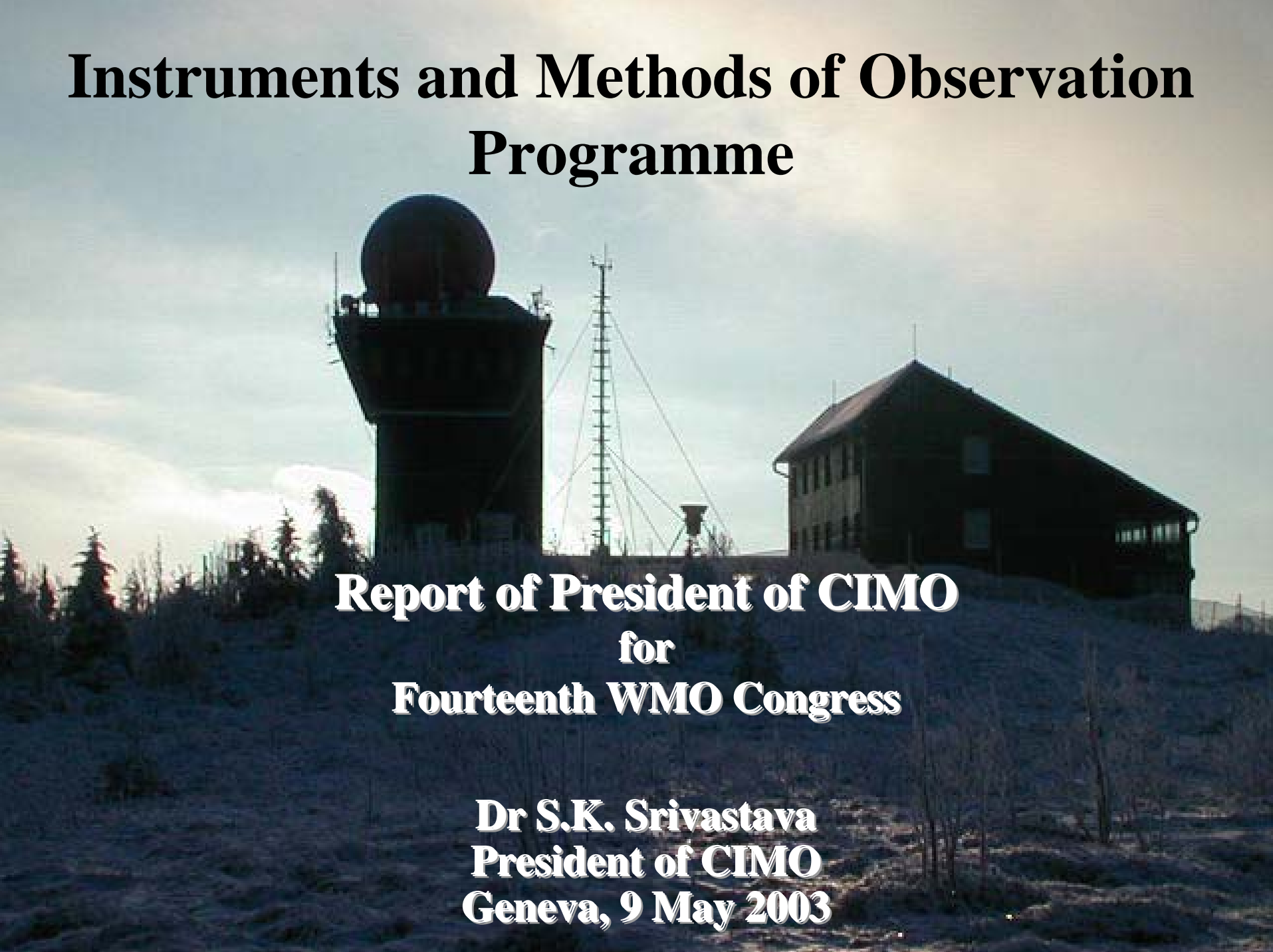


Instruments and Methods of Observation Programme



**Report of President of CIMO
for
Fourteenth WMO Congress**

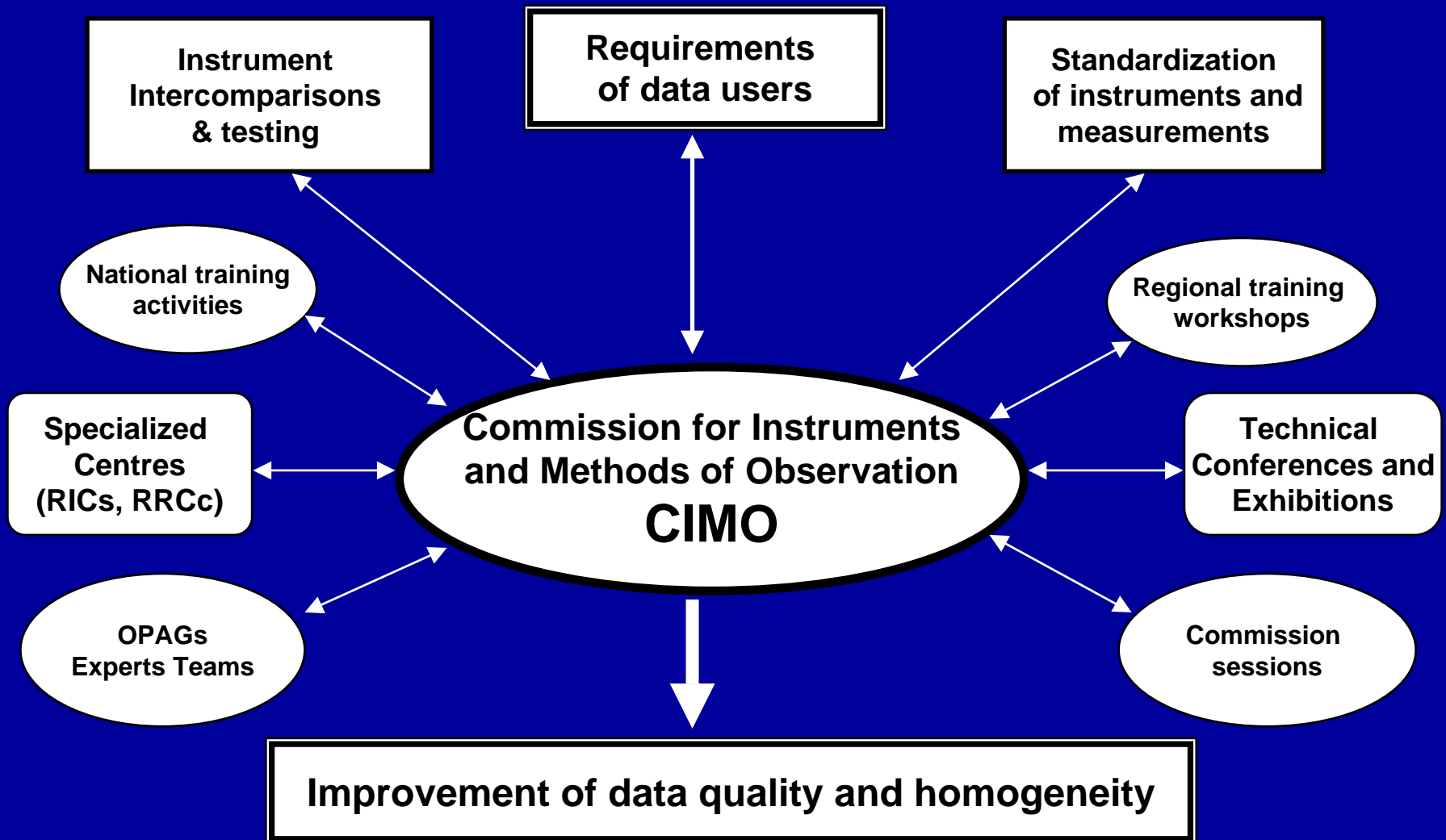
**Dr S.K. Srivastava
President of CIMO
Geneva, 9 May 2003**

Instruments and Methods of Observation Programme (IMOP)

Summary of Presentation:

1. Document 3.1.5	→	To be introduced by Secretariat
2. IMOP/CIMO	→	Scope & Mandate
3. Major Achievements	→	a) Standardization and b) Capacity building
4. New structure	→	OPAGs and Expert Teams
5. Future plans	→	IMOP & WMO 6LTP

2. IMOP – Scope & Mandate



3a. IMOP - Major Achievements

Standardization

The 9th International Pyrheliometer Comparison

Conjointly held with Regional Pyrheliometer Comparisons

World Radiation Center (WRC/PMOD) Davos, Switzerland

2nd September to 13th October, 2000



- 60 participants from 39 Members,
- 16 participants from 11 scientific institutions and manufacturers
- 18 out of 21 RRCs
- 22 NRCs
- WRR- and calibration- factors computed for 82 pyrheliometers, including 7 of the WSG
- Stability of WSG is guaranteed
- The main objective - the dissemination of the WRR in order to ensure worldwide homogeneity of met. radiation measurements - **was achieved.**

WMO Intercomparison of GPS Radiosondes

Brazilian Air Force Satellite/Rocket Launch Centre Alcantara

25 May - 5 June 2001



No	Manufacturers	Sondes
1	Dr. Graw Messgeräte GmbH, Germany	DFM-97
2	Modem, France	GL-98
3	InterMet Systems, USA	
4	Sippican, Inc, USA	MKII
5	Vaisala Oyj, Finland	RS80,RS90
6	MeteoLabor, Switzerland	SnowWhite RH sensor

WMO Intercomparison of GPS Radiosondes

Brazilian Air Force Satellite/Rocket Launch Centre Alcantara

25 May - 5 June 2001



- The performance of GPS-radiosondes were compared in 43 comparison flights
- Revealed significant differences were subsequently rectified by manufacturers and new designs of sondes developed.
- The main objective – to improve the operational reliability of radiosondes designs and compatibility of data – **was achieved.**

Expert Meeting on Requirements and Representation of Data from AWSs De Bilt, Netherlands, 19-23 April 1999

Participants:

22 participants from all WMO Technical Commissions, EUMETNET and 2 major instrument manufacturers.

Main Task:

Evaluate present and future requirements of WMO Programmes for the use of Automatic Weather Stations to assist in standardization of observations.

Main Outcome:

Commonly agreed proposal of Present and Future Requirements for the use of Automatic Weather Stations.

Expert Meeting on Operational Issues for Radiosonde Applications in the Tropics and Sub-Tropics Geneva, Switzerland, 18-22 October 1999

TASK:

Review the present status of radiosonde operations in the tropics and sub-tropics and prepare relevant recommendations

MAIN OUTCOMES:

1. Guidance material to be applied for training courses / workshops related to operators at upper-air observing stations;
2. Important instructions for Vaisala GPS radiosonde systems;
3. Guidance material for managing and evaluating national radiosonde networks;
4. Some considerations on the future application of GPS-based systems;
5. Recommendations for tropical and sub-tropical inter-comparison of radiosondes.

Expert meeting on Rainfall Intensity Measurements

Bratislava, Slovakia, 23-25 April 2001

Decision on: “Present and Future Requirements for RI Measurements”



Proposal on:
Measuring range
and uncertainty
requirements for
RI measurements



**Approved by
CIMO-XIII**

3b. IMOP - Major Achievements

Capacity Building

3b. IMOP - Major Achievements

Capacity Building – Expert Meeting

**Expert Meeting on Capacity Building related to IMOP
Beijing, China, 23-25 September 1999**

Expert Meeting developed 12 recommendations for enhancing CIMO's activities related to Capacity Building, such as:

Recommendations	Results
Review of the work undertaken by RICs	Questionnaire sent to RICs Replies are being analyzed
Recommendation on basic technical requirements for RICs	Presented to CIMO-XIII
Preparation of Instrument Catalogue	WMIC 2000 & 2002 produced
CIMO/IMOP web site	Done & continuously updated

3b. IMOP - Major Achievements

Capacity Building – Technical Conferences

TECO-2000 - Beijing, China, 23-27 October 2000

TECO-2002 - Bratislava, Slovakia, 23-25 September 2002



	TC 2000	TC 2002
Countries	61	77
Particip.	230	276
Papers	98	80

3b. IMOP - Major Achievements

Capacity Building – Instrument Exhibitions

METEOREX-2000 - Beijing, China, 24-26 October 2000

METEOREX -2002 - Bratislava, Slovakia, 23-25 September 2002



**No of participating
Manufacturers**

METEOREX-2000: 56

METEOREX-2002: 61

3b. IMOP - Major Achievements

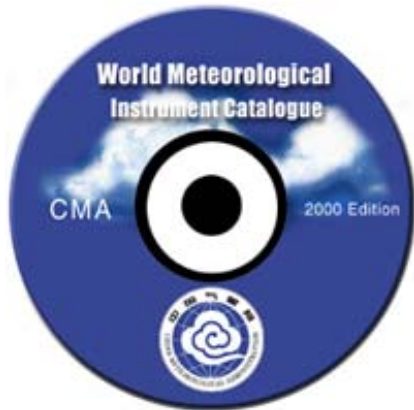
Capacity Building - RICs

- **13 RICs are operational in spite of constraints due to non availability of resources and lack of well trained staff.**
- **“Basic and enhanced requirements for RICs” prepared by Morocco for CIMO-XIII.**
- **With a view of strengthening of RICs the process of their evaluation was initiated.**

3b. IMOP - Major Achievements

Capacity Building – Instrument Catalogue

1st edition in 2000
Produced by CMA



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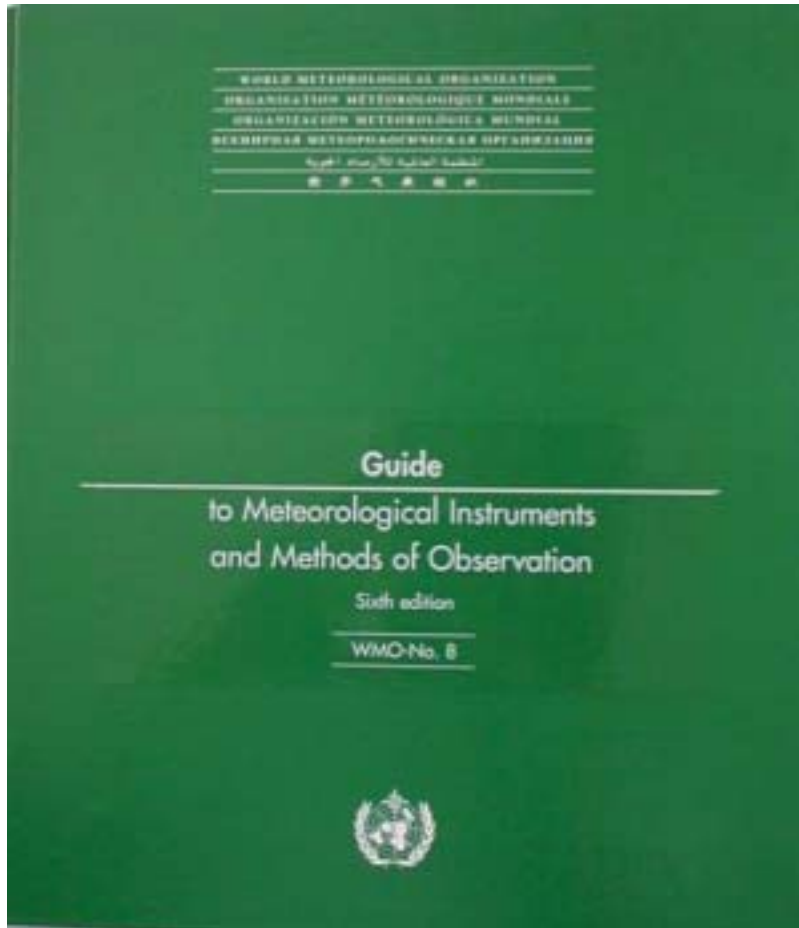
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2nd edition in 2002
Produced by CMA



3b. IMOP - Major Achievements

Capacity Building – CIMO-Guide



- **Work on update of CIMO Guide started in 2000**
- **Five Chapters revised in 2002**
- **Work continues till end 2003**
- **Publication of Seventh edition by the end of 2004**

3b. IMOP - Major Achievements

Capacity Building - Training

Training Workshop on Upper-Air Observations for RA I English speaking countries, Gaborone, Botswana, 7-11 April 2003



Participation

- 4 core lecturers (UK, USA)
- 34 trainees from 20 NMSs
- HMEI

Outcomes

- Improved knowledge & skills of trainees
- Proposals for procurement strategies
- Set of recommendations to improve U/A Obs. Practices

Similar Workshop for RA I French speaking countries is planned in Morocco, Nov.2003

4. New CIMO Structure

- CIMO-XIII discussed options for working more effectively during the next intersessional period and concluded that the most effective, flexible and responsive means of carrying out CIMO tasks would be a system of Expert Teams complemented by suitable ways to inform and involve all CIMO members in the process.
- The commission agreed that its activities and teams should be grouped together and handled by Open Programme Area Groups (OPAGs) and decided to establish three OPAGs.
- CIMO Management Group in Feb. 2003 determined regionally balanced membership of ETs, tuned their TOR and activated them.

4. New CIMO Structure

CIMO MANAGEMENT GROUP

President
Vice-President
7 OPAG Co-chairs

OPAG

Surface Observation Technology
2 Co-chairs

ET on Surface Technology
Chair + 8 Members
5 Representatives of other Bodies

**ET on Surface-Based Instrument
Intercoparisons and Calibration Methods**
Chair + 5 Members
2 Representatives of other Bodies

**ET on Meteorological Radiation and
Atnospheric Composition Measurements**
Chair + 3 Members
3 Representatives of other Bodies

OPAG

Upper Air Observation Technology
3 Co-chairs

**ET on Upgrading the Global
Radiosonde Network**
Chair + 7 Members
3 Representatives of other Bodies

**ET on Upper-Air Systems
Intercomparisons**
Chair + 5 Members
1 Representative of other Body

**ET on Remote Sensing Upper-Air
Technology and Techniques**
Chair + 11 Members
2 Representatives of other Bodies

OPAG

Capacity Building
2 Co-chairs

**ET on Training Activities
and Training Materials**
Chair + 6 Members

**ET on RICs, QM Systems and
Commercial Instrument Initiatives**
Chair + 7 Members

**ET on CIMO Guide
and Information Dissemination**
Chair + 3 Members

5. IMOP - Future Plans

CIMO-XIII proposed to concentrate on the following main activities:

- Develop performance measures to demonstrate continuous improvement in the quality of observations;
- Conduct instrument intercomparisons;
- Contribute to the review and update of WMO technical regulations, guides and other material related to quality management and standardization of observations;
- Evaluate existing RICs and review their terms of reference;
- Facilitate standardization of measurements of long-wave radiation;
- Automation of manual, visual and subjective observations;
- Strengthen links with relevant international organizations.