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An approach for detecting low frequency non-stationarity present in LIGO science data ROBERT STONE, University of Texas-San Antonio, SOMA MUKHERJEE, University of Texas-Brownsville, LIGO COLLABORATION — One of the important detector characterization issues in gravitational wave (GW) searches is the seismic background. "NoiseFloorMon" is a data monitoring tool (DMT) that has been developed to help characterize the effect of seismic activity on the gravitational wave channels at both Laser Interferometer Gravitational-wave Observatory (LIGO) sites, and to identify instances of low-frequency non-stationarity. Cross-correlation measurements between the GW channel and seismic sensors that exceed a median-based threshold serve as pointers to time intervals of non-stationarity. Highest threshold crossings are recorded on a daily basis and the events are followed-up using time-frequency visualization methods of both the GW channel as well as the environmental channels involved. These events are also compared with existing figures of merit and data quality flags to find further correlations with other possible sources across the detector and in the environment. The method is illustrated with data from the fourth LIGO science run.

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