

SPECTRAL ANALYSIS OF SEA TIDE AT VERNADSKY (FARADAY) STATIONV.A. Danylevsky¹, U. Leiko¹, G.P. Milinevsky²

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The tide spectrum near Argentine Islands by power spectrum estimations technique using set of tidal heights measured with the float tide gauge at Faraday/Vernadsky station over a last 20-years period of time was analyzed. Purpose of these investigations is to take into account tides influences on sea level determination with a minimum of errors. Tides facilitate substantially the Antarctic Peninsula ice shelves and the island's glaciers discharge. Though using Doodson X0 filtering and averaging of the tide heights measured to a certain extent remove the semi-diurnal, diurnal and monthly frequencies of the lunar tides nevertheless considerable monthly and years mean sea level variations are observed at Faraday/Vernadsky station. It is possible that low frequency and/or irregular tidal waves that are not removed by techniques mentioned are the source of those variations. Power spectral density estimation shows that the diurnal and semi-diurnal constituents of tides are stable in their frequencies and amplitudes over a period of time considered. On the contrary, the low-frequency tides spectrum (the periods of constituents are from 5 to 30 days) is rather complicated and shows very unstable properties in time. The figures show the power spectral densities for several single years.

