A Big Earth Data Platform for Three Poles

**Lateral variation of the Main Himalayan Thrust controls the rupture length of the 2015 Gorkha earthquake in Nepal (2015-2016)**

1、Description

The 2015 Gorkha, Nepal earthquake (Mw 7.8) ruptured the Main Himalayan Thrust (MHT) and allows direct measurements of the behavior of the continental collision zone. We study the MHT using seismic waveforms recorded by local stations that completely cover the aftershock zone (Event catalog 1.docx and Event catalog 2.docx). We obtained the velocity structure beneath the study zone (Velocity.dat). The MHT exhibits clear lateral variation along geologic strike, with the Lesser Himalayan ramp having moderate dip on the MHT beneath the mainshock area and a flatter and deeper MHT beneath the eastern end of the aftershock zone. East of the aftershock zone, seismic wave speed increases at MHT depths, perhaps due to subduction of an Indian basement ridge. A similar magnitude wave speed change occurs at the western end of the aftershock zone. These gross morphological structures of the MHT controlled the rupture length of the Gorkha earthquake.

2、Keywords

Theme：Earthquake relocation,Focal mechanism inversion,2015 Gorkha earthquake,Seismic velocity,Seismology  
Discipline：Solid earth  
Places：Main Himalayan Thrust  
Time：2015-2016

3、Data details

1.Scale：None

2.Projection：

3.Filesize：0.1MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：29.0 | - |
| west：84.0 | - | east：88.0 |
| - | south：26.0 | - |

5、Time frame:2015-05-03 00:00:00+00:00--2016-05-22 00:00:00+00:00

6、Reference method

References to data:

Lateral variation of the Main Himalayan Thrust controls the rupture length of the 2015 Gorkha earthquake in Nepal (2015-2016). A Big Earth Data Platform for Three Poles, doi:10.11888/Disas.tpdc.2703262020

References to articles:

7、Supporting project information

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8、Data resource provider