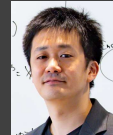


Artificial generation of upstream maritime heavy rains to govern intense-rain-induced disasters over land (AMAGOI)



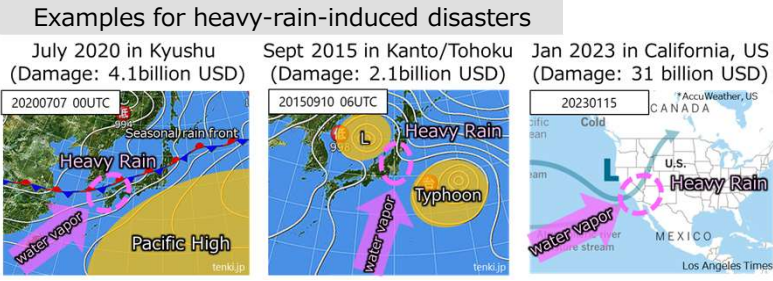
(AMAGOI)
Shunji Kotsuki

IAAR, Chiba University, Japan (shunji.kotsuki@chiba-u.jp)



Overview

Heavy Rains and Our Strategy



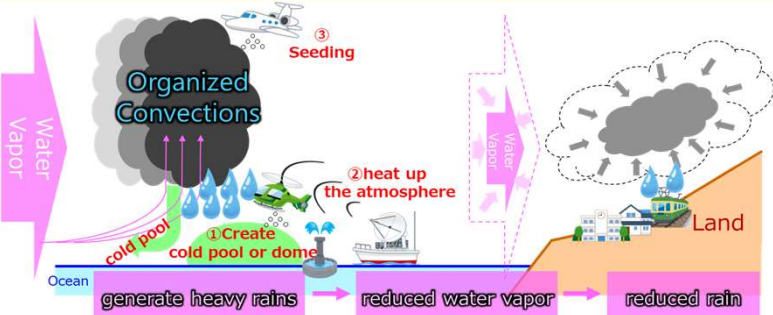
Possible strategies to mitigate such disasters

- to limit evaporation from the ocean ☺
- to change large-scale circulations ☺
- to **reduce** water vapor before arrival on land ☺
- generating heavy rain artificially over upstream ocean

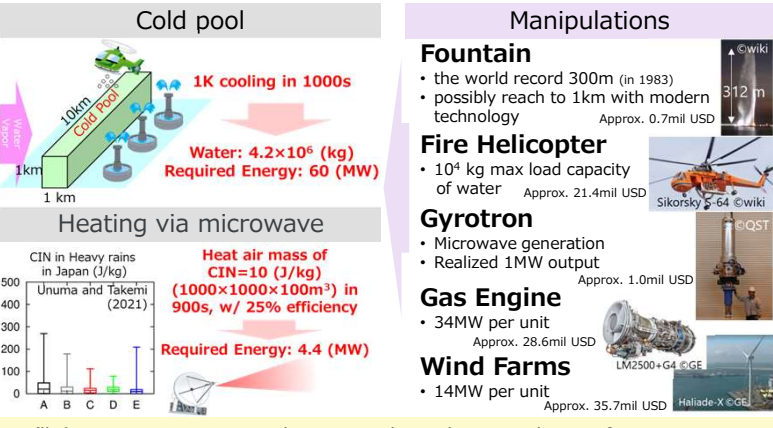
Generation of Heavy Rains

To generate heavy rains artificially, we need to

- generate convections by lifting up dynamically (~LFC), or heating thermodynamically (~CIN)
- organize subsequent convections by leading back-building-type successive rains using cold pool

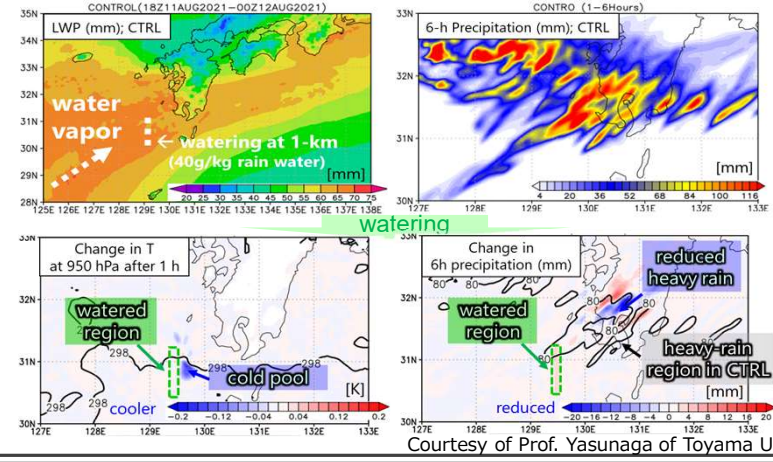


Examples of manipulation



We'll discuss various manipulations, with mathematical ways for optimizations.

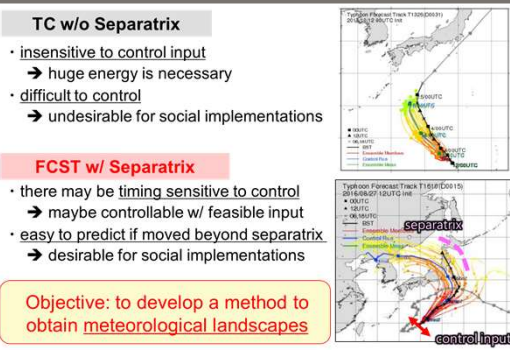
A Watering Test w/ NWP



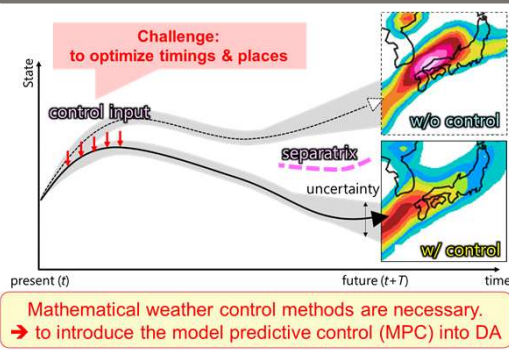
Courtesy of Prof. Yasunaga of Toyama U.

Preliminary Investigations

Landscape Analysis



Model Predictive Control (MPC)



Quantum Data Assimilation

