

WORLD METEOROLOGICAL ORGANIZATION

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**COMMISSION FOR INSTRUMENTS AND
METHODS OF OBSERVATION**

ITEM: 4.2

CIMO MANAGEMENT GROUP
Fifth Session

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GENEVA, SWITZERLAND, 28-30 JANUARY 2008

CIMO ET Workplans and Deliverables

(Submitted by the Secretariat)

Summary and Purpose of Document

This document provides the workplan of the CIMO Expert Teams and Rapporteurs that have already submitted them. In case other workplans would be made available before the beginning of the meeting, they will be provided as a separate document.

ACTION PROPOSED

The meeting is invited to review the workplans and decide on any necessary changes taking into account new priorities that the Management Group may have.

Expert Team on Surface Technology and Measurement techniques
 Work Plan 2007-2010
 Draft version: 12-03-07

No.	Task description	Person responsible	Action	Deadline	Deliverables	Deadline
1	Standardization in instrumentation and observations					
1a	Identify siting, performance, classifications and metadata standards for systems and sensors	Wei Li contributions: K. Klapheck	In collaboration with CBS-ETs: 1. Define a list of keywords for WMO Metadata core profile 2. Define metadata catalogues for stations , sensors, data handling	Jul 2008	Report to CIMO XV Catalogues	Jul 2010
1b	Recommend standard observing methods for automatic measurement of clouds, present weather etc	H. Bloemink Contributions: Wei Li	1. Review and list methods in use 2. Analyze methods and recommend standards	Jul 2008	Report to CIMO XV Update for CIMO-Guide	Jul 2010
1c	Review algorithms in AWOSs and make proposal for their standardization	B. Hartley Contributions: K. Klapheck	1. Review and list algorithms in use 2. Analyze algorithms and recommend standards	Jul 2008	IOM report	Jul 2010
1d	Develop standards for the interoperability of instruments' hardware and software	St. Waas contributions: K. Klapheck	1. Review standards in use in met. instrumentation 2. Recommend and give reasons for new standards 3. Collaborate with HMEI	Jul 2008	Report to CIMO XV, HMEI	Jul 2010
2	Automatization of surface observations					
2a	Develop guidelines and procedures for the transition from manual to automatic weather stations	M. Molyneux Contributions: Wei Li	1. Review existing material 2. Search and describe new procedures	Jul 2008	Update for CIMO-Guide	Jul 2010
2b	Instrument Development Inquiry - Report on progress in new surface technologies and techniques	J. van der Meulen Contributions: S. Waas	1. Review IDI and instrum. catalogue 2. In coop. with HMEI look for new techniques 3. Update IDI in complement to instrum. catalogues	Jul 2008	IOM report	Jul 2010

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No.	Task description	Person responsible	Action	Deadline	Deliverables	Deadline
3	Surface measurements in extreme weather conditions					
3a	Describe requirements on instruments on meteorological icing	A. Heimo	1. Analyze and describe the problem 2. Investigate into tests experiences etc of icing 3. Recommend best practices	Jul 2008	report to CIMO XV	Jul 2010
3b	Specify measurement practices for different extreme climates	M. Novitsky	1. Review practices of measurement 2. Analyze and recommend best practices	Jul 2008	report to CIMO XV	Jul 2010
3c	Find sensor techniques for the measurement of extreme values of wind and precipitation	see No. 2b contributions: S. Waas Wei Li	1. In coop. with HMEI investigate about appropriate sensors 2. Prompting HMEI to instrument adaptations	Jul 2008	report to CIMO XV	Jul 2010
4	Miscellaneous tasks					
4a	In cooperation with CBS: Report on calibration requirements for satellite sensing of surface variables	N. N.	1. List variables to be considered 2. Discuss requirements on surface datasets 3. Show Examples of calibration	Jul 2008		Jul 2010
4b	Review uncertainty requirements and operational instrument performance	Klapheck	1. Review existing CIMO table 2. Actualize specifications	Jul 2008	Update for CIMO-Guide	Jul 2010

FUTURE WORK PLAN

**Expert Team on Meteorological Radiation and Atmospheric Composition Measurements
(2007-2010)**

No.	Task description	Action	Deliverables
1	Facilitate further activities related to meteorological radiation measurements:		
1 a)	IPC-XI, 2010, WRC, Switzerland	<ol style="list-style-type: none"> 1. Assist in the preparations and participate in the IPC-XI 2. Analyze results of IPC-XI 	<ul style="list-style-type: none"> • Guidelines for IPC-XI • Published results of the IPC-XI
1 b)	RPCs, 2006-2010, either in conjunction with IPC-XI or at RPCs concerned	<ol style="list-style-type: none"> 1. Initiate RPCs 2. Assist in the preparations and participate in the RPCs 3. Analyze results of RPCs 	<ul style="list-style-type: none"> • Guidelines for RPC comparisons • Published results of the RPC comparisons • At least one RPC
1 c)	Coordinate the dissemination of World Radiometric Reference (WRR) factors to regional and national radiation standards	<ol style="list-style-type: none"> 1. Disseminate radiometric factors to regional and national radiation standards 	<ul style="list-style-type: none"> • Instrument and Observing Methods (IOM) Report to Members
1 d)	Statistical basis for the WRR factors	<ol style="list-style-type: none"> 1. Identify the role of the WRR method in developing factors. 2. Devise a more robust statistical method for deriving WRR factors 	<ul style="list-style-type: none"> • Report to Members • Propose update of CIMO-Guide
1 e)	Cryogenic radiometers for solar measurements	<ol style="list-style-type: none"> 1. Assist in investigation of cryogenic radiometers for solar measurements. 	<ul style="list-style-type: none"> • Report to Members
1 f)	Liaise with the World Climate Research Programme on matters related to Baseline Surface Radiation Network and inform Members of developments	<ol style="list-style-type: none"> 3. Identify the role of CIMO in further development of BSRN 2. Liaise with WCRP on identified matters 	<ul style="list-style-type: none"> • Report to BSRN on ET activities • Report to Members on BSRN
1 g)	Liaise with the CAS SAG Ozone on the operational practice associated with total ozone measurements	<ol style="list-style-type: none"> 3. Collaborate with CAS on matters related to practices associated with total ozone measurements 	<ul style="list-style-type: none"> • Report to Members • Proposal for update of the CIMO-Guide
1 h)	Liaise with the CAS SAG UV on operational practice associated with UV measurements	<ol style="list-style-type: none"> 1. Promote the need for the intercomparison of UV calibration centers to the CAS SAG UV 2. Collaborate with CAS on matters related to practices associated with UV 	<ul style="list-style-type: none"> • Report to CAS SAG UV • Proposal for update of the CIMO-Guide

No.	Task description	Action	Deliverables
1 i)	Liaise with the CAS SAG Aerosol Measurements	measurements 1. Collaborate with CAS on matters related to practices associated with aerosol Measurements	<ul style="list-style-type: none"> • Report to Members • Proposal for update of the CIMO-Guide
1 j)	Update the CIMO Guide	1. Develop proposals for update of Chapters 7, 8, 16, 17 of the <i>CIMO Guide</i>	<ul style="list-style-type: none"> • Updated Ch 7, 8, 16, 17 of the <i>CIMO Guide</i>
1 k)	Develop further the establishment of the World Infrared Standard Group (WISG) of radiometers	1. Collaborate with PMOD/WRC/IRC on the development of the WISG of radiometers	<ul style="list-style-type: none"> • At least one absolute radiometer traceable to SI developed and operational
1 l)	Coordinate the dissemination of pyrgeometer calibration coefficients	1. Calibration of the pyrgeometers at the IRC	<ul style="list-style-type: none"> • Calibration certificates to users
1 m)	Provide technical/scientific guidance to the IRC Davos	1. Perform the scientific evaluation of the IRC	<ul style="list-style-type: none"> • Report to IRC and Members
1 n)	Initiate activities so that radiation measurements in all national radiation networks are of a high quality	1. Develop methodology for assessing the quality of radiation data 2. Review the quality of radiation measurements in national networks 3. Assist NRC in improving the quality of radiation measurements 4. Develop proposal for training courses in radiation measurements	<ul style="list-style-type: none"> • Survey on quality of radiation measurements • IOM Report on the quality of radiation measurements • Methods distributed to NRCs on specific radiation issues • Syllabus and lecture notes for training in radiation measurements
1 o)	To determine the status of the traceability of radiation measurements to SI	1. Assessment of the traceability of radiation measurements to SI	<ul style="list-style-type: none"> • Report to Members
1 p)	To examine the transfer of WISG to network measurements of infrared irradiance	1. Survey on how field pyrgeometers are calibrated	<ul style="list-style-type: none"> • Report to Members

WORK PLAN
Expert Team: UPPER-AIR SYSTEM INTERCOMPARISONS
(2007-2010)

No.	Task description	Person responsible	Action	Deadline for action	Deliverables	Deadline for deliverables
1.	Radiosonde Intercomparison – CHINA	Feng Li, J. Nash, & T. Oakley	1. Define and agree on the organisation of the intercomparison, namely: main objective, place, date, duration, conditions for participation, data acquisition, processing and analysis methodology, publication of results, intercomparison rules, responsibility of the host(s) and responsibility of participants.	Q1 2008	<ul style="list-style-type: none"> • Implementation Plan 	Q1 2008
		Feng Li	2. Provide description of proposed intercomparison site and facility (location, environmental and climatological conditions, etc...)	Q2 2008	Description of intercomparison site	Q1 2008
		IOC	3. Identify type of instruments and participants for the intercomparison.	Q4 2008	List of participating instruments	Q4 2008
		Feng Li, J. Nash, & T. Oakley	4. Overall supervision and coordination of the field intercomparison.	2009	Draft final report	2010
		Feng Li, J. Nash, & T. Oakley	5. Evaluation of the results and preparation of the final report (maybe merge with 4 if same person is responsible)	2010	<ul style="list-style-type: none"> • Published results of the intercomparison 	2010
		IOC	6. Review and approval of final report	2010	<ul style="list-style-type: none"> • Deliver Data to relevant Centres 	2010
		Proj. Leader	7. Provide data of intercomparison to International Data Centre	2010		2010

No.	Task description	Person responsible	Action	Deadline for action	Deliverables	Deadline for deliverables
		J. Nash, & T. Oakley	8. Provide recommendations for user community (e.g. update of CIMO guide)		<ul style="list-style-type: none"> Document providing recommendations and CIMO guide revision proposal 	
2.	Radiosonde Intercomparison – NAMIBIA (INTERMET System test)	J. Nash, R. Smout & C. Gaffard	1. Produce specification of intercomparison (Trial Spec.) 2. Overall supervision and coordination of the field intercomparison 3. Evaluation of the results and preparation of the final report.	Sept. 07 Oct. 07	<ul style="list-style-type: none"> Guidelines (trial spec. & planning) for conducting national radiosonde tests Published results of the intercomparison 	Dec. 2007 Mar. 2008
3	Radiosonde & Remote Sensing Intercomparison – National Plans/Work	C. Bower & All Members	1. Provide information to the Expert Team on national results or planned tests of Radiosonde & Remote Sensing Intercomparisons.	Ongoing	<ul style="list-style-type: none"> Report and/or presentation to Expert team 	Expert team meetings
4	Ground Based Remote Sensing Intercomparisons (TESTBED) with insitu and remote sensing UA measurements, in collaboration with ET-RSUT&T.	C. Gaffard H. Klein Baltink F. Berger A. Ivanov	1. Prepare proposals for WMO involvement in 'TESTBED' experiments. 2. Monitor, review and document testing on Regional and National levels. 3. Assess need to, and develop, up-date for relevant part of CIMO guide, as necessary	Q1 2008 2010 2010	<ul style="list-style-type: none"> Presentation/Document at 1st meeting Summary reports on results and tests Document providing revision proposal 	Q1 2008 2010 2010
5	AMDAR measurements Intercomparison of water vapour sensor.	T. Oakley C. Bower	1. Prepare proposals for WMO involvement in intercomparison tests.	Q1 2008	<ul style="list-style-type: none"> Presentation/Document at 1st meeting 	Q1 2008

No.	Task description	Person responsible	Action	Deadline for action	Deliverables	Deadline for deliverables
		AMDAR Panel	2. Request AMDAR to provide data 3. Monitor, review and document testing on Regional and National levels. 3. Assess need to, and develop, up-date for relevant part of CIMO guide, as necessary	Q2 2008 2010 2010	<ul style="list-style-type: none"> • Summary reports on results and tests • Document providing revision proposal 	2010 2010
6	Wind Profiler Intercomparisons (Quality Assessment), in collaboration with ET-RSUT&T.	T. Oakley B. Heo	1. Prepare proposals for WMO involvement in intercomparison tests. 2. Monitor, review and document testing on Regional and National levels. 3. Assess need to, and develop, update for relevant part of CIMO guide, as necessary	Q1 2008 2010 2010	<ul style="list-style-type: none"> • Presentation/Document at 1st meeting • Summary reports on results and tests • Document providing revision proposal 	Q1 2008 2010 2010

WORK PLAN
Rapporteurs on Training Activities and Training Material
(2007-2010)

No.	Task description	Person responsible	Action	Deadline for action	Deliverables	Deadline for deliverables
1a	Develop training material and conduct training/capacity building activities	B.Y. Lee	Conduct training course on automatic weather station in Hong Kong, China	Late 2007 or early 2008	Training report, and training material on CD published as IOM Report	2008
1b		B.Y. Lee	(Tentative) Conduct training course on weather radar in Hong Kong, China	2009 or 2010	Training report, and training material on CD published as IOM Report	2009 or 2010
2	Develop training material for technicians on maintenance and use of instruments	B.Y. Lee E. Buyukbas	The action will be consequent upon the conduct and completion of activities 1a and 1b above			
3	Cooperate in organization of relevant workshops/seminars co-sponsored by WMO	E. Buyukbas B.Y. Lee	As the case may be, and subject to own capability and available resources			
4	Cooperate with RMTCs/RICs/RRCs in promoting training courses	E. Buyukbas B.Y. Lee	Inform RMTCs/RICs/RRCs on CIMO training activities	Dec. 2007	Report to CIMO MG	May 2010
5	Arrange for publication of training material under IOM Report series	E. Buyukbas B.Y. Lee	Consequent upon the conduct and completion of activities	May 2010	Training material to be published under IOM Report series	2010
6	Update the training material for Automated Weather Observing Systems	E. Buyukbas B.Y. Lee	Review the existing training document and re-prepare with necessary corrections, modifications and additions	Oct. 2007	Training Material on CD published as IOM Report	Dec. 2007
7	Update the training material for Weather Radars	E. Buyukbas B.Y. Lee	Review the existing training document and re-prepare with necessary corrections, modifications and additions	July 2007	Training Material on CD published as IOM Report	Sep. 2007
8	Develop training material for upper-air observing systems (radiosonde observations)	E. Buyukbas B.Y. Lee	Prepare a training material how to operate and maintain the upper-air observing systems	Sep. 2007	Training Material on CD published as IOM Report	Nov. 2007
9	Conduct international training workshop for developing countries on weather radars	E. Buyukbas	Organize an international training course on weather radars in Turkey, particularly for the trainees from developing countries	June 2007	Training report on CD	Aug. 2007

No.	Task description	Person responsible	Action	Deadline for action	Deliverables	Deadline for deliverables
10	Conduct international training workshop for developing countries on upper-air observing systems	E. Buyukbas	Organize an international training course on upper-air observing systems, particularly for the trainees from developing countries	June 2007	Training report on CD	Aug. 2007
11	Conduct international training workshop for developing countries on Automated Weather Observing Systems	E. Buyukbas	Organize an international training course on Automated Weather Observing Systems, particularly for the trainees from developing countries	Sep. 2007	Training report on CD	Nov. 2007
12	Conduct national training workshop on operation of Automated Weather Observing Systems	E. Buyukbas	Organize training course for the trainees from Turkish State Meteorological Service and the other institutions	Apr. 2007	Training report on CD	June 2007
13	Conduct national training workshop on operation and maintenance of Automated Weather Observing Systems	E. Buyukbas	Organize training course for the trainees from Turkish State Meteorological Service and the other institutions	May 2007	Training report on CD	July 2007
14	Conduct national training workshop on maintenance of Weather Radars	E. Buyukbas	Organize training course for technicians of Turkish State Meteorological Service	May 2007	Training report on CD	July 2007
15	Conduct national training workshop on operation and maintenance of Upper-air observing systems	E. Buyukbas	Organize training course for technicians of Turkish State Meteorological Service	June 2007	Training report on CD	July 2007
16	Conduct national training workshop on operation of Automated Weather Observing Systems at the airports	E. Buyukbas	Organize training course for the trainees from Turkish State Meteorological Service and the other institutions	Sep. 2007	Training report on CD	Nov. 2007
17	Conduct national training workshop on operation and maintenance of Automated Weather Observing Systems at the airports	E. Buyukbas	Organize training course for the trainees from Turkish State Meteorological Service and the other institutions	Oct. 2007	Training report on CD	Dec. 2007
18	Develop computer-aided learning strategy and explore establishment of Virtual Training Lab in one of the RICs and RRCs, in collaboration with other ETs	B.Y. Lee E. Buyukbas	Conduct a survey to learn the capabilities of RICs (and/or RRCs) and prepare a computer based training tool for a Virtual Training Lab.	Dec. 2008	Survey report and training proposal	2008/2009

No.	Task description	Person responsible	Action	Deadline for action	Deliverables	Deadline for deliverables
19a	Assist in implementation of CIMO training/capacity building events	E. Buyukbas B.Y. Lee	Make a survey to determine the needs of training of the members, particularly developing countries and prepare training proposals to meet the requirements in collaboration with other ETs and HMEI	Apr. 2008	Survey report and training proposal	July 2008
19b	Assist in implementation of CIMO training/capacity building events	E. Buyukbas B.Y. Lee	Make a survey to determine qualified trainers from members and prepare a proposal for the contribution of them in training activities	Apr. 2008	Survey report and training proposal	July 2008
20	Develop further the training components within CIMO/IMOP web portal	B.Y. Lee E. Buyukbas	Search for the relevant training material to be included in the portal.	Dec. 2007	A couple of computer-aided, introductory modules on instruments and methods of observation, largely for the layman published as IOM Report	May 2010
21	Cooperate with manufacturers, RICs and RRCs in promoting attachments/on-the-job training for developing countries	B.Y. Lee E. Buyukbas	Investigate possibilities for attachments/on-the-job training.	Dec.2007	Report attachments/on-the-job training	May 2010

Notes:

1. Activities 1a and 1b will be supported by own resources of Hong Kong, China.
2. The publication of materials will be done in cooperation with WMO/CIMO secretariat.
3. Training workshops will be continued in Turkey every year. It is planned that each workshop will be organized as one week, in general. Trainees from neighbour countries and developing countries (25 countries) shall be invited. Partial financial contribution of WMO will be requested.
4. The publication of materials will be done in cooperation of WMO secretariat.
5. On-the-job trainings will be realized in collaboration with HMEI as appropriate.
6. Trainings will be focused on the maintenance, calibration and technical service issues of the instruments for the technicians.
7. Cooperation will be done with the other ETs, manufacturers, RICs and RRCs during the performing the tasks as appropriate.
8. The working plan will be updated time to time.

WORK PLAN**Rapporteur on CIMO Guide (2007-2010)**

No.	Task description	Person responsible	Action	Deadline for action	Deliverables	Deadline for deliverables
<i>I. CIMO Guide</i>						
	Update of the CIMO Guide	Rapporteur	1. Compile a list of potential experts;	January 07	Updated CIMO Guide	Once a year
			2. Invite CIMO OPAGs & -ETs and a broader CIMO community to make proposals for updates;	Every January		
			3. Identify chapters/areas to be updated, revised or completely rewritten;	Every February		
			4. Identify from already received proposals those not addressed in the 7 th Edition of the Guide;	March 2007		
			5. Identify experts to address the needed updates in coordination with the CIMO-MG and OPAG-CB;	Every March		
			6. Distribute tasks for updates to experts;	Every April		
			7. Coordinate the work of experts;	May to September		
			8. Arrange for the final approval of the work done by experts (according to the CIMO-MG guidelines for CIMO Guide updates).	September to October		
			9. Submit proposals for updates to Secretariat	Every November		
<i>II. Web Portal</i>						
	Update of the Web Portal	Rapporteur	1. Compile a list of potential experts;	January 07	Updated Web Portal	Every 6 months
			2. Invite CIMO OPAGs & -ETs and a broader CIMO community to make proposals for updates;	Every January and July		
			3. Identify areas for updates;	Every May and November		
			4. Update the Web Portal in coordination with the Secretariat and OPAG-CB	Every June and December		

Rapporteur on Regional Implementation Activities
 Work Plan 2007-2010
 Version: 30-04-07

N o.	Task description	Person responsible	Action	Deadline	Deliverables	Deadline
1	Liaise with the Regions (regional rapporteurs, regional centres) in assisting CIMO expert teams in implementing of instrument and methods of observations in the Regions					
1a	Liaise with Rapporteurs on regional aspects of instrument development, related training and capacity building	Rapporteur	Contact regional rapporteurs to find out the major issues related to implementation of IMOP	Jul 2007	List of issues provided to CIMO-MG	Aug 2007
1b	Liaise with Rapporteurs on regional aspects of instrument development, related training and capacity building	Rapporteur	Address the regional issues related to implementation of IMOP according to a demand from rapporteurs	Jul 2009	Report to CIMO-MG	Jul 2010
1c	Liaise with Rapporteurs on solar radiation	Rapporteur	Contact regional rapporteurs to find out the major issues related to implementation of IMOP	Jul 2007	List of issues provided to CIMO-MG	Aug 2007
1d	Liaise with Rapporteurs on solar radiation	Rapporteur	Address the regional issues related to implementation of IMOP according to a demand from rapporteurs	Jul 2009	Report to CIMO-MG	Jul 2010
1e	Liaise with Regional Instrument Centres (RICs)	Rapporteur	Contact RICs to find out the major issues related to implementation of IMOP	Jul 2007	List of issues provided to CIMO-MG	Aug 2007
1f	Liaise with Regional Instrument Centres (RICs)	Rapporteur	Address the regional issues related to implementation of IMOP according to a demand from rapporteurs	Jul 2009	Report to CIMO-MG	Jul 2010
1g	Liaise with Regional Radiation Centres (RRCs)	Rapporteur	Contact RRCs to find out the major issues related to implementation of IMOP	Jul 2007	List of issues provided to CIMO-MG	Aug 2007
1h	Liaise with Regional Radiation Centres (RRCs)	Rapporteur	Address the regional issues related to implementation of IMOP according to a demand from rapporteurs	Jul 2009	Report to CIMO-MG	Jul 2010

**DRAFT WORK PLAN of Rapporteur on Climate Observation
(2007-2010)**

No.	Task description	Person responsible	Action	Deadline for action	Deliverables	Deadline for deliverables
1	Requirements for climate observations	Rapporteur	2. Identify emerging requirements for climate observations, in collaboration with CCI & GCOS, taking into account the results of the Rolling Requirement Review, Statement of Guidance and the GCOS Adequacy Reports and Implementation Plan	Q4 2008	List of emerging requirements for climate observations	Q1 2009
2	Development of observing practices for climate monitoring	Rapporteur	1. Liaise with CCI to assess need for development of observing practices for climate monitoring and draft relevant proposals	Q4 2008	Provide list of observing practices needing to be developed to CIMO-MG	Q1 2009
3	Revision of the CIMO Guide (in collaboration with Rapporteur on CIMO Guide)	Rapporteur	1. Review and assess need to update practices published in the CIMO guide addressing climate observations and need to add new practices 2. Draft revised part of the CIMO guide	Q2 2008 2009	List of parts needing to be revised Provide document with revised text (in track changes)	Q3 2008 2009
4	Provide guidance on instrumentation in harsh climatological locations	Rapporteur	1. Review available guidance material on the selection and use of instruments in harsh climatological conditions and locations 2. Provide updates to existing guidance and develop new guidance on subject that are not properly covered yet.	2008	List of existing guidance material, including their assessment Document containing revised and new guidance	2009
5	Identification of possible Testbed for Climate Observations	Rapporteur	1. Develop proposal for possible testbed for climate observations	2008	Document	2009