

## Mugdha Chimote

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Dr. Polacci and Prof. Gupta,

IITKGP-University of Manchester Dual Doctoral Degree Program

Re: Personal statement for PhD application under the project, "Understanding Large Igneous Provinces (LIPs) through the Deccan Traps: implications for flood basalts origin, emplacement and climate impact".

Dear Dr. Polacci and Prof. Gupta,

My interest in geosciences stemmed from the fact that Earth, a dynamic planet that has existed for more than four million years, an enormous amount of information yet remains to be unravelled. With the intentions of building and contributing my knowledge to the same, I completed my masters in geology and am currently pursuing my second masters with volcanology as specialization. I am extremely excited to apply for a PhD. position under your guidance at institutes that have the reputation for extensive research in volcanology and tectonics.

My geology master's years moulded me professionally as a geoscientist and gave me detailed insights on its various branches of geology. I have conducted numerous field excursions, few as part of academic course and others out of sheer interest, on lands stretching from igneous of Deccan Traps to metamorphics of Konkan coast. My master's thesis titled, "Quaternary Geological Studies along Godavari River, In and Around Gangapur, Nashik District, Maharashtra, India" received special appreciation from prominent geologists since it was for the first time that a purely geological approach was implemented to an otherwise archaeological terrain, that subsequently gave microscale deformational evidence of neotectonic activities in Deccan Basalts, as against the earlier notion that Holocene was a tectonically stable period. In the months following the completion of my degree, I published and presented papers based on my thesis (<https://www.researchgate.net/profile/Mugdha-Chimote>). I have since worked as an Assistant Professor of Geology at College of Military Engineering, and later as Scientific Editor at Cactus Communications Pvt. Ltd. Thanks to my research and professional experience, I am well versed with various research techniques and scientific writing methodologies. My career so far has not only made me independent, proactive, adaptive, and efficient, but also made me realize that adversity bring out the best in me.

As part of my second master's degree in Volcanology at Lancaster University, I intend to gain comprehensive knowledge in physical volcanology, data assimilation, programming skills using MATLAB, GIS, and geohazards. Over the course of my current collaboration with researchers from Uppsala University, Sweden, addressing silicic magma emplacement in a large-volume dyke in Argentina along with reinforcing my knowledge in magmatic and post-magmatic textures, I look forward to strengthening my communication, rapport-building, and organizational skills, together with gaining additional expertise in magmatic processes and analytical techniques. Furthermore, I intend to conduct geotechnical analyses such as, FTIR spectroscopy and TGA-DSC to characterise water concentrations and volatile species, thus placing constraints on magma deformation. My graduate degrees have moulded me professionally and I am sure will continue to do so in the following months.

Having previously worked in Deccan Traps, I have always been curious regarding the magnitude and composition of Large Igneous Provinces. Given all the controversies surrounding the possible links between mantle plumes and emplacement of LIPs, this project would be a good opportunity to study the related magma storage, emplacement mechanisms, and associated climate changes. With a perfect blend of field work and geochemical analyses, this project will provide me a broad scope to achieve my research interests in magma storage, transport, and emplacement. I am confident that the laboratory skills I gain in the ensuing months under my master's thesis on the Chachahuén dacitic dyke, will help me form a strong base for PhD research. I strongly believe my former knowledge of petrographic analyses and field mapping, and that of physics, mathematics, and statistics, gained during bachelor years, make me a suitable candidate. Moreover, having previously worked on microtextures and microstructures of plutonic rocks from DVP, I am keen on gaining further comprehensive knowledge on DVP.

Given an opportunity to pursue this study, it would be my honour to give my set of contributions to the research on LIPs in context of DVP. In addition, I am sure that this opportunity will provide me extensive knowledge and pave new opportunities for me in the field in the coming future, along with offering an excellent international platform to present my work. I intend to publish research articles and go on to secure further research positions post-PhD. I believe I am sufficiently qualified to take up this responsibility and honour it to the best of my abilities.

Sincerely,

Mugdha Chimote.