The United States Deep-ocean Assessment and Reporting of Tsunami (DART®) and other internationally available tsunameter high-resolution data are an essential component in the provision of timely warnings to U.S. coastal communities. In the days, weeks, and even years following an event, these data are analyzed to increase knowledge of tsunami generation, propagation, and inundation, to evaluate technology, and improve model-based forecasting. Internally recorded 15-second DART® bottom pressure data are processed retrospectively to assist in providing such details. The U.S. National Oceanic and Atmospheric Administration (NOAA) National Geophysical Data Center (NGDC) has programmatic responsibility for the collection, processing, archiving and distribution of these data.

To clearly isolate seismic and tsunami waves from records dominated by local tides, NGDC is applying the following processing steps to all data:

- data verification and quality control with identification of gaps, spikes, data shifts, trend fitting and removal
- tidal harmonic analysis to identify the suite of tidal constituents present in a given record with application on irregularly sampled data and very long records
- analysis of residual time series for investigation and discovery of events and processes previously unrecognized.

This paper describes the processing of tsunameter data and illustrates importance of application with a few tsunami events. For the Chilean 2010 event, spectral characteristics of the tsunami waves and wavelet analysis are performed. Analysis of the tsunami energy distribution as spectra transformations with respect to the distance from the source and local topography is provided.