

Time series analysis of 25-hour records of water elevation in Pattani Bay

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Water elevations (at 5-minute intervals) and surface current velocities (at 15-minute intervals) were measured at five locations around the shore of Pattani Bay over two periods, each of 25 hours duration, and one week apart in mid-1996. Ribbon plots are used to show how the direction and speed of the surface current change with time at each

location. Univariate time series analysis, based on fitting signals containing a small number of low-frequency sinusoidal components and modelling the residual noise as simple autoregressive processes, accounts for close to 100% of the variation. Bivariate time series analysis, based on cross-correlations between series at different lags, is used to estimate the times taken by tidal water to elevate at different locations. As a result, a simple model is developed showing the time lag of water elevation at selected locations in Pattani Bay under the influence of the tidal ebb and flood.