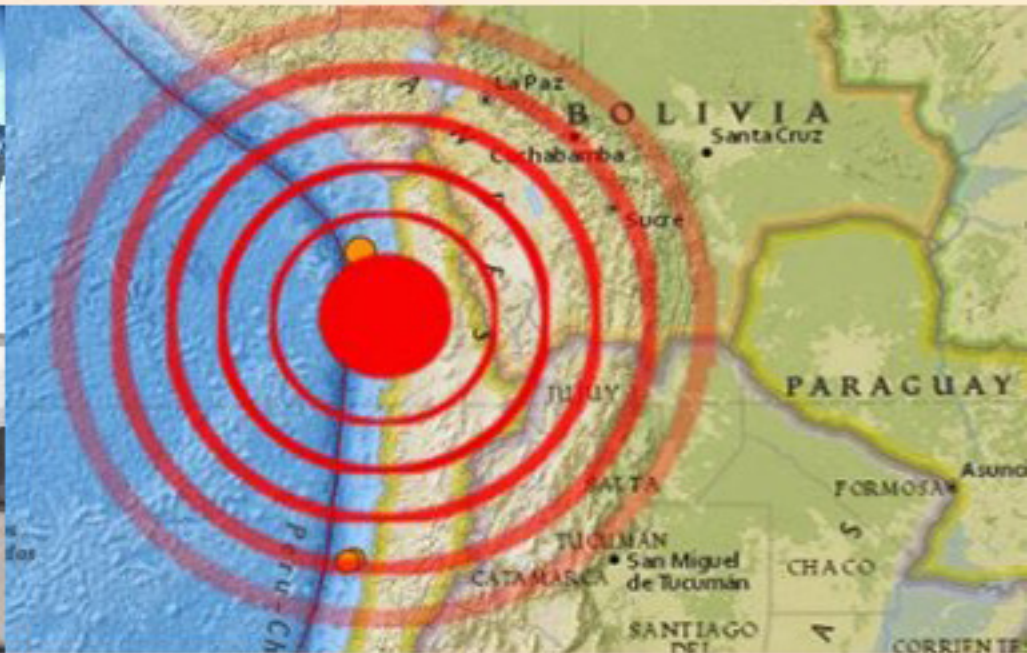




Precursory Slow Slip Events Inferred from Foreshocks of the 2014 Iquique, Northern Chile, Earthquake



27 March 2015 (Friday), 3:30pm-5:00pm
Rm 303, Fok Ying Tung Remote Sensing Science Building,
The Chinese University of Hong Kong

Speaker:

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Abstract:

On April 1st, 2014, an Mw 8.2 earthquake occurred offshore Iquique, Northern Chile. There were numerous smaller earthquakes preceding and following the mainshock, making it an ideal case to study the spatio-temporal relation among foreshock, aftershock, and the mainshock. We applied a matched-filter technique to detect missing foreshocks and aftershocks of the 2014 Iquique earthquake. Using more than 900 template events recorded at 19 broadband seismic stations that are operating by GEOFON Program of GFZ Potsdam, we found 4392 earthquakes from March 1st to April 3rd, 2014, including more than 30 earthquakes with magnitude larger than 4 that were missed in the catalog. In addition, we also found a number of small earthquakes with magnitudes of 1-2 preceding an Mw 6.7 earthquake that occurred on March 16th, which was considered to be the largest foreshock of the Mw 8.2 quake. Furthermore, we observed that a number of these foreshocks occurred near the same location, indicating that they were driven by slow slip events prior to the occurrence of the Mw 8.2 quake.