

## ABSTRAK

Penelitian ini berjudul Pengaruh Fenomena *Madden Julian Oscillation* (MJO) Terhadap Anomali *Sea Surface Salinity* (SSS) Di Wilayah Perairan Indonesia Bagian Barat. Fenomena MJO merupakan interaksi laut atmosfer yang mempengaruhi variasi iklim dan cuaca serta mempengaruhi kondisi atmosfer dan oseanografi seperti curah hujan dan SSS di wilayah tropis seperti Indonesia Bagian Barat. Penelitian ini bertujuan untuk mengidentifikasi fenomena MJO, kondisi curah hujan dan pengaruhnya terhadap anomali SSS di wilayah perairan Indonesia Bagian Barat pada tahun 2019. Metode penelitian yang digunakan yaitu metode observasi dengan menggunakan data sekunder dari beberapa sumber meliputi data model *Realtime Multivariate MJO* (RMM), data *Outgoing Longwave Radiation* (OLR), data angin, data curah hujan dan data SSS. Data diolah dan divisualisasi menggunakan *software* pemetaan dan dianalisis secara deskriptif berdasarkan fase aktif dan pasif MJO di wilayah penelitian dengan 4 stasiun penelitian yaitu Perairan Laut Jawa, Perairan Selatan Jawa, Perairan Kepulauan Mentawai dan Perairan Kepulauan Natuna. Hasil penelitian ini meliputi identifikasi waktu terjadinya MJO berdasarkan nilai RMM, nilai OLR, dan pola angin pada ketinggian 850 mbar dan 200 mbar pada fase aktif (18-23 Januari; 6-11 Maret; 14-17 Juni; 2-5 November) dan fase pasif (11-16 Januari; 1-6 April; 24-27 Juli; 25-28 Oktober) dengan intensitas lemah hingga kuat, sementara kondisi curah hujan selama fenomena MJO di tiap fase berbeda, ketika fase aktif mengalami peningkatan dan fase pasif cenderung mengalami penurunan intensitas curah hujan. Pengaruh fenomena MJO terhadap anomali SSS pada saat fase aktif dengan pasif MJO di musim yang sama dapat menurunkan nilai SSS antara 0,09 ppt - 0,29 ppt dengan *trend* menurun di tiap musim akibat peningkatan intensitas curah hujan.

**Kata Kunci :** *Madden Julian Oscillation, Sea Surface Salinity, Curah Hujan, Interaksi Laut Atmosfer, Perairan Indonesia Bagian Barat*

## ABSTRACT

This research entitled The Effect of the Madden Julian Oscillation (MJO) Phenomenon on Sea Surface Salinity (SSS) Anomalies in Western Indonesian Waters. The MJO phenomenon is a sea-atmosphere interaction that affects climate and weather variations and affects atmospheric and oceanographic conditions such as rainfall and SSS in tropical regions such as Western Indonesia Waters. This research aims to identify the MJO phenomenon, rainfall conditions and its effect on SSS anomalies in Western Indonesian waters in 2019. The research method used is the observation method using secondary data from several sources including the Realtime Multivariate MJO (RMM) model data, Outgoing Longwave Radiation (OLR) data, wind data, rainfall data and SSS data. Data were processed and visualized using mapping software and analyzed descriptively based on the active and passive phases of the MJO in the research area with 4 research stations, namely Java Sea, Southern Java Waters, Mentawai Islands Waters and Natuna Islands Waters. The results obtained were include identification of the time of the MJO based on the RMM value, OLR value, and wind patterns at an altitude of 850mbar and 200mbar in the active phase (January 18<sup>th</sup>-23<sup>rd</sup>; March 6<sup>th</sup>-11<sup>th</sup>; June 14<sup>th</sup>-17<sup>th</sup>; November 2<sup>nd</sup>-5<sup>th</sup>) and the passive phase. (January 11<sup>th</sup>-16<sup>th</sup>; April 1<sup>st</sup>-6<sup>th</sup>; July 24<sup>th</sup>-27<sup>th</sup>; October 25<sup>th</sup>-28<sup>th</sup>) has weak to strong intensity, while the rainfall conditions during the MJO phenomenon are different in each phase, when the active phase increases and the passive phase tends to decrease in rainfall intensity. The effect of the MJO phenomenon on SSS anomaly during the active phase with passive MJO in the same season can decrease the SSS value between 0.09 ppt - 0.29 ppt with a decreasing trend in each season due to increased rainfall intensity.

**Keywords :** *Madden Julian Oscillation, Sea Surface Salinity, Rainfall, Ocean Atmospheric Interaction, Western Indonesian Waters*