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Strong Earthquakes in Indonesia and Philippines warned in advance from Space

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The NOAA-15 particle database, which has been collecting data since 1998, was first studied for its particle bursts in connection with global seismic activity during quiet solar periods [Fidani, Journal of Asian Earth Sciences 114, 384–392, 2015]. This analysis showed that exceptional increases of particle fluxes prior the largest quakes, which struck the defined Indonesian and Philippines area, statistically correlate with seismic events. Electron bursts at each NOAA satellite semi-orbit were analyzed in order to distinguish their correlations with seismic activity from seasonal variations of particle flux and solar activity. When analyzing 30 - 100 keV precipitating electrons and earthquake epicenter projections at altitudes greater than 1,400 km, a significant correlation appeared. Specifically, a 2-3 hour electron precipitation excess was detected prior to large events in Indonesia and Philippines; suggesting a 4-10 hour early preparedness of strong earthquakes influencing the ionosphere. Therefore, an experiment is proposed to verify the feasibility of strong earthquakes forecasting from space using existing NOAA POES.