

CaMa-Flood developer/user international meeting 2024

5th and 6th July, 2024 (Friday and Saturday)
at the Institute of Industrial Science, The University of Tokyo.

Conference Venue:

UTokyo IIS Convention Hall

UTokyo Komaba-2 Research Campus, IIS Building A, 2nd Floor
4-6-1 Komaba, Meguro-Ku, Tokyo, 153-8505, Japan

<https://maps.app.goo.gl/QEFSeVYxhQnUk7eJ9>

<https://www.iis.u-tokyo.ac.jp/en/access/>

About the meeting

Over the past 15 years since its initial development, the global river model CaMa-Flood has undergone significant advancements. We have introduced numerous new model schemes, incorporated new baseline topography datasets, and refined our analysis methods. Furthermore, CaMa-Flood has become widely utilized for various applications, including flood risk assessment, Earth's climate system modeling, and data assimilation.

We are excited to announce the first-ever international meeting for CaMa-Flood developers and users. This gathering aims to facilitate the exchange of knowledge and expertise, allowing participants to share insights, discuss current advancements, and explore future developments and applications of CaMa-Flood.

All CaMa-Flood developers and users are cordially invited to participate in the meeting. Moreover, we extend a warm welcome to all researchers interested in global river hydrodynamics, regardless of whether they are currently using CaMa-Flood. We look forward to fostering a diverse and enriching exchange of ideas and collaborations during the event.

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| | 5-Jul Friday | | | |
| 9:30-10:00 | Registration & Ice Breaker | IIS Building An 2nd Floor | | |
| 10:00-10:50 | Opening | | | |
| | | Dai Yamazaki | <i>Institute of Industrial Science, The University of Tokyo</i> | Recent advances and next challenges in global hydrodynamics modelling |
| 10:50-12:00 | Session 1 | Flood Risk Assessment | | Chair: Faizal Immaddudin Wira Rohmat |
| | | Tobias CONRADT | <i>Potsdam Institute for Climate Impact Research</i> | Application of CaMa-Flood in the Danube River Basin |
| | | Fang Zhao | <i>East China Normal University</i> | Analyzing the Impact of Precipitation Patterns on Historical Mega-Flood Events in the Yangtze River Basin |
| | | ☆ Masahiro ABE | <i>University of Michigan; Ministry of Land, Infrastructure, Transport and Tourism in Japan</i> | Model Development to Assess Corporate Financial Flood Risks under Climate Change |
| | | ☆ Prakat MODI | <i>Shibaura Institute of Technology</i> | Impact of Sea Level Rise on Fluvial Flooding on Coastal Mega Cities |
| 12:00-12:05 | Group Photo | | | |
| 12:05-13:05 | Lunch Break | | | |
| 13:05-14:15 | Session 2 | Real-time Flood Impact Assessment | <i>(jointly hosted by JST Moonshot "WeSCos: Wether-Society Coupling/control Systems" project)</i> | Chair: Michel Wortman |
| | | Kei Yoshimura | <i>The University of Tokyo</i> | Development of Today's Earth, a real-time global flood forecasting system, and its applications |
| | | Fitsum Woldemeskel | <i>Bureau of Meteorology</i> | Implementation of CaMa-Flood for seamless hydrological prediction across Australia: progress and challenges |
| | | Yuki Kita | <i>Institute of Industrial Science, The University of Tokyo</i> | Flood risk reduction effect of levee in a global riverine inundation model |
| | | Menaka REVEL <i>(invited)</i> | <i>Department of Civil Engineering, University of Waterloo/Institute of Industrial Science, The University of Tokyo</i> | CaMa-DA: Global Data Assimilation Framework for CaMa-Flood |
| 14:15-14:35 | Poster Flash Talk | (Poster Presenters) | | |
| 14:35-15:05 | Coffee Break | | | |
| 15:15-16:25 | Session 3 | Earth System Coupling | <i>(jointly hosted by KAKENHI "Macro-coastal Oceanography" project)</i> | Chair: Daisuke Tokuda |
| | | Zhongwang Wei | <i>Sun Yat-sen University</i> | Development of a Land-River Bidirectionally Coupled Land Surface Model Considering Re-infiltration and Re-evaporation Processes during Flooding |
| | | Sonja Folwell | <i>UK Centre for Ecology and Hydrology</i> | Improved modelling of Sudd wetland extents in a CaMa-Flood land surface configuration. |
| | | ☆ Muhammad Hasnain Aslam | <i>Department of Civil Engineering, The University of Tokyo</i> | Enhanced Dynamic Sediment Transport Model to Simulate Global Riverine Sediment Fluxes Incorporating the Impact of In-line Storage Systems |
| | | Augusto Getirana | <i>NASA Goddard Space Flight Center</i> | Rivers in NASA Land Information System Framework |
| 16:30-17:25 | Session 4 | Computational Efficiency | <i>(jointly hosted by -MEXT SENTAN program climate change projection)</i> | Chair: Gang Zhao |
| | | Dai Yamazaki | <i>The University of Tokyo</i> | Making CaMa-Flood faster for more complex applications |
| | | Michel Wortmann | <i>ECMWF</i> | CaMa-Flood as part of the ECMWF Integrated Forecasting System |
| | | ☆ Shengyu Kang <i>(invited)</i> | <i>Wuhan University</i> | A Computationally-efficient practice for global river hydrodynamic models |
| 17:25-18:25 | Poster | <i>At Foyer</i> | | |
| 18:30-20:30 | Social Dinner | <i>At KOMANI café</i> | <i>(optional) fee: about 3000 yen per person</i> | |

| 6-Jul Saturday | | | | |
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| 9:00-9:05 | Day-2 Opening | | | |
| 9:05-10:00 | Session 5 | Benchmark & Calibration | | Chair: Peirong Lin |
| | | Xudong Zhou | <i>Ningbo University</i> | Benchmark System of Global River Models |
| | | ☆ Dung Trung VU | <i>Institute of Industrial Science, The University of Tokyo</i> | Improving the performance of flow simulations in mega river deltas by upgrading bifurcation computational scheme in global hydrodynamic model CaMa-Flood |
| | | David Gustafsson | <i>Swedish Meteorological and Hydrological Institute</i> | Combination of CaMa-Flood and HYPE hydrological model for simulation of Arctic rivers |
| 10:00-10:55 | Session 6 | Baseline Data | <i>(jointly hosted by KAKENHI Kiban-S "Global terrestrial hydrodynamics with satellite earth observations")</i> | Chair: Fitsum Woldemeskel |
| | | ☆ Haoyu Jin | <i>Sun Yat-sen University</i> | Spatiotemporal distribution and influencing factors analysis of extreme precipitation in different climate regions around the world |
| | | ☆ Orié Sasaki | <i>Tokyo Institute of Technology</i> | Integration of river databases in Japan |
| | | Peirong Lin →Ziyun Yin | <i>Peking University</i> | Variations of river channel hydraulic geometry and its implications to global river modeling |
| 10:55-11:10 | Short Break | | | |
| 11:10-12:20 | Session 7 | Flood Protection Modelling | | Chair: Fang Zhao |
| | | ☆ Gang Zhao | <i>School of Environment and Society, Tokyo Institute of Technology</i> | The newly developed levee module in the CaMa-Flood model |
| | | ☆ Mizuki FUNATO | <i>Faculty of Engineering, The University of Tokyo</i> | Development of a Modified Reservoir Operation Scheme for Improved Global Flood Modeling |
| | | ☆ Faizal Immaddudin Wira Rohmat | <i>Faculty of Civil and Environmental Engineering, Institut Teknologi Bandung, Indonesia</i> | Optimizing Flood Control Reservoir Operations in the Citarum Watershed: A Reinforcement Learning Approach |
| | | ☆ Youjiang SHEN | <i>The University of Tokyo</i> | CaMa-Flood-Dam-Module |
| 12:20-12:40 | Open Discussion | | | |
| 12:40-12:50 | Closing | Awarding + Closing remark | | |
| 13:00-17:00 | Free discussion | (optional) Invited Presenters Only | <i>In Yamazalki Lab or somewhere outside</i> | |

| | Poster | Day-1: 17:25-18:25 (Flash talk 14:15 - 14:35) | A0 size portrait poster (84cm * 110cm) |
|---|--------------------------|---|---|
| ☆ | Shuping Li | <i>Institute of Industrial Science, The University of Tokyo</i> | Representing hillslope-scale land surface heterogeneity in land surface model substantially modulates water and energy budget |
| ☆ | Yang Hu | <i>Institute of Industrial Science, The University of Tokyo</i> | A new perspective of assessing flood impact with daily nighttime light remote sensing data |
| ☆ | Riaz Muhammad Shiraz | <i>The University of Tokyo</i> | Flood Zoning Map for Risk Mitigation in Pakistan |
| ☆ | Khan Kinza | <i>Institute of Industrial Science, The University of Tokyo</i> | How Much Flood Impact Can Be Mitigated By Infrastructure (Case Study Pakistan Flood 2022) |
| ☆ | Dhruv Sehgal | <i>Institute of Industrial Science, The University of Tokyo</i> | Understanding the Impact of River Sediment Outflow on Coastal Oceans |
| ☆ | Swarup Dangar | <i>Institute of Industrial Science, The University of Tokyo</i> | Improving CaMa flood model simulations with remote sensing |
| ☆ | Kota ISHIDA | <i>Institute of Industrial Science, The University of Tokyo</i> | Estimating Suspended Sediment Concentration in global river from Satellite Image and Confluence Budget Method |
| ☆ | Daisuke TOKUDA | <i>George Mason University</i> | Development and validation of a coupled simulation framework representing the hydro- and thermodynamics in rivers and lakes (TCHOIR) |
| ☆ | CAO Vu Quynh Anh | <i>Institute of Industrial Science, The University of Tokyo</i> | Current status and Challenges in Operating Flood Early Warning Systems at the local level in Japan |
| ☆ | Yuting Zu | <i>Institute of Industrial Science, The University of Tokyo</i> | Current status and Challenges in Operating Flood Early Warning Systems at the local level in Japan |
| ☆ | Isatama WINDARTO | <i>Institute of Industrial Science, The University of Tokyo</i> | Ensemble Damage Assessment Based On Forecasted Flood Extension and Building Asset Map For Extreme Typhoon Event: Case of Typhoon Hagibis 2019 |
| ☆ | Xiaoyang Li | <i>Institute of Industrial Science, The University of Tokyo</i> | Impact-based forecasting for typhoon Hagibis using the ILS with weather control experiments |
| ☆ | YINGYING LIU | <i>Institute of Industrial Science, The University of Tokyo</i> | TBD |
| | Toby Marthews | <i>UK Centre for Ecology & Hydrology</i> | Inundation in JULES-Camaflood and the CHAMFER project |
| ☆ | Ridwan Adebayo BELLO | <i>Technical University of Dresden</i> | Investigating Basin-Scale Flood Risk in Elbe Using the CaMa-Flood Model |
| | Sujeet Desai | <i>ICAR-Central Coastal Agricultural Research Institute, Goa, India</i> | Flood susceptibility modelling in the west coast river basins of India using a global hydrodynamic model |
| ☆ | Mohamed SABER | <i>DPRI, Kyoto University</i> | Machine learning algorithms and physical based models for for flood risk mapping |
| | | | |
| ☆ | : Early Career Scientist | | |

Local organizing committee

- Dai Yamazaki (Chair, UTokyo)
- Gang Zhao (Program: UTokyo)
- Zhou Xudong (Program: Ningbo Univ)
- Taishi Yazawa (Logistics: UTokyo)
- Minako Yokoyama (Secretary, UTokyo)
- Yuki Tsukada (Secretary, UTokyo)

Acknowledgement

CaMa-Flood developer/user meeting 2024 is co-organized by

- JST Moonshot “Goal-8: Controlling and modifying the weather” [JPMJMS2281]
- JSPS KAKENHI: Kiban-S “global terrestrial hydrodynamics with satellite earth observations” [21H05002]
- JSPS KAKENHI: Gakujutu Henkaku-A “Macro-coastal Oceanography” [22A402]
- MEXT SENTAN program for climate change projection [JPMXD0722680395]
- The Foundation for the Promotion of Industrial Science [RC98: Flood Risk Research]