

May 27, 2024

News and notes

This past week has been busy. I attended the GAC-MAC conference and went to Saskatchewan to visit my grandson. The GAC-MAC conference was really great, [news story here](#). So for this week's posting, I'll just show some news items I thought were interesting.

Research and News



Mississippi River Delta. False-color photograph with vegetation in red.
Credit: Atmospheric Sciences Data Center at NASA's
Langley Research Center, public domain

- Coastal geology: [Vegetation dieback in the Mississippi River Delta triggered by acute drought and chronic relative sea-level rise](#): Phys.org summary [here](#).
- [Repeated Coseismic Uplift of Coastal Lagoons Above the Patton Bay Splay Fault System, Montague Island, Alaska, USA](#); Phys.org summary [here](#).
- New Earth observation satellite: [Preface to the special issue “EarthCARE Level 2 algorithms and data products”](#): Editorial in memory of Tobias Wehr: Phys.org summary [here](#).
- Plate tectonics: [The affinity of microcontinents in northern East Gondwana in the Silurian: Hainan Island response to the closure of the Proto-Tethys Ocean](#).
- [Earth's core-mantle boundary shaped by crystalizing a hydrous terrestrial magma ocean](#); Phys.org summary [here](#).

- Geophysics and AI: [An alternate representation of the geomagnetic core field obtained using machine learning](#).
- Geophysics: [The expression of mantle seismic anisotropy in the global seismic wavefield](#).
- [Watch "Remnants of a Planet Inside Earth Linked to Plate Tectonics" on YouTube](#).
- Petrology and geochemistry: [Non-Henrian behavior of hydrogen in plagioclase – basaltic melt partitioning](#).
- Fun with molten rock: [A case study of depolymerization in silicates: Melting of quartz and zircon crystallization at high pressure](#).
- Petrology and plate tectonics: [Partial melt in mesoscale upper mantle upwellings beneath ocean basins](#).
- Petrology, geochemistry and plate tectonics: [Copper isotopes track the Neoproterozoic oxidation of cratonic mantle roots](#).
- [Geological and Geochemical Characterization of Variscan Pegmatites in the Sidi Bou Othmane District, Central Jebilet Province, Morocco](#).

Sedimentology

- [Migration and controls of Shenhu submarine canyons in the upper continental slope of northern South China Sea: Insights from three-dimensional seismic data mapping](#).
- Carbon cycle and sediments: [Secondary production and priming reshape the organic matter composition in marine sediments](#); Phys.org summary [here](#).
- [Pockmarks Offshore Big Sur, California Provide Evidence for Recurrent, Regional, and Unconfined Sediment Gravity Flows](#); Eureka Alert summary [here](#).
- [Earth's oldest terrestrial red beds as direct evidence for the Great Oxidation Event ca. 2.3 Ga](#).
- [Quartz trace element geochemistry and internal morphology as proxies for provenance characterization: Results from the Marwar basin, NW India](#).

Paleontology

- Paleontology and stratigraphy: [Towards a refined Norian \(Upper Triassic\) conodont biostratigraphy of the western Tethys: revision of the recurrent 'multidentata-issue'](#).
- Evolution and aging: [Selectively advantageous instability in biotic and pre-biotic systems and implications for evolution and aging](#); Popular Mechanics summary [here](#).
- [Gene expression supports a single origin of horns and antlers in hoofed mammals](#); Phys.org summary [here](#).
- [Fossil flying squirrels \(Petauristinae, Sciuridae, Rodentia\) from the Yumidong Cave in Wushan County, Chongqing, China](#).

- [A diverse assemblage of monotremes \(Monotremata\) from the Cenomanian Lightning Ridge fauna of New South Wales, Australia](#); Eureka Alert summary [here](#).
- [A nuclear genome assembly of an extinct flightless bird, the little bush moa](#); Phys.org summary [here](#).
- [Cellular structure of dinosaur scales reveals retention of reptile-type skin during the evolutionary transition to feathers](#); IFL Science summary [here](#).
- [A new abelisaurid dinosaur from the end Cretaceous of Patagonia and evolutionary rates among the Ceratosauria](#); Sci News summary [here](#).
- Weird ammonites: [When Abnormality Becomes Perennial in a Reduced Population: The Case of *Altudostephanus longicostis* gen. et sp. nov. \(Valanginian Ammonites, South-Eastern France\)](#).
- Polychaete worms: [Ultrastructure of the Jurassic serpulid tubes—phylogenetic and paleoecological implications](#).
- Really old fossils: [Correlative microspectroscopy of biogenic fabrics in Proterozoic silicified stromatolites](#).

Mining and Energy

- Exploration techniques: [Till Geochemistry as a Vector to Metasomatic Iron and Alkali-Calcic Systems and Associated Deposits in the Great Bear Magmatic Zone, Northwest Territories, Canada](#).
- After decades of opposing mining on environmental grounds: [Feds lean on B.C. to produce more critical minerals](#).
- [Artificial geysers can compensate for our mineral shortages](#).
- [Rare earth element enrichment in coal and coal-adjacent strata of the Uinta Region, Utah and Colorado](#); Mining.com summary [here](#).
- [Trace Elements Distribution in the k7 Seam of the Karaganda Coal Basin, Kazakhstan](#).
- [New gold mine in northern Ontario could become biggest in Canada](#).
- [Geraldton is back on the map as a gold mining town](#).
- [Copper Mining and Vehicle Electrification](#); Mining.com summary [here](#).
- [Coal Still Powers More U.S. Electricity Than Any Renewable Energy Source](#).
- [Two of Europe's Biggest Banks to Stop Underwriting Oil and Gas Bonds](#).
- [Exxon Signs Gas Exploration Deal With Algeria](#).
- [U.S. gasoline prices ahead of Memorial Day weekend are 1% higher than last year](#).

- They need the money: [Venezuela aims to reach 1.23 mln bpd of oil output in Dec, minister says](#); [Colombia Aims to Boost Oil Production to 1 Million Bpd](#).
- [Imperial starts production at new oilsands project using lower-emissions technology](#).
- [A new continental hydrogen play in Damara Belt \(Namibia\)](#).

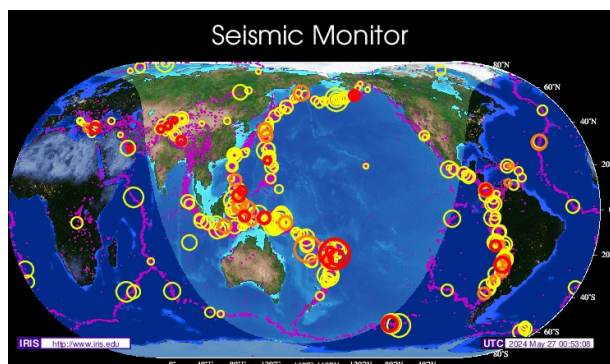
Environmental Geology and Hydrogeology

- From Ars Technica: [East Coast has a giant offshore freshwater aquifer—how did it get there?](#)
- [Metal mobilization from thawing permafrost to aquatic ecosystems is driving rusting of Arctic streams](#); Phys.org summary [here](#).
- [Groundwater flooding risks overlooked](#); Phys.org summary [here](#).
- Effects of groundwater pumping: [Significant Local Sea Level Variations Caused by Continental Hydrology Signals](#); Phys.org summary [here](#).

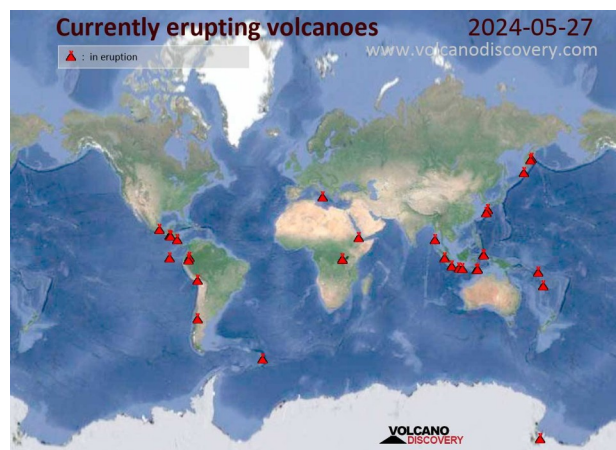
Glaciers and Climate Change

- From CNN: [Ocean water is rushing miles underneath the ‘Doomsday Glacier’ with potentially dire impacts on sea level rise](#).
- [Brunt Ice Shelf in Antarctica calves new iceberg](#).
- [Widespread seawater intrusions beneath the grounded ice of Thwaites Glacier, West Antarctica](#).
- Ancient climate change: [Fingerprinting enhanced floodplain reworking during the Paleocene–Eocene Thermal Maximum in the Southern Pyrenees \(Spain\): Implications for channel dynamics and carbon burial](#).

Volcanoes, Earthquakes and Geohazards



[Seismic Monitor](#)



[Active Volcano Map](#)

- United States Geological Survey (USGS) Volcano Watch: [HVO's Mission Depends on Reliable and Secure IT Solutions](#).
- USGS Yellowstone Volcano Observatory: [Is Yellowstone overrated? As a disaster movie subject, maybe...](#)
- [Smithsonian / USGS Weekly Volcanic Activity Report](#).
- Wrong priorities: [People on the Caribbean island where a volcano went off are being evacuated on cruise ships — but not without a COVID-19 vaccine](#).
- Campi Flegrei, Bay of Naples, Italy:
 - [Homes evacuated in Italy after strongest quake in 40 years near supervolcano](#);
 - Monitoring program: [Fiber-optic gyroscope for rotational seismic ground motion monitoring of the Campi Flegrei volcanic area](#); Eureka Alert summary [here](#).
- [Euro-Mediterranean Seismological Centre](#)
- [Earthquakes Monitoring Live Worldwide](#).
- Earthquake research: [Holocene surface-rupturing paleo-earthquakes along the Kachchh Mainland Fault: shaping the seismic landscape of Kachchh, Western India](#).
- Better than [Nostradamus](#), earthquake prediction research: [Bayesian earthquake forecasting approach based on the epidemic type aftershock sequence model](#).
- More earthquake damage research: [Constraining Shear Strength of Fault Damage Zone Using Geodetic Data and Numerical Simulation](#).
- Earthquakes and plate tectonics: [Earthquake Relocations Delineate a Discrete Fault Network and Deformation Corridor Throughout Southeast Alaska and Southwest Yukon](#).
- Geohazards, erosion and property loss: [Shoreline retreat and beach nourishment are projected to increase in Southern California](#); Phys.org summary [here](#).

Upcoming Events

- [5th Iceland Geothermal Conference, May 28-30, Reykjavik, Iceland](#).
- If you are in Calgary for the Stampede: [Bootleggin' Breakfast 2024](#), Calgary, AB, July 9 & 11, 2024, plus [Stampede After Parties Announced!](#)
- [Goldschmidt 2024, August 18-24, Chicago IL](#), organized by the Geochemical Society and the European Association of Geochemistry.
- [Groundwater Week 2024](#), December 10-12 in Las Vegas, Nevada.

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.