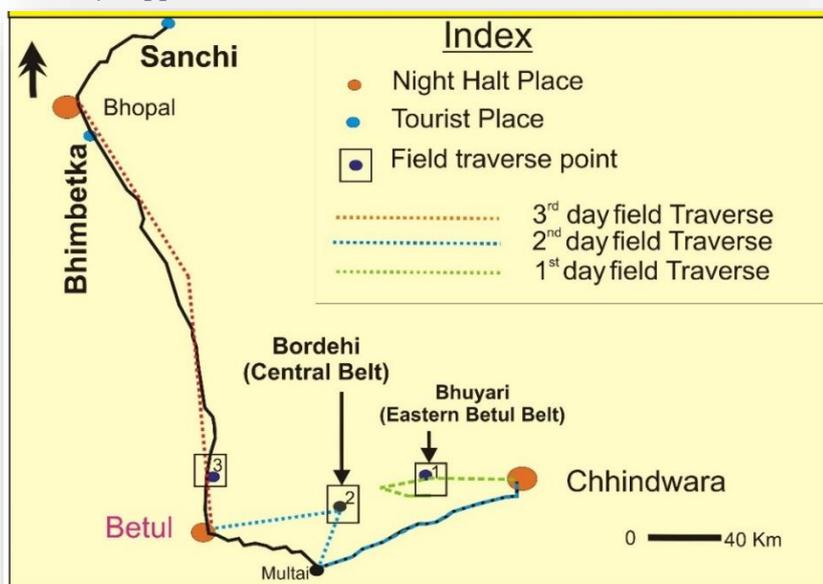


Field Transect: CR006, Crustal evolution and VMS metallogeny in the Proterozoic Betul belt, Central India

Geological Significance:

- *Betul Belt is a classical Precambrian gneiss-supracrustal sequence with bimodal volcanics, metasedimentary rocks, intrusive mafic-ultramafic complex and syn-to-post tectonic granites which is intensely deformed and metamorphosed to amphibolites facies. This belt is known to contain several small Zn-Pb-Cu deposits of Volcanogenic Massive Sulphide (VMS) type with typical hydrothermal-metamorphic alteration assemblages; and also graphite deposits in metasedimentary rocks. Incidences of PGE and nickel sulphide mineralization are also reported from the mafic-ultramafic complex within the Betul Belt.*
- *The VMS deposits of Betul Belt are associated with felsic volcanic rocks and are mainly present in the central and eastern part of the Belt. The Zn-Pb-Cu mineralized zones consist of massive, semi-massive and disseminated ore which is enclosed by intensely altered felsic volcanics. Alteration zones consist of various Al-rich and Mg-rich minerals like garnet, gahnite, staurolite, anthophyllite, tremolite, phlogopite, biotite and chlorite which are products of regional amphibolites facies metamorphism of hydrothermal alteration zones. These metamorphic minerals act as exploration guides for locating new ore bodies. Felsic volcanoclastic facies like autobreccia and hyaloclastite are documented in the eastern Belt and give evidence for emplacement in deep water. Furthermore, prominent Bouguer gravity anomaly and Magnetic anomaly support these observations.*

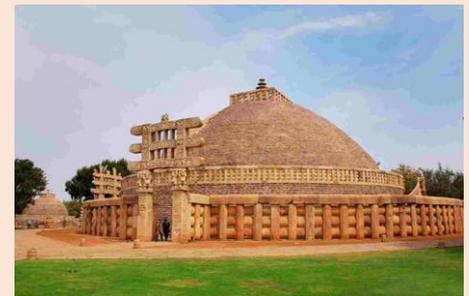


Duration: 3 Days

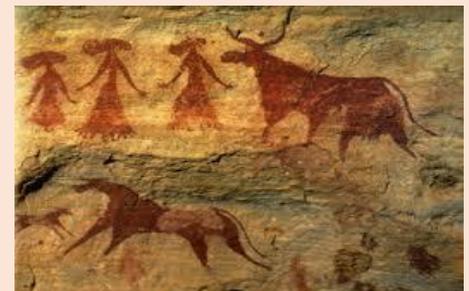
Date of Excursion: Post Congress

Max. Participants: 20

GEOTOURIST SITES:



Sanchi , a UNESCO heritage site



Cave Paintings Of Bhimbetka

FIELD PHOTOS



Field Photograph showing presence of white smokers associated with Bhuyari (21° 59' 39" :: 78° 35' 41") VMS deposits of Betul Belt, indicating most recognizable features of sea-floor hydrothermal activity

International Attraction

- The Betul Belt provides a unique opportunity to showcase the arc magmatism processes involved in subduction and crustal accretion and metallogeny of VMS type deposits during Palaeoproterozoic-Early Neoproterozoic periods within CITZ.
- The well exposed rock sequences of Betul Belt are a store house of geological information related to such Precambrian Earth processes and are found to be of great interest to petrologists and economic geologists from world over.
- Betul Belt contains good exposures of felsic volcanics with primary features and their characteristic alteration patterns and is a typical metamorphosed VMS terrain which will be of much interest to the global community.
- It provides one of the best examples for continental growth through subduction–accretion processes in central India during the Neoproterozoic.

Geological Field Photographs



Field Photograph showing development of Pillow-shaped structures in basalt at Borgaon Tarora (22° 17' 35":: 78° 15' 28"). In Borgaon Tarora Pillow lavas are bulbous, spherical, or tubular lobes shape with development of very fine chilled margin due to rapid cooling of the lava by cold water on all sides forms the pillow-shaped bodies with size varies from a few centimetres to a meter (30cm – 1 m)



Field Photograph showing formation of garnet (red colour), gahnite, anthophyllite (brown colour, broom shape) and chlorite mineral assemblages zone (defined as alteration mineralogy) at Borgaon -Tarora (22° 15' 30":: 78° 14' 20") is represented as standard alteration assemblages as a result of Hydrothermal alteration zone developed along the VMS deposits of Betul Belt.

GEOHERITAGE SITES:

Sanchi, a UNESCO's world heritage site, is known for stupas, monasteries, temples and pillars built by the Mauryan Emperor Ashoka dating from the 3rd Century B.C. to the 12th century A. D.

Bhimbetka, a world heritage site, is surrounded by northern fringe of Vindhyan ranges, 46 km south of Bhopal. The rock shelters belonging to the Mesolithic to Neolithic age with vivid rock paintings in caves depicting life of pre-historic cave dwellers, making this place as an archeological treasure.

FIELD PHOTOS



Field Photograph showing porphyritic texture in rhyolite with development of randomly oriented needle shape hornblende phenocryst set in the fine grained quartz-feldspar matrix at Jilardev (22° 18' 29" :: 78° 35' 46").