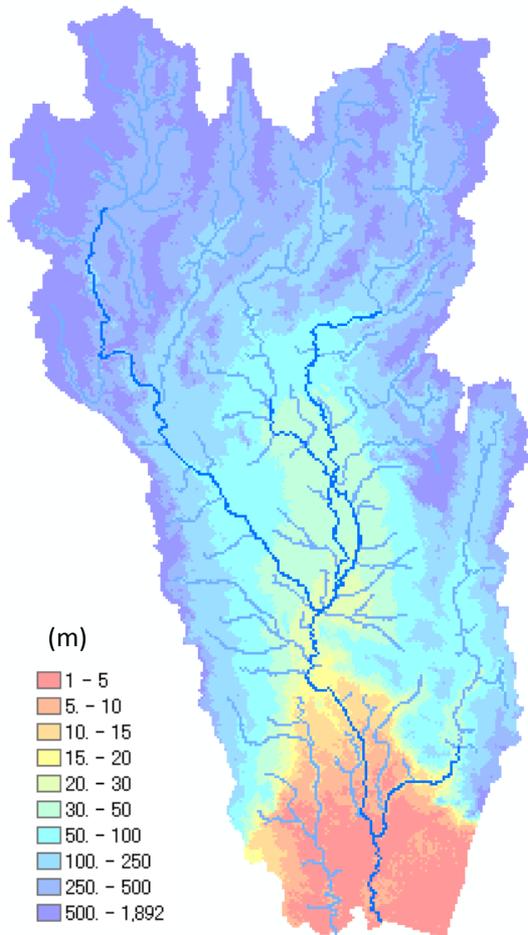


# Rainfall-Runoff-Inundation Forecasting in the Chao Phraya

(ICHARM, as of Nov 1)



Topographic Data by HydroSHEDS

- Purpose: Understanding and predicting the flooding in Thailand at the entire Chao Phraya River Basin with RRI (Rainfall-Runoff-Inundation) Model.
- The simulation is conducted with globally available topography and satellite based rainfall data without parameter calibrations; therefore, more detailed analysis is necessary by including effects of reservoirs, tides, embankment, etc.

Simulation Domain : 163,293 km<sup>2</sup>

Simulation Period :

2011/07/01 0:00 (UTC) – 2011/11/30 0:00 (UTC)

Input Rainfall:

✓ 2011/07/01 0:00 (UTC) – 2011/10/31 15:00 (UTC)

3B42RT (Satellite Based Rainfall)

(Every 3hours, Spatial Resolution: 0.25 deg)

✓ 2011/10/31 18:00 (UTC) – 2011/11/8 12:00 (UTC)

JMA- GSM Weekly Weather Forecasting

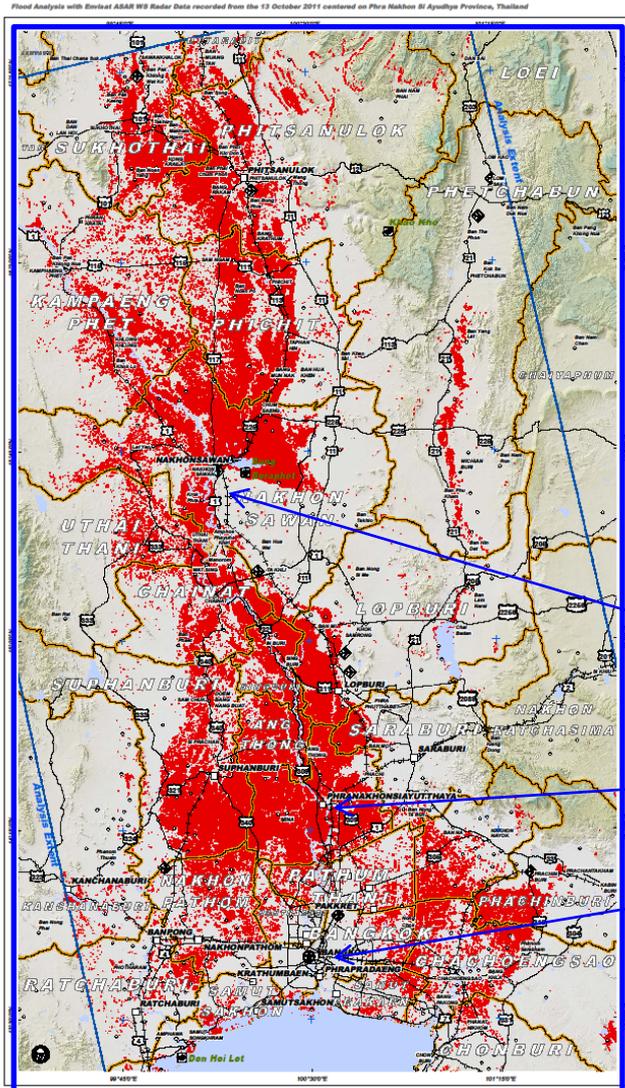
(Forecasting Lead Time: 8 days, Update every 12 hours)

✓ 2011/11/8 15:00 (UTC) – 2011/11/30 0:00 (UTC)

(Last year's 3B42RT rainfall in the same period)

# Inundation Extent by Satellite (as of Oct 13) Simulated Water Depths on Oct 13 (Case 4)

## UPDATE2: OVERVIEW OF FLOOD WATERS OVER CENTRAL PROVINCES, THAILAND



Tropical Cyclone & Flooding  
 Production Date: 13/10/2011  
 Version 4.0  
 Globe Number: FL-2011-00135-THA

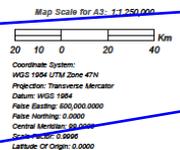


This map presents the standing flood waters over the affected Central Provinces of Thailand based on analysis of satellite data recorded 13 October 2011. A preliminary analysis shows extensive flooding over the provinces of Phra Nakhon Si Ayutthaya, Nakhon Sawan, Chaiyaphum, Pathum Thani, Nakhon Pathom, Ang Thong, Lopburi, Singburi and Suphanburi. This analysis has not yet been validated in the field. Please send ground feedback to UNSTAR/UNOSAT.



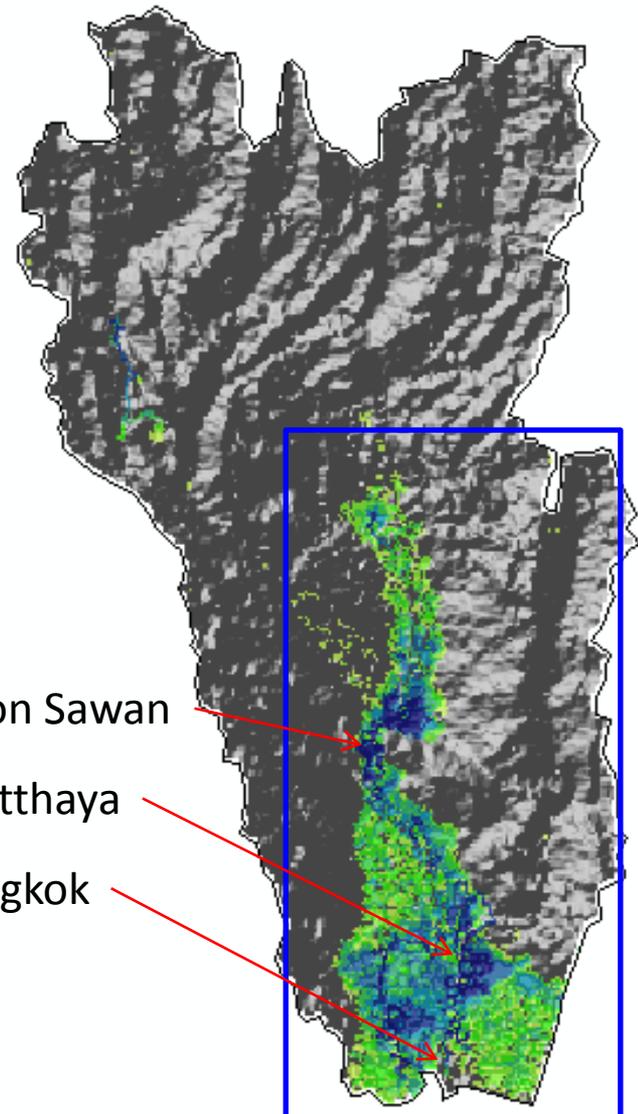
geopictures

Satellite Data (1): Evisat ASAR WV-WH  
 Images Date: 13 October 2011  
 Resolution: 125 m  
 Source: European Space Agency  
 Processor: GeoPictures/ASAT  
 Settlement Data: GADM/INDA  
 Road Data: EDR  
 Other Data: OCHA, USGS  
 Analysis: UNSTAR / UNOSAT  
 Production: UNSTAR / UNOSAT  
 Analysis conducted with ArcGIS v10  
 This work by UNSTAR/UNOSAT is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 3.0 Unported License.



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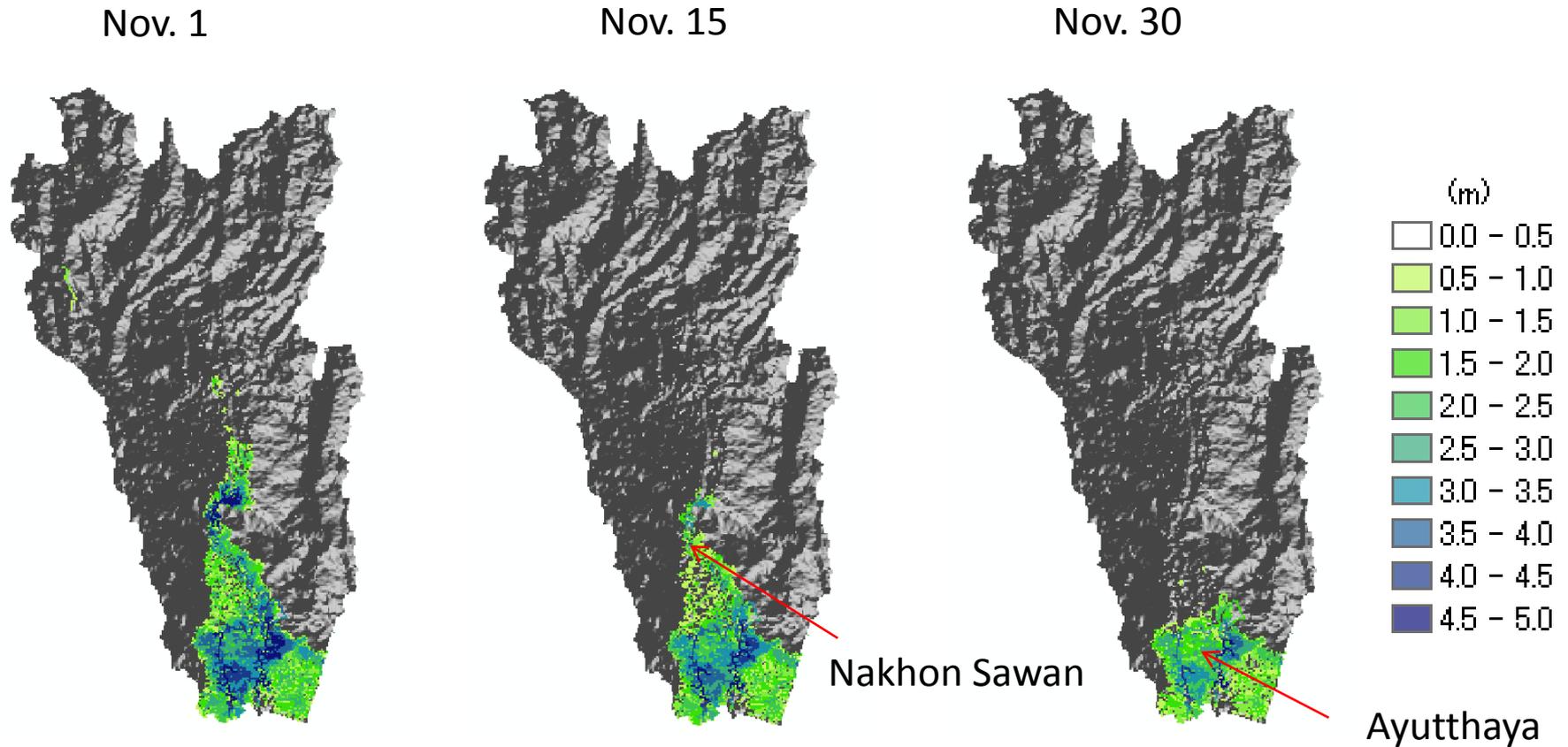
Nakhon Sawan

Ayutthaya

Bangkok

- The simulated inundation extent agrees general pattern with the remote sensing image
- Large degree of uncertainty in the simulation in Bangkok due to no tidal effect consideration

# Forecasted Inundation Depths (Case 4)



- At Nov. 1, flooding still remains high around the Nakhon Sawan and Ayutthaya
- At Nov. 15, flooding around the Nakhon Sawan is reduced
- At Nov. 30, the flooding remains only partially at the northern part of Bangkok