

## PREDICTION OF SEASONAL UPWELLING AT SOUTH SUMBAWA SEA, INDONESIA

SUPRIJO, Totok<sup>1\*</sup>, Tonny Bachtiar<sup>2</sup>

<sup>1</sup>Faculty of Earth Sciences and Technology, Institute of Technology Bandung, <sup>2</sup>PT. Newmont Nusa Tenggara

Based on Ekman theory and Bakun upwelling index formula, prediction of upwelling occurrence at the south coast Sumbawa Island was carried out. Six hourly global wind data from the United State National Centers for Environmental Prediction (US-NCEP) were used for calculation of upwelling index. Furthermore, values of the indexes are correlated with thickness of thermocline layer. Depletion of thermocline layer occurs during upwelling occurrence because vertical movement of sea water mass brings cold water from deeper part of the sea to the surface. The thicknesses of thermocline layer at South Sumbawa Sea are obtained by analyzing ten years vertical profile of seawater temperature data. The data was observed by the team from PT. Newmont Nusa Tenggara from year of 1999 to 2009. Cross-correlation between upwelling index and thickness of thermocline layer shows that the index is inversely proportional to the thickness. It means that the positive index indicates occurrence of upwelling is correlate with the depletion of thermocline layer. This study concludes that upwelling index calculated using global wind data is able to represent occurrence of upwelling in South Sumbawa Sea and value of the index can also indicate the strength of upwelling.

Keywords: upwelling index, thermocline layer