

WCRP Climate Science Week



The World Climate Research Programme (WCRP) looks forward to meeting you at the WCRP Climate Science Week at the American Geophysical Union (AGU) Fall Meeting from 7 – 13 December 2019 in San Francisco.

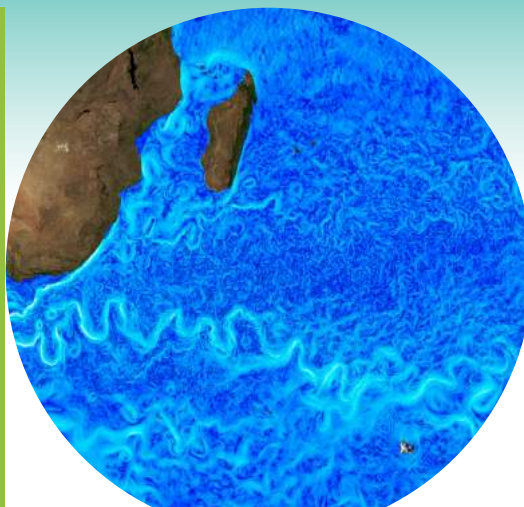


WCRP Science Sessions

The WCRP community has proposed many science sessions across the AGU program.

We look forward to an exciting science program, in both the oral and poster sessions, throughout the week.

8 – 13 December 2019



WCRP Town Halls

We invite you to four community-led town halls:

- Fundamental understanding of the climate system
- Near-term prediction of the climate system
- Long-term response of the climate system
- Bridging climate science and society

9 – 12 December 2019



WCRP 40th Anniversary Symposium

We invite you to celebrate 40 years of WCRP climate science with us.

This full-day symposium will include talks from key figures in climate science and will officially launch a new phase of WCRP.

8 December 2019



WCRP-AGU Early Career Workshop

Water Cycle in a 1.5° Warmer World: Interdisciplinary Approaches

Early career scientists from across the WCRP community will formulate an early career perspective on the water cycle and governance under climate change.

7 December 2019



WCRP Union Session

To end the WCRP Climate Science Week we invite you to our Union session:

Climate Research for the 21st Century: from Challenges and Opportunities to Implementation

Join us for an engaging discussion on the future of climate science.

13 December 2019

Image credits: NASA, 2014 (top), NASA, Frede Lamo (left), WCRP Sea Level Conference 2017 (right), CLIVAR Summer Course on Sea Level Change 2018 (bottom)

WCRP Exhibition Booth

Find out more about WCRP and meet our experts
Exhibition booth **223**

9 – 12 December 2019

#WCRP40

For more information please see:

www.wcrp-climate.org/wcrp-agu2019

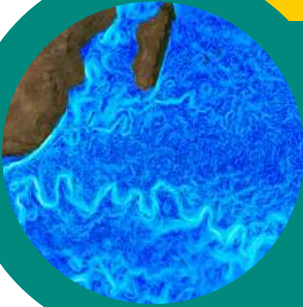




WCRP 40th Anniversary Symposium

Sunday, 8 December 2019

WCRP is celebrating its 40th year of international climate science. We invite you to join us for a Symposium, which will showcase the many successes of our community over the last four decades and highlight some of the challenges and opportunities that climate science faces now and will face in the future. WCRP is entering a new phase of development to ensure that it is prepared for this future, recently launching its Strategic Plan 2019-2028. This Symposium will launch a series of sessions and events that will bring this future focus together in a “Climate Science Week”, a joint effort between WCRP and AGU’s 100th Anniversary Symposium (Image credit: WMO).



WCRP Union Session: Climate Research for The 21st Century: from Challenges and Opportunities to Implementation

Friday, 13 December 2019

Since its inception 40 years ago, the World Climate Research Programme (WCRP) has played a unique role in facilitating the analysis and prediction of the Earth system variability and change with its mission to determine to what extent climate can be predicted and the extent of human influence on climate. Climate science has evolved substantially since then, through advances in fundamental science and innovation in observations and simulations. Everything from satellites to supercomputers have revolutionized our understanding and prediction of the climate with ever-increasing skill. Climate science now engages many different disciplines towards an integrated Earth system approach.

Acting as the recognized international voice for climate science, WCRP is seeking wide community engagement to implement its WCRP Strategic Plan and to play its advocacy and convening role, interacting with partner programmes, research funders and governments to maintain a vibrant research portfolio, to enthuse the next generation of science leaders and to ensure that society has access to the best possible science.



WCRP/AGU Early Career Workshop: Water Cycle in a 1.5° Warmer World: Interdisciplinary Approaches

Saturday, 7 December 2019

The objective of this 4-hour workshop is to bring together students and early career researchers to discuss a joint perspective on the water cycle and governance under climate change, from fundamental processes to societal impacts. Special emphasis will be put on proposing an early career roadmap to address the future of research on water issues in an interdisciplinary manner. The workshop will further serve to identify research topics in which early career researchers could develop their career paths.

This workshop is jointly organized by the Young Earth System Scientists community (YESS), the Young Hydrologic Society (YHS) and the Association of Polar Early Career Scientists (APECS).

Image credits: WMO/ICSU JSC, 1985 (top), NASA, 2014 (middle), CLIVAR Summer Course on Sea Level Change 2018 (bottom)

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WCRP 40
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WCRP Science Sessions

8 — 13 December 2019

WCRP co-branded science sessions will occur throughout the AGU Fall Meeting program. As soon as the program is confirmed, a full list will be available on the WCRP website.

Want to co-brand your accepted session? Please email us as wcrp@wmo.int

WCRP Town Halls

9 — 12 December 2019

There are four WCRP town halls planned during the AGU Fall Meeting. These are:

1. Advancing our Collective Understanding of the Integrated Climate System, including its Variability, Change, Dynamics, Reservoirs and Flows

WCRP invites you to discuss progress and new challenges in understanding climate variability and change, as part of a coupled physical, biogeochemical, and socio-economic system. We will discuss ways in which we envision improving our understanding of the drivers and interactions that lead to global and regional changes in climate dynamics, in particular oceanic and atmospheric circulations. The profound nonlinearities of these systems continue to present critical emerging questions at a range of scales from local and regional weather to global modes of climate variability.

The mechanisms responsible for radiative, hydrologic, cryospheric and biogeochemical changes determine our ability to quantify the reservoirs and flows of energy, water, carbon, and other climate-relevant compounds. We will discuss how to advance this quantification, within and between the sub-systems of the climate system, as an important check on our evolving understanding of fundamental processes.

2. Improving Skill and Reducing Uncertainties in the Prediction of Climate Systems Operating on Timescales of Months to Decades

WCRP invites you to discuss the latest progress and new challenges in prediction capabilities and research-operation linkages with a specific focus on extremes within a changing climate. Climate variability will continue to challenge our resilience and preparedness to high impact weather and climate extremes in the near term, and accurate climate prediction offers significant opportunities to manage these risks.

In this Town Hall we will discuss the requirements for accurate climate prediction, including the ability to quantify uncertainties, limits of predictability, capacities of operational prediction systems and needed advances in the foundational mathematics of climate predictability. We will discuss the processes responsible for the existence of regional climate hotspots, as well as the potential for crossing thresholds and anticipating events not yet on record. The ways in which the non-stationarity of the Earth system interacts with “fast” (such as hurricanes) and “slow” (such as droughts) extremes will also be explored.

Image credits: NASA, Frede Lamo (top), WCRP Sea Level Conference 2017 (bottom)

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WCRP Town Halls (continued)

9 – 12 December 2019

3. **Determining the Future Evolution of the Climate System, through the Quantification of Responses, Feedbacks, Emergent Constraints and Uncertainties that are Intrinsic to a Changing Climate System on Long Timescales**

WCRP invites you to discuss the latest progress and new challenges in simulation capabilities in order to assess the response of the climate system to natural and anthropogenic forcings, feedback mechanisms and emergent constraints across Earth System component on multidecadal time scales.

In this Town Hall we will discuss the requirements of future climate projections, including the limits of prediction and associated uncertainties. We will discuss non-linear processes and internal variability, and the system sensitivities to imposed forcing, such as fossil-fuel emissions, land use change, volcanic eruptions, and solar variability, which can inform climate change projections and scenarios. We will also discuss developing ideas on emergent constraints and how to reduce uncertainty in model projections and climate sensitivity. Particular questions arise in relation to how to make a detailed representation of complex interactions between aquifers, vegetation and soil carbon, or between permafrost, glaciers, and ice-sheets as well as human activities influencing the climate system. To advance support of climate services for adaptation, the use of dynamical and statistical downscaling tools to better represent regional and extreme phenomena will be explored.

4. **Bridging Science and Society to Ensure the Timely Delivery of Decision-relevant Information and Knowledge about the Evolving Climate System.**

WCRP invites you to review progress and discuss emerging challenges in climate-society interactions and in generating decision-relevant climate information and knowledge in support of policy and services. Climate information presents tremendous opportunities to collaborate with civil society, governments and private industry to safeguard lives and valued assets. Socio-economic processes have intrinsic roles in the Earth System, and human communities and institutions cannot be separated in any meaningful way from the physical, chemical and biological systems that support them. Fundamental aspects of emergent behaviors can be incorporated into a comprehensive understanding of the coupled Earth system. In this Town Hall we will discuss the technical capabilities that can allow socio-economic processes to be incorporated into integrated assessment models, which can in turn support broader climate scenario simulations.

Climate science is generating a wealth of data which requires distillation from multi records and model simulations into information and knowledge. The transfer of uncertainties along the generation process is very complex but a necessary condition to make informed decisions and manage risk. This Town Hall will discuss the innovative techniques, such as data mining and machine learning, that are required to sort through this vast amount of information, reconcile and explain various outcomes and extract useful knowledge. We will explore the pathways to obtaining actionable climate information, accurate scientific assessments and public communication strategies, all of which require collaborative efforts with multi-sectoral actors in all regions of the globe.

Image credit: CLIVAR Open Science Conference, 2016

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