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**GCOS STEERING COMMITTEE  
TWENTY-NINTH SESSION**

GCOS SC-29, 7–9 December 2021  
Virtual Session

**TOPC Report to the 29th Session of the GCOS Steering Committee**

**Progress in 2021**

Since the last session of TOPC at the Joint sessions in 2021, TOPC has made progress. It has met on-line and worked on the ECV requirements and the actions for the next Implementation plan.

Martin Herold has been appointed Co-chair of TOCP.

**Implementation Plan**

TOPC considered the Status Report and made a number of recommendations for actions to be included in the new GCOS Implementation Plan. These covered, sustainability of networks, addressing data gaps in observations and data exchange, ensuring that there are data centres for all terrestrial ECV and addressing specific needs for adaptation and mitigation.

**Total Water Storage (TWS) as a new ECV**

Following the approval of the by the steering committee TOPC considered how this would fit in with the other hydrological ECV. TOPC concluded that this was additional to the other ECV and provided much needed additional information. TOCP will provide requirements for the next Implementation Plan.

**ECV**

There was general agreement that the concept of ECV was well understood and documented. While there was no need for an overall review some thought may be needed on users, especially the needs of adaptation, and some specific ECV.

**Progress on a biosphere indicator of climate change**

There has been good progress with a focus on changes in phenology as an indicator. Data exists on a monthly basis to produce an indicator (e.g. LAI, FAPAR). Phenology over the oceans can be produced There are still some decisions to be made on the details and this may need a community discussion to agree. Work is continuing on this.

## Adaptation

The GCOS Adaptation Task Team (GATT) has been revitalised with Nigel Tapper (TOPC) and Chiara Cagnazzo (AOPC) co-chairing. A plan and work programme has been prepared and will be presented in a separate document.

## Future

In addition to working on the new GCOS Implementation Plan, TOPC would like to focus on the following activities.

- Data centres and centres dealing with metadata:
  - Identify data centres in developing countries to enhance the spatial coverage for some climate parameters
  - Improve the exchange of information with centres providing TOPC related data, with a view to identify their possible contribution to cover data gaps
  - Increase the profile of data centres
- Improving ECV
  - Support and expand the terrestrial calibration/validation networks for ECVs for better satellite data
  - Enhance consistency for different terrestrial ECVs
  - Anthropogenic v biogenic fluxes and how this should be dealt with
- Make terrestrial ECV information more relevant for adaptation
- Engagement
  - Communicate more broadly with the user community at large to identify needs and refinements of existing data
  - Approach the climate modelling community to identify gaps in climate variables necessary to improve the accuracy of the results
- Better linking and explore integration of global ECV data streams with national monitoring efforts
- Help coordinate regional workshops to help identify potential sources of data and barriers for their sustainable provision through time