

THE GEOSCIENCE DATA ANALYTICS CENTER— SAUDI ARABIA: PROGRESS AND ACHIEVEMENTS

Inaugurated on August 6, 2023, the Geoscience Data Analytics Center—Saudi Arabia (GDAC-SA) is the first global research and development center dedicated to mineral exploration and its environmental, social, and economic impacts. GDAC-SA utilizes AI for geological data analysis and aims to be a global leader in AI applications for mineral resources and cumulative effects analysis.

GDAC-SA'S ROLE IN HARNESSING UNTAPPED MINERAL RESOURCES

Saudi Arabia is home to approximately \$2.5 trillion of untapped mineral resources. The Geoscience Data Analytics Center—Saudi Arabia (GDAC-SA) plays a pivotal role in the exploration and valuation of these resources.

GDAC-SA's primary mission will be to identify new high-potential mineral targets. Discovering new deposits is one of the most challenging aspects of mining. GDAC-SA is specifically designed to locate these new deposits and provide early-stage environmental assessments to address this.

These efforts will give mining companies bidding on exploration licenses greater confidence in establishing a successful mine and de-risk the process of new discoveries. By doing so, GDAC-SA hopes to play a crucial role in substantially increasing the revenue that Saudi Arabia can generate from exploration licenses and royalties. This approach underscores GDAC-SA's commitment to maximizing the potential of Saudi Arabia's mineral wealth.

GDAC-SA'S PROGRESS, ACHIEVEMENTS, AND NEXT STEPS

GDAC-SA has completed the economic assessment and all Requests for Proposals (RFPs) for the AI Platform,

Scientific Labs, and a new Facility. New national and international Research and Training Institute partners have also been identified. Once GDAC-SA receives final approval, the Commission will release RFPs through Etimad. Further developments will be communicated in due course.

FACILITIES AND IMPACT

GDAC-SA will be powered by an AI/Big Data analytics platform. Once approved, it will feature a state-of-the-art facility, a Research and Training Institute, and key scientific research and innovation labs. It is designed to serve the economic, environmental, and social development needs of Saudi Arabia.

KEY COMPONENTS AND OBJECTIVES

GDAC-SA will focus on four key components: a world-class AI Analytics Center, 3 or 4 high-capacity geoscientific labs, a critical national asset and a focal point for international research, and a dedicated artificial intelligence center. The primary objectives are to support Saudi Arabia in becoming a leading global artificial intelligence center of excellence, diversify its economy by finding new world-class mineral deposits, ensure a strong understanding of the impacts associated with mineral resource extraction, and build world-class geoscientific laboratories.



GDAC-SA ROADMAP

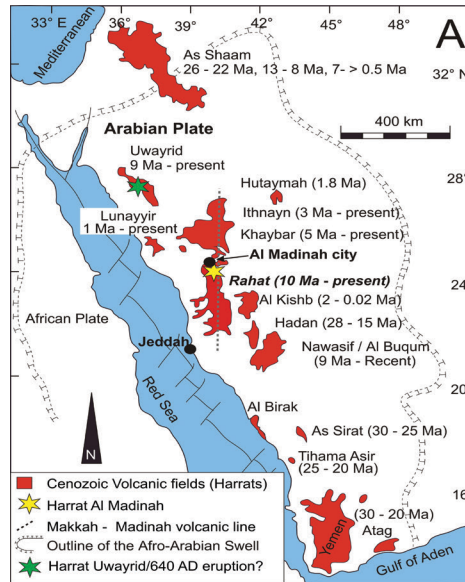
- 2023: GDAC-SA Implementation
- 2024: Cloud platform-geology data transformation
- 2025: Exploration prospectivity
- 2026: GDAC-SA facility opening
- 2027: Earth Science data integration
- 2028: Cumulative effects research

GEOHERITAGE VALUE OF THE VOLCANIC GEOSITES IN SOUTHEASTERN AL MADINAH, KINGDOM OF SAUDI ARABIA

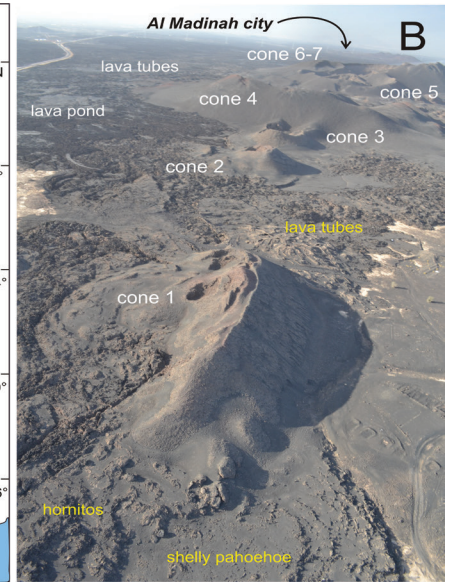
Volcanic geoheritage is an important emerging subject in earth sciences. The Kingdom of Saudi Arabia hosts at least 14 post-Pliocene volcanic fields that are considered intracontinental monogenetic volcanic fields. The abundance of monogenetic fields in the western Arabian Peninsula makes this region a natural laboratory for research on monogenetic volcanism in general. Due to this high scientific value of the volcanic fields of the region, they carry a high geoheritage relevance that has been under investigation in recent years.

This report provides a summary of the geoheritage values of the southeastern area of the Al Madinah region, where the last recorded volcanic eruption took place in the Arabian Peninsula (historic eruption site, recently referred to as Al Labah in the USGS-SGS Geology Map). The region is a typical location, where dry explosive monogenetic volcanism (e.g., scoria and spatter cone formation), ash plain growth, and complex transitional lava flows provide a unique and spectacular landscape that should be protected

and should form the basis of geo-education programs that potentially be included in geopark development. The area also can be linked to recent volcanic eruptions in Iceland, providing a visually attractive and scientifically important location to advance our knowledge on monogenetic volcanism (SGS-TR-2023-4, Németh and others).



Major volcanic fields (harrats) of western Saudi Arabia (modified figure from Moufti and Németh, 2013). The historic site of the 1256 CE fissure eruption that produced a lava flow that is traceable to the modern location of Al Madinah City.



ABU AL WA'AL CAVE: A NEW GEOLOGICAL WONDER IN SAUDI ARABIA

The Saudi Geological Survey (SGS) has announced the discovery of a new geological tourist destination in the volcanic region of Harrat Khaybar, northeast of Al Madinah Province. The destination is a basalt cave extending for about five kilometers, making it the longest in the country.

The cave, named Abu Al Wa'al, was documented by a specialized geological team from the SGS. The name was chosen because of the many ibex skeletons inside the cave. The SGS plans to nominate the cave as a tourist attraction after conducting technical studies and ensuring its safety and accessibility.

The cave is considered a valuable addition to the geopark projects on which the SGS's Geotourism Department is working. These projects aim to promote the geological heritage of Saudi Arabia and attract visitors to its diverse and unique landscapes. The cave will also open new opportunities for scientific research and academic studies in the field of geology.

