SARI

Perubahan iklim global yang cepat dan fluktuatif seperti yang sekarang terjadi, mengakibatkan terjadinya bencana seperti banjir, kekeringan, dan lain – lain. Zaman Kuarter Akhir terutama Kala Pleistosen Akhir menuju Kala Holosen terjadi perubahan suhu dan lingkungan yang signifikan (Bradley, 2015), dimana dari Kala Pliosen hingga Pleistosen suhu atmosfer bumi menurun dan kemudian suhu mengalami kenaikan semenjak Kala Holosen. Pola perubahan suhu ini terekam di seluruh dunia. Kenaikan suhu ini mengakibatkan mencairnya es sehingga volume air laut bertambah dan menimbulkan naiknya muka air laut relatif (transgresi). Pola ini menarik untuk diamati pada sedimen laut di daerah lintang rendah.

Distribusi ukuran butir dimaksudkan untuk mengetahui mekanisme pengendapan dengan pengeplotan persentil pertama (C) dan median (M), kondisi arus dengan pengeplotan median (M) dan sortasi (S), fluktuasi muka air laut dengan perubahan rerata ukuran butir, serta kecepatan sedimentasi dengan presentase ukuran butir. Geokimia unsur digunakan untuk mengetahui asal sedimen. Mikrofauna digunakan untuk mengetahui fluktuasi produktivitas, termoklin, tingkat oksigenasi, salinitas, serta fluktuasi panas/ dingin pada masa lampau.

Kumpulan foraminifera di daerah penelitian dapat menggambarkan perubahan kondisi paleoklimatologi dan paleo-oseanografi sejak Pleistosen Akhir (~27.719 BP) dengan didukung karakteristik besar butir dan kandungan unsur. Secara umum kondisi pada Pleistosen Akhir pada daerah penelitian ditandai dengan suhu yang lebih rendah, muka air laut dan *base level* yang lebih rendah, erosi daratan yang lebih dominan, salinitas lebih tinggi, serta curah hujan lebih tinggi dari Kala Holosen. Kedalaman termoklin relatif dalam, produktivitas yang lebih rendah, serta kadar oksigen lautan tidak jauh berbeda dari Kala Holosen. Terdapat periode dan *event* iklim yang berskala regional – global antara lain *Last Glacial Maximum, Oldest Dryas, Bolling – Allerod, Younger Dryas, 8,2 event, Tropical Cooling*, dan *Little Ice Age*.

Kata kunci: Simeuleu sub-basin, paleoklimatologi, paleoseanografi

ABSTRACT

The rapid and fluctuating global climate change nowadays has resulted in disasters such as floods, droughts, and others. There were significant changes in temperature and environment during the Late Quaternary Period, especially from the Late Pleistocene until the Holocene Period (Bradley, 2015). The earth's atmospheric temperature decreased from the Pliocene to Pleistocene and then it increased since the Holocene. This pattern of temperature changes was recorded worldwide. This increase in temperature caused the melting of ice so that the volume of seawater increased which then caused a relative sea-level rise (transgression). This pattern of changes is interesting to observe in marine sediments at low latitudes.

The grain size distribution was used to determine the mechanism of deposition by plotting the first percentile (C) and median (M), current conditions by plotting the median (M) and sorting (S), sea-level fluctuations with changes in the average grain size, and sedimentation velocity by the percentage of grain size. Elemental geochemistry was used to determine the origin of sediments. Microfauna was used to determine fluctuations in productivity, thermocline, oxygenation level, salinity, and fluctuations of heat/cold in the past.

Foraminifera assemblage in the study area can describe changes in paleoclimate and paleo-oceanographic conditions since the Late Pleistocene (~27,719 BP) with the addition of grain size characteristics and elemental content data. In general, the conditions in the Late Pleistocene at the study area were characterized by lower temperatures, lower sea levels and base levels, more dominant of land erosion, higher salinity, and higher rainfall than the Holocene. The depth of the thermocline was relatively deep, the productivity was lower, and the oxygen content of the oceans was not much different from the Holocene. There were climate periods and events on a regional up to global scale, including Last Glacial Maximum, Oldest Dryas, Bolling – Allerod, Younger Dryas, 8.2 events, Tropical Cooling, and Little Ice Age.

Keywords: Simeuleu sub-basin, paleoclimatology, paleoceanography