Sea-level rise in the south eastern Australian coastal region is determined from Topex/Poseidon, Jason-1 and -2 altimeter and tide-gauge data over the period January 1993 to December 2010. Instead of separately estimating sea level rise on the coastline from tide-gauge data and offshore from satellite altimeter data, tide-gauge sea level records are merged with altimeter observations through a model to present a consistent view of the sea level variability in the region. Four tide gauges are first selected along the eastern Australian and Tasmanian coastline. They are gauges of Brisbane, Sydney, Spring Bay and Bundaberg. To determine the relationship between two types of data sets, the correlation at each tide gauge with altimeter along-track observations is calculated. Correlation coefficients (>0.7) are observed around gauges Spring Bay, Bundaberg and Brisbane northwards, while at Sydney tide gauge high correlations only appear about 60 km to the coastline along altimeter tracks. Beyond 60 km in the open ocean in the Tasman Sea, where altimeter tracks cross the East Australian Current (EAC), both data sets are less or little correlated (<0.4). A multivariate regression model is used to aggregate both altimeter and tide-gauge sea level observations and to estimate sea level variability in the region. The resulting large RMS and small hindcast skill over the EAC system again indicates the same features as that showed in the pointwise correlation analysis, which will be further investigated. An improved model is to be developed for better quantifying sea level changes in this region.