening of the Session

   1.2 Adoption of the Agenda

   1.3 Working Arrangements for the Session

2. **REPORT OF THE CHAIRPERSON**

3. **FIELD INTERCOMPARISON OF RAINFALL INTENSITY (RI) GAUGES, VIGNA DI VALLE, ITALY**

   3.1 Report of the Project Leader for the Field RI Intercomparison

   3.2 Report of the Site Manager

   3.3 Report of the Data Analysis Expert Responsible for QA / QC

   3.4 Data Analysis Evaluation

   3.5 Preparation of the Intercomparison Report

   3.6 Extension of the Intercomparison Period

   3.7 Review of the work plan

   3.8 Any other business

4. **DRAFT REPORT OF THE SESSION**

5. **CLOSURE OF THE SESSION**

EXECUTIVE SUMMARY

The sixth (reduced) session of the Joint Expert Team on Surface-Based Instrument Intercomparisons and Calibration Methods (ET) and International Organizing Committee on Surface-Based Instrument Intercomparisons (IOC) took place in Vigna di Valle, Italy, from 15 to 17 September 2008.

The aim of the session was to address the analysis methodology for the evaluation of the collected data in view of ensuring the delivery of the Final Report of the intercomparison promptly after its completion. The ET/IOC agreed on data processing and evaluation procedures. The ET/IOC also took important decisions relative to the instruments located in the pit that would be used as reference instruments for the intercomparison.

Further, the ET/IOC decided to extend the WMO Intercomparison of Rainfall Intensity Gauges in Vigna di Valle (Italy) until 30 April 2009 and updated its work plan to account for necessary follow up actions.

The ET/IOC decided that the full report of the Intercomparison would be published after completion of the prolongation of the intercomparison and agreed to work towards publishing this report as soon as possible after the end of the Intercomparison. The ET/IOC therefore decided to compile a draft Final Report of the intercomparison by the end of November 2008 for its internal use. The Final Report containing all the data of the extended intercomparison should be finalized in June 2008.

Concerning the WMO Field Intercomparison of thermometer screens / shields in conjunction with humidity measuring instruments in Ghardaïa, the ET/IOC stated that significant progresses had been made. The ET/IOC therefore decided that the intercomparison should start at the latest on 30 October 2008, provided that remaining installations and checks of all instruments are accomplished.

GENERAL SUMMARY

1. ORGANIZATION OF THE SESSION

1.1 Opening of the Session

1.1.1 The sixth (reduced) session of the Joint Meeting of the Expert Team on Surface-Based Instrument Intercomparisons and Calibration Methods (ET) and the International Organizing Committee on Surface-Based Instrument Intercomparisons (IOC) was held at the Italian Meteorological Service Centre of Meteorological Experimentation (ReSMA), Vigna di Valle, Italy, from 15 September to 17 September 2008. Mr Michel Leroy, Chairperson of the ET/IOC, opened the session. Colonel Daddario Gianni, Director of ReSMA, welcomed the participants to the meeting. The list of participants is reproduced in Annex I to this report.

1.2 Adoption of the Agenda

The ET/IOC adopted the Agenda for the meeting, which is reproduced at the beginning of this report.

1.3 Working Arrangements for the Session

The working hours and tentative timetable for the meeting were agreed upon. It was agreed that the meeting would be chaired by Mr Leroy.

2. REPORT OF THE CHAIRPERSON

2.1 The Chairperson reported on the status of the intercomparison of Thermometer Screens / Shield in conjunction with Humidity Measuring Instruments taking place in Ghardaïa. He recalled the concerns expressed by the CIMO Management Group at its fifth session (Geneva, Switzerland, 28-30 January 2008) about the future and success of this Intercomparison. Further, he informed the ET/IOC that Mr Jérome Duvernoy had volunteered to visit the intercomparison site to check the status of the instruments and to provide support to the local organizers. The visit was made at the beginning of June. Though the setup was not finalized yet, encouraging progress had been made. Most instruments were connected and functioning, but the intercomparison cannot start before all instruments are connected and properly functioning.

2.2 The ET/IOC expressed its thanks to Mr Duvernoy for the support he provided through his mission to Algeria.

2.3 The ET/IOC recognized that the site manager should ideally be working at the site of the intercomparison. Mr Leroy received from Algeria the direct contact details of the person who is working in Ghardaïa and who is also in charge of the data acquisition and of the installation of the instruments. The initial contacts were positive and the access to the local ftp server was made available accordingly.

2.4 The ET/IOC agreed that until all the instruments are properly installed, Mr Leroy should remain the official contact between WMO and Algeria (for linguistical purposes) and provide support to the local organizer to finalize the intercomparison setup. The ET/IOC also agreed that once the intercomparison officially started, that the International Organizing Committee should be reactivated to overview the conduct and evaluation of the intercomparison.

2.5 The ET/IOC was informed that the admission period for custom clearance for the instruments had to be prolonged, and that Météo-France had requested such a prolongation for the instruments that were sent to Ghardaïa from the French laboratory calibration site. However, this admission period will expire in August 2009. The intercomparison was originally planned to last one year. In view of the situation mentioned above, the ET/IOC noted that the duration of the intercomparison might have to be shortened.

2.6 The ET/IOC decided that the intercomparison should start at the latest on 30 October 2008, and requested the site manager to accomplish the installation and checks of all instruments in close collaboration with Mr Leroy and in accordance with the guidance he would provide.

2.7 The ET/IOC reiterated the need for the host to implement quality checks as had been agreed during the ET-SBII&CM-4 that was held in Ghardaïa, Algeria, 19-23 March 2007.

3. FIELD INTERCOMPARISON OF RAINFALL INTENSITY GAUGES IN VIGNA DI VALLE, ITALY

3.1 Report of the Project Leader on the Field RI Intercomparison

3.1.1 Dr Eckhard Lanzinger, Project Leader (PL) of the WMO Field Intercomparison of Rainfall Intensity Instruments (RI), acknowledged that the progress of the project was good. It was commonly stated that the monthly telephone conferences have proven to be very helpful and effective. Nevertheless, the complexity of the data analysis and the preparation work for the final report of the intercomparison required this reduced ET/IOC meeting.

3.1.2 The extension of the intercomparison until the end of April 2009 was officially announced (see agenda item 3.6).

3.1.3 As a consequence of the extension of the intercomparison, the ET/IOC expressed the need to extend the contract of the Data Analysis Expert, Dr Claudia Monesi (University of Roma), from December 2008 to end of June 2009, and requested the Secretariat to do its utmost to support this extension. The Terms of Reference for the follow-up contract will have to be revised by the Project Leader. Dr Monesi will fulfill her current contract essentially by delivering the data analysis as part of the draft Final Report of the intercomparison covering the originally planned duration of the Intercomparison.

3.2 Report of the Site Manager

3.2.1 Mr Emanuele Vuerich, Site Manager of the Field Intercomparison (SM), presented a summary of the status of management and most recent activities (his presentation is available for the ET/IOC members upon request).

3.2.2 The participant's Meeting held in May 2008 was a full success, because it helped to optimize data acquisition especially with respect to synchronization of RI output with the reference. Participants were satisfied with the conduction of the meeting and for having the chance to inspect their instruments and get a personal feedback concerning some operational aspects. The ET/IOC recommended that such participants meeting be organized during future intercomparisons.

3.2.3 Based on the experience gained during the intercomparison Mr Vuerich, Chairperson of the Working Group No. 12 of the CEN-TC 318 Hydrometry, contributed to the revision of ISO-EN13798:2002 “Specification for a reference raingauge pit” (a European Committee for Standardization (CEN) procedure every five years) in order to improve the document with more detailed information for realization purposes and to provide users with the technical details adopted for the Field Intercomparison with respect to the different sizes of the four reference rain gauges. The ET/IOC was informed that the revised standard was expected to be approved by CEN members in the coming months.

3.2.4 Since the beginning of the intercomparison, Mr Vuerich provided two QA / QC reports concerning maintenance, checks, malfunctions and the results of two field tests. The reports which are fundamental for data acquisition and analysis improvements were distributed to the ET/IOC members accordingly.

3.2.5 A presentation of the intercomparison and preliminary results will be given at TECO-2008 which will be held in St. Petersburg, Russian Federation, 27-29 November 2008.

3.3 Report of the Data Analysis Expert responsible for QA / QC

3.3.1 The Data Analysis Expert, Dr Monesi, proposed a method for establishing the one minute working reference based on the pit gauges which was approved by the ET/IOC.

3.3.2 The analysis of the laboratory calibrations and the field measurements on the one minute time basis revealed that one reference gauge suffered from an oscillating step response that had not been observed during the previous Laboratory Intercomparison. The field measurements confirmed these findings by large dispersion of the data. The ET/IOC decided to exclude this instrument from the calculation of the reference values. The ET/IOC requested the PL and SM to contact the manufacturer in order to inform them of the decision and to request assistance for the de-installation.

3.3.3 Based on the laboratory results and the selection criteria for reference gauges another gauge was selected by the ET/IOC to be installed in the pit. The ET/IOC requested that the PL and SM contact the manufacturer, if they were willing to deliver an additional instrument and help to install it.

3.4 Data Analysis Evaluation

3.4.1 The statistical methodology proposed by the Data Analysis Expert was accepted by the ET/IOC.

3.4.2 Thanks to the synchronization's solutions and the data analysis already conducted by Dr Monesi, it is now clear that it is possible to adequately compared RI at one minute time intervals. Due to the high temporal variability of the RI, this result was not obvious at the beginning of the intercomparison. This is a very positive result.

3.4.3 Several graphical presentations of the field results were agreed upon by the ET/IOC. These will be used by Data Analysis Expert to display results in the final report.

3.4.4 Professor Luca Lanza (University of Genova), made proposals for the graphical presentation of the laboratory results. The ET/IOC agreed on a unique presentation with fixed scaling (+/- 30% deviation from reference with dashed lines at +/- 5%) for all gauges. Any error bars beyond the scale will be cut. The ET/IOC agreed that only 1-minute values will be presented in the graphs of the laboratory calibrations.

3.4.5 The ET/IOC recognized that a summary plot of the field tests performed along the Field Intercomparison needed to be placed in the Final Report.

3.4.6 The ET/IOC requested that the results of the field and laboratory calibrations be made available for inclusion in the draft Final Report at the end of October 2008, so that Dr Monesi could use them to finalize the data evaluation which she has to deliver in November 2008.

3.5 Preparation of the Intercomparison Report

3.5.1 The tentative structure of the Final Report of the Intercomparison was developed and is reproduced in Annex II to this report. All information that is already available will be included in the draft Final Report that will be finalized by the end of November 2008.

3.5.2 Since all participants were willing to continue the Intercomparison, the ET/IOC decided that the full report of the Intercomparison would be published after completion of the extension. It was noted the need to publish this report as soon as possible after the end of the

Intercomparison, and it was decided to immediately begin working on its preparation with the aim of having the complete report ready for review by the beginning of June 2009. It is expected that a draft final report will be available for the internal use of ET/IOC by November 2008, in view of reviewing it during TECO-2008 (November 2008). The ET/IOC also agreed on who should be responsible for the delivery of the different portions of the report, and the respective deadlines.

3.5.3 The ET/IOC agreed that all contributions would be sent to the Site Manager, Mr Vuerich, who would incorporate them into one single document.

3.5.4 The ET/IOC recognized the need to have a meeting for the review and approval of the final report and recommended that this meeting takes place before the end of June 2009.

3.6 **Extension of the Intercomparison Period**

3.6.1 The ET/IOC had requested an extension of the intercomparison. The ET/IOC was informed that the Permanent Representative of Italy had agreed to continue the Intercomparison until the end of April 2009. The SM informed that all participants had also agreed to this proposal. The ET/IOC expressed its deep thanks to Italy to continue to support the Intercomparison and decided to officially approve the extension of the intercomparison until end of April 2009. The ET/IOC requested the Project Leader to inform all the participants of this extension by e-mail correspondence.

3.6.2 According to the Intercomparison extension, the Site Manager will request a prolongation of the period of Temporary Admission (customs clearance) for instruments from the United States, Australia and Norway (non-CEE instrumentation).

3.7 **Review of the Work Plan**

To account for the extension of the intercomparison the work plan was revised as follows:

- 01.11.2008: Delivery of draft data analysis of selected data recorded until mid-September 2008 by the Data Analysis Expert;
- 01.11.2008: Delivery of the graphs with the results of Laboratory and Field calibrations;
- 30.11.2008: Draft Final Report
- 30.04.2009: Official end of the Intercomparison. All portions of the reports (with the exception of the data analysis portion) need to be completed;
- 31.05.2009: Data analysis part of the report has to be completed; and
- June 2009: ET Meeting for final discussion of results and approval of Final Report.

3.8 Other Issues

No other issue was brought up for discussion by the ET/IOC members.

4. **DRAFT REPORT OF THE SESSION**

4.1 The PL drafted a report of the meeting. The final report of the meeting will be disseminated for further comment, if any, within two weeks time.

4.2 Since a number of issues discussed relative to the instruments and the preliminary results of the intercomparison are confidential, they could not be included in this report. However, the PL agreed to provide a separate document summarizing this information for the restricted use of the ET/IOC members and WMO Secretariat.

5. CLOSURE OF THE SESSION

5.1 The session proved to be particularly efficient with important decisions concerning data analysis and preparation of the final report, in view of finalizing it two months after the end of the intercomparison (end of June 2009).

5.2 The session was closed on 1745 on 17 September 2008.

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TENTATIVE STRUCTURE OF THE FINAL REPORT OF THE INTERCOMPARISON

1. BACKGROUND

2. INSTRUMENTS AND REFERENCE

2.1 Selection procedure

2.2 Description of physical principles

2.3 Ancillary instruments

2.4 Pit reference

3. METHODOLOGY AND ORGANIZATION

3.1 Site description

3.2 Installation procedure

3.3 DAQ System

3.4 Siting of instruments

3.5 Data policy

4. INSTRUMENT CALIBRATION

4.1 Laboratory calibration

4.2 Field calibration

5. DATA ANALYSIS AND RESULTS

5.1 Data processing and quality control

5.2 Summary of available data

5.3 Data analysis

5.3.1 Reference value

5.3.2 Synchronization

5.3.3 Presentation of results

5.4 Results and Discussion

5.4.1 Wind effect

5.4.2 Results sensor by sensor

6. CONCLUSIONS AND RECOMMENTATIONS

Annex: Description of the instruments

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