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**Director-General
Thai Meteorological Department (TMD)**



ดร.ภูวียง ประคำมินทร์
อธิบดีกรมอุตุนิยมวิทยา



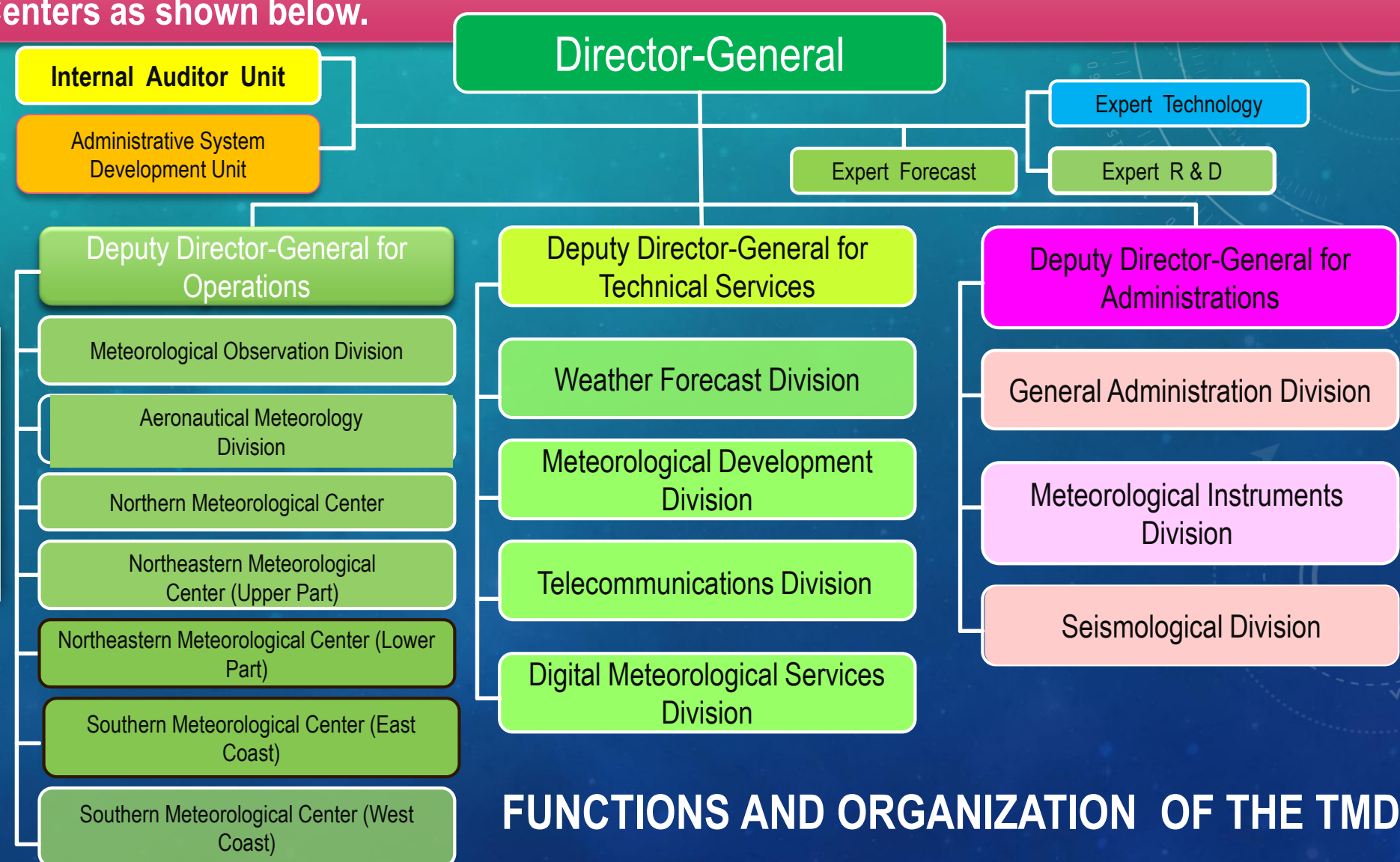
Contents

1. General NMHS Introduction

2. Service delivery and products

3. Challenges and opportunities

According to the government gazette, published in 2017, the Thai Meteorological Department comprises of 2 Units, 8 Divisions, and 5 Regional Centers as shown below.



Total staff : 1,093



TMD' vision

The strengthen monitoring and Meteorological alert of severe weather as Thunderstorm, Heavy Rain, Strong wind, high sea wave, tropical cyclone, earthquake and tsunami, TMD have implemented the following.

1. Enhancement of the Observations Network to strengthen severe weather observations and monitoring networks and nowcasting of the country.
2. Enhancement of the meteorological satellite data to monitor severe weather including tropical cyclone-related disasters.
3. Improvement of storm surge forecasts.
4. Enhancement of the meteorological telecommunication network system.
5. Enhancement of Weather Forecasting
6. Enhancement of Public weather service
7. Improving Earthquake observation network and Tsunami.

TMD's 5 key strategies

1. Organization Basis Development Strategy

2. High Performance Organization Strategy

3. Accurate Forecast Strategy

4. Protection of Life and Property and Social benefit Strategy

5. Social Satisfaction and Confidence Strategy

Thai Meteorological Department(TMD) Observation Network

Doppler Radar(20)



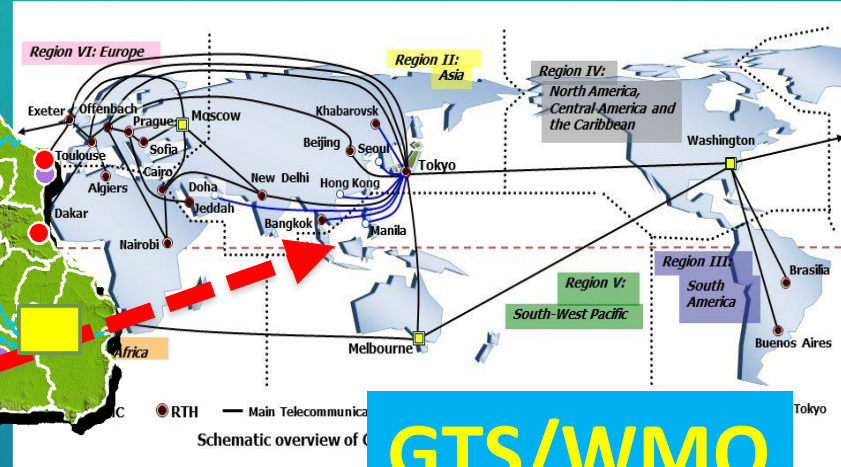
Automatic Rain gauge (1000)



AWS (110)



Marine Station (10)



GTS/WMO

- ★ TMD HQ at Bangkok
- Regional Center (5)
- Synoptic Station (124)
 - Surface (72)
 - Agro Met (34)
 - Hydro Met. (16)
 - Upper Air (11)

Synoptic station (124)



Agro Meteorological station (34)



Hydro Meteorological station (16)



Upper Air Station (11)

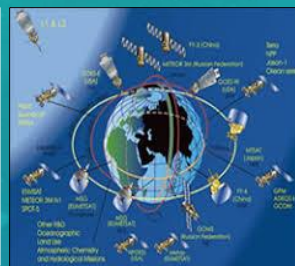


Enhancement Monitoring Forecast System and Services

Technology



HPC



Met. Satellite



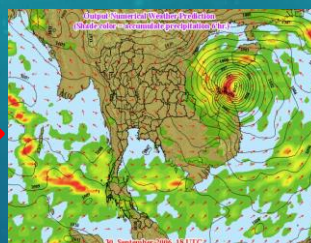
Radar



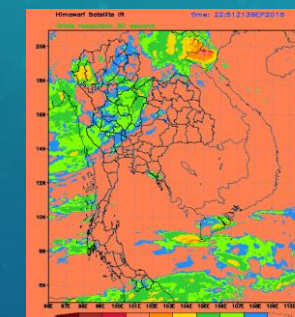
Obs. network

KPI

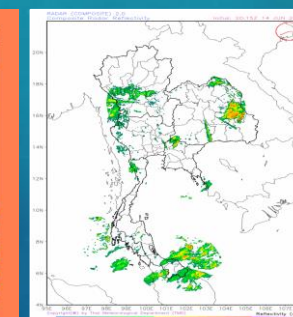
Product



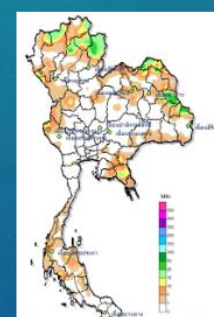
NWP



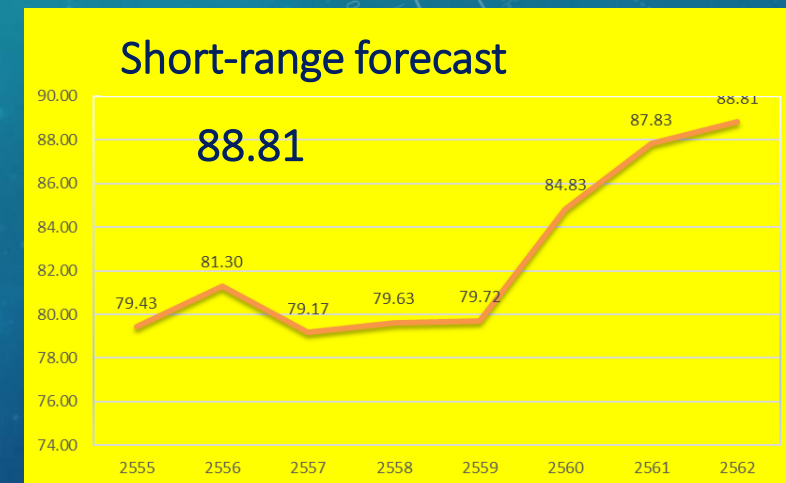
Estimate Rainfall



Radar Composite



AWS



Services



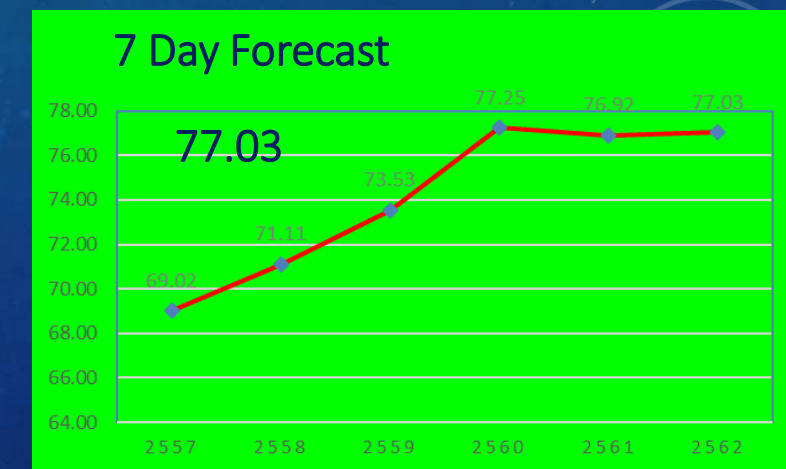
Mobile App



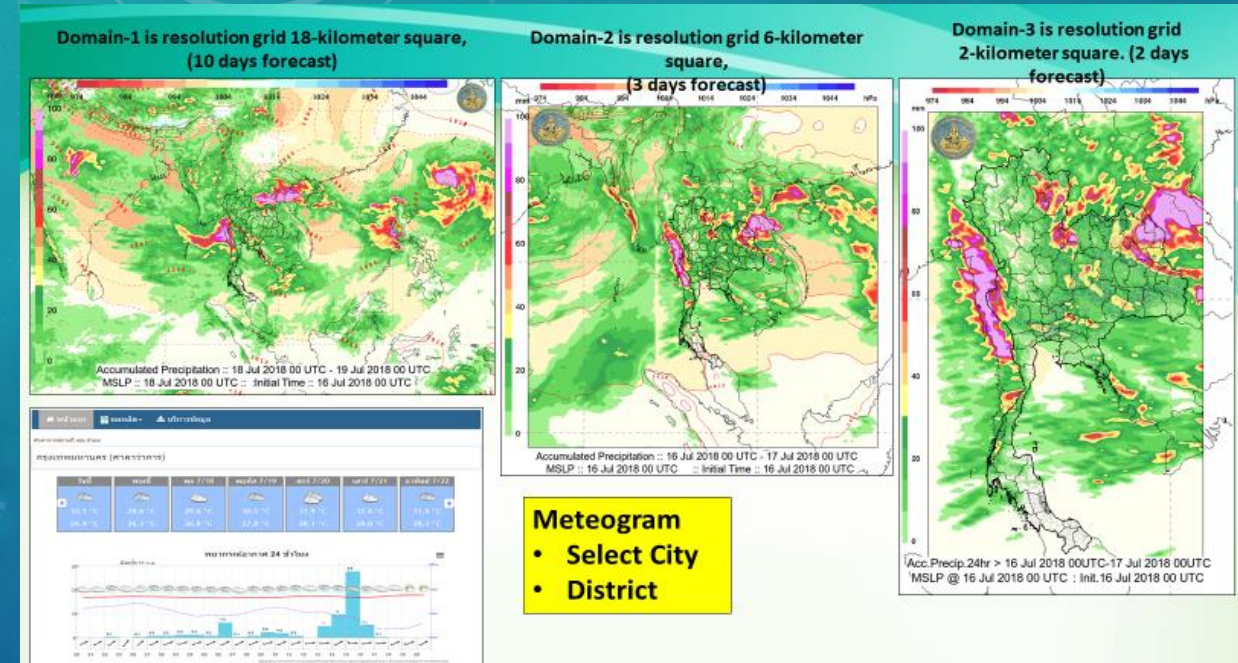
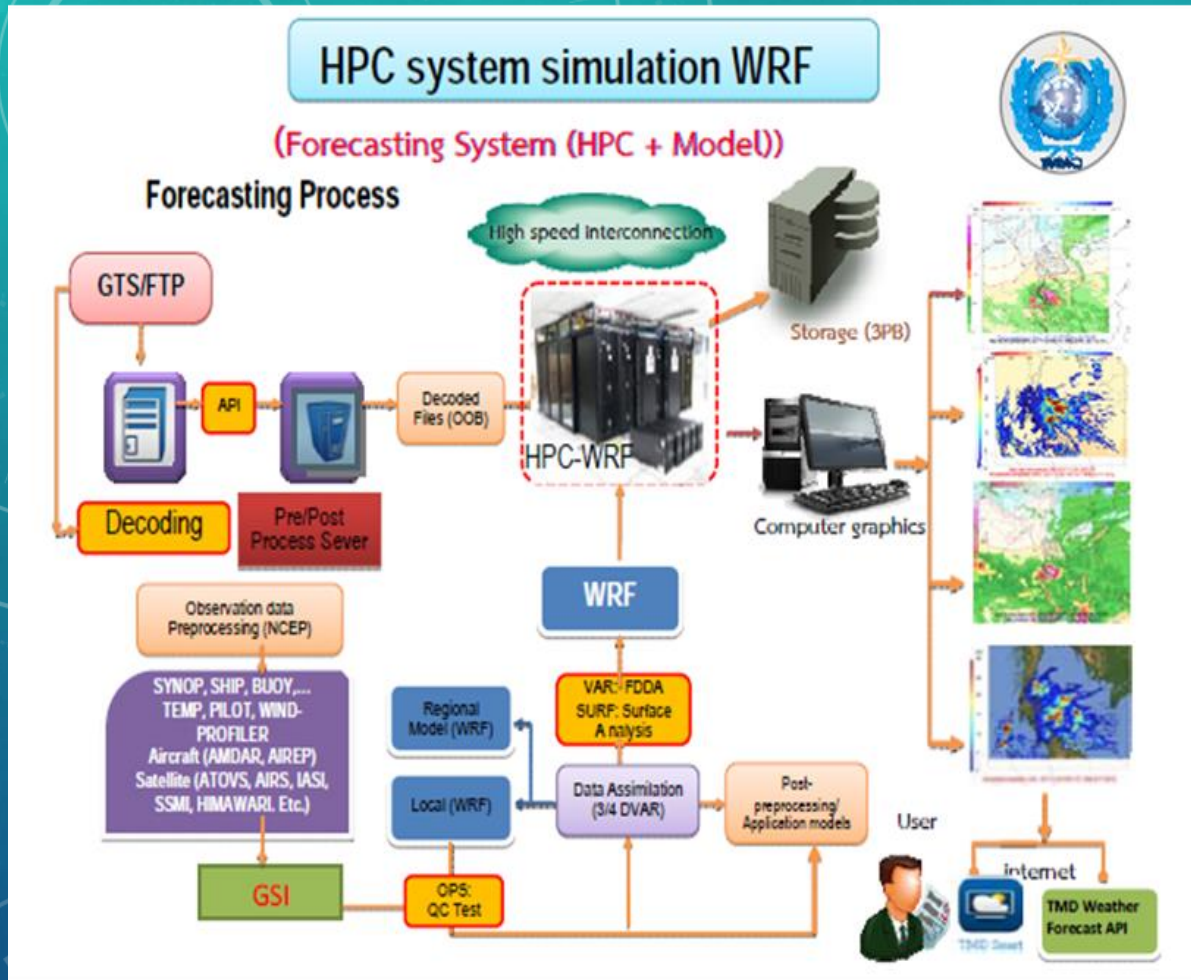
Social Network

Hotline
1182

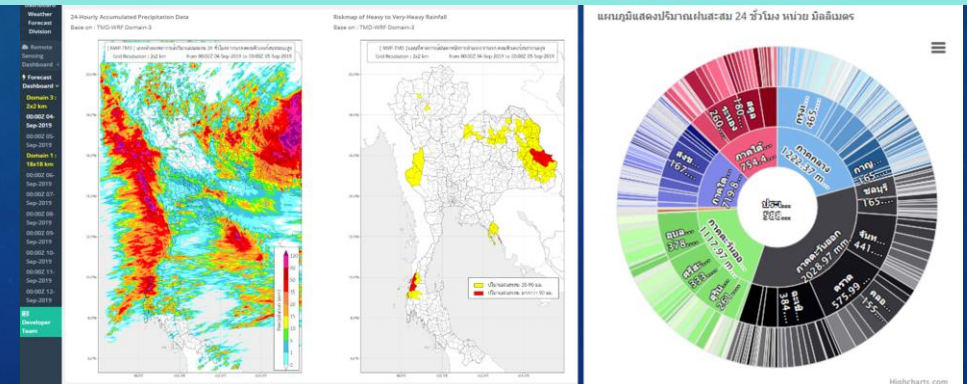
Services
24x7



TMD upgrades a High Performance Computing Weather Forecasting system for simulation atmospheric modeling to develop the weather forecast system which its hardware and software had been established since November 2017.



The Risk Map of heavy to very heavy rainfall from TMD-HPC



Long-range forecast (monthly, 3 month and seasonal) by CPT-MME technique for Thailand

Climate Model

CCSM4

CSFv2

CMC2

NMME

CMC4

GFDL-
FLOR

NASA

GFDL

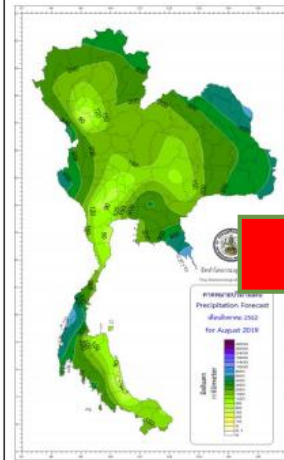
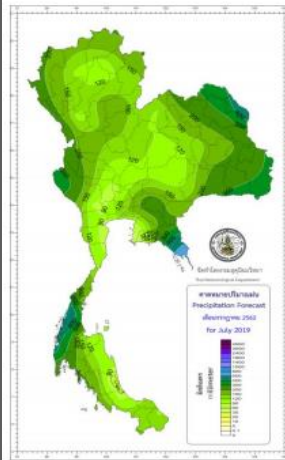
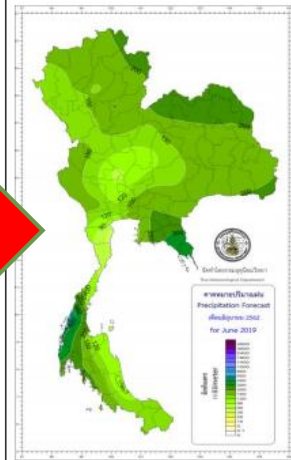
CPT-MME TECHNIQUE FOR THAILAND

คาดการณ์ปริมาณฝนและผลต่างจากค่าปกติ (มิลลิเมตร)

ปริมาณฝน เดือนมิถุนายน 2562

ปริมาณฝน เดือนกรกฎาคม 2562

ปริมาณฝน เดือนสิงหาคม 2562



Precipitation (mm/month) and Precipitation Anomaly (mm/month) Forecast:

Precipitation forecast
for October 2017

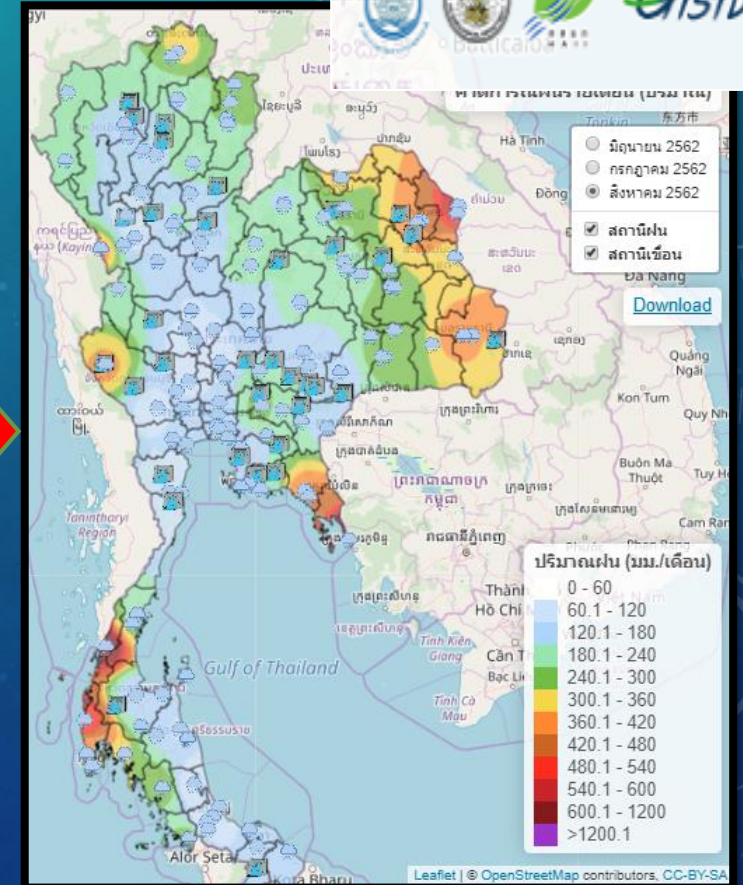
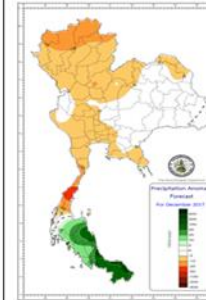
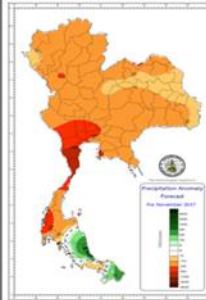
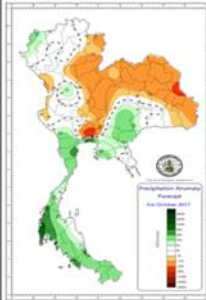
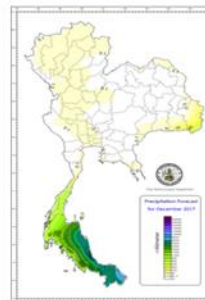
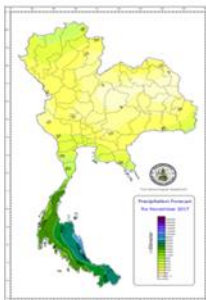
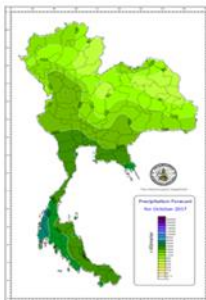
Precipitation forecast
for November 2017

Precipitation forecast
for December 2017

Precipitation anomaly forecast
for October 2017

Precipitation anomaly forecast
for November 2017

Precipitation anomaly forecast
for December 2017



Integrated with among government Agency

Enhancement of Aeronautical Meteorological Information System



Flight Planning

Briefing

Landing

On Runway

- AWOS
- LLWAS
- Lightning Detection

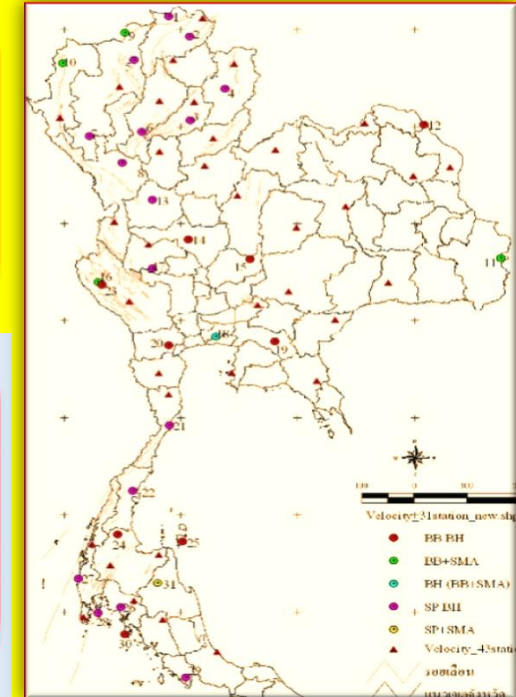
Approach

- LIDAR
- Wind profiler
- RADAR, LTG,

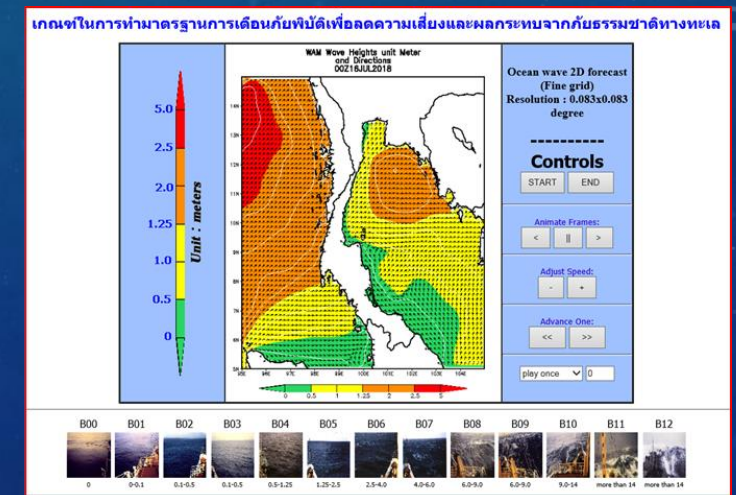
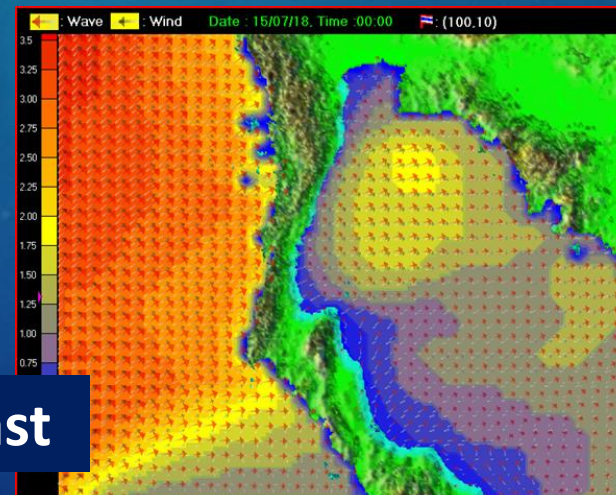
En-Route

- Wind profiler
- Weather Model
- RADAR and LTG

Improving High Performance observation Network for monitoring Earthquake and Tsunami



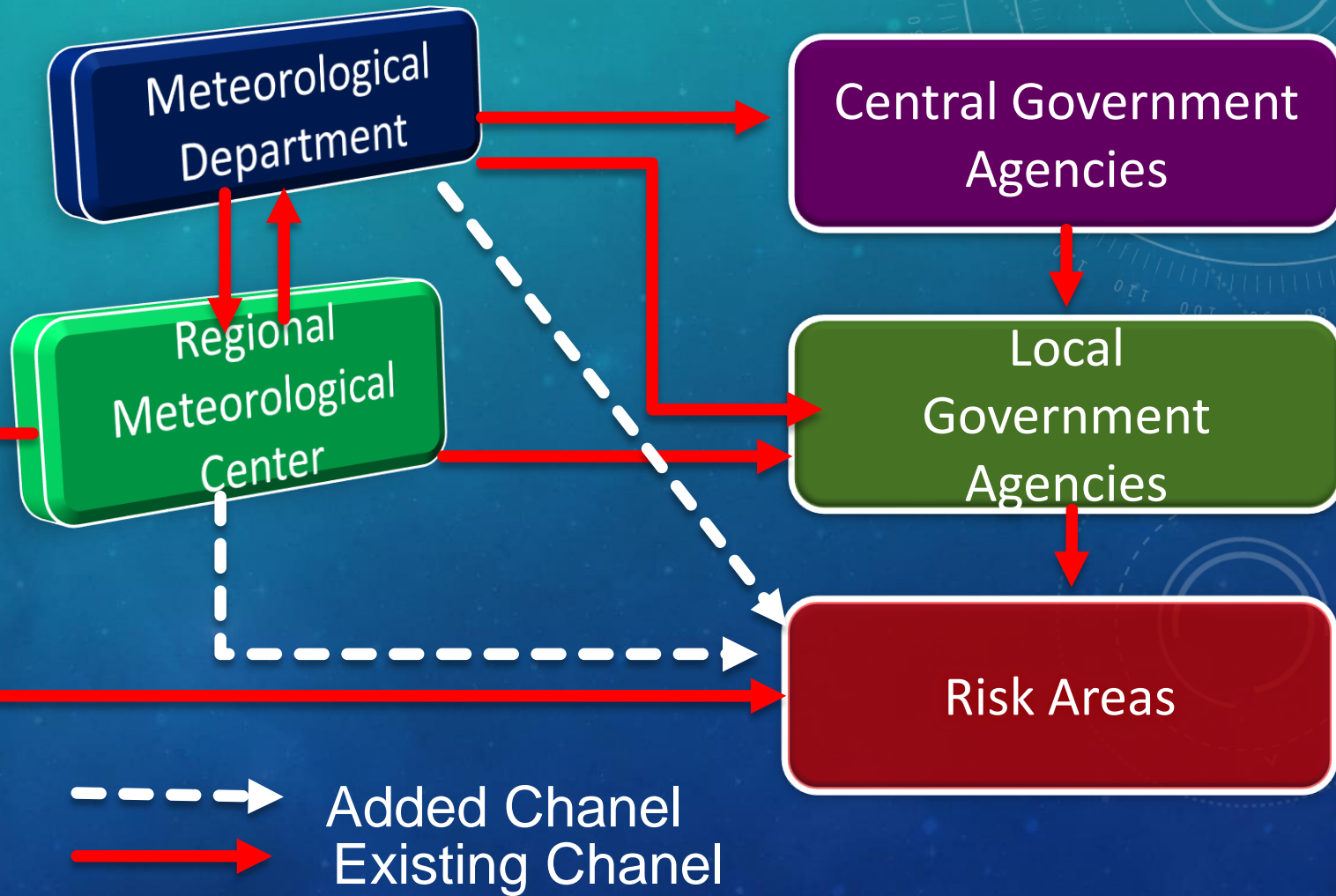
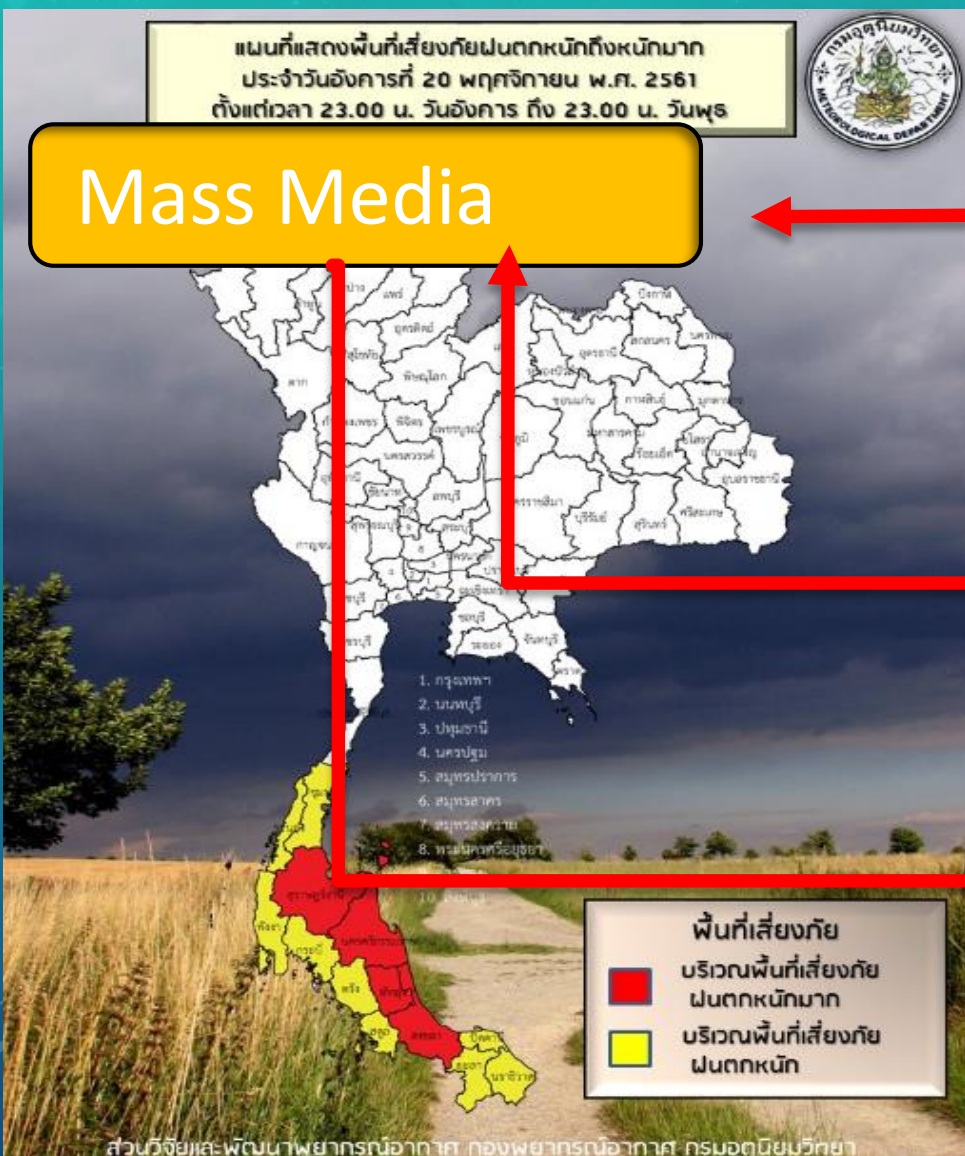
Ocean Wave Forecast





Early Warning Dissemination System respond by TMD

Standard operating procedures
for Tropical Cyclone warning systems



Service delivery and products

API on WEBSITE

Platform ต่าง ๆ

Mobile App

TMD Smart SIM

Thai Weather



Social Network
(Facebook, Youtube)



Weather Forecast Clip



Weather Radio

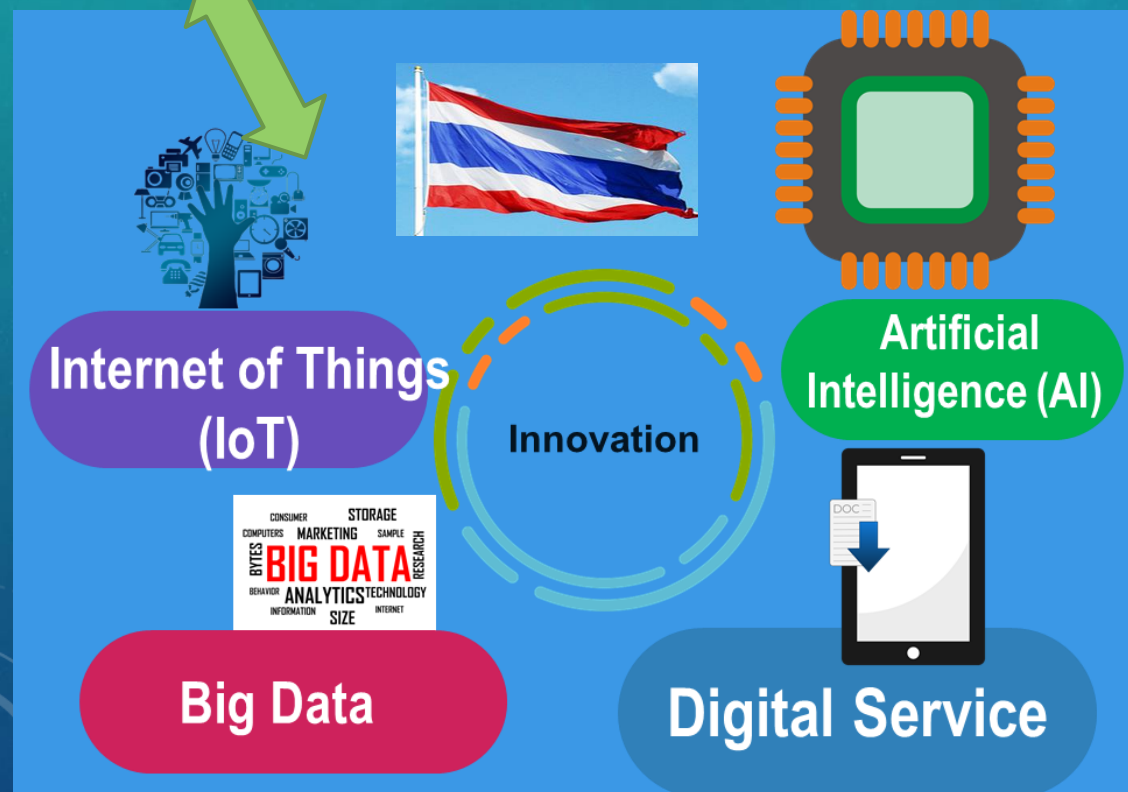


YouTube
ThaiWeatherForecast



Challenges

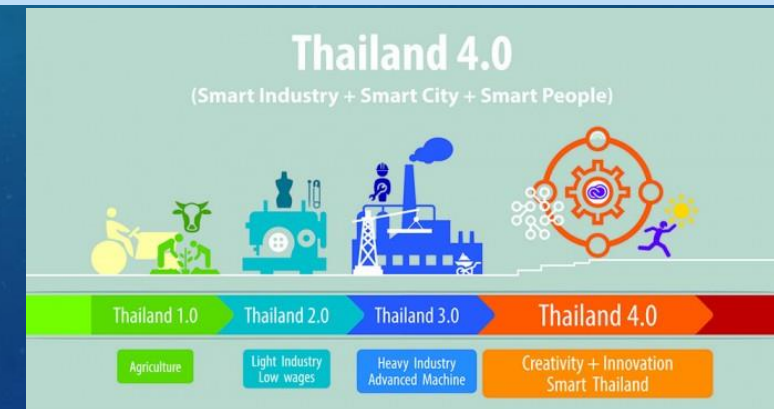
- Thailand has many government agencies and stakeholder related to Natural Disaster Management. It is very hard to integrate the roles and responsibilities of each agency and transfer the knowledge to the local level and public understanding.



Opportunities

20-Year National Strategy (2017 - 2036)
To achieve the vision
“Security, Prosperity, Sustainability”

To become a high-income country “The Philosophy of Sufficiency Economy” Achieving national interests in improving quality of life, generating high income to escape middle-income trap and ensuring well-being for all Thais Society is stable, the nation is competitive in the global markets.



Digital Government towards Thailand 4.0



"สกายฟ็อก"

Thank You

Thai Meteorological Department

Ministry of Digital Economy and Society