

Estimation

Deskripsi Lengkap: <https://lib.ui.ac.id/detail?id=20409569&lokasi=lokal>

Abstrak

In 2011, massive flooding and inundation in the Chao Phraya River basin, in Thailand, caused serious damage to various activities for a prolonged period of time. Although snapshot images of the inundated area are available, detailed information including temporal changes of the inundated areas and the relationship with meteorological and hydrological conditions are not well documented, particularly for the middle and upper sections of the basin. Therefore, we conducted an analysis using two types of satellite data, HJ-1A and Envisat, to better understand behavior of the large-scale inundation occurred in 2011, focusing on the middle section of the Chao Phraya River basin. In the analysis, water surface in selected domains was extracted using the NDWI value calculated from HJ-1A data. The threshold value of the Envisat ASAR image was then adjusted so that the inundated area estimated from Envisat gives the closest possible match with that estimated from HJ-1A. Finally, the inundated area was estimated for the whole study domain based on the same threshold value from the Envisat data. Results indicated that the inundated area began to extend along the Yom and Nan rivers in early August and continued to spread down to the Nakhon Sawan city area until October. A significant increase in inundated areas occurred between Sep. 2 and Sep. 13, during which higher rainfall intensity was observed. Even after the water level in rivers receded below the bank-full elevation, large areas were left inundated along rivers, particularly over lowlying marsh and paddy fields. In addition, several areas located far from rivers were also inundated, which was likely a consequence of water ponding in paddy fields.