# *Breakout Group on Adaptation and Extremes Summary*

Chaired by
Rainer Hollmann
Sabrina Speich
(Nigel Tapper)

GLOBAL CLIMATE OBSERVING SYSTEM
KEEPING WATCH OVER OUR CLIMATE

WMO IOC International Science Council UN environment

Supported by the European Union

opernicus Europe's eyes on Earth

# BoG Adaptation and Extremes

## Role of GCOS for adaptation and extremes

- **A dedicated group under TOPC leadership was formed (lead by Nigel Tapper).**
- **This group did meet and reported back. The section in the draft status report on adaptation and extremes was based on this work (with some additions by the ECV stewards).**
- **At the last Steering Committee, it was agreed that this TOPC group should be revitalised with participation form all the panels, and report back to the next Steering Committee in October 2021 with a plan for the way forwards for GCOS.**

## Key points arising from scoping group discussion

GCOS, through its ECVs etc. can provide

1. *Clear indicators to inform adaptation (indicators for adaptation) e.g. key information about hazards and the links to exposure/risk, as well as*
2. *the possibility, through some ECVs, to directly observe adaptation (indicators of adaptation)*

# Introduction

ECVs such as Continental Surface Atmospheric Temperature and Precipitation are the two ECVs linked with continental extremes that have been taken into account by the TOPC task team. They were chosen as related with some extremes identified by countries.

**Consequently, the discussion was initially addressed to answer the following leading questions:**
**(1) How can extremes of temperature and precipitation be best described for adaptation?**
**(2) What are the other important extremes for adaptation?**

**Seeding presentation from**

- Joanna Post (UNFCCC)
- Regina R. Rodrigues (WCRP, chair Climate Risk)
- Chiara Cagnazzo (ECMWF, Copernicus Climate Change Service)
- Roxy Matthew Koll (co-chair CLIVAR IRP, IndOOS, Indian Institute of Tropical Meteorology)

**Attendance** of ~20 participants

# Key topics from discussion (I): EXTREMES

- **Extremes are:**
  - Intensifying,
  - Compound phenomena
  - Happening (and often interlinked) across the 3 subsystems (ocean, atmosphere and continents)

→ **There is a need of better define and characterize them (a task team across WCRP, GCOS and intermediate stakeholders like Climate Services & link with UNFCCC)**

→ **Extremes to be defined from compound ECVs and co-variability** (going from single ECV's extremes to multi-ECV assessments / joint analyses)

→ **Definitions are needed, i.e. how to measure "very rare", "very large" with dependence of time scale**

# Key topics from discussion (II): ADAPTATION

## Adaptation:

- Clear need on information to be used for prioritization of risks
- Requirements (but depends on phenomena):
  - High spatial resolution
  - Sub-daily data at minimum
  - Return periods
  - Homogeneous
  - Long time series (to establish rare, large, …)
  - High quality, EQC component, traceable, document
  - Combined with RT/NRT-delivery (anomaly detection)
- In selection of ECV variables for/of adaptation take the stakeholder view and not the 'science' view
- Measuring the progress of adaption through reliable observations
- Identify 2nd order effect of impact: Precip -> droughts (primary) -> impact on food

# Preliminary Conclusion EXTREMES & ADAPTATION

**Key variables:**

- Essentially all ECVs
- To be used to define extremes & adaptation indicators and risk assessments

**Deployment of a new Task Team to work in link with science & stakeholders (across WCRP, GCOS, Climate Services & link with UNFCCC)**

→ **To better define extremes and related ECVs**

→ **To develop indicators for risk assessments, adaptation policies and to track adaptation**

# Thank you

GLOBAL CLIMATE OBSERVING SYSTEM
KEEPING WATCH OVER OUR CLIMATE

WMO IOC International Science Council UN environment

Supported by the European Union
opernicus Europe's eyes on Earth