

ANALISIS KARAKTERISTIK PASANG SURUT DAN PERUBAHAN TINGGI MUKA AIR LAUT DI SELAT MADURA

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ABSTRAK

Selat Madura merupakan salah satu pusat jalur pelayaran di Indonesia. Pengetahuan kondisi pasang surut bisa digunakan dalam perencanaan pelabuhan, pembuatan puncak pemecah gelombang, navigasi, dan berbagai aktifitas yang ada di suatu perairan tersebut. Tujuan penelitian ini adalah mengetahui komponen-komponen harmonik, tipe pasang surut, dan elevasi muka air di Selat Madura dengan menggunakan Metode *Admiralty* dan Metode *Least Square*. Penelitian ini dilaksanakan pada bulan desember 2015. Data pasang surut di peroleh dari BMKG stasiun Meteorologi Maritim Perak II Surabaya. Sedangkan analisa data pasang surut yang digunakan adalah Metode *Admiralty* dan Metode *Least Square*. Hasil yang diperoleh dari Metode *Admiralty* yaitu hasil Komponen M_2 sebesar 0.432m - 0.449m, S_2 sebesar 0.238m - 0.273m, N_2 sebesar 0.069m - 0.120m, K_2 sebesar 0.055m - 0.063m, K_1 sebesar 0.444m - 0.524m, O_1 sebesar 0.267m - 0.295m, P_1 sebesar 0.147m - 0.173m, M_4 sebesar 0.001m - 0.007m, MS_4 sebesar 0.0003m - 0.0047m. Nilai Formzahl sebesar 1.01 - 1.14 (tipe pasang surut bercampur, harian ganda condong ke semidiurnal), dan memperoleh hasil elevasi muka air yaitu HHWL berkisar antara 3.108m - 3.2464m, MHWL berkisar antara 2.839m - 3.081m, MSL berkisar antara 1.498m - 1.503m, MLWL berkisar antara 0.522m - 0.616m, LLWL berkisar antara -0.250m - -0.104m. Sedangkan hasil dari Metode *Least Square* yaitu hasil Komponen M_2 sebesar 0.449m - 0.458m, S_2 sebesar 0.251m - 0.268m, N_2 sebesar 0.089m - 0.095m, K_2 sebesar 0.058m - 0.078m, K_1 sebesar 0.414m - 0.442m, O_1 sebesar 0.226m - 0.252m, P_1 sebesar 0.131m - 0.152m, M_4 sebesar 0.0001m - 0.0054m, MS_4 sebesar 0.0003m - 0.004m. Nilai Formzahl sebesar 0.91 - 0.97 (tipe pasang surut bercampur, harian ganda condong ke semidiurnal), dan memperoleh hasil elevasi muka air yaitu HHWL berkisar antara 3.0537m - 3.1148m, MHWL berkisar antara 2.5989m - 2.6384m, MSL berkisar antara 1.497m - 1.5019m, MLWL berkisar antara 0.3604m - 0.4027m, LLWL berkisar antara -0.1168m - -0.051m. Perbedaan hasil komponen dari kedua Metode tidaklah besar, yang terbesar terdapat pada komponen K_1 dan komponen O_1 . Sedangkan hasil nilai Formzahl dari kedua Metode menunjukkan hasil yang sama.

Kata kunci : Pasang surut, *Admiralty*, *Least Square*.

Analysis characteristic tide and change high the sea water on the strait madura

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ABSTRACT

The strait Madura is one of the central shipping route in Indonesia. Knowledge tidal conditions can be used in planning port, making the peak breakwaters, navigation, and various activity there was in a these waters. The purpose of this research is to know components harmonic, type tidal, and elevation the water on the strait Madura by using the Method *Admiralty* and Method *Least Square*. This research was conducted in December 2015. Data tides on gathered from BMKG station Meteorologi Maritim Perak II Surabaya. While data analysis tides used is Method *Admiralty* and Method *Least Square*. The results Method *Admiralty* of components M_2 to by 0.432m - 0.449m, S_2 to by 0.238m - 0.273m, N_2 to by 0.069m - 0.120m, K_2 to by 0.055m - 0.063m, K_1 to by 0.444m - 0.524m, O_1 to by 0.267m - 0.295m, P_1 to by 0.147m - 0.173m, M_4 to by 0.001m - 0.007m, MS_4 to by 0.0003m - 0.0047m. Formzahl value to by 1.01 - 1.14 (Type tides mixed , double daily leaning to semidiurnal), and results of elevation of water that is HHWL ranged from 3.108m - 3.2464m, MHWL ranged from 2.839m - 3.081m, MSL ranged from 1.498m - 1.503m, MLWL ranged from 0.522m - 0.616m, LLWL ranged from -0.250m - -0.104m. While The results Method *Least Square* of components M_2 to by 0.449m - 0.458m, S_2 to by 0.251m - 0.268m, N_2 to by 0.089m - 0.095m, K_2 to by 0.058m - 0.078m, K_1 to by 0.414m - 0.442m, O_1 to by 0.226m - 0.252m, P_1 to by 0.131m - 0.152m, M_4 to by 0.0001m - 0.0054m, MS_4 to by 0.0003m - 0.004m. Formzahl value to by 0.91 - 0.97 (Type tides mixed , double daily leaning to semidiurnal), and results of elevation of water that is HHWL ranged from 3.0537m - 3.1148m, MHWL ranged from 2.5989m - 2.6384m, MSL ranged from 1.497m - 1.5019m, MLWL ranged from 0.3604m - 0.4027m, LLWL ranged from -0.1168m - -0.051m. The difference of the results a component of second Method not been great , the largest found in components K_1 and components O_1 . While the formzahl value of both method of suggesting the same result.

Kata kunci : Pasang surut, *Admiralty*, *Least Square*.

