

GOPAL KUMAR

Institute of Earth Sciences, Academia Sinica, Taipei, Taiwan
gopal16iiserb@gmail.com | +91-7440827206

RESEARCH INTERESTS

Geomorphic change detection • Landslide–sediment river interactions • DEM differencing and remote sensing for hazard assessment • Deep-seated landslide monitoring • Sediment budgets and erosion in tectonically active mountain basins • GNSS deformation monitoring • Landscape evolution

EDUCATION

PhD in Earth System Science 2021–2026

Taiwan International Graduate Program (TIGP), Academia Sinica / National Central University

BS-MS Dual Degree (Integrated 5-Year) 2016–2021

Indian Institute of Science Education and Research (IISER) Bhopal, India

RESEARCH EXPERIENCE

Doctoral Research: *Advancing Decadal-Scale Erosion Quantification in Taiwan's Active Mountainous Basins: Spectral Analysis and Improved DEM Differencing Methods*

September 2021 – July 2026 | Institute of Earth Sciences, Academia Sinica, Taiwan

MS Thesis: *Tectonic geomorphology of the Darjeeling-Sikkim Lesser Himalayas*

August 2020 – May 2021 | IISER Bhopal, India

Research Internship: *Landslide-prone slip plane detection using fracture-induced electromagnetic radiation (FEMR)*

May - June 2019 | IISER Bhopal, India

PUBLICATIONS

Kumar, G., Chan, Y.C., Sun, C.W., & Chen, C.-T. (2026). Decadal erosion rates and sediment buffering identified through DEM differencing using underutilized global satellite DEMs. *Journal of Geophysical Research: Earth Surface*, 131(5), e2025JF008720. <https://doi.org/10.1029/2025JF008720>

Lakhote, A., Chan, Y.C., Lu, C.Y., **Kumar, G.**, & Sun, C.W. (2025). Monitoring slow-moving deep-seated landslide using PSI technique: a case study of a potential sliding slope from southern Taiwan. *Landslides*, 22(5), 1677–1692. <https://doi.org/10.1007/s10346-024-02453-z>

Kumar, G., Chan, Y.C., Sun, C.W., & Chen, C.T. (2024). Decadal-scale assessment of sediment denudation rates in the Zhoukou River Basin, Taiwan: insights from improved DEMs of differencing based on spectral analysis. *Geomatics, Natural Hazards and Risk*, 15(1). <https://doi.org/10.1080/19475705.2024.2363428>

Das, S., Mallik, J., Dhankhar, S., Suthar, N., Singh, A.K., Dutta, V., Gupta, U., **Kumar, G.**, & Singh, R. (2020). Application of Fracture Induced Electromagnetic Radiation (FEMR) technique to detect landslide-prone slip planes. *Natural Hazards*, 101, 505–535. <https://doi.org/10.1007/s11069-020-03883-3>

CONFERENCE PRESENTATIONS

Kumar, G.*, Chan, Y.-C., Sun, C.-W., & Chen, C.-T. (2026). Evaluating Global Satellite DEMs for Decadal-Scale Erosion Monitoring: Frequency-Domain Corrections in the Laonong River Basin, Taiwan. *Oral, Taiwan Geosciences Assembly (TGA)*, Chiayi, Taiwan.

Kumar, G.*, Chan, Y.-C., Sun, C.-W., & Chen, C.-T. (2025). Evaluating Erosion Rates Through Advanced DEM Differencing and Co-Registration Techniques Using Underutilized Satellite Data: A Case Study from Southern Taiwan. *Poster, European Geosciences Union (EGU)*, Vienna, Austria.

Kumar, G.*, Chan, Y.-C., Sun, C.-W., & Chen, C.-T. (2024). Improving Vertical Referencing of Multi-Temporal DEMs through Spectral Analysis to Measure Topographic Changes Due to Extreme Events: A Case Study from Zhoukou River Basin, Southern Taiwan. *Oral, Taiwan Geosciences Assembly (TGA)*, Hualien, Taiwan.