

July 21, 2025



Black Eyed Susans ([\*Rudbeckia hirta\*](#)) in My Garden, July 19<sup>th</sup>, 2025

## News and notes

Before going on to discuss the geology and geopolitics of [Lebanon](#), here are some news items that 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](mailto:raymondreichelt@gmail.com).

## Geopolitics

- [Oil Prices Climb as EU Sanctions Target Russian Trade.](#)
- [Iran Seizes Foreign Oil Tanker in Gulf of Oman.](#)
- [Upgrades at Port of Churchill spark ambitions for nation-building Arctic exports.](#)
- [TD strategist says ‘we are inching closer to a wartime economy’ as nations stockpile resources.](#)
- [Iraqi oil field on fire after drone strike during attacks in Kurdish region.](#)
- Overlapping land claims, Britain, Chile, Argentina, Russia in Antarctica: [“It’s more than all the oil ever extracted from Earth” - Russia finds a mega-field... in this country.](#)
- [Korean population could drop by 85% in next 100 years: study.](#)

## Research and News

- [Capturing Vegetation Gradients Along the West African Margin Using Terrestrial Plant Biomarkers in Marine Sediments.](#)

- Turbidity flows: [Three-dimensional gravity current interactions with oblique slopes: Deflection, reflection and combined-flow behaviours.](#)
- Geophysics and structural geology: [AK112: Full Waveform Inversion Tomography of Alaska Improves Waveform Fits While Imaging Crustal, Mantle, and Slab Structure.](#)
- Astrogeology: [A shallow mantle source for the Chang'e 5 lavas reveals how top-down heating prolonged lunar magmatism.](#)
- Geophysics: [Unraveling the Complex Features of the Seismic Scatterers in the Mid-Lower Mantle Through Phase Transition of \(Al, H\)-Bearing Stishovite.](#)
- [Crustal faulting drives biological redox cycling in the deep subsurface](#); Phys.org summary [here](#).
- Impacts: [Glass-like Carbon in the Nalbach/Saarlouis \(Saarland, Germany\) Proposed Touchdown Airburst Impact Event: Evidence of Shock Metamorphism of Organic Material.](#)
- More [earth shattering kabooms](#): [Grand Canyon landslide-dam and paleolake triggered by the Meteor Crater impact at 56 ka.](#)
- Professional regulation: [Geoscientists Nova Scotia threatens people opposed to uranium mining with fines, jail time](#); note that like all professional associations, [Geoscientists Nova Scotia](#) sole source of funds comes from professional dues, so they are pretty aggressive about right to title.
- [Recent revisions to the North American Stratigraphic Code and suggestions for implementation by Canadian geoscientists: replacing culturally offensive unit names and utilizing Indigenous place names](#); perhaps they should listen to [this fellow](#) on the issue of racial prejudice.

## Mineralogy

- [Metamorphic evolution of sapphirine- and sodicgedrite-anorthite-bearing granulites, Rampur domain, Eastern Ghats Province, India.](#)
- [Anomalously high REE diaspore formed in bauxite overlying paleokarstic surface.](#)
- [A new trigonal \(3T\) polytype of chloritoid,  \$\text{Fe}^{2+}\text{Al}\_2\(\text{SiO}\_4\)\text{O}\(\text{OH}\)\_2\$ , from the Kosoy Brod deposit, Middle Urals, Russia: chemical composition, crystal structure and complexity analysis.](#)
- [The optics of a possible new interference figure in mineralogy.](#)

## Plate Tectonics

- [State of Stress Across Major Faults in the Nankai Subduction Zone Estimated From Wellbore Breakouts.](#)
- [Shale Tectonics in the Hyperextended Continental Margin of the Niger Delta.](#)
- [Seismic imaging reveals a strain-partitioned sliver and nascent megathrust at an incipient subduction zone in the northeast Pacific](#); State of the Planet summary [here](#).
- [Revised Oceanic Plate Cooling Models.](#)

- [Apulia–Microplate Motion Change Following the MW 6.4, 26 November 2019 Durrës, Albania Earthquake.](#)
- [Alpine Orogeny: 2-D Kinematic Restoration of the Western Tauern Window, Eastern Alps Using Thermochronological and P-T Constraints.](#)
- [Late Palaeozoic two-cycle orogenesis of the Qinling orogenic belt: constraints from the metamorphic P–T evolution and geochronology of the Wuguan Complex and Liuling Group in eastern Qinling, China.](#)
- [Rupture and Relamination of Continental Lithosphere in a Subduction System \(Variscan Orogeny, SW Iberia\).](#)
- [The source-to-sink system in continental rift lacustrine basins of the Nantun Formation in X Sag of the Tamtsag Basin, Mongolia.](#)

## Paleontology

- Mass extinction research: [Reconciling global tipping point theories: Insight from magnetic experiments](#): Phys.org summary [here](#).
- [A new weird cricket \(Orthoptera, Gryllidea\) from mid-Cretaceous Kachin amber in northern Myanmar.](#)
- This is why we can't have nice things: [Parks Canada stops hiking permits to Yoho peak after fossil thefts](#) at the [Burgess Shale](#) site.
- [Adaptations for stealth in the wing-like flippers of a large ichthyosaur](#); IFL Science summary [here](#).
- More on mass extinctions: [Global scale assessment of the human-induced extinction crisis of terrestrial carnivores.](#)
- [Molecular fossils offer first glimpse of how life survived Snowball Earth.](#)
- [Unusual bone bed reveals a vertebrate community with pterosaurs and turtles in equatorial Pangaea before the end-Triassic extinction.](#)
- [Taxonomic status of 'Palaeoniscum delessei' \(early Permian, Bourbon-l'Archambault Basin, Allier, France\).](#)
- [Craniomandibular osteology of a new massopodan sauropodomorph \(Dinosauria: Sauropodomorpha\) from the Late Triassic \(latest Norian\) of Canton Aargau, Switzerland.](#)
- Poor old kitty: [50,000-Year-Old Extinct Lion Found Frozen In The Siberian Permafrost With Its Head Resting On Its Paw.](#)

## Ore Deposit and Petroleum Geology

- [Tectonic evolution and mineralization exploration of Lujing uranium ore field, South China.](#)

- [Subsurface architecture of the tuina prospect and its relationship to fluid migration in mineral deposit formation.](#)
- [Diverse examples of sodic and sodic–calcic alteration in greenstone rocks and intrusions of the Kalgoorlie–Kurnalpi Rift, Yilgarn Craton: significance for gold mineralisation.](#)
- [Quantitative architectural analysis of meandering fluvial point bar of Gudong oilfield in Zhanhua Sag Bohai Bay basin China.](#)

## **Mining and Energy**

- [Gold price to hit \\$3,600 this year and next: CIBC.](#)
- Don't mess with these shareholders: [Special forces veterans lead US bid to buy Congo cobalt miner.](#)
- [Canada's first large-scale shipment of LNG delivered to port in South Korea.](#)
- [How Canada's oilsands transformed into one of North America's lowest-cost plays.](#)
- [China's Rare Earths Exports High Highest Level Since 2009.](#)
- Diamonds: [NWT firm hopes to rapidly turn newly acquired deposit into mine.](#)
- [Critical Metals soars as it begins drilling to boost Greenland rare earth resource.](#)
- [Lockheed Martin reboots Pacific seabed mining plans.](#)
- No energy, no economy: [Green Dogma Forces the Dutch To Ration Electricity.](#)
- British Columbia: [Gold mine near Smithers officially opens.](#)
- [Inside the Congolese mine vital to mobile phones, as rebels give BBC rare access.](#)

## **Environmental Geology and Hydrogeology**

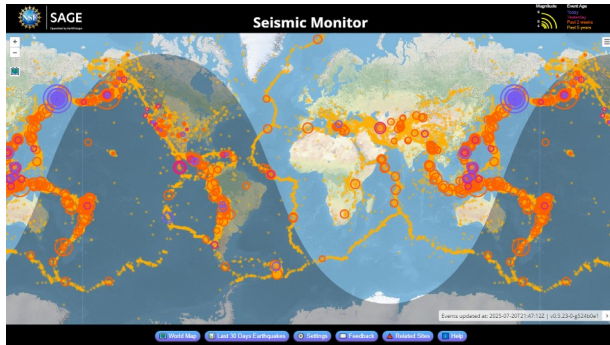
- Remediation: [Restoring sea floor after mining may not be possible, researchers warn.](#)
- [Map Shows States Where Carcinogens Detected in Drinking Water Sources.](#)
- France: [Groundwater tables as of July 15, 2025, en Français.](#)

## **Glaciers and Climate Change**

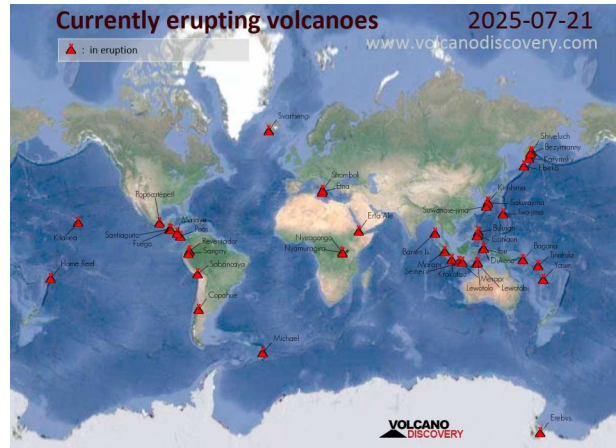
- [Decreased Deep Water Oxygenation in the Western North Pacific During the Plio-Pleistocene Transition.](#)
- [Holocene climate change recorded of Milangouwan and Dishaogouwan sedimentary profile in the Salawusu River Basin.](#)
- [Pronounced methane cycling in northern lakes coincided with a rapid rise in atmospheric CH<sub>4</sub> during the last deglacial warming.](#)

- [Missing without a trace 17 km into an Antarctic cavity, the submarine Ran revealed the hidden face of the South Pole.](#)
- [Weird space weather seems to have influenced human behavior on Earth 41,000 years ago – our unusual scientific collaboration explores how.](#)
- [Biotic Pump Miscellaneous: Jean-André Deluc, Heinrich Hertz, Meteorological Crosswinds, and the Drinking Bird.](#)

## Volcanoes, Earthquakes and Geohazards



[Seismic Monitor](#)



[Active Volcano Map](#)

### Volcanoes

- [Smithsonian / USGS Weekly Volcanic Activity Report.](#)
- United States Geological Survey (USGS) Volcano Observatories:
  - [Cascades Volcano Observatory Weekly Update.](#)
  - Volcano Watch – [Remembering a destructive Mauna Loa eruption 75 years ago.](#)
  - [Another new hole in the ground at Norris Geyser Basin](#); Science Alert summary [here.](#)
- Video: [Jul 16, 2025: Aerial View of New Volcanic Rift in Iceland.](#)

### Earthquakes

- [Euro-Mediterranean Seismological Centre \(EMSC\).](#)
- [Earthquakes Monitoring Live Worldwide.](#)
- [M7.4 earthquake strikes the Kamchatka Peninsula](#); USGS summary [here.](#)
- [Dynamics of Fluid-Driven Slip on a 3D Heterogeneous Fault With Rate-and-State Friction.](#)
- [Curved Fault Slip Captured by CCTV Video During the 2025  \$M\_w\$  7.7 Myanmar Earthquake.](#)

- [Long-term dynamics of earthquake swarms in the Yellowstone caldera](#); Phys.org summary [here](#).
- [Magnitude 7.3 earthquake in the Shumagin Gap, Alaska](#); USGS summary [here](#).
- [Global earthquake detection and warning using Android phones](#); Phys.org summary [here](#).
- [M6.7 strike-slip earthquake strikes beneath the Weber Deep](#); USGS summary [here](#).
- [Large Surface-Rupturing Earthquakes and a >12 kyr, Open Interseismic Interval on the Tintina Fault, Yukon](#); Phys.org summary [here](#).

### *Wildfires and Other Geohazards*



**Interactive Wildfire Map July 20, 2025**  
**Credit:** ©[Canadian Wildland Fire Information System](#)

- **Wildfires:**
  - [Musgrave Harbour remains under evacuation order, wildfire now 2 km away from town.](#)
  - ['It's really depressing': Thick wildfire smoke continues to cancel events around Manitoba.](#)
  - [Wildfires send Canada's carbon emissions soaring. Our peatlands emit even more.](#)
- **Floods and landslides:**
  - [Death toll rises to 14 in South Korea as heavy rain triggers landslide and flooding.](#)
  - [Detailed observations reveal the genesis and dynamics of destructive debris-flow surges](#); Phys.org summary [here](#).
  - [A Disaster Expert Explains Why the Texas Floods Were So Devastating.](#)

### **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](#) has many groundwater geology books for free download; also they now have a [Free Online Learning Module: Pumping Test Analysis](#).
- Free Groundwater Modeling Course – [HydroGeoCenter](#).
- From Western Australia: [Carbonatite, lamprophyre and host rocks in the northern Aileron Province](#).
- Two volumes of Geology of Indonesia now can be accessed for [FREE/GRATIS](#). The books can be accessed from: vol 1 <https://lnkd.in/eH6Gcka4>; vol 2 <https://lnkd.in/egTYmpjk>.
- Brett Davis' book on veins in a deforming rock mass: "[The Veining Bible](#)"; also at [this site](#).

## Upcoming Events

- [August 3 – 7, Golden, Colorado, 18th Biennial meeting of the Society of Geology Applied to Mineral Deposits](#).
- [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](#).
- [The 52nd Congress of the International Association of Hydrogeologists, 15-19 September 2025, Melbourne Australia](#).
- [GeoManitoba 2025 78th Annual Canadian Geotechnical Society Conference & 9th Canadian Permafrost Conference, RBC Convention Centre, Winnipeg, Manitoba, September 21 – 24, 2025](#).
- [29 September – 1 October 2025, Stuttgart, Germany, Nature Conference on Advancing Perovskite-Based Photovoltaics](#).
- [November 3 – 4, 2025 Central Canada Mineral Exploration Convention 2025 Victoria Inn Hotel & Convention Centre, 1808 Wellington Avenue, Winnipeg, Manitoba R3H 0G3, Canada](#).
- [5th International Professional Geology Conference \(IPGC\), November 5 to 7, 2025, Zaragoza, Spain](#).
- [Saskatchewan Geological Open House, December 1 to 3, 2025, Delta Bessborough Hotel, Saskatoon](#); Registration for the 2025 Conference will be opening on August 6.
- 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](#).
- [“Geology Hour” Online](#), evenings on the 3rd Monday of the Month from the Geological Society of the Oregon Country, next one tonight, July 21.

July 21, 2025

## Geology and the Fate of Societies – Lebanon



**Figure 1a – Lebanon**

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



**Figure 1b – Location of Lebanon**

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

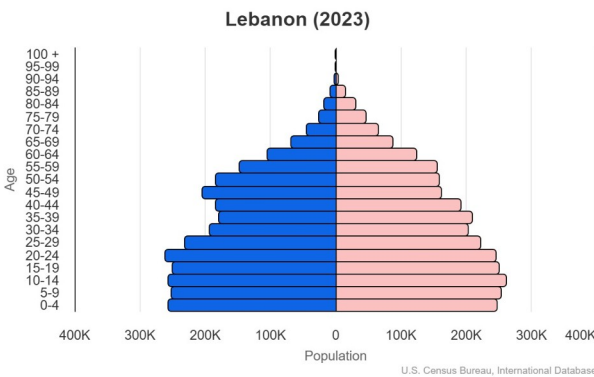
Located in the [Levant](#), the [Republic of Lebanon](#) sits on the eastern shore of the [Mediterranean Sea](#). Neighbouring countries are: [Syria](#), to the north and east; and [Israel](#), to the south. The island of [Cyprus](#) lies about 170 west of [Lebanon](#). The [government of Lebanon](#) is [unitary parliamentary republic](#) with [religious based power sharing](#). The President is [Joseph Aoun](#), the Prime Minister is [Nawaf Salam](#), and the [Speaker](#) of the [Majlis Al-Nuwab](#) (Parliament or National Assembly) is [Nabih Berri](#). The Capital and largest city in Lebanon is [Beirut](#) (pop. about 3.5 million in the metropolitan area).

According to the [Central Intelligence Agency](#) (CIA) [World Factbook on Lebanon](#), the country has a total area of 10,400 square kilometres (km<sup>2</sup>) of which 10,230 km<sup>2</sup> is land and 170 km<sup>2</sup> is water. Also according to the CIA, 5,364,482 people live in Lebanon, 89.4% of whom live in urban areas. Also, [a significant number of people identifying themselves as Lebanese](#) live outside the country. 95% of Lebanese are [Arab](#), although [Lebanese Christians](#) tend to identify as descendants of the [Phoenicians](#) rather than the desert [Bedouin](#). Of the remaining, 4% are ethnic [Armenian](#) and 1% are something other. [Arabic](#) is the official language, although [French](#) and [English](#) are widely spoken by the educated classes and [Armenian](#) is spoken by the Armenian minority.

The major divisions in Lebanese society are along religious lines where 53.31% are [Moslems](#) (26.55% [Sunni Moslem](#), 26.20% [Shia Moslems](#), 0.64% [Alawite](#)); 41.40% [Christian](#) (28.11% [Catholic-Marionite](#), 8.30% [Greek Orthodox](#), 2.92% [Armenian Apostolic](#), 0.53% [Protestants](#), 1.64% other [Christian](#)); 5.21%

are [Druze](#); and 0.08% have [no religion](#) (or may [they've lost it](#)). 93% of the Lebanese population 15 years and over can read and write; people in Lebanon can expect to attend school for 11 years.

Economically, the per capita [GDP \(PPP\)](#) is \$11,793; the [Gini coefficient](#) is 31.8, indicating medium inequality; and the [Human Development Index](#) is high at 0.752. In 2023, the top [exports of Lebanon](#) were jewellery (\$515m), cars (\$442m), diamonds (\$304m), scrap iron (\$268m), and gold (\$205m). The top destinations were United Arab Emirates (\$1.3B), Egypt (\$340M), Turkey (\$253M), Iraq (\$236M), and United States (\$194M). Also in 2023, the top [imports of Lebanon](#) were refined petroleum (\$4.62b), gold (\$2.67b), cars (\$815m), packaged medications (\$509m), and cattle (\$346m). The top origins were Switzerland (\$2.35B), China (\$2.1B), Greece (\$1.78B), Turkey (\$1.51B), and Italy (\$1.08B). (The currency unit is [USD](#)). The main industries of Lebanon, according to the CIA, are banking, tourism, real estate and construction, food processing, wine, jewelry, cement, textiles, mineral and chemical products, wood and furniture products, oil refining, metal fabricating.



**Figure 2 – Demographics of Lebanon**  
[Credit: US Census Bureau, International Database, public domain](#)

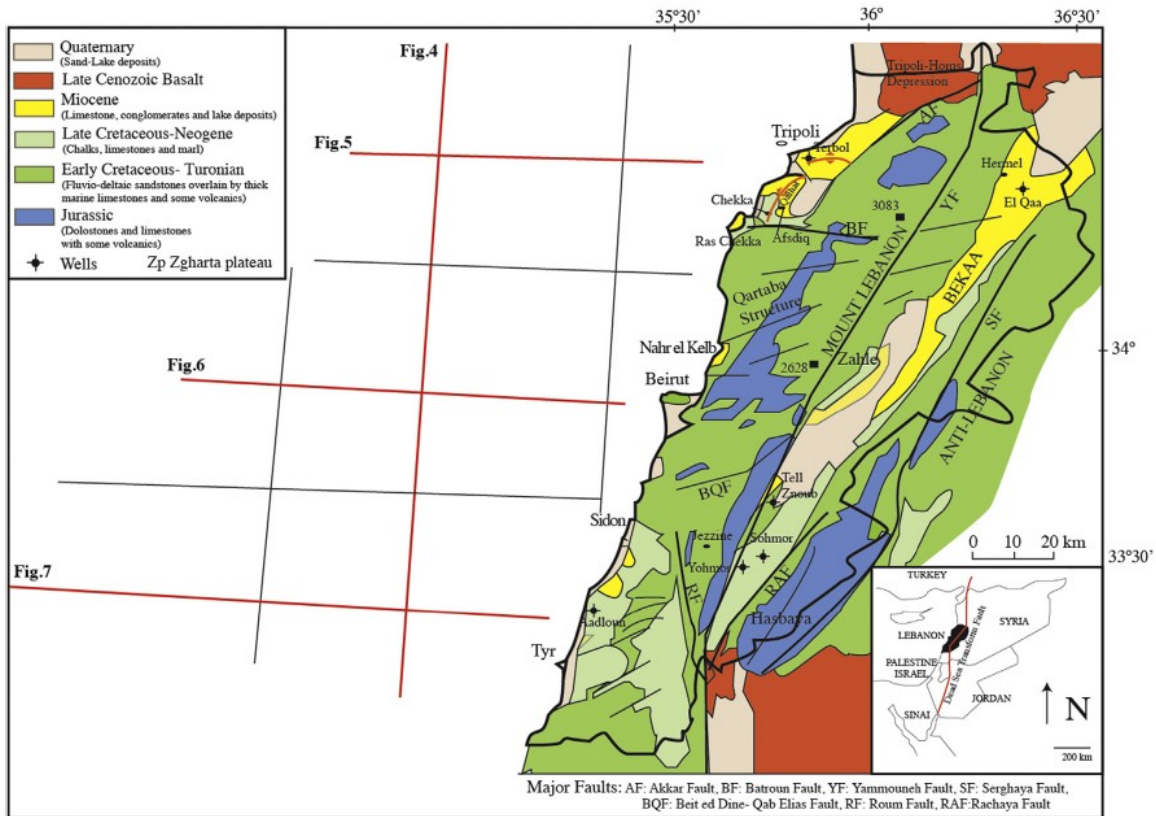
The [demographics of Lebanon](#) show a shrinking, middle aged population. The median age is 36.3 years for both sexes; the total fertility rate is 2.24 births per woman (above the replacement rate of 2.1); the net migration rate in 2024 was -0.9 migrant(s)/1,000 population; the death rate is 5.6 deaths/1,000 population; and the resulting annual growth rate is -1.11%. The life expectancy at birth, both sexes is 75.2 years (male: 77.8 years, female: 80.7 years).

## Geology



**Figure 3 – Main Tectonic Features of Lebanon**  
[Credit: Mikenorton, Creative Commons Attribution-Share Alike 3.0 Unported license](#)

Lebanon sits on the border between the [Arabian Plate](#) and the [African Plate](#). West of the [Yammouneh Fault](#), part of the [Levant Fracture System](#), are the [Lebanon Mountains](#) and to the East are the [Anti-Lebanon Mountains](#). Also part of the Levant Fracture System in Lebanon is the [Mount Lebanon Thrust Fault](#), to the west and north of the country, and east of Tyre and Sidon is the [Roum Fault](#). There are also many minor faults in Lebanon associated with the Levant Fracture System.



**Figure 4 – Geological Map of Lebanon**  
 Credit: [Figure 2 in Hawie et al, 2013](#)

The oldest exposed rocks in the [geology of Lebanon](#), date from the [Jurassic Period](#). Most of the sedimentary rocks older than [Quaternary Period](#) were deposited in the [Neo-Tethys Ocean](#) and raised to their current position by the [Cimmerian](#) and [Alpine](#) orogenies. (See [Hawie et al, 2013](#)).

Major [formations from the Jurassic Period](#) include:

- The Arad Group made up of dolomite, limestone and marl;
- The Kesrouane Formation a 1,300 metres thick succession of shallow marine dolomite.
- The Bhannes Formation is a basalt complex that also includes shale, marl and carbonates overlies the Kesrouane.
- The Bikfaya Formation also contains basalt flows together with limestone deposits;
- The Salima Formation overlies the Bikfaya and consists of oolitic limestone, clay, marl and sandstone, although its age is currently under debate.

- Other significant formations from the Jurassic include the Chouf Formation, Abeih Formation, Mdairej Formation, Hammana Formation and the Sannine Formation and the Maameltain Formation.

The [Chekka Formation](#) spans the [Cretaceous](#) into the [Paleocene](#) and consists of white chalk and marly limestone, with beds typically 20 to 50 centimeters thick. The Chekka also contain bands of chert and phosphate nodules, as well as units rich in organic matter. Later on, during the [Eocene](#), the [Arak Formation](#) of siliclastic and carbonates was deposited. [Oligocene](#) rocks are missing in Lebanon with [Miocene](#) deposits sitting unconformably atop Eocene units. Miocene deposits in Lebanon mostly consist of volcanic flows with some turbidite sandstones. [Pliocene](#) to [Quaternary](#) aged deposits in Lebanon include basalts, chalky limestone, marl, clay, conglomerates, and beach sands.

For more information, follow up on the links above.

## Resources

### *Agriculture and Fishing*



**Figure 5 – Beqaa Valley, Lebanon**

**Credit: [Freedom's Falcon, Creative Commons Attribution-Share Alike 3.0 Unported](#) license**

According to the CIA World Factbook, agriculture accounts for 1.2% of Lebanon's GDP and uses 66.4% of the land in Lebanon (13.6% arable land, 13.7% permanent crops, 39.1% permanent pasture). Of the remaining, 14.1% is forest and 19.5% is something other such as desert, unused highlands, and urban areas. 1,040 km<sup>2</sup> of land is irrigated (= 9.8% of the land area).

Also according to the CIA, the top ten agricultural products based on tonnage are: potatoes, milk, tomatoes, apples, oranges, olives, cucumbers/gherkins, chicken, lemons/limes, wheat. Statistics from the [United Nations Food and Agriculture Organization](#) (FAO) can be found [here](#). The FAO also indicates that 40.1% of the Lebanese population suffered [moderate to severe food insecurity](#) 2021 to 2023. The FAO

[Country Brief on Lebanon](#) indicates that adverse weather conditions, political disorder, and economic instability are the underling cause of the high rate of food insecurity.



**Figure 6 – Fishing Boats in Tyre Harbour**

**Credit: [Vyacheslav Argenberg, Creative Commons Attribution 4.0 International](#) license**

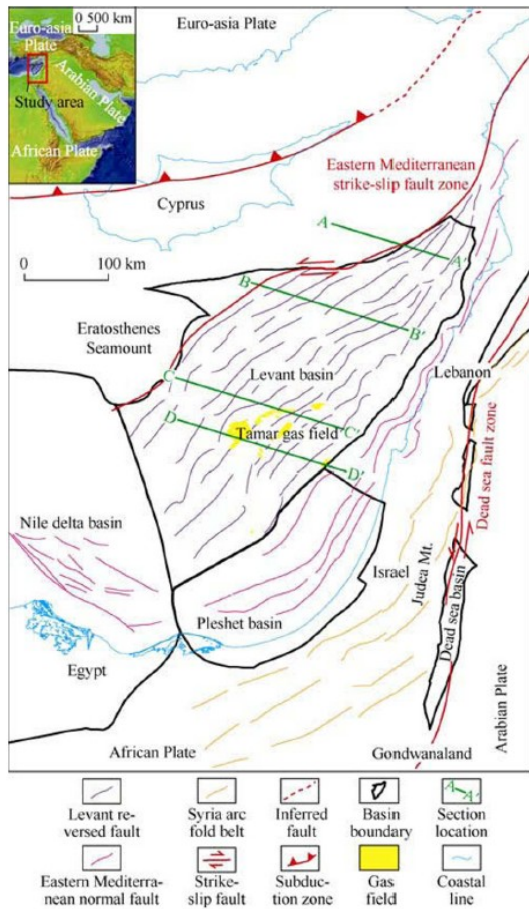
With its 220 km long coastline, and a [long history of maritime travel](#), you would think that Lebanon had a large fishing industry. However this is only partly true. The [fishing industry in Lebanon](#) consists mostly of small artisanal operations, with some 3,000 boats operating out of 44 fishing ports along the coast. There are also [fish farms](#) and a [sports fishery for tourists](#).

The main species caught by Lebanese fishermen include [sardines](#), [anchovies](#) and [seabream](#). There are also around 300 fish farms, producing mostly [rainbow trout](#). In 2021 the [fishery in Lebanon](#) caught 2,580 tonnes of fish and produced 778 tonnes in the fish farms; Lebanese consumption of fish in 2021 was 50,822 tonnes, much of it imported. More FAO statistics on the Lebanese fishery can be found [here](#).

When scanning the web for information on a subject, there are always some odd stories worth sharing. With regards to the fishery in Lebanon, it appears that the political disorder in that country has affected the fishing industry. [Blast fishing](#), a practice banned in most jurisdictions, is apparently [common in Lebanon](#). Another, more pleasant finding on the web, is the Lebanese way to [cook fresh sardines](#), one of the [many culinary delights](#) of the country.

### ***Mineral Industry***

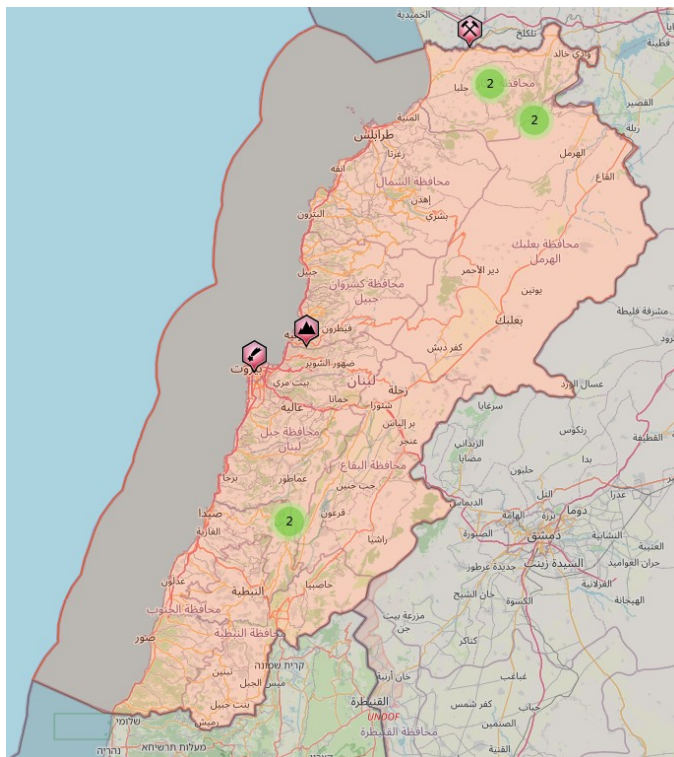
Lebanon has a limited [mineral industry](#). No metallic minerals are mined in the country, although copper, lead and gold are refined in the country. Industrial minerals include cement, phosphate fertilizer, salt, and stone, both crushed and dimension. The most current statistics on production (2022), from the USGS, can be found [here](#).



While there is no current oil or natural production in Lebanon, [TotalEnergies](#) conducted [exploration programs](#) in 2023, and the current Lebanese administration has [expressed hope for more work](#) in the future. Figure 7, from [Liu et al, 2017](#), shows the current gas fields and geological structures of the [Levantine Basin](#).

**Figure 7 – Gas Fields and Regional Structure Map of the Levant Basin** [Credit: Figure 1 in Liu et al 2017](#)

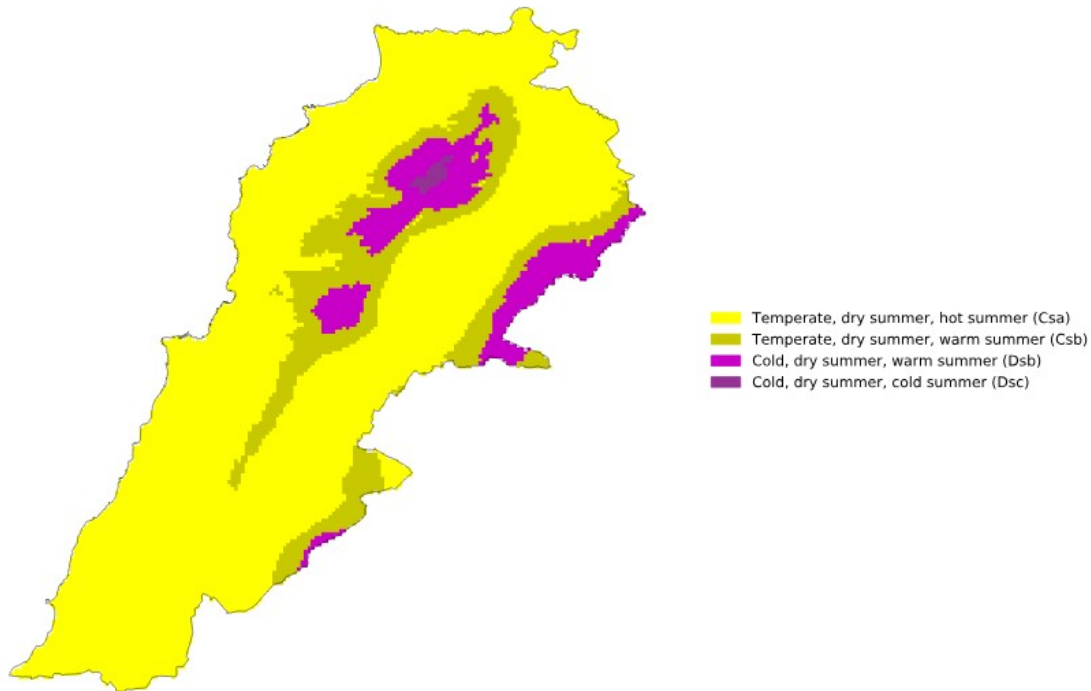
Figure 8, below, links to a mineral occurrence map for Lebanon from [Mindat.org](#).



**Figure 8 – Mineral Occurrence Map of Lebanon** [Credit: ©Mindat.org](#)

## Climate

Köppen-Geiger climate classification map for Lebanon (1980–2016)



Source: Beck et al.: Present and future Köppen-Geiger climate classification maps at 1-km resolution, Scientific Data 5:180214, doi:10.1038/sdata.2018.214 (2018)

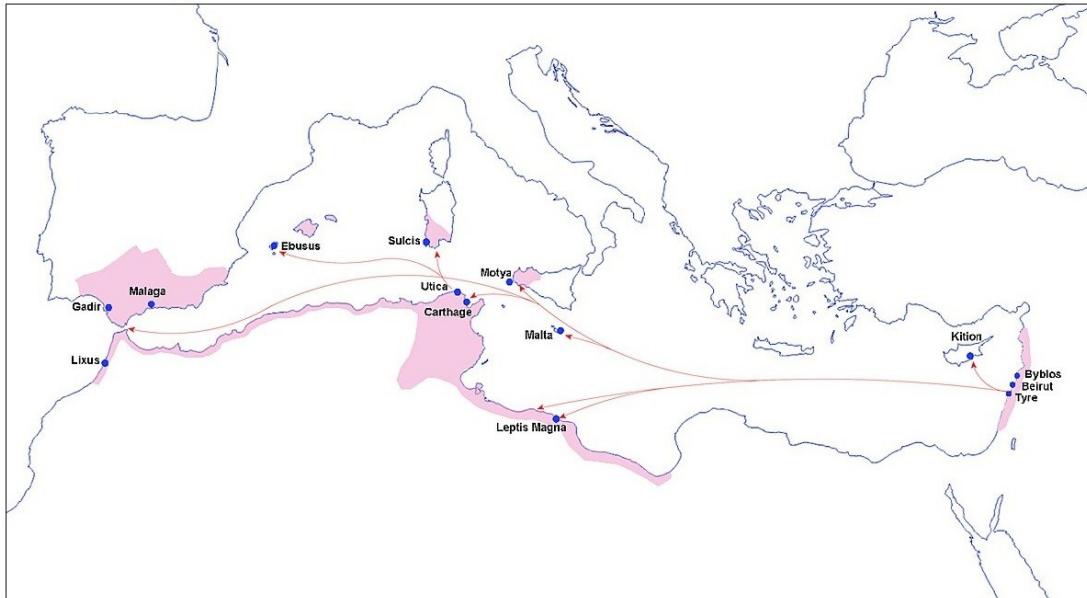
**Figure 9 – Köppen-Geiger Climate Classification Map for Lebanon**  
**Credit: Beck et al, 2018, Creative Commons Attribution 4.0 International license**

The climate of Lebanon is generally temperate and varies with elevation, with cold climates in the high mountains. The four climate types in Lebanon are:

- Hot-summer Mediterranean climate ([Csa](#));
- [Warm-summer Mediterranean climate](#) (Csb);
- [Mediterranean](#)-influenced warm-summer humid continental climate (Dsb); and
- Mediterranean-influenced subarctic climate (Dsc).

With its generally pleasant climate, tourism has been a [major industry](#) in Lebanon with plenty to see and many unique experiences to enjoy. However, in recent times, political disorder has led to travel advisories ([here](#) and [here](#)) strongly discouraging travel. The unique experiences you might now find in Lebanon include terrorist attacks, armed conflict, various kinds of organized criminal gangs, demonstrations, and shortages of essentials such as fuel and electrical power. However, if you are an adventurous type, check out the latest news together with [Climates to Travel](#) and [Lonely Planet](#) before you go. Just be careful with the [arak liquor](#) and the [Blonde Lebanese hashish](#).

## History and Geopolitics



**Figure 10 – Ancient Phoenician Settlements after 800 BC**  
**Credit: Figure 1 in [Matisoo-Smith et al, 2018](#),**  
**[Creative Commons Attribution 4.0 International](#) license**

Lebanon has a long and fairly complex [history](#). If you like details, check out these sites [here](#), [here](#), [here](#), [here](#), and [here](#). We'll take a quick look at its history from early to modern times before looking into the country's geopolitics.

The city states of ancient [Canaan](#) and [Phoenicia](#) developed in the Levant during the [Neolithic](#) and [Bronze Ages](#). With a limited amount of arable land, the Phoenicians took to the sea for fishing and trade. One of their most famous products was [purple dye](#) made from [murex gastropods](#). Following the [Late Bronze Collapse](#) Phoenicians took the [leadership in the Mediterranean trade](#), and established [trading colonies](#) throughout the Mediterranean basin. Among the innovations that the ancient Phoenicians pioneered was the [alphabet](#), an innovation that to our modern [Hebrew](#), [Greek](#), and [Cyrillic](#) alphabets together with the one you are reading now, the [Latin](#) alphabet.

Unfortunately for the ancient Phoenicians, they live in a dangerous part of the world. Successive empires, including the [Assyrians](#), [Persians](#), [Greeks](#), [Romans](#), [Byzantines](#), [Moslem Arabs](#), [Seljuk Turks](#), [European Crusaders](#), [Egyptian Mamluks](#) and [Ottoman Turks](#), have conquered and ruled the cities of the Levantine shore. Under all these external rulers, the people of the Levant continued their merchant ways; for example Beirut became the banking centre of the [Ottoman Empire](#) from roughly 1820 to 1918.

The modern history of began with the breakup of the Ottoman Empire at the end of [World War I](#), [France](#) took control of the Ottoman provinces encompassing modern day Syria and Lebanon under a [mandate from the League of Nations](#). The [French](#) established the modern borders of Lebanon and ruled the country [essentially as a colony](#).

With the defeat of [France by Germany in May 1940](#), an opportunity for self-rule in Lebanon opened up. In 1943, following elections, the imprisonment of the Lebanese legislators by the French, and the

subsequent release of the Lebanese politicians, Lebanon was [declared an independent republic](#) in November 1943.

However, the borders established by the French contained the seeds of future conflict since they included a roughly 50/50 division of the country into Muslims and Christians. Over time the bare Christian majority in the 20<sup>th</sup> Century has [evolved](#) into the current Muslim majority. Sadly, for the Lebanese, demographics is destiny.

Following independence Lebanon followed a path of [rapid economic development](#) with increasing political problems leading to [authoritarian government](#). While there was a period of [apparent stability until 1970](#), the underlying demographic problems set the stage for a [gradual slide](#) to civil war which became kinetic in 1975.



**Figure 11 – War Damaged Building in Beirut, September 2008**

**[Credit: Vyacheslav Argenberg, Creative Commons Attribution 4.0 International license](#)**

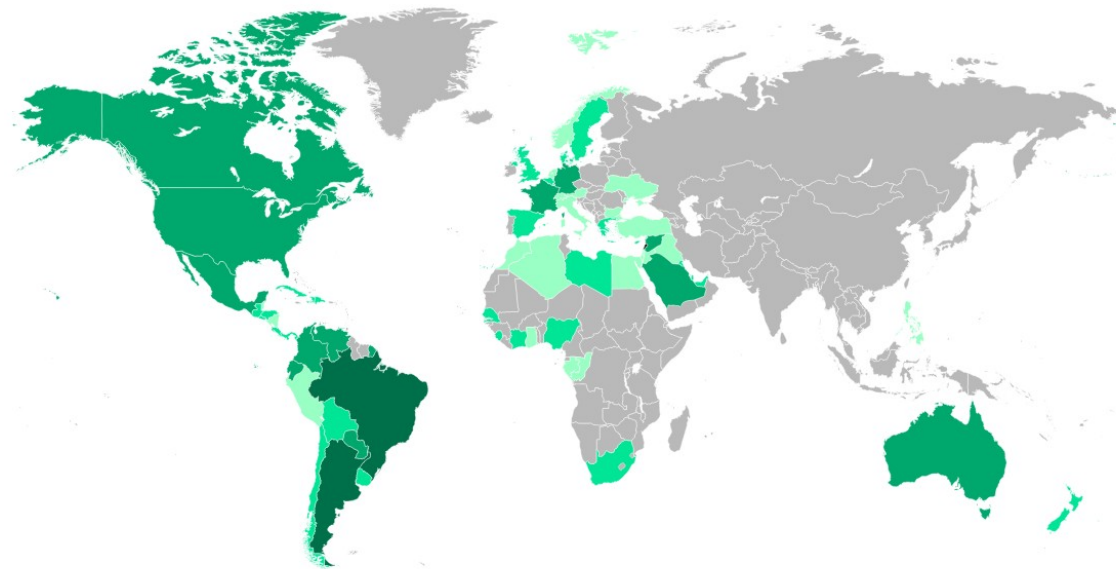
The [Lebanese Civil War](#), fought largely along religious lines, lasted officially until 1990. The [Taif Agreement](#) of 1989 officially put an end to the war, but things have not really been stable in Lebanon during the past 35 years. Between the official Lebanese armed forces, the various Christian militias, the Shiite Hezbollah militia and [no end to private armies](#), Lebanon has had little peace nor good prospects for peace. Add the problems of internal peace to the [endemic corruption](#) in the state, it is hard to see a good outcome for the politics of Lebanon. It is no wonder that Lebanon rates 24<sup>th</sup> on the [Fragile States Index](#). Nor is any wonder that more people are leaving the country than moving into it.

As if their internal problems were bad enough, Lebanon has bad neighbours. Both [Israel](#) and [Syria](#) have invaded Lebanon many times, essentially whenever it suited them. Also, both countries are involved in serious conflicts. For Syria, the outcome of their recent civil war has been [less than optimal](#), with widespread abuse of people by the new Syrian government. Israel, for its part, seems intent on [levelling Gaza to the ground](#) and expelling the inhabitants. This is not a comfortable situation for Lebanon who may see more [refugees coming into their country](#).

Still, Lebanon's external relations are not all bad. Nearby [Cyprus is friendly](#). Both countries have a [common interest](#) in developing the offshore gas fields. Also, Cyprus has made it know that it will not allow its territory to be used [for attacks on Lebanon](#).

[France](#) maintains a close interest in the Lebanon's well being, for a wide variety of [historical and geopolitical reasons](#), some of which go back to the French-speaking [Crusader States](#) of the Middle Age. Lebanese, especially the Christian ones, acquired a lot of modern culture through their contact with France before, during and after the French occupation of the country in the 20<sup>th</sup> Century.

The [United States](#) also has an interest in [Lebanese affairs](#), if only as an extension of their involvement with Israel. The USA has extended [military aid to Lebanon](#). The Americans have also asked [Lebanon to suppress Hezbollah](#), a move that might stabilize Lebanon and also, incidentally, help America's friend, Israel. However, taking guns away from [well armed people is not an easy task](#). I recommend [Aljazeera](#) for up-to-date reporting on the current situation in Lebanon.



**Figure 12 – Lebanese Diaspora Throughout the World**

**Credit: [Linus Hagenbach, Creative Commons Attribution 4.0 International](#) license**

An important part of Lebanon's geopolitics is the [large number of Lebanese who live outside the country, estimated to be 15 million](#), much greater than the number of people living in Lebanon. It is an ancient phenomena, going back to Phoenician times. If you live in a major population centre, there is a good chance that there is Lebanese community in your city. One effect of this widespread diaspora is that many countries have an interest in Lebanon because of the Lebanese communities in their midst.

Lebanon is another country for which it is hard to be optimistic. You could use Lebanon as an example of the dangers of combining multiculturalism with a democratic government. It doesn't usually work out. Lebanon's recent history of endemic political violence and foreign interventions has resulted in social, political, and economic instability. None of this is good for the long-suffering people of Lebanon. Unfortunately for those people, there does not seem to be any end in sight.

## **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.