

## ABSTRAK

PLTU Karangandri dan PLTU Adipala terletak di Kabupaten Cilacap, Jawa Tengah berperan penting dalam memenuhi kebutuhan listrik di sebagian wilayah di Indonesia (Pulau Jawa, Madura, dan Bali). Limbah panas yang dihasilkan PLTU berpotensi mencemari perairan karena meningkatkan suhu perairan di sekitar *outfall*. Penelitian ini bertujuan untuk mengetahui estimasi nilai sebaran suhu permukaan laut berdasarkan citra Landsat 8 TIRS serta perbandingannya dengan nilai suhu permukaan laut *in situ* dengan *Water Quality Checker*. Pengolahan data citra dilakukan pada *platform Google Earth Engine (GEE)* dengan menggunakan metode *Split Window Algorithm (SWA)* dan *Radiative Transfer Equation (RTE)*. Perbandingan nilai SPL *in situ* dengan nilai estimasi SPL pengolahan data citra Landsat 8 didapatkan akurasi tertinggi menggunakan algoritma RTE. Nilai SPL yang diperoleh menggunakan Metode RTE pada kedua musim menghasilkan nilai suhu terendah pada musim Barat sebesar 27,70°C dan nilai SPL tertinggi sebesar 36,20°C dengan nilai SPL rata-rata sebesar 30,09°. Sedangkan pada musim Timur nilai SPL terendah sebesar 24,70°C dan nilai SPL tertinggi sebesar 36,70°C dengan nilai SPL rata-rata sebesar 29,01°C.

**Kata kunci :** Suhu Permukaan Laut; Landsat 8 TIRS; GEE; PLTU Karangandri; PLTU Adipala.



## ABSTRACT

The Steam Electricity Power Plant (PLTU) of Karangkandri and Adipala are located in Cilacap Regency, Central Java that play an important role to supply the needs of electricity in some parts of Indonesia (Java, Madura, and Bali islands). The thermal waste waters generated by the PLTU has the potential to pollute the sea surface water temperature around the outfall. This research aimed to determine the dispersion of the sea surface temperature (SST) value around PLTU Karangkandri and Adipala waters using Landsat 8 imagery data. It was compared with the in situ data from measurement with Water Quality Checker. The Landsat 8 imagery data was processed using the Split Window Algorithm (SWA) and Radiative Transfer Equation (RTE) methods within the Google Earth Engine platform. The comparison between the in situ SST value and the estimated SST value using Landsat 8 imagery data was obtained the highest accuracy using the RTE. The RTE method in both monsoons produced the lowest SST value in the West monsoon, which was 27,70°C and the highest SST value was 36.20°C with an average SST value of 30.09°. Meanwhile in the East monsoon, the lowest SST value was 24.70°C and the highest SST value was 36.70°C with an average SST value of 29.01°C.

**Keywords :** *Sea Surface Temperature; Landsat 8 TIRS; GEE; PLTU Karangkandri; PLTU Adipala.*

