

47th Session of the World Climate Research Programme
Joint Scientific Committee



Presented at the 47th Session of the WCRP JSC

- Overview of GEWEX and Its Panels
- Scientific Highlights
- Future Plans and Priorities
- Challenges, Issues, and Suggestions

Xubin Zeng, Jason Evans, Jan Polcher, Peter van Oevelen
April 2026

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Jason Evans

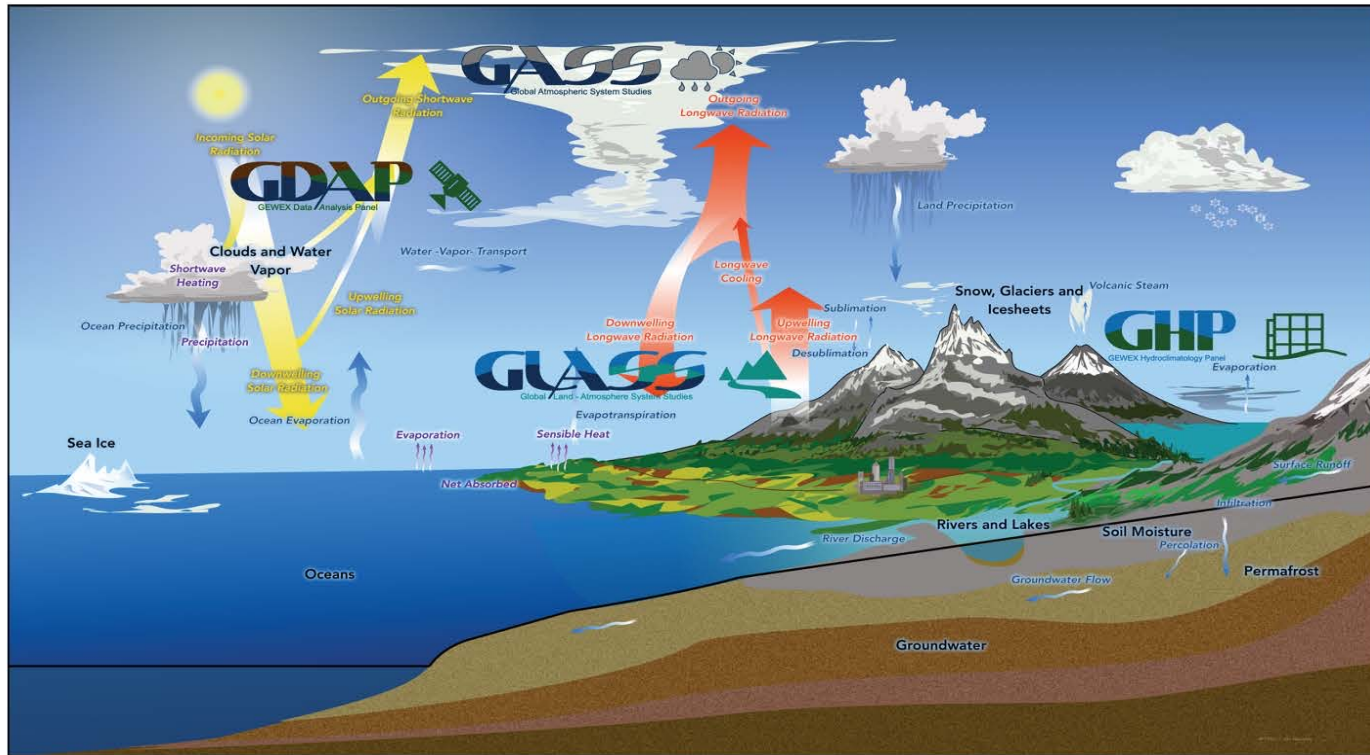
28 April

Online



GEWEX Panels and their Activities

There are ~40 active GEWEX projects organized through 4 panels



One highlight from each panel

The focus of the four GEWEX panels in relation to the global and regional water and energy cycles (© P. van Oevelen, 2020)

GPCP future

Lead: Ali Behrangi (U. Arizona)



GPCP V4 planning/effort is ongoing (targeting Mid 2026)

**GPCP V4
NASA MEaSUREs
(2024-2029)**



PI: Ali Behrangi (U of Arizona)
Co-Is: George Huffman (NASA GSFC)
Bob Adler (UMD)
Chris Funk (UCSB)

GPCP V4 will significantly improve the GPCP V3 in four major areas:

- (1) Consistency and accuracy, by *improving satellite products & developing a new global gauge analyses*
- (2) Duration, Monthly & daily going back to 1983.
- (3) Resolution, GPCP V4 will be computed at 0.1° resolution (instead of 0.5° in GPCP V3.2)
- (4) Latency, Gauge adjustment with ~ 2 weeks latency (instead of a few months)
- (5) Temporal resolution will be enhanced from Daily to 3 hourly.

GEWEX SSG-38, 23-27 Mar, 2026: Bonn, Germany

EarthCARE-ORCESTRA Model Intercomparison Project (ECOMIP)

Courtesy Woosub Roh

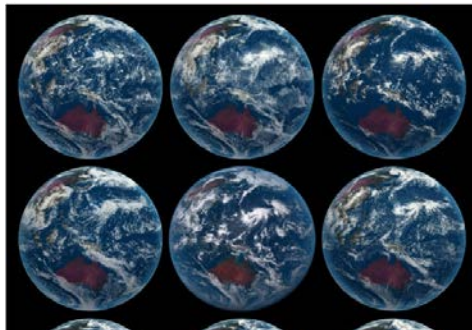
<https://www.earthcarescience.net/projects/ecomip>

EarthCARE



https://www.eorc.jaxa.jp/EARTH/CARE/about/ec_intro_j.html

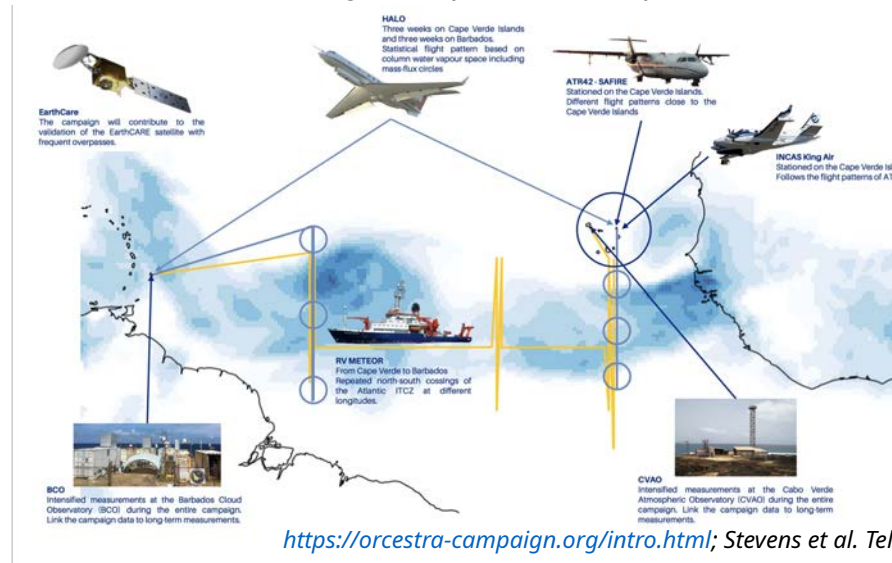
DYAMOND km-scale models



Stevens et al. 2019; Takasuka et al. 2024

ORCESTRA field campaign

(Organized Convection and EarthCARE Studies over the Tropical Atlantic, August-September 2024)



GASS

- The EarthCARE observation data are expected to play an important role in evaluating global kilometer-scale models and constraining physical parameters and processes within them.
- This year, both NICAM and ICON have conducted simulations for the golden case on September 3, 2024, and we are currently preparing a proposal paper based on these results.
- We also plan to carry out intercomparison studies with other research groups.

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GLASS project updates: SoilWat

Presentations followed by **group** discussions

Session +
Discussion

Session 1

Session 2

Session 3_AM

Session 3_PM

Session 4

Session 5

Pathways Forward?

- PTF Revolu
 - Use AI/ (bypas
 - Leverage (...).
- Unified Soil biological,
- Model-Dat
 - VaaSS
 - Faster S
- Communiti communic
- Urgency: R ML-domin

Article Type: Meeting Report

Rethinking Soils in Land Surface Models

Anne Verhoef, Yijian Zeng, Nurit Agam, Martin Best, Sara Bonetti, Souhail Boussetta, Nathaniel Chaney, Matthias Cuntz, John Edwards, Surya Gupta, Josh Heitman, Min Huang, Nicholas Jarvis, Shijie Jiang, Rajsekhar Kandala, Filip Kiatka, Taiqi Lian, Mengyuan Mu, Attila Nemes, Sinikka J. Paulus, Nina Raoult, Kangari Narendra Reddy, Nunzio Romano, Manon Sabot, Jan Vanderborght, Martine van der Ploeg, Peter van Oevelen, Yong Wang, Yunquan Wang, Tobias Karl David Weber, Toby Marthews, and Lutz Weihermüller

Online Publication: 24 Feb 2026

DOI: <https://doi.org/10.1175/BAMS-D-26-0003.1>



**Bulletin of the
American
Meteorological Society**

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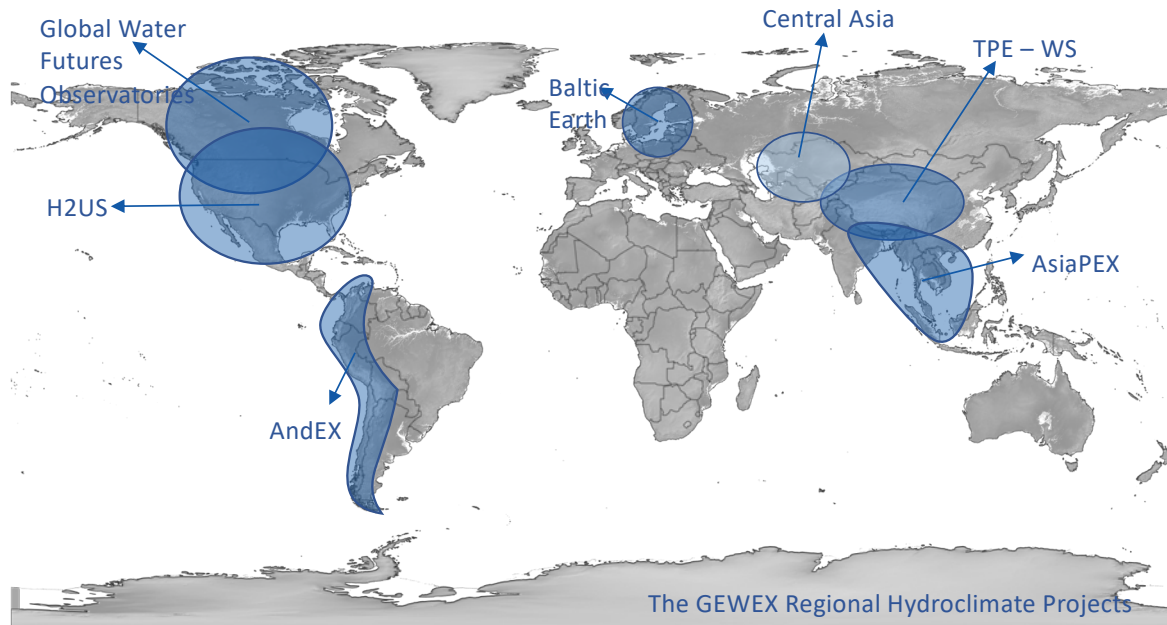
From
across
model
sensing
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initiat

Consortium (ISMC; <https://soilwat2025.org>)
focused on how to better represent
and Earth system models used

Regional Hydroclimate Projects



Regional Hydroclimate Projects continue successfully despite an increasingly difficult funding and resource mobilization environment



Active:

- Baltic Earth* (2013-2023)
- GWFO*¹ (2016-2026)
- GWFO (2026 - 2029)
- ANDEX* (2022-2032)
- TPE-WS (2023-2033)
- AsiaPEX (2023-2033)
- H2US (2023-2033)

*Mature RHPs

¹Followed by new GWFO

Prospective:

Central Asia

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Key Results and activities(1):

- The [8th WMO International Workshop on Monsoons \(IWM-8\)](#) was successfully organized jointly by the Indian Institute of Tropical Meteorology (IITM), Pune, Ministry of Earth Sciences (MoES), Government of India, the WWRP's Working Group on Tropical Meteorology Research (WGTMR) and the CLIVAR/GEWEX Monsoons Panel in cooperation with the India Meteorological Department and the International Monsoons Project Office (IMPO) during 17-21 March 2025 in Pune, India.
- **Theme: “Advancing the Understanding and Prediction of Monsoons and their Impacts in a Changing Climate”**

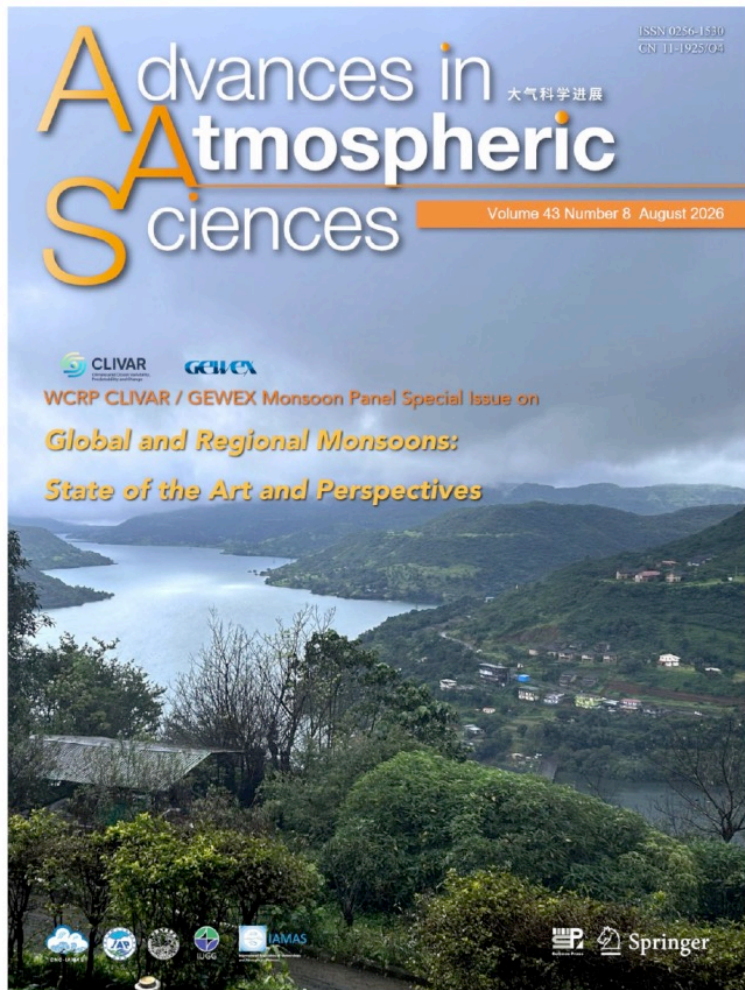




People (left to right):
Maheswar (AAM), Paul-Arthur (co-chair AFM),
Satyaban (MP), Susmitha (IMPO), Kieran (AAM),
Rajagopal (IMPO), Raghu (AAM), Thea (MP, AAM),
Surya (co-chair MP).

Key Results (1): IWM-8 (17-21 March 2025, IITM Pune)

- A total of fourteen experts from MP, WG-AFM, WG-AAM, and WG-AMM served on the International Scientific Committee (ISC) for IWM-8. Their contributions included key leadership roles and support in reviewing and evaluating all workshop abstract submissions.
- Eight members across MP, WG-AAM, and WG-AFM delivered Invited/Oral talks. Suryachandra Rao and Thea Turkington also chaired sessions, including the 'Regional Monsoons of the World' session on 18 March 2025.



Special issue guest editors:

Annalisa Cherchi (CNR, Italy), **Satyaban Bishoyi Ratna** (IMD, Pune), **Rondrotiana Barimalala**, **Hiroshi G. Takahashi** (Tokyo Metropolitan University, Tokyo, Japan), **Pankaj Kumar** (Indian Institute of Science Education and Research Bhopal, India), **Alice M Grimm**, **Ruth Cerezo-Mota**, **Suryachandra Rao** (IITM, India)

List of accepted papers:

Emerging Trends in Climate Change Impact on the Indian Summer Monsoon Rainfall
 Bhupendra Goswami, P V Rajesh, Subodh Kumar Saha, Bijit Banerjee, Devabrat Sharma

Land-surface influences on precipitation characteristics in the wet Asian monsoon regions: A review integrating high-resolution satellite observations and convection-permitting climate modeling
 Hiroshi G. Takahashi, Shiori Sugimoto, Hatsuki Fujinami, Tomonori Sato

Disentangling Internal Variability and Forced Response in Global Land Monsoon Projection Uncertainty: Insights from Multi-Model Large Ensembles
 Lu WANG, Xiaolong CHEN, Yan ZHAO, Yuqing LI, Pengfei LIN

The Observed and Projected Changes of Global Monsoons: Current Status and Future Perspectives
 Tianjun ZHOU, Xiaolong CHEN, Wenxia ZHANG, Bo WU, Ziming CHEN, Jie JIANG, Xin HUANG, Shuai HU, Meng ZUO, Wenmin MAN, Lixia ZHANG, Zhun GUO, Pengfei LIN, Lu WANG

Advancing Asian Monsoon Climate Prediction under Global Change: Progress, Challenges, and Outlook
 Bin WANG, Fei LIU, Renguang WU, Qinghua DING, Shaobo QIAO, Juan LI, Zhiwei WU, Keerthi SASIKUMAR, Jianping LI, Qing BAO, Haishan CHEN, Yuhang XIANG

Impacts of 1.5°C and 2.0°C Global Warming on the Onset, Cessation, and Length of the Rainy Season in Global Land Monsoon Regions
 Thierry N. TAGUELA, Ibraheem RAJI, Akintomide A. AKINSANOLA, Priyanshi SINGHAI, Oluwafemi E. ADEYERI, Caroline M. WAINWRIGHT, Rondrotiana BARIMALALA

Differential Vegetation Feedback on the Global Land Monsoon System during the Mid-Holocene and Last Interglacial
 Zhenqian WANG, Qiong ZHANG, Jie CHEN, Zixuan HAN

Modeling of Precipitation over Africa: Progress, Challenges, and Prospects

A. A. AKINSANOLA, C. N. WENHAJI, R. BARIMALALA, P.-A. MONERIE, R. D. DIXON, A. T. TAMOFFO, M. O. ADENIYI, V. ONGOMA, I. DIALLO, M. GUDOSHAVA, C. M. WAINWRIGHT, R. JAMES, K. C. SILVERIO, A. FAYE, S. S. NANGOMBE, M. W. POKAM, D. A. VONDOU, N. C. G. HART, I. PINTO, M. KILAVI, S. HAGOS, E. N. RAJAGOPAL, R. K. KOLLI, S. JOSEPH

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Continuity of Earth Observation missions

- Radiation: In response to concerns raised by EEI and CFMIP communities, a letter was drafted urging to ensure the future continuity of ERB missions. The letter has been endorsed by WCRP JSC and has been sent to relevant agencies.
- Precipitation: A constellation of LEO microwave instruments, crucial for global high-temporal-resolution precipitation datasets, may shrink in the 2030s. GEWEX will engage with the community and decide what can be done in the near future.

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Future plans and priorities

- *IGPO supported by NASA and ESA –US and European Node*
- *Beginning to interact with the private sector*

- *All GEWEX activities are now truly connecting the energy and water cycle from bedrock to boundary layer – continue to strengthen the Earth System approach*

- *GLASS panel reorganization*
- *Regular sunseting individual projects and launching new ones*

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Major Conferences

UNIVERSITÄT HOHENHEIM **GLASS**

2026 Pan-GLASS Conference

Back to the Drawing Board:
From Fundamentals to Improved Models of
the Coupled Land-Atmosphere System

Venue

Pan-GLASS 2026 will take place from 6–9 July 2026 at:
Mövenpick Hotel Stuttgart Messe & Congress
Flughafenstraße 43
70629 Stuttgart
Germany

- *Several other workshops and meetings in 2026*
- *Pan-GASS conference in 2027*
- *Pan-GHP conference in 2027*

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Suggestions, issues or challenges

- **Challenge:** *Maintain and diversify the support of Project Office and travel support*
- **Issue:** *While virtual meetings are useful, in-person meetings are still crucial to develop and maintain long-term comprehensive projects (e.g., regional hydroclimate projects). If travel support is significantly reduced, such projects may be difficult to maintain or develop in the near future.*
- **Suggestion:** *Perhaps WCRP could reach out to countries who have resources, care about water, climate, and extreme events, but have not been actively involved in WCRP activities.*
- **Suggestion:** *Consider the financial constraint in project support when WCRP wants to launch any new projects*

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