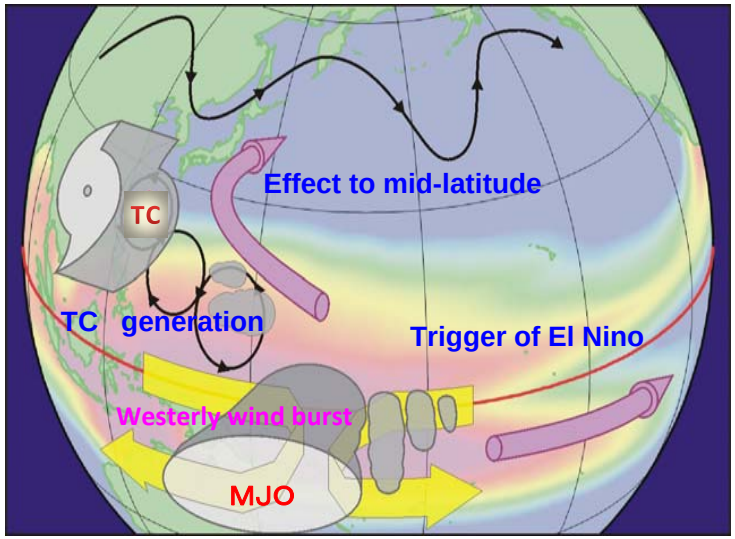
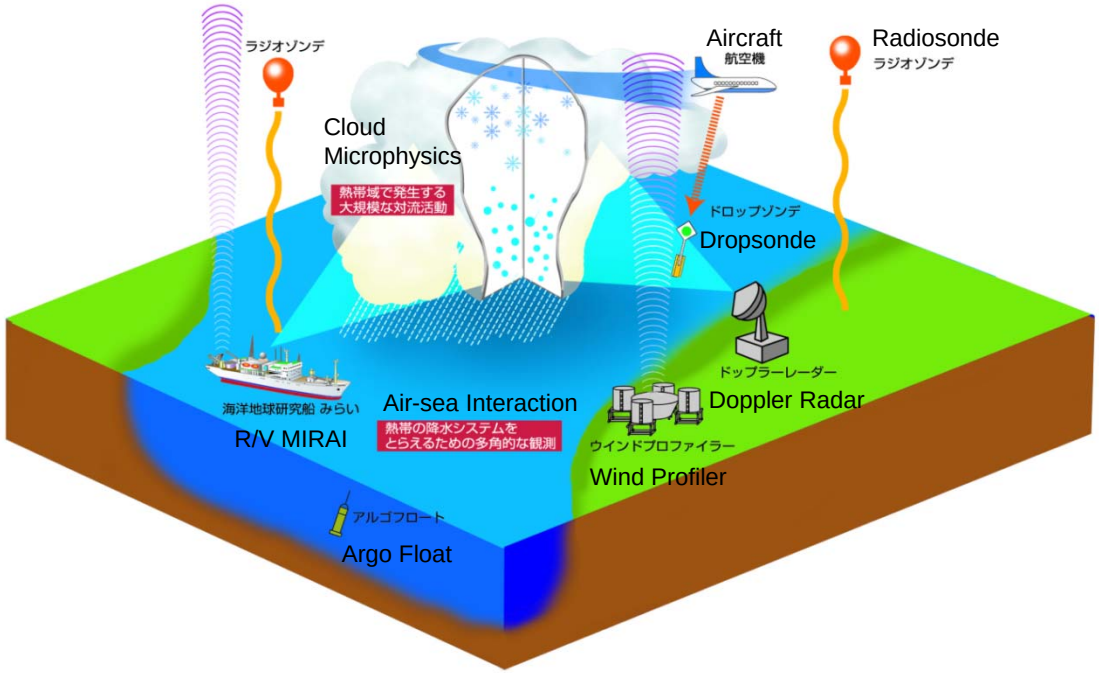
PALAU project by JAMSTEC

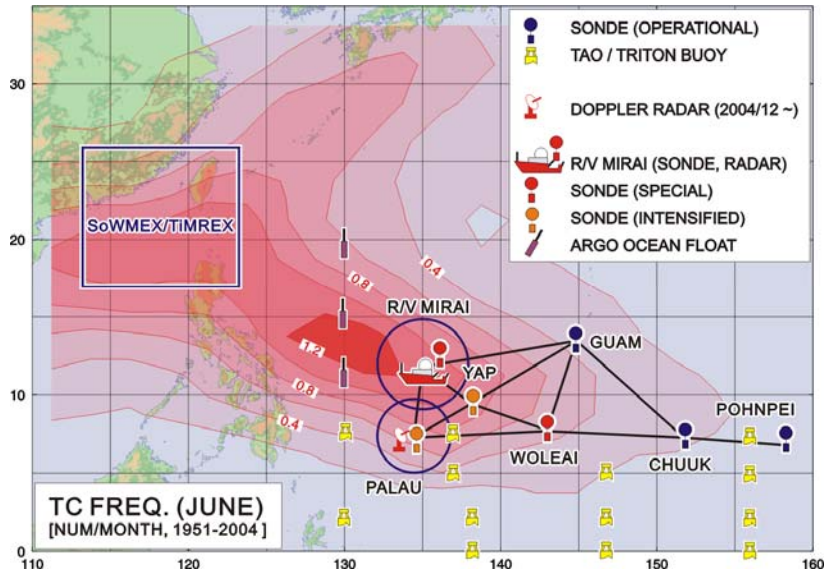
Pacific **A**rea **L**ong-term **A**tmospheric observation for **U**nderstanding of climate change

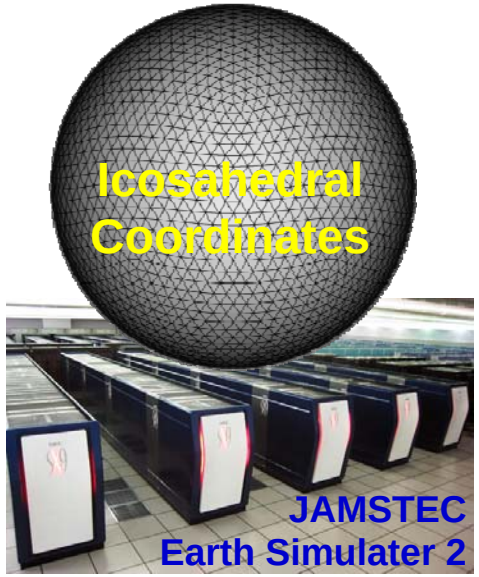
Tropical Western Pacific is a key area to understand the air-sea interaction and the tropical-extratropical interactions. In particular, precipitation processes are key to be studied. By considering this fact, observational site is deployed at Palau Islands, and we have conducted long-term observations as well as intensive observations for specific science topics.





JAMSTEC's Research on Typhoon Formation





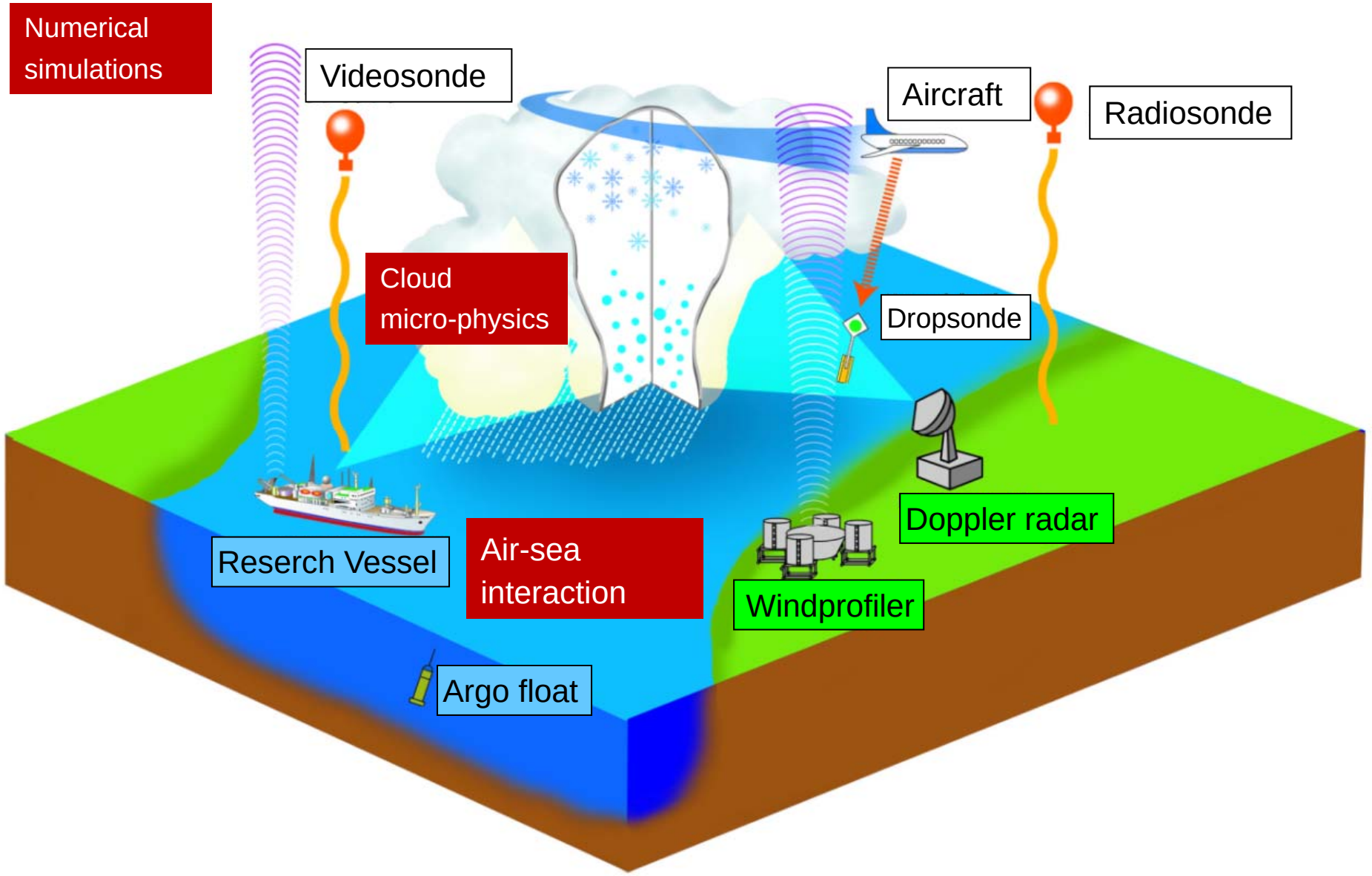
Observation in East Philippine Sea

- PALAU field experiment in early summer season (June-July) of 2005, 2008, 2010 and 2013
- Using ground-based and ship-borne Doppler radars, upper-air sounding arrays, oceanic buoys
- To capture the structure and evolution of mesoscale convective systems embedded in a pre-typhoon vortex

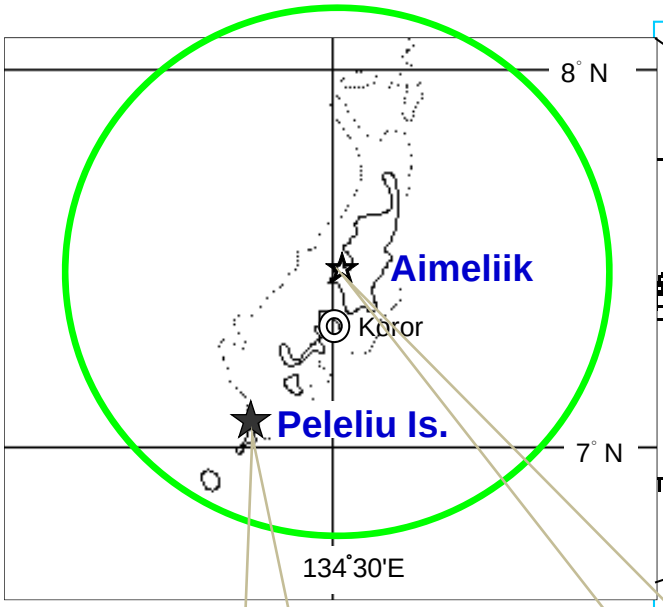
Global cloud-resolving simulation

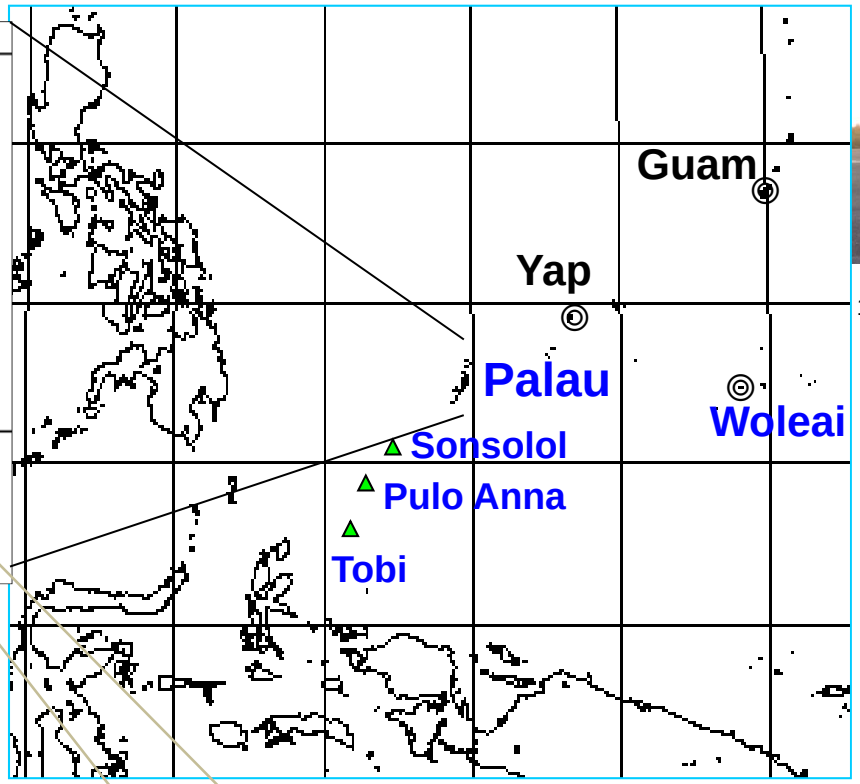
- Using the Nonhydrostatic Icosahedral Atmospheric Model (NICAM), developed at JAMSTEC
- Explicit cloud physics, no cumulus parameterization, with horizontal resolution of 3.5 km
- To understand the key process of typhoon formation, under influences of synoptic- and large-scale waves and disturbances (e.g., MJO)

PALAU : Conceptual illustration for MCS observation



PALAU Observation network





Aircraft

Doppler radar ☆ : Aimeliik
Radio sonde (NOAA) ◎ : Koror
AWS site ★ : Peleliu
Raingauge ▲ : Sonsolol
Pulo Anna
Tobi

Peleliu site

Aimeliik Suginohara site

R/V Mirai

Observational schedule (FY2004 to FY2008)

* PALAU (Pacific Area Long-term Atmospheric observation for Understanding of climate change)
* MISMO (Mirai Indian Ocean cruise for the Study of the MJO-convection Onset)
* PRIMO (PRecipitating systems over the Indian ocean with Mjo and Monsoon system: Observational study)