

July 31, 2023

News and notes



International Peace Garden, North Dakota-Manitoba Border
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For today and the following three weeks, I'll be blogging lightly. It's summertime and we will be on vacation for a couple of weeks starting next weekend. The next regular blog on geology and geopolitics will be August 28. The photo above from the [International Peace Garden](#) south of [Boissevain, Manitoba](#).

Meanwhile, here are a few news items that I thought were interesting.

Research

- [Earth's evolving geodynamic regime recorded by titanium isotopes](#); Phys.org summary [here](#).
- [Himalayan magnesite records abrupt cyanobacterial growth that plausibly triggered the Neoproterozoic Oxygenation Event](#); behind a paywall, Phys.org summary [here](#).
- Fluvial geology: [Predicting Streamflow Elasticity Based on Percolation Theory and Ecological Optimality](#); Phys.org summary [here](#).
- Coastal geology: [Rip currents are dangerous for swimmers but also ecologically important – here's how scientists are working to understand these 'rivers of the sea'](#).

- More coastal geology: [Spatial and temporal variations of geochemical processes and toxicity of water, sediments, and suspended solids in Sibuti River Estuary, NW Borneo](#).
- Italy: [The Coastal Areas of the Bay of Naples: The Sedimentary Dynamics and Geological Evolution of the Naples Canyons](#).
- Gondwanaland: [U-Pb Zircon Geochronology of Detrital and Ash Fall Deposits of the Southern Paraná Basin: A Contribution for Provenance, Tectonic Evolution, and the Paleogeography of the SW Gondwana](#).
- Multidisciplinary studies: [Combining social sciences, geoscience and archaeology to understand societal collapse](#).

Plate Tectonics

- [Earth's evolving geodynamic regime recorded by titanium isotopes](#); Phys.org summary [here](#).
- [Evidence of crustal growth during the Svecofennian orogeny: New isotopic data from the central parts of the Paleoproterozoic Central Finland Granitoid Complex](#).

Paleontology

- From Ars Technica: [Dinosaurs and the evolution of breathing through bones](#); research papers [here](#) and [here](#).
- Pleistocene fauna and islands: [Geological history of the land area between Okinawa Jima and Miyako Jima of the Ryukyu Islands, Japan, and its phylogeographical significance for the terrestrial organisms of these and adjacent islands](#); Phys.org summary [here](#).
- [The earliest-diverging avemetatarsalian: a new osteoderm-bearing taxon from the Triassic \(? Earliest Late Triassic\) of Madagascar and the composition of avemetatarsalian assemblages prior to the radiation of dinosaurs](#); Phys.org summary [here](#).
- [Preservational modes of some ichthyosaur soft tissues \(Reptilia, Ichthyopterygia\) from the Jurassic Posidonia Shale of Germany](#).
- Evolution: [An ancient arms race has helped insects gain resistance to pesticides, again and again](#).

Energy and Mining

- [Lawsuit says US environmental agency ignores harm of biofuel production](#).
- [How clean is the nickel and lithium in a battery?](#)
- From the United States Energy Information Administration (USEIA): [Refinery capacity increased slightly for the first time since the COVID-19 pandemic](#).
- Steps to nuclear fuel reprocessing: [Gamma Radiation-Induced Degradation of Acetohydroxamic Acid \(AHA\) in Aqueous Nitrate and Nitric Acid Solutions Evaluated by Multiscale Modelling](#); Phys.org summary [here](#).

- Ore deposit geology: [Age constraints on c. 1.9 Ga volcanism, basin evolution and mineralization at the world-class Zinkgruvan Zn-Pb-Ag\(-Cu\) deposit, Bergslagen, Sweden.](#)
- There's gold in them thar hills: [Post-orogenic exhumation triggers gold mineralization in the Trans-Hudson orogen: New geochronology results from the Lynn Lake greenstone belt, Manitoba, Canada.](#)
- Diamond deposit geology: [Rift-induced disruption of cratonic keels drives kimberlite volcanism;](#) Phys.org summary [here](#).
- Copper deposits: [Porphyry Copper Deposit Formation: Identifying Garnet and Amphibole Fractionation With REE Pattern Curvature Modeling.](#)
- [Formation of giant iron oxide-copper-gold deposits by superimposed episodic hydrothermal pulses.](#)
- Mining safety and geotechnical engineering: [Prediction of stability coefficient of open-pit mine slope based on artificial intelligence deep learning algorithm.](#)

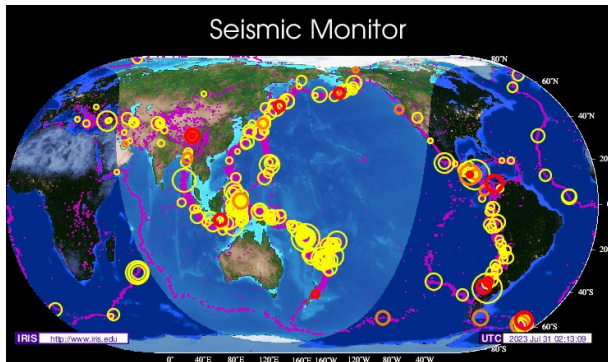
Glaciers and Climate Change

- [Ice-dammed lakes and deglaciation history of the Scandinavian Ice Sheet in central Jämtland, Sweden.](#)
- Melting permafrost: [Time-travelling pathogens and their risk to ecological communities;](#) Eureka Alert summary [here](#); comment on the story [here](#).
- What could go wrong? [Q&A: Experts discuss the geoengineering methods for reflecting sunlight to cool Earth.](#)
- Corals and changing ocean currents: [Increased tropical South Pacific western boundary current transport over the past century;](#) Phys.org summary [here](#).
- Past climate research: [The Relation Between Decadal Droughts and Eruptions of Steamboat Geyser in Yellowstone National Park, USA;](#) Phys.org summary [here](#).

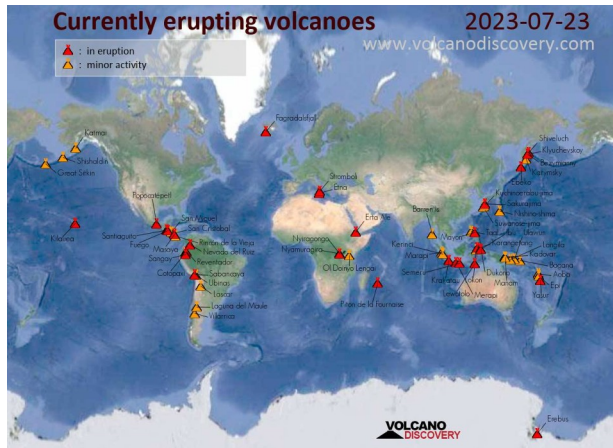
Environmental Geology

- Recycling: [Decades of public messages about recycling in the US have crowded out more sustainable ways to manage waste.](#)
- Investigation techniques: [Portable gas chromatography–mass spectrometry method for the in-field screening of organic pollutants in soil and water at pollution incidents.](#)
- From the National Groundwater Association: [NGWA Announces Protect Your Groundwater Day Will Be September 5.](#)

Volcanoes, Earthquakes and Geohazards



[Seismic Monitor](#)



[Active Volcano Map](#)

- From the United States Geological Survey (USGS): [Volcano Watch — Monitoring Kīlauea with Ocean Noise](#).
- [Smithsonian / USGS Weekly Volcanic Activity Report](#).
- [Ancient Underwater Volcano Off Canada Is Still Active, And Teeming With Life](#).
- [Earth's newest 'baby volcano'](#).
- [Taylor Swift Fans Cause Seismic Activity Comparable to Small Earthquake at Seattle Eras Tour Shows](#).
- Comments on [this paper](#), referred in last week's news and notes: [Update on apparent GPS detection of earthquake precursors](#).
- [M5.5 earthquake hits Turkey more than 5 months after Feb. 6 quakes](#); USGS site [here](#).
- Landslide research: [HR-GLDD: a globally distributed dataset using generalized deep learning \(DL\) for rapid landslide mapping on high-resolution \(HR\) satellite imagery](#).
- Predicting flooding from monsoons: [The Influence of Weather Patterns and the Madden-Julian Oscillation on Extreme Precipitation Over Sri Lanka](#); Phys.org summary [here](#).
- Flood control: [How well-managed dams and smart forecasting can limit flooding as extreme storms become more common in a warming world](#).

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.