

Dr. Abhishek Saha



Dr. Abhishek Saha has been extensively working on the petrology and geochemistry of several rock suites from various parts of India which includes the (i) ultramafic, mafic and felsic lithologies from greenstone belts of Dharwar Craton, (ii) meta basic rocks and alkaline rocks of North eastern India, (iii) lower oceanic crust of East Pacific Rise and ophiolites of Andaman and Nagaland and (iv) Cretaceous-Tertiary volcanism from Rajamundry Traps of east coast of India and Precambrian volcanic rocks of Singhbhum Craton, Kotri belt and Chotanagpur Gneissic Complex. His primary research focused on the origin and evolution of basic and alkaline-carbonatite magma with respect to diverse tectonic setting. In his research, he has been using different trace, rare earth elements, platinum group elements and isotopic proxies to pinpoint the mantle composition, depth and degree of melting, crust-mantle interaction which control the petrogenetic evolution of magma.

Dr. Abhishek Saha has been significantly contributing in the field of geochemistry of mafic and felsic metavolcanic rocks from different greenstone belts of the eastern and western Dharwar Craton. His research findings inferred that petrogenetic processes and tectonic setting of these volcanics determine the transitional ocean-ocean to ocean-continent convergent margin magmatism and continental lithospheric evolution of Dharwar Craton. His contribution towards the understanding of subduction processes, plume-arc interaction, Neoproterozoic crustal growth and genesis of gold in diverse tectonic setting in Dharwar Craton is enormous. Dr. Saha is the first scientist to report the evidence of pyroclastic volcanism in active continental margin setting of western Dharwar Craton. Dr. Saha successfully used platinum group element geochemistry (PGE) for komatiites and boninites for better understanding the role of PGE fractionation in petrogenetic processes, mantle source characteristics and sulphide saturation history of ultramafic-mafic lavas in Dharwar Craton.

Dr. Saha carried out geological mapping, petrological, mineralogical and geochemical studies of Proterozoic amphibolites from Khasi area in an integrated approach to understand the petrogenetic history and Precambrian tectonics of Shillong Plateau and first time proposed a continental arc setting for emplacement and evolution of metavolcanics. Through sustained field investigations and study of geochemical attributes of Neoproterozoic Myllemgranitoids of Meghalaya, Dr. Saha suggested their S-type, post orogenic nature.

Dr. Abhishek Saha worked on the poorly attended Samchampi-Samteran alkaline complex of Mikir Hills, Karbi-Anglong district, Northeastern India. Occurrence of Vanadium bearing titaniferous magnetite ore bodies, their orthomagmatic origin and their association with alkaline-carbonatite magmatism have been reported by Dr. Saha for the first time from this alkaline complex. He first time reported the occurrence of melanite garnet from the Samchampi-Samteran complex and discussed the role of alkali metasomatism in its genesis. Dr. Saha studied the genetic correlation between alkaline-carbonatite rocks of Northeastern India, Sylhet Traps and Kerguelen plume.

In recognition of his outstanding contribution, Dr. Saha was selected to work as an inorganic geochemist on IODP (International Ocean Discovery Program) expedition 345. In this expedition, they have first time

drilled the lower plutonic crust at Hess Deep rift, East Pacific Rise and studied the petrological and geochemical characters of lower crustal sequence of gabbro as a part of their onboard study. This research was published in Nature. He reported complete preservation of Cretaceous ophiolite sequence from south Andaman and worked on the mineral chemical aspects of this ophiolite suite

Dr. Saha along with his co-researchers worked on petrogenesis and mantle source characteristics of continental flood basalts from Deccan and Rajahmundry Traps. He has also worked on the magmatism and tectonic aspect of bimodal volcanics of Kotri belt, Central India, Precambrian gabbro-anorthosite rocks of Chotanagpur Gneissic Complex and volcanic rocks of Older Metamorphic Group (OMG) Iron Ore Group (IOG) and Malangtoli of Singhbhum Craton, Eastern India.

In recognition to his outstanding research contributions in the field of Earth System Sciences, the Ministry of Earth Sciences honours Dr. Abhishek Saha with the “Young Researcher Award in the field of Earth System Science” for the year 2019.