



GCOS SC-29

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## GCOS STEERING COMMITTEE

### TWENTY-NINTH SESSION

GCOS SC-29, 7–9 December 2021

Virtual Session

#### GCOS Surface Reference Network Task Team

GCOS has been working since 2015 on establishing a GCOS Surface Reference Network (GSRN) that will deliver the reference component of the tiered system for surface observations. A paper in the International Journal of Communication (IJOC), (Thorne et al., 2018) provides the scientific rationale. The relevant report GCOS-226 provides details on how it is presently envisaged to implement the GSRN and outlines the next steps required for the implementation of a GSRN. It calls for the establishment of a lead centre sufficiently resourced and empowered to manage the rollout of such a global network and an oversight group, comprising a broad range of scientific and technical experts that will provide guidance on the development of the GSRN and ensure integration with relevant activities.

Based on the recommendation listed in GCOS-226, a task team was established in November 2020 (INFCOM-1/Doc.4.4.1(4)).

The GCOS Surface Reference Network Task Team (GSRN TT) is responsible for the initial implementation of the GSRN and will undertake the necessary activities to instigate the network.

The GSRN TT works under the leadership of the GCOS Steering Committee and the INFCOM SC-ON, in close collaboration with SC-MINT. The membership consists of two co-chairs, one nominated and agreed by GCOS, Sarah Gallagher from Met Éireann (Ireland) and the other by SC-MINT, Tilman Holfelder from DWD (Germany); experts selected for their skills and ex-officio members representing the former CCL, AOPC and TOPC, BIPM, GRUAN, GSN, satellite community, HMEI and the director of the lead center.

The first meeting of the GSRN Task Team was held on the 23rd of March 2021 and since then the GSRN TT has been meeting regularly.

Based on the experience of implementing GRUAN, the full implementation of all goals named in GCOS-226, will take decades. Therefore, the GSRN-TT has agreed to define the following goals, to be achieved in a 10-year timeframe, within the initial GSRN:

1. Provide sustained reference quality observations, with full traceability and fully defined uncertainty, on a global scale (on land) of at least the ECVs surface temperature and precipitation in order to quantify their variability, long-term change and inform on extremes
2. Deliver an implementation plan for the inclusion of additional ECVs
3. Be a recognized reference network within the WMO tiered system which primarily supports the climate community in quantifying climate change
4. Publish operational procedures and practices for knowledge transfer and capacity building
5. Ensure a free and open access archive of accredited GSRN data products
6. Establish a GSRN affiliated research facility delivering scientific advances in measurement techniques and improving knowledge on climate reference data and instrumentation

As the success of the implementation of a surface reference network strongly depends on the establishment of a Lead Centre, the GSRN TT has been concentrating on identifying countries that could host a lead center and provide the necessary resources.

In March 2021, WMO Secretary General sent a letter to all WMO members inviting them to express their interest in hosting the Lead Centre for the GSRN. Six members confirmed their interest in hosting the Lead Centre: Romania, Chile, Ecuador, Mauritius, China and Kazakhstan.

Following their expressions of interest in response to the letter sent by the WMO Secretary General in March 2021, a questionnaire was prepared by a subgroup of the GSRN (GSRN TT-LC) and sent to the six countries on the 1st of June 2021. The GSRN TT-LC carefully evaluated the answers of the questionnaire and assessed whether the country would be able to perform the duties of a Lead Centre as listed in the GCOS-226. Details on the evaluation and selection of the lead Centre can be found in annex A.

GSRN TT-LC recommended that China Meteorological Administration is offered the role of GSRN Lead Centre. The formal letter to CMA has been sent and the GSRN TT is now planning a meeting with the representative of CMA to initiate the establishment of the Lead Center.

The GSRN TT has also started working on a proposal for the governance of the GSRN, on specifying the requirements for the initial GSRN sites and on recommendations for the selection of pilot stations and the initial composition of the GSRN.

Work in these areas will continue in the next year and will result in an initial set of documents for the GSRN.

The GSRN TT is planning to have an-in person meeting in March 2022, subject to the COVID situation, to progress both on the drafting of these documents and on the establishment of the Lead Center.