Almost 70% of Indonesia area is water. Indonesia contains of potential natural resources which still yet to be optimally explored and exploited, even some of them are still unknown. This underlies the importance of spatial information in the territorial waters of Indonesian. The tidal phenomenon of sea level or SLA (Sea Level Anomaly) is frequently raised by the changes of relative motion from planet, star, and other celestial objects which resulted from the action of attraction or sometimes called the tides. At this time, the system has been developed the altimeter satellite Jason-1 in order to observe the tides.

The binary data processing from altimeter satellite Jason-1 is performed by using several steps: data conversion, grid forming, and modelling along with analyzing the trend of tides. The SLA monitoring along with the trend and tides analysis are carried out every cycle in a period of four years (2008-2011).

The result of SLA monitoring using satellite data altimetry Jason-1 from 2008 to 2011 is obtained the highest tide trend and the lowest tide trend in the territorial waters of Indonesia. The results showed that the highest tide in 2008 is occurred in the cycle of 236 is equal to 1.9982 m in the Sea Arafuru and the lowest tide in the cycle of 236 is equal to -3.6954 m. Value of the highest tide in 2009 is occurred in the
cycle of 290 is 1.9325 m in the Sea of Arafuru and the lowest tide is occurred in the cycle of 258 m in the Sea of Arafuru at -3.309 m. Value of the highest tide in 2010 is occurred in the cycle of 308 with 2.1511 m in the Sea of Arafuru and the lowest tide values occur in the cycle of 297 at -2.8303 m. Value of the highest tide in 2011 is occurred in the cycle of 345 with 1.8402 m in the Sea of Arafuru and the lowest tide is occurred in the cycle of 348 at -3.57 m. Within four years, the territorial waters of Indonesia, which suffered the highest and the lowest tide are in Arafuru Sea.

**Keywords:** Sea Level Anomaly, Jason-1, Trend of Tides