



# Pan-CLIVAR Meeting 2025

CLIVAR Symposium  
*Bridging Science and Society  
in Southeast Asia and Beyond*

**WCRP**  
World Climate  
Research Programme



**22–26 September**  
**Bali, Indonesia**

# List of CLIVAR Symposium Presentations

sorted by theme and alphabetical order

# Artificial Intelligence:

## Role in Climate–Ocean Research and Prediction

### **Acosta Navarro Juan C.**

Seamless seasonal to multi-annual climate predictions by constraining transient climate model simulations

### **Apurva P Joshi**

Machine learning-based long-term spatial reconstruction of surface total alkalinity for the northern Indian Ocean.

### **Goswami Virendra**

Role of Artificial Intelligence and Remote Sensing (AIRS) to study the Air-Sea CO<sub>2</sub> exchange and Aquatic toxicology to develop physicochemical and Spectroscopic methods, to Control Water Aquatic Pollution.

### **Izumo Takeshi**

Key role of the MJO on humid heatwaves in the tropics and in southeast Asia: an opportunity for AI-based forecasting

### **Keenlyside Noel**

Atlantic and Benguela Niño predictable months in advance, After All!

### **Maggero Balla**

Ocean Prediction Model for SSH and SST in the Western Indian Ocean using Deep Learning Technique

### **Oke Peter**

A data-driven approach to mesoscale ocean forecasting

### **Rath Subhrajit**

Hybrid Approach: Combining Physical and CNN-Based Cloud Fraction Parametrizations for Enhanced NWP Performance

### **Shoichiro Kido**

Emulating GCM Experiments with reduced-complexity models: Insights into tropical interbasin interactions

### **Staneva Joanna**

Digital Twins of the Ocean for Sustainable and Climate-Responsive Marine Management

### **Zhao Sen**

Towards Explainable El Niño Predictions and Understanding Climate Model Biases

# Atmospheric Processes and Climate Dynamics

## **Anoruo Chukwuma**

Day-to-Day Variability and Seasonal Patterns of Global Dust Aerosol Optical Depth from IASI Satellite Observations

## **Arshad Adnan**

Quantitative Analysis of Monsoon Pattern Shifts in Pakistan's Climatic Zones: Impacts of Environmental Change and Projections Under RCP Scenarios

## **Burls Natalie**

Regional radiative feedbacks as drivers of Pacific SST gradients in a hierarchy of models

## **Dong Lu**

Emergence of positive IOD-like warming pattern driven by greenhouse gases and anthropogenic aerosols during the recent four decades

## **Gautam Pratibha**

Land surface feedback and rainfall bias in the dynamical models with different physical parametrizations

## **Hwang Yen-Ting**

Contrasting Impacts of Northern and Southern Extratropical Forcings on Tropical Pacific SSTs: Insights from 1979–2024 and Implications for Future Projections

## **Hyacinth Nnamchi**

Predictable Equatorial Atlantic variability from atmospheric convection-ocean coupling

## **Islam Md. Anowarul**

Modelling the extreme rainfall induced flood hazard vulnerability in the north-eastern region of Bangladesh

## **Maheswar Pradhan**

Improving Synoptic Variability by Representing Coastal SST Fronts

## **Manjunatha Busnur**

Long-term rainfall variability along the west coast of India and its teleconnections

## **Misra Vasubandhu**

The Modulation of the Diurnal Variations by the Intraseasonal Oscillations of the Indian Summer Monsoon

## **Permana Donaldi**

Modulation of Diurnal Rainfall Cycle by BSISO during Boreal Summer over western part of Indonesia and Southeast Asia

## **Prasetya Ratih**

Evaluation of NEX-GDDP-CMIP6 Model Performance in Simulating Precipitation Variability over Indonesia.

## **Ramaraju Hk**

Climatic Control on the Variability of Atmospheric Constituents in the Anthropogenically-dominated Monsoon Trough Region of India

## **Richter Ingo**

Introducing TBIMIP: The Tropical Basin Interaction Model Intercomparison Project

# Atmospheric Processes and Climate Dynamics

**Song Fengfei**

Hot season gets hotter due to rainfall delay over tropical land in a warming climate

**Wamba Tchinda Claudin**

The influence of intraseasonal oscillations on rainfall variability over Central Africa: case of the 25–70 days variability

**Wang Chunzai**

Remote Triggering of a North Pacific Marine Heatwave by the 2022 Indian Summer Monsoon

**Wang Xin**

Unveiling the role of South Tropical Atlantic in winter Atlantic Niño inducing La Niña



# Biogeochemical Processes and Climate Interactions

## **Bobrik Anna**

Blue carbon» is an overlooked carbon sink under climatic change

## **Chakraborty Kunal** (presentation made by Apurva P. Joshi)

Assessing the current state of Indian Ocean acidification, its driving mechanisms, and projected near-future changes

## **Deshpande Aditi**

Impact of Satellite Chl-a and Other Physical Parameters on Deriving Reliable Export Production Estimates over Indian Ocean.

## **Faruq Khadami**

Climate Variability as a Driver of Coastal Ecosystem Stressors in the Coral Triangle: A Case Study from the Derawan Islands, Indonesia

## **Gupta Smrati**

Assessing Carbon Sink Dynamics in India: Projections from Climate Models

## **Kuhn Angela**

Understanding regional pCO<sub>2</sub> model biases and uncertainties in the Biogeochemical Southern Ocean State Estimate (B-SOSE)

## **Nicholson Sarah**

The impact of storms on CO<sub>2</sub> and heat exchange across the Southern Ocean

## **Santosa dhafin Delano Rizqi** (Presented by Kartadikaria Aditya R.)

A Strategic Approach to Marine Protected Areas Based on Larval Connectivity in the Lombok Strait

## **Suhita Ni Putu Asri Ratna**

Variability of Net Primary Productivity in the Northwest Atlantic from a Multi-Datasets Perspective

## **Tariq Salman**

A comprehensive analysis of variability in Chlorophyll-a and its relationship with oceanic parameters in Bohai Sea using ARIMAX model

## **Wahyudi A'an Johan**

Hindcast-based BGC+ Index Simulation for Acidification and Eutrophication Monitoring

## **Yang Jiwei**

Tracking climate impacts on kuroshio marine fish communities using environmental DNA

## **Zhou Hui**

Significant Intraseasonal Variability of Surface Chlorophyll-a in the Western Pacific Western Boundary Current System

# Cascading and Compound Event

**Bharghavi Kandula**

Comparative Analysis of Drought Classification Using SPI and SPEI Across Arid and Semi-Arid Climatic Zones of India (1981–2020)

**Chenoli Sheeba**

Spatial and temporal variability of extreme rainfall events and their precursor features over Peninsular Malaysia

**Jia Gensuo**

Magnified urban heat island intensity during heatwaves in East Asia

**Minobe Shoshiro**

Global and Regional Drivers for Exceptional Climate Extremes in 2023-2024: Beyond the New Normal

**Muthiah Krishnaveni**

Seawater Ingress Monitoring at River mouths due to tidal dynamics





# Climate Variability and Change

**Aadhar Saran**

Enhanced Future Risk of Soil Moisture Drought despite Wetter Conditions in South Asia

**Badiaa Chelli**

Climate Variability and Predictability of the Mediterranean: research progress and climate change impacts in the MENA region

**Collins Matthew**

Impacts of Climate Change on the Tropical Pacific and El Niño Southern Oscillation

**Ehsan Muhammad Azhar**

Evaluating Three Decades of NMME Hindcasts to Assess Model Performance in Predicting ENSO Onset

**Geng Tao**

Nonlinear ENSO response to formation of a permanent El Niño-like state under persistent greenhouse warming

**Hasanapuram Sushmitha, Krishna Reddy Krishnareddigari**

Evapotranspiration in a Changing Climate: A Multi-Parameter Analysis of Recent Trends and Seasonal Variations

**Hu Aixue**

Tag war between atmosphere and ocean in controlling ITCZ

**Liu Hailong**

Role of Salinity Barrier Layers on Atlantic Niño Events

**Makarim Salvienty**

Unique Patterns of the Indian Ocean Dipole events since 2019

**Mbithi Daniel**

Spatial-temporal characteristics of glacier cover over mountains of Eastern Africa region

**Melet Angelique**

Coordinated regional ocean climate projections: why, where are we and where are we going? A CLIVAR-CORDEX task force

**Moise Aurel**

Southeast Asia's highest CMIP6-based convection permitting climate change projections to date

**Okumura Yuko**

Tropical basin interactions in changing climates since the Last Glacial Maximum

**Purich Ariaan**

Robust Yet Diverse Southern Ocean Teleconnection from Antarctic Meltwater: Insights from SOFIA

**Rashid Harun**

Impacts of regional aerosol forcing uncertainty on the simulated historical global warming

**Supari Supar**

El Niño 2023/24 and the Skill of Drought Warning Issued by BMKG

**Tuchen Franz Philip**

Strengthening of the equatorial Pacific upper-ocean circulation over the past three decades

# Climate Variability and Change

## **Turkington Thea**

Monitoring ENSO under a warming climate: Southeast Asia Perspective

## **Yu Jin-Yi**

Understanding 21st-Century ENSO Complexities: The Interplay of Tropical and Subtropical ENSO Dynamics

## **Zinke Jens**

Indonesian Throughflow salinity and SST variability since the 1750s





# Ocean Processes and Extremes

**Aguilera Victor**

ENSO dynamics in the southeast Pacific for the period 2022-2024

**Boedihardjo Denise**

Identification of Extreme Sea Levels and Concurrent Marine Heatwaves-Extreme Sea Levels in SETIO Waters 1993-2022

**Capotondi Antonietta**

Surface and Subsurface Dynamics of Northeast Pacific Marine Heatwaves

**Chen Haiying**

Spatiotemporal Characteristics of Sea Water Mass in the Indonesian Waters Based on GRACE Satellite Data

**Chowdhury K M Azam, Haque Sadia**

Identification of Upwelling Zones, Oxygen Minimum Zones, and Potential Fishing Zones for Sustainable Resource Management in the Northern Bay of Bengal: A Baseline Study for Sustainable Marine Spatial Planning

**Han Lei**

Diffusive and Adiabatic Meridional Overturning Circulations in the Cooling Abyss of the Indo-Pacific Ocean

**Holbrook Neil**

Toward a mechanistic characterisation of marine heatwaves

**Hu Shijian**

Subsurface Marine Heatwaves in the Tropical Western Pacific Ocean: Extreme Events, Drivers and the Role of Subsurface Eddies

**Kartadikaria Aditya R.**

Quasi-convergence Conditions during Normal, El Niño, and La Niña Years for the Maritime Continent

**Li Jianping, Li Zeyu**

Caribbean Sea Marine Heatwaves tied to Indian Ocean Marine Heatwaves

**Luo Zhengpu**

Observed quasi-biweekly oscillations near Indonesia shelf

**Martinez-Villalobos Cristian**

Accelerating increases in heat waves durations under global warming

**Murty Sujata**

Drivers of Indo-Pacific upper ocean heat and freshwater variability: A synthesis of coral proxies and ocean models

**Musyaffa Ahdan**

Characteristics of Internal Solitary Waves in the Lombok Strait and the Influence of the Indonesian Throughflow

**Nakayama Yoshihiro**

Development of ECCO downscaled regional simulations of the Antarctic coastal seas

**Pothula Srujitha, S. Chowdary Jasti**

Variability of Marine Heatwaves in the Tropical Indian Ocean with special emphasis on El-Niño decay phase

# Ocean Processes and Extremes

**Pratama Khafid Rizki**

Dramatic effect of Indonesia Throughflow variability to cyclone events in the Banda Sea

**Rykova Tatiana**

ENSO-driven variability of water masses in the Tasman Sea

**Salamena Gerry**

ENSO-controlled coastal upwelling off north New Guinea regulates interannual deep-water renewal in Kao Bay, Halmahera Island of Western Equatorial Pacific

**Sinaga Azka Afta Tarissa, Khadami Faruq**

Intraseasonal Sea Level Variability in the Java Sea and Its Ocean-Atmosphere Driving Mechanisms

**Singh Shikha**

Salinity characteristics during Marine Heatwaves in Bay of Bengal

**Stanev Emil**

Regional water mass transformation due to global climate change

**Yuxuan Li**

The dynamical mechanisms controlling the equilibrium state transition within the Mindanao-New Guinea Confluence

**Zhang Lei**

Positive Indian Ocean Dipole Intensifies Marine Heatwaves along the West African Coast  
Artificial Intelligence:  
Role in Climate-Ocean Research and Prediction



# Ocean-Climate Observations and Modelling

**Akram nafis Abdillah** (presented by Kartadikaria Aditya R.)

A Fully Coupled High-Resolution Ocean-Atmosphere Model around the Lombok Strait

**Bernawis Lamona I**

Sea surface salinity variability of Central Indian Ocean - Western Indonesia waters 1993-2019

**Bourdallé-Badie Romain**

The Marine Environment Reanalyses Evaluation Project MER-EP, towards an improved knowledge of the global ocean environment of the past decades, to support ocean applications and ocean prediction

**Brandt Peter**

Physical processes and biological productivity in the upwelling regions of the tropical Atlantic

**Chen Zhaohui**

China's Activities in Ocean Observations in the Northwest Pacific

**Cravatte Sophie**

An absence of moorings in the western Tropical Pacific: what are the main consequences and risks to climate research and prediction?

**Hossain Md Shahadat**

Seasonal and Interannual Variability of Freshwater Flux in the Labrador Coastal Current: Insight from OSNAP Mooring Data

**Iovino Dorotea**

Ocean modelling for climate research: the role of the CLIVAR OMDP

**Iskandar Iskhaq**

Observed Freshwater Dynamics in the Banda Sea

**Liu Lin**

Observation of Low-Level Jets in the Eastern Tropical Indian Ocean Based on Shipborne Coherent Doppler Lidar

**Lovenduski Nicole**

The impact of storms on Southern Ocean energy and carbon cycling

**Mowsumi Tahrir Jannat**

Advancing Ocean Modeling in the Bay of Bengal: Validating FIO-COM and Assessing Nonbreaking Surface Wave-Induced Mixing Effects

**Nissen Cara**

Mapping sparse ocean observations: What can we learn from synthetic observing systems in models?

**Putu Hadi Wiguna Pande**

Enhancing Spatial Analysis of Sea Level Rise in the Bali-Lombok Sea Using Marine AWS, Tide Gauge, Satellite Altimetry, and Numerical Model Integration

**Rachmayani Rima**

Study of the Depth of Thermocline (DOT) Based on Planktonic Foraminifera Abundance During the Younger Dryas Period in the Makassar Strait

**Rahaman Hasibur**

Ocean reanalysis inter-comparison over the global Ocean

**Speich Sabrina**

Advancing Ocean Observations for Climate Action: The Synergy of CLIVAR, GOOS, and GCOS

# Ocean-Climate Observations and Modelling

**Susanto Raden Dwi**

Indonesian Throughflow Monitoring Program: Past, Present, and Future

**Urakawa Shogo**

A new ocean regional projection dataset with 10 km resolution for the North Pacific d4PDFv2-Ocean and its application to coastal downscale modeling around Japan

**Wang Zheng**

Transport and Variation of the Indonesian Throughflow at Halmahera Sea through Jailolo and Gebe Straits



# Societal Impact

**Bishoyi Ratna Satyaban**

Linking Large-Scale Climate Drivers to Hydroclimate Variability over South Asia

**Cai Wenju**

Impact of ENSO and the IOD on global economy

**Chris Lennard**

Could solar radiation management (SRM) ameliorate or exacerbate the impacts of climate change in Africa?

**Das Mohan Kumar**

Impacts of Marine Heatwaves on the Bay of Bengal's Coastal Ecosystems and Communities: Drivers, Adaptation Strategies, and Enhancing Resilience

**Deb Biplob, Rozario Dr. Hemanto Pius**

Science to Society: An Educational Model for Climate Resilience in Bangladesh and its Potential for Regional Application

**Elemide Oyebola Adebola**

Water security through science -based cooperation and Echo-hydrology for sustainability

**Jamero Laurice** (presented by Lennard Christopher)

Connecting the WCRP Academy and the CLIVAR Community

**Kiki Kiki**

Assessing the Socioeconomic Footprint of Tornado Events in Indonesia: A 14-Year Spatio-Temporal Impact Analysis (2010-2024)

**Krishnapillai Shadananan**

Impact of warming Indian Ocean on different facets of life in India

**Madhanagopal Devendraraj**

Climate at the margins: Socioeconomic differences and climate change perceptions among coastal fishing communities in Tsunami-hit villages of Tamil Nadu, India

**Mandal Shailendra**

Gaps and Challenges in Addressing the Societal Impact of Climate Variability and Climate Change in the Indian Coastal Metropolitan City due to Interactions with Complex Ocean and Atmospheric Processes: An Example of Bridging Science and Society in Southeast Asia and Beyond

**Masagca Jimmy**

Bridging Science and Society through CLIVAR Initiative: Tropical Cyclones as a Catalyst for Coastal Fisheries and Mangrove Resilience in the Goni and Haiyan Corridors (Catanduanes and Aklan) in the Philippines

**Morris Tamaryn**

Advancing Ocean20: Strengthening Science to Society initiatives through partnerships

**Ripaldi Adi**

Spatial Distribution and Prediction of Extreme Rainfall Over Indonesia for supporting Key Pillar of Indonesia Early Warning for All

**Samanta Dhrubajyoti**

Impacts of the 2020-2023 Triple-Dip La Niña on Rainfall in Southeast Asia

**Sangeetha R, Muthiah Krishnaveni**

Empowering Communities in Tamilnadu: Human Dimensions and Foresight of Oceanic and Climatic Shifts

# Societal Impact

**Siregar Plato**

An Application of WRF-ARW/WRF Hydro Model Coupled in Flood Simulation in South Tapanuli Region  
(Case Study 12 - 15 March 2025)

**Smith Katie**

Impacts of the unprecedented global marine heatwaves in 2023 and 2024

**Sudharson G, Muthiah Krishnaveni** (presented by Kartadikaria Aditya R.)

Climate Change induced Sea Level Rise and Coastal flooding Vulnerability in Chennai region,  
TamilNadu

**Surya Dharma Candrasa**

Tidal reconstruction of three cruise ships harbouring simultaneously in Benoa Harbour in respect to  
modern navigation File S-100

**Tiwari Mayank** (presented by Aadhar Saran)

Risk of Extreme Precipitation on Dam Infrastructure under changing climate over India

**Wiratmo Joko**

Projection of climate change impact on oldman climate classification in Indonesia

