

February 5, 2024



Credit: Klinaklini Glacier, [NASA Earth Observatory](#), [public domain](#)

News and notes

This proving to be a busy week, so I will only be showing some news items that I thought were interesting.

Geopolitics

- Either a warning or a prediction: [The Geopolitics of World War III](#).
- [Hedge Fund Manager Claims Oil Markets Are Ignoring Geopolitical Risk](#).
- [Pentagon plans AI-based program to estimate prices for critical minerals](#).

Research

- From the New Mexico Bureau of Mines: A new issue of NM Earth Matters is available for [free download](#).
- Mineralogy and tin isotope geochemistry: [Equilibrium Sn isotope fractionation between aqueous Sn and Sn-bearing minerals: Constrained by first-principles calculations](#).
- Crystallography: [The intrinsic twinning and enigmatic twisting of aragonite crystals](#).

- An [Earth Shattering](#) Kaboom: [The Hopewell Cosmic Airburst Event: A review of the empirical evidence.](#)

Geochemistry

- Geochemistry of volcanic glass: [Short-range order and chemical compositions of glasses along the basaltic-rhyolite sub-alkaline join by Raman and FTIR spectroscopies.](#)
- Geochemistry: [Strontium isotope dating influenced by Rubidium contamination from terrestrial material: A case study from the Cenozoic dolomite in the Xisha Islands, South China Sea.](#)

Plate Tectonics

- [Time-dependent modeling of slow-slip events along the Nankai Trough subduction zone, Japan, within the 2018–2023 period.](#)
- [Geomagnetic paleointensity dating of mid-ocean ridge basalts from the neo-volcanic zone of the Central Indian Ridge.](#)
- [Geomorphology of the Makgadikgadi Basin \(Botswana\): Insight Into the Propagation of the East African Rift System.](#)
- Plate tectonics and mineralogy: [A pressure solution flow law for the seismogenic zone: Application to Cascadia](#); Phys.org summary [here](#).
- Ungava Orogen: [No longer an arc: The Parent Group, a newly recognized component of the 1.88 Ga Circum-Superior large igneous province, Quebec, Canada.](#)
- [Archaean continental crust formed from mafic cumulates](#); Phys.org summary [here](#).

Geophysics

- New Zealand: [New maps reveal Lake Rotorua's hidden depths](#); Live Science summary [here](#).
- Brazil: [Red clays indicate sub-aerial exposure of the Rio Grande Rise during the Eocene volcanic episode](#); Phys.org summary [here](#).
- Isostatic rebound: [Vertical Land Motion Due To Present-Day Ice Loss From Greenland's and Canada's Peripheral Glaciers](#); Phys.org summary [here](#).
- [Subsurface geology detection from application of the gravity-related dimensionality constraint.](#)

Sedimentology

- [Eocene monsoon climate expansion in East Asia: Evidence from orbital-cycle driven terrestrial successions in the Jiangnan Basin, Central China.](#)
- [Co-precipitation of primary dolomite and Mg-rich clays in Deep Springs Lake, California.](#)
- [Quaternary cliff-top and last glacial maximum dunes around the Great Australian Bight.](#)

Paleontology

- Here kitty, kitty: [Unraveling the diversity of early felines: a new genus of Felinae \(Carnivora, Felidae\) from the Middle Miocene of Madrid \(Spain\)](#); Newsweek summary [here](#).
- [A new gigantic titanosaurian sauropod from the early Late Cretaceous of Patagonia \(Neuquén Province, Argentina\)](#); Sci News summary [here](#).
- [First 3D reconstruction of a forewing of a fossil Orthoptera: Interpreting the venation pattern in the smallest known cricket with a stridulatory apparatus, †*Picogryllus carentonensis* \(Orthoptera, Grylloidea, Oecanthidae\)](#).
- [Enigmatic fossil plants with three-dimensional, arborescent-growth architecture from the earliest Carboniferous of New Brunswick Canada](#); Phys.org summary [here](#).
- Fossil plankton: [Nannofossil imprints across the Paleocene-Eocene thermal maximum](#).
- Fossilization: [Resolving taphonomic and preparation biases in silicified faunas through paired acid residues and X-ray microscopy](#).

Mining and Energy

- Geology of porphyry ore deposits: [Copper sulfide deposition and remobilisation triggered by non-magmatic fluid incursion in the single-intrusion Tongchang porphyry system, SE China](#).
- Geology of gold deposits: [Radiometric characteristics of some metallic ores and nonmetallic deposits: an example, Wadi Al-Allaqi, South Eastern Desert, Egypt](#).
- [Third mine disaster in a decade tests ESG boundaries in Brazil](#).
- [Nunavut grants White Cliff exploration permit for copper project](#).
- [Baselode Energy Provides 2024 Exploration Plans for Athabasca Basin Area Uranium Projects](#).
- [Lithium in SK, Part 26: Enter the big boys: 70-year-old Denison Mines buys into Grounded Lithium's Kindersley project](#).
- [The "Pause" on LNG Permitting: Another Manifestation of "Elite" Hatred of Humanity, and a Monument to Stupidity](#).
- [Shale Boom Fuels Third Year of Record U.S. Gas Output](#).
- [Oil Majors Gear Up for Groundbreaking 2024 Drilling Campaigns](#); but for now: [US Oil, Gas Drillers Take Their Foot Off The Gas](#).
- [Nigeria's Oil Industry Expansion Threatened By Oil Major Exodus](#).
- [SaskPower and GE Hitachi advance small modular reactor plans, but won't say how many, or how much they'll cost just yet](#).

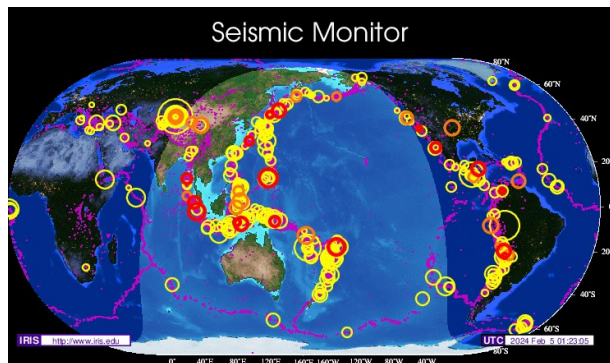
Environmental Geology and Hydrogeology

- Banning persistent contaminants: New Zealand [Environmental Protection Authority bans PFAS in cosmetic products, NZ one of the first countries globally to do so.](#)
- [Sedimentary records of contaminant inputs in Frobisher Bay, Nunavut](#); Phys.org summary [here](#).
- [Ecological footprint in the OECD countries: do energy efficiency and renewable energy matter?](#)

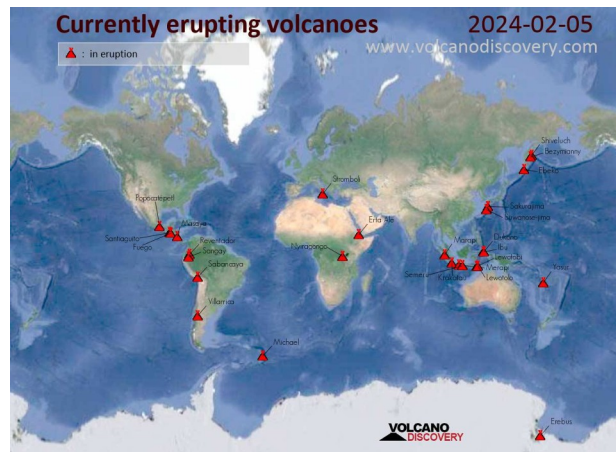
Glaciers and Climate Change

- [Underwater unmanned vehicle missing under Doomsday Glacier.](#)
- [Calving front positions for 19 key glaciers of the Antarctic Peninsula: a sub-seasonal record from 2013 to 2023 based on a deep learning application to Landsat multispectral imagery.](#)
- Periglacial landscape: [Permafrost extent sets drainage density in the Arctic.](#)
- [Increasing prevalence of hot drought across western North America since the 16th century](#); Phys.org summary [here](#).
- [Improved atmospheric constraints on Southern Ocean CO2 exchange.](#)

Volcanoes, Earthquakes and Geohazards



[Seismic Monitor](#)



[Active Volcano Map](#)

- United States Geological Survey (USGS) [Volcano Watch: Mauna Loa 2022: a retrospective on the early hours of the eruption.](#)
- USGS Yellowstone Volcano Observatory: [Seasonal ground motion in Yellowstone.](#)
- [Smithsonian / USGS Weekly Volcanic Activity Report.](#)
- [Euro-Mediterranean Seismological Centre.](#)
- Iceland: [Magma could be brewing under a lava field close to the capital.](#)

- Volcano research: [Monitoring volcanic activity with distributed acoustic sensing using the Tongan seafloor telecommunications cable.](#)
- More volcano research: [Reliability of Raman analyses of CO₂-rich fluid inclusions as a geobarometer at Kīlauea.](#)
- [Noto earthquake](#) research: [Shear wave splitting and seismic velocity structure in the focal area of the earthquake swarm and their relation with earthquake swarm activity in the Noto Peninsula, central Japan.](#)
- [M5.2 earthquake strikes near Malatya, Türkiye](#); Euro-Mediterranean Seismological Centre summary [here](#).
- [M5.1 earthquake in Oklahoma felt more than 500 km away](#); USGS summary [here](#).
- Earthquake research: [Paleoseismology of the Sawtooth Fault and Implications for Fault Behavior in the Epicentral Region of the 2020 Mw 6.5 Stanley, Idaho, Earthquake.](#)

Upcoming Events



- [GAC-MAC-PEG 2024](#) in Brandon Manitoba, May 19-22, 2024. Registration will open on February 1, 2024: lower registration fees will be applied to those who register before April 7, 2024.

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.