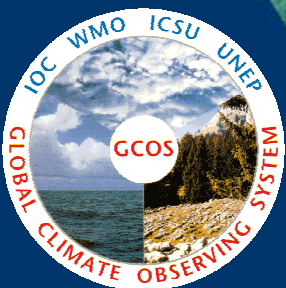


GRUAN Manual of Operations– Draft Outline

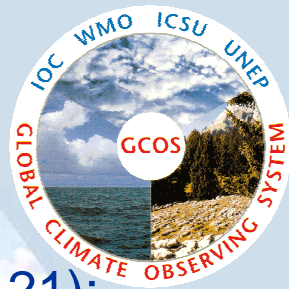
Anna-Christina Kuhn, GCOS Secretariat
GRUAN ICM-1, 2–4 March 2009



ICSU
International Council for Science



Development of GRUAN manual



The 2008 GRUAN Implementation Meeting stated that (GCOS-121):

- The manual on 'observing practices' will form an important basis for the development of the GRUAN network.
- The development of a manual will be undertaken by the GRUAN Lead Center and initial sites, in collaboration with the
 - Working Group on Atmospheric Reference Observations
 - WMO Commission for Basic Systems (CBS)
 - WMO Commission for Instrumentation and Methods of Observations (CIMO), building upon available literature from these bodies.
- First draft of manual / guidelines for GRUAN observations shall be available by April 2009 (work plan item 5)

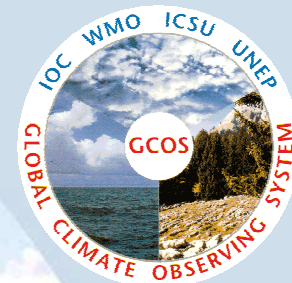
The manual will:

- guarantee the standardization of measurements to assure the comparability and high quality of observations
- define the requirements (accuracy, long-term stability) for the measurements, but not the manufacturer of the instrument, in order to guarantee sustainability of observations and avoid restriction to one vendor
- form an important basis for GRUAN implementation



ICSU
International Council for Science

Manual – First draft (10 Feb 09)

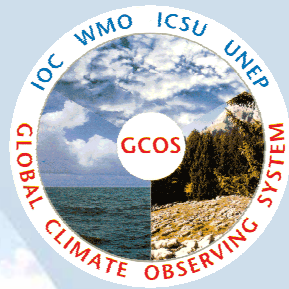


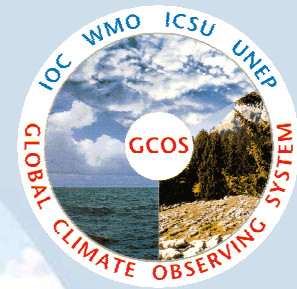
- ICM-1/Doc. 7.1 contains a first draft outline, based on recommendations by AOPC/WG-ARO and GRUAN reports (112, 121)
- GRUAN sites: colocated; part of tiered networks
- Draft has two components:
 - refers wherever possible to existing manuals (WMO, BSRN, GCOS, ...)
 - Repository:
<http://www.wmo.int/pages/prog/gcos/index.php?name=gruanmanuals>
 - Placeholders for GRUAN-specific material



Outline

- 1. Introduction (Scope, Purpose)
- 2. GRUAN Sites (Criteria, Description)
- 3. Observed Essential Climate Variables
- 4. Methods of Observation
 - 4.1 Ground based measurements (Req'd, Add'l)
 - 4.2. Upper-Air measurements
 - 4.3 Reference instruments
- 5. Operation of Instruments
 - 5.1 Calibration (Routine, Intercalibration)
 - 5.2. Operation and Maintenance
 - 5.3. Linkage to Satellite Operators and GSICS
- 6. Data Dissemination and Data Policy
 - 6.1 Data format (obs, meta)
 - 6.2 Data submission, dissemination and archiving
 - 6.3 Data accessibility
- 7. Monitoring, Analysis and Archiving Activities
 - 7.1 Data processing and analysis
 - 7.2 Quality control
- Appendices: Specs of a Reference Radiosonde; Technical Annexes (Algorithms, Filter, Time corrections etc.); Data Policy; GCOS Climate Monitoring Principles)



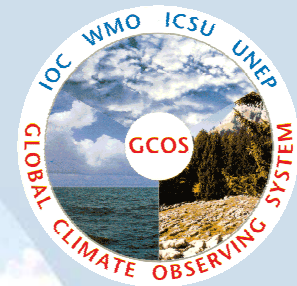


How to realize this task?

- Lead Center, DWD
- Are additional resources needed?
 - Task team within GRUAN community
 - Consultant(s)
 - Expert team (e.g., WMO CBS Expert Team for GRUAN in 1990s)
- What would be an realistic time frame to finalize this? – Early/mid 2010?



Many points of GRUAN operations need to be agreed on first:



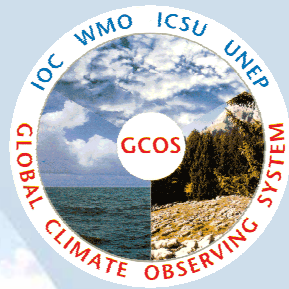
E.g.:

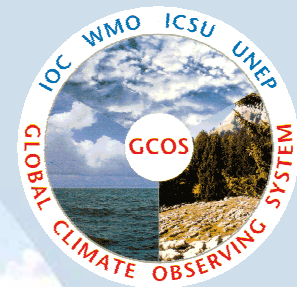
- Data, metadata formats
- Cal/val
- Data dissemination
- Performance monitoring
- Quality control, reporting
- ...



Credits:

- Anna-Christina Kuhn (GCOS Secretariat)
- Frederik Zietzschmann (GCOS Secretariat)





Thank you

For more information about the GCOS programme
please visit our website

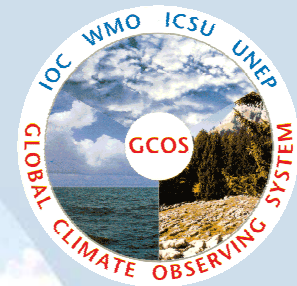
<http://gcos.wmo.int>

Contact Information

GCOS Secretariat
c/o World Meteorological Organisation (WMO)
7 bis, Avenue de la Paix
P.O. Box 2300
1211 Geneva 2, Switzerland
Tel: +41 22 730 80 67
Fax: +41 22 730 80 52
E-mail: gcossjpo@wmo.int



Development of GRUAN manual (2)



- Best practices and lessons learned at the Lead Centre and the other initial sites shall be disseminated and guidelines for the reporting of data developed
- The experience from the GCOS Upper Air Network (GUAN) shows that the majority of the sites only fulfill the threshold requirements for observations given in the manual. Even if the reference network encompasses a much smaller number of sites, the requirements given in the manual are critical for the implementation of the network and communication to the site operators.

