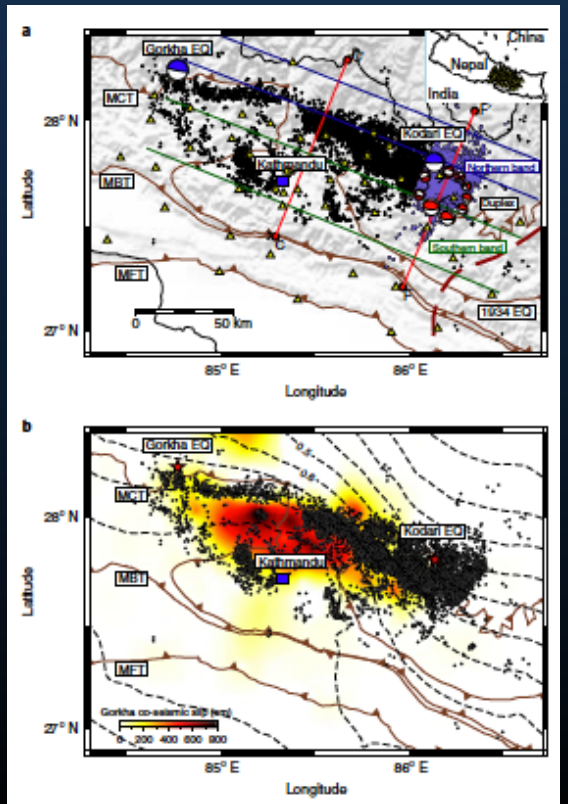
Coordinating Committee (CC): Lithospheric Seismicity and Tectonics in the Himalaya

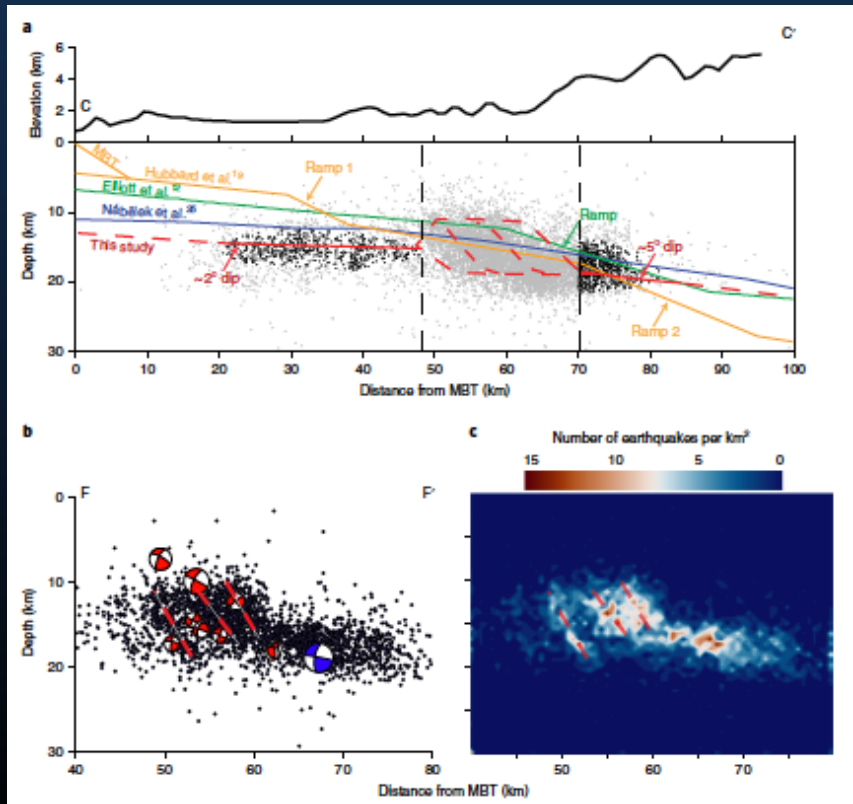
Leaders: Marianne Karplus, Univ. of Texas at El Paso (UTEP), Aaron Velasco (UTEP), Soma Nath Sapkota (Dept. of Mines and Geology, Nepal), Dowchu Drukpa (Department of Geology and Mines, Bhutan)

Goals of the Coordinating Committee: to build connections among the global community studying earthquakes and tectonics of the Himalaya

Key Research Questions: 1) What is the geometry of the Main Himalayan Thrust? 2) What is the crustal and lithospheric composition beneath the Himalaya? 3) What factors impact and drive faulting in the region? 4) What is the broader geotectonic setting and how does it relate to lithospheric seismicity and tectonics?



Mendoza et al., 2019



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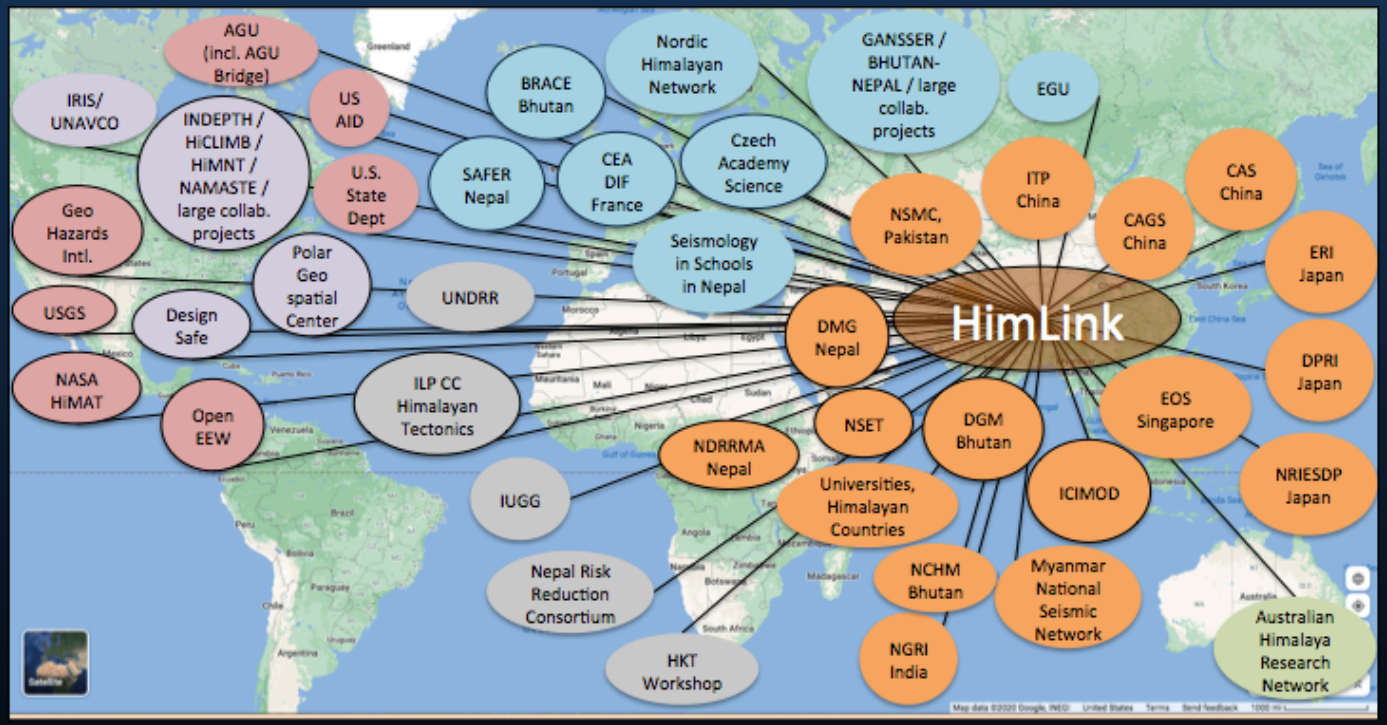
2021-22 Activities: Covid-19 prevented travel and international in-person conferences. We focused our efforts on online activities, making links with new researchers, and acquiring additional funding for our Coordinating Committee. We reached out to new research teams and submitted an NSF AccelNet proposal in 2021 entitled "HimLink: Linking networks to understand natural hazards in the Himalaya and their impacts". We have additional proposals in preparation.



International groups we proposed to connect and support through HimLink network-building grant proposal.

orange: Asia
gray: global
purple: NSF-funded
pink: North America
blue: Europe
green: Australia

Coordinating Committee website: https://studyearth.wixsite.com/uteplithosphere/ilp-himalayan-tectonics

Coordinating Committee (CC): Lithospheric Seismicity and Tectonics in the Himalaya

2021-22 Activities: Co-organizing and co-teaching online IAGA-IASPEI summer school for seismology, August 16-20, 2021. Summer School leadership team included: Dr. Xyoli Perez-Campos (Mexico), Dr. Aaron Velasco (USA), and Dr. Raju Sarkar (India). Dr. Marianne Karplus also co-taught a module of the course. Drs. Velasco, Karplus, and Sarkar are involved with this Coordinating Committee.

The school was titled: "Principles of Earthquake Location and its Correlation with Seismic Network Designs"

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2021-22 Activities: Continued research on Himalayan seismicity and tectonics with several papers in preparation and future research projects in the planning stages. A new Bhutanese master's student is working with the Coordinating Committee.

Recent research presentations by CC leaders included:

Karplus, M., NMSU Nepalese Students Association Conference, "Earthquakes in the Himalaya," NMSU Nepalese Students Association, Online. (April 17, 2021).

Karplus, M., University of Memphis CERI Seminar, "Structure of the Main Himalayan Thrust in Nepal from aftershock recordings following the M7.8 2015 Gorkha earthquake," University of Memphis, Online. (April 2, 2021).

Recent Himalayan publications by CC leaders included:

Karplus, M.S., Pant, M., Sapkota, S.N., Nabelek, J., Velasco, A.A., Adhikari, L.B., Ghosh, A., Klemperer, S.L., Kuna, V., Mendoza, M.M., Braunmiller, J. (2020). A rapid response network to record aftershocks of the 2015 M7.8 Gorkha Earthquake in Nepal. *Seis. Res. Lett.* https://doi.org/10.1785/0220190394.

Mendoza, M., Ghosh, A., Karplus, M., Nabelek, J., Sapkota, S. N., Adhikari, L. B., Klemperer, S., Velasco, A. A. (2019). Duplex in the Main Himalayan Thrust indicated by aftershocks of the 2015 Gorkha earthquake. *Nature Geoscience*, 12, 1018-1022, 10.1038/s41561-019-0474-8.

Bai, L., Klemperer, S., Mori, J., Karplus, M., Ding, L., Liu, H., Li, G., Song, B., Dhakal, S. (2019). Lateral variation of the Main Himalayan Thrust controls the rupture length of the 2015 Gorkha earthquake in Nepal. *Science Advances*, 5 (6), DOI: 10.1126/sciadv.aav0723.

Karplus, M., Klemperer, S. L., Zhao, W., Kind, R., Wu, Z., Mechie, J., Shi, D., Brown, L. D., Chen, C., Su, H., Xue, G., Sandvol, E., Ni, J., Tilmann, F., Chen, Y. J. (2019). Receiver function imaging of the lithosphere at the Kunlun-Qaidam boundary, Northeast Tibet. *Tectonophysics*, 759, 30-43, 10.1016/j.tecto.2019.03.015.

Coordinating Committee (CC): Lithospheric Seismicity and Tectonics in the Himalaya

Plans for 2022-23:

- Preliminary planning of a future field school in the Himalaya for students from the U.S. and Himalayan countries.
- Continue submitting proposals to better fund the Coordinating Committee's research as well as networking and educational activities.
- If possible, fund early career Nepalese and Bhutanese researchers to attend international meetings in 2022-23, such as the Himalaya-Karakorum-Tibet Workshop in Pokhara, Nepal.
- Continue research activities to contribute to our understanding of the CC research questions.

Notice for 35th HKT Workshop

The new date of the **35th HKT (Himalaya-Karakorum-Tibet)** workshop has been scheduled in Pokhara, Nepal from November 2 to 4, 2022 by the Organizing and Management committee of 35th Himalaya-Karakorum-Tibet Workshop. The committee requests all earth and related scientists to submit abstracts using the online portal of the NGS. **Please click on the HKT Logo at the NGS website to register for your participation and abstract submission.**