Meghomita Das

Email : meghomita.das@mail.mcgill.ca

www.meghomita.com

Education

McGill Univresity — Montreal, Canada

PhD candidate in Earth & Planetary Sciences — *Sept 2019 - Present*

- Advisor: Prof Christie Rowe, GPA: 4.0
- Thesis Topic: Deep Subduction Zone Dynamics- Insights from the rock record of exhumed subduction zones

Indian Institute of Technology Bombay — Mumbai, India

Masters of Science in Applied Geology, GPA: 9.49/10 — *Jul 2016 - Jul 2019*

- PG Diploma in Earth Sciences, 2019, GPA: 9.94/10
- Dissertation: Lateral Variation along Katrol Hill Fault, near Bhuj, Gujarat. Advised by Prof Malay Mukul.
- Teaching Assistant: Structural Geology 413, Paleontology 433, Geology for Civil Engineers

St. Xavier's College (Autonomous) — Mumbai, India

Bachelor of Science in Geology — *Jun 2013 - Jul 2016*

- Cumulative GPA: 3.87/4.0, Top of Class (36 students) and third in the Science Batch of 2016 (250 students)

Field Experience

Angel Island Geological Map

Led By: Meghomita Das and Christie Rowe — *Mar 2022*

- Updated and re-mapped the lithological units of Angel Island
- Collected data and samples to develop the tectonostratigraphic model of the island.
- Conducted detrital zircon geochronology to estimate the depositional age of the clastic units of this island

Canadian Tectonics Group Fieldtrip to Newfoundland & Labrador

Led By: Prof John Waldron — *Oct 2019*

- Studied the tectonics of the west Newfoundland Appalachians Range
- Focused on the evolution of the Laurentian continental margin and obduction of oceanic crustal rocks at Gros Morne National Park, Port-au-Port Peninsula, and Table Point

Inversion Tectonics Mapping Project in Kutch Basin, western India

Advisor: Prof Malay Mukul — *Dec 2016,2017,2018*

- Structural mapping of extensional and compressional regime fault-related structures and investigating the influence of fault displacement on topographic evolution

Appalachian Fold-Thrust Belt Fieldtrip

Advisor: Prof Gautam Mitra — *May 2017-July 2017*

- Structural mapping of the multiple deformation phases that led to the evolution of a fold-thrust belt from New York to Virginia, United States.

Field Survey and Structural Geology Field Trip to Malvan, western India

Advisor: Prof H Samant — *Oct 2015*

- Field survey techniques and analysis of sedimentary deformation structures
- Completed first order interpretation of stress field orientation using gneissosity planes, joint-plane orientation, and computed strain using $R_f - \phi$ method

Deccan Volcanic Province Field Trip

Advisor: Prof H Samant — *Jan 2015*

- Mapped 12 distinct lava flow episodes and zeolite assemblages of the Lohagadh and Khandala Formations along the Western Ghats of India

Research Experience

Mineral prospectivity mapping for orogenic gold deposits using GIS

Advisor: Prof Alok Porval *Jan 2019-May 2019*

- Project involved developing a conceptual and GIS model to target gold deposits within the Arunta region of Australia. We used built-in ArcGIS mineral mapping algorithms (Machine Learning-Neural Network, Weight of Evidence, and Fuzzy Logic).
- Based on the analysis, certain areas with higher probability of finding gold ore deposits were identified. The main controls for the mineralization within these areas were fault pathways and distance to source of metal.

Lateral Variation in deformation along the Katrol Hill Fault, Bhuj, Gujarat, India.

Advisor: Prof. Malay Mukul *Dec 2017-July 2019*

- Project included collection of bed orientation data and oriented samples from three N-S traverses along strike of the Katrol Hill Fault. Analysis included: Stereographic projections, petrographic study and Fry Plot.
- Based on analysis, local variations in attitude of the fault plane and strain were observed.

Microstructural study of the Towanda fault zone in the Appalachian Plateau, USA.

Advisors: Prof. Gautam Mitra *May 2017-July 2017*

- Collected samples to identify the deformation pattern of the Towanda Fault Zone. Inferred multiple phases of deformation based on overprinting relation of microstructures.
- Supplementary work included: Mapping a particular horse within the fault system and defining the fracture density populations across it. Also observed deformation patterns and stages of deformation along a portion of the Northern Appalachians.

Optically Stimulated Luminescence (OSL) Dating - Sample Processing and Analysis.

Advisor: Dr. M Ravi Kumar & Dr. Siddharth Prizomvala *May 2016-June 2016*

- Dated Quaternary sediments using OSL methods to determine paleoseismological uplift rates along a river terrace within the Gujarat basin. Interpreted depositional environments to study paleo-basin characteristics.
- Supplementary work included: Using XRF to determine the concentrations of U, Th, K in the samples and using minimum age model to determine the timing of uplift.

Presentations

1. **Das, M.**, Richard, D., Rowe, C., Anfinson, O., Mookerjee, M. (2022) *Investigating the rock record for slow slip signatures: Insights from Angel Island, Franciscan Complex* Poster presented at Geological Society of America (GSA) Penrose Conference Workshop 2022 on the Fingerprints of Slow Earthquakes, April 2022.
2. **Das, M.**, Rowe, C., Anfinson, O., Schroeder, N., Jones, M., and Lentini, F. (2021) *Structural and depositional evolution of the Angel Island "terrane", Franciscan Complex, Forearc, California,* Poster presented at American Geophysical Union (AGU) Annual Fall Meeting 2021, December 2021.
3. Boianju, I., **Das, M.**, Angombe, M., Prush, V., Rowe, C., Gomez, N., Kirkpatrick, J. (2021) *McGill University URGE Pod actions to address systemic racism and support inclusivity are beginning with a centralized onboarding process,* Poster presented at American Geophysical Union (AGU) Annual Fall Meeting, 2021, December 2021.
4. Rodzinyak, K., Rowe, C., Boianju, I., **Das, M.**,Lambert, C., Daoust, P., Wu, R. (2021) *Metro@Monteregie: Bridging the gap between theoretical classroom knowledge and the field: Digital Field Trips in the Montreal Area,* Poster accepted at American Geophysical Union (AGU) Annual Fall Meeting 2021, December 2021.
5. **Das, M.** (2021) *Deep subduction zone dynamics:Implications of deep tremor and slow slip from the rock record,* Invited speaker for Geology seminar series, Sonoma State University-Department of Geology, Sonoma, USA, October 2021.

6. Schroeder, N., Anfinson, O., Lentini, F., Jones, M., Rowe, C., and **Das, M.** (2021) *The exhumational history and structural geology of Angel Island State Park,* Poster presented at Sonoma State University Department of Geology Research Symposium, May 2021.

7. **Das, M.**, Boianju, I., and Rowe, C. (2020) *Chasing the Franciscan megathrust and its implications for Deep Subduction Zone Dynamics: Insights from Angel Island, Franciscan Complex*, Poster presented at American Geophysical Union (AGU) Annual Fall Meeting 2020, December 2020.

8. **Das, M.**, Boianju, I., and Rowe, C. (2020) *Pillows, Schists, and a lot of Wacke: Subdividing the formerly "coherent" Angel Island Terrane, Franciscan Complex*, Poster presented at Geological Society of America (GSA) Annual Fall Meeting 2020, October 2020.

9. **Das, M.** and Rowe, C. (2020) *Deep Subduction Zone Dynamics: Insights from exhumed Subduction Zones*, Brown Bag Seminar, McGill University-Earth and Planetary Science, Montreal, Canada, April 2020.

10. **Das, M.** and Mukul, M. (2018) *Lateral variation along the Katrol Hill Fault, near Bhuj, Gujarat*, Poster presented at International Symposium of the Hiroshima Institute of Plate Convergence Region Research, Hiroshima University, Hiroshima, Japan, Jan 2018.

Honors & Awards

1. Awarded the Graduate Mobility Award-McGill University ($5304 CAD)
2. Awarded the Lorne Trottier Accelerator Fellowship ($5000 CAD) (2021)
3. Awarded Fonds de recherche du Quebec Nature et Technologie (FRQNT) B2X Doctoral Fellowship ($21000 CAD/yr) (2021-2024)
4. Awarded MITACS Global Research Link Award ($6000 CAD) (2021)
5. Awarded the Graduate Mobility Award-McGill University ($1980 CAD) (2021)
6. Awarded the Richard Chambers Memorial Scholarship by the Northern California Geological Society ($1500 USD) (2021)
7. Awarded the Geological Society of America Graduate Student Research Grant ($1205 USD) (2020-2021)
8. Awarded the Geraldine Davidson Fellowship by Department of Earth and Planetary sciences, McGill University ($2500 CAD) (2020-2021)
9. Awarded the David Stewart Memorial Fellowship by McGill University ($10000 CAD) (2019-2020)
10. Qualified and secured All India Rank 228 out of 5795 candidates appearing in Graduate Aptitude Test in Engineering (GATE) (2018)
11. Institute Academic Prize for securing second highest GPA aggregate in MSc Applied Geology, IIT Bombay (INR 2000). (2017)
12. Awarded the prestigious SN Bose Scholars for a summer internship program to the USA sponsored by WINSTEP Forward, and Indo-US Science and Technology Forum ($2500 USD). (2017)
13. Awarded the Indian Academy of Sciences Summer Research Fellowship (INR 16000). (2016)
14. Secured an All India Rank 2 out of 1700 candidates appearing in Joint Admissions Test for Masters (JAM). (2016)
15. Secured highest GPA aggregate in Geology at the Bachelors of Science level, St. Xavier's College, Mumbai (INR 12000). (2016)
16. Awarded the A.V. Krishnamurthy Award for securing the highest aggregate in Physics at the freshman Bachelors of Science level, St. Xavier's College, Mumbai (INR 7500). (2014)

Internships & Teaching Assistantship

- Earth & Planetary Science Department, McGill University Teaching Assistant: General Geology, Understanding Planet Earth, Terrestrial Planets (2019-present)
- Department of Earth Sciences, IIT Bombay Teaching Assistant: Structural Geology, Paleontology, and Geology for Civil Engineers (2018-2019)
- University of Rochester, Rochester, NY: Summer Research Intern (2017)
- Institute of Seismological Research, Gandhinagar, Gujarat, India: Summer Research Intern (2016)

Outreach

- Organized and developed activity for Volcano Hazards Communication and Policy Workshop as part of the SHAD Canada Program in collaboration with EPS Outreach Team.
- Acquired sponsorhsip and funding for EDI In Action: Best Practices and Future Directions Workshop for Science and Policy Exchange, Montreal.
- Developed an inclusive resource documents (titled *Montreal Survival Guide*) as part of our department's new graduate student onboarding process.
- Trained in inquiry-based teaching pedagogy with implementation in Earth Science based outreach workshops.
- Organized and developed activities for Young Scientist workshop-Volcanoes as part of the Redpath Museum of Natural History in collaboration with EPS Outreach Team.
- Developed virtual geological field trip guides for Redpath Museum of Natural History and Metro @ Monteregie Project in collaboration with EPS.

Outreach Authorship

1. Anderson, E.; Belluci, M.; Cheuk, A., **Das, M.**; Easson, K.; Gouronnec, A.; Joseph, T.; Landry, C.; MacKeigan, P.; Olajide, A., Soo, S.; Trinh, A-K. (2022) *EDI in Action: Best Practices and Future Directions*, Science & Policy Exchange Public Forum Report, April 2022. Report Linked here.
2. **Das, M.**; Soo, S.; Kotowski, A. (2022) *A Multicontext Approach to inclusive STEM education in the post-pandemic era.*, article submitted to Journal of Science Policy and Governance, January 2022.(Unsuccessful submission)
3. **Das, M.** (2021) *Engaging communities with Canada's earthquake early warning system*, news release for Temblor Earthquake News, December 2021. DOI: Article Linked here.
4. **Das, M.** (2021) *Earthquakes in Montreal? No way!*, article for Science and Policy exchange blog, November 2021. Article Linked here.
5. **Das, M.** (2021) *First written records of earthquakes in ancient Mesoamerica reported*, news release for Temblor Earthquake News, September 2021. DOI: http://doi.org/10.32858/temblor.206
6. **Das, M.** (2021) *Can smartphones affixed to buildings detect earthquakes*, news release for Temblor Earthquake News, September 2021. DOI: http://doi.org/10.32858/temblor.201
7. **Das, M.** (2021) *Scientists unravel India's 2021 Chamoli disaster*, news release for Temblor Earthquake News, July 2021. DOI: http://doi.org/10.32858/temblor.188
8. Rodzinyak, K.; **Das, M.**; (2021) *Celebrating Science Odyssey with some SMOrES*, article for Geolog, McGill University, June 2021. Article Linked here.

9. Whelan, M.; **Das, M.** (2021) *Conversations with Prof Olivia Jensen*, faculty interview feature for Geoblog, McGill University, April 2021. Article Linked here.

10. Whelan, M.; Das, D.; **Das, M.** (2021) *Conversations with Prof Christie Rowe*, faculty interview feature for Geoblog, McGill University, February 2021. Article linked here.

11. Salas, J.; **Das, M** (2021) *What it feels like to be queer in the Earth Sciences*, article for Geoblog, McGill University, February 2021. Article linked here.

12. **Das, M.** (2021) *Divided by geography, yet united by the same love of rocks*, article for Office of Science Education, McGill University, January 2021. Article linked here.

Positions of Responsibility

- Extern responsible for drafting news releases for latest geohazards research at Temblor Earthquake News (2021)
- Graduate Student Representative at Science Equity and Climate Committee, Faculty of Science, McGill University (2021)
- Volunteer at Science and Policy Exchange, non profit organization dedicated to science policy advocacy (2021)
- Editor in Chief, Geoblog, Earth & Planetary Science (EPS) Departmental Blog, McGill University (2021)
- Equity, Diversity, Inclusion Committee Member at McGill Univeristy-Earth & Planetary Science (EPS) and Unlearning Racism in Geosciences (URGE) Pod member (2021)
- Field Trip Leader and content developer for the Metro at Monteregie virtual geological field trip Project, McGill University-EPS (2020)
- Outreach Team Member, Students at McGill Outreach in Earth Sciences (SMORES), McGill University-EPS (2020)
- Museum Volunteer and Content Developer of Virtual Fossil Trips around Montreal, Redpath Museum, McGill University (2020)
- Department Representative to Post-Graduate Student Society, McGill University (2019-2021)
- Literary Arts Coordinator for Post Graduate Cultural Council, IIT Bombay (2016)

Industry Experience

TATA Steel Ltd.: Noamundi Iron Ore Mines Jharkhand, India

Mine site trainee *Dec 2017*

- Introduced to primary & secondary in-situ ore processing systems. Completed training for upstream and downstream processes including extraction of ore, development of mine plans, storage, and dispatch of ore.
- Participated in sample collection and quality control programs within the mines. Responsibilities included collection of samples, chemical analysis of samples using ICP-OES, integrating the chemical analysis data using GPS to enable on-site, real-time visualization of chemical data.

GMDC: Tadkeshwar Lignite Mines Surat, India

Mine site trainee *July 2017*

- Participated in sample collection and quality control programs within the mines. Received introduction to the various on-site departments of the mining facility: environmental regulation, mine survey, and geology departments.
- Received introduction to the various mine survey techniques used at this open-pit lignite mine, including total survey stations and DATAMINE software to develop monthly mining plans and estimation of reserves.

Skills

Programming: LaTex

Remote Sensing & GIS packages: QGIS, ArcGIS

Instrumentation: ICP-AES, XRF, XRD, SEM-EDS

Others: WordPress, MSOffice Suite

Languages: Bengali (Native), English (Fluent), Spanish (Advanced Beginner DELE A-1), Japanese (Beginner), American Sign Language (Beginner)