

## **Geotourism in the Sultanate of Oman: Samail Ophiolite Geosites – A Concept of Sustainable Geotourism**

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### **Abstract**

Oman, often described as an open geological book, presents an unparalleled natural outdoor museum with remarkable and diverse geological features. Its landscapes, ranging from gravel plains and sand dunes to salt flats, are among the most spectacular and unique in the world, drawing geologists and tourists alike to explore its natural wonders.

In particular, the Samail Ophiolite, one of Oman's most iconic geological formations, has been the subject of intensive study since the late 1970s. It offers a glimpse into the tectonic history of the region, specifically the creation and closure of the Tethys Ocean, and the formation of oceanic crust.

The Samail Ophiolite Nappe, formed in a marginal basin above a northward-dipping subduction zone, represents a slice of oceanic lithosphere that was obducted onto the Oman continental margin during the late Cretaceous. This obduction, occurring between 96.5 and 95.5 million years ago, remains a classic case study of how oceanic crust can be displaced and thrust onto continental landmasses. Numerous areas in the Samail ophiolite offer immediate opportunities for geotourism because of the presence of a diverse range of geological phenomena and outcrops including, amongst many, Wadi el Jizzi pillow lava, Wadi Al Abiyad Moho, Maqsad diapir, Somerah layered gabbro, Fanja melt lenses.

As Oman's tourism industry continues to develop, geo-tourism plays a crucial role in promoting sustainable development. The country's unique geological heritage not only attracts geoscientists for research but also offers tourists the chance to experience its breathtaking scenery. However, the growing popularity of these sites has brought new challenges, particularly the need for geo-conservation to protect the integrity of these geological treasures. Ensuring that future generations can study and appreciate Oman's geological wonders underscores the importance of sustainable tourism practices, preserving the nation's natural heritage while promoting its economic growth.