

April 6, 2026

News and notes



The Geologist by Carl Spitzweg
Credit: [Carl Spitzweg](#) (1808–1885)
Painting in the [Von der Heydt Museum](#)
[public domain](#)

This week, before going on to discuss the geology and mineral resources of Oman, we will first look at some news items I thought were interesting. If you enjoy my blogs, bookmark the site and check on Mondays rather than relying on social media postings which can get lost in the shuffle. For my news items, I try to stick to open access papers.

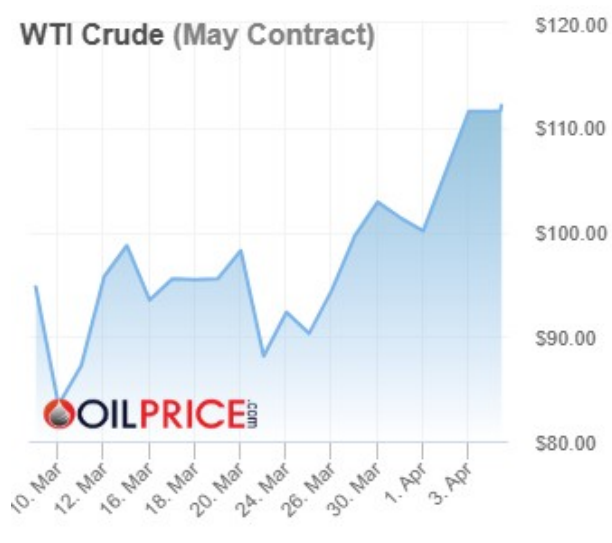
April 5 was [Geologist Day](#), is an official holiday for geologists, geophysicists and geochemists in Russia and other former states of the [Soviet Union](#). Began in 1966, it is marked on the first Sunday in April and coincides with the beginning of field season for some geologists. The painting above was made by [Carl Spitzweg](#) (February 5, 1808 – September 23, 1885), a German romantic painter.

This past week was [Holy Week](#) for Christians, with [Easter falling on April 5](#) this year for those following the [Gregorian Calendar](#) and a week [later on April 12](#) for those following the [Julian Calendar](#). While [Christian peacefully celebrate](#), some use Holy Week to conduct [acts of terrorism against Christians](#).

Comments

If anyone has comments on any of my postings, please leave a comment on the LinkedIn page for the posting or email me at raymondreichelt@gmail.com.

Geopolitics



Iran War

- [CNN latest Iran news and videos.](#)
- Consequences: [It may take a year to restore Abu Dhabi aluminum output, EGA says.](#)
- More consequences: [Iron ore miner Fenix Resources came within days of running out of fuel as Middle East war prompts rethink.](#)

Other Geopolitics

- China and supply chains: [Silicon's Hidden Dependency: Why Gallium and Germanium Expose a Fragile Supply Chain.](#)
- [France pulls last gold held in US for \\$15B gain.](#)
- [Canada's Resource Diplomacy Is Getting Bigger Than Its Population – And Edging Away from America.](#)
- [What Might Transatlantic Security Look Like If The US Leaves NATO?](#)

Research and News

- [Ongoing coverage of the Artemis II mission from NASA.](#)
- [Trapped between layers of lava for 44 million years, an ancient tropical island in the Atlantic is back on the map and puts Brazil in contention for valuable minerals on the seabed.](#)
- [Climate conditions on the South-Iberian Palaeomargin during the latest Pliensbachian to early Toarcian: A mineralogical and geochemical study from hemipelagic deposits.](#)
- [The geochemical and isotopic composition of the Miocene Vestfirðir basalts, Northwest Iceland: Tracking the evolution of the Iceland mantle plume.](#)

- [Cerium isotopic constraints on oceanic redox conditions: Insights from first-principles calculations.](#)
- [Magnesium isotope heterogeneity in oceanic island basalts.](#)
- [Constraints on the Depth of the 400 km Discontinuity Beneath Southern California from Reflections and Conversions.](#)
- [Massive wildfires followed oceanic anoxic events during the Late Devonian Frasnian-Famennian mass extinction.](#)
- [Geochemical Disequilibrium at the Brittle-Ductile Transition.](#)
- [Synthesis of Critical Element-bearing Olivine and Pyroxene.](#)
- [Oxide-coated silicate droplets record three immiscible melts in sulfide-silicate emulsions.](#)
- [High-pressure spectroscopic signatures of the distortion and iron spin transition in Fe-bearing magnesite.](#)
- AI and the Earth's core: [Pressure Dependence of Liquid Iron Viscosity From Machine-Learning Molecular Dynamics.](#)
- [Homogeneous accretion of the Earth in the inner Solar System](#); Phys.org summary [here](#).

Plate Tectonics

- [Autocorrelation-Based Imaging of Crustal Discontinuities Including the Main Himalayan Thrust and Vp/Vs Ratio in the Jammu and Kashmir Himalaya.](#)
- [Progressive sub-arc mantle oxidation modulated by sediment melt.](#)
- [Holocene Normal Faulting in the Southern Rocky Mountain Trench; Orogenic Collapse Modulated by Glacial Unloading?](#)
- [Role of Complex Crustal and Basinal Structures in Onset of an Intracratonic Rift System: An Example From the Onshore Potiguar Basin, Brazilian Equatorial Margin.](#)
- [Widespread Deformation at the Base of the Mantle Linked to Subducted Slabs.](#)
- [Phengite-mediated fluorine and chlorine fluxes from subduction zones to the deep mantle.](#)
- [Deformation and Earthquake Potential on the North America–Caribbean–Cocos Plate Boundary System in Guatemala.](#)
- [The Earth Keeps Making Mountains in Colorado and Scientists Don't Know Why.](#)
- [The Seismic Expression of Core Complex-Style Extensional Detachment Faults in Rifted Margins.](#)

Paleontology

- [Anatomy of a perinatal woolly mammoth \(*Mammuthus primigenius*\) from Niederweningen \(Late Pleistocene\), Switzerland.](#)
- [Biostratigraphy and palaeoenvironments of the Upper Cretaceous fossil fish Konservat-Lagerstätten of Lebanon.](#)
- [How we came to be: Scientists get first look at the evolution of early complex animals.](#)
- [Middle Devonian ichnofossils from Hamar Laghdad \(eastern Anti-Atlas, Morocco\).](#)
- [The reptiles from the Lavergne locality of Phosphorites du Quercy in France show a high taxonomic diversity at the end of the middle Eocene \(MP 16\).](#)
- [A chelicera-bearing arthropod reveals the Cambrian origin of chelicerates; Phys.org summary \[here\]\(#\).](#)
- [The miniature fish *Habroichthys orientalis* \(Su, 1959\) \(Peltopleuriformes\) from the Ladinian Xingyi Fauna \(China\): new data on ontogeny, sexual dimorphism, and CT-scanned otoliths.](#)
- [New euselachian teeth from the Ladinian–Carnian interval of Guizhou and Yunnan Provinces, South China.](#)
- [Rapid mid-Cretaceous diversification of squid and cuttlefish preceded radiation into coastal niches.](#)
- [Campanian and Maastrichtian ammonites from East and North-East Greenland.](#)

Mining and Energy

- [More than 40 trapped underground after strike on coal mine in Russian-controlled Luhansk region.](#)
- [Major US Shale Producer To Boost Output, And It Suggests One Thing.](#)
- [Construction work officially begins on \\$3-billion wind farm northeast of Quebec City.](#)
- [Ore deposit geology: Reactions between carbonatitic melt and syenitic wall rocks drive REE mineralization in the Maoniuping deposit, southwest China.](#)
- [From the US EIA: Quarterly Coal Report.](#)
- [Stampede Drilling is going to wildcat in Greenland – and that’s no joke.](#)
- [Venezuela’s oil exports surpassed 1 million bpd for the first in 6 months, shipping data shows.](#)
- [Nexus Uranium Closes on Seven High-Grade Uranium Targets in America's Most Prolific Breccia Pipe District.](#)
- [Next to Joshua Tree National Park, a mining company is staking its claim for rare earth minerals.](#)

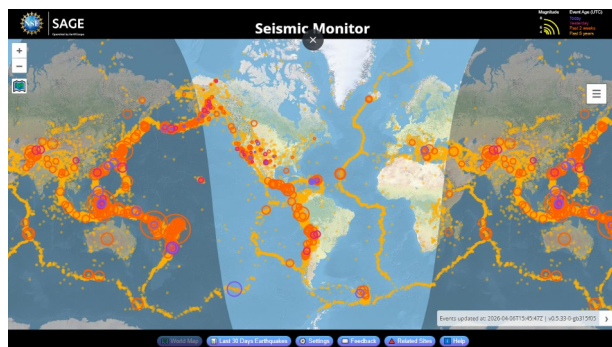
Environmental Geology and Hydrogeology

- Hydrothermal groundwater systems: [Control of lithospheric to crustal fault architecture on Cenozoic Rift geothermal systems \(Upper Rhine, Bresse and Limagne, France\)](#).
- [EPA moves to designate microplastics and pharmaceuticals as contaminants in drinking water](#).
- [Global copper tailings distribution and projection](#).
- [Orange Grove faces a drinking water crisis as local aquifer levels and water quality rapidly decline](#).

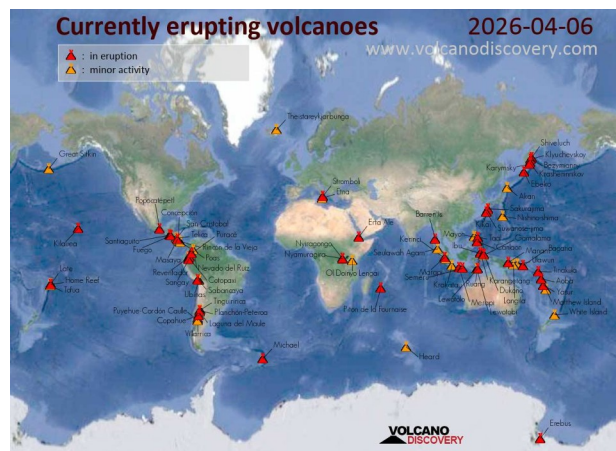
Glaciers and Climate Change

- Lots of recent papers on glaciers in [The Cryosphere](#) from the EGU.
- [Ice-marginal proglacial lakes enhance outlet glacier velocities across Greenland](#); Phys.org summary [here](#).
- [Hydrological Cycle Intensification and Permafrost Thaw Drive Increased Freshwater and Organic Carbon Inputs to Northern Alaska Estuaries](#); Phys.org summary [here](#).
- [Model evidence for distinct origins of glacial–interglacial and millennial signals in Greenland dust](#).
- [A high-resolution icequake catalog from Rutford Ice Stream via an enhanced QuakeMigrate workflow with integrated GrowClust support](#).
- [Vegetation recovery following retrogressive thaw slumps across northern tundra regions](#); Phys.org summary [here](#).
- [Measurement of Gas Fraction and Gas Permeability of Thawing Permafrost Caused by Climate Change](#); Phys.org summary [here](#).

Volcanoes, Earthquakes and Geohazards



[Seismic Monitor](#)



[Active Volcano Map](#)

Volcanoes

- [Smithsonian / USGS Weekly Volcanic Activity Report](#).
- United States Geological Survey (USGS) Volcano Observatories:
 - Yellowstone Caldera Chronicles: [The path of least resistance: Investigating hot spring plumbing systems in Yellowstone using electrical measurements](#).
 - [Cascades Volcano Observatory Weekly Update](#).
 - Volcano Watch – [Adapting to an evolving eruption: revising Kīlauea's Alert Level and Aviation Color Code Notifications](#).
- [NASA Image of the Day, April 2: Réunion Island Lava Reaches the Sea](#).

Earthquakes

- [Euro-Mediterranean Seismological Centre \(EMSC\)](#).
- [Earthquakes Monitoring Live Worldwide](#).
- [Effects of Oscillating Pore Pressure of Fluid Injection on Fault Slip Described by Rate and State Friction](#).
- Alaska Earthquake Center: [2025 Seismicity Year in Review](#).
- [M4.6 earthquake strikes south of Bay Area](#); USGS summary [here](#).
- [Different Radiation Characteristics Between Foreshocks and Aftershocks of the 2016 Mw7.0 Kumamoto Earthquake in Kyushu, Japan: Implication of Pore Pressure, Stress Concentration, and Loading Rate](#).
- [Thermally Activated Static Friction Can Explain Earthquake Interactions](#).
- [M7.4 earthquake in the Molucca Sea](#); USGS summary [here](#).
- [Relocating the Eagle Ford Earthquake Catalog for TexNet with a Regional 1D Velocity Model](#).
- [Only Very Strong Shaking Can Break a Tree](#).
- [M5.0 earthquake strikes north of Tokyo, no tsunami](#).
- [7.3 Magnitude Earthquake Off Luganville: How Vanuatu Responded After the Powerful Tremor](#); USGS summary [here](#).
- [A Rate-and-State Friction Based Criterion for the Probability of Earthquake Fault Jumps](#).

Free Geology Books and Other Stuff

Free geology books can be downloaded from these sites:

- [OreZone Readers and Experts Telegram Channel](#); the Ore Zone channel also shows employment opportunities for geologists.
- [The Groundwater Project](#) has many groundwater geology books for free download together with free online courses, listed [here](#).
- Free [Groundwater Modeling Courses](#) from the HydroGeoCenter.
- From Western Australia: [Carbonatite, lamprophyre and host rocks in the northern Aileron Province](#).
- The Geology of Indonesia: [Volume 1](#) and [Volume 2](#).
- Brett Davis' book on veins in a deforming rock mass: "[The Veining Bible](#)"; also at [this site](#).
- From the Mineralogical Society of America: [Handbook of Mineralogy](#).
- [Systematic geochemical classification of felsic igneous rocks of the Yilgarn Craton](#).
- From the Arizona Geological Survey: [Geochemistry Diagram Generator v 1.0](#).
- Online app: [Australia's full national topographic library at your fingertips](#).

Upcoming Events

- [2025-2026 Howard Street Robinson Lecture Tour, last lecture in Saskatoon April 8, 2026](#).
- [14-15 April 2026: 2026 IAH Ireland Conference – Groundwater 2035, Tullamore, Ireland](#).
- [GAC-MAC 2026 St. John's NL, St. John's Convention Center, May 25-28, 2026](#).
- [PEG2026: 11th International Symposium on Granitic Pegmatites; 16th–19th August 2026, in Perth, Western Australia](#).
- [14-18 September 2026, IAH 2026, 53rd Congress of the International Association of Hydrogeologists; Budapest Congress Center](#).
- [September 30 - October 3, 2026 SEG 2026 Conference Salt Lake City, United States](#).
- [Paleoamerican Odyssey 2026, October 14-17, 2026, Santa Fe Convention Center, Santa Fe, New Mexico](#).
- [12-20 August 2028, Geosciences for Humanity, 38th International Geological Congress, in the BMO Centre, Calgary](#).
- [Society of Petroleum Engineers Distinguished Lecturer Schedule](#).
- [American Geophysical Union List of Upcoming Meetings](#).
- The Geological Society: [Events & Courses](#).
- [Upcoming Distinguished Geoscience Australia Lectures \(DGALs\)](#).

April 6, 2026

Geology and Mineral Resources – Oman

Introduction



Figure 1 - Detailed Political Map of Oman

Credit: [Mapsland](#), [Creative Commons Attribution-Share Alike 3.0 Licence](#)

An [ancient trading nation](#), the [Sultanate of Oman](#) is a country of [3,833,465 people](#) on the east corner of the [Arabian Peninsula](#) together with the [exclaves](#) of [Madha](#) and [Musandam](#). Madha is a settlement within the eastern end of the [United Arab Emirates](#) (UAE) while Musandam lies on the south side of the [Gulf of Hormuz](#). Oman has an area of 315,331 square kilometres and borders on the UAE to the northwest, [Saudi Arabia](#) to the west, and [Yemen](#) to the southwest. To the east are the [Arabian Sea](#) and the [Gulf of Oman](#).

Oman is a moderately wealthy country with a per capita [GDP \(PPP\)](#) of \$42,010 and a very high [Human Development Index](#) of 0.858. While Oman has a relatively diversified economy, it remains dependent on petroleum exports. Besides petroleum production, Oman has a small, but growing, [tourist industry](#), together with an iron processing industry. [Agricultural production](#) is inadequate to feed the country and the country is dependent on food imports. In 2024, [the top exports of Oman](#) were crude and refined petroleum, petroleum gas, nitrogenous fertilizers, and semi-finished iron. The top destinations were China, South Korea, India, Saudi Arabia, and South Africa. In 2024, the top imports of Oman were refined petroleum, cars, iron ore, aluminium oxide, and iron pipes. The top origins were China, India, United States, Japan, and Saudi Arabia.

For more details on the country, check out the [Wikipedia](#) and [Grokopedia](#) articles on the country.

Geology

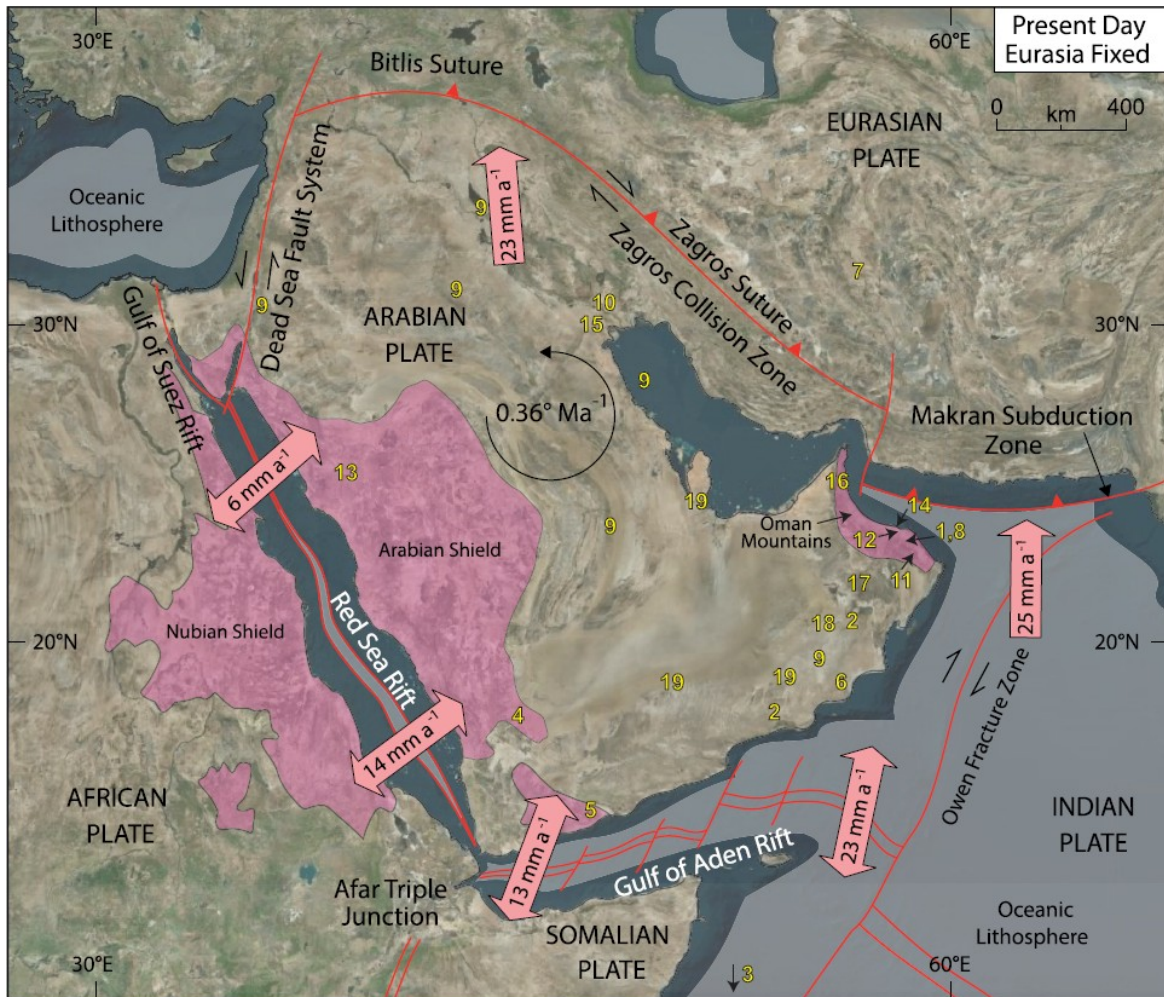


Figure 2 - Present-day Arabian Plate with its Plate Boundaries

Credit: Figure 3 in [Scharf, Al-Kindi, & Racey, 2025](#), © [Geological Society of London](#)

As the AAPG says: “[Oman contains some of the most fascinating and noteworthy geological features to be found anywhere on the planet](#)” and was once part of the ancient [supercontinent of Gondwana](#). Let’s take a look at some of Oman’s geological features.

[Tectonically](#), Oman and the rest of the [Arabian Plate](#) is surrounded by tectonic activity:

- To the west and south are the [oceanic spreading](#) zones of the [Red Sea Rift and the Gulf of Aden Rift](#).
- To the east is the [Owen Fracture Zone](#), to the northeast is the [Makran Subduction Zone](#), and to the north is the [Zagros Collision Zone](#).
- Far to the west, the [Arabian Plate](#) bounds on the [Dead Sea Fault System](#).

As the result of this activity, the Arabian Plate is rotating clockwise into the [Eurasian Plate](#). For Oman, this lead to some interesting geology and promises [future earthquake activity](#).

(a) **LEGEND FOR TYPE AND REFERENCE SECTIONS**

| | | | |
|--|-----------------------------------|--|----------------------------|
| | Limestone | | Conglomerate |
| | Dolomitic limestone | | Diamictite |
| | Oolitic limestone | | Sandstone |
| | Bituminous limestone | | Siltstone |
| | Marl | | Silty shale |
| | Argillaceous limestone | | Shale |
| | Sandy limestone | | Silicilyte/Siliceous shale |
| | Dolomite | | Organic (bituminous) shale |
| | Argillaceous Dolomite | | Saliferous shale |
| | Calcareous dolomite | | Extrusives |
| | Anhydrite | | Basement/Intrusives |
| | Salt | | |
| | Salt with anhydrite beds | | |
| | Salt with clastics ('Dirty' salt) | | |

(b) **OMAN LITHOSTRATIGRAPHY**

| GROUP | LITHO-LOGY | FORMATION | AGE | |
|------------------------------------|---------------|-------------------------------|---------------|----------------------|
| Fars | | Dhulaima | Quaternary | |
| | | Taqa | | |
| Hadhramaut | | <i>Oligocene unconformity</i> | Palaeogene | |
| | | Dammam | | |
| | | Rus | | |
| | | Umm Er Radhuma | | |
| <i>Base Cenozoic unconformity</i> | | | | |
| Aruma | | Simsima | Cretaceous | |
| | | Fiqa | | |
| <i>Turonian unconformity</i> | | | | |
| Wasia | | Natih | | |
| | | Nahr Umr | | |
| Kahmah | | Shu'aiba | | Mesozoic Clastics |
| | | Kharaib | | |
| | | Lekhwair | | |
| | | Habsshan | | |
| | | Salli | | |
| | | Rayda | | |
| <i>Tithonian unconformity</i> | | | | |
| Sahlan | | Jubaila | Jurassic | |
| | | Hanifa | | |
| | | Tuwaig Mountain | | |
| | | Dhurma | | |
| <i>Base Jurassic unconformity</i> | | | | |
| Akhdar | | Minjur | Triassic | |
| | | Jilh | | |
| | | Sudair | | |
| Haushi | | Khuff | Permian | |
| | | Gharif | | |
| | | Al Khlata | | |
| <i>'Hercynian' unconformity</i> | | | | |
| Misfar | | | Carboniferous | |
| <i>Early Devonian unconformity</i> | | | | |
| Haima | Safiq | Sahmah | Silurian | |
| | | Hasirah | | |
| | | Saih Nihayda | | |
| | Andam | Ghudun | Ordovician | |
| | | Barakat | | |
| | | Mabrouk | | |
| Mahatta Humaid | Barik | Cambrian | | |
| | Al Bashair | | | |
| | Miqrat/Mahwis | | | |
| <i>Angudan unconformity</i> | | | | |
| Nimr | | Haradh | Cambrian | |
| | | Karim | | |
| | | Dhahaban | | |
| Ara | | Al Noor | Ediacaran | |
| | | Athel/U | | |
| | | Birba | | |
| <i>Base Ara unconformity</i> | | | | |
| Nafun | | Buah | Ediacaran | |
| | | Shuram | | |
| | | Khufai | | |
| | | Masirah Bay | | |
| Abu Mahara | | Hadash | Cryogenian | |
| | | Ghadir Manqil | | |
| Base-ment | | Intrusive | | |
| | | Metamorphic Basement | | |

Figure 4 – Lithostratigraphy of Oman
Credit: Figure 1(b) in Rollinson, H. R. et al, 2014

Overlying the Huqf deposits are those of the [Haima Supergroup](#), Cambrian, [Ordovician](#) and [Silurian](#) in age. These deposits are mostly clastic sandstones, [siltstones](#) and [shales](#).

Next younger are the sandstones and shales of the [Devonian](#) to [Carboniferous](#) aged [Misfar Group](#). Overlying the Misfar are the sandstones, [limestones](#), and shales of the [Haushi Group](#), Carboniferous to [Permian](#) in age. Overlying these are the Permian and [Triassic](#) aged [Akhdar Group](#).

Going up further into the [Jurassic](#) and [Cretaceous](#) periods we have the [Sahtan](#), [Kahmah](#), [Wasia](#), and [Aruma](#) groups of clastic and carbonate rocks. In the [Paleogene](#) and [Quaternary](#) periods we have the [Hadhramaut](#) and [Fars](#) groups of [dolostone](#), limestone, evaporites and shales.

Three important geological features for the economic geology of Oman are the [South Oman Salt Basin](#), the [Ghaba Salt Basin and the Fahud Salt Basin](#). Other interesting geological units in Oman include the [Early Triassic](#) to Cretaceous aged [Hawasina Complex](#), and the Cretaceous aged [Oman Ophiolite Complex](#).

Also called the [Samail Ophiolite](#), the [Oman Ophiolite Complex](#) is among the most interesting geology in the country and has been the subject of many papers including:

- Pearce, J. A., *et al.*, 1981, *The Oman Ophiolite as a Cretaceous Arc-Basin Complex: Evidence and Implications*, Philosophical Transactions of the Royal Society of London. Series A, Mathematical and Physical Sciences, vol. 300, no. 1454, 1981, pp. 299–317. JSTOR, <http://www.jstor.org/stable/36753>
- Searle, M. P. and J. Cox, 1999, *Tectonic setting, origin, and obduction of the Oman ophiolite*, Geological Society of America Bulletin 111(1), [https://doi.org/10.1130/0016-7606\(1999\)111%3C0104:TSOAOO%3E2.3.CO;2](https://doi.org/10.1130/0016-7606(1999)111%3C0104:TSOAOO%3E2.3.CO;2)
- Searle, M. P., *et al.*, 2015, *Structure and metamorphism beneath the obducting Oman ophiolite: Evidence from the Bani Hamid granulites, northern Oman mountains*, Geosphere (2015) 11 (6): 1812–1836., <https://doi.org/10.1130/GES01199.1>
- Grobe, A., *et al.*, 2019, *Tectono-thermal evolution of Oman's Mesozoic passive continental margin under the obducting Semail Ophiolite: a case study of Jebel Akhdar, Oman*, Solid Earth, 10, 149–175, <https://doi.org/10.5194/se-10-149-2019>
- Belgrano, T. M., *et al.*, 2019, *A revised map of volcanic units in the Oman ophiolite: insights into the architecture of an oceanic proto-arc volcanic sequence*, Solid Earth, 10, 1181–1217, <https://doi.org/10.5194/se-10-1181-2019>
- Najafi, M. *et al.*, 2026. *Central Oman subduction-driven obduction and mountain building: Kinematic modeling from Mid-Cretaceous through balanced and restored cross-sections*, Earth-Science Reviews, 274, 2026, 105391, <https://doi.org/10.1016/j.earscirev.2026.105391>

This summary of the geology of Oman is necessarily simplified. If you want to go down the rabbit holes of the country's geology, follow the links cited above. You could also start with these references:

- Robertson, A. and, 1990, *The Geology and Tectonics of the Oman Region*, Geological Society, London, Special Publications, Volume 49, <https://epdf.pub/the-geology-and-tectonics-of-the-oman-region-geological-society-special-publicat.html>
- Rollinson, H. R. *et al*, 2014, *Tectonic evolution of the Oman Mountains: an introduction*, Geological Society, London, Special Publications, Volume 392, Pages 1 – 7, <https://doi.org/10.1144/SP392.1>
- Searle, M., 2019, *Geology of the Oman Mountains, Eastern Arabia*, Springer Cham., <https://doi.org/10.1007/978-3-030-18453-7>

Paleontology

Given its long geological history, Oman has some interesting [palaeontological discoveries](#), here are a few:

Arsinoitherium

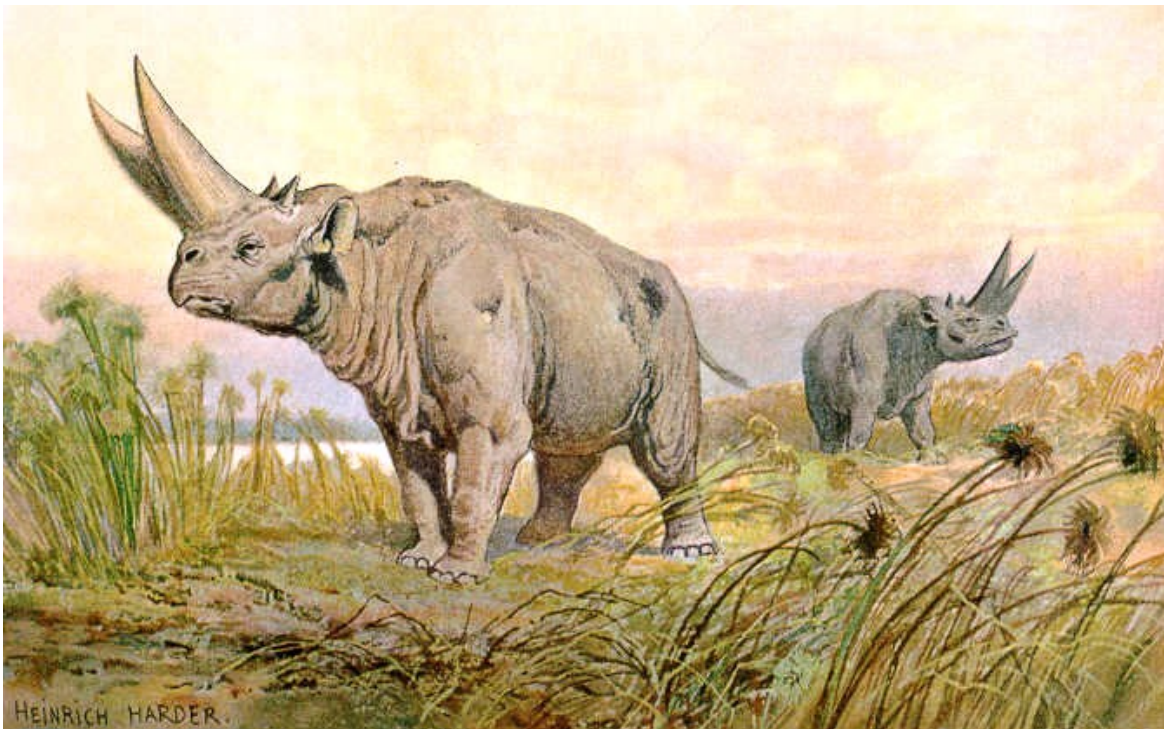


Figure 5 – *Arsinoitherium*

Credit: [Heinrich Harder](#) (1858-1935), public domain

Named after Egyptian Pharaoh [Arsinoe II](#), *Arsinoitherium* was a genus of [paenungulate](#) mammals belonging to the extinct order [Embrithopoda](#); it is thought to be related to modern [elephants](#), [sirenians](#), and [hyraxes](#). Superficially resembling a rhinoceros, lived during the [Late Eocene](#) and the [Early Oligocene](#) of North Africa and Arabia from 36 to 30 million years ago (Mya). The geology of the fossil deposits suggest suggest that they lived in areas of tropical rainforest and at the margin of mangrove swamps

Arsinoitherium was found in [Dhofar, southern Oman](#), in the [Eocene](#) aged [Aydim Formation](#), and in [Oligocene](#) aged [Ashawq Formation](#).

Glossopteris

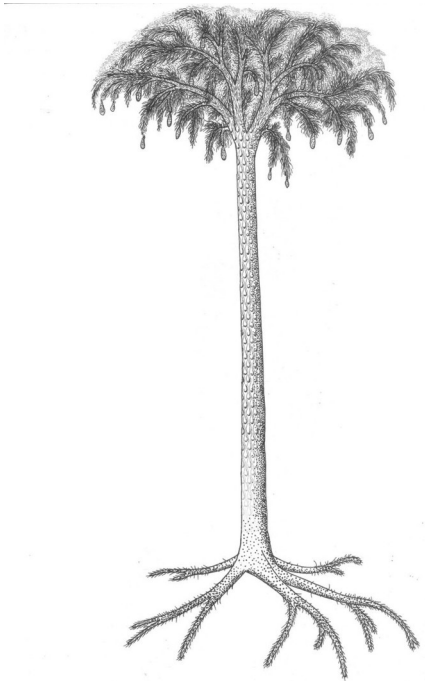


Glossopteris was a genus of gymnosperm plant that lived during the Permian Period throughout the ancient supercontinent of Gondwana generally favouring swampy environments. In Oman, Glossopteris fossils were found in the Gharif Formation, part of the Haushi Group. Glossopteris is thought to have been one of the casualties of the End Permian Extinction.

Figure 6 – Glossopteris

Credit: Daderot, Creative Commons CC0 1.0 Universal Public Domain Dedication

Lepidodendron



Another swamp plant that lived in Gondwana was Lepidodendron. This was a genus of primitive lycopodian vascular plants that belonged to the order Lepidodendrales. Lepidodendron lived during the Pennsylvanian Epoch of the Carboniferous Period.

Figure 7 – Life Reconstruction of Lepidodendron

Credit: Falconaumanni, Creative Commons Attribution-Share Alike 3.0 Unported license

Sacabambaspis

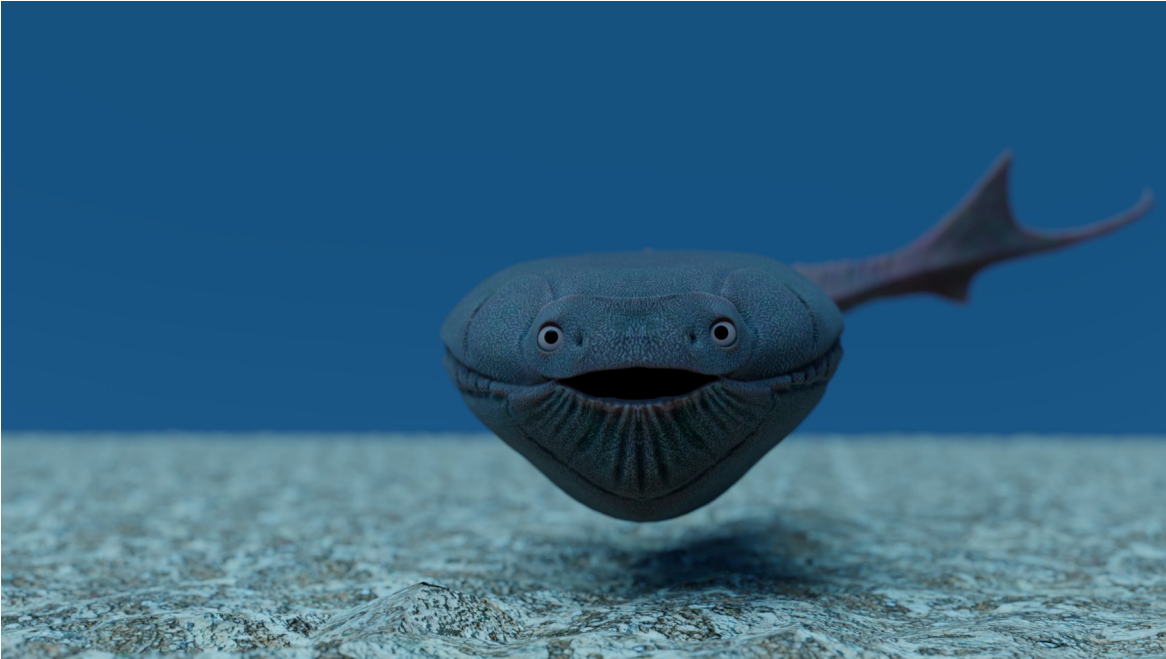


Figure 8 – Reconstruction of *Sacabambaspis*

Credit: [Petr Menshikov](#), [Creative Commons Attribution-Share Alike 4.0 International](#) license

Sacabambaspis was a genus of [armored jawless fish](#) which lived in the Ordovician period. It lived in the shallow waters on the [continental margins](#) of the ancient supercontinent Gondwana. [Sacabambaspis](#) fossils [were found](#) in the [Amdeh Formation](#).

Mineral Resources



Figure 9 – Pump Jack in Oman

Credit: [Bernhard Dunst](#), [Creative Commons Attribution-Share Alike 4.0 International](#) license

According to the most recent [USGS Minerals Yearbook on Oman](#), the mineral industry of Oman includes the extraction of metallic minerals, industrial minerals and fuel minerals – especially oil and gas. The most recent statistics on mineral production in Oman from the USGS are [here](#). AZO Mining has a summary of Oman [here](#).

Metallic Minerals

[Chromite](#) and [manganese](#) are the main metallic minerals mined in Oman. Other minerals, such as aluminum, antimony, and gold are processed in Oman, but not from ores mined in the country.

- Chromite is mined from deposits in the [Semail Ophiolite](#) at: [Al Ram and Wadi Rajmi Mines](#), near [Muscat](#); the [Wadi Mahram Mine](#) and quarry at [Samail](#), south of Muscat; and from mines near [Sohar](#).
- Manganese is mined at mines operated by [Al Jood Natural Resources LLC](#), and [Al Tamman Trading Establishment LLC](#).

Minerals Development Oman SAOC

One major player in mineral extraction in Oman is the [Minerals Development Oman SAOC](#). Their projects include:

- The Mazoon Mining copper mining project, scheduled to begin production on 2026
- The Wafra Mining project to quarry limestone.
- The [Naqa Salt Project](#).
- Aggregates from the Duqm Quarries.
- [Gabbro](#) from the Ahjaar Mining project.
- A titanium dioxide manufacturing facility in Sohar Free Zone.
- Silica sand from the Al Wusta Mining project.

Industrial Minerals

Production of industrial minerals in Oman includes materials for construction plus a few others.

- Cement is produced at four plants in Oman.
- [Kaolin](#) clay is [mined from quarries](#) in [Al Wusta Governorate](#); kaolin deposits also [occur on Masirah Island](#).
- Limestone, marble and aggregates from various quarries
- Methanol, nitrogen fertilizer, sulphur and sulphuric acid as byproducts of oil and natural gas production.

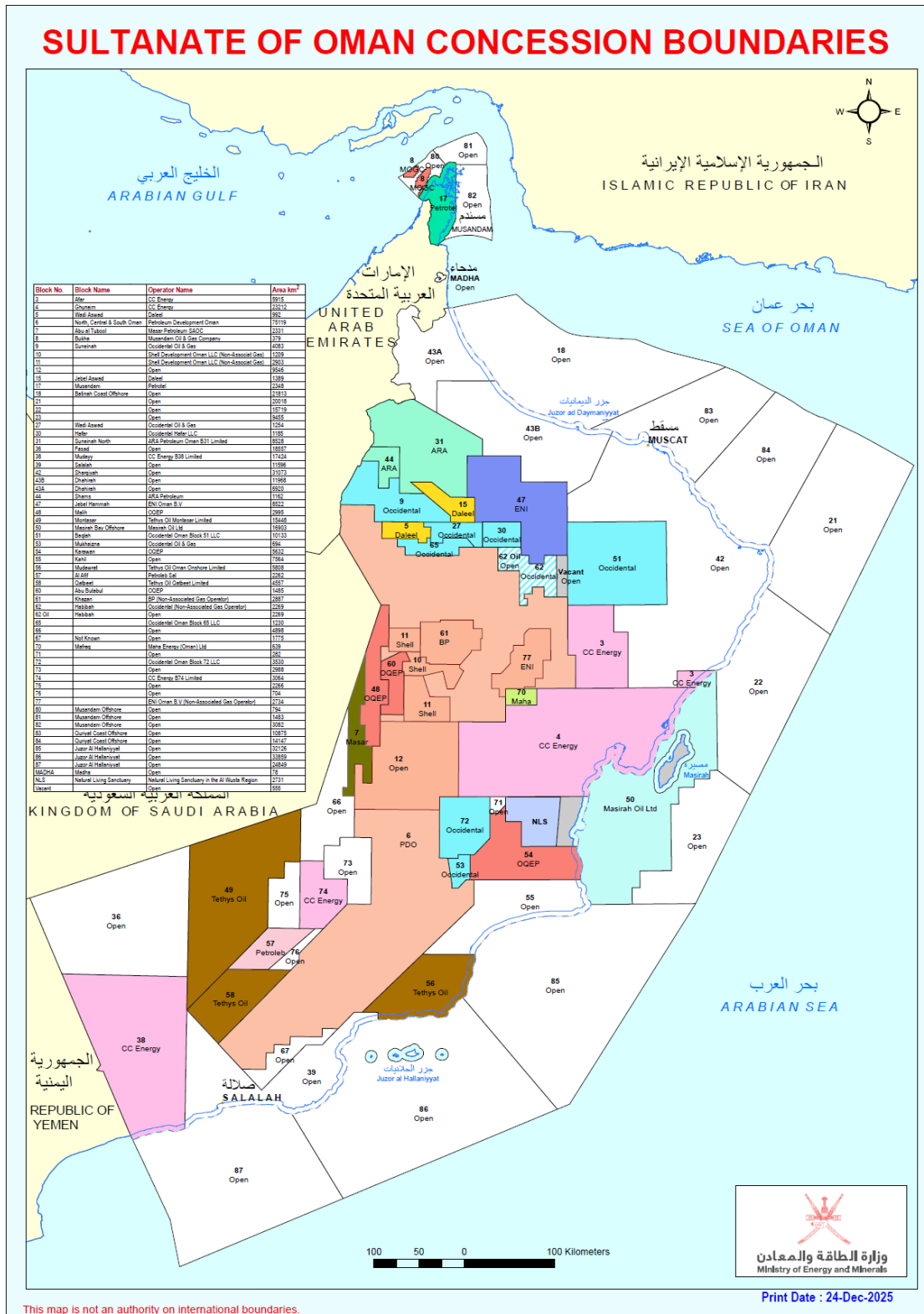


Figure 10 – Oil and Gas Concession Map, Oman
Credit: Sultanate of Oman

Figure 3, above, shows the location of petroleum and natural gas fields in Oman while Figure 10 shows the locations of oil and gas concessions. [Oman produces 1,001,970 barrels per day of oil \(as of 2024\) ranking #19 in the world](#) and [1,335,613 million cubic feet \(MMcf\) of natural gas per year \(as of 2015\) ranking #27 in the world](#).

Figure 11 shows an interactive mineral occurrence map from [Mindat.org](#).

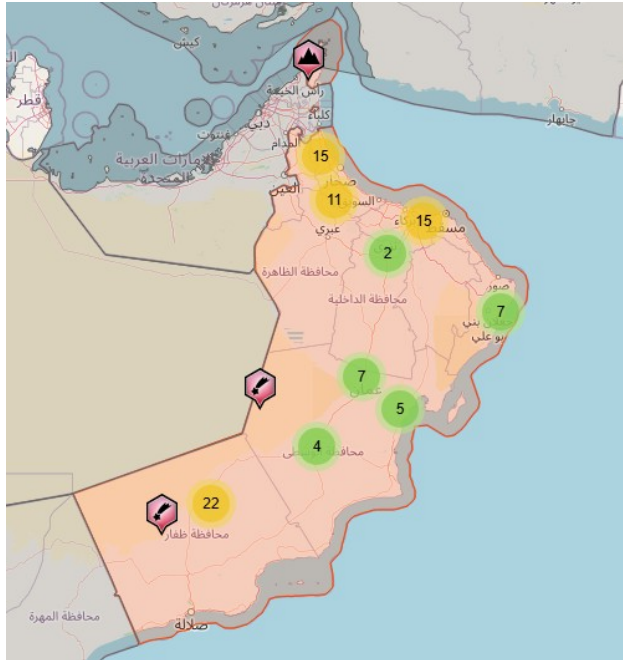


Figure 11 – Mineral Occurrence Map, Oman
Credit: [Mindat.org](#)

Summary



Figure 12 – Late Afternoon At The Beach
Credit: [Francisco Anzola](#), [Creative Commons Attribution-Share Alike 3.0 Unported](#) license

If it weren't for the war going on next door (see Geopolitics, above), Oman would probably be a [pleasant place to visit](#). For tourism, it might be best to wait till the current unpleasantness is over. For mineral exploration, Oman offers many opportunities and the Omani government is [encouraging mineral exploration](#). There will also likely be [future petroleum exploration opportunities](#).

Standard Caveat

J. Robert Oppenheimer on freedom and scientific inquiry

The purpose of my weblog postings is to spark people's curiosity in geology. Don't entirely believe me until you've done your own research and checked the evidence. If I have sparked your curiosity in the subject of this posting, follow up with some of the links provided here. If you want to, go out into the field and examine some rocks on your own with the help of a good field guide. Follow the evidence and make up your own mind.

In science, the only authority is the evidence.