Title: Paleoseismological studies with special emphasis on Earthquake induced Deformation Features (Seismites) in and around Shillong plateau, NE India.

Presented by: Md. Mujahed Baba

Abstract:

Indian subcontinent is wide and peculiar geological formations from archaeon to Meghalayan age and tectonically active in the frontal zone of Eurasian and Burmese plate. I am concentrating on Shillong plateau (SP) which comes under highly seismologically active region. SP undergoing through active tectonics due to subducting under the Eurasian plate in the north and in the east colliding and subducting under the Burmese plate. The Northeastern region (NER) has a complex tectonic setting with a history of past large to great earthquakes. Southern part of the SP is associated with Dauki Fault (DF), experienced 1920 (M 6.2) EQ and eastern boundary with Kopili Fault (KF). Amongst a number of active faults in NER, the KF zone, which separates the SP and the Mikir Hills, has experienced large earthquakes in 1869 (M_w 7.5) and 1943 (M_w 7.2). The KF zone has been considered as Assam seismic gap, having potential to experience earthquake in future and thus necessitates understanding its long term seismic history and implied seismic hazard. In this talk I will discuss about the past seismicity using Earthquake induced deformation features like sand dykes, sand blows and flame like intrusion. For this I have used multiple analysis such as AMS to distinguish between Deformational and Depositional features, major oxides geochemistry for relative grain distribution and radio carbon dating (C-14) for finding the ages of collected evidences from the trenching in the selected sites. It will useful for establish the catalogue of past earthquake, seismogenic sources and in order mitigate the future probable occurrences of Earthquakes in and around SP to evaluate seismic hazard implications.

References-

[1] B.V.Lakshmi and Pravin B.Gavali (2022) Soft sediment deformation features in Dauki Fault Region: Evidence of Paleoearthquakes, Shillong Plateau, NE India. Environ Earth Sci81

[2] Rajendran et al., (2020) Paleoseismological Studies in India (2016-2020): Status and Prospects, 10.16943/ptinsa/2020/49787

[3] J.R. Kayal et al., (2012) Large and great earthquakes in Shillong Plateau – Assam Valley area of Northeast India: Pop-up and transverse tectonics. Tectanophysics 532-535:186-192

[4] Sukhija BS et al., (1999) Paleoliquefaction evidence and periodicity of large prehistoric earthquakes in Shillong Plateau, India. Earth Planet Sci Lett 167:269–282