Simulation of Dahlia Tropical Cyclone Impact on Atmospheric Dynamic and Ocean in Sunda Strait using Delft-3D model

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Abstract. Dahlia Tropical Cyclone has occurred on 27th November until 02nd December 2017 which growth in West Indian Ocean near Bengkulu Sea. Altimetry satellite was used to determine the condition of sea level anomaly. It is showed an increased sea level anomaly about 0,3-0,4 meters. Delft-3D simulation modeling was conducted to determine the condition of ocean and atmospheric dynamics at the growth of Dahlia Tropical Cyclone. The peak condition of the significant wave height reaches 3,24 meters in Ciwandan Station during the growth of Dahlia Tropical Cyclone. The swell propogation reaches 3,0 meters with the direction of movement towards the Sunda Strait. From the results of wind analysis is known that the average wind speed and direction comes from the Southwest and reaches 11-17 knots. This study proves that wind induced from tropical cyclones generates the swell propogation cause maximum significant waves height and sea level rise anomaly. Verification of the Delft3D model simulation result compare with observation data from Geospatial Information Agency show a strong correlation reaches 0,86 which means the Delft-3D result is closely enough compare with the observational data.