

**WORLD METEOROLOGICAL ORGANIZATION**

**COMMISSION FOR INSTRUMENTS  
AND METHODS OF OBSERVATION**

**CIMO GUIDE EDITORIAL BOARD  
First Session**

**Geneva, Switzerland**

**2 to 4 May 2012**

**FINAL REPORT**



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## **EXECUTIVE SUMMARY**

The first session of the CIMO Guide Editorial Board was held from 2 to 4 May 2012 at the WMO Headquarters in Geneva, Switzerland.

The meeting addressed how CIMO should be contributing to the development of the WIGOS regulatory material. In view of the present development of a Manual on WIGOS, it felt it would not be appropriate to develop a separate Manual on Instruments and Methods of Observation, but that those practices that are described in the CIMO Guide and are suitable to be identified as standard practices should be included in the Manual on WIGOS. It also recommended that CIMO help identifying the standards that were developed and used by the different communities contributing to WIGOS.

The meeting developed guidelines for authors for the edition of the CIMO Guide that are based on the practices already used for the Sixth Edition of the CIMO Guide and recommended to the CIMO Management Group to adopt them. These guidelines aim at ensuring the CIMO Guide remains an up-to-date, generic document, that should be as homogeneous as possible in the presentation it makes of the various observing technologies.

The meeting reviewed the approval procedure for updates of the CIMO Guide to clarify to all possible contributors the review and approval processes for changes and how contributions could be submitted for consideration.

The meeting reviewed draft updates of various CIMO Guide chapters, as well as other proposals for modifications and agreed on follow-up steps for each of them.

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## **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. WIGOS REGULATORY MATERIAL**

- WIGOS Guide and Manual
- CIMO Guide and Manual

### **4. PROCEDURES FOR UPDATING THE CIMO GUIDE**

- Guidelines for authors and reviewers of CIMO Guide chapters
- Technical review process for new/revised chapters
- Formal approval process for new/revised chapters

### **5. REVIEW OF PROPOSED MODIFICATIONS TO CIMO GUIDE CHAPTERS**

- Part I, Chapter 12 & 13: Upper-air Measurements
- Part II, Chapter 3: Aircraft Observations
- Part II, Chapter 7, Lightning Detection
- Part IV: Satellite Observations

### **6. NEED FOR UPDATES OF SPECIFIC CHAPTERS**

### **7. OTHER BUSINESS**

### **8. CLOSURE OF THE SESSION**

## GENERAL SUMMARY

### 1. ORGANIZATION OF THE SESSION

#### 1.1 Opening of the Session

1.1.1 The first session of the CIMO Guide Editorial Board (EdBd) was opened on Wednesday, 2 May 2012 at 9:00, by the Chairperson of the CIMO Guide Editorial Board, Dr Volker Kurz. The list of participants is given in Annex I.

1.1.2 The Director of the WMO Observing and Information Systems Department, Dr Wenjian Zhang, welcomed the participants on behalf of WMO. He reminded the participants of the role that CIMO is expected to play in developing standards and recalled the difference between WMO Standard Practices/Procedures (Shall) and Recommended Practices/Procedures (Should). WMO Members have to inform WMO on the Standard Practices they are not able to follow and when they expect they will be able to follow them. He proposed that those parts of the CIMO Guide that are mature enough should be promoted to the status of Standard Practices normally included in a WMO Manual. He stressed that key issues for the meeting would be to define procedures to ensure regular updates of the CIMO Guide as well as to develop a strategy for the development of the CIMO Manual, if such a manual should be written, and to contribute to the development of the WIGOS Manual.

#### 1.2 Adoption of the Agenda

The meeting adopted the Agenda as 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.

### 2. REPORT OF THE CHAIRPERSON

2.1 Dr Kurz reported on his activities as Chairperson of the CIMO Guide Editorial Board since the CIMO-XV session.

2.2 At several occasions, the need for a websearch tool for the content of the CIMO Guide and related WMO documents, such as the Guide and Manual on the GOS were stressed. In that regard, Cg-XVI "... requested CIMO to ... contribute to the development of a user-friendly direct access and on-line search tool for the CIMO Guide and other related WMO regulatory material that would help Members in accessing the information needed to improve and standardize their networks according to WIGOS requirements." Timo Proescholdt from the WMO Secretariat investigated how such a tool could be established without much manual work for marking the documents. The tool must indeed be automatic to avoid creating a never-ending task (like marking individual paragraphs of documents), and ensuring the information searched remained up-to-date. After a long lasting quest with much feedback from the chairperson, both came to the conclusion that such a tool could not easily be developed. The meeting was informed that WMO would be purchasing a Web content management system that could be used for this document search and which would solve the issue holistically at an upper level.

2.3 He mentioned the challenges that the meeting should be addressing:

- Agreeing on guidelines for the drafting / updating of CIMO Guide chapters,
- Establishing relationship with the evolving Manual on WIGOS, thereby deciding on the need for a "CIMO Manual",
- Establishing procedures for publishing more timely intermediate versions,
- Working towards a new Edition, including material on satellite observations as a new Part.

### **3. WIGOS REGULATORY MATERIAL**

3.1 Mr Russell Stringer, the Chairperson of the Task Team on the Manual on WIGOS informed the meeting about the concept of the WMO Integrated Global Observing System (WIGOS) and about the activities that are identified in the draft WIGOS Implementation Plan (WIP) to enable its implementation. WIGOS should lead to more synergies between the various WMO observing systems (GOS, GAW, ...) which are presently managed separately.

3.2 Developing a Manual on WIGOS is one of these activities. Two options were considered for this development: a) the Manual on WIGOS would replace the Manual on the GOS and include additional material addressing the other WMO observing systems and b) the Manual on WIGOS would be a short document referencing the manuals of the individual systems and explaining how they collaborate together to implement WIGOS. The Executive Council Inter-Commission Coordination Group on WIGOS (ICG-WIGOS) described the task as “development of the Manual on WIGOS as an overarching document (which should define WIGOS basic principles, requirements and functional architecture with references to other relevant WMO technical documents, where appropriate)”. Mr Stinger identified pros and cons with each approach, noting that the short approach might be more realistic and manageable in a reasonable timeframe, and could be converted to a more exhaustive document at a later stage in case of need.

3.3 Mr Stringer recognized that the CIMO Guide included a lot of very important guidance material for WMO Members and that some of these practices should be elevated to the level of WMO Manuals or Technical Regulations. CIMO would need to identify those parts of the CIMO Guide that are followed by a majority of Members and are suitable to be identified as standard practices. These should be made mandatory for Members and included in higher level documents. In this context, the meeting recognized that the CIMO Guide also contains a lot of best practices which should not be made mandatory as it would hinder further progresses in these areas.

3.4 During the discussion the following topics addressed in the CIMO Guide were identified as possible candidates for becoming mandatory (standard practices): siting classification, terms of reference of Regional Instrument Centres and Regional Radiation Centres, using SI units as reference, expressing uncertainties according to the Guide to Uncertainty in Measurements (GUM), and pyrhelimeter geometry. The meeting noted that according to WMO regulations, technical commissions should only recommend as standard practices, practices that are followed by a strong majority of Members. The CIMO Guide Editorial Board members agreed to review the CIMO Guide to identify those parts that could be included in a higher level document (Manual), making them mandatory.

3.5 The driver for identifying standard practices from the content of the CIMO Guide is to ensure observations are of known quality. Furthermore, the meeting recognized that standard practices had also the advantage that Members shall report when they do not comply with such regulations. This can in turn be helpful for NMHSs in justifying to their funding agencies the need to comply with these practices for obtaining the funding for their operations. Examples for such benefits would be standard practices addressing the siting of radars with regards to wind mills, or the siting of climate stations to protect them from the influence of changes in their surroundings, such as city extensions.

3.6 CBS and CIMO were tasked by Congress to lead together the development of WIGOS. In this context, the meeting felt that CIMO could significantly contribute to this development in helping to identify the standards that were developed and used by the different community contributing to WIGOS.

3.7 At the early development stage of WIGOS, it had been recognized that CIMO should coordinate the development and the maintenance of observing standards for all types of observations carried out within WIGOS, in collaboration with the “owners” of the various observing systems. The CIMO Guide provides recommendations to Members, but has no binding authority. Therefore, the CIMO Management Group, at its sixth session (2008), had envisaged developing a Manual on Instruments and Methods of Observation (Manual on IMO), that would be an Annex to

the WMO Technical Regulations, and which would incorporate the non-controversial parts of the CIMO Guide, upgraded to the level of standards.

3.8 Since then, the concept of a Manual on WIGOS was developed. CIMO-XV noted the plan to develop a WIGOS Manual and recognized that this development had to be taken into account in the preparation of the concept for the development of the Manual on IMO to ensure appropriate coordination and avoid duplication of efforts. The CIMO Management Group feared that it would be confusing for Members to have too many documents including different level of information (Manual on WIGOS, Manual on IMO, CIMO Guide).

3.9 Therefore, CIMO-MG-9 requested the CIMO Guide Editorial Board to closely follow-up the development of the Manual on WIGOS and to develop a position on whether it would still be appropriate to develop a Manual on IMO in this context for further consideration by the Management Group.

3.10 The meeting recognized that the development of new manuals required significant costs and resources. Furthermore, developing a new Manual on IMO in addition to the Manual on WIGOS would be contrary to the aim of WIGOS to strive for integration. Therefore, the meeting recommended to the CIMO Management Group not to develop a separate Manual on IMO, but to contribute relevant standard practices elevated from the CIMO Guide to the Manual on WIGOS. However, the meeting stressed that this approach would require CIMO to have the ownership and responsibility for updating the part of the Manual on WIGOS where these practices are described. Finally, the meeting questioned the need to develop a Guide on WIGOS in view of the large number of guides already available and appropriately covering all contributing observing systems.

#### **4. PROCEDURES FOR UPDATING THE CIMO GUIDE**

##### ***Editing principles***

4.1 The CIMO Guide is expected to be a generic document and to be as homogeneous as possible in the presentation it makes of the various observing technologies. In view of the large number of experts that contribute to the updating process of the CIMO Guide, editing principles would help them in drafting their contributions in a homogeneous way. Furthermore, such guidelines would also help in achieving a consensus on the final revised text and so would shorten the development and review process of new updates. The meeting reviewed the guidelines on the edition of the CIMO Guide that were used for the Sixth Edition of the CIMO Guide (1996) and further developed them as provided in Annex II. It recommended to the CIMO Management Group to adopt these guidelines and to post them on the CIMO/IMOP website.

4.2 In developing the guidelines, the meeting also strived to avoid risks of duplication with the Guide on the Global Observing System that focuses on the global network design, and related observing requirements. Issues addressing the representativeness, consistency and uncertainties of observations should be addressed in the CIMO Guide.

4.3 The proposed guidelines include strict heading for the chapters of Part I. The meeting agreed that it would be desirable to have also clear recommendations regarding the headings to use in the drafting of new chapters of the other existing Parts of the CIMO Guide. This should be further considered in the future CIMO Guide Editorial Board sessions.

##### ***Updating procedures***

4.4 The meeting reviewed the principles used in updating of the CIMO Guide to clarify to all possible contributors the review and approval processes for changes to the CIMO Guide and how contributions could be submitted for consideration. Furthermore, these principles should ensure proper coordination with other technical commissions in charge of updating some chapters, while keeping the procedures as light as possible to avoid unnecessarily delaying the updating process. The meeting agreed on the version provided in Annex III and recommended to the CIMO Management Group to adopt these principles and to post them on the CIMO/IMOP website.

4.5 In the course of discussing this procedure, the meeting felt the need for ETs to be aware of their responsibility to coordinate public discussion on their contributions to updates of the CIMO Guide. This will be supported by the Secretariat by publishing on the CIMO Guide webpage information and contact details on relevant ongoing activities of CIMO ETs, so that other interested parties may contribute to these developments/reviews.

4.6 The role of the CIMO Guide Editorial Board in the review process is to ensure the proposals adhere to the editorial guidelines.

### ***Naming, publishing and archiving of Editions***

4.7 Mr Alexander Koretsky informed the meeting about the latest status of development of the new version of the CIMO Guide incorporating all the changes approved by CIMO-XV that should be ready for distribution within a short time.

4.8 He recalled the request of the Presidents of Technical Commissions to stop issuing Supplements to WMO documents, such as the Technical Regulations, Manuals and Guides to prevent the use of documents that are not appropriately updated with the Supplements. Issuing a new edition every time is now possible as these documents are not printed anymore, but published electronically. He noted the need for different types of revisions, some containing major revisions, but not issued frequently, and others more frequent with minor revisions. The meeting discussed how these revisions should be named to ensure that the referencing of the different versions is not ambiguous.

4.9 The practice recently adopted for the WMO Technical Regulations and Manuals is to name new versions according to the year of the Congress at which the changes were approved (WMO stopped numbering Editions). Smaller changes approved by the Executive Council between sessions of Congress would be called Updates.

4.10 The meeting supported to follow a similar procedure for Guides. A new edition would be made when major changes are made to a guide. It would be the responsibility of the relevant Technical Commission to assess whether it should be considered a new edition or an update. A new edition would bear the year of the constituent body session that approved the modifications. The updates would also bear the year of their approval by the relevant constituent body. (e.g. 2010 Edition, Updated 2011). The copyright year is the year of the edition and not the year of the update.

4.11 To prevent the use of obsolete versions, the meeting recommended to the Secretariat to avoid putting old versions of the CIMO Guide on the WMO website, but to archive them and provide them upon request for special purposes. The meeting further recommended that the naming of the filenames should include the edition number to make users aware of the version they are using.

4.12 The meeting agreed that updates would be produced at most once a year. The CIMO Guide Editorial Board should make a recommendation, when a new edition/update is ready, taking into consideration the amount of new material available and the Secretariat load.

### ***IOM reports***

4.13 The meeting addressed the review of IOM reports. It felt it was important that the reports be reviewed by experts with appropriate knowledge on the subject to ensure high quality of the IOM reports. Therefore, it was of the opinion that the CIMO Guide Editorial Board does generally not have the expertise to review IOM reports, and recommended this task be normally borne by Expert Team chairpersons, or other CIMO experts. The CIMO Guide Editorial Board members requested to be informed by the Secretariat when a new IOM report is published.

4.14 The meeting recommended that relevant expert teams be made aware of the publication of IOM reports relevant to their field of activity so that they could extract relevant material to prepare CIMO Guide updates.

## 5. REVIEW OF PROPOSED MODIFICATIONS TO CIMO GUIDE CHAPTERS

5.1 Mr Premec, the former Rapporteur on the CIMO Guide, informed the meeting that he used to be prompting all CIMO members to submit proposals for updates of the CIMO Guide twice a year by e-mail. The amount of responses was generally not high. Since CIMO-XV (2010, Helsinki, Finland) he stopped this practice due to the new CIMO structure. The meeting recognized the value of this practice but doing it only once a year, providing also clear information on when the next edition/update is planned and what would be the deadline for submissions. Sufficient lead time should be left for reply (3 months for updates, 6 months for new editions). Such requests for contributions should be sent to the members of CIMO Expert Teams, Theme Leaders and external contributors to CIMO Guide chapters. Mr Premec was tasked to prompt CIMO experts for submission according to these recommendations.

5.2 The meeting reviewed the proposals for modifications received by the time of the meeting and made the following decisions/recommendations as detailed below.

5.3 A request addressing the precision of station coordinates was contributed by A. Kats. He proposed to clarify what should be considered station location: weather screen, barometer, radiosonde release place or tracking radar. The meeting recommended to the CIMO Management Group that this request be forwarded to the CIMO Expert Team on Standardization to develop a position on it and in case of need an update to the relevant CIMO Guide chapter(s).

5.4 A request to clarify which pressure reduction formula should preferably be used had been received from Sweden, but has not been addressed by CIMO Expert Teams yet. The meeting recommended to the CIMO Management Group that this request be forwarded to the CIMO Expert Team on Standardization to develop a position on it and in case of need an update to the relevant CIMO Guide chapter(s).

### **Part I, Chapter 2 “Measurement of Temperature”**

5.5 The meeting considered the request for correction received by A. Kats and decided to propose replacing the sentence:

*The current such scale is the International Temperature Scale of 1990 (ITS-90) and its temperature is indicated by  $T_{90}$ . For the meteorological range ( $-80$  to  $+60$  °C) this scale is based on a linear relationship with the electrical resistance of platinum and the triple point of water, defined as 273.16 kelvin (BIPM, 1990).*

By the following:

*The current such scale is the International Temperature Scale of 1990 (ITS-90) and its temperature is indicated by  $T_{90}$ . For the meteorological range ( $-95$  °C to  $+60$  °C)  $T_{90}$  is defined by means of platinum resistance thermometers calibrated at specified sets of defined fixed points and using specified interpolation procedures (BIPM, 1990).*

Furthermore, the meeting decided to ask all CIMO ETs, TLs and MG members on their concurrence with the figures defining the *meteorological range* ( $-95$  °C to  $+60$  °C). Mr Premec agreed to carry out this consultation and to inform the Secretariat and the CIMO Guide Editorial Board on the outcome in view of including it in the next CIMO Guide update.

### **Part I, Chapter 5 “Measurement of Surface Wind”**

5.6 The CIMO Expert Team on Standardization (ET-A1) provided an update for the chapter on Measurement of Surface Wind according to its workplan. The meeting reviewed the proposal and requested ET-A1 to provide a tracked-change version of the chapter or clear indication of where the modification should be inserted in the chapter.

### **Part I, Chapter 12 “Measurement of upper-air pressure, temperature and humidity”**

5.7 The meeting reviewed a document developed by Dr John Nash on the measurement of upper-air pressure, temperature and humidity. It recognized the very high value of the detailed

content of this document, but felt that some of it was quite complex and of particular interest for radiosonde experts. The meeting therefore recommended that this document be published as an IOM report to preserve the very valuable information provided in it in a single document, and that it be somewhat summarized and simplified to meet the main audience of the CIMO Guide, referring to that IOM report where appropriate.

5.8 The meeting recommended that the Secretariat contract Dr Nash, in view of his unique expertise on the subject, to summarize the information provided in the draft IOM report for publication in the CIMO Guide as updated chapter. That chapter should among others depict the best practices to be followed, help in specifying criteria for the purchase or radiosondes, list all aspects to be taken into consideration when developing an invitation to tender, including sufficient information so that the reader understands the background for these requirements, and provide insight on what can be expected from up-to-date technology.

5.9 Dr Kurz agreed to review this chapter with regard to its conformity to the editorial guidelines once available and to amend it in case of need to fit the guidelines.

### ***Part I, Chapter 13 “Measurement of Upper Wind”***

5.10 An update for Chapter 13 was developed by Dr John Nash. It was reviewed by the Secretariat and an expert from MeteoSwiss. The meeting agreed with their view that this chapter was virtually ready for publication.

5.11 However, a request for clarification on the measurement of upper-wind in the vicinity of Poles was received by A. Kats prior to the meeting. The meeting recommended to consult Dr Nash on the subject and requested Dr Cohn to organize a consultation with other experts in case of need. Dr Cohn agreed to review this chapter with regard to its conformity to the editorial guidelines once it would be finalized and to amend it in case of need to fit the guidelines.

### ***Part II, Chapter 3 “Aircraft Observations”***

5.12 A proposal for update of the Chapter on Aircraft Observation was received from one of the Theme Leaders on Aircraft Observations. The meeting recommended seeking the concurrence of the other Theme Leader on the proposed text. The meeting further proposed to send it for information to Michel Leroy and invite him to provide feedback. Mr Premec agreed to review this chapter with regard to its conformity to the editorial guidelines once agreement on the content would have been received from the other Theme Leader and to amend it in case of need to fit the guidelines.

### ***Part II, Chapter 7 “Lightning Detection”***

5.13 The meeting was informed that this chapter had been sent to an independent expert to resolve the diverging views expressed by manufacturers, and ensuring the material is up-to-date and presented in a neutral manner. Dr Cohn agreed to review this chapter with regard to its conformity to the editorial guidelines once it would be finalized and to amend it in case of need to fit the guidelines.

### ***Part III “Satellite Observations”***

5.14 The meeting recalled that the CIMO Management Group, at its ninth session (CIMO MG-9) had agreed that the revised CIMO Guide chapter on Satellite Observations should be published as a new part of the CIMO Guide as it would need to be substantially expanded to account for the considerable development and diversification of space-based observation capabilities over the years, and the increasing importance of space-based observation data for WMO Members, in particular for NWP. The meeting recalled that the objective of the new Part was to introduce the fundamental principles and the main features of space-based observation, raising the technical awareness of the reader on satellite capabilities, explaining the advantages and limitations of space-based observation, and helping WMO Members to consider the best use of these capabilities as an increasingly important source of observation data. This chapter should be

considered as a complement to the Dossier on the Space-based Global Observing System (often designated as the “GOS Dossier”). CIMO-MG-9 had requested that the section on “Space-based Observation of Geophysical Variables” provide information of the uncertainties associated with the observations of those variables, based on traceability to the International System of Units (SI). It had also recommended that this new material be appropriately linked to relevant sections addressing ground-based technologies.

5.15 The draft new part, as provided to ET-SAT-7 (April 2012), was provided to a CIMO expert that reviewed it. The meeting was informed that the reviewer recognized the document summarized a huge body of work, but that the language and homogeneity of the document needed to be improved. He further stressed the need for the document to conform to the modern metrological nomenclature. He recalled that the WMO/BIPM Workshop on Measurement Challenges for Global Observation Systems for Climate Change Monitoring (Geneva, 30 March - 1 April 2010) had recommended the use of a uniform nomenclature, in accordance with that agreed by world standardization bodies, such as BIPM and ISO. He recommended that a unifying editor should be tasked to improve the language and to amend it to follow BIPM/IEC/ISO terminology.

5.16 In view of the comments of the reviewer, the meeting agreed that the document needed further revision before submission to the CIMO Guide Editorial Board. The meeting recommended that the Secretariat asks the reviewer to provide detailed guidelines to improve this Part so that it could be acceptable for publication in the CIMO Guide. These guidelines could be used as Terms of Reference for a contractor to carry out this work, in case of need. The meeting recommended that the Secretariat liaise with ET-SAT in order to ensure this important contribution to the CIMO Guide can be finalized and agreed on in a near future for publication in a new edition of the CIMO Guide.

5.17 The meeting recalled that the structure of the new Part on Satellite Observations had already been approved by the CIMO Management Group. However, the CIMO Guide Editorial Board suggest to ET-SAT to consider improving the description of the instrumentation in Chapter 3 “Remote-sensing Instruments”, and to ET-SUP to consider improving the chapter 5 “Space-based observation of geophysical variables”. Both chapters should clearly describe best practices.

5.18 The meeting proposed that the new Part on Satellite Observations should become Part III of the CIMO Guide and the existing Part III should become Part IV.

5.19 The meeting noted that duplication between various WMO Guides and Manuals should be avoided as far as possible. As significant material is already available in the Guide on the GOS, the meeting recommended that the authors ensure that duplications with the CIMO Guide are minimized.

### ***IOM Reports***

5.20 The meeting was pleased that the following IOM reports were ready for finalization/publication by the Secretariat:

- Report of the Eleventh WMO International Pyrheliometer Comparison,
- COST 727 Action: Measuring and forecasting atmospheric icing on structures,
- Experience of Japan with Wind Profilers,
- Survey on the Surface, Climate and Upper-air Observations and Quality Management in RA-II (Asia),
- Evaluation of the CIMO Weather Radars Survey and Web-based Weather Radar Database.

The meeting recommended that relevant expert teams be informed by the Secretariat as soon as those reports would be published so that they could start extracting relevant material from these reports to prepare updates to relevant CIMO Guide chapters.

## **6. NEED FOR UPDATES OF SPECIFIC CHAPTERS**

6.1 The CIMO Guide Editorial Board members reviewed the CIMO Guide with a view to identify areas/chapters of the CIMO Guide that needed to be updated, revised or completely rewritten.

6.2 The chapter on Rocket Observations was not updated since the Sixth Edition of the CIMO Guide and no update is presently in progress. The meeting was of the opinion that these techniques are not anymore in operational use for meteorological observations. The meeting therefore recommended removing this chapter from the next major edition of the CIMO Guide, following consultation with all CIMO Expert Team and Management Group members on their views. The meeting request the Secretariat to carry out this consultation.

6.3 Ground-based remote sensing technology is rapidly evolving, with new or improved commercially available solutions regularly introduced. In particular Doppler lidars to observe wind are becoming cheaper, and there are increasingly capable sodars, backscatter lidars, and radiometers. The meeting recommended that Part II, Chapter 5 "Special profiling techniques for the boundary layer and the troposphere" be updated to better reflect present operational techniques in this field. Dr Cohn agreed to contact CIMO ET-B2 to assess whether they have the expertise to develop such an update, or to look for other possible candidates to update this chapter.

6.4 The meeting was informed of emerging technique for the measurement of soil moisture. These include making use of low-energy cosmic-ray neutrons measured above the ground (whose intensity is inversely correlated with soil water content and water above the surface), and techniques making use of reflected GPS signals. Once these techniques will be more mature, they may be worth including in the CIMO Guide.

## **7. OTHER BUSINESS**

7.1 The meeting agreed that the inclusion of the new Part on "Satellite Observation" would require making a new edition of the CIMO Guide. The meeting considered the need to publish a minor update before that edition and was of the opinion this was not needed unless significant delays would be experienced with the publication of the satellite part.

7.2 Following the proposal of the CIMO Management Group, the CIMO Guide Editorial Board decided that all chapters that have completed the internal review process would be placed in a web *Repository for changes to be considered for future updates/editions* so that they could already be used before consultation of all WMO Members for their final approval. These chapters would include a watermark clarifying their status of "Draft for consideration" and should be considered as preliminary issues as will be submitted for consultation of WMO Members. This meeting recommended that the repository include the following mention: "Permanent Representative will be notified by the WMO Secretariat during the process of consulting WMO Members. If you have any comments, please inform your Permanent Representative".

7.3 The meeting agreed not to have a fixed deadline for the next edition/update, but to decide on the opportunity of having an update once sufficient material would be available in the repository.

7.4 The meeting updated its workplan as provided in Annex IV.

7.5 The meeting agreed to have its next meetings using webex, upon request, or as soon as one chapter is ready for review by the CIMO Guide Editorial Board. Tentatively, those meetings would be held on Mondays at 16:00 (Geneva time). Participants to be invited to these meetings should be the members of the CIMO Guide Editorial Board, the HMEI representative and the Secretariat.

7.6 The meeting recalled that Dr I. Zahumensky, while being the Rapporteur on the CIMO Guide, had developed a webportal providing links to numerous document sources in support of capacity building and was of the opinion this should be reinitiated. It therefore recommended to the CIMO Management Group to consider putting it under the auspices of the Theme Leader on Training Material and Training Activities.

**8. CLOSURE OF THE SESSION**

The session closed on Friday, 4 May 2012 at 15:24 hours.

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## LIST OF PARTICIPANTS

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## **GUIDELINES FOR THE EDITION OF THE CIMO GUIDE (2012)**

(Based on the guidelines used for the Sixth Edition)

1. A degree of standardisation for the chapter headings was rather strictly applied to the chapters of Part I. The outline of the headings is in the Annex to this document. Headings in Parts II and III are much more flexible. When a new chapter is drafted for Part II to IV, its structure should be, as far as possible, consistent with the other chapters of that Part.
2. The *CIMO Guide* is intended primarily for national meteorological services, but many other organisations and institutions also make use of it, and its purpose is to give guidance on the most effective practices for meteorological measurements and observations, to achieve a standard quality. Emphasis is given to practical advice on techniques which are well established and in regular use. The theoretical basis of the techniques should be outlined in the text, supported by references to background literature. Manufacturers are also using the *CIMO Guide* as guidance for their own products.
3. The level of technical detail and the content should be appropriate for the intended readers of the *CIMO Guide*. These are taken to include:
  - supervisors of observations programs in meteorological and related services, both at the managerial and technical/operations levels,
  - people with scientific background in other fields in research institutions, government agencies etc who need to make meteorological measurements,
  - teachers, instructors and students in a wide range of studies.
4. The *CIMO Guide* deals only with techniques in routine use. Techniques that are rare may be included so long as they are fully operational. Techniques under development or in use only at specialised centres or not easily documented may be alluded to and referenced but not described at length.
5. The *CIMO Guide* should give practical advice on aspects of meteorological observations and measurements, especially those that are known from experience in meteorological operations but are not commonly published or otherwise readily available.
  - Advice should be given on uncertainty, reliability and other aspects of performance, with comprehensive discussion of sources of error.
  - It is desirable to give advice in general terms on management considerations, such as unusual demands on resources that a particular observational technique may incur, or particular difficulties in implementation.
  - Well-documented comparisons or evaluations of instruments should be described or referenced.
  - Recommendations or decisions of the Commission for Instruments and Methods of Observation must be included.
6. It is not practicable to give in the *CIMO Guide* detailed advice on operations and equipment, especially for the complex systems described in Part II and IV. For such systems the *CIMO Guide* provides an outline, and an introduction to the literature, for the well-informed non-specialist. It should give a perspective on the technique in the general context of meteorological observing systems, and advice on the practice and practicability of the technique.

7. The *CIMO Guide* does not explicitly describe national practices and observing networks, and neither does it mention particular manufacturers or suppliers nor their observing networks.
8. Relevant material in WMO Manuals and other Guides should be referenced. Usually it should not be reproduced or re-stated, but there may be some instances where basic material should appear in the *CIMO Guide* as well as in other WMO documents.
9. The following practices have been adopted for references to literature.
  - Reviewed and readily available papers and documents are preferred, but are not always sufficient. The Instrument and Observing Methods Reports issued by WMO may be useful references if suitable material does not appear elsewhere. Reports of conferences and in-house papers are often too transient or inaccessible to be very useful and should be used only if necessary and if no other material is available.
  - Recent general and review papers are particularly useful, and recent papers which contain other references to lead the reader into the literature.
  - References are particularly appropriate in the sections dealing with scientific discussion of methods of measurement and sources of error, and for discussion of performance and results of evaluations. They are also appropriate for advice on advanced techniques.
10. Glossaries are not used: readers may be assumed to be familiar with normal scientific and technological terminology, and specialist terms should be defined in the text where appropriate. However, some key vocabulary should be introduced to promote uniform terminology. The terminology used in the *CIMO Guide* has to conform to the internationally adopted standards. These are in particular the *International Meteorological Vocabulary* (WMO-No. 182) and the *International Vocabulary of Metrology – Basic and General Concepts and Associated Terms* (<http://www.bipm.org/en/publications/guides/vim.html>)
11. Uncertainties of instruments and systems should be expressed in compliance with the GUM (*Evaluation of measurement data – Guide to the expression of uncertainty in measurement*, <http://www.bipm.org/en/publications/guides/gum.html>)
12. Reporting practices should not be included in the *CIMO Guide*, but in the Manual on Codes (WMO-No. 306).
13. The presentation of the material should follow the WMO Style Guide and the WMO Editorial checklist available under: [http://www.wmo.int/pages/pubsguides/index\\_en.html](http://www.wmo.int/pages/pubsguides/index_en.html).
14. Pictures may be included, but require obtaining written agreement of the copyright holders.

## SCHEMATIC HEADINGS FOR CHAPTER x of PART I

**Contents (1)**

- x.1 **General** Put introductory text here if it is required, then...
- x.1.1 **Definitions (2)**
- x.1.2 **Units and/or scales**
- x.1.3 **Meteorological requirements (3, 4)**
- x.1.4 **Methods of measurement (4, 5)**
- x.2 Quantity and/or technique and/or sensor and/or instrument no. 1 (6)
- Use paragraph numbers x.2.1, x.2.3.4
- x.3 Quantity/technique/sensor/instrument no. 2
- Etc. If there are only 2 techniques, go to...
- x.4 *Additional headings (6)*
- x.5         "         "
- Etc
- x.last **References**
- Annex x.A (7)*
- Annex x.B*
- Etc

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NOTES

- Bold** means this layout has been used in all chapters of Part I.
- Italic* means very flexible.
- (1) A list of chapters will appear at the front of the volume. A list of headings (down to x.a.b.c) will appear at the front of each chapter.
- (2) This means definitions specific to this chapter.
- (3) Includes applications for the data, reference to WMO documents, etc., and requirements for desirable and achievable accuracy which are not covered in Chapter 1 of Part I.
- (4) As they apply to the whole chapter. Subsets of these may appear in subsequent sections on particular techniques.

- (5) General principles, overview of systems, physics and chemistry, as appropriate.
- (6) In principle, for each quantity/technique/instrument it should be possible to find, somewhere in the chapter, general or specific information on:

- description (including the scientific principle)*
- procedures*
- exposure and siting*
- standards*
- sources of error*
- comparisons/calibration in field/laboratory*
- corrections*
- maintenance.*

These will not all be necessary for all cases, and they can be in sections like x.2 or in more general sections like x.4. This is all very flexible, and at the author's discretion.

- (7) Annexes can include almost anything that is inconvenient elsewhere in the text, eg formal statements of requirements or procedures, formulae, constants, detailed tables, etc.

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## PROCEDURES FOR UPDATING THE CIMO GUIDE

### Generalities

1. Updates/revisions of the Guide are initiated as soon as a sound proposal is submitted.
2. Proposals (apart from minor changes and typos) have to be included **in track-change mode** in the MS-Word file of the most recent version of the CIMO Guide. (The author of the proposal should contact the Secretariat to get the most up-to-date MS-word file of the corresponding chapter).
3. Proposals for updates of the CIMO Guide have to be submitted to the CIMO Guide Editorial Board, with copy to the Secretariat.
4. CIMO Expert Teams (ET) and Theme Leaders (TL) are responsible for developing updates of the CIMO Guide incorporating the relevant outcomes of their ET/TL work programme and for identifying technical aspects needing to be updated within their Terms of Reference, while the CIMO Guide Editorial Board should address aspects relating to the homogeneity of the CIMO Guide and identifying areas/parts that need to be completely rewritten. ETs are encouraged to inform HMEI (hmei(at)wmo.int) when they are working on an up-date or a specific revision to incorporate relevant contributions from manufacturers.
5. People interested in contributing to on-going revisions or reviewing/commenting draft updates should liaise with the relevant ET, as listed on the CIMO/IMOP website.
6. Some chapters of the Guide (such as for example Marine Observations (JCOMM), Satellite Part (ET-SAT/CBS), Measurement of Ozone and Measurement of Chemical Composition (CAS)), are maintained/updated by other Technical Commissions or groups and will be handled accordingly.
7. Proposals for improvement are also welcome from experts outside of the CIMO expert teams/theme leader membership. Proposals from manufacturers are also welcome and should preferably be submitted through the HMEI representative on the CIMO Guide Editorial Board to ensure they are neutral and not biased towards the systems of some companies.

**General approval steps** (*shown in track change with respect to the version presently in force and provided in Doc. 4*)

The principles below summarize the approval of updates/new edition of the CIMO Guide and are illustrated in the attached diagram.

- a) Responsibility for coordinating updates/revisions resides with the CIMO Guide Editorial Board;
- b) Proposals for changes must be submitted to the CIMO Guide Editorial Board and the Secretariat, which will direct it to the relevant CIMO Expert Team;
- c) Soundness of proposal is reviewed / corrected /further developed by the relevant Expert Team, in collaboration with the author of the proposal;
- d) In the case of proposals submitted by other Technical Commissions or groups, the CIMO president will appoint a CIMO authority (likely Expert Team Chair or MG members) to review and provide approval on the scientific and technical content of the document and its relevance and consistency to the CIMO Guide in the context of WIGOS;

### ***For major updates only:***

- e) *The CIMO Guide Editorial Board coordinates activities with the Secretariat when addressing substantial updates/revisions, especially when a paid pre-editor is required or when a task to update/revise a particular part of the Guide is needed to be addressed by an expert requiring payment;*
- f) *Technical editors are selected by the relevant OPAG co-chairpersons and approved by the president of CIMO;*

- g) The CIMO Guide Editorial Board ensures conformity of the proposal with the editorial guidelines and submits updates/revisions to the Secretariat in a form of tracked text of the current version. The Secretariat assures, in this way, the traceability to older versions;
- h) The CIMO president approves preliminary issue of updates/new editions on behalf of the CIMO-MG for a general consultation of **all** WMO Members;
- i) Preliminary issues are posted on a web repository after approval by the CIMO President. People wanting to comment on them should provide their comment to the Permanent Representative of their country.
- j) The Permanent Representatives of **all** WMO Members<sup>1</sup> are requested to provide their comments to the preliminary issue, as well as a focal point to solve any divergence of views. Comments are reviewed and consolidated by authors, relevant ET or the technical editors, as appropriate, in collaboration with the CIMO Guide Editorial Board and Secretariat;
- k) The consolidated updates/revisions are approved for publication by CIMO, or by the CIMO president<sup>2</sup> with the support of the CIMO Management Group on behalf of the Commission between sessions;
- l) The Secretariat publishes the Guide as a new edition or updated edition;
- m) A report is provided to regular sessions of CIMO for information.

Proposal for chapters maintained by other Technical Commissions follow the same principles, using the relevant groups of those commissions. In such cases, the approval of the proposal by the president of that Technical Commission is also required in addition to the approval by the president of CIMO.

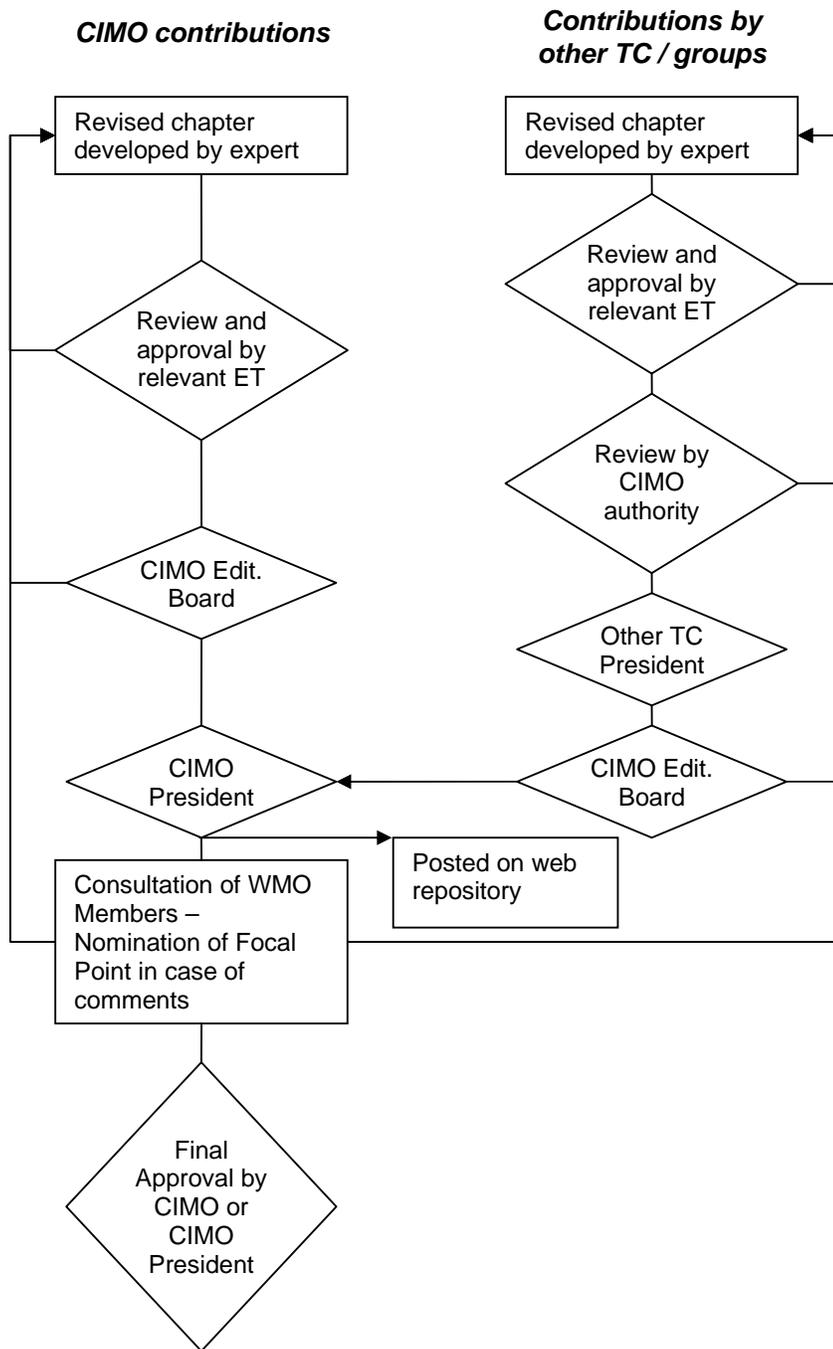
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<sup>1</sup> According to WMO General Regulation 66, consultation shall be that of Members represented on the commission. Here a wider consultation of all WMO Members is proposed to ensure even wider endorsement of the proposal, and in particular that the consultation covers the membership of other relevant WMO technical commissions for those chapters not maintained by CIMO itself.

<sup>2</sup> According to WMO General Regulations 77, the CIMO president may approve a proposal on behalf of CIMO (provided among others that 90 days were allowed for replies and that no objections were received).

**Diagram summarizing the approval process**

*(for additional details, see accompanying text)*





No.	Task description	Person responsible	Action	Deliverable	Deadline for deliv.	Status [%]	Comments
		then plan further)	<p>required</p> <p>2. Liaise with CIMO ET on required contributions</p> <p>3. Compile ET contributions for submission to WIGOS, if appropriate</p>	WIGOS			
5.	<b>Development of CIMO Manual</b>	V. Kurz (discuss with MG what is required and when, then plan further)	<p>1. Develop a strategy for the development of the CIMO Manual (incl. position on appropriateness to develop CIMO Manual in context of development of Manual on WIGOS)</p> <p>2. Consider the possibility of upgrading non controversial parts of the CIMO Guide to the level of common ISO/WMO standards</p> <p>3. Propose expert to review CIMO Guide and identify non-controversial parts/guidelines that would be appropriate to be published as standard practices (WIGOS Manual and possibly ISO-WMO standard), in collab. with relevant CIMO ETs</p>	1. Statement on strategy for consideration by MG	<p>2011</p> <p>Spring 2012</p> <p>Mid 2012</p>	<p>100%</p> <p>100%</p> <p>0%</p>	<p>CIMO-XV, para 7.7 No separate CIMO Manual, but contribution to Manual on WIGOS</p> <p>Siting classification should be submitted as common ISO/WMO standard</p> <p>V. Kurz will contact ETs and ask for their proposals.</p>
6.	<b>Contribute to the implementation of WIGOS and provide relevant advice and support to the CIMO-MG</b>	V. Kurz	<p>1. Address relevant items of WIGOS Implementation Strategy approved by Cg-XVI and subsequent WIGOS IP</p> <p>2. Prepare information for MG-10</p>	TBD after Cg-XVI	Oct.2012		Contributing to the development of the WIGOS Manual
<b>Lower priority</b>							
7.	<b>Coherency between Manual on WIGOS, CIMO Manual, CIMO Guide and relevant ISO standards</b>		1. Review proposals of ETs for ISO/WMO standards and advise ETs		Upon request	100%	CIMO-XV, para 7.8