# Geoscience WG update

## PRAGMA 25

Whey-Fone Tsai

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Sarawut Ninsawat

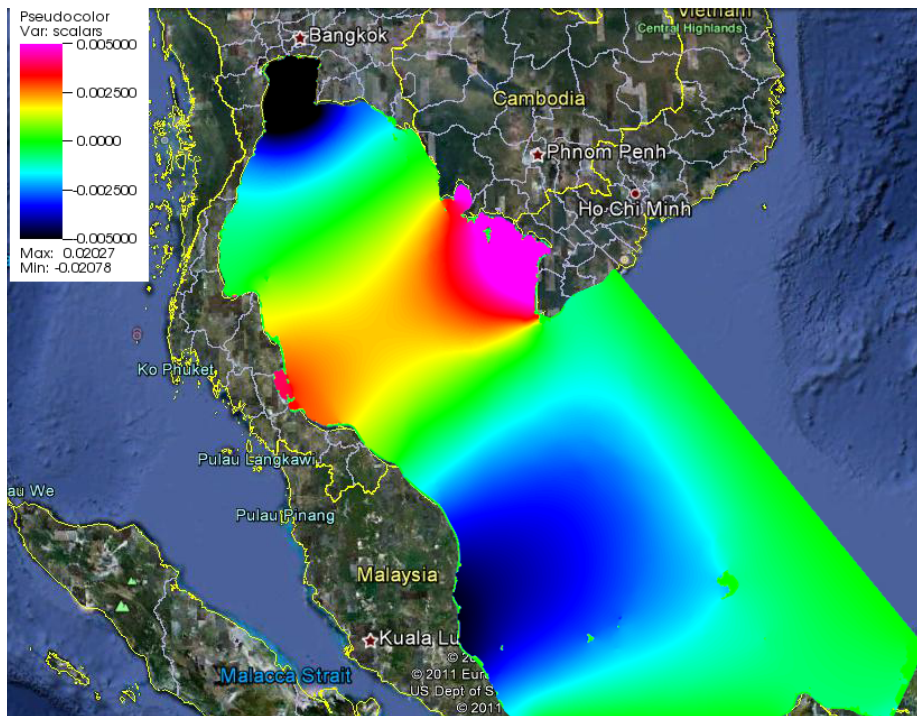Sornthep Vannarat

# About Geoscience WG

- Geographic data infrastructure and data sharing
  - Disaster mitigation
  - Environmental study
- Current activities
  - Asia Geo Grid Initiative
  - Cloud based disaster management information platform
  - Flood and ocean modeling
  - Coral Reef Monitoring

# Last Workshop

- Presentations
  - Coastal/Flood simulation by NECTEC
  - VNU satellite data infrastructure
  - Asia Geo Grid Initiative by AIST
  - VAST tsunami simulation
- Discussions: Guideline for Geoscience application development
  - To facilitate common tools and standard APIs
  - Specify e.g. architecture, data handling, processing, visualization
  - How to come up with guideline: analyzing existing applications, phone discussion

# Coastal Ocean Simulation

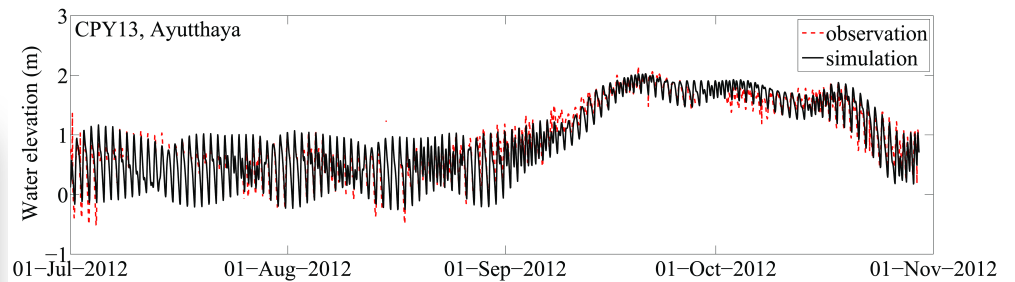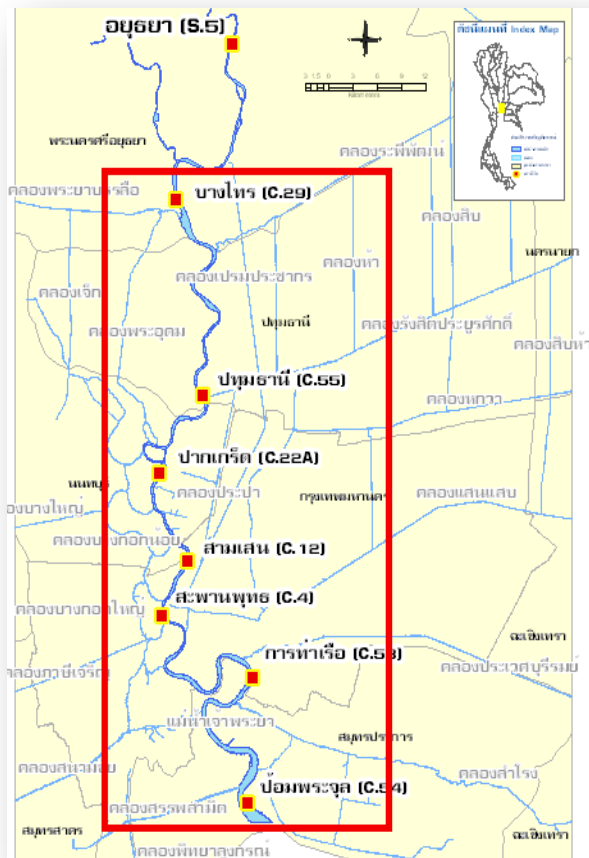- Deeper understanding of storm surge simulation results also continues



$$Q = 2\pi N = 2\pi \frac{\text{Energy Stored}}{\text{Energy Loss per cycle}}$$
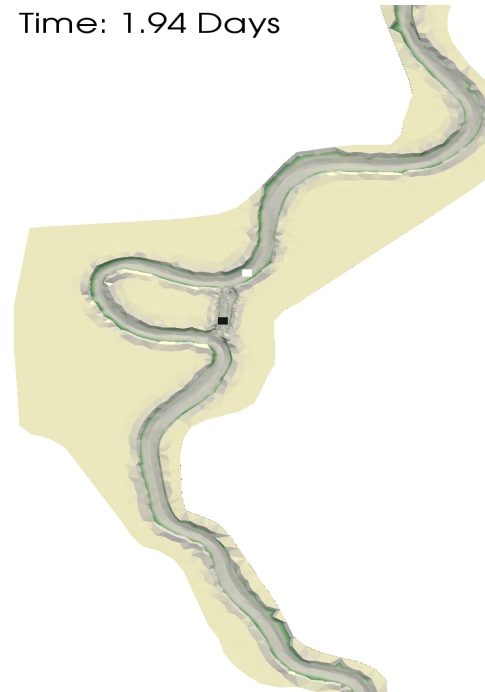
Possibility of stronger storm surge due to CC

# Flood modeling

- Tide and river interaction

## NCHC/NARL
## Disaster Management Information Platform update

- Collaboration plan meetings between NECTEC & NCHC for "Cyberinfrastructure development for reservoir operation and flood forecast". NECTEC visited NCHC March 13-15; NCHC visited NECTEC March 20. Technology collaboration items may include:
  - Digital watershed
  - Sensor network
  - 3D GIS application system
  - River forecast models

# NCHC/NARL
## Disaster Management Information Platform update

- NECTEC researchers, Pished Bunnun, Rangsarit Vanijjirattikhan, and Udom Lewlomphaisarl visited NCHC between May and June for collaboration and exchange ideas in areas of 3D GIS, flood modeling, and sensor network associated with disaster management.

- NCHC, in collaboration with universities and IT companies in Taiwan, has planned a Hadoop-like file system for global climate model simulation and big data analytics.

- NCHC's Disaster Management Information Platform has been adopted to support *Taiwan industrial association for disaster prevention*, and *Taiwan Climate Change Information Program*.

# Solar Energy Map Generator

- Potential of solar energy production needed for renewable energy policy

- Existing work on solar energy maps

- Our aim is map generator – combining data e.g. solar intensity, land slope, land use, population density, electricity infrastructure availability, weather data (cloud, rain, temperature, wind), solar technology specific data (e.g. roof area for roof-top solar panels)

# Asia GEO Grid

- Started a new project on DB federation framework for radiation monitoring.

# Coral Reef Monitoring

- Attended the tutorial work shop on Sensor Pod in TFRI, Taiwan

- Discussed developing user and developer community

- Trying out Sensor Pod at Racha Island