



WORLD CLIMATE RESEARCH PROGRAMME OPEN SCIENCE CONFERENCE

23 - 27 OCT. 2023 | RWANDA















PROGRAM CONTENTS

Day 1: Monday 23 October	1
Day 2: Tuesday 24 October	6
Day 3: Wednesday 25 October	12
Day 4: Thursday 26 October	17
Day 5: Friday 27 October	22
EMCR Symposium Program	2
Side events scheduled outsite the five OSC core days	25

Day 1: Monday 23 October

Time	Session	Room	Description	
8:30 - 10:00	Plenary in the Dome	DOME	Opening of the Conference Chairs: Detlef Stammer and Helen Cleugh (Conference Chairs) Welcoming and Opening Remarks Helen Cleugh (Co-Chair of SOC): Welcome to the Open Science Conference from WCRP Rwanda Host: Welcoming remarks Amina Mohammed (TBC) (Deputy Secretary-General of the United Nations and Chair of the United Nations Sustainable Development Group): Opening Remarks Detlef Stammer (WCRP Chair): Climate change: A Challenge for the World The Urgent Need for Climate Action Macharia Kamau (CBS, Principal Secretary in the Ministry of Foreign Affairs, Kenya): Sustainable development goals perspective Lina Yassin (International Institute for Environment and Development): Title to be confirmed Guy Brasseur (Former WCRP Chair): Future of Climate Science WCRP Open Science Conference Overview - Conference Chairs	
10:00 - 10:30	Break		Tea and coffee break	
10:30 - 12:30	5 Parallel Sessions	DOME	 S15: Water cycle Convenors: Moussa Diakhaté, Jan Polcher, Dewi Kirono, Marie-Amélie Boucher Hervé Douville (Keynote) - Remotely: Water remains a blind spot in climate change policies Sujay Kumar (Keynote): Two decades of global water cycle variability – non-stationarity assessed by land remote sensing synthesis Julie Collignan - Method to identify and quantify the effect of climatic and non-climatic drivers on river discharge in Europe Isla Simpson: A global discrepancy between models and observations in atmospheric humidity trends over arid and semi-arid regions Morgane Lalonde: Is the urban effect on precipitation significant? Xinyang Fan: Groundwater depletion in Australia due to climate change Ansoumana Bodian: Contribution of satellite data for the knowledge of water resources in West Africa Dionisio Pérez-Blanco: Socio-ecological ensemble forecasting. Insightful results from complex human-water system 	

i i
her climate
es
events
Africa: the case
ential role of
on of the mean
an
Climate
on
and knowledge
es
changes to
outh
s of extreme

		MH4	 S39: Institutions and frameworks Convenors: Judith Mulwa, Christopher Hewitt, Carlo Buontempo and Madeleine Thomson Birgit Hassler: Climate Model Benchmarking for CMIP7 – a CMIP task team Ardhasena Sopaheluwakan: Progress and challenges of climate services implementation in Indonesia François Engelbrecht: The WMO Integrated Processing and Prediction System (WIPPS): towards seamless access to Earth System Predictions Sarah Octenjak: Co-production of a climate service roadmap for smallholder farming communities: a case study of Urok islands in Guinea-Bissau Jose Manuel Gutierrez: The IPCC AR6 Interactive Atlas and its evolution towards Copernicus Roger Pulwarty: The Climate Services Information System – Empowering a climate-smart World Nicola Golding: Developing National Frameworks for Climate Services (NFCSs): requirements, experiences and challenges from across Europe and beyond Gerlad Guala: Open Science for Climate at NASA
12:30 - 14:00	Lunch session Townhalls, Learning Labs, Workshops		TH02: Global Precipitation Experiment (GPEX): What is it and How to get involved TH09: Community discussion on balancing data-intensive and other foundational climate research activities WM03: Smart sensors for agri-food and environmental monitoring systems WM04: CGIAR ClimBeR Early Warning Early Action Early Finance (AWARE) Platform initiative CM01: From models to impact – the climate information cascade GA01: Journey of a Kigali Pixel - Game (Part 1)
14:00 - 16:00	5 Parallel Sessions	DOME	 S22: Impacts on human health and urban systems Convenors: Kristie Ebi, Sari Kovats and Negin Nazarian Brama Kone (Keynote): Health risks of climate change in the WHO AFRO region - what are our research priorities? Fei Chen (Keynote): Coordinated research on extreme precipitation in multiple urban systems Rosa von Borries & Joy Shumake: Climate Services for Health Protection: Global Status and Opportunities Eniola Olaniyan: Predicting Malaria Hyper Endemic zones in West Africa Using a Regional Scale Dynamical Malaria Model Malebo Makunyane - Remotely: Effect modification of the association between temperature variability and hospital admissions by season and weather types in Cape Town, South Africa Lisa van Aardenne: Exploring the synoptic circulation characteristics and evolution associated with heat waves and the associated high human thermal stress in two African cities Solomon Tesfamariam: Spatio-temporal analysis of urban heat Island (UHI) and its effect on urban ecology: The case of Mekelle city, Northern Ethiopia. Genito Maure: Testing predictability of malaria outbreaks in Mozambique with Machine Learning
		MH1	 S14: Global energy budget Convenors: Sonia Seneviratne and Graeme Stephens Piers Forster (Keynote): Effective radiative forcing on climate, building from the IPCC AR6 Assessment Maria Z. Hakuba (Keynote): Title to be confirmed Benoit Meyssignac: Trends, variability and uncertainty in Earth's Energy Imbalance over the last two decades Karina von Schuckmann: Heat stored in the Earth system 1960-2020: Where does the energy go?

	 Sandrine Bony: Impact of the mesoscale organization of deep convection on the Earth's Radiation Budget: Observations and Global Cloud Resolving Model Simulations Ryan Kramer - Remotely: Using observations of radiative forcing to interpret climate trends Shiv Priyam Raghuraman - Remotely: Understanding observed changes in cloud radiative effect using climate and radiation models Panel discussion: Helen Bridley and Peter Pilewskie
MH2	 S02: Climate predictability and prediction Convenors: Willem Landman, June-Yi Lee, Marisol Osman and Noel Keenlyside Debra Hudson (Keynote) - Remotely: S2S research, applications and future challenges: An Australian perspective Doug Smith (Keynote): Seasonal to decadal prediction: some challenges and opportunities Magdalena Balmaseda: Seasonal forecasting in a changing climate: Where are we heading? Chenghai Wang: Improving seasonal-scale climate prediction by using cold land surface information Grant Smith: Sea level prediction to prepare for the months ahead – a small island perspective Luciano Andrian - Remotely: Impacts of the IOD and its combined action with the ENSO on the springtime climate in South America Patience Mulovhedzi: Advances in model development at the South African Weather Service Adnan Abid: Predictability of Indian Ocean precipitation and its North Atlantic teleconnections during early winter
MH3	 S37: Regional attribution Convenors: Kamoru Abiodun Lawal, Amadou T. Gaye and Rupert Stuart-Smith André Kamga Foamouhoue (Keynote): State of climate for Africa: Precipitation and temperature related extremes and trends Sihan Li (Keynote) - Remotely: Attribution of climate extremes and climate impact drivers: A regional perspective Paul-Arthur Monerie: A zonal contrast in future changes in Sahel precipitation Gabi Hegerl (Keynote): Informing climate risk using the historical record and regional attribution results Daithi Stone: The social psychological attribution of event attribution Douglas Maraun: Challenges in using event storylines for impact attribution. The example of a severe landslide event in Austria Oluwatosin Akintomide: Assessing Climate Change Detection Indices of Precipitation Over the Nigerian Sahel Ismaila Diallo: Diagnosis of Drivers and physical processes of extreme wet and dry events over West Africa using RegCM4 multi-model ensemble Pandora Hope: Adding context – attribution information for climate services
MH4	 S34: Climate services: effectiveness and evaluation <u>Convenors:</u> Andrew Robertson, Anna Steynor and Geneva List Emma Visman (Keynote): Whose values count? The power of principled metrics in shaping investments in climate resilience Brian Chiputwa (Keynote): A Mixed-methods approaches for evaluating the effectiveness of weather and climate information Alexia Kioko: Sectoral impact assessment of seasonal rainfall forecast over Greater Horn of Africa Peter Johnston: Seasonal forecasts may not always be skilful, but they can be useful - an agricultural perspective

		 Muhammad Abdur Rahaman: Capturing effectiveness of climate information services and sustainable community-based early actions for climate resilience and disaster risk reduction in Bangladesh: An analysis from flood-prone areas Francisco Doblas-Reyes: Climateurope2: Supporting and standardising climate services in Europe and beyond Meshel Muzuva: Assessing the effectiveness and evaluation of climate services in banks
16:00 - 18:00	Posters & Refreshments	Live poster session at KCC
16:30-17:30	Sponsors Platform	Jack A. Kaye (NASA HQ Earth Science Division): How Space-Based Observations Advance our Knowledge of a Changing Earth and Inform Action
18:00 - 18:45	Plenary in the Dome Evening dialogue	The needs of, and opportunities for the Global South Chair: Juliet Kabera (Director General, Rwanda Environmental Management Authority) Barend Erasmus (Dean of the University of Pretoria's Faculty of Natural/Agricultural Sciences) Carlos Nobre (Senior researcher, Institute of Advanced Studies, University of Sao Paulo, Brazil)
From 18:45	Free time	Dining, networking, socializing
20:00 - 22:00	Evening Session Townhalls, Learning Labs, Workshops	LL02: Open Earth System Science in Cloud (starts at 19:00) LL03: Journey of a Kigali Pixel – Masterclass LL04: CMIP and CORDEX analysis and evaluation tools TH03: Early-mid career perspectives on South-North inequalities: fair collaborative research as a way of reducing them TH04: Schmidt Futures Virtual Earth Systems Research Institute Short talk Series WM05: Open Science and Peer Review- Towards a Stronger Evidence Base

Day 2: Tuesday 24 October

Time	Session	Room	Description
8:30 - 10:00	Plenary in the Dome	DOME	 Human Interactions with Climate - Climate Change and Society Chair: Heide Hackman (Director of Future Africa and Strategic, University of Pretoria, South Africa) Tasneem Essop (Executive Director, Climate Action Network) - Remotely: How to deal with climate extremes, especially in terms of inequality and climate injustice Saleemul Huq (Director International Centre for Climate Change and Development, Independent University Bangladesh) - Remotely: Attribution of climate change, especially in the Global South and in support of Loss and Damage Keynote speaker and title to be confirmed Panel discussion: Human Interactions with Climate - a dialogue covering behavioral, social, economic and political dimensions Moderator: Mercedes Bustamante (Professor, University of Brasilia, Brazil) Panelists Laurice Jamero (Resilience Collaboratory, Manila Observatory and Asia Foundation Development Fellow) Anna Stewart Ibarra (Executive Director, Inter-American Institute for Global Change Research (IAI)) Ousmane Ndiaye (National Agency for Civil Aviation and Meteorology - ANACIM, Senegal)
10:00 - 10:30	Break		Tea and coffee break
10:30 - 12:30	5 Parallel Sessions	DOME	 S06: Rapid and/or irreversible changes in the climate system Convenors: Thomas Stocker, Katrin Meissner and Krishna Achuta Rao Soon-II An (Keynote): Hysteresis and irreversibility in a climate system Anastasia Romanou (Keynote): The role of internal variability and feedbacks controlling AMOC stability Niklas Boers (Keynote): Title to be confirmed Katinka Bellomo: Influence of the Atlantic Meridional Overturning Circulation on future climate change impacts Chao Li: The stability of Atlantic Meridional Overturning Circulation and its impact on climate reversibility in a future warm climate

Time	Session	Room	Description
			 Selma Bultan: Disentangling the contribution of environmental stress and land-use to abrupt Amazon rainforest dieback events Reyk Börner: Predicting most probable transition paths of the Atlantic Meridional Overturning Circulation Frank Kwasniok - Remotely: Data-driven anticipation and prediction of Atlantic Meridional Overturning Circulation collapse using non-stationary spatiotemporal dynamical modelling
		MH1	S13: Carbon cycle Convenors: Galen McKinley, Pedro Monteiro and Ana Bastos ■ Josep Canadell (Keynote): What have we learned about the carbon cycle in the past 10 years? ■ Kirsten Zickfeld (Keynote): Investigating the carbon cycle response in low emissions scenarios ■ Junjie Liu (Keynote): Detecting the impact of extreme climate events on terrestrial biosphere carbon cycle from space ■ Precious Mongwe (Keynote): Regime change in the mechanism of CO₂ uptake in the Southern Ocean under high emission scenario ■ Pierre Friedlingstein: The CO₂ fertilization strength and the ecosystem turnover time are the key controls of the magnitude of the global land carbon sink. ■ Liudmila Mukhortova: Permafrost effect on soil organic carbon in boreal forests of Central Siberia ■ Yiqi Luo: Efficacy of terrestrial carbon dioxide removal from the atmosphere ■ Lydia Keppler: Mapped Observation-Based Oceanic Dissolved Inorganic Carbon (MOBO-DIC): Recent trends and variability ■ Damien Couespel: Re-emergence of anthropogenic carbon from the ocean ■ Matt Long: Quantifying marine carbon dioxide removal
		MH2	 S40: Lessons from failures <u>Convenor</u>: Bruce Hewitson Bruce Hewitson (Keynote): F(r)iction and Friendship: partnerships in Africa between the global north and south Oratilwe Khoza (Keynote): International best practices for climate risk resilience in African developing countries Ryan O'Loughlin: The value of error and failure in climate modeling: a philosophical perspective Maria Inez Angela Z. Ponce De Leon: The disconnect between plans and practice: case studies in risk communication for extreme rainfall and flooding events Gilbert Siame: Avoiding maladaptation in cities by bridging climate science and mundane urban climate risk drivers in Africa
		МНЗ	S21: Impacts on food security and water availability Convenors: Chris Lennard, Elisabeth Vogel and Addisu Semie Chris Funk (Keynote): Title to be confirmed Arame Tall (Keynote): Title to be confirmed Alexander Ruane (Keynote): Non-linear climate change impacts on crop yields may misinform stakeholders

Time	Session	Room	Description
			 Jonas Jaegermeyr: Climate change impacts on global crop productivity and its nutritional value Katharina Waha: Climate variability, droughts, and temporal yield stability in Ethiopia. Liz Mung'atia: The triple nexus of climate, food and water Sunil Bista: Appraising the impact of climate change on irrigation water requirement, ground water recharge and crop yield in the rainfed river basin
		МН4	 S11: Advances in global and regional climate modelling Convenors: Bjorn Stevens, Ruby Leung and Tianjun Zhou François Engelbrecht (Keynote): An African-based Earth System model: verification of land-atmosphere fluxes Veronika Eyring (Keynote): Improving Earth System Model Parametrizations with Machine Learning Nicolas Gruber (Keynote): Toward a Python-based computing and data platform for kilometer-scale weather and climate modeling Laura Zanna: Climate Modeling with Machine Learning: Hype or Reality? Silvina Solman: On the ability of convection permitting models to capture the urban-rural contrasts over selected cities in South America Amrapalli Garanaik: Improving ocean turbulence in climate models: A new scheme for upper-ocean vertical mixing Steven Sherwood: A pre-training strategy to advance model parameterization via machine learning Christopher Lennard: Regional climate modelling in developing nations - can we look to the clouds?
	Lunch session		TH12: Climate change science and research in Rwanda
	Lunch Session		TH06: Addressing barriers to a diverse and inclusive climate modelling community
12:30 - 14:00	Townhalls, Learning Labs, Workshops		TH11: Celebrating an Earth Systems Science Pioneer – Professor Will Steffen. A session to honour Will's scientific and broader legacy to Earth System Science
	Lubs, Workshops		WM07: New economic appraisal methods for decision-making on climate and environmental policies
14:00 - 16:00	5 Parallel Sessions	DOME	 S12: Advances in climate observations and model-data fusion Convenors: Toste Tanua, Magdalena Balmaseda and Juan Ruiz Galen McKinley (Keynote): Constraining historical ocean carbon uptake with models, machine learning and data Lars Peter Riishojgaard (Keynote): Internationally coordinated, top-down global greenhouse gas monitoring Sylvia Ampadu: Investigating the Interaction between Tropical Convection and Atmospheric Gravity Waves over West Africa. Nabir Mamnun: Learning from spatiotemporal varying biogeochemical parameter estimation Jerry Tjiputra: Optimized future observing network to detect early oceanic changes as inferred from models Toste Tanhua: Ocean Observing needs for climate Reagan Okoth: Estimating soil temperature with high-resolution synthetic images: a remote sensing data fusion approach Andrea Steiner: Monitoring atmospheric climate change - Advances with GNSS radio occultation

Time	Session	Room	Description
			 Tomas Lugaro: A Comparative Analysis of Satellite Wind Data and Observations from Argentina's Station Network
		MH1	 S17: Climate feedbacks and climate sensitivity Convenors: Sandrine Bony, Steven Sherwood and Masahiro Watanabe Nadir Jeevanjee (Keynote): Recent advances in understanding the longwave clear-sky feedback Adrian Tompkins (Keynote): Convective aggregation and climate Trude Storelvmo (Keynote): Title to be confirmed Brett McKim: Constraining the tropical anvil cloud area feedback Chen Zhou - Remotely: Explaining forcing efficacy with pattern effect and state dependence Cecile Hannay: Evaluating the robustness of equilibrium climate sensitivity estimates to ocean heat fluxes in the CESM Slab Ocean Model Kalli Furtado: The relationship between the present-day seasonal cycle and projected cloud feedback in a climate-model ensemble
		MH2	 S38: Connecting regional impacts and climate information Convenors: Franck Eitel Ghomsi, Yong Luo and Ángel G. Muñoz Janet Sprintall (Keynote): COVID Impacts Cause Critical Gaps in the Indian Ocean Observing System Paska Ajok: The impact of the 2020-2021 rising water levels in Uganda's major lakes and lesson learnt, A case study of Lake Kyoga and Albert. Tidiani Sanogo: Drought impacts on pastoral resources and agro-pastoral communities' responses strategies in the District of Bougouni, southwest of Mali, West Africa Abul Kalam Azad: Differentiated impacts of climate change-triggered events on social inequality and equity in Bangladesh: a case of Sunamganj communities Prakash C. Tiwari: Regional transboundary river basin climate information system in Himalaya for water, food and energy sustainability in South Asia under climate change Melissa Ouya: Enhancing climate information uptake at the community level through participatory scenario planning Matthias Trapp: LoWaPIS Rwanda: Localised Weather and Pest Information System for Late Blight Disease by using different scalable technologies in selected areas of Rwanda Salma Tabassum & Fahim Asikullah: The Consequences of climate change on the agricultural revenue of indigenous people: A Focus on the adverse effects of teak plantation on soil Olivier Crespo: Constructing and assessing southern and southeast Asian drought triggers for Anticipatory Action Ángel G. Muñoz: Enabling ecosystems of climate services to increase resilience: Examples in Central America

Time	Session	Room	Description
Time		MH3	 S19: Land use and land cover change Convenors: Julia Pongratz, Anna Ukkola and David Lawrence Wim Thiery (Keynote): Anthropizing CESM's terrestrial water cycle Garik Gutman: The land-cover/land-use component in developing an Earth System Digital Twin Addisu Damtew: Spatial statistical modeling of most systematic land use land cover transitions: Drivers and livelihood implications in Awash Basin, Ethiopia Kadio Angaman: Economic impacts of land degradation: Evidence from Cote D'Ivoire Priskilla Heita: Geospatial modelling and monitoring of land use land cover change for human unplanned settlements in Windhoek Namibia from 1990 to 2018 Lucia Cappelletti: Shallow water table in agricultural plains under rapid land use change: can land surface models capture their dynamics? Clemens Schwingshackl - Remotely: Key drivers for uncertainties of CO2 fluxes from land use and land-use change Petronille Dusingizimana: Agronomic and economic performance of conservation agriculture practices in maize production in Rwanda Irina Melnikova: How do afforestation and BECCS differ in their impacts on the land carbon cycle and surface climate? Shruti Nath: TIMBER v0.1: emulating the biogeophysical climate responses to tree cover changes Ashish Mishra: Land use land cover changes and its implications on extreme heat analysis in Kampala City, Uganda, using multi-spectral satellite data
		МН4	 South Storms, eddies and jets in the atmosphere and ocean Convenors: Thando Ndarana, Tiffany Shaw and Marcia Zilli Sukyoung Lee (Keynote) - Remotely: The role of eddies and jets in shaping the climate Amanda Maycock (Keynote): Feature-based analysis of the North Atlantic eddy-driven jet stream Thando Ndarana (Keynote): The dynamics of different types of Rossby wave breaking in the South African domain Natalia Tilinina: Explosive extratropical cyclones impact on the ocean mixed layer in high resolution ocean model experiments Andrea Marcheggiani - Remotely: Diabatic effects on the evolution of stormtracks Tsholanang Rammopo: Investigating characteristics of finite amplitude Rossby wave packets maturing over the southern African domain Yohai Kaspi: The role of baroclinic activity in controlling Earth's albedo in the present and future climates
16:00 - 18:00	Posters & Refreshments		Live poster session at KCC
16:30-17:30	Sponsors Platform		 B. Sultan (Institut de Recherche pour le Développement): A web portal dedicated to climate change impact studies in the Global South

Time	Session	Room	Description
18:00 - 18:45	Plenary in the Dome Evening Dialogue		Perspectives of Transformational Challenges – Examples from the Global South Chair: Maria Ivanova (Director of the School of Public Policy and urban Affairs; Professor of Public Policy) • Sibi Lawson-Marriott (Senior Regional Adviser, World Food Programme Bureau for East and Central Africa) • Grace Fu (Minister for Environment, Singapore) (TBC)
From 18:45	Free time		Dining, networking, socializing
			LL05: Hands-on Introduction on running the Community Earth System Model (CESM) (starts at 19:00)
			LL07: How to use Landsat 8 and ArcGIS Pro for analyzing Earth's climate system
	Evening Session		TH04: Schmidt Futures Virtual Earth Systems Research Institute Short talk Series
20:00 - 22:00	Townhalls, Learning Labs, Workshops		TH07: CORDEX Africa
			WM08: Early Career Researchers Network of Networks Workshop on Multidisciplinary Approaches to Climate Change Mitigation
			Early and Mid-Career Researchers (EMCR) table topics (by invitation only)

Day 3: Wednesday 25 October

Time	Session	Room	Description
8:30 - 10:00	Plenary in the Dome	DOME	 Climate and the Earth System – Advances in Climate Research Chair: Guy Brasseur (Former WCRP Chair) Valérie Masson-Delmotte (Co-Chair IPCC Working Group I): A new agenda for climate research Jim Hurrell (WCRP JSC and Co-Lead of WCRP Task Team on Climate Intervention): Risks and impacts of climate intervention Panel discussion: Future of Climate Knowledge Assessment Moderator: Thomas Stocker (Professor of Climate and Environmental Physics, Physics Institute, University of Bern, Switzerland) Panelists: Panmao Zhai (Co-Chair IPCC Working Group I) Mark Howden (Vice-Chair IPCC Working Group III) Diana Ürge-Vorsatz (Vice-Chair IPCC Working Group III)
10:00 - 10:30	Break		Tea and coffee break
10:30 - 12:30	DOM	DOME	 S26: Mitigation scenarios including overshoot and climate intervention Convenors: Ines Camilloni, Romaric C. Odoulami and Peter Irvine Glen Peters (Keynote) -Remotely: The potential and limits of carbon dioxide removal for climate mitigation Peter Lawrence (Keynote): Developing an Earth System framework integrating Climate Interventions (CDR and SRM) in CESM baseline, mitigation and adaptation scenarios, with fully resolved carbon cycle and stratosphere David Lawrence: Mitigation through bioenergy expansion versus reforestation yields divergent terrestrial carbon storage and regional climate responses Yiannis Moustakis: Earth System impacts of the deployment of large-scale land- and ocean-based carbon dioxide removal portfolios Alice Wells: Identifying climate impacts under different stratospheric aerosol injection strategies Thierry Fotso-Nguemo: Potential impact of solar radiation management geoengineering on water deficit risk over major central african river basins
		MH1	 S16: Ice sheets and sea level change Convenors: William Lipscomb, Petra Langebroek and Natalya Gomez Beata Csatho (Keynote): Ice sheet mass change and processes from satellite remote sensing and numerical modeling

Time	Session	Room	Description
			 Ted Scambos (Keynote): Thwaites Glacier and 'doomsday' I: The nature of the threat, the history, and recent research results Leilani Henry (Keynote): Thwaites Glacier and 'doomsday' II: New field and ship-based field results of ITGC, and the social challenges of remote teams in Antarctica Donatus Angnuureng (Keynote): Coastal erosion management linked to climate change in West Africa Lilly Thomas: Observing supraglacial lakes using deep learning and PlanetScope imagery Amila Ratnayake: Stratigraphic evidence for glacial-interglacial sea-level changes in the Indian Ocean Franck Ghomsi: Contribution of altimetry to the Gulf of Guinea climate resilience due to last-decade sea-level anomaly scenarios Elisabeth Holland: Signposts for a climate safe landing: Bringing science into practice Tim Naish: The uncertain future of Antarctica's melting ice: A new research initiative
		MH2	 S35: Mind the gap - value of GCMs/ESMs in actionable climate information contexts Convenors: Piotr Wolski, Monica Morrison and Abu Syed Ted Shepherd (Keynote): Climate storylines as a way of bridging the gap between model simulations and decision-relevant regional climate information Daithi Stone (Keynote): Life beyond Planet CMIP Monica Morrison (Keynote): Title to be confirmed Christopher Jack: Mind the step: Climate data as a barrier to effective decision making Mohamed Issa Awal: Investment in agricultural resilience using Decision Making Under Deep Uncertainties Annarita Mariotti: Envisioning U.S. Climate Predictions and Projections to Meet New Challenges Leonardo Clarke: Title to be confirmed
		МН3	 S18: Current and future forcing, including aerosols and scenarios Convenors: Roland Séférian and Chris Smith Piers Forster (Keynote): The importance of annual updates to the IPCC assessment of radiative forcing and other indicators Sophie Szopa (Keynote): Effects of SLCFs on climate: lessons learned from the IPCC AR6 and perspectives Bjørn H. Samset (Keynote): Climate responses to regional aerosol emissions: First results from RAMIP Brian Soden: State-dependence of CO₂ forcing and its implications for climate Sensitivity Marianne Tronstad Lund: Impact of differences in recent emission inventories on diagnosed regional and global aerosol trends and radiative forcing 1990-2019 William Collins: Past and future climate forcing from ozone depleting substances Shradda Dhungel: The role of rapid methane mitigation in reducing future extreme weather events
		MH4	 S03: Global and regional monsoons Convenors: Andy Turner, Tereza Cavazos, Suryachandra Rao Anguluri and Paola Andrea Arias Gomez Alice Grimm (Keynote): Major issues and challenges for the American monsoons Rondrotiana Barimalala (Keynote): Major issues and challenges for the African monsoons Roxy Mathew Koll (Keynote): Major issues and challenges for the Asian-Australian monsoons Ibrahim Laoouali: How well does MPAS simulate the West African monsoon system

Time	Session	Room	Description
			 Pascale Braconnot: Monsoon trend and multi-scale variability changes over the last 6000 years Nirupam Karmakar: Performance assessment of a multi-physics multi-model ensemble strategy in simulating northward propagation of the Indian summer monsoon rainfall Chao He: Zonal asymmetric response of northern hemispheric monsoon to global warming
			TH10: Managing climate overshoot in Africa
			TH13: A web portal dedicated to climate change impact studies in the Global South
12:30 - 14:00	Lunch session Townhalls, Learning		WM09: Climate Science Information for Climate Adaptation
12.30 - 14.00	Labs, Workshops		WM10: WCRP Academy – Building a community of climate researchers
			CM02: Strengthening the observational-modelling interface to meet emerging scientific needs critical to our understanding of climate change
		DOME	 S27: Hazards and Extreme events Convenors: Tim Raupach, Jana Sillmann, Shampa and Olivia Martius A.K.M. Saiful Islam (Keynote): Climatic impact-driver (CID) Framework for Regional Impact and Risk Assessment Gabri Hegerl (Keynote): Changes in climate extremes: Achievements and challenges Sally Potter (Keynote): Co-production of impact-based forecasts and warnings for high impact weather in a changing climate Roxy Matthew Koll: Marine Heatwaves, Tropical Cyclones, and Terrestrial Heat Waves Cascading in a Changing Climate Mighel Angel Lovino - Remotely: Flash droughts are becoming more frequent in croplands worldwide Tshimangadzo Rasifudi: Analysis of hydro-meteorological drought using drought indices and the SWAT model in the Vaal River Catchment-South Africa Mary-Jane Bopape: Weather Related Disasters in South Africa from 1979 to 2022
14:00 - 16:00	5 Parallel Sessions	MH1	 S20: Impacts on land and marine ecosystems Convenors: Daouda Kone and Gensuo Jia Robert Marchant (Keynote): Future solutions for addressing impacts of a changing climate on biodiversity, ecosystem functioning and life on earth Brice Augustin Sinsin (Keynote): Cattle herds movements affected by scattered land use patterns in the Sahel cause massive transhumance southward causing overgrazing impacts and social conflicts in West Africa Robert Eagle: The role of biological pH regulation in determining responses of organisms to ocean acidification and warming Gayathra Charuka Bandara Aledniyagoda Gedara: Impact of climate change on behaviour of marine mammals Gensuo Jia: Urban food-energy-water nexus under climate change and extremes Chantal Hari - Remotely: Combining future projections of land-use and climate change to assess their impact on biodiversity Aditi Modi: Impacts of climate change on marine primary productivity in the Tropical Indian Ocean: Evidence from satellite observations and Earth System models

Time	Session	Room	Description
		MH2	 S36: Observations for decisions Convenors: Martin Visbeck and Abdou Ali Cra Ed Hawkins (Keynote): Rainfall Rescue: extending instrumental UK rainfall reconstructions Matthew Saunders (Keynote): Designing a pan-African climate observation system to deliver societal benefit through climate action: The KADI project Collins Gameli Hodoli (Keynote): Exploring the robustness of air sensors for understanding the impacts of location-specific agricultural practices on local air quality Thomas Bornman: Development of a pilot Coastal GHG Observing System in southern Africa James Thornton: Quantifying in situ climatological data coverage and human population dynamics across the mountains of Africa Michaela Hegglin: Earth observations in support of the UNFCCC Paris Agreement Martin Visbeck: Digital Twins of the Ocean – Opportunities to inform sustainable ocean governance
		мнз	 S28: Regional information – Data and methods <u>Convenors:</u> Francisco J. Doblas-Reyes, Caio Augusto dos Santos Coelho and Chi Huyen Truong José María Tárraga (Keynote): Causal and explainable machine-learning models for hazard-induced displacement Julien Boé (Keynote): A simple hybrid statistical dynamical downscaling method to address the challenge of providing tailored regional climate change information Masilin Gudoshava (Keynote): The objective seasonal forecasting approach over Eastern Africa: Benefits, challenges and future prospects Tufa Dinku: Integrating global and local data to support climate research and adaptation in Africa Stefan Sobolowski: Subselection of seasonal ensemble precipitation predictions for East Africa, Norway Caio Coelho: Cascading multi-model sub-seasonal predictions from global to regional and local scales Fiona Spuler: Case studies in bias adjustment: investigating potential pitfalls through method comparison and multivariate evaluation using a new open-source python package
	MH4		 S08: Ocean-atmosphere interactions: energy, water & carbon Convenors: Meghan Cronin, Precious Mongwe and Luciano Pezzi Lisa Miller (Keynote): New challenges in transcending the boundary: The Surface Ocean-Lower Atmosphere Study at 20 Sarah Nicholson (Keynote): The impact of storms on CO₂ and heat exchange across the Southern Ocean Richard Cornes (Keynote) - Remotely: Facilitating the Evaluation of Air-Sea Fluxes: The AirSeaFluxCode Package Matthew Collins: Emergence of Climate Change in the Tropical Pacific Tong Lee: Enhancing space-based capabilities for observing ocean-atmosphere interactions Ines Leyba: The South Atlantic Ocean as a moisture source region and its relation with precipitation in South America Adelina Gaol: Impacts of MJO on the atmosphere-ocean variable and linkages to Indonesian throughflow in the Indonesian seas

Time	Session	Room	Description
16:00 - 18:00	Posters & Refreshments		Live poster session at KCC
18:00 - 18:45	Plenary in the Dome Evening Dialogue		The Future of Climate Modeling - What is needed to address the scientific and societal challenges of climate change? Chair: Celeste Saulo (WMO Secretary-General Elect) Bjorn Stevens (Director at the Max Planck Institute for Meteorology) Katherine Calvin (Chief Scientist, NASA, U.S.A.)
From 18:45	Free time		Dining, networking, socializing
			LL05: Hands-on Introduction on running the Community Earth System Model (CESM) (starts at 19:00)
			LL07: How to use Landsat 8 and ArcGIS Pro for analyzing Earth's climate system
20.00 22.00	Evening Session		TH08: Advancing the World Meteorological Organization Climate Services Information System for improved delivery of climate services
20:00 - 22:00	Townhalls, Learning Labs, Workshops		WM08: Early Career Researchers Network of Networks Workshop on Multidisciplinary Approaches to Climate Change Mitigation (Part 2)
			WM11: An Interactive Workshop on Minimizing Risk through Informed Decision Support
			Early and Mid-Career Researchers (EMCR) table topics (by invitation only)

Day 4: Thursday 26 October

Time	Session	Room	Description
8:30 - 10:00	Plenary in the Dome	DOME	 Climate Change Solutions Chair: Detlef Stammer (WCRP Chair) Aditi Mukherji (Director, Climate Adaptation and Mitigation Impact Area Platform): Feeding the future global society - challenges for food security Peter Dueben (Head of Earth System Modelling, ECMWF): Digital revolution - Climate information for all Minal Pathak (Senior Scientist, IPCC Working Group III): Climate change mitigation in the context of sustainable development Discussion Moderator: Detlef Stammer (WCRP Chair) Review and synthesis of Dome Plenary messages for the Conference statement
10:00 - 10:30	Break		Tea and coffee break
10:30 - 12:30	5 Parallel Sessions	DOME	 S09: Interactions between atmospheric composition and climate, including aerosol processes Convenors: Delphine Farmer and Alex Archibald Arlene Fiore (Keynote): Title to be confirmed Cora Young (Keynote): The changing environmental impacts of fluorinated gases: Considering climate impacts and persistent product formation Catherine Scott (Keynote): Title to be confirmed Ilona Riipinen (Keynote): Title to be confirmed Louis Ladino (Keynote): The importance of aerosol particles from Tropical latitudes in ice-cloud formation and climate Plenary discussion: Critical gaps for studies in atmospheric composition and climate for a Net Zero world?
		MH1	 S23: Circulation change in the climate system (atmosphere and ocean) Convenors: Julie Arblaster, Isla Simpson and Xiuqun Yang Rong Zhang (Keynote) - Remotely: Understanding changes in the North Atlantic Ocean circulation and the associated impacts on climate Xichen Li (Keynote): Atmospheric circulation mediates climate changes between tropics and polar regions Sarah Kang (Keynote): Global impact of recent Southern Ocean cooling Rowan Sutton: Drivers of change in North Atlantic atmosphere and ocean circulation: a synthesis of findings from the UK ACSIS program

Time	Session	Room	Description
			 Sandeep Narayansetti: South Asian monsoon response to weakening of the Atlantic meridional overturning circulation in a warming climate Mauricio Rocha - Remotely: Meridional overturning circulation and South Atlantic heat balance in a warming climate Sugata Narsey: Local zonal and meridional overturning in CMIP6 models Rym Msadek: Large-scale oceanic response to Arctic sea ice decline Tiffany Shaw: Arctic sea ice loss weakens Northern Hemisphere summertime storminess but not until the late 21st century
		MH2	 S33: Linking policy and climate information Convenors: Cocou Jaures Amegnaglo and Adriaan Perrels Keith Williges (Keynote): Assessing the ability to meet basic needs under mitigation pathways - considerations of fairness and climate justice in future climate scenarios Palmira Cuéllar-Ramirez (Keynote): Climate Scientists as climate negotiators for UNFCCC processes Ines Alterio (Keynote) - Remotely: MAGICA: Establishing a « single market » for science-based climate policy Kareem Buyana: Gender and climate change: Shifting the discourse from victimhood to capabilities Herbert Mba Aki: The monetization of the protection of the forests in Gabon Ella McNiece: Social identity, climate beliefs, pro-environmental behaviour and eco-anxiety Joseph Manzvera: Economic value of Agro-meteorological Services: A review of the international literature Adriaan Perrels: Socioeconomic appraisal of different levels of adaptation to climate change Cocou Jaures Amegnaglo: Can we marry the traditional and modern seasonal forecast systems?
		МНЗ	 S32: Capacity development for climate services Convenors: Tufa Dinku, Amanda Grossi, Pablo Borges de Amorim Mandira Shrestha (Keynote): Institutional capacity building on spatial and temporal climate change analysis using CORDEX regional climate models over South Asia Amanda Grossi (Keynote): From research to practice: Integrating climate Information into agricultural extension systems in East, Southern, and West Africa Prakash Tiwari: Women centric low tech flood early warning system in marginalized mountain environment: An illustration of community capacity development for climate services in Himalaya Alain Bourque: How do we increase communication and collaboration between climate service providers: towards a network of networks Lora Batino: WCRP Academy: Establishing an online marketplace for climate science training Alcade Segnon: Enabling capacity to improve climate information services in West Africa: experience and lessons learnt through AICCRA project
		MH4	S05: Polar processes and change Convenors: Helene Seroussi and Timothy Naish

Time	Session	Room	Description
			 Christopher Horvat (Keynote): The polar tempest: remote sensing and modelling of how sea ice geometry drives polar air-sea interactions. James Renwick (Keynote): Whither Antarctic Sea Ice? Ruijian Gou (Keynote): Changing nature of polar warming and marine extremes in high-resolution models for the 21st century Pengfei Zhang: More frequent atmospheric rivers slow the seasonal recovery of Arctic sea ice Camille Lique: How are mesoscale eddies and sea ice influencing each other in the Arctic? Divya Davit T.: Interannual influence of Atlantic waters on the biogeochemistry of an Arctic fjord Sandy Thomalla: Widespread changes in Southern Ocean phytoplankton blooms linked to climate drivers Jan Rieck: Heat transport towards sea ice by mesoscale eddies in an idealized Southern Ocean
			LL06: Democratizing climate science: making it meaningful at local scales
	Lunch session		WM13: Community engagement and feedback on the SOLAS science agenda
12:30 - 14:00	Townhalls, Learning Labs, Workshops		WM14: Shifting the power of convening back to the south - building Africa leadership through regionally led, bottom-up collaboration
			GA01: Journey of a Kigali Pixel - Game (Part 2)
14:00 - 16:00	5 Parallel Sessions	DOME	 S07: Atmosphere-land interactions Convenors: Eleanor Blyth, Aihui Wang and Anna Sörensson Chris Taylor (Keynote): Title to be confirmed Youngjiu Dai (Keynote): Title to be confirmed Francina Dominguez (Keynote): Title to be confirmed Robert Allan: Enhanced global fire activity under increasing CO₂: The dominant role of vegetation and the CO₂ fertilization effect Hlengiwe Ntuli: Carbon dioxide emission rates in different land use systems of the Letaba catchment, Limpopo province, South Africa. Muyaka Kamamba: Forest-Water Nexus: An Evapotranspiration assessment of the Kafue River Sub-Basin using Remote Sensing Xubin Zeng: Land-atmosphere interactions at diurnal to climate time scales from observations and modeling: Our recent progress
		MH1	 S10: Lessons from paleoclimate for recent and future climate change <u>Convenors</u>: Cristiano Chiessi, Masa Kageyama and Kira Rehfeld Yassine Brahim (Keynote): The spatiotemporal extent of the Green Sahara during the Last Glacial Period: Potential implications for early human populations Jiang Zhu: Clearing clouds of uncertainty with the help of paleoclimate Benjamin Keenan: Molecular and isotopic indicators of fire history, population, vegetation and climate change in the Maya lowlands Steven Sherwood: Using simple models to help interpret the palaeoclimate record

Time	Session	Room	Description
			 Marfasran Hendrizan: Strengthening of the Pacific Meridional Overturning Circulation (PMOC) as a forcing for slowdown of the Indonesian throughflow during the last deglaciation Paul Valdes: Tuning climate models with paleoclimate data Marina Duetsch: Response of water isotopes in precipitation to a collapse of the West Antarctic Ice Sheet in high-resolution simulations with the Weather Research and Forecasting Model
		MH2	 S31: Climate knowledge co-production in a decision and policy context Convenors: Daniela Jacob, Simon Marsland, Asuncion Lera St Clair, Mzime Murisa and Roché Mahon Alice McClure (Keynote): Principles for co-producing climate services: practical insights from FRACTAL Heide Hackmann (Keynote): Title to be confirmed Lucy Mtilatila (Keynote): Title to be confirmed Rezwan Siddiqui: Examining participation in climate decision-making: myth and reality Raymond Mugandani: Willingness and preparedness of communities to share knowledge for climate change adaptation in Chivi, Zimbabwe Roger Pulwarty: Going to extremes in climate services: Lessons and practices for managing through the new abnormal Sameera Noori: Silver-lining in a cascading crisis: Interdisciplinary knowledge production for impactful climate science in Afghanistan José Maria Tárraga: Causal and explainable machine-learning models for hazard-induced displacement
		МН3	 S25: Regional climate change <u>Convenors</u>: Tannecia Stephenson, Arona Diedhiou and Mouhamadou Bamba Sylla <u>Erika Coppola (Keynote)</u>: Regional climate change assessments - where we are and future outlook Christopher Lennard (Keynote): A decade of CORDEX-Africa: Achievements, challenges and opportunities Jiali Wang (Keynote): Global warming impacts on tropical cyclones: climate-scale statistics and event case studies Xuejie Gao: Precipitation simulation and future projections over China by an ensemble of multi-GCM driven RCM simulations Piero Lionello: Processes relevant for the future evolution of the Mediterranean climate in a global warming context Marianne Tronstad Lund: Variability and evolution of fire weather conditions in high latitude boreal forest regions under levels of global warming Omar Müller - Remotely: Time of emergence of African Rivers
		MH4	 S30: Uncertainties in climate projections: plausibility, possibility and probability Convenors: Douglas Maraun and Marjolijn Haaasnoot Amadou Gaye (Keynote): Co-construction of knowledge for addressing climate change impacts and adaptation in Sénégal, West Africa Judy Lawrence (Keynote): Projections or reality for decision makers: either/or, or both? Bart van den Hurk (Keynote): Improving climate resilience of society using well-designed weather impact scenarios

Time	Session	Room	Description
			 Eduardo Gonçalves Gresse: Toward a sustainable adaptation plausibility framework Rodric Merime Nonki: Quantification and allocation of uncertainties of climate change impacts on hydropower potential under 1.5oC and 2.0oC Global Warming Levels in the Benue River basin, Cameroon Elena Saggioro: Using climate storylines in climate risk assessments for enabling policy action: a case study for Iraq's National Adaptation Plan Innocent Masukwedza: Potential for surprising heat and drought events in wheat-producing regions of USA and China
16:00 - 18:00	Posters & Refreshments		Live poster session at KCC
19:00 -	Conference dinner		Conference Banquet Chairs: Conference Chairs Craig Reucassel (Writer and comedian) Other speakers (TBD) Cultural entertainment

Day 5: Friday 27 October

Time	Session	Room	Description
9:00 - 10:00	Plenary in the Dome	DOME	Conference Closing Chairs : Conference Chairs • Summaries of messages from three conference themes and Dome Plenaries
10:00 - 10:30	Break		Tea and coffee break
10:30 - 13:00	Plenary in the Dome	DOME	 Negotiation of Conference statement Messages from various hosts, co-sponsors, possibly also IPCC Chair and UN representative Closing from Conference Chairs
14:30 - 18:00	Workshop		WM12: Identifying regional science priorities for Early and Mid-Career Researchers (EMCRs) for and in Africa

Early and Mid-Career Researchers Symposium

Day 1: Sunday 22 October @ Kigali Convention Centre

	General opening of the Symposium					
08:30-09:00	Purpose, prospective outcomes of workshop & schedule					
09:00-09:30	Introduction to the World Climate Research Programme, Dr. Pascale Braconnot, Vice-Chair, WCRP Joint Scientific Committee					
09:30-10:15	Climate Resilience: How EMCRs from Africa are involved? – Speakers from African Institute of Mathematical Sciences (AIMS), Kigali					
10:15-10:45	Short break					
10:45-12:30	Break out session on OSC science themes.*					
12:30-14:00	Lunch break					
14:00-16:00	EMCR Workshop on 'Effective science communication- from peer-reviewed articles, project proposals to public communication'					
16:00-16:30	Short break					
16:30-18:00	EMCR OSC poster presentation discussion					
	Ice-Breaker Dinner					

Day 2: Saturday 28 October @ AIMS, Kigali

09:00- 11:00	Reflecting on the outcomes of the WCRP OSC and EMCRs' role in WCRP.
11:00 onwards	Meet up and lunch discussions with AIMS graduate students
14:00 -16:00	Brainstorm Session: Article on how WCRP can help connect climate science and society through the EMCRs.
16:00 -16:15	Wrap up of the Symposium

^{*} EMCR Symposium participants will be contacted the first week of September 2023 on the breakout session preparations.

WCRP is also organizing two 'Table Topics' events in the evenings of 24 and 25 October that will be <u>open to all EMCRs at the Open Science Conference</u>. More information on the Table Topics will follow soon.



Side events scheduled outside the five Open Science Conference core days

17-21 October

• LL01: Face to Face course on Cloud Computing and Algorithms for EO Analyses (at Digi Center, Kigali)

Saturday 21 October

• WM02: Institute of Computing for Climate Science (ICCS) Workshop (at AIMS Kigali)

Sunday 22 October

- WM01: Air Quality and Climate Change in Africa (at Kigali Convention Centre)
- TH01: Artificial Intelligence for Climate Risk mitigation: Navigating Opportunities and Challenges (at Kigali Convention Centre)

Friday 28 October

• WM15: GEO Mountains Workshop: Interdisciplinary Monitoring, Data, and Capacity Sharing Across East Africa (at University of Rwanda, Kigali)

COME JOIN US!

Contact us: WCRP-OSC23@wcrp-climate.org

HOSTING PARTNER



PLATINUM SPONSORS























SILVER SPONSORS













BRONZE SPONSORS



































23 - 27 OCT. 2023 | RWANDA











