

WORLD METEOROLOGICAL ORGANIZATION

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COMMISSION FOR BASIC SYSTEMS OPEN PROGRAMME
AREA GROUP ON INTEGRATED OBSERVING SYSTEMS

CBS/GCOS EXPERT MEETING ON COORDINATION
OF THE GSN AND GUAN

Item : 7

Original: ENGLISH

OFFENBACH, GERMANY, 15-17 MAY 2002

Activities of CBS Lead Centres for Data Quality Monitoring

(Submitted by the Secretariat)

Summary and Purpose of Document

The document contains a background information regarding activities of CBS lead centres to monitor the quality of surface and upper-air observations.

ACTION PROPOSED

The meeting is invited to take into consideration the information contained in this document when discussing the possible mechanism to monitor quality of climate data including creation of "Points of Contact"(POCs) within NMHSs.

Reference: Abridged final report of the ninth session of CBS
(Geneva, January-February 1988) WMO No. 699

Appendix: **Nomination Form for a nomination of a national expert serving as focal person for WMO on matters related to upper-air observations**

DISCUSSION

1. In 1985, the Commission for Basic Systems agreed that there was a need for the major *Numerical Weather Prediction centres* to monitor the quality of observations by comparing the model first guess with the observation at the station and exchange monthly lists of stations that are persistently in error. The model first guess fields are obtained by interpolating to the observation point.
2. The procedure for monitoring the quality of data by centres and nomination of lead centres is given in the Manual on the Global Data-Processing System (WMO-No. 485). The relevant excerpts (Attachment II.7, paragraphs 20 to 22) are reproduced below.

"QUALITY OF OBSERVATIONAL DATA

20. Centres with global, hemispheric or near-hemispheric models should monitor the quality of one or more of the main types of observations using techniques such as those listed in Table E. Statistics should be compiled separately for each land station by station index number, for each ship or aircraft by call sign, for each buoy by identifier, and for each satellite by identifier, and for various geographic areas and levels in the atmosphere.

Table E

Techniques for monitoring the quality of observations

1. Compilation of statistics on the difference between observed values and the analysis and first-guess field;
2. Compilation of statistics on observations which fail the routine quality-control checks;
3. Examination of time series of observations from a particular station (particularly useful in data-sparse areas);
4. Compilation of statistics on the differences between reported values of geopotential height and geopotential height recalculated from significant level data for radiosonde stations, using common formulae for all stations;
5. For surface stations which report both mean sea-level pressure and station-level pressure, compilation of statistics on differences between reported mean sea-level pressure and mean sea-level pressure recomputed from reported station-level pressure and temperature and published values of station elevation;
6. Compilation of co-location statistics.

21. The centres should analyse the results and produce in an agreed format lists of observations believed to be consistently of low quality, together with information on which element of the observation (pressure, temperature, etc.) is thought to be of low quality and the evidence for considering it as such. These lists should be based on data received over one month and should be exchanged monthly between participating centres.

22. For each type of observation a lead centre shall be nominated from time to time by the president of CBS. The lead centre should liaise with the participating centres to coordinate all the monitoring results of that observation type and to define common methods and criteria to be used for compiling the monthly statistics. The lead centre should draw the attention of appropriate focal points where they have been identified and of the WMO Secretariat to obvious problems as they are detected. It should also produce every six months a consolidated list of observations of the relevant observation type believed to be of consistently low quality. Information on problems with observing systems, as well as individual observations, should also be included. When compiling the consolidated lists of suspect stations the lead centres should be rigorous so as to identify only those stations where they are confident that the observations are of consistently low quality. They should state which elements of the observation are considered of low quality and provide as much information as possible identifying the problem. The list should be passed on to the participating centres and to the WMO Secretariat. Where focal points have not been identified the Secretariat should notify Members of agencies responsible for the observations which appear to be of low quality, and request them to make an investigation with a view to identifying and correcting any possible cause of error. Members should be asked to reply within a fixed period of time, reporting on any remedial action and stating if any assistance is required. Monitoring results including follow-up action should be made available to CBS, the Executive Council and Congress. In the case of enquiries made by WMO, feedback to the lead centres is requested."

3. In accordance with Recommendation 8 (CBS-IX) (see reference 1) the following three centres were appointed in November 1988 by the president of CBS as the lead centres for monitoring data quality:
 - ECMWF** - for upper-air observations;
 - RSMC Bracknell** - for marine surface observations and
 - WMC/NMC Washington** - for aircraft and satellite observations.

4. Following recommendations of the CBS and after consultations with the presidents of Regional Associations concerned, the president of CBS since 1990 has consecutively designated the following lead centres for monitoring quality of land surface observations in the regions:
 - RSMC Nairobi**-----Regional Association I;
 - RSMC Tokyo**-----Regional Association II;
 - RSMC Buenos Aires**-----Regional Association III;
 - RSMC Montreal**----- - --Regional Association IV;
 - WMC/RSMC Melbourne**-----Regional Association V;
 - RSMC Offenbach**-----Regional Association VI.

 5. In implementing the procedure for monitoring the quality of data, these centres are producing *monthly* lists of observing stations that persistently report erroneous observations. They are also compiling *six monthly* consolidated lists of suspect stations (stations reporting erroneous data). With the exception of RSMC Buenos Aires, the WMO secretariat has been regularly receiving quality monitoring reports produced by these centres which then have been distributed among Members concerned with request to make an investigation and to correct any possible cause of error in accordance with para 22 of the Manual given above. More detailed information on monitoring activities of some CBS lead centres is provided under agenda item 3.

 6. The above information could be used to set up and get formal nominations of lead centres on GCOS atmospheric observations. In particular, the meeting may wish to propose that AOPC would identify an appropriate willing centre(s) to undertake monitoring and QC of defined GCOS atmospheric observation type(s) and then invite the president of CBS to nominate such a willing centre(s) as lead centre(s) for quality monitoring of GCOS baseline atmospheric data.

 7. The Expert Meeting may also wish to review some additional arrangements to related to remedial actions on discrepancies detected by the GCOS monitoring centres. In this connection, the meeting is invited to consider the nomination of "Network Points of Contact" (POCs) by each of the NMSs. These POCs, being tasked by the PRs to follow up appropriate action within the NMS concerned, could be directly contacted by the GCOS office if further clarification is needed. The tasks for POCs should be specified in the appropriate WMO circular letter to PRs. Once POCs are nominated, the list of them should be posted on the WMO Web Site and maintained up to date to facilitate contacts between project office and NMSs in monitoring and remedial activities.

 8. The meeting may note that CIMO has recently initiated activity on the nomination of national focal points related to upper-air observations. The major task for these POCs focused on the clarifications of pure technical matters related to the equipment without any intention for transferring and implementation of activities and measures within the Service concerned. The related questionnaire that was attached to a circular letter of the Secretary-General is reproduced in the Appendix to this document.
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SAMPLE

WORLD METEOROLOGICAL ORGANIZATION

NOMINATION FORM

FOR NOMINATION OF A NATIONAL EXPERT

SERVING AS FOCAL PERSON FOR WMO

ON MATTERS RELATED TO UPPER-AIR OBSERVATIONS

1. Member country:

2. Personal data of the expert:

Prof., Dr, Ms, Mrs, Mr¹
Family name *First name*

Institution:

Position:

Address:

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Country:

3. Telecommunication:

Telephone:

Telefax:

E-mail:

Date: Signature:
(Permanent Representative)

Please, return the completed form at your earliest convenience, however if possible **not later than 30 March 2001** to the following address:

WORLD METEOROLOGICAL ORGANIZATION
World Weather Watch, Basic Systems Department
P.O. Box 2300
CH-1211 GENEVA 2
Switzerland
Telefax: (+41 22) 7308 021

¹ Please underline the appropriate one.