

DR. VIKAS, WIHG, DEHRADUN, INDIA



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RESEARCH GROUP: STRUCTURE & TECTONICS

FIELD OF SPECIALIZATION: LOW-TEMPERATURE THERMOCHRONOLOGY AND THERMOKINEMATIC MODELING; EXHUMATION, GEOCHRONOLOGY, STRUCTURE, TECTONICS AND MAGMATISM

EDUCATION:

Ph. D. in Applied Geophysics, Kurukshetra University Kurukshetra, 2011

M.Sc. in Applied Geology, Kurukshetra University Kurukshetra, 2006

B.Sc. (Physics, Chemistry, Mathematics) Kurukshetra University Kurukshetra, 2004

PROFESSIONAL EXPERIENCE:

- Scientist C at WIHG, Dehradun, India (December 2017 to present)
- Scientist B at WIHG, Dehradun, India (December 2013 to November, 2017)
- Research Scientist (Equivalent to Scientist B) at National Facility for Low-Temperature Thermochronology, Kurukshetra University, Kurukshetra (March, 2010 to November 2013).

Visiting Positions: None

SERVICES:

a. Supervision/Guidance to Ph.D. Students:

- Mr. Shailendra Pundir (July, 2017-Present), PhD ongoing (Registered at Kumaun University, Nainital).
- Mr. Kunal Mukherjee (March, 2019-Present) PhD ongoing (Registered at Banaras Hindu University, Varanasi).

b. Training:

International Level Trainings/Workshops

- Four days Workshop & Short-Course on "*Low-temperature thermochronology: Applications and inter-laboratory calibration*" at Pisa, Italy in 2007.

National Level Trainings/Workshops

- Training workshop on Quaternary setup of Arid NW Himalaya: Main Focus on Ladakh during 18th August–6th September 2012. Sponsored by Department of Science and Technology, Govt. of India, New Delhi.
- Two week training program on "Crustal Deformation and Tectonic Geomorphology: Modern Structural Geology & Tectonics" sponsored by Department of Science & Technology (DST), Government of India at Wadia Institute of Himalayan Geology, Dehradun, India in 2007.

Other Field/Summer Trainings

- Two week Geological Field Training along Panchkula-Kalka-Shimla section, Himachal Himalaya to study the geological aspects of the area (in 2004).
- Two week field training on the applied aspects of Geology regarding Engineering & Mining Geology in Garhwal Himalaya (in 2005).
- Four week summer training at Central Road Research Institute, Delhi (in 2005).
- Four week summer training at Oil & Natural Gas Corporation (ONGC), India (in 2006).

Laboratory Development:

- Played key role in establishing the facility for Fission Track Thermochronology. This facility has been partially funded by the institute and partially by MoES. At present managing this facility at WIHG, Dehradun.
- Presently, active member of LA-MC-ICPMS geochronological facility of the institute. Managing Mineral Separation Lab under LA-MC-ICPMS core group.

c. Teaching: Teaching experience (September, 2009 to February, 2010).

d. Membership: Life time member of Himalayan Geology.

e. Editorial Board: None

f. International/National Seminars/Workshop:

International Conferences

1. Patel, R.C., **Adlakha, V.**, Singh, P. and Lal, N., Exhumation of the Higher and Lesser Himalayan Crystallines of the Western Arunachal Himalaya, NE-India: Constraints from Fission-Track Studies, Extended abstract: 25th Himalayan-Karakoram-Tibet Workshop 2010, San Francisco, USA, A149.
2. Patel, R.C., **Adlakha, V.**, Lal, N. Exhumation history of the Shillong Plateau since pre rifting event of East Gondwana land till Himalayan Orogeny: Constraints from Apatite Fission Track Analysis, Abstract volume of International Symposium on "*Precambrian Accretionary Orogens and Field Workshop in the Dharwar Craton Southern India*", February 2-11, 2011.
3. Huntington, K. W., **Adlakha, V.**, Lang, K. A., Patel, R. C., Singh, P. Lal, N., Rapid long term erosion in the rain shadow of the Shillong Plateau, NE Indian Himalaya. AGU Fall Meeting, San Francisco, CA, 2011.
4. **Adlakha, V.**, Kumar, A., Patel, R. C., Lal, N., Tectonic and topographic control over erosion in the Arunachal Himalaya, Extended abstract: 30th Himalayan-Karakoram-Tibet Workshop 2015, Dehradun, India, p. 44.

National Conferences

1. Patel, R.C., **Adlakha, V.**, Singh, P. and Lal, N., (2010) Late stage exhumation of the Higher Himalayan Crystalline and Lesser Himalayan Sequence, Northeast Himalaya: An integrated study of tectonics and low-temperature thermochronology (fission track analysis), Abstract volume, Rock Deformation and Structures (RDS-1), National conference, 29-31st October, 2010, Jadavpur University, Kolkata, pp. 58-61.
2. **Adlakha V.**, R.C. Patel, and N. Lal, Steady State Exhumation of Higher Himalayan Crystallines in Western Arunachal Himalaya, NE-India: An Apatite Fission Track Analysis, *Abstract volume of "National Seminar on Geodynamics, Sedimentation and Biotic Response in the context of India-Asia Collision"*, November 26th–28th , 2009, Department of Geology, Mizoram University, Aizawl, p. 111.
3. Patel, R.C., **V. Adlakha**, N. Lal, and P. Singh, Tectonic-Controlled erosive exhumation of the Higher Himalayan Crystalline, NW-Himalaya, India: Constraints from Fission Track Dating Analysis, *Abstract volume of "National Seminar on Geodynamics, Sedimentation and Biotic Response in the context of India-Asia Collision"*, November 26th–28th, 2009, Department of Geology, Mizoram University, Aizawl, p. 95.
4. Pundir, S., **Adlakha, V.**, Kumar, S., "Geochronological and Structural Constraints on the deformation along Karakoram Fault Zone: A Review" Abstract volume "Rock Deformation and Structure" Seminar held at Haldwani on 18-20th November, 2016, 65p. .

g. External Research Fund received & Project Handled:

1. **Title:** Exhumation History of the Karakoram Fault Zone, India using Fission Track Thermochronology
Project No. EMR/2014/000555, **Sanction:** Rs. 24,13,000/-
Funding Agency: Science and Engineering Research Board, Department of Science and Technology, Government of India.
Role: Principal Investigator
Status: Completed (on 31.03.2019)

2. **Title:** Tectono-thermal evolution of the Lohit Batholith along Dibang and Lohit Valleys, India using Fission Track and (U-Th)/He Thermochronology
Project No. MoES/P.O./(Geo)/68/2017, **Sanction:** Rs. 90,23,600/-
Funding Agency: Ministry of Earth Science, Government of India.
Role: Principal Investigator
Status: Ongoing

h. Member of important Committees:

National Level Committees

- Active Member of Mount Abu Eco-Sensitive Zone-Zonal Master Plan 2030 Committee (Constituted by Hon'ble National Green Tribunal (NGT), India).

WIHG In-house Committees

- Active Member of the AMC/CAMC Committee.
- Member of the Core-Group of the LA-MCICPMS Lab. (2015-2018).
- Member of Academic Research Advisory Committee (2016-2017).

AWARDS/FELLOWSHIPS/HONORS/MEMORIAL LECTURES:

a. Awards/Medals/Prizes: none

b. Fellowships:

Junior Research Fellow: September 2006 to August 2009 in a Department of Science & Technology (DST), Govt. of India sponsored research project entitled "**Exhumation of the Higher Himalayan Crystallines (HHC), Arunachal Himalaya, using Fission Track Thermochronology.**"

c. Memorial Lectures:

- Delivered an Invited Talk at the Brain Storming Workshop on Thermochronology & Himalayan Tectonics held during March 27-28, 2017, at Kurukshetra University, Kurukshetra.

d. Recognition/Honors:

COUNTRIES VISITED: Visited Italy during September 2007 to attend an international level workshop on Fission Track Thermochronology.

NATIONAL/INTERNATIONAL COLLABORATION:

International Collaboration:

- Collaborated on the work on the exhumation studies of Western Arunachal Himalaya (Study was published in Tectonophysics journal in 2013).

National Collaboration:

- Jointly supervising, one Ph.D. of Sh. Shailendra Pundir, with Professor Santosh Kumar of Kumaun University, Nainital on the topic "Magmatism, Deformation, and Exhumation History of the southern Asian Plate Margin of Karakoram, India."
- Jointly supervising, one Ph.D. of Sh. Kunal Mukherjee, with Professor Sayandeep Banerjee of Banaras Hindu University, Varanasi on the topic "Deformation and Exhumation History of the easternmost Arunachal Himalaya, NE-India."
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Inside WIHG Collaborator:

- Dr. Koushik Sen; Dr. P. K. Mukherjee

PATENT: NONE

SCHOLARSHIPS AWARDED, GATE

PH.D. ADVISOR:

Supervising Ph.D. students Sh. Shailendra Pundir and Sh. Kunal Mukherjee.

LIST OF PUBLICATIONS

(a) SCI Papers

(*Student Lead Author)

In Press/Under Review

1. *Pundir, S, **Adlakha, V.**, Devrani, R., Kumar, S. Interplay of tectonics and glaciation influence shallow crustal exhumation across the India-Asia convergent margin (**Under Review in Tectonics**).
2. *Pundir, S., **Adlakha, V.**, Kumar, S., Singhal, S. and Sen, K. 2020. Petrology, geochemistry and geochronology of granites and granite gneisses in the SE Karakoram, India: Record of

subduction-related and pre-to-syn-kinematic magmatism in the Karakoram Fault Zone. *Mineralogy and Petrology (In Press)* DOI: 10.1007/s00710-020-00706-y.

Published

1. Patel, R.C., **Adlakha, V.**, Lal, N., Singh, P. and Kumar, Y. (2011) Spatiotemporal variation in exhumation of the Crystallines in the NW-Himalaya, India: Constraints from Fission Track dating analysis, **Tectonophysics**, v. 504, pp. 1-13.
2. **Adlakha, V.**, Patel, R. C. and Lal, N. (2011) Exhumation and Thermal history of the Shillong Plateau: Constraints from Apatite Fission Track analysis, **Memoir Geological Society of India**, v. 77, pp. 57-73.
3. Patel R. C., **Adlakha, V.**, Singh, P., Kumar, Y. and Lal, N. (2011) A review and few new observations on Geology, Structural and Exhumation history of the Higher Himalayan Crystallines in Kumaon Himalaya, India , **Journal of the Geological Society of India**, v. 77, pp. 47-72.
4. **Adlakha, V.**, Lang, K., Patel R. C., Lal, N. and Huntington, K. (2013) Rapid long-term erosion in the rain shadow of the Shillong Plateau, Eastern Himalaya, **Tectonophysics**, v. 582, pp. 76-83.
5. **Adlakha, V.**, Patel R. C. and Lal N. (2013) Exhumation and its mechanisms: a Review of Exhumation studies in the Himalaya, **Journal of the Geological Society of India**, v. 81, pp. 481-502.
6. **Adlakha, V.**, Patel R. C., Lal N., Mehta, Y. P., Jain, A. K. and Kumar, A. (2013) Tectonics and climate **interplay: exhumation patterns of the Dhauladhar Range, NW Himalaya**, *Current Science*, v. 104, no. 11, 1551-1559.
7. Jain, A. K., Dasgupta, S., Bhargava, O. N., Israil, M. D., Jayangondaperumal, R., Patel, R. C., Mukul, M., Parcha, S. K., **Adlakha, V.**, Agarwal, K. K., Singh, P., Bhattacharyya, K. and Pant, N.C., (2016), Tectonics and Evolution of the Himalaya **Proceedings of Indian National Science Academy**, v. 82 No. 3, , p. 581-604.
8. Mukherjee, P. K., Singhal, S., **Adlakha, V.**, Rai, S. K., Dutt, S., Kharya, A. and Gupta, A. K. 2017, In-situ U-Pb micro-geochronology of zircon, using LA-MC- ICPMS technique in mixed collector configuration, **Current Science** v. 112, no. 4, p. 802-810.
9. Sen K, **Adlakha V.**, Singhal S, Chaudhury R. (2018), Migmatization and intrusion of “S-type” granites in the trans-Himalayan Ladakh Magmatic Arc of north India and their bearing on Indo-Eurasian collisional tectonics. 2010, **Geological Journal**. v. 53 (4) 1543-1556.
10. **Adlakha, V.**, Patel, R. C., Kumar A. and Lal, N., 2019. Tectonic control over exhumation in the Arunachal Himalaya: new constraints from Apatite Fission Track Analysis **Geological Society of London Special Publication** 481, 65-79.
11. Rao, Y.J.B., Chopra, S., Kumar, P., Mukherjee, P.K., Singhal, S., **Adlakha, V.**, Kumar, T.V., Sreenivas, B. and Babu, E.V.S.S.K. 2020. New initiatives to bolster analytical facilities in India for in situ U-Th-Pb Geochronology, Hf and O isotope systematics in zircon: a focus on laboratories at the IUAC, WIHG and CSIR-NGRI. **Proceedings of Indian National Science Academy** v. 86 no. 1, pp. 643-650.

12. *Pundir S, **Adlakha V**, Kumar S, and Singhal S, 2020. Closure of India–Asia collision margin along the Shyok Suture Zone in the eastern Karakoram: new geochemical and zircon U–Pb geochronological observations. **Geological Magazine**, (Online) 1-23 <https://doi.org/10.1017/S0016756819001547>.

(b) Non-SCI Articles

(c) Chapter in Books

(d) Books-authored/Edited volume:

(e) Abstract volume:

(f) Reports/Other Documents:

(g) Articles in Proceeding Volumes