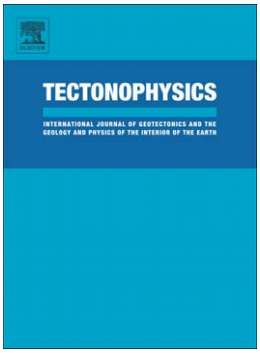

Lateral structure variations and transient swarm revealed by seismicity along the Main Himalayan Thrust north of Kathmandu

R. Hoste-Colomer, L. Bollinger, H. Lyon-Caen, A. Burtin, L.B. Adhikari

PII: S0040-1951(16)30412-7
DOI: doi: 10.1016/j.tecto.2016.10.004
Reference: TECTO 127271

To appear in: *Tectonophysics*

Received date: 16 February 2016
Revised date: 21 September 2016
Accepted date: 4 October 2016

Please cite this article as: Hoste-Colomer, R., Bollinger, L., Lyon-Caen, H., Burtin, A., Adhikari, L.B., Lateral structure variations and transient swarm revealed by seismicity along the Main Himalayan Thrust north of Kathmandu, *Tectonophysics* (2016), doi: 10.1016/j.tecto.2016.10.004

Title: Lateral structure variations and transient swarm revealed by seismicity along the Main Himalayan Thrust North of Kathmandu

Authors: R. Hoste-Colomer[(1)(2)], L. Bollinger[(1)], H. Lyon-Caen[(2)], A. Burtin[(3)], L.B. Adhikari[(4)]

[(1)] CEA, DAM, DIF, F-91297 Arpajon, France.

[(2)] Laboratoire de Géologie, Ecole Normale Supérieure/CNRS UMR 8538, PSL Research University, Paris 75005, France.

[(3)] Institut de Physique du Globe de Paris, Sorbonne Paris Cité, Université Paris Diderot, UMR 7154 CNRS, Paris, France.

[(4)] Department of Mines and Geology, National Seismological Center, Kathmandu, Nepal.

Corresponding Author: Roser Hoste-Colomer

Phone: +33 1 69 26 54 63

e-mail: roser.hoste-colomer@cea.fr

ABSTRACT

The midcrustal seismicity along the Main Himalayan Thrust in Nepal presents lateral variations along the rupture of the 2015 Gorkha earthquake. In order to resolve these variations, we relocate the seismicity north of Kathmandu, during a period well covered by the Nepal National Seismological Network, using a double-difference algorithm. The 550 relocated events highlight a complex pattern of clustered seismicity within the unstable-stable transition zone. Part of the seismicity is densely clustered on a southward dipping plane which ruptured on January 31st 1997 (ML=5.8), activating a backthrust with a geometry consistent with the centroid moment tensor of this event calculated in this study.