

Oceanic Responses due to KRAKATOA Mount Eruption

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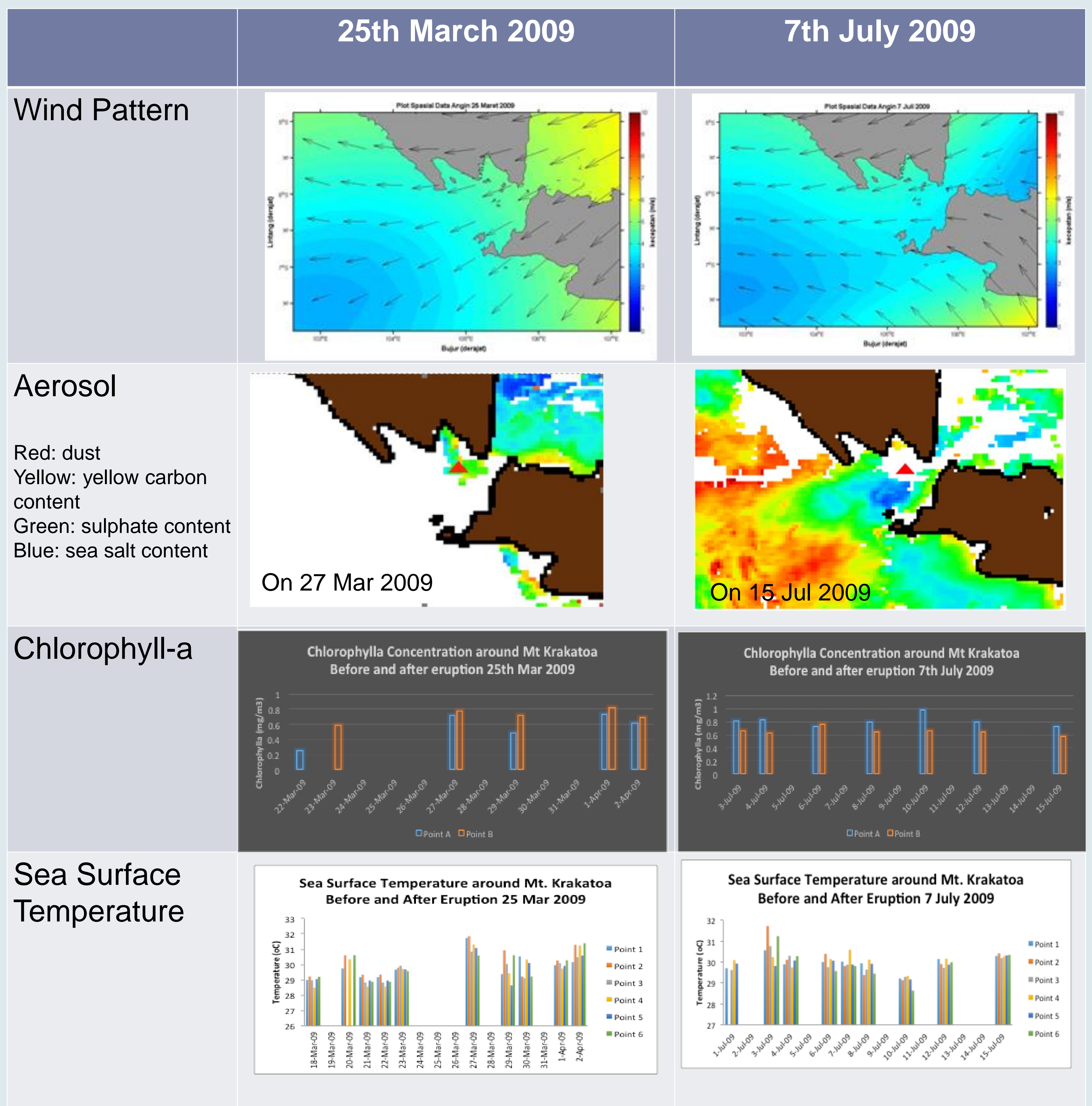


Introduction

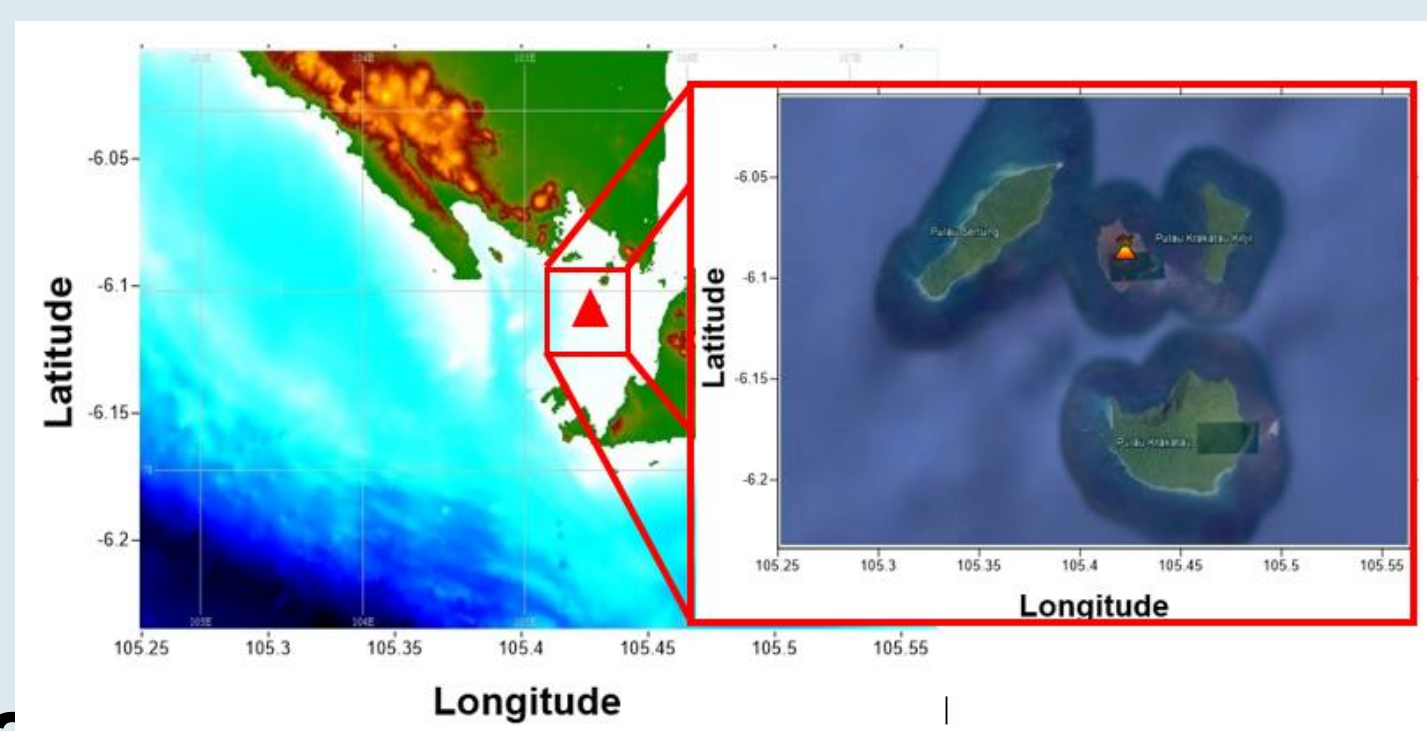
Indonesia is one of the most active volcanoes in the world, there are 129 active volcanoes or about 15% of all volcanoes on earth. The approximately 7,000 km of mountain ranges form an elongated belt from the islands of Sumatra, Java, Bali, Nusa Tenggara on one circuit and continuously northward until the Banda Sea and the northern part of Sulawesi Island (Effendi, et al., 2004; Mawardi, 2006). Krakatau is a submarine volcano at a depth of 28 meters below sea level, which once erupted very devastatingly in 1883 and is still active today. This study to examine the impact of Krakatau eruption on oceanographic parameters (temperature and chlorophyll a) around Krakatau mountain waters



Results



Methods



Data

- Chlorophyll-a and Sea Surface Temperature Level 2 and Level 3 data from Aqua MODIS satellite (www.oceancolor.gsfc.nasa.gov.)
- Wind pattern data from NCEP (www.esrl.noaa.gov)

Table 1. Comparison the response with other volcano

	Krakatau Mount (this research)	Gamalama Mount (Kartikoputro, E. 2014)	Kasatochi volcano (Browning, T.J., et al. 2015)
Increment of chlorophylla (mg/m ³)	0,2 - 0,4	0,16 - 0,22	0,2 -1
Increment duration (days)	1 -2	2-3	2 - 5
Persisted duration (days)	5 -7	4-6	17

Conclusion

- The value of chlorophyll-a in the northern waters of Mount Krakatoa tends to increase after the eruption on 25 March 2009 by 0.22 to 0.4 mg / m³ in the radius of 5 kilometers while after the eruption on July 7, 2009 by 0.25 mg / m³.
- The value of SST in the waters around Mount Anak Krakatau tends to increase after the eruption on 25 March 2009 with a value that exceeds the maximum deviation standard limit on 27 March 2009 and tends to decrease after the eruption on 7 July 2009 with a value less than standard deviation minimum.
- The concentration of chlorophyll-a and SST values are higher in the northern waters of Anak Krakatau because of the influence of winds that tend to bring volcanic ash towards the north-northwest.
- The effect of eruption of Mount Krakatoa to the concentration of chlorophyll-a was only seen 1-2 days after the eruption incident and only lasted in 5-7 days.



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