Geological Survey of India

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1. First Report of Cretaceous Calcareous Nanofossils from the Ophiolite Associated Pelagic Sediments of Middle Andaman

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An investigation on the pelagic sediments, associated with ophiolites collected during the research project work, undertaken by Palaeontology Division, ER, GSI entitled *"Study of pelagic sediments associated with Ophiolites sequence of Andaman Islands"* has brought out presence of rich assemblage of calcareous nanofossils along with radiolaria and planktonic foraminifera. Presence of radiolaria and planktonic foraminifera of Campanian - Maastrichtian affinity are reported from this pelagic sediment since long. However, the present study records calcareous nanofossil assemblage from the ophiolite associated pelagic sediments of Andaman Islands. The pelagic sediments of middle Andaman have yielded both the coccoliths and nannoliths along with the algal spores and cysts.

Nanofossil taxa identified are *Calyculus sp.* (Fig.1); *Cribrocorona sp;* *Ellipsagelospheaera sp;* *Ellipsagelospheaera britanica* and *Tartolithus caistorensis*. The nanofossils occur as nanofossil ooze (Fig.2) along with calcareous claystone, calcareous chert sequence in Betapur section, Bakultala Section of Middle Andaman.

The nanofossil assemblage corroborates the age of Campanian - Maastrichtian as inferred from the associated radiolaria and planktonic foraminifera. Presence of calcareous nanofossil ooze indicates very deep marine environment far from the influence of clastic sediment supply. Detailed taxonomic studies of the forms would be valuable information for regional and global correlation of the Cretaceous sediments and also in understanding palaeogeography.

Link:

https://employee.gsi.gov.in/cs/groups/public/documents/document/b3zp/nja3/~edisp/dcport1gsigovi607231.pdf

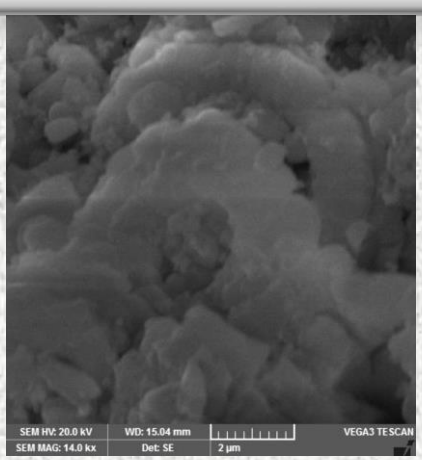


Fig. 1: *Calyculus sp.* in the pelagic sediments of Middle Andaman

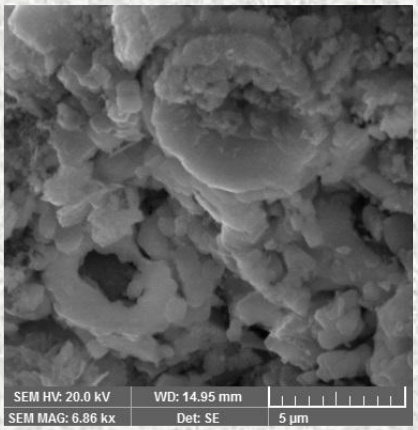


Fig. 2: Nannoliths in the pelagic sediments of Middle Andaman

2. Drilling initiated (G-2 Stage) for Base Metal Mineralization in Muariya Block, Betul District, Madhya Pradesh (Field Season 2019-20)

Muariya base metal block located near Muariya Village, Betul District, Madhya Pradesh was taken up by GSI for preliminary exploration during FS 2000-03 and a mineralized zone over a strike length of 450m was established. Directorate of Geology and Mining (DGM), Madhya Pradesh has requested GSI to take up G2 stage exploration work in Muariya block and accordingly G-2 stage exploration has been initiated by GSI in FS 2019-20. The item was planned to be initiated on priority basis under the guidance of ADG & National Mission Head-II, GSI. Borehole plan has been proposed to check the western strike continuity of mineralized zones at 60 m vertical depth.

3. Inauguration of *Quaternary & Environmental Geology Division* Geological Survey of India, North Eastern Region, Shillong

GSI had been playing a vital role in the field of Quaternary Geology. However, in the past few years due to more emphasis on mineral targeting, Quaternary Geology related studies had taken a backseat. Recently VAQ programme of Ministry of Mines (2018) recommended that Quaternary Geology Division in all the Regions should be reopened and named as **Quaternary and Environment Geology Division (QEG).** It is foresighted that this will be a seeding division to take up pilot projects on Critical Zone studies, Geo-environmental appraisal, Urban Geochemistry and River Basin Management. As per the VAQ recommendation, QEG Division has been inaugurated in NER, GSI, Shillong.

One project related to QEG is under execution in NER on Erosion Vulnerability Studies of Majuli Island from SU: Assam whereas another item is also contemplated from Tripura state.

ADG & HOD, NER inaugurated the 'Quaternary and Environmental Geology' Division, Shillong

4. Geo-scientific Display Boards on Meghalayan Age and K-Pg Boundary at Mawmluh Cave and Therriaghat by GSI, NER, Shillong

Geological Survey of India, North Eastern Region inaugurated two geoscientific display boards in two important geological sites of Meghalaya. One is at Mawmluh cave on Maghalayan Age and the other is at Therriaghat on K-Pg boundary. The display boards were inaugurated by ADG & HOD, GSI, NER, Shillong in presence of the dignitaries from local villages, schools and officials of GSI, Shillong on 29th April 2019.

The geoscientific display boards on **Meghalayan Age** and **Importance of Mawmluh cave** were unveiled on two sites, one at the side of the Mawmluh-MCCL factory road in Mawmluh village and other at the mouth of cave. The new status of Meghalaya in geological history of earth was explained to the local people, as the most recent age is named as Meghalayan age, which started from 4200 years before present. This was identified and recognised from a Stalagmite of Mawmluh Cave of this village by the international geoscientific community.

On this occasion, a small awareness programme-cum-meeting with the local people was organized by GSI.

ADG & HOD, GSI, NER, Shillong unveiled the geo-scientific display board of **K-Pg boundary** on the left bank of Um - Sohryngkew (Wahrew) River. Therriaghat section preserves one of the most important Geological event when >80% extinction of life took place on earth. The yellowish red band with high iridium anomaly marks this boundary. Extensive Study by GSI workers on foraminifera of this section helped to establish it as a type section of K-Pg boundary. GSI dignitaries requested the local people to take care of these sites and preserve these for prosperity, geological research and tourism. It was emphasized that apart from mineral exploration, GSI is also working on different geological research themes aiming at sustainable development of the society.

Mouth of the Mawmluh cave

Geoscientific display boards at Therriaghat

Geoscientific display boards at Mawmluh

"The strata of sedimentary rock are like the pages of a book, each with a record of contemporary life written on it. Unfortunately, the record is far from complete."
— Jeanette Winterson

5. Drilling initiated (G-2 Stage) for Limestone Investigation in Litang Valley, East Jaintia Hills district, Meghalaya (Field Season 2019-20)

Two G-2 stage limestone investigations have been taken up in Litang valley, East Jaintia Hills district, Meghalaya to assess the potentiality of the different grades of limestone (Shella Formation) in FS 2019-20. The Shella Formation of Litang valley consists of alternate sandstone and limestone horizons. The most important limestone horizon is Upper Sylhet limestone (Prang limestone), which belongs to the Shella Formation of the Jaintia Group (Middle Eocene). The average thickness of Upper Sylhet limestone varies from 33m to 123m in Litang Valley. The limestone deposit in Litang valley has intrinsic economic interest and reasonably prospected under various stages of UNFC for eventual economic exploitation.

In view of the considerable thickness and more or less homogenous nature of limestone, a total reserve of more than 11,000 mt has been estimated in various blocks explored by the GSI, NER. Limestone is of different grades (Cement and SMS Grade) containing CaO ranging from 39.86% to 51.98%, MgO from 1.30% to 2.84%, Al_2O_3 from 1.08% to 4.05%, Fe_2O_3 from 0.56% to 7.75% and SiO_2 from 1.92% to 8.64%. Considering the continuity of limestone at sub-surface having significant depth in the adjacent explored areas, an area covering about 4 sq. km and 3 sq. km of Southwest of Mynthlu block and Khaidong - Shongrim block in parts SOI toposheet no. 83C/7 & 83C/11 respectively has been initiated.

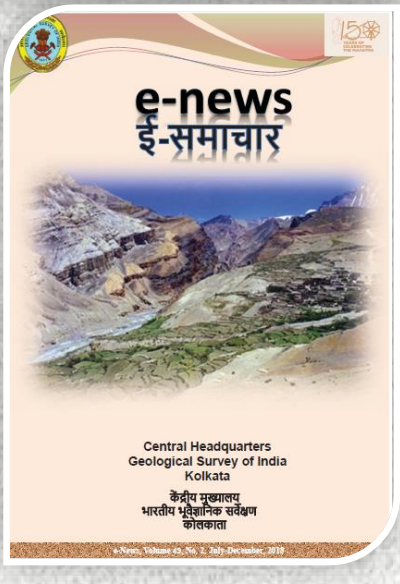
The drilling site of borehole no. MEJM-01 in Southwest of Mynthlu Block, Litang Valley, East Jaintia Hills district, Meghalaya

Drilling in progress in borehole no. MEJKS-03 at Khaidong-Shnongrim Block, Litang Valley, East Jaintia Hills district, Meghalaya

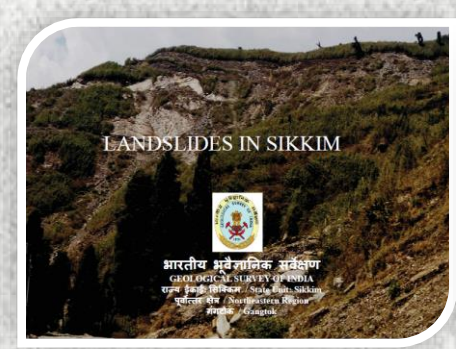
"Geologists have a saying - rocks remember." — Neil Armstrong

For feedback and suggestion write to ddg.m3b@gsi.gov.in

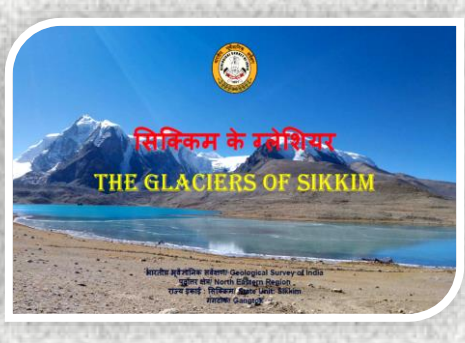
6. Publications Released



GSI E-News, CHQ
Vol. 49, No.2



Coffee Table Book on
Landslides in Sikkim



Coffee Table Book on
The Glaciers of Sikkim

All the Publications are available in GSI Portal