

**Field Campaigns in South China Sea Two Islands
Monsoon Experiment (SCSTIMX) 2017-2018 and Its
Extended Plan**

Po-Hsiung Lin, Chung-Shiung Sui

Wei-Ting Chen, Ming-Jen Yang

Department of Atmospheric Sciences
National Taiwan University

- Field campaigns in SCSTIMX 2017-2018 and available dataset
- 4-year (2018-2022) extended plan after SCSTIMX

MOST Project 2016-2019

Interaction of Convection with Large-Scale Flow over the MC-SCS

Large Scale Processes

Siberia-H & Tropical interaction
Summer/Winter ISO
TCs and severe rainfall

Interactions

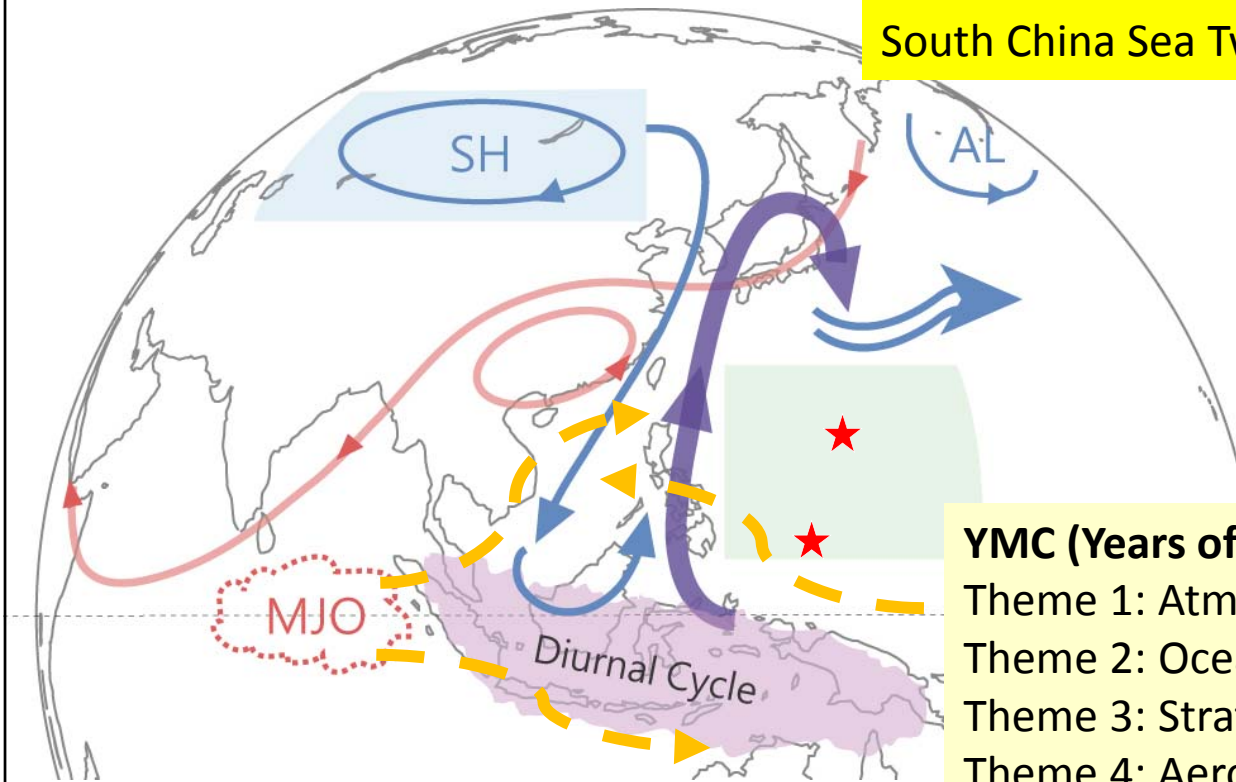
Extreme weather
in Taiwan &
neighboring areas

Convective Processing

GCM
Mesoscale Modeling
Diurnal Convection

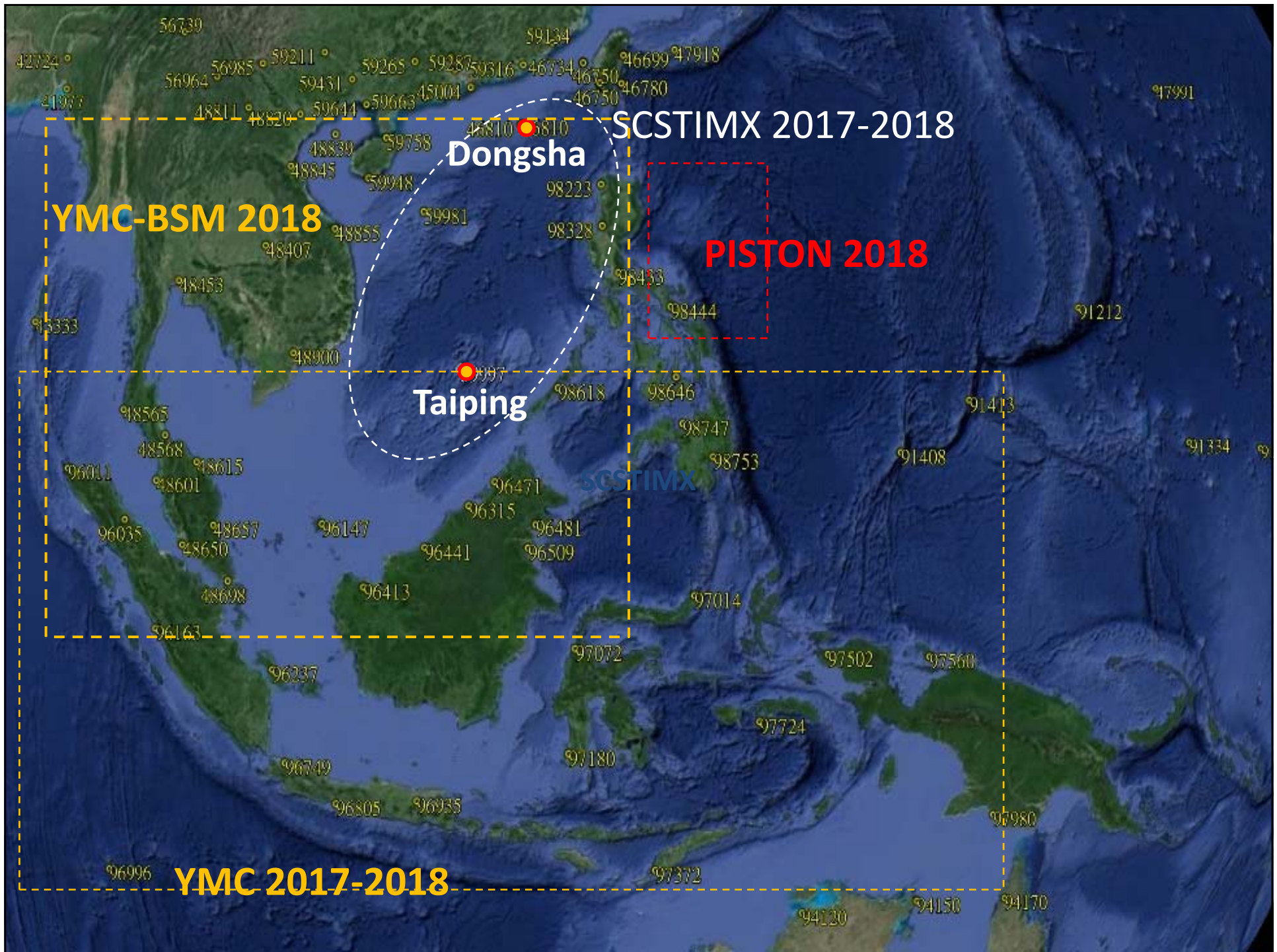
SCSTIMX:

South China Sea Two IslandS Monsoon Experiment



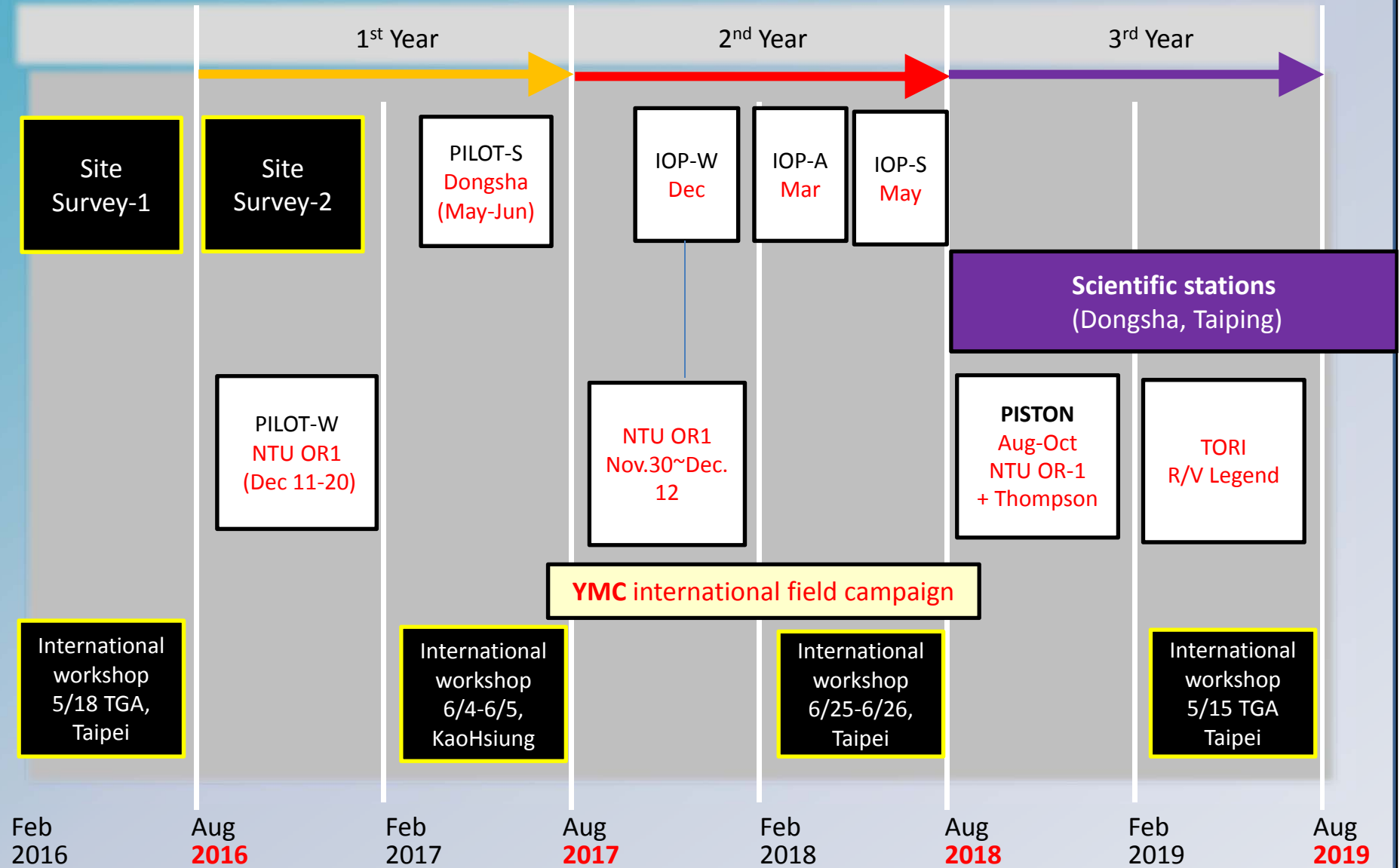
YMC (Years of Maritime Continent)

- Theme 1: Atmospheric Convection.
- Theme 2: Ocean and Air-Sea Interaction.
- Theme 3: Stratosphere-Troposphere Interaction.
- Theme 4: Aerosol in Monsoon.
- Theme 5: Prediction improvement.



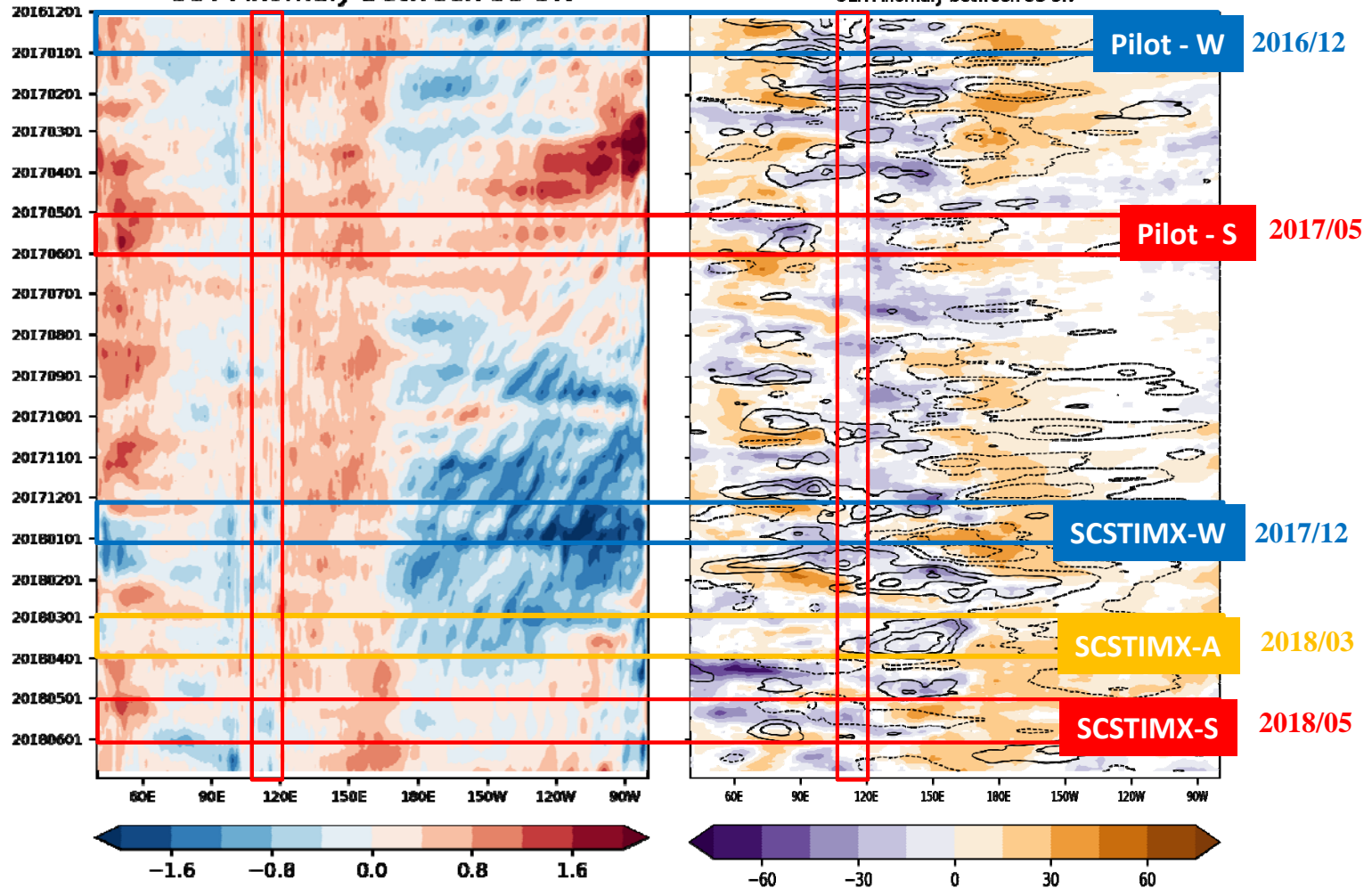
SCSTIMX time schedule

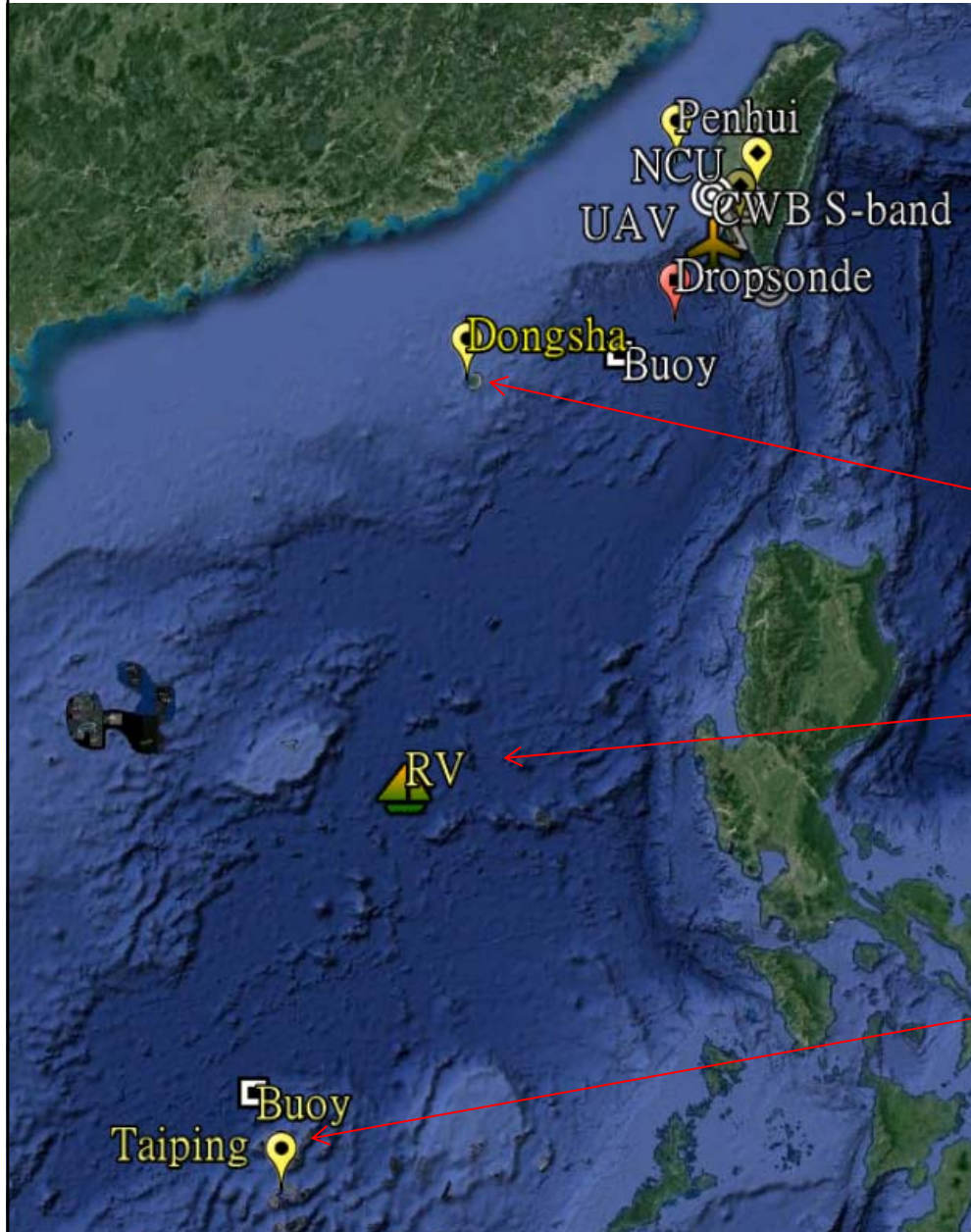
(updated: Feb., 2019)



SST Anomaly between 5S-5N

OLR Anomaly between 5S-5N





IOP-W: Dec. 2017
 IOP-A: Mar. 2018
 IOP-S: May 2018
 PISTON: Aug.~Oct.,2018

- Wind Profiler (CWB, 10km)
- Microwave Radiometer (CWB)
- Vaisala RS41 radiosonde (CWB)
- Cimel Sunphotometer (EPA)
- Aerosol Lidar (RCEC)

— IOP-A only

- Vaisala RS41 radiosonde (NTU)

- Wind Profiler (TTFRI, 5 km)
- Microwave Radiometer (TTFRI)
- Ceilometer Lidar (NTU)
- All-sky imager (NTU)

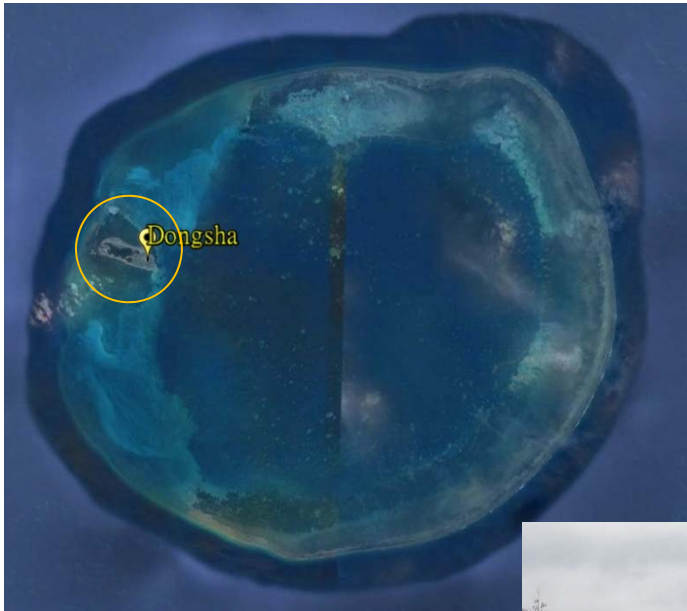
— IOP-S only

- Vaisala RS41 radiosonde (NTU)

— IOP-W/IOP-S only

- Cimel Sunphotometer (EPA)

Dongsha



Weather station / Aerosol Lidar / Cimel AOD



Microwave Radiometer
Wind profiler



RS41 radiosonde



Taiping



All-sky imager



Ceilometer Lidar



RS41 radiosonde

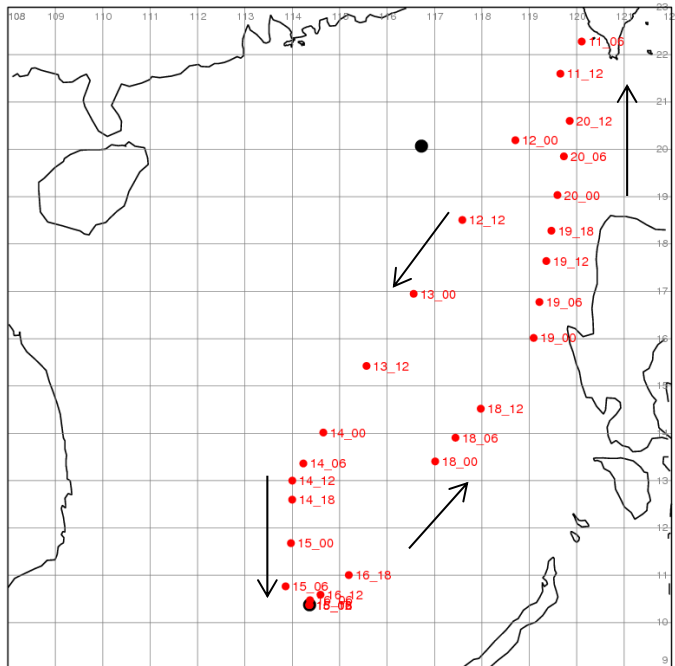


TTFRI wind profiler/Microwave radiometer

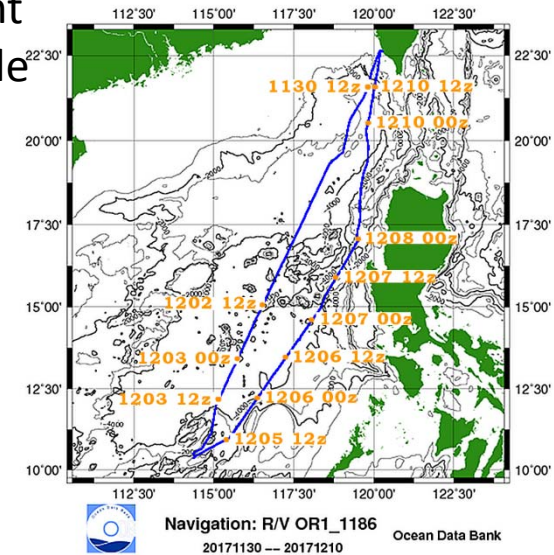


Cruises during cold surge break (winter monsoon) by NTU RV_OR1

(1) 11/11~11/21, 2016 (2) 11/30-12/10, 2017



- Air-sea flux measurement
- Balloon-borne radiosonde



<https://scstimx.as.ntu.edu.tw/>

☰ **SCSTIMX**
South-China Sea Two Island Monsoon Experiment

HOME WEATHER BRIEFING CWB WRF MODEL PCCU YMC PLOT DATA

IOP-Winter 2017

New Post 

Time: 2018/1/15

From: National Taiwan University



Nov. 29 CG-133, the patrol rescue vessel of the Coast Guard Administration, Taiwan, left Kaohsiung harbor for Taiping Island.

The vessel carried five project members and research instruments and arrived in Taping on Dec. 2.

The research instruments were installed on Taping in Dec. 2-3

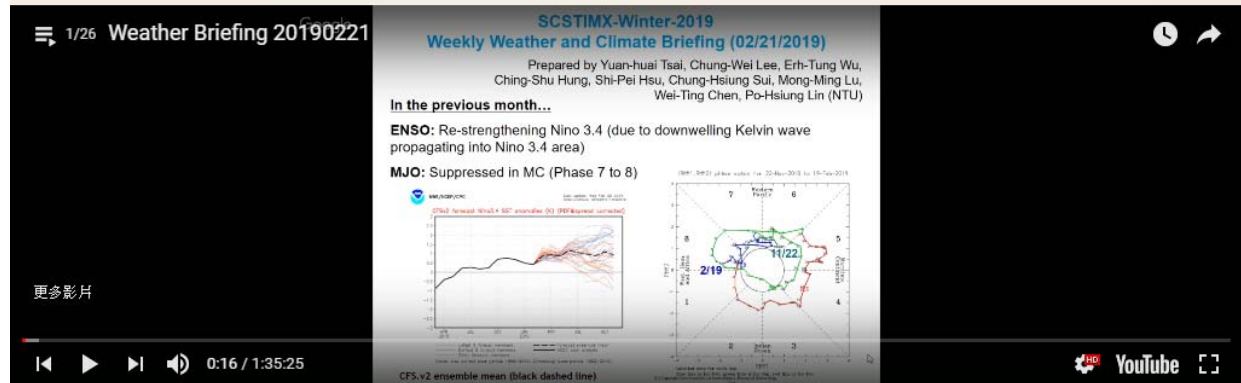
The observational campaign started on Dec 4. The IOP ended on Dec. 25

SCSTIMX Weather Briefing Archive









- Youtube Live broadcast archive (after 2018/8)
- 2018 Summer
- 2017 Winter
- 2017 Summer (Pilot study)



Youtube Video List

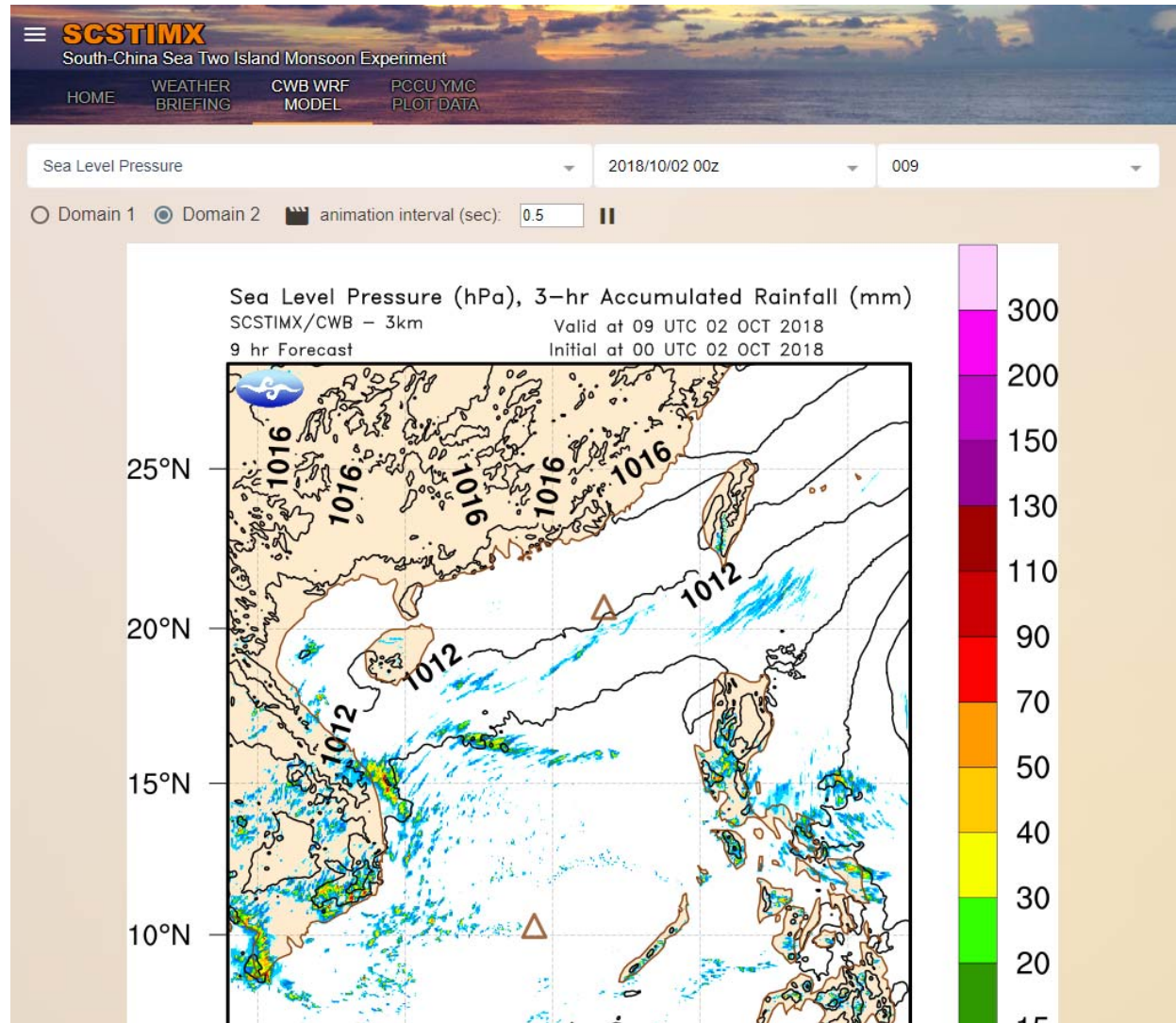


2018 Summer

 [2018/06/15] Weekly Weather Briefing-Summary	Download 
 [2018/06/07] Weekly Weather Briefing-Summary	Download 
 [2018/05/31] Weekly Weather Briefing-Summary	Download 
 [2018/05/24] Weekly Weather Briefing-Summary	Download 

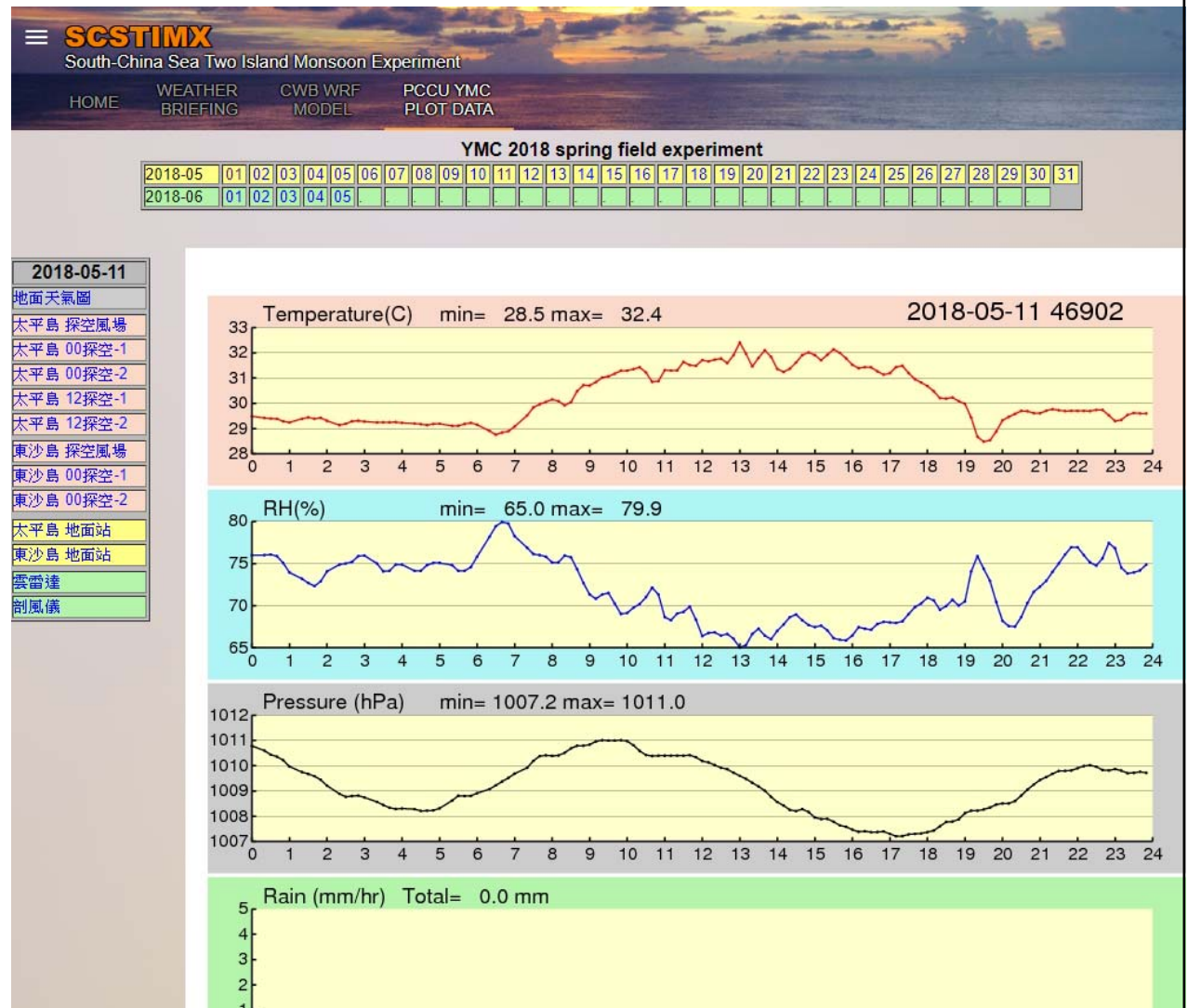
SCSTIMX CWB WRF Model Plot

- Sea Level Pressure
- 925hPa Wind
- 850hPa RH
- 850hPa Temperature
- 700hPa RVOR
- 500hPa RVOR
- 500hPa Wind
- 200hPa Wind
- Dong-Sha Sounding
- Tai-Ping Sounding



SCSTIMX Observation Data

- 地面天氣圖
- 太平島 探空風場
- 太平島 00探空
- 太平島 12探空
- 東沙島 探空風場
- 東沙島 00探空
- 東沙島 12探空
- 太平島 地面站
- 東沙島 地面站
- 雲雷達
- 剖風儀



4-year (2018-2022) extended plan after SCSTIMX

- new webpage to extend SCSTIMX webpage
- Dongsha scientific station
meteorological instruments updated + QC on historic dataset
- Taiping scientific station (new site + geo-sciences projects support)
- Summer cruise (TORI R/V Legend) + Winter cruise (NTU R/V New OR1) cross South China Sea
- Coming projects: 2019 PISTON / 2020 TAHOPE

New webpage* will be released (summer, 2019)

climate monitor/forecast

- OLR
- SST
- MJO
- BSISO
- ER Wave
- KEVIN Wave
- MRG
- TD

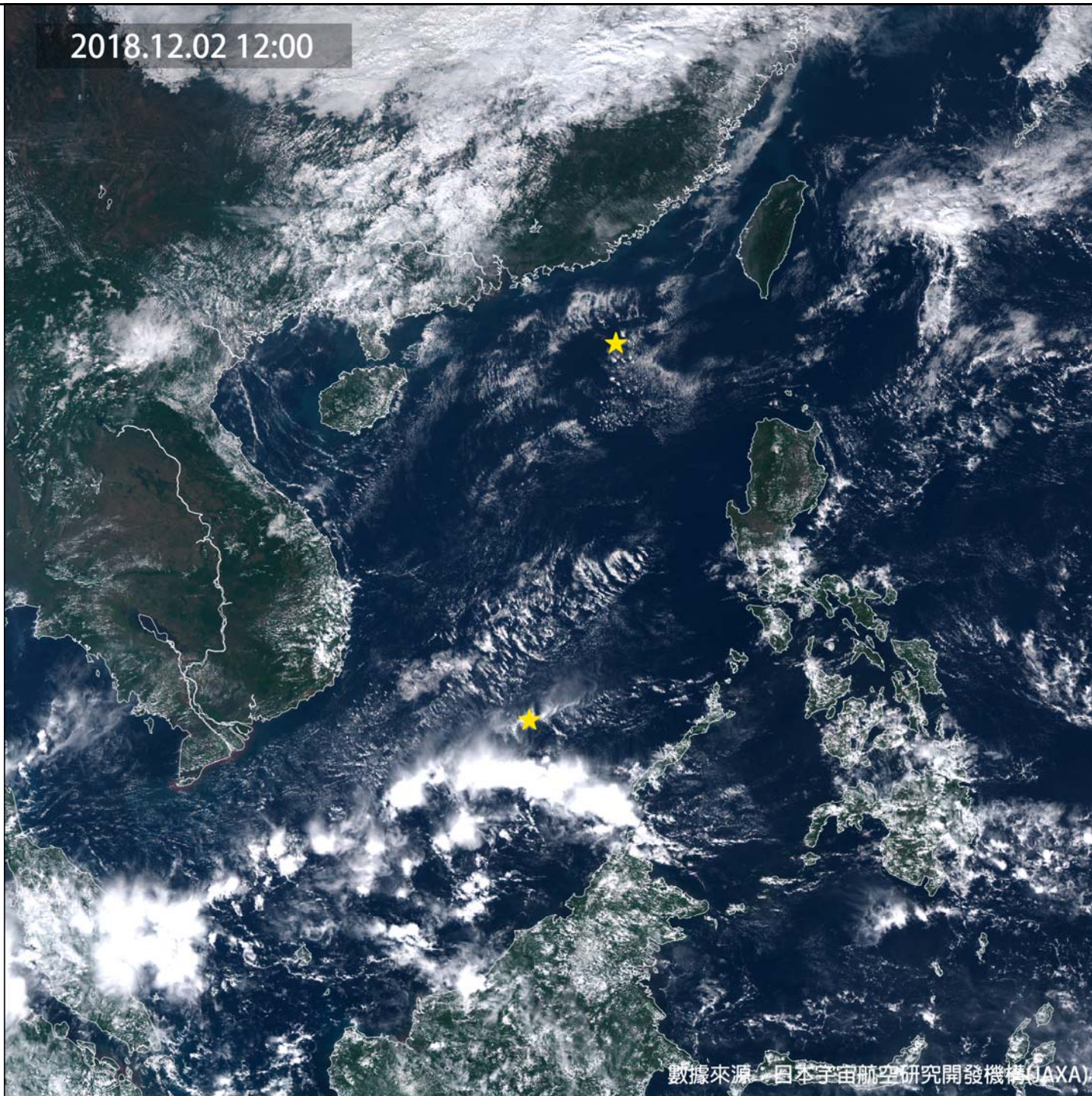
weather monitor

Satellite cloud images
island sky camera
Cloud amount
Cloud base height
Surface
wind/rain/temperature
Lightning
Upper-air profiles

Weather forecast

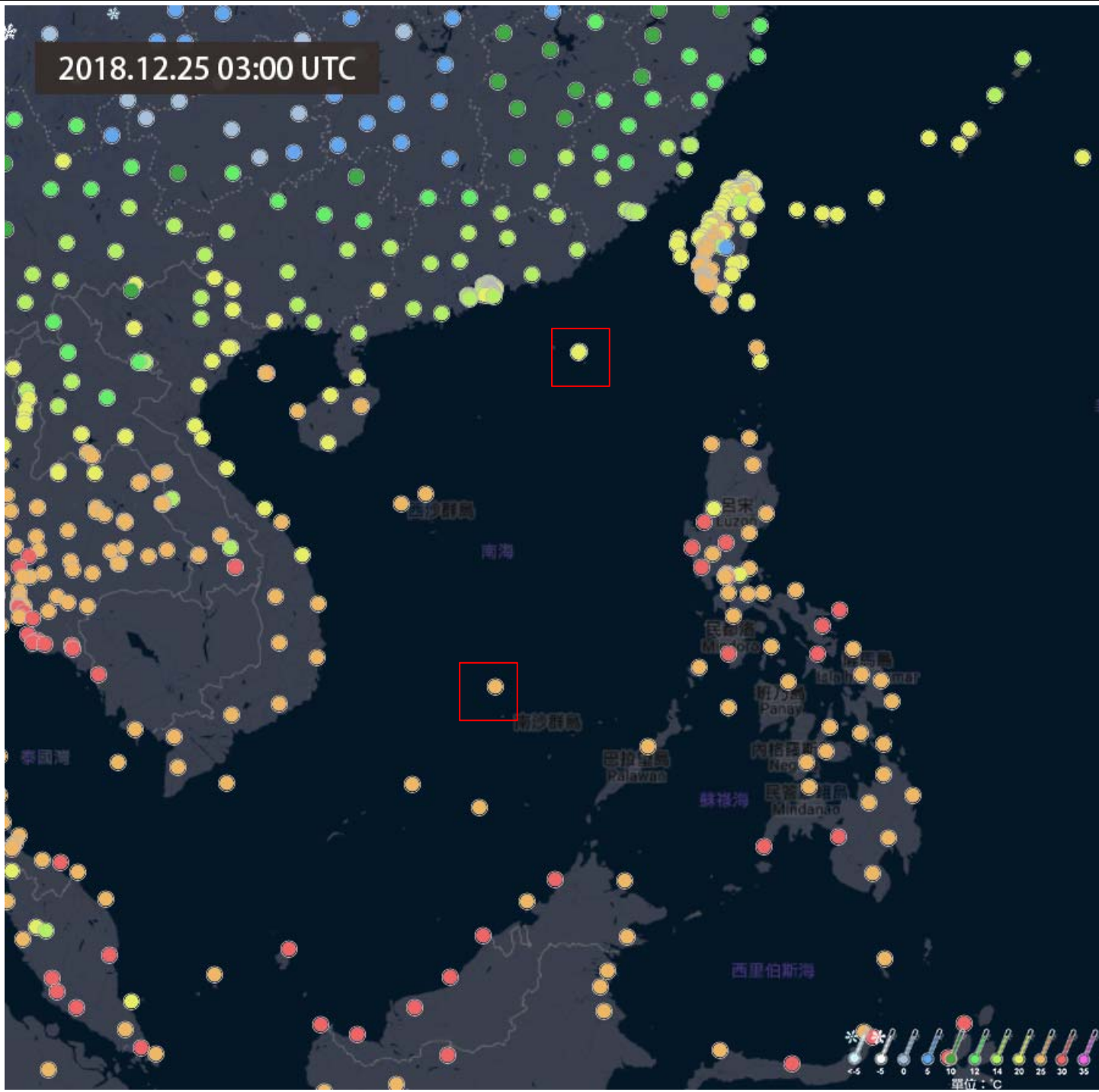
WRF output
TD track watch

2018.12.02 12:00

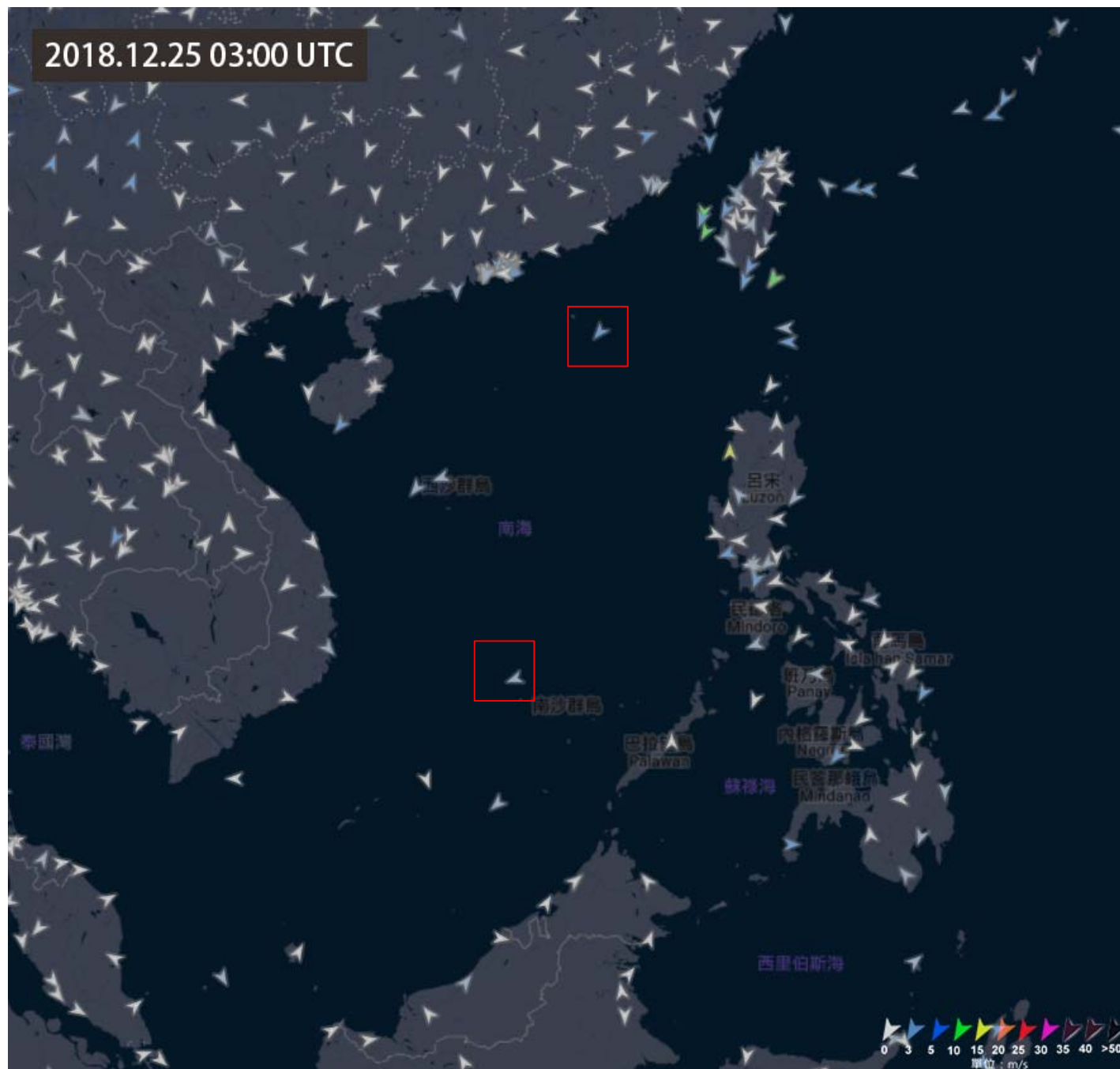


數據來源：日本宇宙航空研究開發機構(JAXA)

2018.12.25 03:00 UTC

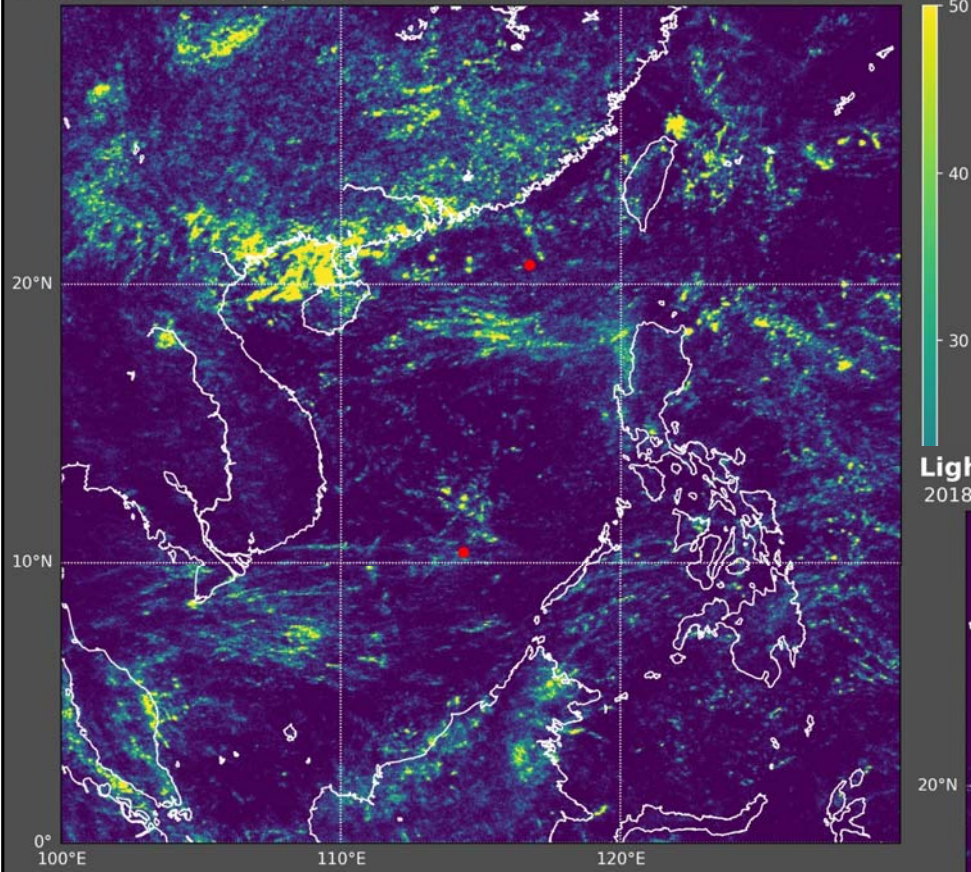


2018.12.25 03:00 UTC



Lightning Density | Source:WWLLN (#Strokes per 0.05° x 0.05°)

2018/08/01 ~ 2018/08/31 | 100E~130E 0N~30N

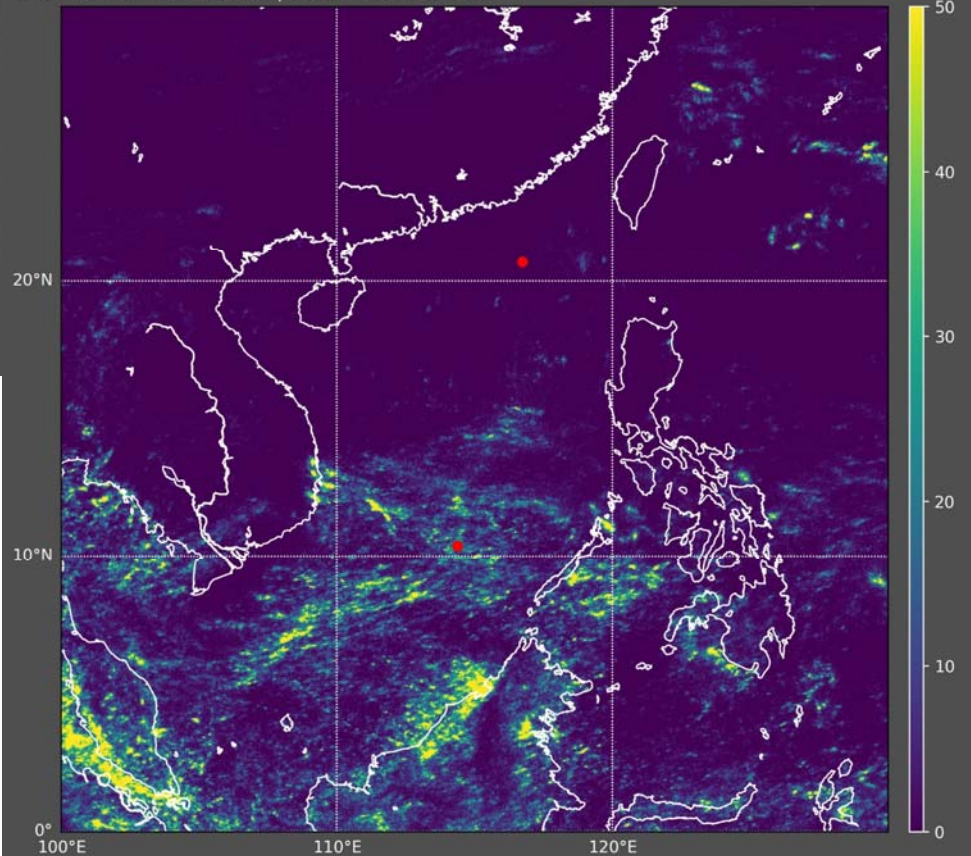


Aug.,2018

Nov.,2018

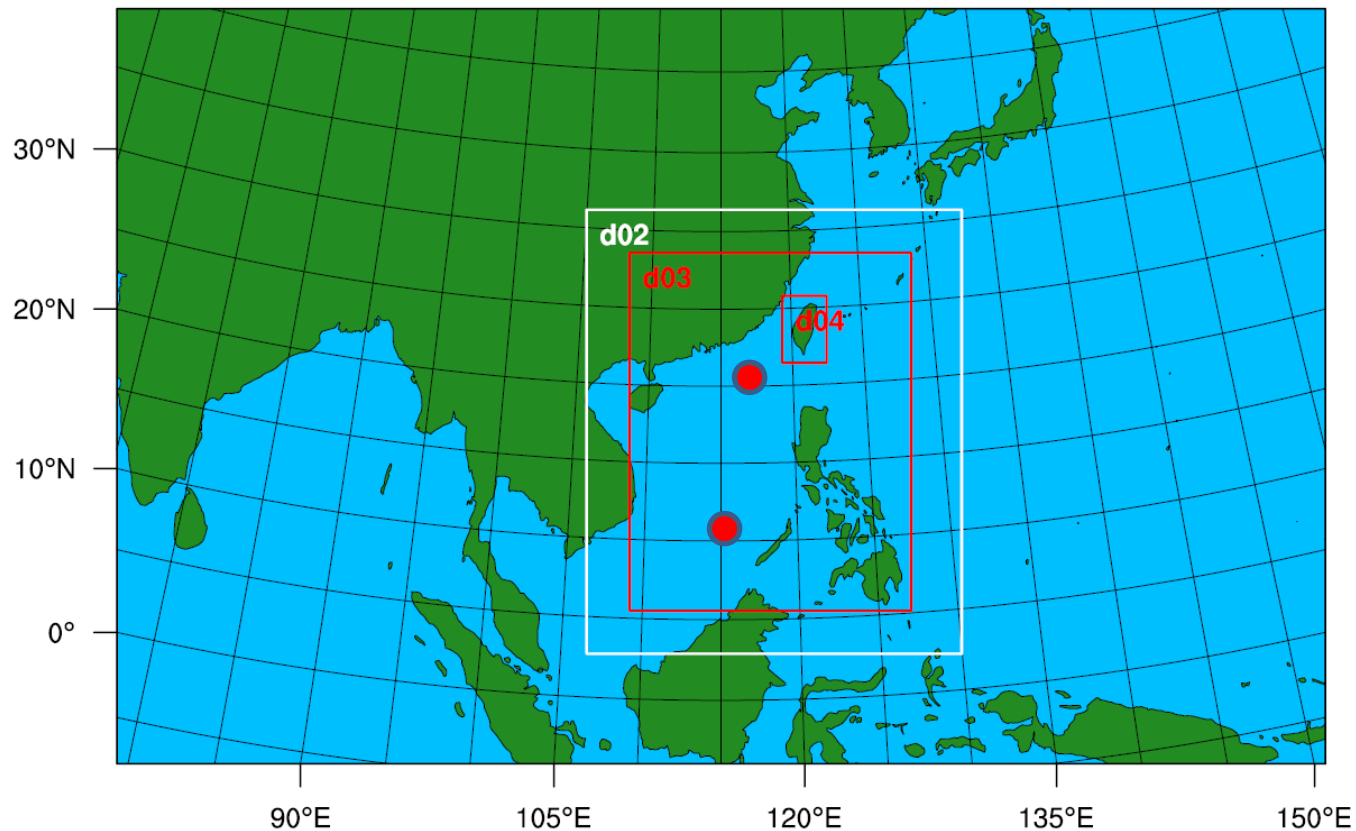
Lightning Density | Source:WWLLN (#Strokes per 0.05° x 0.05°)

2018/11/01 ~ 2018/11/30 | 100E~130E 0N~30N



WRF 6-day forecast (WRF v3.9.1.1)

- initial data/ NCEP GFS + Himawari-8 + island soundings
- 4 nests: 27km(320x200,3-h), 9km(298x352,1-h), 3km(670x850,1-h), 3km(106x160,10-m)
- Vertical layers: 35 eta level (top 30 hPa)
- 2-way cloud-physics interaction
- Unified Noah land-surface model



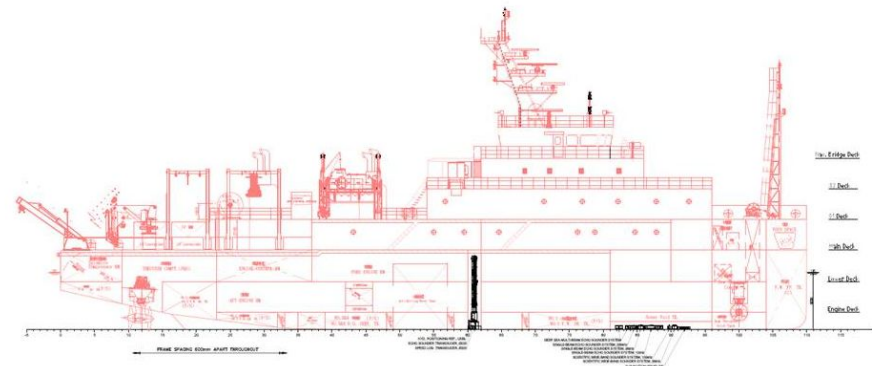
Summer cruise (TORI R/V Legend)

Winter cruise (NTU R/V New OR1)

2629 Tone



GENERAL ARRANGEMENT PROFILE



HNO 1090	PAGE
DWG. NO. X544G01	2/22
DETAIL ARRANGEMENT OF ECHO SOUNDER, SPEED LOG & SCIENTIFIC SONAR SYSTEM	

- Field data collected in SCSTIMX 2017-2018 is welcome for international cooperation studies.
- Experience from these field campaigns in SCSTIMX helps us to conduct the research base at Taiping / Dongsha island.
- Real time meteorological information from these two islands will be available from NTU-AS webpage, and is still welcome to research connection.
- NTU is pleasure to host next YMC conference.

polin @ ntu.edu.tw