STUDY TOUR REPORT

GEOLOGY

AT

SADASHIVGAD, KARAD

DATE –: 01st October 2024

Name of Student:

Class:

Study Tour In charge

HEAD
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Karad

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SPOT :- 1

1] Deccan trap: -

Location: - Sadashivgad

Latitude: - 17.314735^0

Longitude: - 74.224351^0

Deccan Trap: -

The Deccan Traps is a large volcanic province located predominantly in the Deccan Plateau of west-central India. This geological formation consists of thick layers of volcanic basalt rock that were laid down over a period of several million years during the late Cretaceous period, around 65 million years ago. The Deccan Traps are believed to be the result of one of the largest volcanic events in Earth's history. The volcanic activity associated with the Deccan Traps is thought to have played a role in the mass extinction event that occurred around the same time, including the extinction of the dinosaurs. Some scientists propose that the volcanic activity may have contributed to environmental changes, such as the release of gases like sulphur dioxide and carbon dioxide, leading to climate disruptions and a decline in biodiversity.

SPOT: - 2

2] Red Bole: -

Location: - Sadashivgad

Latitude: - 17.313797^0

Longitude: - 74.228797^0

Red Bole: -

In geology, a "red bole" typically refers to a type of red or reddish-brown soil or sedimentary rock that contains a high concentration of iron oxide minerals. The term "bole" is often used to describe clayey or earthy materials with distinctive colours. The red colour in these formations is usually attributed to the presence of hematite or other iron-bearing minerals.

Red boles are commonly found in areas with oxidizing conditions, where iron minerals have undergone weathering and oxidation. These formations can be seen in various geological settings, such as desert environments or areas with well-drained soils. It's worth noting that the specific characteristics and composition of red boles can vary depending on the geological context and the types of minerals present in the region.

SPOT : - 3

3] Fractured Basalt: -

Location: - Sadashivgad

Latitude: - 17.314493^0

Longitude: - 74.224936^0

Fractured Basalt: -

The region is predominantly characterized by basaltic rock formations, a result of ancient volcanic activities associated with the Deccan Traps. The fort's strategic location on a basaltic hill provided natural commanding view of the surrounding area. The presence of fractured basalt in the region influences local hydrogeology, as such formations can store and transmit groundwater. This geological feature has been crucial for the fort's water supply and the surrounding agriculture-dependent communities.

SPOT :- 4

4] Joints in Basalt: -

Location: - Sadashivgad

Latitude: - 17.314492^0

Longitude: - 74.224937^0

Joints in Basalt: -

Basaltic rock formations including jointed basalt, are part of the larger Deccan Traps, a massive volcanic province formed millions of years ago during the late Cretaceous period.

Jointed basalt is characterized by its columnar jointing—a pattern of cracks that form as the rock cools and contracts after a volcanic eruption. In the Sadashivgad area, this jointed basalt is crucial not only for the natural landscape but also for its ability to store and transmit groundwater. The fractures in the basalt, common in this region, enhance the movement of water, making the area important for both agriculture and local ecosystems.

SPOT: - 5

5] Spheroidal Weathering: -

Location: - Sadashivgad

Latitude: - 17.314439^0

Longitude: - 74.22505^0

Spheroidal Weathering: -

Spheroidal weathering is a type of chemical weathering that affects fractured rocks, particularly those with a blocky or jointed structure, like basalt or granite. Over time, weathering processes such as water infiltration and chemical reactions (like oxidation and hydrolysis) erode the sharp edges and corners of the rock. This causes the rock to break down into rounded or spherical shapes, hence the term "spheroidal." This weathering process can create

fascinating landscapes, with smooth, rounded rock formations scattered across the terrain.

SPOT : - 6

6] Lava Flows: -

Location: - Sadashivgad

Latitude: - 17.314439^0

Longitude: - 74.22505^0

Lava Flows: -

Basaltic flows can be differentiated by their surface textures, mineral composition, and cooling features. Pahoehoe flows have smooth, ropy surfaces, while Aa flows are rough and jagged. Basalt's fine-grained texture sets it apart from coarser rocks like gabbro, and it’s darker than higher silica rocks like andesite or rhyolite. Columnar jointing and pillow structures in basalt indicate cooling patterns, while its mafic composition (rich in iron and magnesium)

distinguishes it from felsic rocks. On Sadashivgad we differentiate basaltic flows with the help of red bole, vesicular and amygdaloidal basalt.

SPOT : - 7

7] Vesicular and Amygdaloidal Basalt: -

Location: - Sadashivgad

Latitude: - 17.314439^0

Longitude: - 74.22505^0

Vesicular and Amygdaloidal Basalt: -

Vesicular basalt is a type of basalt rock that forms when gas bubbles get trapped in lava as it cools, leaving behind small, rounded cavities called vesicles. These vesicles are often visible to the naked eye and give the rock a porous, sponge-like texture. Vesicular basalt is commonly found in volcanic regions,

particularly in lava flows that cool quickly on the surface. The size and distribution of the vesicles can vary, depending on the amount of gas in the lava and the cooling rate.

Over time, these vesicles may be filled with secondary minerals, turning the rock into amygdaloidal basalt. Minerals such as quartz, calcite, or zeolites precipitate from groundwater or hydrothermal fluids and fill the vesicles, forming amygdals. This process typically occurs after the lava has solidified, indicating post-volcanic activity. Amygdaloidal basalt is often more colourful and visually distinctive due to the contrasting minerals filling the vesicles. Both vesicular and amygdaloidal basalt provide important clues about the volcanic environment, including gas content, cooling rates, and later geological changes. They are commonly used in construction and landscaping due to their unique textures.