

The World Climate Research Programme (WCRP) is the primary international programme with a focus on generating climate knowledge and as such makes fundamental contributions to humankind's ability to understand and predict climate change.

WCRP released a status brief on “Current understanding of global sea-level rise” to translate the latest climate science into actionable insights for policymakers. This is the first of a series of status briefs which intends to summarize cutting-edge research, highlights risks and opportunities, and supports evidence-based climate decision-making.

WCRP is working on an authoritative assessment that will systematically review our understanding of threshold breaching, irreversibility, and tipping points in the Earth's climate system, including in the Amazon. The paper will also provide key recommendations for how Earth system models can be improved to better understand these processes and identify potential early warnings.

The preparation of WCRP's Coupled Model Intercomparison Project (CMIP) next phase (CMIP7) is proceeding as input to new climate insights that will subsequently be assessed by the Intergovernmental Panel on Climate Change assessment process. The CORDEX framework will downscale the CMIP data to produce regional climate information at scales of critical use to countries. The data/analyses are scheduled to be available/released by...

In addition, WCRP is mobilizing the community on priorities addressing important gaps and emerging concerns under its Lighthouse efforts, including the lighthouse activity focussed on a “Global Precipitation Experiment (GPEX)”, which is planning to address major science gaps in the field of precipitation (rainfall, snowfall etc.) that will be essential to better understand the source of freshwater in regions around the world, including mountainous regions.

The Lighthouse Activity on “Research on Climate Intervention (RCI)” focuses on the potential benefits and risks of Climate Intervention activities (Solar Radiation Management, and Carbon Dioxide Removal) and provides independent scientific information on the current state of knowledge and knowledge-gaps.

WCRP's Lighthouse Activity “Digital Earths” is coordinating km scale modelling efforts in combination with high-resolution observational results to enhance insight into climate dynamics on regional and local scale.

WCRP's Academy (wcrp-academy.org), with a support unit hosted by the Manila Observatory in the Philippines, is the research training advisory and coordination arm of WCRP's capacity building activities and includes a training catalogue of opportunities, which connects training providers and climate scientists who are seeking training. The Academy's activities will promote and advance lifelong learning opportunities and global equity in climate science training

WCRP provides key input to high-level policy fora and coordination efforts such as the COPs, the Antarctic Treaty and Working Groups of the Arctic Council, the UN Ocean Decade and the upcoming International Polar Year (2032-33) and UN Decade of Action for Cryospheric Sciences.