

Geoscience Australia (GA) - GSI Workshop on Cover Characterization and Regolith Studies (11th to 18th December 2018)

The fourth GA-GSI workshop on “Cover Characterization and Regolith Studies” was inaugurated by **Dr. Dinesh Gupta**, DG GSI, **Dr. Rajeshwar Rao**, Additional Secretary Ministry of Mines and **Dr. Richard Blewett**, Head, Geoscience Australia delegation, at DGCO on 11th December 2018. Four Geoscientists GA delegation was represented by Dr. Richard, Blewett, Head, Mineral Systems Resource Division, GA, **Dr. Patrice de Caritat**, Principle Research Scientist, GA, **Dr. Carmen Krapf**, Senior Geologist, Geological Survey of South Australia and **Dr. Wenping Jiang**, Data Modeller, Resource Division, GA.

The field and in-house workshop will be held from 11th Dec 2018 to 18th Dec 2018. Presentations and practical exercises on various themes on Regolith Mapping, challenges in cover for exploration, Regolith materials and landforms, Regolith forming processes, Geochemical exploration, Geochemical Mapping, AEM mapping, cover thickness estimates using Geophysical methods, Application of Magnetotelluric for cover, Hydrogeochemistry, cover thickness estimates using 1D and 2D data etc. Field workshop is planned to start from 14th Dec to 17th Dec 2018. Data processing exercises and post field interactive workshop will be held on 17th and 18th Dec 2018 for follow-on discussions etc.

Some key studies, deliberations and field visits during this workshop on the cover & regolith include the following:

- Study of geophysical transparency, the capacity to read geophysical signatures in underlying basement through cover.
- Understanding Mineralogical persistence, the capacity of diagnostic minerals from underlying rocks to persist in cover and be detected near the surface.
- Tracing the chemical migration, the capacity of cover to promote migration of elements from basement to the near surface, to disperse them in a wide halo, or fix them in situ.
- New insights on dispersal and transport system, mapping regolith as in situ or transported. Vectors of surface transport could form a ‘national transported regolith provenance map’ linking anomalies with their source.
- Study on erosional landscapes versus depositional landscapes; landscape evolution; and scales, geometries and vectors of drainage catchment sampling.
- Further possible research areas that will improve our knowledge of cover characteristics and looking for significant exploration opportunities.

The fieldwork is planned in the following sectors of Rajasthan,

Churu-Laxmangarh Sector: The area is entirely covered by transported sediments and forms a part of the Thar Desert in Western Rajasthan. The cover comprises of windblown sands forming dunes axis trending almost ENE-WSW. The depth of cover in the area varies from 80 to 120 m. Very scanty outcrops of intrusive granites and acid volcanics are present in the area.

Khetri Neem Ka Thana Sector: The area covers the Khetri Cu belt in the northern part and ends in Khandela area to the south. Towards the eastern part, the Neem Ka Thana Cu belt runs

parallel to the Khetri belt both of which are trending in NNE-SSW direction. The proportion of outcrop to cover is poor. The cover in the area is mixed in nature having both transported windblown sands and insitu regolith.

Mundiawas Khera Sector: This block appears to be covered by insitu regolith in the valleys and few intermittent smaller calc-silicate and carbon phyllite hills. This block comprises the host rocks of impure marble and felsic volcanic suite of rocks.



DGCO, GSI, New Delhi: Snapshots of Inaugural Session



DGCO, GSI, New Delhi: Technical interactions with GA experts in the Workshop



The 4th GA-GSI Workshop Team