

YOSHIMURA LAB.

Climate System and Water Cycle



Large-scale Experiment and Advanced-analysis Platform
Department of Human and Social Systems

Isotope Hydrometeorology

Department of Civil Engineering, Graduate School of Engineering
Department of Natural Environmental Studies, Graduate School of Frontier Sciences

<https://isotope.iis.u-tokyo.ac.jp>

Y-Lab contributes to the society by understanding of climate and water cycle.

We study the Earth from viewpoints of climate, water, and isotopes to make contributions to understanding of climate system and prevention of water-related disasters.

Where we are

Y-Lab is located in the LEAP of Institute of Industrial Science in Kashiwa campus.



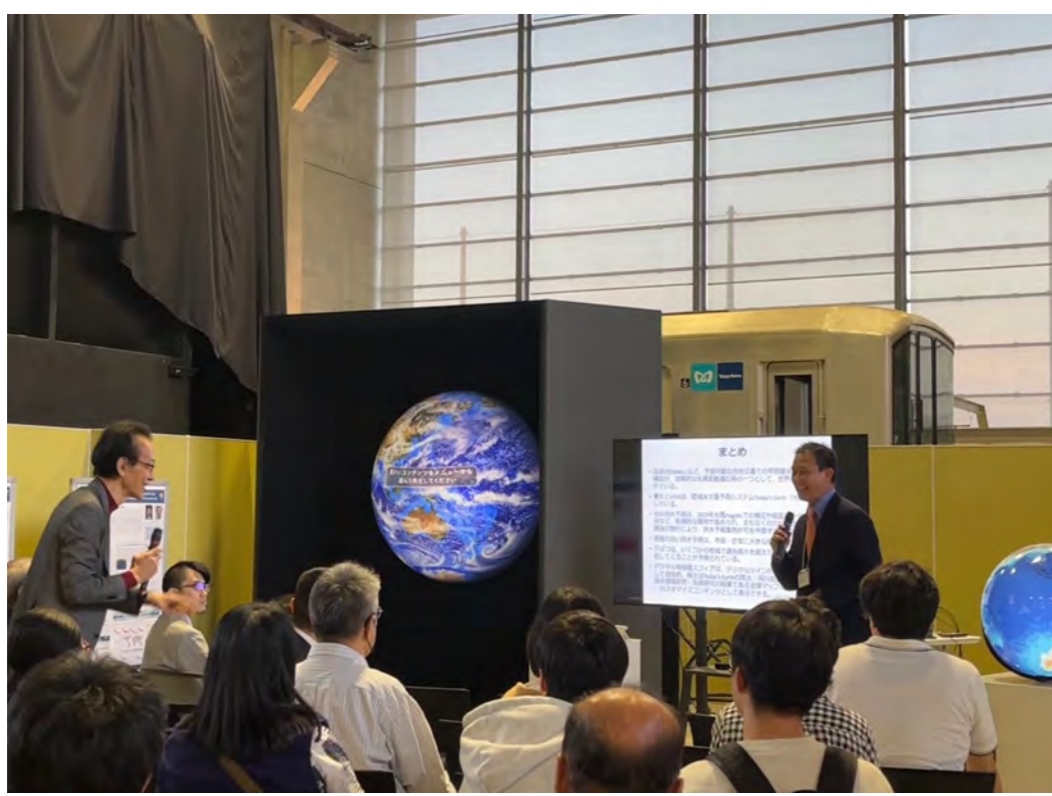
Office

There are some opportunities which Y-lab members can gather and discuss intensively.



Reception Space

Lab members often take a rest and chat with others here.



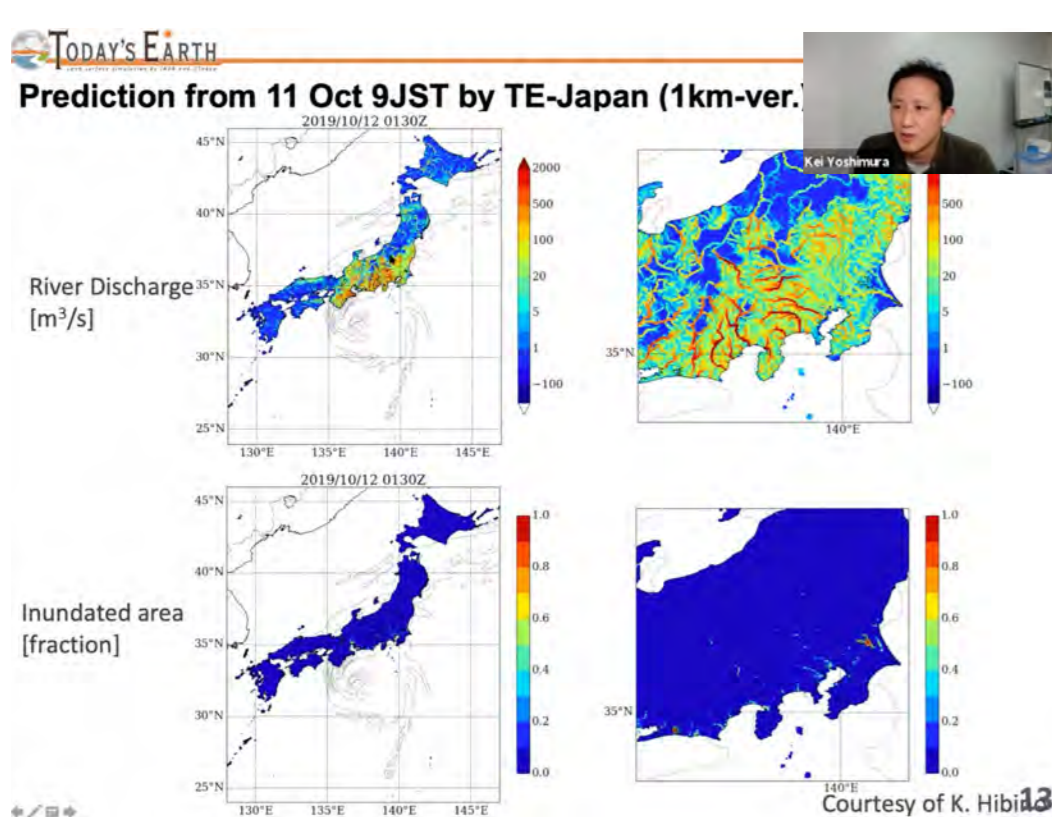
Open Campus

Visualization of water cycle with spherical display helps visitors understand research topics.



Isotope Experiment Room

Y-Lab is fully equipped with experimental instruments including mass and laser spectrometers.



Academic Conferences

Y-Lab members actively make presentations at academic conferences and share our results.

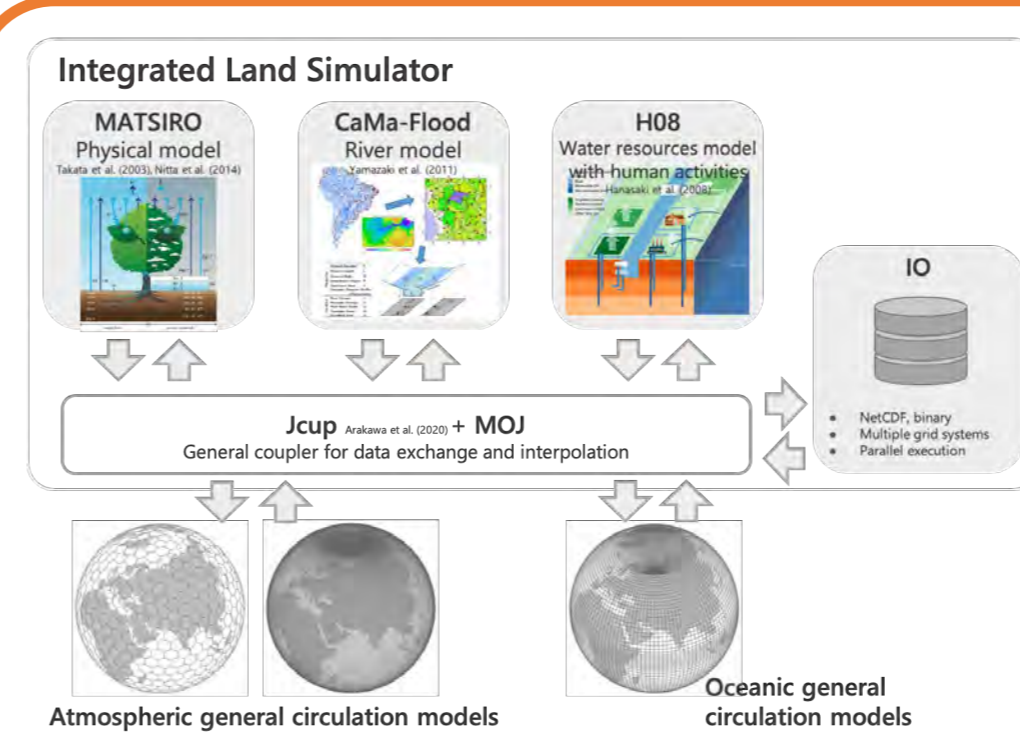


International Members

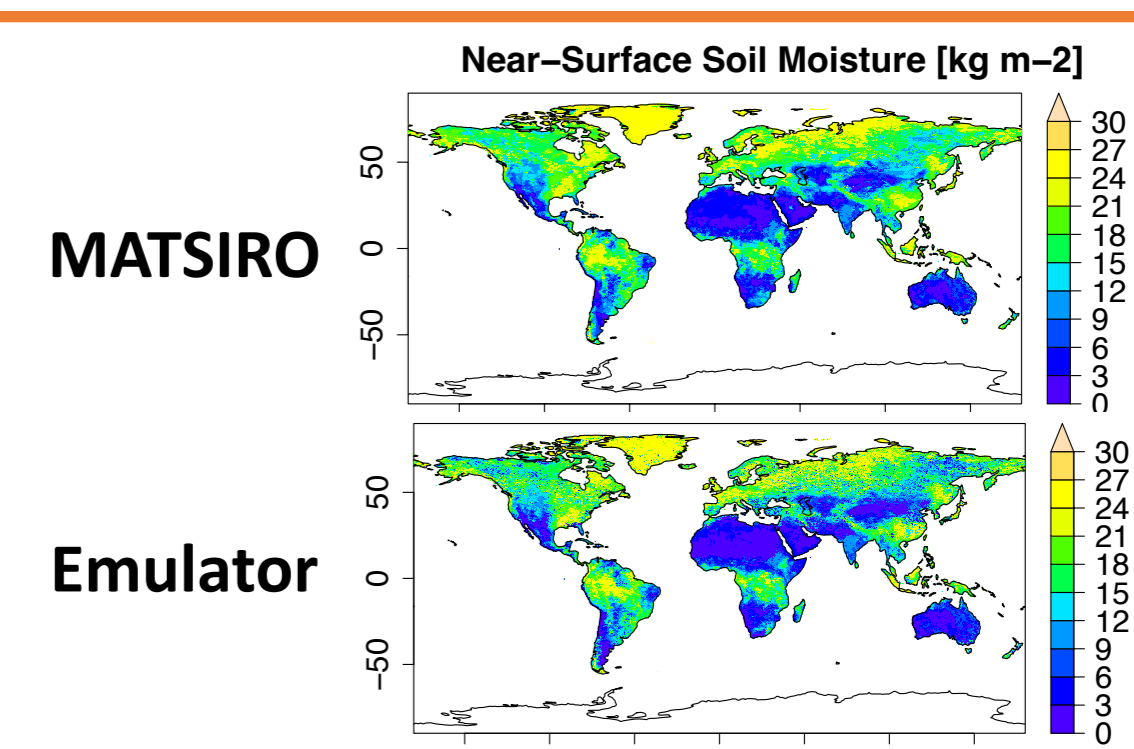
Members from various countries have lively discussions on their research topics.

What we do

Climate



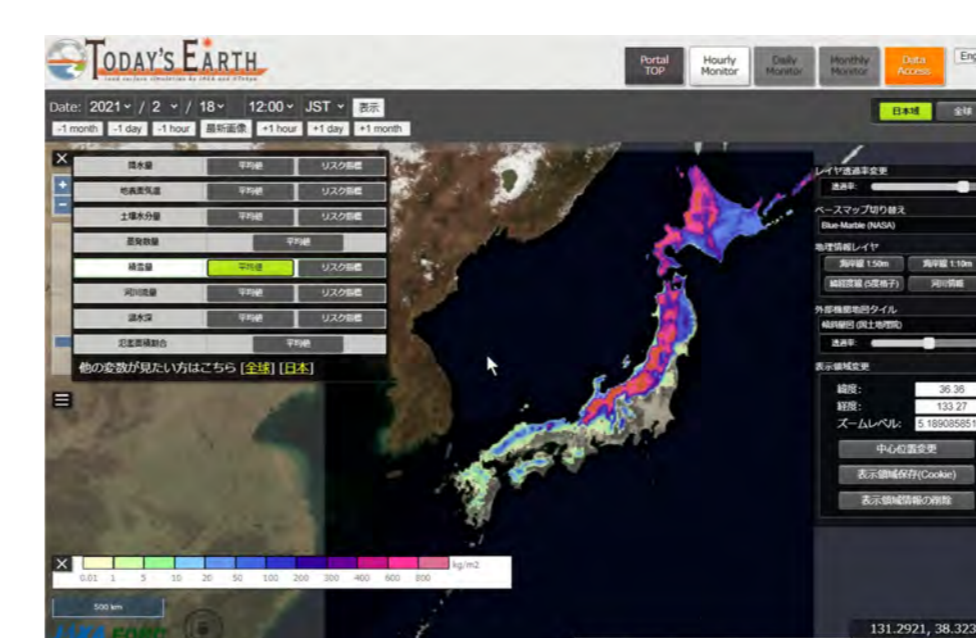
Integrated Land Simulator(ILS)



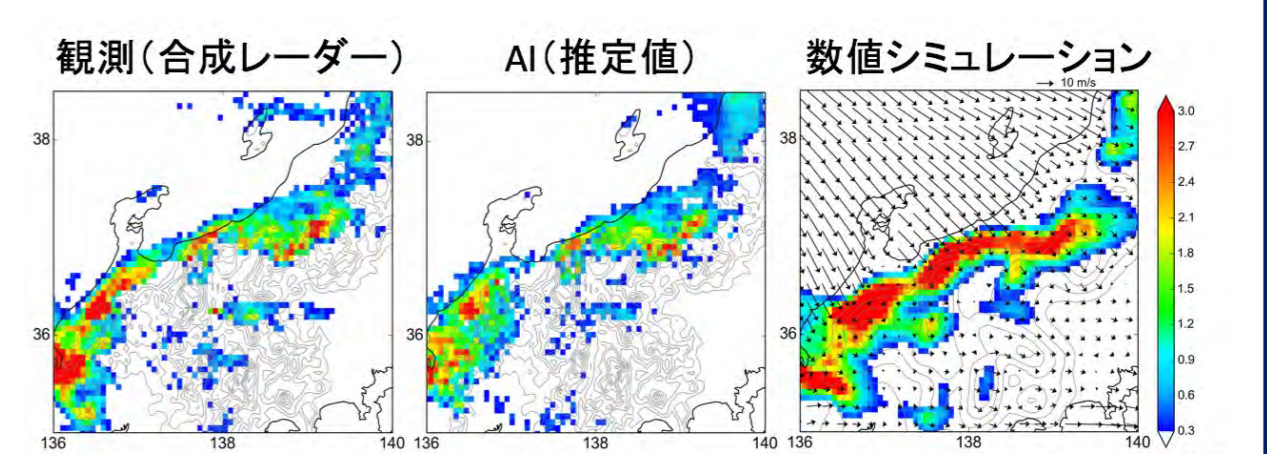
Developing a faster emulator for MATSIRO, capturing its essential features

Provision of useful information for climate change through understanding climate system using model development and its application

Water Cycle



Real-time numerical flood prediction by "Today's Earth" system

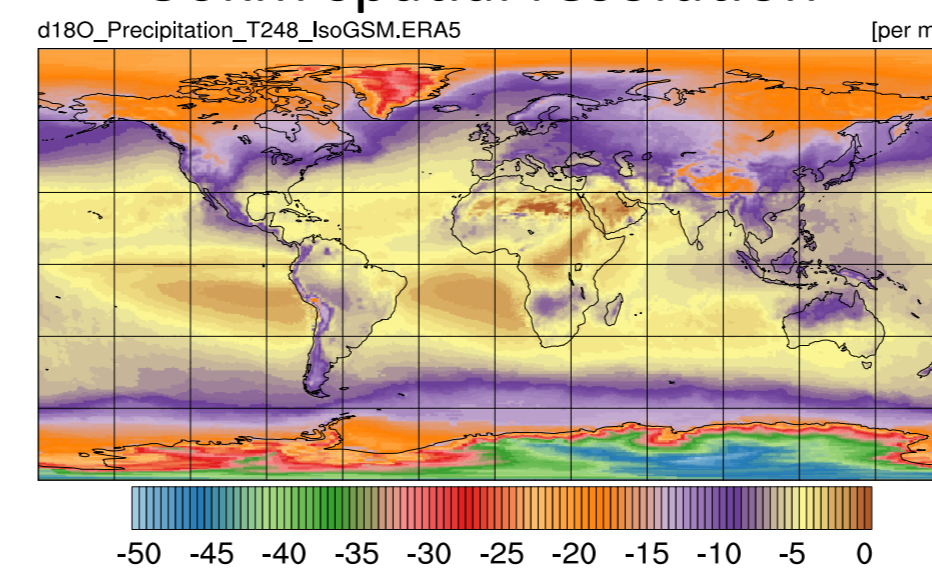


Estimation of local precipitation based on numerical simulation with AI

Contribution to world water resource management and disaster mitigation through representation and prediction of water cycle based on model development and its application

Isotope

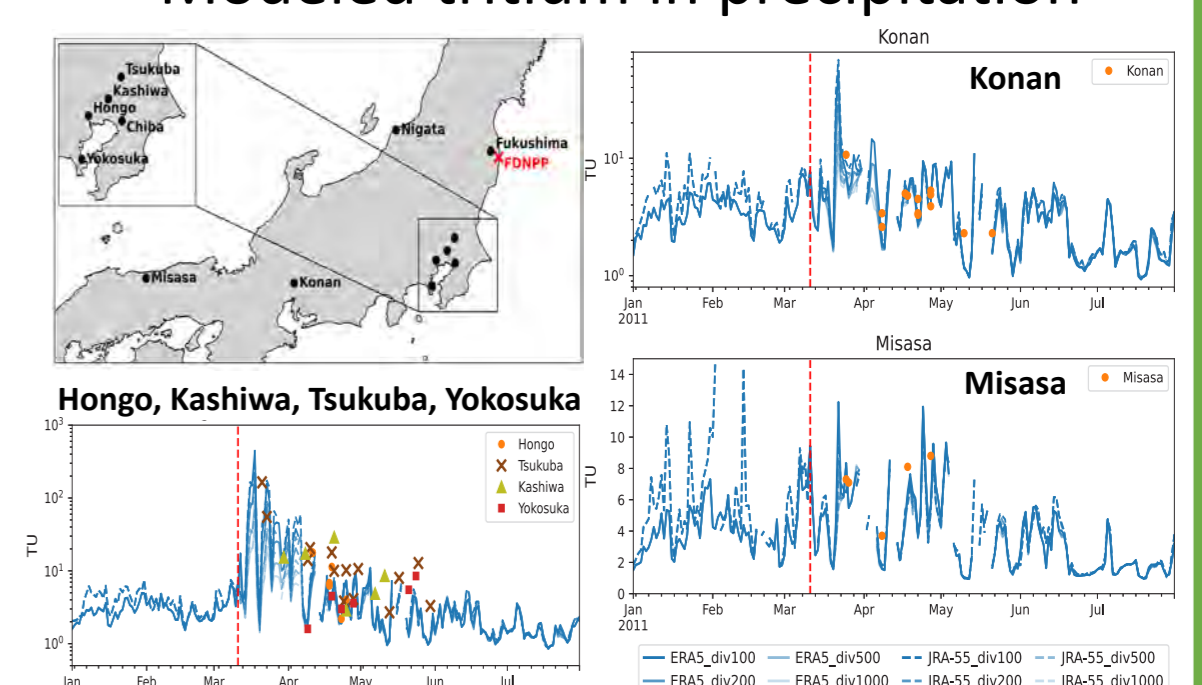
Modeled $\delta^{18}O$ in precipitation at a 50km spatial resolution



Annual mean of the present-day period (1970–2023)

Development of methods for climate reconstruction and improvement of model accuracy with isotope and seeking better understanding of climate system

Modeled tritium in precipitation



After Fukushima accident