

January 27, 2025

News and notes

Before going on to discuss the geology and geopolitics of [Guyana](#), here are some news items I thought were interesting.

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.

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](#): new upload available, [Basic Hydrogeology – An Introduction to the Fundamentals of Groundwater Science](#).
- Free Groundwater Modeling Course – [HydroGeoCenter](#).
- From Western Australia: [Carbonatite, lamprophyre and host rocks in the northern Aileron Province](#).

Geopolitics

- [Manifest destiny](#) redux: [America could soon become ‘a bigger country’ – Trump](#).
- Trade problems: [Canada, Mexico steelmakers refuse new US orders](#).
- [Putin says Ukrainian 'crisis' could have been avoided if Trump 'had not been deprived of election win' and says he is 'ready' to discuss the war with the president](#); I think that V. V. Putin might have expert knowledge about fixing elections.
- Video: [Why the US military is restoring WWII-era airfields](#).
- [Trump to pull 20,000 US troops from Europe – Italian media](#).
- [China's DeepSeek Bombshell Rocks Trump's \\$500B AI Boondoggle](#).
- [The ‘madman strategy’: The secret behind Trump’s foreign policy](#).

Research and News

- [The underground weathering of Toarcian black shales from SE France and its paleoenvironmental, taphonomical and biogeochemical consequences](#).
- Bad science, from Retraction Watch: [Weekend reads: ‘The Temporal Crisis’; researcher sues university that fired him; ‘Devastating Legacy of Lies’](#).

- [Thermal buffering-controlled temperature variation between Mg–Al-rich rocks and migmatites.](#)
- [Magmatic evolution of the Paleoproterozoic A2-type granite along the northern Indian margin: insights from geochemistry and U-Pb geochronology of Baijnath Klippe, NW Himalaya.](#)
- [Mobility of South America’s transcontinental drainage divide and shrinkage of the Paraná river basin linked to lithologic and geodynamic controls.](#)
- [Biofacies Analysis of Zanclean Sediments in Virginia: Unraveling the Past Through Benthic Foraminifera.](#)
- More on the Zanclean: [Land-to-sea indicators of the Zanclean megaflood](#); SciTechDaily summary [here](#), see also [this video](#).
- [Carbonates and microbialites record a dynamic lake basin evolution in the Late Cretaceous to Eocene Sheep Pass Formation, Nevada, USA.](#)
- [Lateritic Cenozoic paleoenvironmental and paleoclimatic conditions in the Central Amazon basin, Brazil, inferred from mineralogy, geochemistry and geochronology.](#)
- [Downsystem grain-size trends and mass balance of an ancient wave-influenced sediment routing system: Middle Jurassic Brent Delta, northern North Sea, offshore UK and Norway.](#)
- [Trust in scientists and their role in society across 68 countries.](#)
- [A case for pronunciation guides for place names in scientific publications.](#)
- Geophysics: [High-resolution synthetic seismic modelling: elucidating facies heterogeneity in carbonate ramp systems.](#)
- [Evidence for nonlocal sediment transport on hillslopes from fault scarp morphology.](#)
- Geochronology: [Tracking thermal histories through the detrital record using rutile U-Pb-He double-dating.](#)

Plate Tectonics

- [Subduction-Related Volcanic Activity as a Proxy for Global Subduction Flux Over the Past Billion Years, and Its Correlation With Geomagnetic Superchrons.](#)
- [Evidence for the Neoproterozoic Rifting of Rodinia in the Rocky Mountain Front Range.](#)
- [Tracing the relationship between the upper plate earthquake cycle and megathrust slip, the Atacama fault system in Northern Chile.](#)
- [Basement Controls on Structural Evolution in Thin-Skinned Thrust Belts—Implications for Migration of Deformation Into Orogenic Forelands.](#)
- [Lithosphere Architecture Along the Axis of the Subducting Aseismic Nazca Ridge \(Peruvian Active Margin\).](#)

- [Spatiotemporal Growth of Seismic-Scale Syn-Flexural Normal Faults in the German Molasse Basin.](#)
- [Evidence for transpression in the Picuris orogen: The deformation record of the Marqueñas Formation metaconglomerate, Picuris Mountains, New Mexico, USA.](#)
- [Seismicity of a relic slab: space–time cluster analysis in the Vrancea Seismic Zone.](#)
- [Non-arc setting for “Cadomian” magmatism in Iran and Anatolia.](#)
- [The Rhyacian-Orosirian basement at the northeastern region of the Araçuaí orogen, Bahia, Brazil: Further evidence of an island-arc accretion followed by syn- and post collisional plutons during the São Francisco-Congo paleocontinent assembly.](#)
- [A systematic approach to mapping tectonic faults and documenting supporting geomorphology.](#)
- [Timing of and pressure-temperature constraints on deformation in the Toxaway dome, eastern Blue Ridge: Evidence for continuous deformation from the Neocadian orogeny to the Alleghanian orogeny.](#)
- [Lithospheric Foundering in Progress Imaged Under an Extinct Continental Arc; Phys.org summary \[here\]\(#\).](#)

Paleontology

- [Putative branchiopod and vertebrate eggs from the Remigiusberg Lagerstätte \(Pennsylvanian-Permian boundary\) of the Saar-Nahe Basin, SW Germany.](#)
- [Re-evaluation of mastodon material from Oregon and Washington, USA, Alberta, Canada, and Hidalgo and Jalisco, Mexico.](#)
- [Deep water vetulicolians from the lower Cambrian of China.](#)
- [Resurrecting the taxon *Diatryma*: A review of the giant flightless Eocene Gastornithiformes \(Aves\), with a report of the first skull of *Diatryma*; Phys.org summary \[here\]\(#\).](#)
- [10 Misconceptions About Evolution.](#)
- [Great white shark's 9-million-year-old ancestor found in Peru.](#)
- [10 Misconceptions About Evolution.](#)
- [Giant, Mysterious Spires Ruled the Earth Long Before Trees Did. What Exactly Are These Odd-Looking Fossils?](#)
- [Bioerosion Structures on Dinosaur Bones Probably Made by Multituberculate Mammals and Dermestid Beetles \(Guichón Formation, Late Cretaceous of Uruguay\).](#)

Mining and Energy

- [Nuclear Stocks Soar on Stargate AI Infrastructure Announcement.](#)

- Petroleum geology: [Inversion of interlayer scale using dynamic data of production wells in bottom water reservoirs: Sangtamu Oilfield, Tarim basin.](#)
- [Aquitaine Metals set to drill in France's historic Limousin gold district.](#)
- [Trump Reignites Coal Industry at Davos.](#)
- Coal geology research: [Pore Structure and Heterogeneity Characteristics of Deep Coal Reservoirs: A Case Study of the Daning–Jixian Block on the Southeastern Margin of the Ordos Basin.](#)
- [Exxon Begins Drilling for Natural Gas Offshore Cyprus.](#)
- [Oil Prices Dip as Traders Brace for U.S. Production Boom.](#)
- [How Many New Mines Are Needed for the Energy Transition?](#)
- [Gazprom in turmoil, forced to hike prices on Russians in the middle of winter.](#)
- Manitoba: [Brazilian firm Vale SA considers selling mining assets in Thompson.](#)
- Getting out of the market: [Warren Buffett Company Shuts Down International Oil Trading Operations.](#)
- [Chile seeks projects to extract cobalt and rare earths from mining waste.](#)
- [Private companies aim to demonstrate working fusion reactors in 2025.](#)
- [China's 'artificial sun' shatters nuclear fusion record by generating steady loop of plasma for 1,000 seconds.](#)
- [Panama's vast Cobre mine is closed. So why is their security still restricting access to local villages?](#)
- [Trump repeals Biden's efforts to block oil drilling on US coasts, Arctic.](#)
- [About 12% of North Dakota's oil output shut down by cold weather](#), Extreme Cold Warning in effect.
- Drilling technology: [Swiss firm develops autonomous drill machine to tap shallow geothermal energy.](#)
- [Horgen-Käpfnach, the largest Swiss coal deposit: Geology, petrology and geochemistry.](#)

Environmental Geology and Hydrogeology

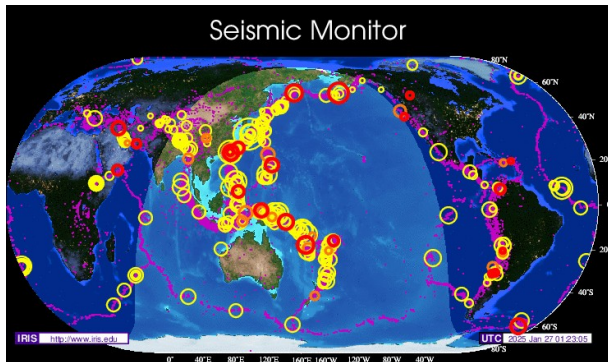
- [Glyphosate linked to preterm births, low birth weights.](#)
- [Shutdown at Mexico toxic waste plant after Guardian investigation revealed pollution in nearby homes.](#)

- [Groundwater Ages in Intertill and Buried Valley Aquifers in Saskatchewan, Canada.](#)

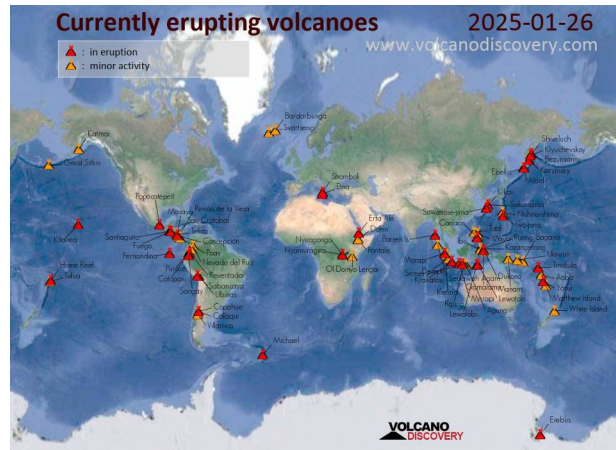
Glaciers and Climate Change

- [Variable impacts of land-based climate mitigation on habitat area for vertebrate diversity;](#) Phys.org summary [here](#).
- [Trump signs executive order to withdraw from all United Nations climate change pacts, accords, and agreements.](#)
- [Atlantic overturning inferred from air-sea heat fluxes indicates no decline since the 1960s;](#) SciTechDaily summary [here](#).
- [A topographically controlled tipping point for complete Greenland ice sheet melt.](#)

Volcanoes, Earthquakes and Geohazards



[Seismic Monitor](#)



[Active Volcano Map](#)

Volcanoes

- United States Geological Survey (USGS) Volcano Watch: [Recent lava fountains highlight Pele's Hair hazards.](#)
- USGS Yellowstone Volcano Observatory: [The lasting contributions of Yellowstone National Park naturalist George Marler.](#)
- [Smithsonian / USGS Weekly Volcanic Activity Report.](#)
- 01/25 Book review: [How the Largest Volcanic Eruption in Human History Changed the World.](#)
- 01/22 Research: [The radial spreading of volcanic umbrella clouds deduced from satellite measurements.](#)

Earthquakes

- [Euro-Mediterranean Seismological Centre \(EMSC\).](#)

- [Earthquakes Monitoring Live Worldwide](#).
- 01/24 [Earthquake Recurrence Estimates for Northern Caribbean Faults from Combinatorial Optimization](#).
- 01/23 [Geological and geodetical vertical deformation profiles across the Kuradake fault group, Central Kyushu, SW Japan: Estimation of the proportion of triggered aseismic slip in the total late Quaternary slip](#).
- 01/22 [Aftershocks on the Planar Rupture Surface of the Deep-Focus 7.9 Bonin Islands Earthquake](#).
- 01/20 State of Virginia [Earthquake Hazard Mapping](#).
- [Magnitude 6 earthquake shakes Taiwan](#); USGS summary [here](#).
- 01/18 Video: [The imminent megaquake in the Pacific Northwest](#).

Landslides

- [Holocene earthquake-triggered submarine landslides and turbidites in western Baffin Bay](#).
- [Permafrost and Structural Controls on Holocene Bedrock Landslide Occurrence Around Eyjafjörður, North-Central Iceland](#); Phys.org summary [here](#).

Upcoming Events

- From the U.K. Mining Remediation Authority: February 4, 5, & 6 [Webinars to shine a light on low-carbon heating from mine water](#)
- [Williston Basin Petroleum Conference, April 28-30, Regina Saskatchewan](#).
- European Geosciences Union: [EGU General Assembly 2025, Vienna, Austria & Online 27 April–2 May 2025](#).
- [Sedimentary Geology and the Energy Transition Conference, June 2-5, 2025 – Salt Lake City, UT USA](#).
- [Geoscience Beyond Borders, GAC-MAC-IAH-CNC 2025 Ottawa, Ontario, May 11-14, 2025](#).
- [Society for Sedimentary Geology conference, Mountjoy IV – August 10-13, 2025, in Montreal, Canada](#).
- [Copper to the World Conference, Tuesday 26 – Wednesday 27 August 2025](#), in Adelaide, Australia; report on 2024 conference [here](#).
- 2025 [Society of Petroleum Engineers Distinguished Lecturer Schedule](#).
- [List of geoscience events in 2025 from the International Union of Geological Sciences](#).
- [American Geophysical Union List of Upcoming Meetings](#).
- The Geological Society: [Events & Courses](#).

January 27, 2025

Geology and the Fate of Societies – Guyana



Figure 1a – Guyana

Credit: [CIA World Factbook](#), [public domain](#)



Figure 1b – Location of Guyana

Credit: [CIA World Factbook](#), [public domain](#)

The [Co-operative Republic of Guyana](#) is a small country on the [Atlantic](#) coast of [South America](#). It borders on [Suriname](#), [Brazil](#) and [Venezuela](#). The government is a unitary [parliamentary republic with an executive presidency](#). The President is [Irfaan Ali](#). There are two Vice Presidents, the First, who is also Prime Minister, is [Mark Phillips](#); the Second is [Bharrat Jagdeo](#). The Legislature is called the [National Assembly](#); the Speaker of which is [Roxane George-Wiltshire](#). The Capital, and largest city in Guyana is [Georgetown](#) (pop. 118,363).

According to the [Central Intelligence Agency](#)'s (CIA) [World Factbook on Guyana](#), the total area of the country is 214,969 square kilometres (km²); 196,849 km² is land and 18,120 km² is water. Also, according to the World Factbook, 794,099 people live in Guyana, mostly in the northeast of the country near Georgetown. Of those 794,099 people, 39.8% are of [Indian descent](#) (South Asian), 29.3% are of [African descent](#), 19.9% are of [mixed race](#), 10.5% are [Indigenous](#), and the remaining 0.5% are some other ethnicity including ethnic [Chinese](#) and [European](#). [English](#) is the official language, although a local variety, [Guyanese Creole](#), is the [vernacular language](#). [Caribbean Hindustani](#) is common among the South Asian community and there are also at least 10 Indigenous languages.

In terms of religion, [Christianity](#) is the most common faith including: 34.8% various [Protestant](#) churches (22.8% [Pentecostal](#), 5.4% [Seventh Day Adventist](#), 5.2% [Anglican](#), and 1.4% [Methodist](#)), 7.1% [Roman](#)

[Catholic](#), 20.8% other Christian, and 1.3% [Jehovah's Witness](#). Other faiths include [Hindu](#) 24.8%, [Muslim](#) 6.8%, and [Rastafarian](#) 0.5%. 4% of Guyanese have either no religion or some other faith. Education-wise, 88.8% of Guyanese aged 15 and over has attended school and typically spend 11 years in school.

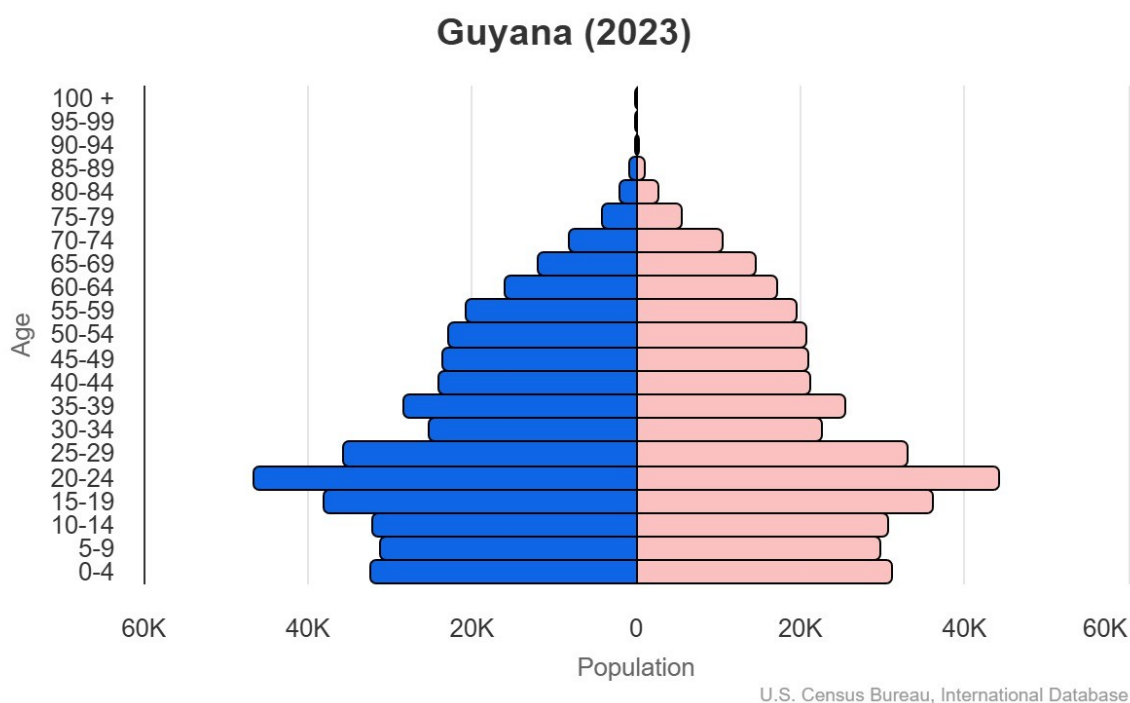


Figure 2 – Demographic Profile of Guyana
Credit: U.S. Census Bureau, International Database, public domain

Guyana’s [demographic profile](#) shows a country undergoing a demographic shift to a lower birthrate and a stable population. Currently, 23.5% of the population is under the age of 15. The total fertility rate is 2.06 births per woman and the annual growth rate is 0.28%. The life expectancy at birth for both sexes is 72.2 years. Economically, the per capita [GDP](#) is \$80,137; the [Gini](#) co-efficient is 44.6, indicating medium inequality; and the [Human Development Index](#) is high at 0.742.

In terms of international trade, Guyana [major trading partner countries](#) for exports were Panama, Netherlands, Italy, United States and United Kingdom; and for imports they were Trinidad and Tobago, United States, China, Suriname and Japan. The [major export products](#) in 2022 were [crude petroleum](#) 85.9% (\$15.9b), [gold](#) 7.36% (\$1.36b), [rice](#) 2.32% (\$429m), [bauxite](#) 1.04% (\$192m), and [hard liquor](#) (rum) 0.65% (\$120m) and the major import products were [refined petroleum](#) 11.8% (\$441m), [valves](#) 5.48% (\$206m), [automobiles](#) 2.87% (\$108m), [large construction vehicles](#) 2.81% (\$106m), and [delivery trucks](#) 2.18% (\$81.7m). (2022).

Geology

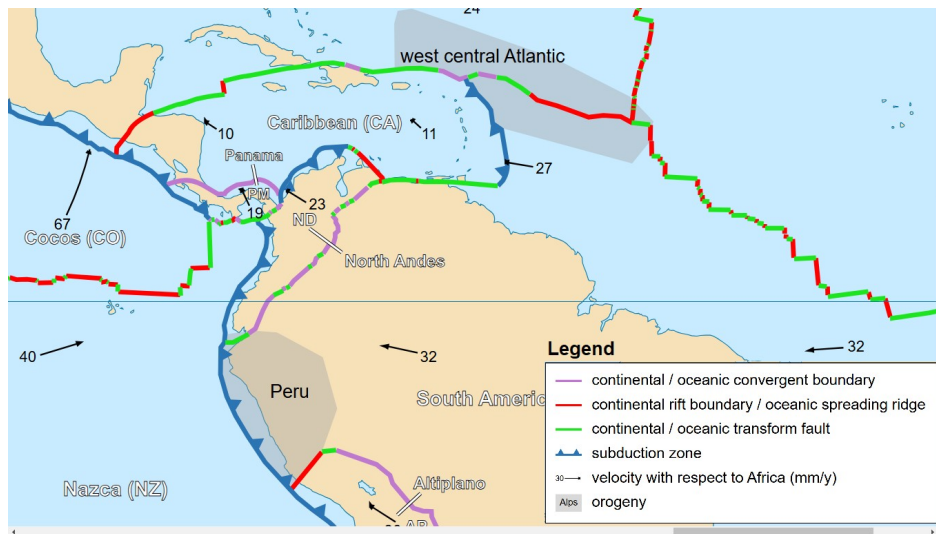
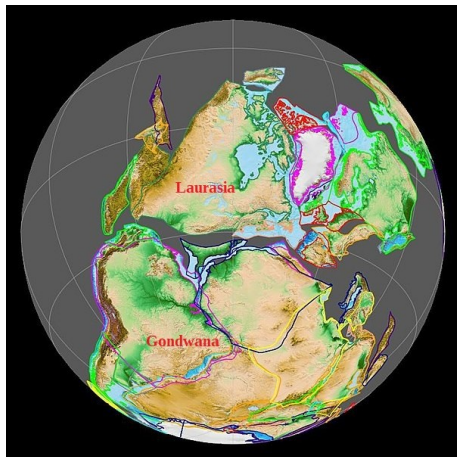


Figure 3 – Tectonic Framework

Credit: Eric Gaba (Sting), Creative Commons Attribution-Share Alike 2.5 Generic license

The [Guyana](#) sits within the [Guiana Shield](#), a [craton](#) within the larger [South American tectonic plate](#). Guyana can be divided into two major geological provinces:

1. The [Proterozoic](#) aged [Guiana Shield](#) that underlies most of the country; and
2. The [Mesozoic](#) and [Cenozoic](#) aged deposits, including those of the offshore [Guyana Basin](#) and the onshore [Takutu Basin](#).



The orogenies that formed the Guiana Shield include the [Trans-Amazonian Orogeny](#), 2.26 to 2.09 billion years ago (Ga) when the Amazonian and [West Africa](#) cratons collided. Further deformation of the Guiana Shield rocks occurred during [Grenvillian Orogeny](#), 1.3 to 1.1 Ga, when Amazonia collided with [Laurentia](#).

Figure 4 – Location of Laurasia as part of Pangaea at 330 Million years ago, Credit: Fama Clamosa, Creative Commons Attribution-Share Alike 4.0 International license

One result of these orogenies was the assembly of [Pangaea](#) which [broke up](#) in the [Triassic Period](#) leaving Amazonia part of [Gondwana](#). Gondwana [began to separate](#) during the [Jurassic Period](#). This tectonic movement opened up a basin that was filled in by the deposits of the Guyana Basin during the Mesozoic and Cenozoic Eras. This is, in many ways, a mirror of what happened to West Africa, as we discussed last week in the post on [Guinea-Bissau](#).

Figure 5, above, shows the [geological map of Guyana](#) (click on the link to get a better view). Going from youngest to oldest, the geological formations are as follows:

Quaternary, Neogene and Paleogene Deposits:

- At the surface are Quaternary aged marine [clays](#) and [sands](#) of the [White Sand Series](#).

Mesozoic Deposits of the Takutu Basin:

- [Late Jurassic](#) aged [sandstones](#) of the [Takutu Formation](#);
- The [Early](#) to [Middle Jurassic](#) aged [andesite](#) flows of the [Apoteri Volcanics](#).

Upper Proterozoic Formations

- [Nepheline syenites](#) and [carbonatite](#) of the [Muri Alkaline Suite](#).

Middle Proterozoic Formations

- [Gabbro-norite sills](#) and large [dykes](#) of the [Avanavero Suite](#);
- [Fluviatile](#) sands and [conglomerates](#), with thin bands of [vitric tuff](#), of the [Roraima Group](#);
- [Granites](#) and volcanic rocks of the [Iwokrama and Kuyuwini](#) Formations;
- Fluviatile sand and [cherty mudstone](#) of the [Muruwa Formation](#).

Trans-Amazonian Tectono-Thermal Event

- Formations called the [Younger Granites](#) that include [diorite](#); [Makarapan riebeckite granite](#), [pyroxene](#) granite, together with small granitic intrusions associated with mineralisation such as the [Omai Stock](#);
- [Gneiss](#), granite, diorite and [migmatite](#) of the [Bartica Assemblage](#);
- [Ultramafics](#), layered gabbros, [Kaburi anorthosite](#), [Badidku Suite](#) and older [basic](#) rocks.

Lower Proterozoic Supracrustals

- Greenstone belts of the [Barama-Mazaruni Super Group](#) including [acid volcanics](#), [metasediments](#), [intermediate metavolcanics](#), [mafic](#) dykes, sills and flows;
- [Amphibolite facies schists](#), [Kyanite schist](#);
- Gneiss, [granulite](#), and [charnockite](#) of the [Kanuku Group](#)

Resources

Agriculture



Figure 6 – Tractor in a Rice Field, Guyana
Credit: Tracey Dos Santos, [public domain](#)

According to the CIA World Factbook, only 8.4% of Guyana is agricultural land (2.1% arable land, 0.1% permanent crops, 6.2% permanent pasture). Despite the relatively small area used for [agriculture](#), it accounts for 10% of the country's GDP. Also according to the World Factbook, the major crops grown in Guyana, based on tonnage, are: [sugarcane](#) (especially for [demerara sugar](#)), [rice](#), [plantains](#), [papayas](#), [cassava](#), [pumpkins/squash](#), [chicken](#), [dairy products](#), [eggplants](#), and [ginger](#). Besides chicken and dairy cattle, other livestock raised in Guyana include beef [cattle](#) and [pigs](#). Major agricultural exports crops are [sugar](#) and rice.

Statistics on agriculture production from the [United Nations Food and Agriculture Organization](#) (FAO) can be found [here](#). Also according to the FAO, [25.5% of Guyanese](#) suffered from moderate to severe food insecurity in 2022-23. The [FAO Country Brief on Guyana is here](#).



Figure 7 – Boats at Wini Point Landing

Credit: [Marco Farouk Basir](#), [Creative Commons Attribution-Share Alike 3.0 Unported](#) license

Another source of food, both for local consumption and export is the [fishing industry](#), which includes wild caught fish, aquaculture, and a sports fishery. The wild caught fishing industry is further divided between an [industrial fishery](#) and an [artisanal fishery](#). Species caught in the wild caught fishery include [prawns](#), [seabob](#), various [finfish](#), [whitebelly](#), [red snapper](#) and [tuna](#) (see Table 10 in [this report](#) for production statistics from 2020). The [aquaculture industry](#) in Guyana includes the raising of [tilapia](#), [pacu](#), and [shrimp](#) in rice paddies. The sports fishery is mainly for tourists, check [here](#) if that interests you.

Forests



Figure 8 – Rainforest in Guyana

Credit: [Loriski](#), [Creative Commons Attribution-Share Alike 3.0 Unported](#) license

The CIA World Factbook indicates that 77.4% of Guyana is covered in forest. As you might guess, the [forestry industry](#) is fairly important although much of the forests are unexploited. Statistics on forestry production in Guyana, from the FAO, can be found [here](#).

Most of the forest in Guyana is part of the [Guianan Moist Forest](#) biome. Common plant species include [Calophyllum brasiliense](#), [Carapa guianensis](#), [Ceiba pentandra](#), [Couroupita guianensis](#), [Eschweilera sp.](#), [Guarea trichiloides](#), [Luehea sp.](#), [Parkia pendula](#), [Pentaclethra macroloba](#), [Protium sp.](#), [Schwartzia sp.](#) and [Trichilia sp.](#) [Cedrela fissilis](#), [Coutourana punctata](#), and [Warszewiczia coccinea](#) are also common in some areas.

Mineral Resources



Figure 9 – Gold Mining near Mahdia

Credit: [Marco Farouk Basir](#), [Creative Commons Attribution-Share Alike 3.0 Unported](#) license

The [mineral industry in Guyana](#) contributes to about 20% of the country's GDP and includes metallic minerals, industrial minerals, and petroleum. The most recent USGS production statistics are [here](#).

Metallic mineral production is mostly bauxite and gold. Bauxite was produced at the [Kurubuka Mine](#), in the [Upper Demerara-Berbice Region](#), this site was closed but talks to re-opened it are underway. [Bosai Minerals Group \(Guyana\) Inc.](#) produces bauxite at the Omai bauxite mine and processing plant near [Linden](#) and [Guyana Industrial Minerals Inc.](#) produces at the [Bonasika Mine](#).

Gold is produced by artisanal producers, as in Figure 9, and also at:

- The [Ensurge](#) Mine located in [Cuyuni-Mazaruni](#) Region ;
- The [Eagle Mountain Mine](#) near [Mahdia](#);
- The [Aurora Mine](#), also in the Cuyuni-Mazaruni Region; and
- The [Omai Mine](#), also in the Cuyuni-Mazaruni Region.

Troy Resources operated the [Karouni Mine](#) (geological papers on the deposit [here](#) and [here](#)) in the Essequibo Region by until the [licence was cancelled in 2023](#). In 2025 [at least five firms](#) have expressed an interest in re-opening the mine. Also, [a new gold deposit has been discovered at Oko \(West\)](#).

Industrial minerals include artisanal diamond producers and [aggregate](#) production. [Baracara Quarries Inc.](#) quarries gravel at a site near [Bartica](#) after having had some [legal issues](#). [Silica sand](#) is produced at the [Sand Hills Mine](#), in the [West Demerara District](#).

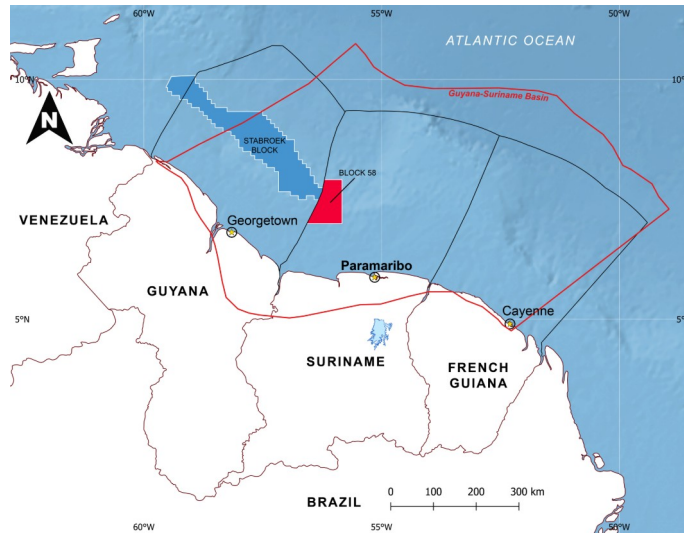


Figure 10 – Offshore Petroleum Leases, Guyana, Suriname, and French Guiana
Credit: [SurinameCentral](#), [Creative Commons Attribution-Share Alike 4.0 International](#) license

[Petroleum production](#) in Guyana began [following discoveries in 2015](#). As of 2024, more than [30 discoveries](#) of oil and gas have been made offshore Guyana. Unfortunately, these discoveries have brought [unwanted attention](#) from neighbouring Venezuela.

Figure 11 links to an interactive mineral occurrence map for Guyana.

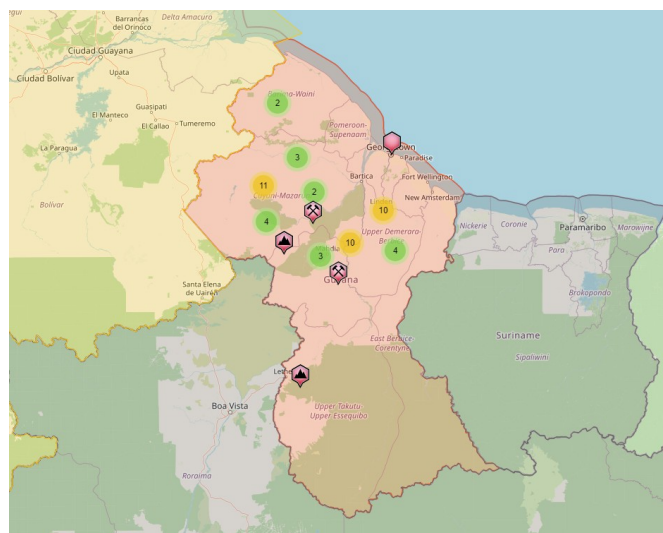
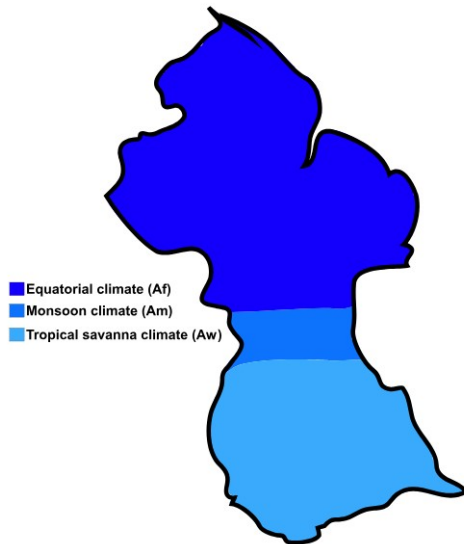


Figure 11 – Mineral Occurrence Map for Guyana
Credit: [©Mindat.org](#)

Climate

Guyana map of Köppen climate classification



The CIA World Factbook describes the climate of Guyana as tropical, i.e. hot and humid. The weather is moderated by northeast trade winds and there are two rainy seasons: May to August and November to January.

As shown on Figure 12, there are three main climate zones in Guyana, going from north to south:

- Equatorial tropical rainforest climate ([Af](#));
- Tropical monsoon climate ([Am](#)); and
- Tropical savanna climate ([Aw](#)).

Figure 12 – Köppen Climate Classification, Guyana
Credit: [Ali Zifan, Creative Commons Attribution-Share Alike 4.0 International](#) license

Guyana looks like it could be a nice place to visit. For people from the [Anglosphere](#), it has the advantage of being an English-speaking country. Travel advisories ([here](#) and [here](#)) for the country recommend a high degree of caution due to high rates of crime such as petty crime, violent crime, demonstrations and fraud. The border region next to Venezuela is also dangerous due “to the ongoing discord over the Guyana Essequibo region and gang-related violence”. It’s a tropical country with the usual tropical diseases. Also, before you go, check out [Climates to Travel](#) and [Lonely Planet](#).

History and Geopolitics

History – Sugar, Rum and Slaves



Figure 13 – Essequibo River in 1826, Credit: [Anthony Finley](#), cropped from [Map of South America According to the Latest and Best Authorities](#), public domain

In the [history of Guyana](#), the earliest inhabitants known to the outside world were the [Carib](#) and [Arawak](#) peoples. A Spanish expedition in 1499 to the [Essequibo River](#) led by explorer [Alonso de Ojeda](#) was the first European to make contact with the region. In 1616, the [Dutch](#) established a trading post on the Essequibo River and their claim on the region was recognized in the [Treaty of Munster](#) in 1648.

In 1815, the British wanted the area around the Essequibo and Demerara rivers. So they took it. The acquisition was recognized in the [London Convention of 1814](#). The British ruled it as [British Guyana](#). The British brought in [African slaves](#) to work on the sugar plantations, and after slavery was abolished in 1833, they then brought in [indentured servants](#) (almost slaves) from India. British rule ended in 1966 with the granting of [independence](#). Post-independence Guyana has gone through two phases of its political organization:

- [Independence with the British monarch as the Head of State](#), 1966 to 1970; and
- The [Co-operative Republic](#), 1970 to the present.

Geopolitics – Living Next to a Bad Neighbour



Figure 14 – Parliament Building, Georgetown

Credit: [JukoFE](#), [Creative Commons Attribution-Share Alike 3.0 Unported](#) license

Although ruled by generally [socialist](#) governments since independence, and struggling to create a prosperous country (a goal not necessarily compatible with socialism), Guyana has been remarkably peaceful internally, with the usual democratic churn. Their biggest internal problem is maintaining law and order, without which economic development is problematic.

Guyana's external relations have also been peaceful, until [Venezuela began stirring up trouble](#). The [history of the dispute](#) goes back to the early colonial history of the region. You see, the [Venezuelans](#) have never accepted the legitimacy of their border with either the British Guyana colony or with the Guyanese successor state. With the 2015 discovery of petroleum in Guyana, the Venezuelans are [pressing their claims](#). This is the biggest geopolitical challenge for Guyana.

Fortunately for Guyana, they [have some allies](#). First, there are their fellow members of the British Commonwealth, who can be counted to lend diplomatic aid. Also, the [United States has an interest in](#)

[maintaining order in their backyard](#). The Americans are [none too happy](#) with the Venezuelan government and might not appreciate the Venezuelans creating discord in South America. Another player with an interest in maintaining order, is [Brazil, who is the regional hegemon](#) and also might not want to see the current order upset. Further afield, the Russians have an [interest in the bauxite mines](#) and also might want to safeguard their investments.

Finally, the Chinese have been involved with [oil production in Venezuela](#) (i.e. running oil fields for export of the product to China). The Chinese are trying to [maintain good relations](#) with both Guyana and Venezuela, we'll see how that works out.

That kind of wraps up this quick look at Guyana. I am somewhat optimistic for the country, should they be able to [avoid conflict](#) with Venezuela. However, if a dust-up begins, the Guyanese should be able to count on friends in the wider international community to come to their aid. This situation is worth keeping an eye on.

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.