GEOLOGY MUSEUM

APPLIED GEOLOGY, SCHOOL OF EARTH, OCEAN AND ATMOSPHERIC SCIENCE

GOA UNIVERSITY

The Geology Museum of Earth Science, School of Earth, Ocean and Atmospheric Sciences, Goa University is a state of the Art Museum with a large collection of minerals, rocks, ores and fossils.

Link to the Museum https://www.youtube.com/watch?v=FEaEEabx1YI *(Ctrl+click to open)*

The Geology Museum houses several unique rock samples collected by students and faculty over the years. Primary structures in igneous rocks are exhibited by the magmatically differentiated layered igneous intrusive sample, columnar rocks from St. Mary's Island from Malpe, Udupi, and pillow lavas from Chitradurga (Karnataka). Secondary structures can be explained to students from the samples exhibiting open to closed folds with crenulation lineation within Banded Hematite-Quartzite (BHQ) and schists/phyllites from Goa. The Museum also possesses gemstone variety minerals, stromatolites, important conglomerate horizon samples from Indian cratons and some rare silicate minerals and rocks. The museum also houses the region's oldest known rock, classified as Tonalite-Trondhjemite-Granodiorite (TTG).

Geology of Goa

Some of the oldest rocks in India (~3.6 billion years old) are found along the Anmod Ghat and in Canacona, Goa, which are a part of the 'TTG Peninsular Gneisses' of the Western Dharwar Craton. Phyllites and schists of the Goa Group of rocks overlie the basement gneisses separated by a prominent basal conglomerate. The iron ores of Goa are younger than the schists; they are derived from the Banded-Quartzite-Hematite (BHQ) rocks that are folded and deformed by atleast three deformation events. The geology of Goa is an active area of research at the School of Earth, Ocean and Atmospheric Sciences, Goa University and rock samples from the different stratigraphic units in Goa are displayed in the Geology Museum. Because of the hot and humid tropical climate of Goa, the Precambrian rocks have been chemically altered to laterite, which is the easiest rock to spot in Goa.

TTG

The TTG suite in Goa forms part of the ancient Precambrian basement complex. These rocks are primarily composed of tonalite, trondhjemite, and granodiorite, rich in quartz and plagioclase.They represent early continental crust, typically formed through partial melting of mafic rocks.

In Goa, TTG rocks are exposed mainly in Anmod Ghat region. They are important for understanding the Archean crustal evolution and tectonic setting of the region. SHRIMP U–Pb zircon dating reveals two major TTG accretion events: Rb–Sr whole-rock isochron dating yields an age of 3.40 ± 0.14 Ga, representing one of the oldest basement trondhjemites in NE Goa (Dhoundial et al., 1987).

Economic minerals

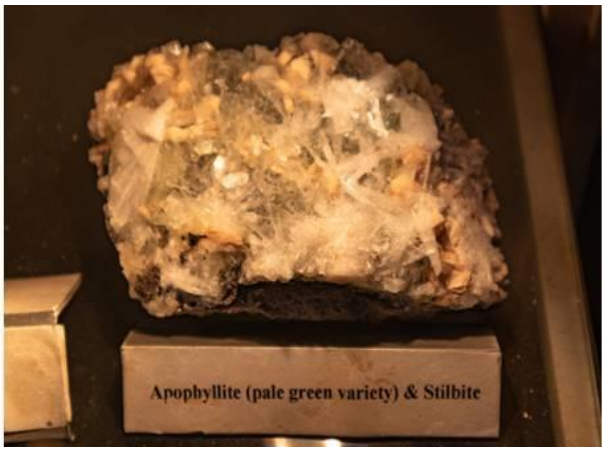
Almost all our everyday gadgets and tools are directly or indirectly derived from economic minerals found in the earth's crust (Even plastic is a derivative of petroleum, a mineral fuel!). Several well-known economic minerals are exhibited in the Geology museum, collected by students and faculty, from various parts of India and the world. Examples include Native Copper (Malanjkhand), Hematite (Goa), Magnetite (Goa), Malachite (Malanjkhand), Psilomelane (Goa), Chromites (Ladakh/Sukinda-Orissa), Chalcopyrite (Malanjkhand), Rockphosphate (Jhamarkotra- Rajasthan), Sulphur, Galena (Agnigundala), Sphalerite (Zawar), Magnesite , Bismuth and Baryte (Mangalampeta). Coal from the Arctic and ferromanganese nodules from the Central Indian Ocean are also on display.

Gemstones

The geology museum houses a sizable collection of precious and semiprecious stones including polished samples of gemstones such as ruby, sapphire, peridot, lapis lazuli, turquoise, opal, natural amber, garnet, amethyst, cats-eye, among others. An azurite sample from Brazil is also on display. These polished samples are used in the study of gemmology. (We welcome anyone who would like to donate a diamond to our collection).

Zeolites

Zeolite minerals are usually found as cavity fillings in mafic volcanic rocks, but can also form in sedimentary and low-grade metamorphic environments. The zeolite minerals can have well developed crystal faces making them prized samples in mineral collections. Several spectacular samples of zeolite minerals such as apophyllite, prehnite, stilbite, natrolite and amethyst are displayed in the Geology Museum.

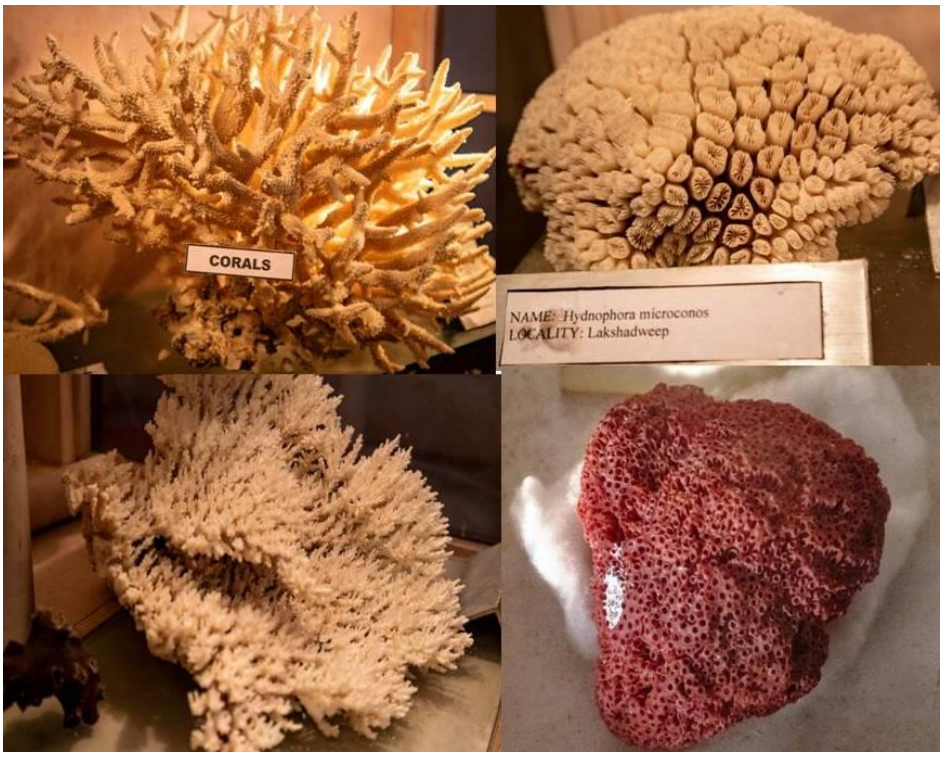


Fossils

Fossils are not found in Goa because the rocks in Goa are predominantly of Precambrian age. However, the Geology Museum of Goa University has obtained several fossil samples from other parts of India and the world. Well preserved plant fossils such as Glossopteris, Ptilophyllum, and other leaf imprints are displayed. The Museum also houses two large samples of fossil wood from the Andaman and Nicobar Islands and from Borneo, Indonesia. A stromatolite rock sample, indications of the first unicellular life on earth, collected from the Lokapur Karnataka is prominently displayed in the Museum. Besides these, marine fossils of ammonites (Shaligram) from the Himalayas are also exhibited.

Corals

The various species of corals on display in the Geology Museum are from the Lakshadweep Islands. The coral collection also includes a brain coral specimen from Dubai.



Other samples