気候変動予測先端研究プログラム
Advanced Study of Climate Change Projection (SENTAN)

2025/2/27
SENTAN-P4 Webinar for Malaysia

Introduction to Japan's National Climate Program (SENTAN Program)

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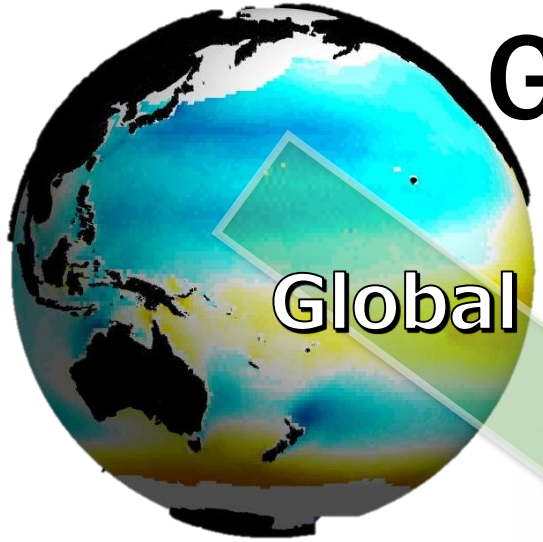
Kyoto University

Climate projection of extremes is important in Asian hazard assessment

Global to local climate risk



Global

Typhoons, Extra-TCs
Sea level rise

Asia/Pacific

Heavy precipitation
Storm surges
Water resources

National

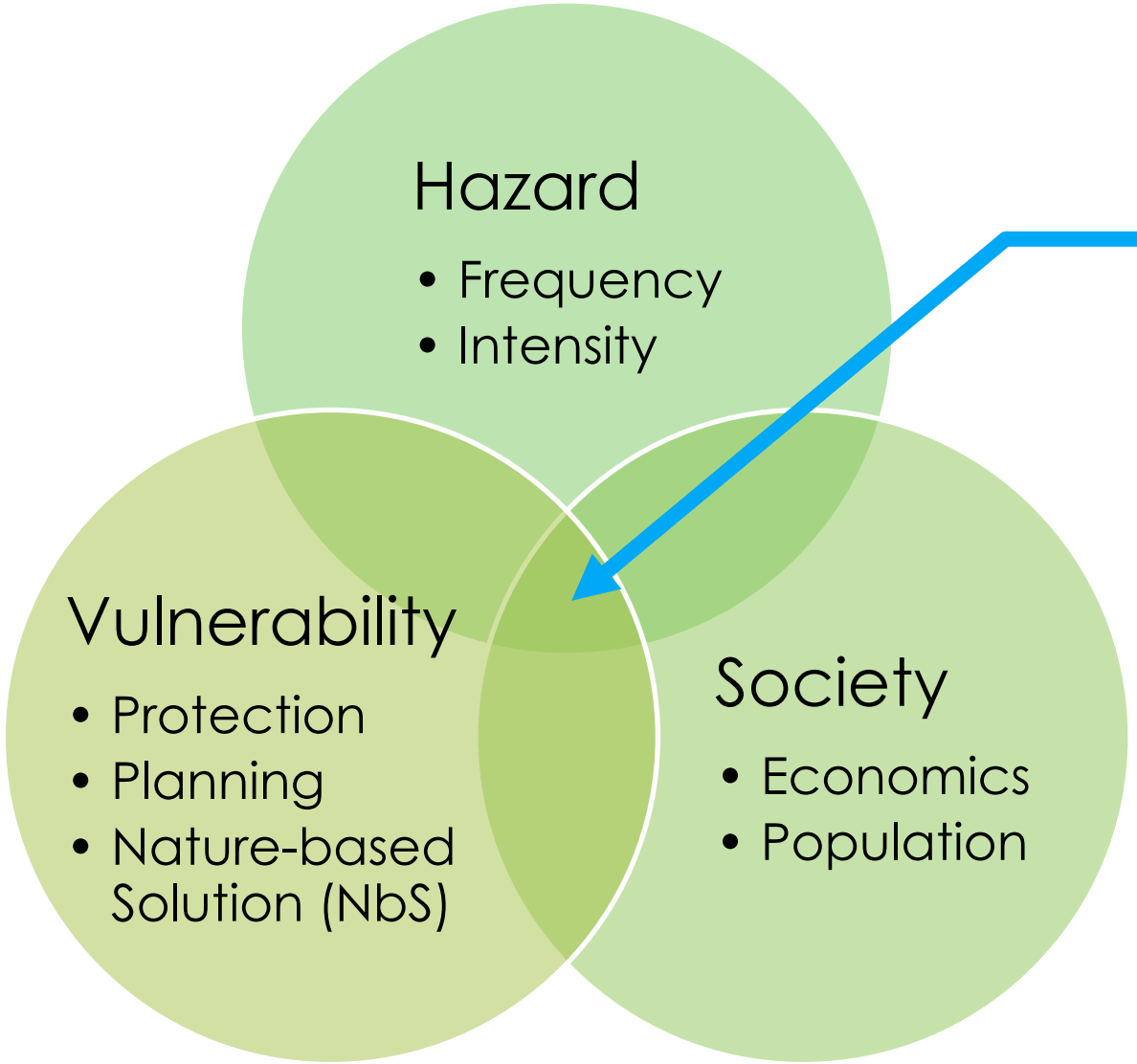
River and coastal flooding
Hazard Risk

Local

Time-line
Hazard intensity
Adaptation

Extreme Projections
Monsoon/Polar low
ENSO
Tropical Cyclones

Quantify the Hazard Risks



Potential risk change

- sea-level rise
- precipitation
- river flooding
- coastal flooding
- water resources
- heatwave

SENTAN Program (2022-2026) is Japan's National Climate Research Program by MEXT

SENTAN Program

2022-2026

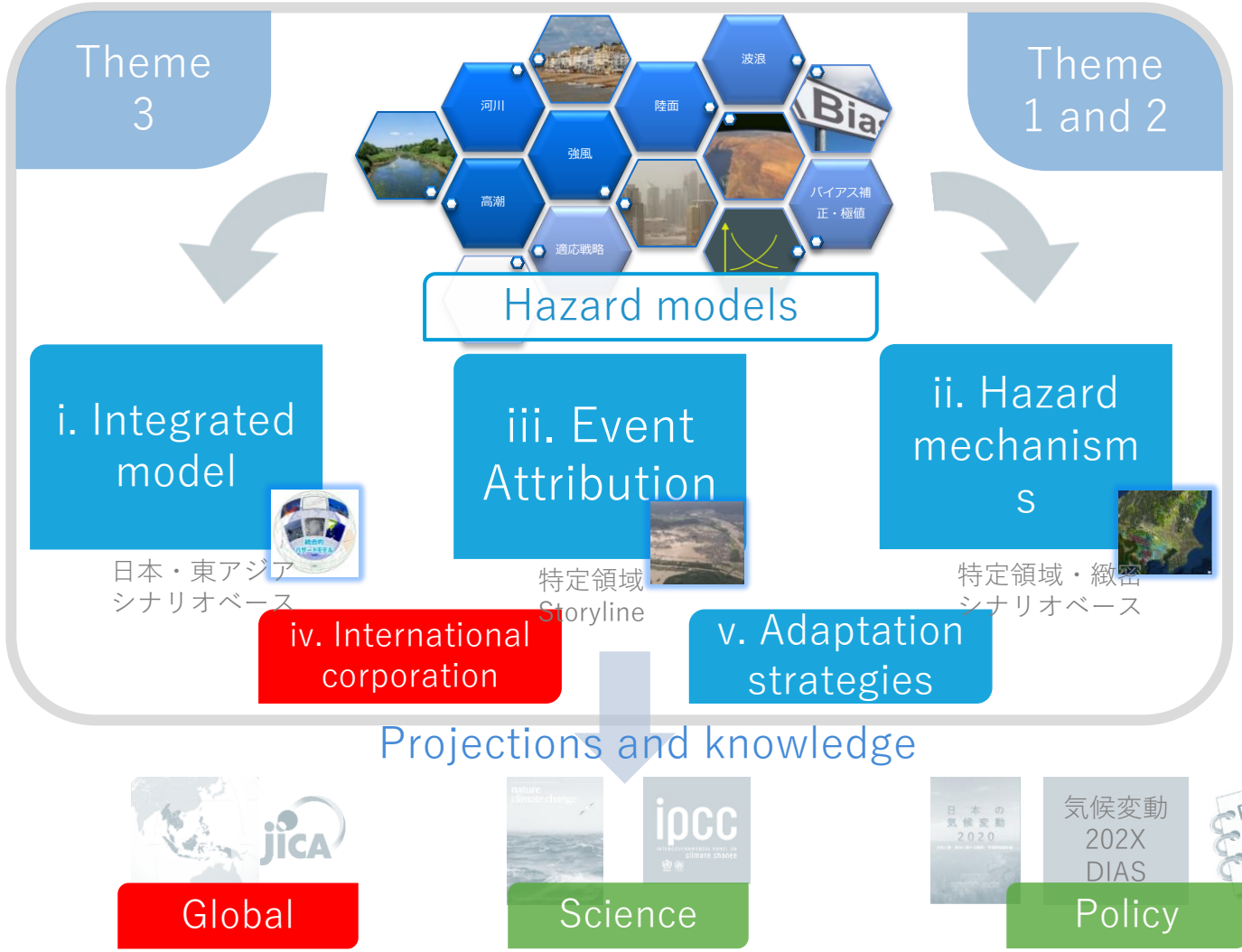
Japan's National Climate Research Program by MEXT

1.	Theme 1 AORI, U Tokyo	Prof. Watanabe
2.	Theme 2 JAMSTEC	Dr. Kawamiya
3.	**Theme 3 MRI**	**Dr. Tsujino**
4.	**Theme 4 DPRI, Kyoto**	**Prof. Mori**

Cooperative working groups (WGs)

- EA, AI, land model, SLR, wildfire, JAXA and international cooperation

SENTAN Program Theme 4: Outline



i. Integrated hazard model development

- Prof. T. Sayama (Kyoto U)

ii. Hazard mechanisms

- Prof. K. Tanaka (Kyoto U)
- Prof. M. Fujii (Hokkaido U)

iii. Hazard Event Attribution

- Prof. T. Takemi (Kyoto U)

iv. International cooperation

- Prof. Y. Tachikawa (Kyoto U)

v. Adaptation strategy

- Prof. T. Fujimi (Kyoto U)

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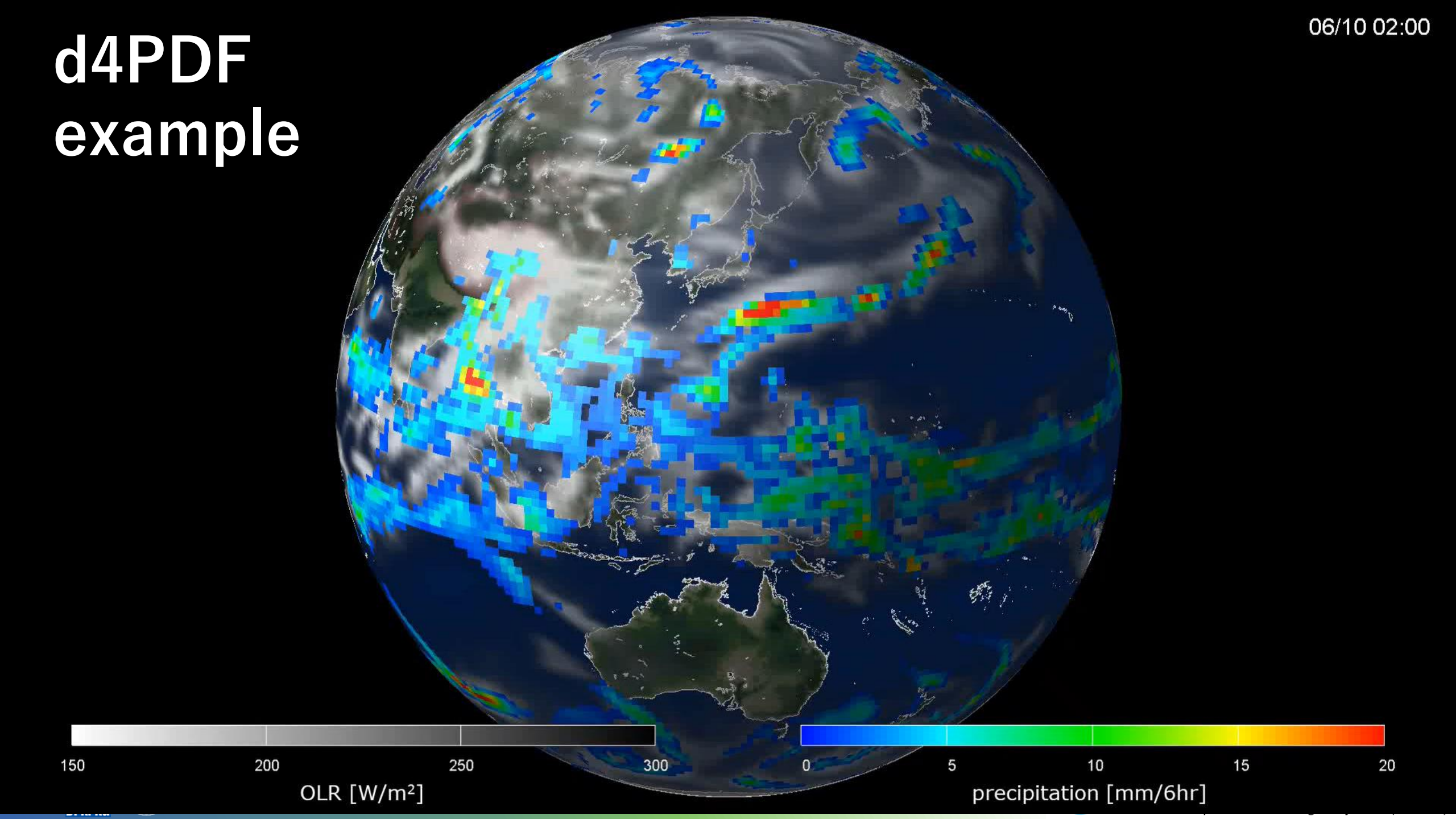
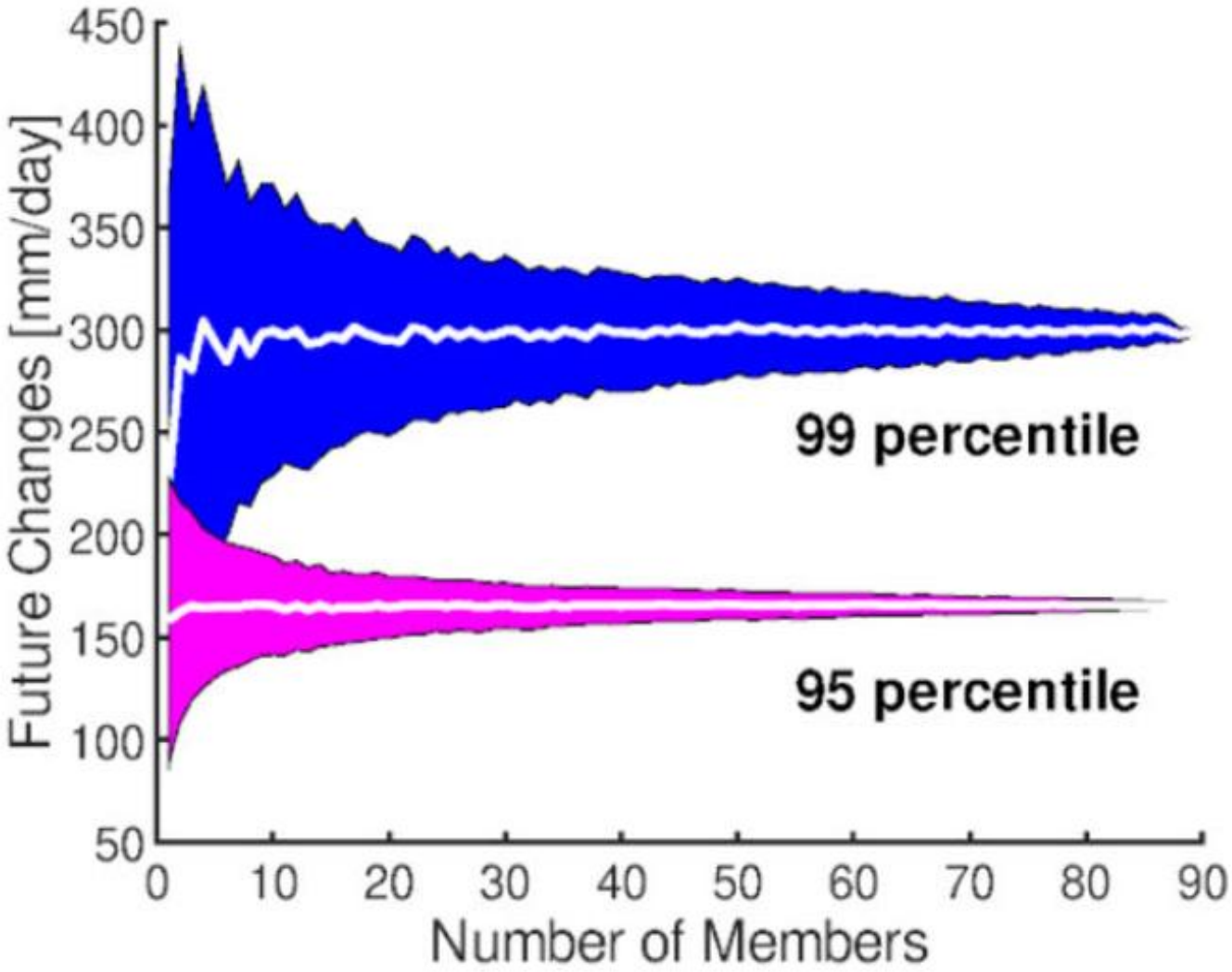
d4PDF example



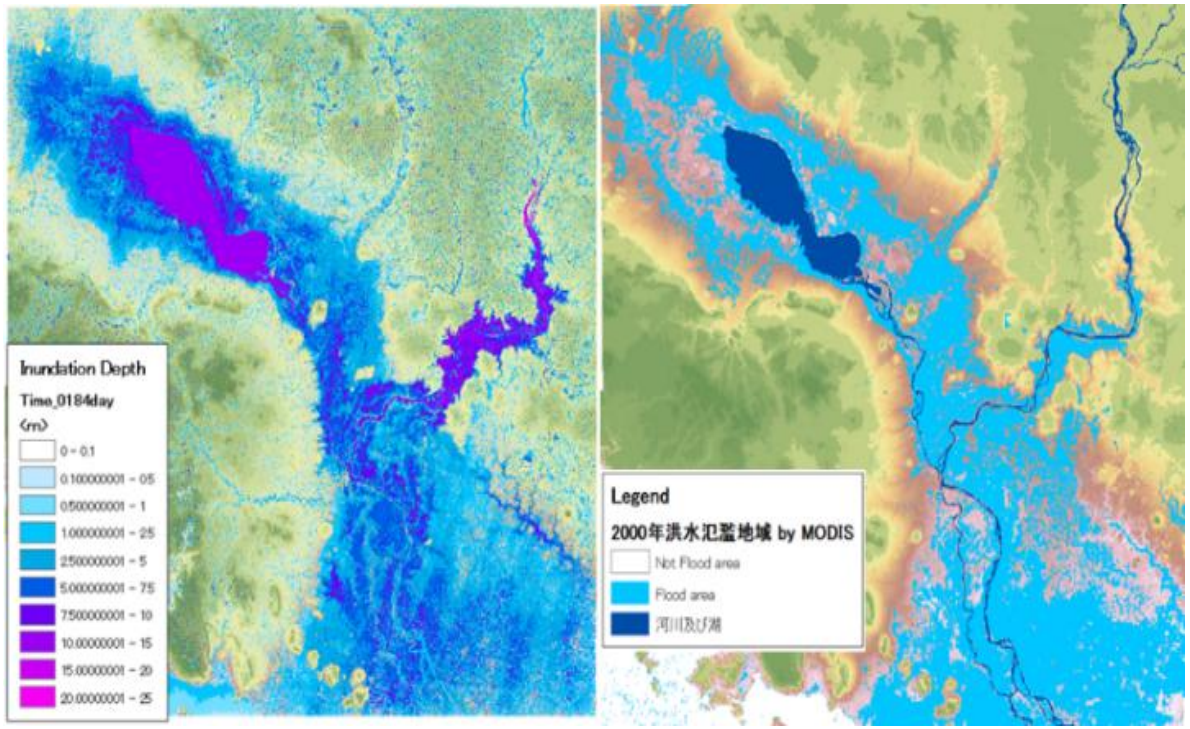
Large ensemble can reduce uncertainty



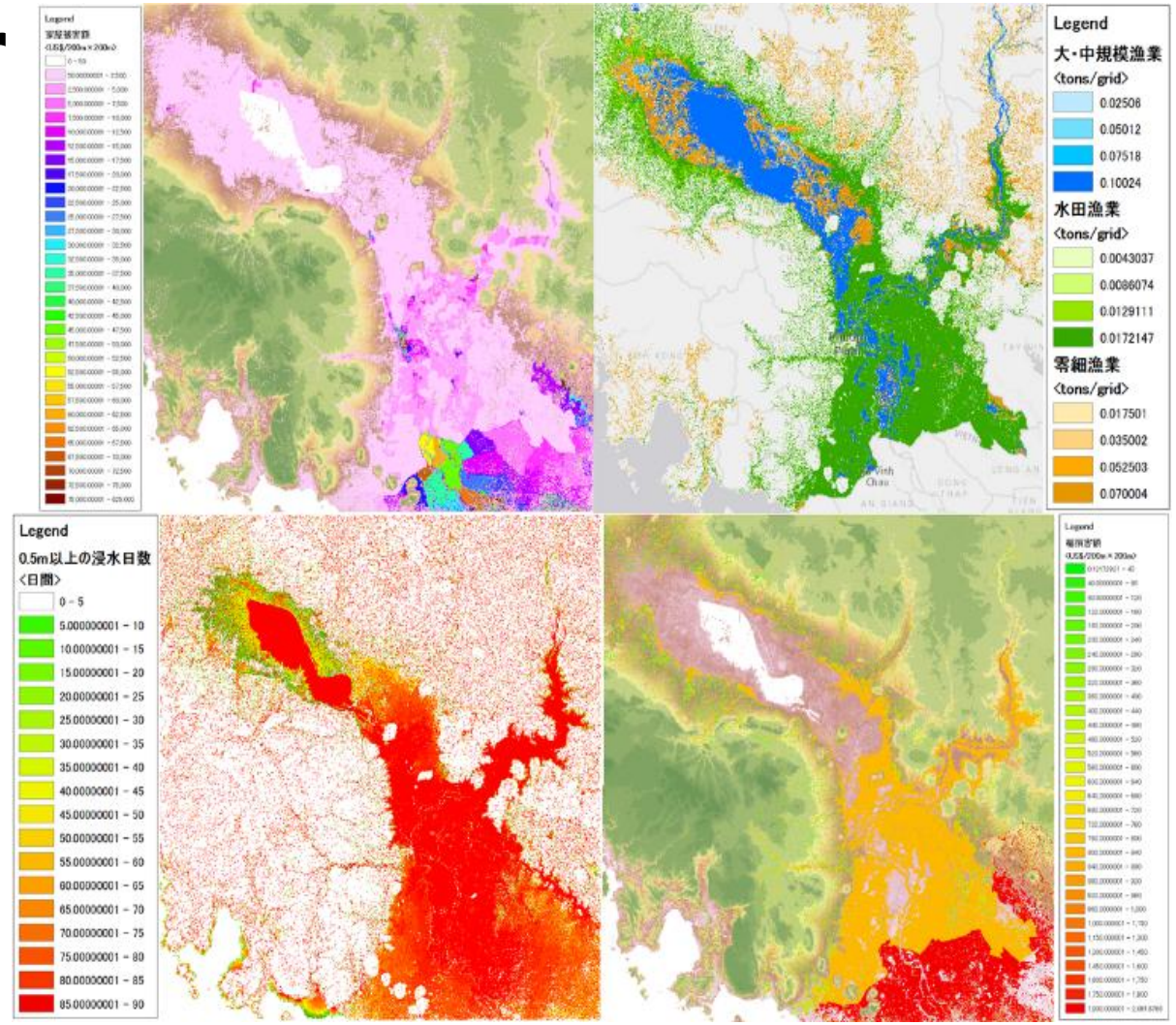
Ishii and Mori (2020) PEPS

Research on Mekong River flooding and damage

2000/5/1 UTC～2000/10/31 UTC



Left: Simulated Results (Oct. 31)
Right: MODIS Image

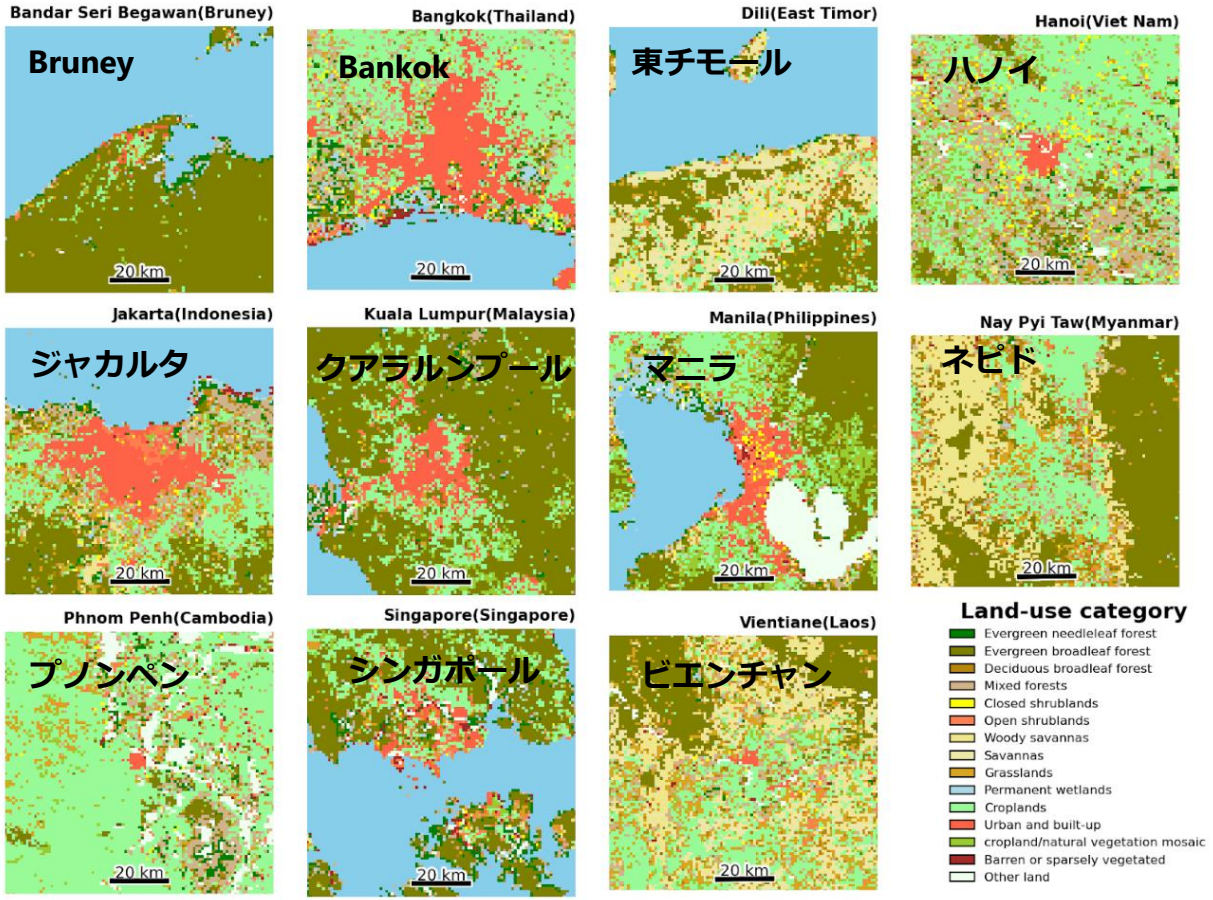


Upper left：House damage price
Upper right: Catch by fishery type
Lower left：Days of immersion of 0.5 m or more
Lower right: Amount of agricultural damage

Inoue (Kobe U) and Kobayashi (Saitama University)

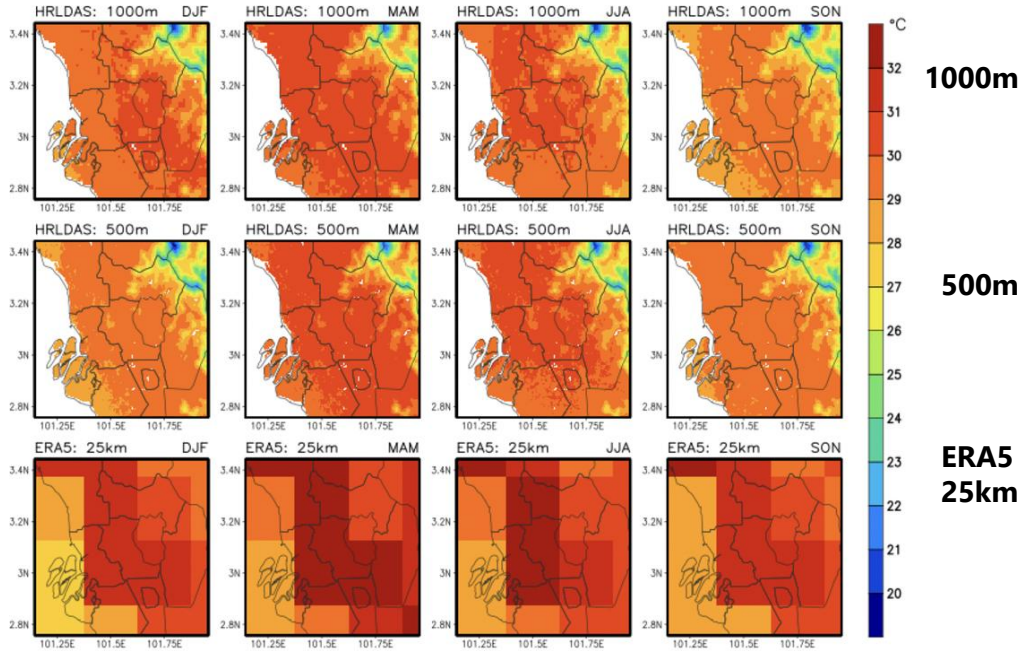
Heat Island in Southeast Asia

1-km land use（MODIS）



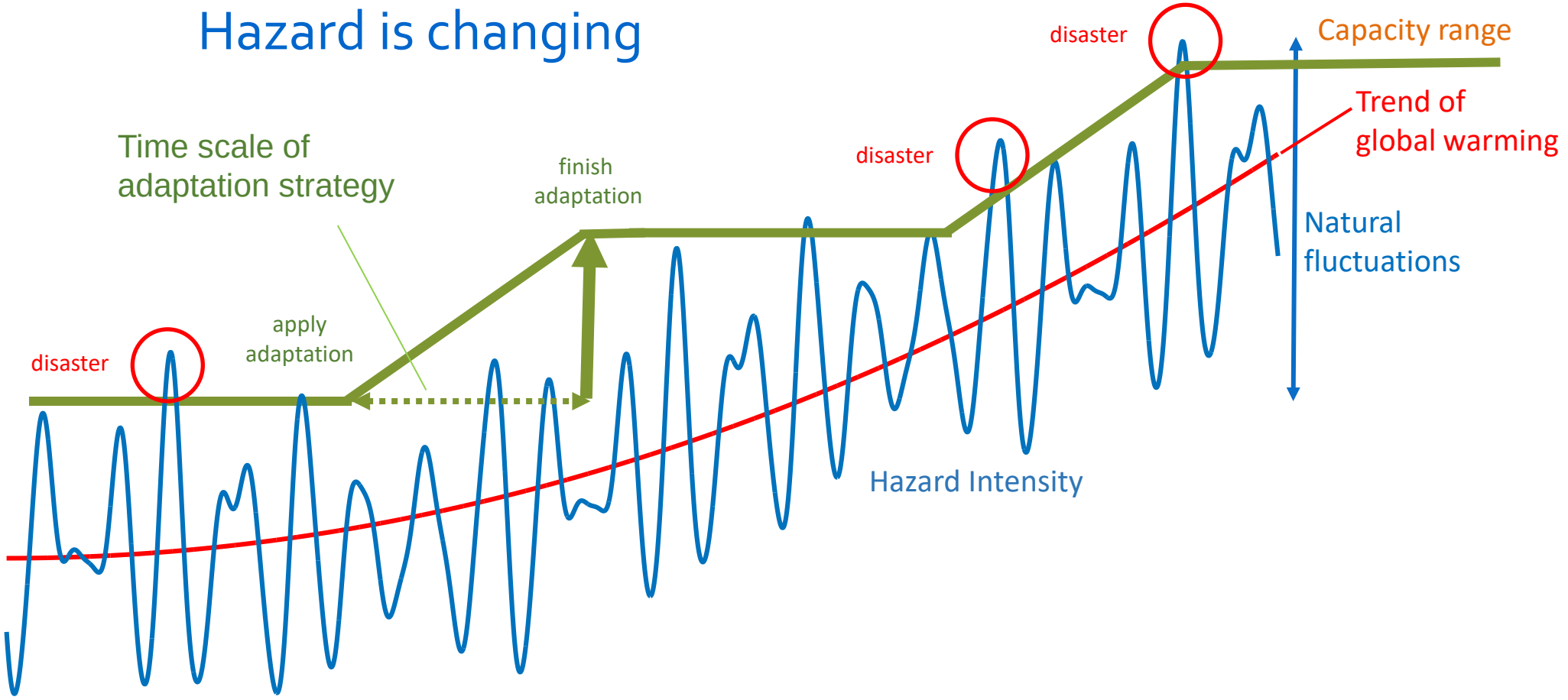
Land-surface-model-base DS

Ground temperature



LSP-DS for Kuala Lumpur
(credit to Chung Jing Xiang, U Malaysia)

No-regret adaptation strategy for climate change



Mori and Shimura (2023) Cambridge Prisms

Summary

- Impact assessment for extremes will be dramatically improved in SENTAN program.
- Impact assessment for Asia and the Pacific areas
  - IPCC does not care individual country
  - Need for international cooperation
- Supporting scientific knowledge and climate data for researchers and stakeholders

Thank you for listening and willing to collaboration