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WIGOS Data Quality Monitoring System (WDQMS)

Potential differences in results of WIGOS Monitoring Centres

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Potential differences in results of WIGOS Monitoring Centres

- Be aware that the **results from various WIGOS Monitoring Centres (MC) might differ**.
- Hence initiate an incident management process **only if most WIGOS Monitoring Centres show similar results** (e.g. data are missing in most Global NWP Centres).
- The following differences might be recognizable when using quality monitoring reports of different Global NWP Centres:
  - When a station reports in format types TAC and BUFR, some Global NWP Centres consider only one of those types, while other Global NWP Centres consider both types;

Potential differences in results of WIGOS Monitoring Centres (cont.)

- The following differences might be recognizable when using quality monitoring reports of different Global NWP Centres (cont.):
  - Monitoring reports of a Global NWP Centre contain only the data that passed the quality control prior to data assimilation, and therefore part of the data available that was deemed poor quality was filtered out and not available for data assimilation, whereas monitoring files of another Global NWP Centre contain even the data deemed as poor quality and that were rejected and/or blacklisted;
  - Monitoring reports of a Global NWP Centre might not contain any information about a particular station if the parameter in question (for example, pressure observation) was not reported, whereas monitoring reports of other Global NWP Centres might contain a result for this station if a message in general was available but the particular parameter was missing;

Potential differences in results of WIGOS Monitoring Centres (cont.)

- The following differences might be recognizable when using quality monitoring reports of different Global NWP Centres (cont.):
  - A Global NWP Centre assimilates geopotential height from high-altitude stations, whereas another Global NWP Centre does not assimilate geopotential height;
  - Due to technical problems at a Global NWP Centre, subsidiary data availability, timeliness or measurement uncertainty results provided to the RWC are not comparable to data available on GTS.

Description of procedures at WIGOS MCs

NCEP monitoring reports show only the data that pass a quality control step prior to data assimilation (DA), therefore, part of the data available that is deemed to be of poor quality or duplicate is filtered out and is not available to the DA. Another important aspect of its DA system is the assimilation of surface pressure observations provided by METAR reports - mainly over US - rather than from SYNOP reports when both reports are available in the same location, therefore some SYNOPs observations over this region may not show in NCEP maps.

Description of procedures at WIGOS MCs

ECMWF, on the other hand, provides monitoring information of all the observations available to the DA even the data that is deemed to be of poor quality and is rejected and/or blacklisted by the system. The only case in which observations may not be available is when a serious coding issue prevents the acquisition system to extract any meaningful value. Also, when SYNOP and METAR reports are available from the same station, ECMWF always gives preference to the SYNOP observations.

Description of procedures at WIGOS MCs

DWD provides monitoring information for all the observations available to their DA system. However, in the case of surface pressure the model background value is not available if that observation is not used in the assimilation. Therefore, the surface pressure O-B results cannot be calculated for that particular observation and the O-B results field is flagged has missing value in the monitoring report despite the fact that the observation itself has been made.

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Thank you

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