

## Field Transect: SR005, Neoproterozoic - Early Cambrian Crustal Evolution In South India And Its Implications On East Gondwana Assembly

### Geological Significance:

- The Granulite Terrain of Southern (SGT) India represents the Neoproterozoic - Early Cambrian crustal evolution encompassing the accretionary tectonics, metamorphic and magmatic episodes and the kinematics of the major shear zones provides an overall understanding of the East Gondwana assembly. The Excursion will cover the Palghat-Cauvery Shear zone (PCSZ) lying to the north of SGT as well as the Neoproterozoic mobile belt extending up to the southern tip of Indian Peninsula.
- The terrain lying to the south of orthopyroxene isograd (Fermor Line) and indicative of granulite facies metamorphism is broadly divisible in to two components - a Northern Granulite Terrain (NGT), forming the root zone of Dharwar Craton and Southern Granulite Terrain (SGT) lying south of Palghat - Cauvery Shear zone (PCSZ) as Neoproterozoic mobile belt. Three prominent ductile shear zones traverse the entire granulite terrain, viz. Moyar - Bhavani - Attur Shear zone (MBASZ) in the north, (PCSZ) in the middle and Achankovil shear zone (AKSZ) in the south.

### International Attraction:

- ✓ The Southern Indian Peninsular shield provides several critical sections to study the crustal evolution in Archaean Dharwar craton and the surrounding Proterozoic mobile belts. Transect from Coimbatore to Trivandrum will give the International audience an excellent opportunity to study the nature and evolution of Late-Archaean granulites/ gneisses.
- ✓ Opportunity to study the classical PGE mineralized Sittampundi Layered Anorthosite complex, the litho-assemblages of which are comparable with the Fiskensset complex, West Greenland.
- ✓ The Neoproterozoic mobile belt of South India, especially the Madurai Block, exposes high grade granulites with the associated meta-sedimentary packages. The high Mg-Al pelites of this terrain nicely preserve the characteristic assemblages such as sapphirine-quartz, spinel-quartz and orthopyroxene-sillimanite association providing ideal sections to study the Ultra High Temperature (UHT) metamorphism and its implications on the tectonic evolution of Madurai Block.
- ✓ During the field excursion, the international delegates will also get an opportunity to visit various Geoheritage sites of historic importance to appreciate the rich cultural framework of South India.

Duration-6 Days

Date of Excursion: Post-Congress

Max.Participants:15-20

### GEOTOURIST SITES



Madurai Meenakshi Temple



National Geological Monument of Charnockite



Sri Padmanabha temple, Trivandrum

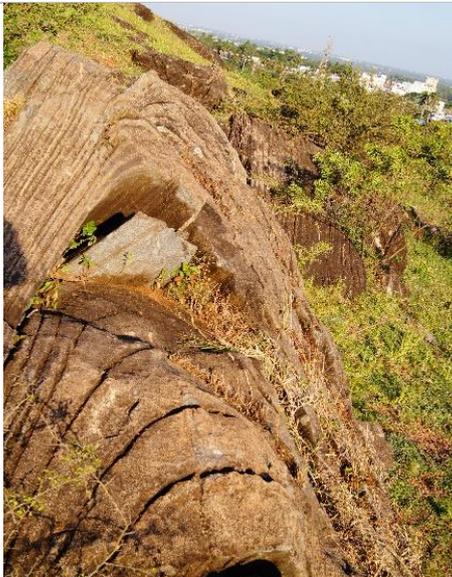
## Geological Field Photographs:



Inter banded sequence of Charnockite and quartzo-feldspathic gneiss in Malayanakil Quarry



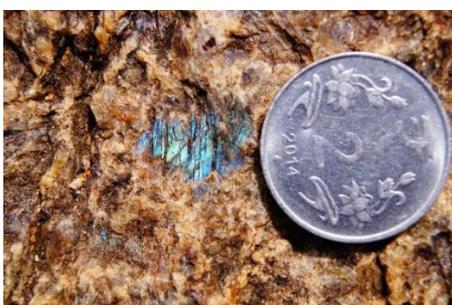
Mullion structure in Calc granulite Marapallam, Tamil Nadu



Moderate steep plunging calc-granulite, Marapallam, Tamil Nadu.



Folding in calc granulite, Marapallam, Tamil Nadu.



Plagioclase in anorthosite showing blue iridescence, Tamil Nadu, Virupakshi.



Garnet exhibits corona texture Virupakshi Tamil Nadu

### GEOTOURISTS SITES

**St.Thomas Mount, Chennai** This rock was named as Charnockite by Sir Thomas Holland of GSI in 1893. in honour of name of English merchant-adventurer Job Charnock, founder of Kolkata whose tomb/mausoleum was built in 1695 with these rocks quarried from St. Thomas Mount, Chennai and shipped to St. John's Church at Kolkata.

### Madhurai Meenakshi Temple

The most beautiful buildings in the city including its most famous landmark, the Meenakshi temple, were built during the Nayak rule. Located in the heart of the city of Madurai, the Meenakshi-Sundareshwarar temple is dedicated to goddess Meenakshi, the consort of lord Shiva.

### Sri Padmanabha Temple, Trivandrum

Padmanabhaswamy Temple is located in Thiruvananthapuram, Kerala, India. The temple is built in an intricate fusion of the indigenous Kerala style and the Tamil style of architecture associated with the temples located in the neighbouring state of Tamil Nadu, featuring high walls, and a 16th-century Gopuram.