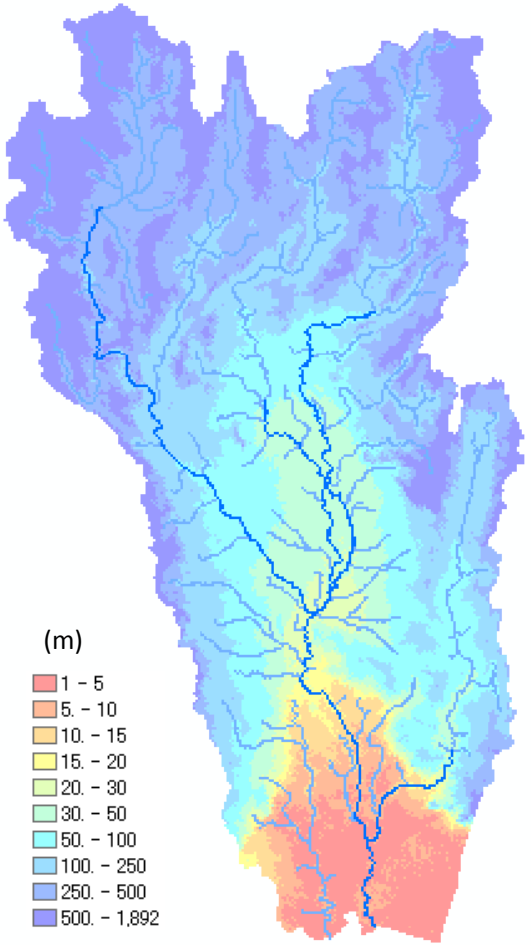
Rainfall-Runoff-Inundation Forecasting in the Chao Phraya

(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.

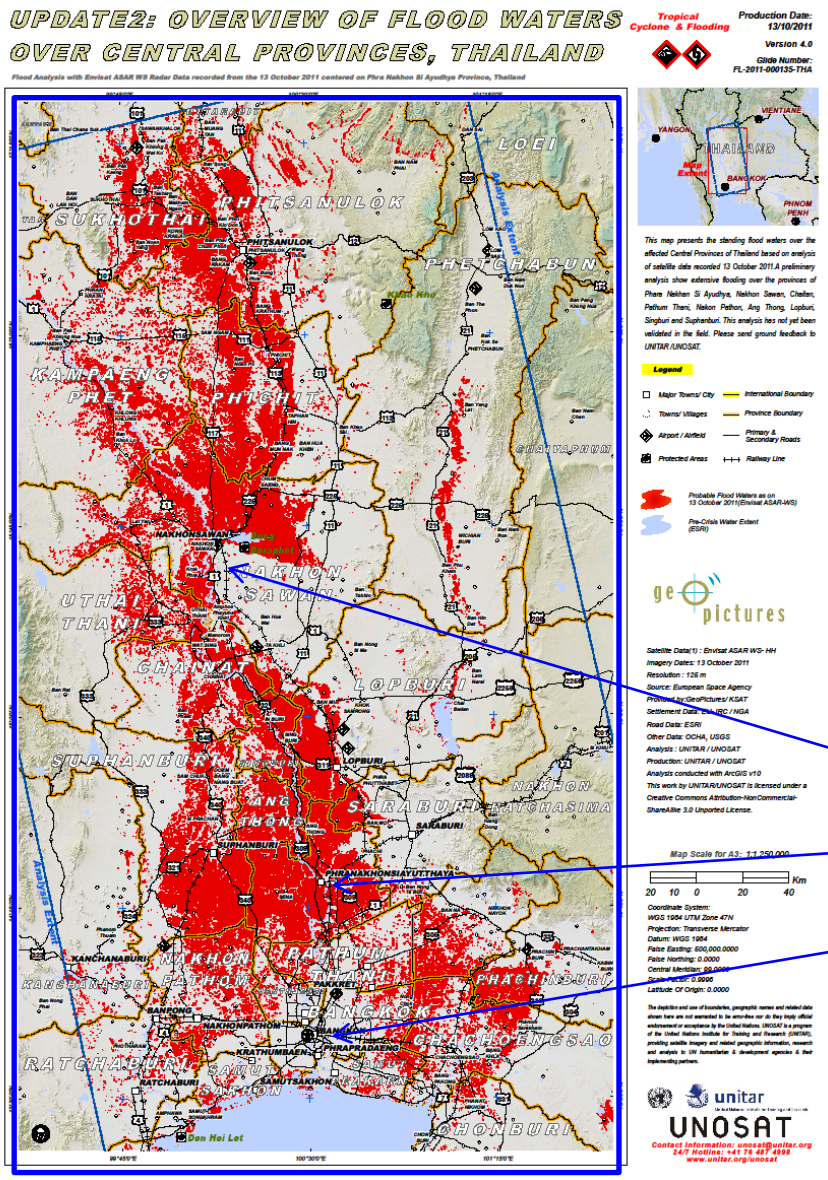
Simulation Domain : 163,293 km^2

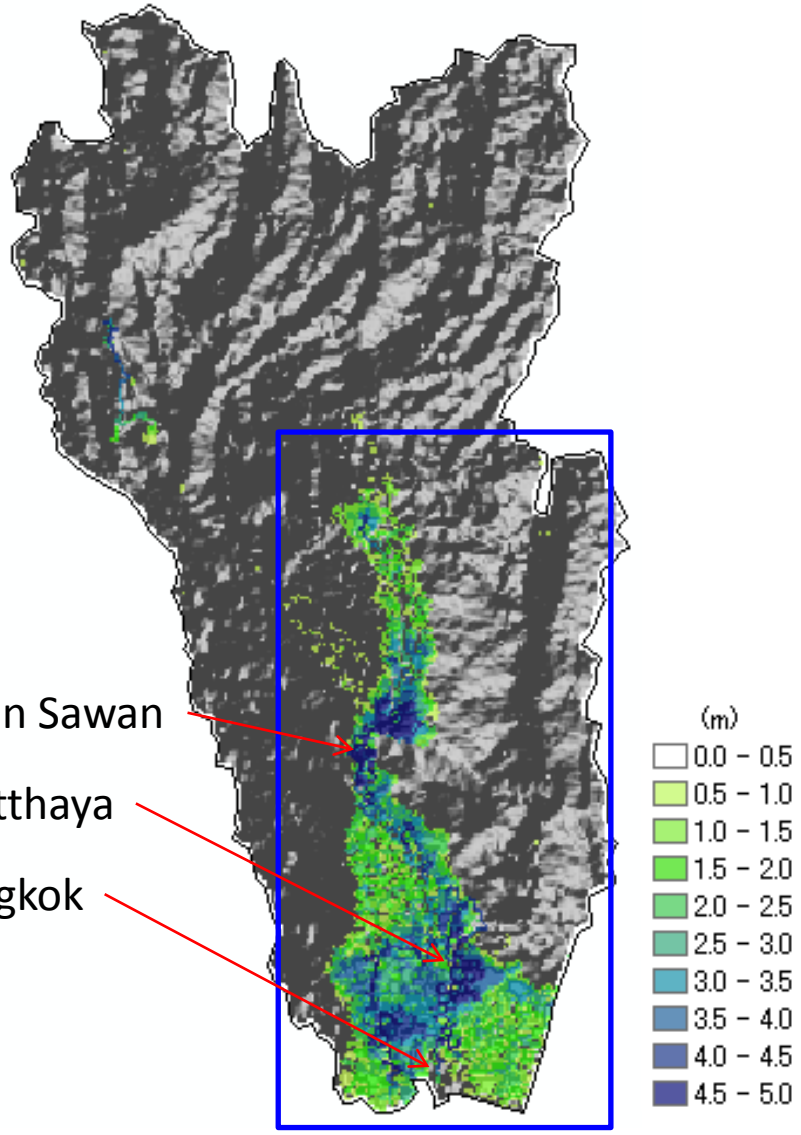
Simulation Period :
2011/07/01 0:00 (UTC) – 2011/11/30 0:00 (UTC)

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)

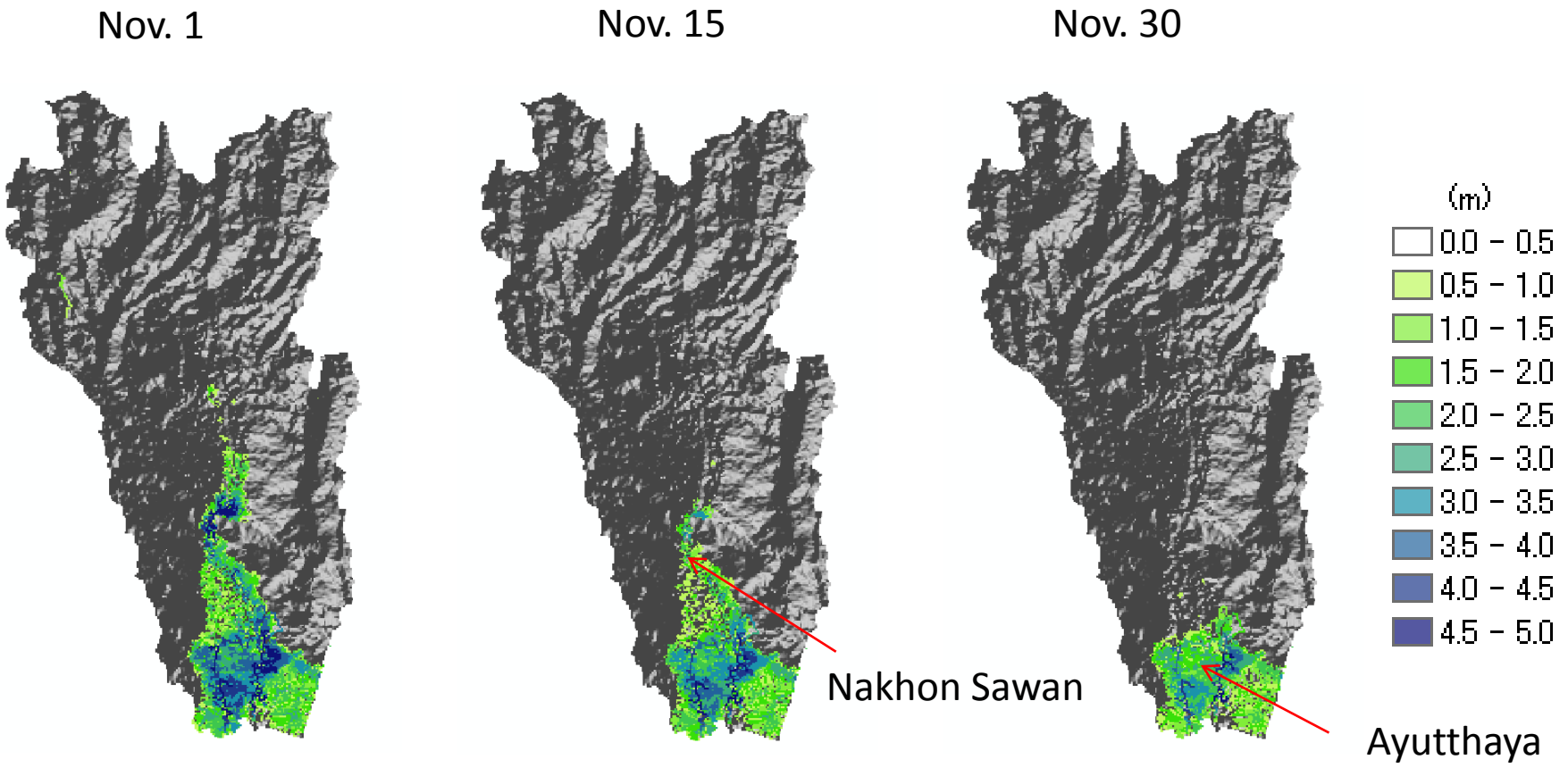
Simulated Water Depths on Oct 13 (Case 4)





- 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