

International Conference on:
**Integrated Responses to the Intensification of Extreme Climate and Weather
 Events in Developing Economies**
 22-24 May 2024,
 STIAS, Stellenbosch, South Africa

Programme and eBook of Abstracts and presentations.

Sponsors and organisers			
 Centre for Science & Technology of the Non- Aligned & other Developing Countries	 Alliance for Collaboration on Climate & Earth Systems Science	 Scientific Committee on Problems in the Environment	 School for Climate Studies, University of Stellenbosch
Partners			
 University of Pretoria	 University of Limpopo	 University of Cape Town	 University of the Witwatersrand
 Future Earth (Africa)	 Department of Science & Innovation	 Department of Forestry & the Environment	 Extreme Climate Events Research Alliance
 Council for Scientific & Industrial Research	 The South African Weather Service	 South African Environmental Observation Network	 NRF ESSRP APECX Project

Programme

Date	Time	Item	Note
21 st May 2024	18h30	Opening Ceremony (Venue TBC) (Chair: Professor Guy Midgley). Welcome and opening remarks: <ul style="list-style-type: none"> • Professor Bertram Fielding –Dean of Science, University of Stellenbosch. • Professor Jon Samseth – President of the Scientific Committee on Problems in the Environment. • Mr Tlou Ramaru – Department of Forestry Fisheries and the Environment, SA. • Mr Imraan Patel – For the Minister of Science and Innovation, SA. • Dr Johan Stander – For the Secretary General of the World Meteorological Organization. • Dr Katlego Ncongwane –For the South African South African Weather Service. • Mr Jurgen Dysell – For the CEO of the National Disaster Management Center, SA. 	End 21h00
Session 1: Climate Science and Extreme Climate Events (Chair: Dr Neville Sweijd)			
22 nd May 2024	08h25	Welcome notes and housekeeping	
	08h30	Message from Dhesigen Naidoo – Presidential Climate Change Commission.	
	08h35	Opening Remarks: Johan Stander , Director. World Meteorological Organization	
	08h45	Mary-Jane Bopape* , G Keebine , T Ndarana , IL Mbokodo , K Hlahane , T Motshegwa , Y Amha , OM Ogega , C Mfopa , DD Mahlobo , FA Engelbrecht & H Chikoore . Weather Related Disasters in South Africa from 1980 to 2022	Keynote 1.1
	09h05	SuriyanarayananSarvajayakesavalu* An Overview of Disaster Risk Management in India: Strategies, Challenges and Innovative Approaches.	Keynote 1.2
	09h25	Bruce Hewitson* .Climate Events (ECEs) and the robustness of communicable information	Keynote 1.3
	09h45	Helga Chauke* & Rita Pongrácz : The analysis of regional extreme climate in South Africa using CORDEX-Africa and CMIP6 projections.	Flash 1.1
	09h50	PeliweJubase* : Analysis of extreme weather events over the Limpopo and Botswana region: Synoptic systems of heat wave events and extreme hot days.	Flash 1.2
	09h55	Kruger, J.A., Roffe, S.J. and *Van der Walt, A.J. AgERA5 representation of seasonal mean and extreme temperatures in the Northern Cape, South Africa	Flash 1.3
10h00	Willem Landman* Predicting ENSO SST extremes.	Flash 1.4	
23 rd May	10h05	Peter Marsh* , Piotr Wolski , Lisa Van Aardenne and Chris Jack : Implications Of Sampling Bias in Satellite Data for Use in	Flash 1.5

		Heatwave Monitoring in Developing Economies.	
	10h10	Sabina Abba Omar* , Chris Jack, Lisa van Aardenne and Peter Marsh/ Exploring the Value of High-Resolution Climate Model Simulations for Heat Stress Information within Johannesburg.	Flash 1.6
	10h15	Nkanyiso Mbatha* and Siphamandla Sibiya. The Savitzky-Golay-SPI and SM2RAIN-SPI Performance, and the use of hybrid LSTM models based on the SPI for drought forecasting.	Flash 1.7
	10h20	Hector Chikoore*, Innocent L. Mbokodo, Mukovhe V. Singo, Tumelo Mohomi, Rendani B. Munyai, Henno Havenga, Dawn D. Mahlobo, Francois A. Engelbrecht, Mary-Jane M. Bopape and Thando Ndarana. Dynamics of an extreme low temperature event over South Africa amid a warming climate.	Flash 1.8
	10h25	Time buffer	
	10h30	Tea Break	To 11am
	Session 1 continued: Chair: Dr Suriyanarayanan Sarvajayakesavalu		
	11h00	Roffe, S*, Malherbe J., Singo M. & Tsanwani M. Simulating extreme temperature events: a case study of the abnormally hot January 2023 conditions over southern Africa.	Flash 1.8
	11h05	Lynette van Schalkwyk , Ross Blamey and Chris Reason. Dry lines and severe thunderstorms: the case of December 2021.	Flash 1.9
	11h10	Tanya Haupt*, Liesl Janson & Lutz Auerswald: Monitoring of inshore temperatures to support physiological research	Flash 1.11
	11h15	Mohau M. Mateyisi* & Robert Molepo. The detection and attribution of fire weather events in Southern Africa	Flash 1.12
	11h20	Teke S. Ramotubei*, Willem A. Landman, & Mohau M. Mateyisi. The most recent three extreme ENSO phases and their impact on precipitation re-distribution over southern Africa.	Flash 1.13
	11h25	Jessica Steinkopf* & Francois Engelbrecht. The El Niño-Southern Oscillation teleconnection to southern Africa in a changing climate.	Flash 1.14
	11h30	Malarvili Ramalingam*. Chemical Innovations for Climate Resilience: Enhancing Malaysia's Sustainable Development	Flash 1.15
	11h35	Ashraf Taha*. Local Traditional Seeds in Climate Change Mitigation and Enhancing Resilience of Palestinian Farmers.	Flash 1.14
	11h40	Time buffer	
	11h45	Group work	To 12h45
	12h45	LUNCH	
	14h00	Plenary Report back and discussion	To 15h00
	Session 2: Observations and EWSs (Chair: Professor Jon Samseth)		
22 nd May 2024	15h00	John Harding*. Improving observations and early warning service delivery - a development partner's perspective.	Keynote 2.1
	15h20	Elani Heyneke*, Stephanie Landman, Ross Blamey, & Lynette van Schalkwyk. Investigating a rare Mesoscale Convective System over the Central Karoo, Western Cape: a Case Study	Flash 2.1
22 nd May 2024	15h25	Johan Malherbe*; ME Moeletsi; PJ Beukes; TE Masupha. The 2023/24 summer drought as tracked by Agricultural Drought Early Warning System for South Africa – ADEWS.	Flash 2.2
	15h30	Tea Break	To 16h00
	Session 2 continued. (Chair: Professor Hector Chikoore)		
	16h00	Dr Dawn Mahlobo*. Climate Services: A Plea for all South	Keynote 2.2

		Africans.	
16h20		William Bond*, Michael Cramer & Adam West. Why wildfires jump over the urban edge: a new understanding and its implications for fire protection	Keynote 2.3
16h25		Vuyo Ndayi*, Neville Sweijd & Eugene Mabile. Improved Short-Term Wind Speed Prediction to Mitigate Container Terminal Disruptions Caused by Extreme Wind Events at the Cape Town Container Terminal	Flash 2.3
16h30		TokeloSeabi, Shalin Bidassey-Manilal*, Thandi Kapwata, Natasha Naidoo and Caradee Y Wright. Non-optimal indoor temperatures measured in informal dwellings during cold months in Johannesburg, South Africa: implications in a changing climate.	Flash 2.4
16h35		C.J. Bailey*. For wetter or drier: The relationship between the El Niño-Southern Oscillation and Precipitation Patterns in the Greater Hermanus Region.	Flash 2.5
16h40		Plenary discussion and Q&A	
17h10		End of the day (free evening)	

Date	Time	Item	Note
Session 2 Continued: Observations and EWSs: Dr Johan Stander			
23 rd May 2024	08h30	Housekeeping and announcements	
	08h35	Ross C. Blamey* and Chris J. C. Reason. Diversity and Ranking of ENSO Impacts along the Eastern Seaboard of Subtropical Southern Africa.	Flash 2.6
	08h40	Willem Stefaan Conradie*, Piotr Wolski, Sabina Abba Omar, Christien Engelbrecht. The South African Winter Rainfall Zone's extreme 2023 rainfall season.	Flash 2.7
	08h45	Kaitano Dube*. A review of extreme weather events of global significance between 2014 and 2024.	Flash 2.8
	08h50	Leonie TefeloRamataboe*. Climate Change and Children's Health in the Free State: Challenges and Solutions.	Flash 2.9
	08h55	Michael Cramer*, H-J. Hawkins, J.R.C. von Holdt, Timm Hoffman. Are climate changes and extremes responsible for changes in vegetation phenology in South Africa?	Flash 2.10
	09h00	L.Z Maduna*. Assessment of monthly, seasonal and annual rainfall trends in Newcastle in KwaZulu Natal, South Africa.	Flash 2.11
	09h05	Christien Engelbrecht* & Stephanie Landman. Heatwave risk maps for South Africa.	Flash 2.12
	09h10	Group Work	Until 10h15
	10h15	Plenary Report back and discussion	Until 10h30
	10h30	Tea Break	Until 11h00
11h00	Plenary Report back and discussion	To 11h45	
Session 3: Risk and Vulnerability to ECEs (Chair:Dr Mary-Jane Bopape)			
23 rd May 2024	11h45	Guy Midgley and Neville Sweijd. Unpacking risks from ECEs in natural and human systems.	Keynote 3.1
	12h05	Rabindra Prasad Dhakal*. Integrated Responses to the Intensification of Extreme Climate and Weather Events in Nepal.	Keynote 3.2
	12h25	Lazarus Chapungu*. Extreme Climate Events in Southern Africa: Trends and Impacts Between 2008 and 2022.	Flash 3.1

	12h30	Heidi van Deventer, Ilse Kotzee*, Linda Rulumeni*, Lindie Smith-Adao. Understanding Floods and Wildfires in South Africa: Insights from CAELUM Database Analysis.	Flash 3.2
	12h35	Mashula Nthabiseng*, Lazarus Chapungu and Godwell Nhamo. Extreme heat trends and impact in Savannah national parks: A focus on Kruger and Mapungubwe Parks in South Africa.	Flash 3.3
	12h40	Dr. Geerish Suddul. An AI-powered Early Warning Prototype System for Flash Floods in Mauritius using Deep Learning and Wireless Sensor Networks.	Flash 3.4
	12h45	Rowan Naicker*. A systematic review of flood risk analysis approaches applied within diverse human settlements.	Flash 3.5
	12h50	Hilkka O.N. Ndjaula*. A Research framework towards mitigating the impacts of floods in Ohangwena Region, Namibia.	Flash 3.6
	12h55	Marc Caplan*. Extreme weather events - risk reduction mitigation planning for all districts where rainfall exceeds 200mm/ annum.	Flash 3.7
	12h55	LUNCH	To14h00
	Session 3: Continued (Chair: Professor Nkhanyiso Mbatha)		
	14h00	Godwell Nhamo*, Lazarus Chapungu & Gideon W Mutanda. Climate and weather-induced extremes in South Africa (2000-2024): A review triggered by the Climate Change Response Fund announcement.	Keynote 3.3
	14h20	Maria Couto* & Michelle Magazi. Mainstreaming Climate Change Adaptation into the Electricity Value Chain.	Flash 3.8
	14h25	Louisa Magabane*. Bushveld fires and extreme hot temperatures: A literature review.	Flash 3.9
	14h30	L. Smith-Adao, I. Kotzee, R. Blanchard and D. Le Maitre. Flood hazards in a changing world: Challenges and opportunities in the Garden Route, Western Cape Province of South Africa.	Flash 3.10
	14h35	Shalin Bidassey-Manilal*, Joyce Shirinde & Caradee Y Wright. Perceived heat-related health impacts on primary schoolchildren in Johannesburg, South Africa.	Flash 3.11
	14h40	Annika Maniram*. The Impacts of Drought on the Rural Communities of Msinga in Kwa-Zulu Natal, South Africa.	Flash 3.12
	14h45	Memory Reid*, Mulala Simatele, AutherMaviza. Temperature, precipitation, landcover, and runoff nexus, and its implications on hydropower generation in the Kariba sub-basin.	Flash 3.13
23rd May 2024	14h50	Roy van Ballegooyen*, Tam Pham, Rafid Morshedi, Marius Rossouw, Njabulo Siyakatshana, VishernBeakam, Nelson Mbatha, Francios Engelbrecht, Tania Daniels, Mohau Mateyisi, Chris Troch, Nosipho Zwane & Geoff Smith. Risks and Vulnerability of Port Infrastructure, Operations, and associated Supply Chains to Extreme Climate Events: Global experiences in risk assessment and mitigation.	Flash 3.14
	14h55	Ei Ei Khin*. Investigating Sugarcane Plant / Ratoon Crop Monitoring from Multi Sensor Temporal Data under Climate Change in Myanmar.	Flash 3.15
	15h00	Michaela Deglon*, Thandi Kapawata, Ama De-Graft Aikins, Kweku Bedu Addo, Guy Howard, Estelle Victoria Lambert, Dale Elizabeth Rae, Christopher Gordon, Mark New and Lara Dugas. HABVIA: Heat adaptation benefits for vulnerable groups in Africa – Preliminary results	Flash 3.16
	15h05	Nicola J. van Wilgen*, Emma J. Wright & Wendy B. Foden.	Flash 3.17

		Ex situ conservation versus active in situ management as a response to conserving biodiversity under increasing extreme climatic events: Case studies from South African National Parks.	
	15h10	Coffee Break	Till 15h45
	Session 3: Continued (Dr Neville Sweijd)		
	15h45	Groupwork	Till 16h45
	16h45	Plenary report back and discussion	Till 17h30
	17h30	Session closes	
	18h00	Cocktails in the STIAS Courtyard	Until 20h00

Date	Time	Item	Note
Session 4: Response, recovery, and policy (Dr Rocio Diaz – Chavez).			
24th May 2024	08h30	Housekeeping and announcements.	
	08h35	Johan Minnie* . ECE response-ability: exploring requirements and approaches to staffing, equipping and organizing ECE response.	Keynote 4.1
	08h55	Nesrin Ahmed Abbas Abuzied* . Policy and Practices for Recovery from Extreme Climate Events in Egypt.	Keynote 4.2
	09h15	Dawie Jansen van Vuuren* & Stewart Russell . Responding to intensified weather events: an integrated disaster risk management and infrastructure asset management method.	Flash 4.1
	09h20	Dorah Marema, Nondumiso Twalo, Dorah Kiki*, Noyise Centane and Khaya Gumede . Policy and practice to recover from ECEs: A Local Government Perspective.	Flash 4.2
	09h25	Stephanie Midgley*, Trautmann, I.A & Petersen, A. Integrated policy and institutional responses to extreme climate events: Case Study for rural Western Cape, South Africa.	Flash 4.3
	09h30	Kamlesh Pillay* Assessing the feasibility of disaster risk financing innovation in South African Cities.	Flash 4.4

24th May 2024	09h35	Ifeanyi Michael Smarte Anekwe*, Helper Zhuo, Mphathesithe Mkhize, Stephen Okiemute Akpasi . Navigating climate stressors in Durban: assessing their impact on key sectors and proposing adaptation measures for sustainable development.	Flash 4.5
	09h40	Melanie Lück-Vogel, Benita de Wet, Sasha Naidoo, Willemien van Niekerk & Amy Pietersee . Climate-proofing South Africa's coasts – Towards a Coastal Climate Adaptation Response Plan.	Flash 4.6
	09h45	Jennifer Weeks*, Anna Bradley, Joseph Daron, Andrew Hartley, Matthew Palmer, & Emily Wallace . Building resilience to extreme weather and climate events through knowledge, trans-disciplinary expertise and collaborations across the UK, South Africa and beyond.	Keynote 4.3
	10h05	Mr. Adil Hayder Lazim Al-Saadi* . Extreme Climate Events in Iraq: Associated Risks and Solutions	Flash 4.7
	10h10	Muthoni Masinde* . Assessing Public Perceptions on Climate Change: Insights from the Free State Province of South Africa.	Flash 4.8
	10h15	Nadia Shah Naidoo* . Leadership for the institutionalization of climate change considerations in South African cities.	Flash 4.9
	10h20	Claudia Schröder* . The Role of multi-stakeholder Participation in Risk & Vulnerability Assessment Development in Sub-Saharan Africa: The case of Nyandarua County, Kenya.	Flash 4.10

	10h25	Indrani Hazel Govender* & Maliga Reddy. Assessing Socio-Ecological Risks in KwaZulu-Natal: A Bayesian Network Analysis of Extreme Weather Events.	Flash 4.11
	10h30	Tea Break	
	11h00	Group Work and discussion	To 12h00
	10h45	Plenary Report back and discussion	To 13h00
	13h00	LUNCH	Till 2pm
	14h00	Panel discussion	15h00
Session 5: Consolidation of outcomes. (Chair: Professor Guy Midgley)			
24th May 024	15h30	Tea Break	
	16h00	Presentation and discussion on draft declaration (compiled from group sessions) and next steps.	
	16h45	Closing remarks Charlotte McBride – South African Weather Services. Dr Johan Stander – World Metrological Association. Dr Neville Sweijd – ACCESS / CSIR.	
	17h00	Meeting ends	