

Multi parameters observations of pre-earthquake signals associated with M6.4 of Feb 06, 2016 in Taiwan. Preliminary results.

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We are conducting validation on temporal-spatial pattern of multi parameter signals with pre-earthquake origin associated with M 6.4 of Feb 02, 2016 earthquake in Taiwan. The continues analysis of outgoing long-wavelength radiation (OLR) obtained from NPOESS show rapid increase of OLR on the top of the atmosphere on Jan 1-2, 2016 (2.5 sigma significance for 25 years of analysis) and probably indicated for a large earthquake preparation process in Taiwan (map is attached). The time series variations of atmospheric chemical potential, characterizing the ionization processes inside ABL, show rapid increases during Jan 1-5 and Jan 10-15, 2016 periods. The Gamma network consisted by 4 stations registered similar anomalous pattern in increasing of the radon level during period of Jan 10-15, 2016 simultaneously on three of the stations close to the epicenter. Based on the 3-component geomagnetic data from 3 stations, high-conductivity anomalies were found in two different periods: i) Jan. 31-Feb. 3, 2016 - the anomalies were observed very close to the main shock and the ii) Feb. 2-Feb. 6, 2016 - anomalies are further North and associated with the followed aftershocks. The GIM reveals the TEC significantly enhances over Taiwan on 5 February 2016, one day before the earthquake.

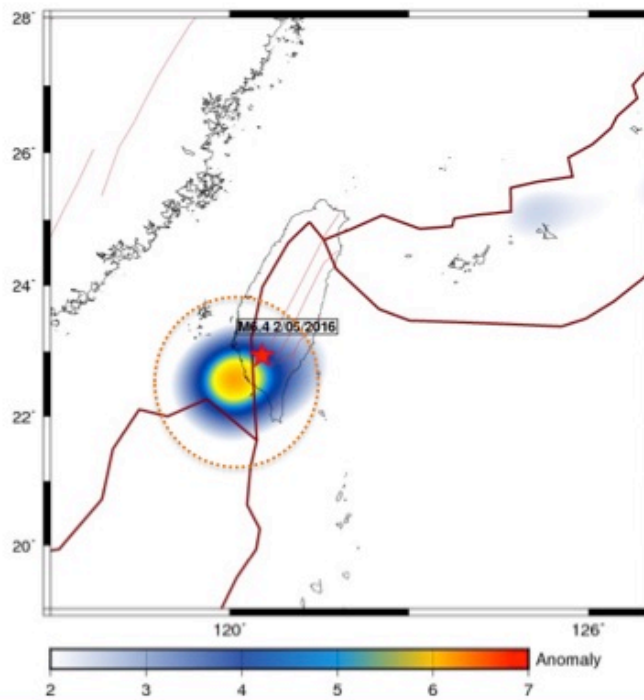
Our preliminary analysis of simultaneous space and grounds measurements associated with M6.4 of Feb 06, 2016 in Taiwan suggest that pre-earthquake phase follows a general temporal-spatial evolution pattern revealed with multi instruments observations, which has been seen in other large earthquakes worldwide.

Keywords: earthquake, precursor, forecasting, prediction



## Satellite earthquake anomalous map for Taiwan region Jan 2, 2016

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Data : NPOESS, With **red star** – epicenter of M6.4 of 02.06.2016. **Red lines**- plate boundaries , **brown** – faults, **dash circle** – estimated region for the future epicenter