### Calendar 2024

(Courtesy: The Society of Earth Scientists)



# Exotic Geoheritage Sites of India



Krishna's Butterball, Mahabalipuram, TN



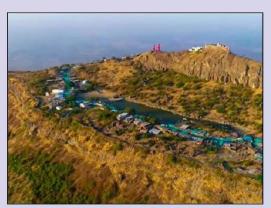
Nummulitic limestone, Nidar, Ladakh



Balancing rock of Orvakal, Karnool, A.P.



Natural bridge, Neil island, Andaman



Dormant volcanic vent, Pavagarh, Gujarat



Ammonite fossil, Perambalur, Tamilnadu





Deccan Traps of Mahabaleshwar: Deccan Traps consists of more than 2000 m-thick succession of Late Cretaceous sub-aerial flood basalt lava flows and covers an area of nearly 5 Lack sq. km. in western India. It is one of the largest igneous provinces in the world. Deccan volcanism spanned from 69 to 62 Million years. The Mahabaleshwar region is well known for its 1,200m thick Deccan Trap section of nearly fifty individual lava flows. It is situated within the 1,500-km-long Western Ghats (Sahyadri) great escarpment of India and also records reversal in magnetic polarity of the Earth. Photo Courtesy: Prof. Shyam N Mude, Pune, Maharashtra

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Columnar Joints of Bharudpura: Columnar joints are commonly developed in lava flows, sills, and dikes. Most columns are straight with parallel sides and diameters from a few centimeters to 3 m. Some columns are curved and vary in width. The lava contracts as it cools, forming cracks. Once the crack develops, it continues to grow. The growth is perpendicular to the surface of the flow. Meter-scale columnar joints have been identified in the Deccan Traps of Bharudpura, district Dhar, Madhya Pradesh. *Photo Courtesy: Mr. Vishal Verma, Dhar,* Madhya Pradesh

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Radial Columnar Joints of Singhana: A Unique type of columnar joins are developed in basaltic lava of Singhana, Dhar district of Madhya Pradesh, which is often referred to as 'War Bonnet'. Photo Courtesy: Mr. Vishal Verma, Dhar, Madhya Pradesh

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Pillow Basalt of Churi Hills: Pillow basalt of Mesoproterozoic age (1,600 to 1,000 million years ago), which indicates that sub marine volcanism, occurs in Churi Hills, Paranpur, Gaya, Bihar. The pillows are either spherical or elliptical and are deformed. The pillow structures exhibit well-developed chilled margins, vesicles, cracks, V-up and convex-up features. Cracks are developed due to overcooling. Photo Courtesy: Dr. K. Milankumar Sharma, Gaya, Bihar

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Flexible Sandstone of Kaliyana (Itacolumite): The term 'Itacolumite' refers to the flexible sandstone or quartzite. A hillock in Kaliyana, Charkhi Dadri district of Haryana is the only location of Itacolumite in India. The sandstone belongs to 1600-1000 million year old Alwar Group of the Delhi Supergroup. *Photo Courtesy: Dr. Pawan Kumar, Bhiwani, Haryana* 

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Flysch and turbidites of the Nindam Formation: It is part of the Nidar Ophiolite Complex that marks the subduction of neothethys and consequent collision of India and Asia in the Paleogene exposed in Nidar area, Leh, Ladakh. The sequence is made of interbedded volcaniclastic turbidites and shales, with minor pelagic carbonates and a conglomerate package dominated by limestone clasts. These rocks developed in a deep marine environment. Photo Courtesy: Dr. Satish Tripathi, Lucknow, Uttar Pradesh

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Rann of Kutch: The Rann of Kutch is a large area (covers around 26,000 sq. km.) of salt marshes that span the border between India and Pakistan. It is located mostly in the Kutch district of Gujarat. The surface is generally flat and very close to sea level, and most of the Rann floods annually during the monsoon season. The history of the Rann of Kutch began with early neolithic settlements. It was later inhabited by the Indus Valley civilization as well as the Maurya and Gupta empires. *Photo Courtesy: Dr. Shiv Singh Rathor, Jodhpur, Rajasthan* 

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Lamayuru, towers of Quaternary sediments: The well-known Buddhist monastery of Lamayuru and the surrounding village is located about 128 Km West of Leh. It is situated on more than 100 m thick Late Quaternary palaeolake deposits which are surrounded by rocks of the Lamayuru Formation. This Lamayuru Formation of the Triassic-Jurassic age forms the base and source of palaeolake deposits. In Late-Pleistocene (35 ka B.P.) the Lamayuru River was dammed due to tectonically triggered landslide and the Lamayuru Palaeolake came into existence. The sedimentation in the palaeolake basin commenced at 35 ka B.P. and culminated at 1 ka B.P. *Photo Courtesy: Prof. Neptune Srimal, Florida, USA* 

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Ramgarh Impact Crater: The impact of meteorite and making the crater is one of the most fascinating geological processes in our solar system. Ramgarh Crater was created by a meteoritic impact, about 165 million years ago, on Kota plateau of Bhander Group of Vindhyan Supergroup located adjacent to Ramgarh village, Baran district, Rajasthan. *Photo Courtesy: Google Maps* 

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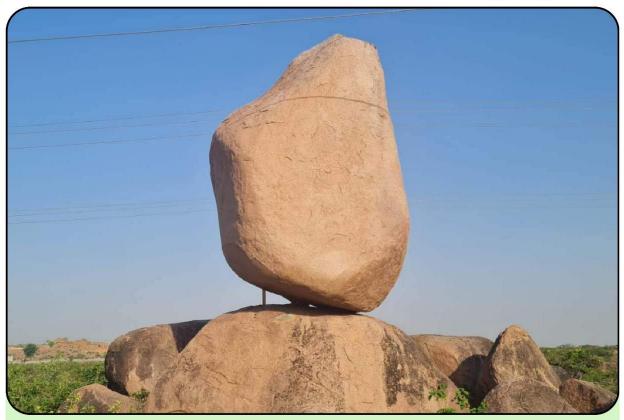


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Balancing Rock of Lalitpur: Balancing Rocks are delicately balanced eroded rock boulders, a natural wonder. The spheroidal weathering of Bundelkhand fine-grained pink granites occurring near Lalitpur, Uttar Pradesh, resulted a balanced rock. The hanging boulder is prismatic in shape against, in general, an oval or rounded shape normally found. *Photo Courtesy: Dr. Satish Tripathi,* Lucknow, Uttar Pradesh

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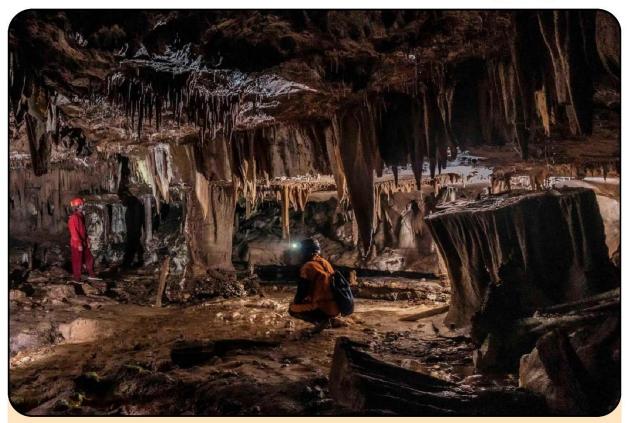
Gandikota 'Grand Canyon of India': Gandikota is a small village in the Kadapa district of Andhra Pradesh. Flanked by River Pennar on the right side, the village is famous for the spectacular gorges formed by the river cutting through Erramala Hills formed by Gandikota Sandstone. The narrow valleys with streams running between them and the steep rocky walls are reminiscent of the renowned Grand Canyon in Arizona. It is also a 13th century historical place. *Photo Courtesy: Mr. J. G. Gokula Krishnan, Chennai, Tamilnadu* 

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Mawmluh Cave East Khasi Hills District, Meghalaya: The Mawmluh Cave is formed along the contact between the Early Eocene Lakadong Dolomite of Sylhet Limestone Formation and the Therria Sandstone Formation. At present, the cave is 7.2 Km long maze with many openings and decorated with stalactites, stalagmites, columns, drapes, and moon milk. The Meghalayan Stage is the newest entrant in the geologic history of the Earth and; the latest of three subdivisions of the Holocene Epoch. The lower boundary of the Meghalayan Stage is defined at a specific level in a stalagmite of Mawmluh Cave. It is also selected as the First 100 IUGS Global Geoheritage Sites.

Photo Courtesy: Mr. Gerald Samuel Duia, Shillong, Meghalaya

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