Available online at www.sciencedirect.com

ScienceDirect

Procedia Environmental Sciences 33 (2016) 568 – 573

Procedia Environmental Sciences

The 2nd International Symposium on LAPAN-IPB Satellite for Food Security and Environmental Monitoring 2015, LISAT-FSEM 2015

Observations of sea surface temperature on spatial and temporal using Aqua MODIS Satellite in West Banda Sea

Muslim Tadjuddah*

Department of Fisheries Resources Management, Fisheries and Marine Science Faculty, Halu Oleo University, Southeast Sulawesi Province, Indonesia

Abstract

West Banda Sea is area that high potential resources of marine and fisheries in Indonesia. Oceanographic observation factor such as Sea Surface Temperature (SST) will improve knowledge of some oceanographic phenomena (e.g. thermal fronts) which is useful for fishing ground forecast. The aim of this study was to observe SST by using satellites image in West Banda Sea. There were the Aqua-MODIS datasets composite 8-day level 3, which provide a SST data in 4 km pixel size. Results showed that based on the observation of SST in 2013 that the highest temperature in west season and the lowest SST was founded in east season until east-west season. There are tend to occur upwelling in west of Banda Sea. Based on result of the research, it is necessary to do the next research for verifying and observing the upwelling phenomena in West Banda Sea.

Peer-review under responsibility of the organizing committee of LISAT-FSEM2015

Keywords: West Banda Sea; sea surface temperature; Aqua MODIS Satellite.

* Corresponding author. Tel.: +62-812-893-2030.
E-mail address: muslim22jan@gmail.com.

Peer-review under responsibility of the organizing committee of LISAT-FSEM2015
doi:10.1016/j.proenv.2016.03.109

1. Introduction

Remote sensing satellite technology is widely used for oceanographic parameters observation. The parameters are Sea Surface Temperature (SST), chlorophyll-a concentration, salinity, sedimentation, tidal, upwelling phenomena, thermal fronts, and eddies currents. The parameters can be used in order to determine potential fishing grounds. The technology is perquisite, because can save time observation, relatively low cost and the accuracy observations are quite high.

One of oceanographic parameters that can identified the water masses in the ocean is SST observation. SST has the close relationship with layer of sea waters. Accordingly, SST data can be used to interpret the phenomena (such as thermal front, currents, upwelling, sea surface distribution temperature, and biological activity) that happened in the ocean [1].

According to Nontji (1987) [2], the temperature of the surface layer in Indonesian waters generally range at 28°C - 31°C. The warm SSTs have been caused by Indonesia's geographical position that is located in the equatorial region. The highest temperature of 30 °C generally occurs in April-May, while the lowest temperatures was 27°C occurred in December - January. SST was also influenced by seasonal winds and patterns precipitation [3].

This study aimed to observe SSTs in the west of Banda Sea with Aqua MODIS satellite data using data level 3. It is a preliminary study that observe oceanographic phenomena in west Banda Sea. It will lead to the mapping oceanography parameters to estimate fishing ground potential in the West Banda Sea.

2. Materials and Methods

2.1. Research location

This research was conducted in West Banda Sea, Southeast Sulawesi Province in geographical position between 2°25'- 4°25' E and 122°75 '- 124°00'S. This research was conducted from January until December 2013.

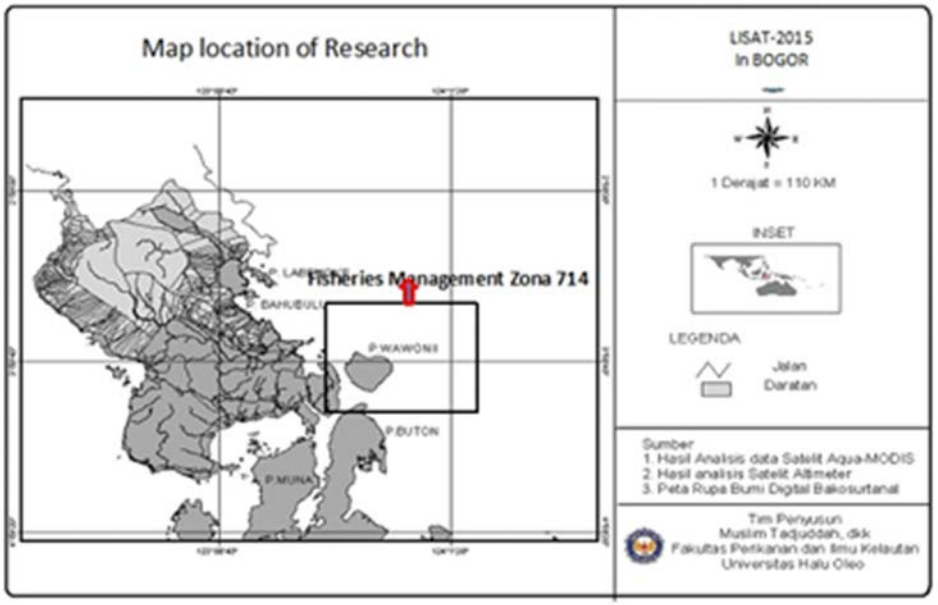

Fig 1. Location of the study area in West Banda Sea