

Over the past 25 years WCRP has greatly increased humankind's ability to understand and predict climate. Today, there is an unprecedented demand in many socio-economic sectors for relevant climate information. WCRP is taking the lead to help the global climate research community create a scientific foundation for meeting this demand. WCRP provides the international forum to

align efforts of thousands of climate scientists worldwide towards the aim of determining climate predictability and human impact on climate. The focus is on producing the best possible climate observing networks, models and data analysis and making these tools and climate information products available for practical applications.

THE VISION

WCRP HAS GREATLY ENHANCED THE ABILITY OF HUMANKIND TO UNDERSTAND CLIMATE AND PREDICT IT. WCRP CONTINUES TO IMPROVE THE PREDICTIVE SKILL OF CLIMATE MODELS FROM SEASONS TO CENTURIES, AND TO MAKE THIS KNOWLEDGE AVAILABLE TO SCIENTISTS AND DECISION-MAKERS AROUND THE WORLD.

WCRP organizes meetings, workshops and conferences to coordinate and facilitate climate research. The research itself is done by individual scientists working in national and regional institutes, laboratories and universities. WCRP committees, working groups and projects, assisted by the Joint Planning Staff (JPS), are the main vehicles for setting the research agenda and mobilizing the broader research community on specific activities.

The Joint Scientific Committee (JSC) for WCRP, composed of 18 members who are appointed by the WCRP sponsors, formulates the overall scientific goals and concepts of the Programme. The work of the JSC is supported by the JPS, which is hosted by WMO in Geneva, Switzerland.

Understanding and predicting climate variability and change requires comprehensive investigation of all major components of the climate system (the atmosphere, hydrosphere, oceans, land and cryosphere). WCRP studies these components and their interactions through the activities of its Core Projects. Past Core Projects include the Tropical Ocean Global Atmosphere (TOGA) project, which developed the foundations for prediction of El Niño; the World Ocean Circulation Experiment (WOCE), which provided the first consistent picture of the global ocean circulation; and the Arctic Climate System Study (ACSYS), which demonstrated the possibility of intensified climate warming in the northern high latitudes.

The current WCRP Core Projects are:

- Climate and Cryosphere (CliC), co-sponsored by the Scientific Committee on Antarctic Research (SCAR) and the International Arctic Science Committee (IASC);
- Climate Variability and Predictability (CLIVAR);
- Global Energy and Water Cycle Experiment (GEWEX);
- Stratospheric Processes And their Role in Climate (SPARC).

The international project offices of these Core Projects are located in Tromsø (Norway), Southampton (United Kingdom), Silver Spring (United States) and Toronto (Canada),

respectively. They work closely with the JPS for WCRP. The Projects organize their work through various initiatives, experiments, and their respective scientific advisory committees and workshops.

The WCRP modelling activities are coordinated by:

- the Working Group on Coupled Modelling (WGCM), which also organizes numerical experimentation for the Intergovernmental Panel on Climate Change (IPCC) assessments;
- the Working Group on Numerical Experimentation (WGNE), co-sponsored with the WMO Commission for Atmospheric Sciences, which largely focuses on improvement of atmospheric models;
- the Task Force on Regional Climate Downscaling (TFRCD), which has the aim of translating the global climate predictions into useful regional climate information.

WCRP observation activities include research on climate observations supported by the Global Climate Observing System (GCOS) and are coordinated by Panels that WCRP jointly sponsors with GCOS:

- WCRP Observation and Assimilation Panel (WOAP), responsible in addition for the development of climate system reanalyses;
- Atmospheric Observation Panel for Climate (AOPC);
- Ocean Observations Panel for Climate (OOPC), sponsored as well by the Global Ocean Observing System (GOOS);
- Terrestrial Observing Panel for Climate (TOPC), sponsored as well by the Global Terrestrial Observing System (GTOS).

WCRP Projects also identify and facilitate the gathering, processing and distribution of observations (of clouds, radiation and precipitation, for example) that are required for understanding key climate processes; these observations may ultimately form the basis for long-term climate records.

HOW WCRP WORKS



ESSENTIAL PARTNERSHIPS

Climate prediction requires observation, modelling and prediction of the whole Earth System. To address the intrinsic complexity of the Earth System, WCRP, together with the International Geosphere-Biosphere Programme (IGBP), the International Human Dimensions Programme on Global Environmental Change (IHDP) and DIVERSITAS, the international programme on biodiversity science, has established the Earth System Science Partnership.

WCRP participates in many WMO activities. It works closely with National Meteorological and Hydrological Services on the implementation of the Global Framework for Climate Services, in which it is expected to act as the main research component. Together with the WMO Atmospheric Research and Environment Programme, WCRP is developing a "seamless prediction system" to enable a wide range of weather, climate, hydrological and environmental predictions.

With IGBP, WCRP is a co-sponsor of many joint research activities, such as the Surface Ocean-Lower Atmosphere Study (SOLAS) of biogeochemical interactions between the ocean and atmosphere. Research observations are an essential element

of monitoring climate variability and change, understanding trends, and initializing models for climate prediction. WCRP's key partnership with GCOS advocates for the complete implementation of the climate observing system, with sustained support for quality-assured observations.

Scientists affiliated with WCRP produce the climate change and ozone layer projections and predictions that underpin much of the work of the Nobel Peace Prize-winning IPCC, as well as the Stratospheric Ozone Depletion Scientific Assessments carried out by WMO and the United Nations Environment Programme (UNEP). WCRP regularly informs the United Nations Framework Convention on Climate Change (UNFCCC) and its subsidiary bodies on the scientific issues related to climate change.

WCRP is a co-sponsor of the SysTem for Analysis, Research and Training (START), a programme to make the knowledge and the tools of climate predictions available to scientists from developing countries. The ultimate goal of WCRP is to foster scientific capacity in all nations of the world in order to address challenges and opportunities resulting from climate variability and change at the regional and global levels.

THE ULTIMATE GOAL OF WCRP IS TO HAVE A GLOBAL CAPACITY TO ADDRESS CHALLENGES FACING ALL NATIONS OF THE WORLD AS A RESULT OF CLIMATE VARIABILITY AND CHANGE.

The ultimate objective of WCRP is to facilitate analysis and prediction of Earth's climate system variability and change for use in an increasing range of practical applications of direct relevance, benefit and value to society. The following areas of WCRP investigation target major societal needs for climate information:

Anthropogenic Climate Change - detection, attribution and prediction of the impact of human activities on climate. These activities represent a major contribution of WCRP to UNFCCC and IPCC assessments. They enable the development of mitigation and adaptation strategies;

Atmospheric Chemistry and Climate - a joint effort with IGBP to better understand and represent in models how atmospheric composition affects and is affected by climate change, and how they both interact with atmospheric pollution;

Sea-level Rise - a multidisciplinary study involving oceanographers, glaciologists and hydrologists, aimed at reducing uncertainties in the estimates of all factors contributing to sea-level variability and change, and assessing risks of accelerated sea-level rise due to decay of the major ice sheets;

Climate Extremes - a broad initiative to study the phenomena that make society so vulnerable: the magnitude, frequency and severity of extreme climate conditions, such as droughts, floods and heatwaves;

Seasonal Predictions - based on new observations and improved models, these collective experiments of major prediction centres aim to increase the skill of predictions for seasons ahead, offering significant benefits to many sectors of the economy;

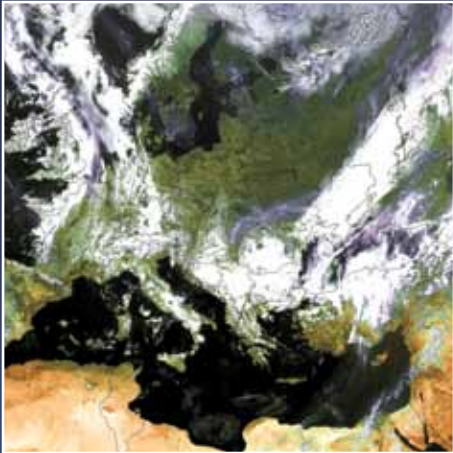
Decadal Predictability - research to assess the factors leading to predictability of climate on decadal time scales, which are critical, for instance, for the planning of infrastructure investments;

Monsoon Prediction - building on the multiple regional studies around the world, this global attempt is aimed at consolidating the knowledge of monsoon predictability, improving the prediction of the monsoon onset, breaks and overall intensity, and assessing how monsoons will change in the future.

MEETING THE INFORMATION NEEDS OF SOCIETY



WCRP IS SPONSORED BY THE WORLD METEOROLOGICAL ORGANIZATION (WMO),
THE INTERNATIONAL COUNCIL FOR SCIENCE (ICSU) AND THE INTERGOVERNMENTAL
OCEANOGRAPHIC COMMISSION (IOC) OF THE UNITED NATIONS EDUCATIONAL,
SCIENTIFIC AND CULTURAL ORGANIZATION (UNESCO).



PREDICT CLIMATE

FROM SEASONS TO CENTURIES & FROM GLOBAL TO LOCAL SCALES



GENERATE

SOCIETALLY RELEVANT CLIMATE INFORMATION

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WORLD CLIMATE RESEARCH PROGRAMME

CLIMATE SCIENCE KNOWLEDGE FOR ADAPTATION, MITIGATION AND RISK MANAGEMENT

OUR MISSION IS TO DEVELOP THE SCIENTIFIC
FOUNDATION TO:



UNDERSTAND
THE EARTH'S CLIMATE SYSTEM



OBSERVE AND ASSESS
CLIMATE VARIABILITY AND CHANGE