

April 24, 2023

News and notes

Before going on to discuss how geology has affected the fate of [Albania](#), here are some news items I thought were interesting.

Research

- Sedimentology: [Quantifying climate conditions for the formation of coals and evaporites](#); Phys.org summary [here](#).
- More sedimentology: [Soft-sediment deformation structures of mottled clay in Huizhou Quaternary basin, coastal South China](#).
- Coastal geology and stable isotope analysis: [Late Holocene Cliff Retreat in Del Mar, CA, Revealed From Shore Platform ¹⁰Be Concentrations and Numerical Modeling](#); Phys.org summary [here](#).
- More stable isotope analysis: [Oxygen isotopic composition of Paleoproterozoic seawater revealed by clumped isotope analysis of dolomite, Vempalle Formation, Cuddapah, India](#); Phys.org summary [here](#).
- Geologic history: [Development of a Cambrian back-arc basin in the North Qilian orogenic belt: New constraints from gabbros in Yushigou ophiolite](#).
- Plate tectonics and geologic history: [Discovery of a giant 3.3–3.1 Ga terrane in the Rae craton, Canada: Implications for the timing and extent of ancient continental growth](#).
- Gondwana: [Outboard Onset of Ross Orogen Magmatism and Subsequent Igneous and Metamorphic Cooling Linked to Slab Rollback during Late-Stage Gondwana Assembly](#).
- More plate tectonics: [Subduction initiation triggered the Caribbean large igneous province](#); Science Daily summary [here](#).
- Weathering: [Geodynamic oxidation of Archean terrestrial surfaces](#).
- [How soils changed life on Earth](#).

Paleontology

- [Symbiosis between Cretaceous dinosaurs and feather-feeding beetles](#); Phys.org summary [here](#).
- [Three-dimensional anatomy of the Tully monster casts doubt on its presumed vertebrate affinities](#); Phys.org summary [here](#).
- [Fossil evidence of tylosis formation in Late Devonian plants](#); Eureka Alert summary [here](#).
- Pleisiosaur evolution: [Recognising and quantifying the evolution of skeletal paedomorphosis in Plesiosauria](#).

- [T. Rex Skeleton Sells for More Than \\$5 Million at Auction.](#)
- More on *T. Rex*: [Vital statistics, absolute abundance and preservation rate of *Tyrannosaurus rex*.](#)

Environmental Geology and Hydrogeology

- Remediation: [Deep anoxic aquifers could act as sinks for uranium through microbial-assisted mineral trapping](#); Phys.org summary [here](#).
- [Canadians Enjoy High Levels of Environmental Quality Relative to Other High-Income Countries.](#)
- PCB's: [Organic matter degradation causes enrichment of organic pollutants in hadal sediments](#); Phys.org summary [here](#).
- [Relations between personal exposure to elevated concentrations of arsenic in water and soil and blood arsenic levels amongst people living in rural areas in Limpopo, South Africa.](#)

Glaciers and Climate Change

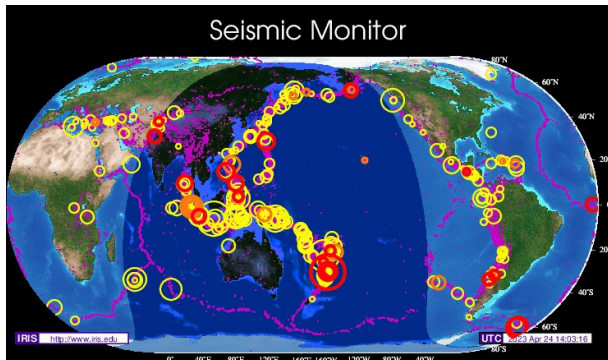
- [Mass balance of the Greenland and Antarctic ice sheets from 1992 to 2020](#); Phys.org summary [here](#).

Energy and Mining

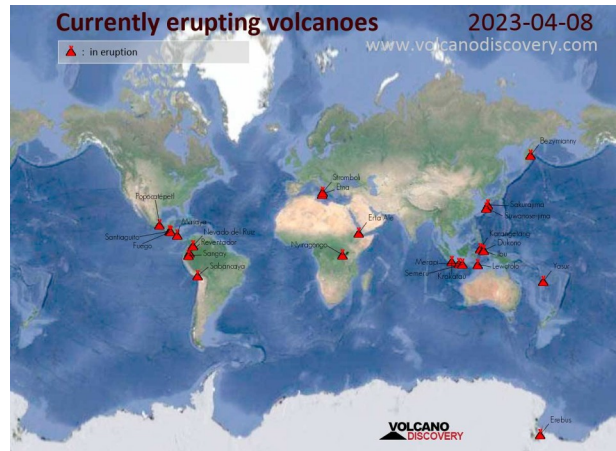
- Price fluctuations: [Oil Heads for Weekly Loss on Economic Uncertainty.](#)
- From the United States Energy Information Administration: [Petroleum production in Mexico stabilizes after years of decline.](#)
- Drilling research: [Application and discussion of the borehole radial deformation method in deep borehole geostress measurement.](#)
- Gas reservoirs: [Research of influencing factors on permeability for carbonate rocks based on LBM simulation: A case study of low-permeability gas reservoir of Sinian Dengying Formation in Sichuan Basin.](#)
- [Canadian Government Admits It's Short Tens Of Thousands Of Oil Workers.](#)
- [Global mining footprint mapped from high-resolution satellite imagery.](#)
- [China's Coal Use Set To Rise With Growing EV Demand.](#)
- [Seven dead after coal mine collapse in Colombia.](#)
- [A new method for estimating ore grade based on sample length weighting.](#)
- [Chile to nationalize its lithium industry](#); related: [Top stocks plummet after Chile brings lithium industry under state control.](#)
- [Argentina plans to produce 200,000 tonnes of lithium by 2025.](#)

- [Brazil's path to potash production in the Amazon.](#)

Volcanoes, Earthquakes and Geohazards



[Seismic Monitor](#)



[Active Volcano Map](#)

- [Deadly Volcanic Eruptions Led to Twin Mass Extinctions About 260 Million Years Ago;](#) research paper [here](#).
- Listening to volcanoes: [Volcano Opto-Acoustics: Mapping the Infrasound Wavefield at Yasur Volcano \(Vanuatu\).](#)
- [The ephemeral fumarolic mineralization of the 2021 Tajogaite volcanic eruption \(La Palma, Canary Islands, Spain\).](#)
- [Ridgecrest faults increasingly sensitive to solid Earth tides before earthquakes.](#)
- [When an earthquake strikes, how do Mexico city hospitals respond?](#)
- Earthquakes and fracking: [Extraction influences seismicity at some hydraulic fracturing sites in Ohio.](#)
- Geohazard: [Improved IDW Interpolation Application Using 3D Search Neighborhoods: Borehole Data-Based Seismic Liquefaction Hazard Assessment and Mapping;](#) Phys.org summary [here](#).



[The Great Wave off Kanagawa,](#)
by Katsushika Hokusai, [public domain](#)

- [Puerto Rico tsunami deposit could have come from pre-Columbian megathrust earthquake.](#)
- Tsunami art: [The Enduring Influence of Hokusai's 'Great Wave'.](#)

April 24, 2023

Geology and the Fate of Societies – Albania



Figure 1 – Map of Albania
Credit: [Albania-map-en.svg](#), public domain

This week we'll look at the [Republic of Albania](#) which is located on the [Balkan Peninsula](#) of Europe, east of the Italian "heel". The country has an area of 28,748 km², much of it mountainous. The mountainous terrain has done much to form the history and geopolitical fate of Albania.

About [2.85 million people](#) live in Albania, almost all of whom are ethnic [Albanians](#), making Albania an [ethno-state](#). Albanians are believed to be descended from the ancient [Paleo-Balkanic](#) peoples, a term that includes the ancient [Illyrians](#) and [Thracians](#). For ethno-states, links to past glories are part of the national narrative.

Geology

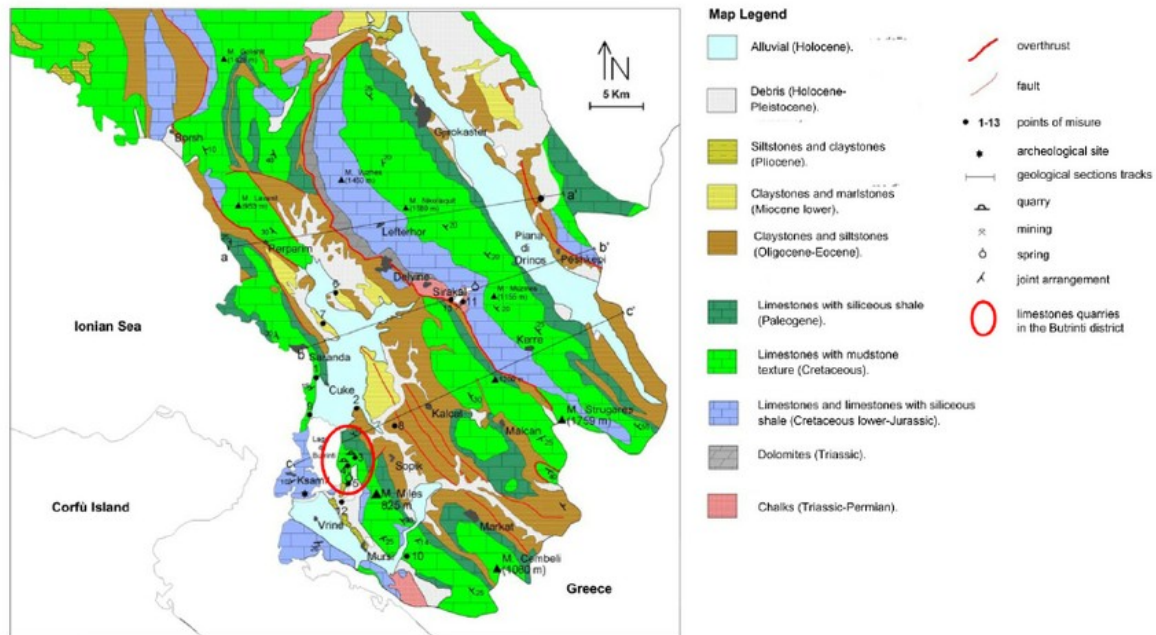


Figure 2 – Geological Map of Albania, after ISPGJ-IGJM 1983
Credit: Figure 2 in [Andriani et al, 2013](#)

The rocks and deposits in the mountains of Albania range in age from [Triassic](#) to [Quaternary](#) and include:

- Quaternary debris and alluvial deposits;
- [Pliocene](#) siltstones and claystones;
- [Miocene](#) claystones and marl;
- [Paleogene](#) claystones and siltstones ([Oligocene](#) to [Eocene](#));
- Limestones ranging in age from Paleogene to [Jurassic](#);
- Triassic aged dolomite; and
- Triassic evaporites.

Except for the Quaternary deposits, the rocks of Albania were laid down in the [Tethys Ocean](#) and thrust up into their present mountains by the [Alpine Orogeny](#). The Albanian mountains are part of the [Dinaric–Albanic–Hellenic arc](#) of the Alpine Orogeny and re divided into the Internal and External [Albanides](#).

Resources

Agriculture

Only about 1/4 of the total land in Albania is suitable for arable agriculture. Important crops include:

- Fruits (apples, olives, grapes, oranges, lemons, apricots, peaches, cherries, figs, sour cherries, plums, and strawberries);
- Vegetables (potatoes, tomatoes, maize, onions, and wheat);
- Sugar beets and traditional medicine plants.

Grapes are especially important. Beef and dairy are also produced together with fish from the Adriatic Sea.

Mineral Resources

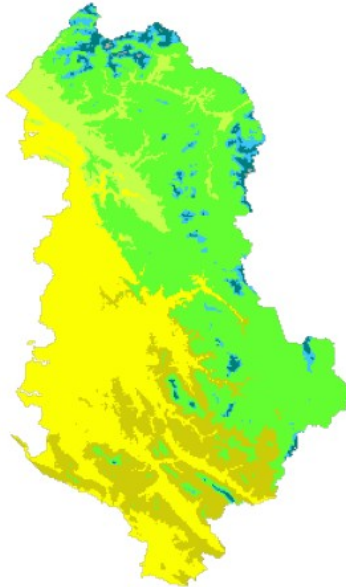
Albanian mineral resources include limestone, gypsum, iron, coal chromium gold, oil and natural gas. Important mines include:

- The [Bulqizë](#), [Batra](#), and the [Thekna](#) chromium mines; and
- The [Perlat Copper-Gold-Silver-Cobalt mine](#).

[Oil and gas deposits in Albania](#) include one of the largest on-shore oil fields in Europe, the [Patos-Marinëz](#) field. [Worldometer](#) estimates Albanian oil reserves are at 168,332,000 barrels of proven oil reserves as of 2016 with annual production of 22,818 barrels.

Climate

Köppen climate types of Albania



The climate of Albania ranges from hot Mediterranean climate on the coast to almost arctic and subarctic in the high mountains. Generally, the further from the Adriatic Sea and higher up the mountains, the colder the climate will be. There are seven climate zone in Albania:

- By the coast: (Csa), dry and hot summer temperate Mediterranean climate.
- Further inland: (Csb), dry and warm summer temperate Mediterranean climate.
- Further inland still: (Cfa), hot, humid, temperate climate and (Cfb) warm, humid temperate climate.
- In the high mountains: continental (Dfb), subarctic (Dfc) and tundra (ET) climate.

Köppen climate type

■ Csa (Hot-summer mediterranean)	■ Dfb (Warm-summer humid continental)
■ Csb (Warm-summer mediterranean)	■ Dfc (Subarctic)
■ Cfa (Humid subtropical)	■ ET (Tundra)
■ Cfb (Oceanic)	

*Isotherm used to separate temperate (C) and continental (D) climates is 5°C.
Data source: climate types calculated from data from WorldClim.org

Figure 3 – Köppen Climate Zones in Albania

Credit: [Adam Peterson](#),

[Creative Commons Attribution-Share Alike 4.0 International license](#)

Geopolitics and History



Figure 4 – World War II monument near Kardhiq, Albania

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

The basic observation on the geopolitics and history of Albania is that it illustrates the perils of a small country surrounded by larger, greedy neighbours. For now Albania is independent; the future remains to be seen.

[Albania](#) has, in the past been part of larger empires such as the [Roman Empire](#) during antiquity and the [Ottoman Empire](#) during medieval and modern times. In more recent years, Albania acquired independence from the Ottomans in 1912. However from 1939 until 1943, [Fascist Italy](#) occupied the country. After World War II, Albania became a Communist country, sometimes aligned with the Soviet Union and sometimes in [paranoid isolation](#). Since 1992, [non-communist parties](#) have ruled the country in a democratic fashion.

One artifact from Albanian history is the presence of large numbers of ethnic Albanians in the formerly Serbian province of [Kosovo](#). The situation is complicated. Serbia considers Kosovo and inseparable part of their country due to history such as the [Battle of Kosovo](#). However, the majority population of Kosovo is ethnic Albanian. As the result of struggles during the late 20th and early 21st Centuries, Kosovo now

considers itself an [independent republic](#), a situation that is at odds with Serbian claims. This problem is unlikely to be resolved peacefully or anytime soon.

So there is the quick look at Albania. Follow up on the links for more information if that interests you.

Standard Caveat

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.