



The Evolution of the India—Eurasia Collision in the Western Himalaya

Oliver Jagoutz (1), Craig Martin (1), Rajeev Upadhyay (2), Benjamin Weiss (1), and Leigh Royden (1)

(1) MIT, EAPS, United States (jagoutz@mit.edu), (2) Kumaun University, India

Classically, the India—Eurasia Collision is considered a single stage event where “Greater India” collided with Eurasia around ~ 50 Ma. This interpretation is supported mainly from observations in the central Himalaya where India is separated from Eurasia by a single suture zone (the Tsangpo Suture). In the western Himalaya however, the geology is more complex with clear evidence for an intra-oceanic subduction system that was present in the Neotethys ocean between India and Eurasia. In the western Himalaya, India is separated from Eurasia by the Kohistan-Ladakh arc (KLA) system. The KLA collided with India at 50 Ma along the Indus Suture. The timing of collision between the KLA and Eurasia along the Shyok suture is less certain with estimates as old as ~ 100 -80 Ma to as young as ~ 40 Ma. This KLA system can be traced along an ophiolite belt (e.g. Zob, Muslim bagh and Bela ophiolites) towards the south. These ophiolites are separated from Eurasia by the Katawaz Basin which remained a marine basin during the Eocene indicating that the KLA system likely did first collide with India and subsequently with Eurasia. This model makes distinctive prediction that can be tested using paleomagnetic measurements on the KLA to infer its position relative to Eurasia in the late Paleogene. In this talk I will review our recent results from U-Pb Zircon ages from the Karakoram margin and our new paleomagnetic estimate for a paleo-location of the KLA in the early Paleocene. Our results strongly support the idea that the Indus suture predates the Shyok suture and that the India-Eurasia collision in the western Himalaya was a multistage, protracted event involving multiple collisions.