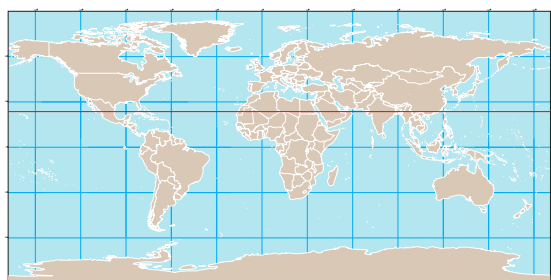


Tropic of Cancer

For the novel by Henry Miller, see *Tropic of Cancer* (novel). For the BBC TV series, see *Tropic of Cancer* (BBC TV series).

Coordinates: 23°26′16″N 0°0′0″W﻿ / ﻿23.43778°N -0.00000°E﻿ /



World map showing the Tropic of Cancer

The **Tropic of Cancer**, also referred to as the **Northern Tropic**, is the most northerly circle of latitude on the Earth at which the Sun may appear directly overhead at its culmination. This event occurs once per year, at the time of the Northern solstice, when the Northern Hemisphere is tilted toward the Sun to its maximum extent. As of 23 January 2015, it lies at 23°26′14.4″ north of the Equator.^[1]

Its Southern Hemisphere counterpart, marking the most southerly position at which the Sun may appear directly overhead, is the Tropic of Capricorn. These tropics are two of the five major degree measures or major circles of latitude that mark maps of the Earth, besides the Arctic and Antarctic Circles and the Equator. The positions of these circles of latitude (other than the Equator) are dictated by the tilt of the Earth's axis of rotation relative to the plane of its orbit.

1 Name

The imaginary line is called the Tropic of Cancer because when the Sun reaches the zenith at this latitude, it is entering the astrological sign of Cancer (summer solstice in the northern hemisphere). When it was named, the Sun was also in the direction of the constellation Cancer (Latin for *crab*). However, this is no longer true due to the precession of the equinoxes. According to International Astronomical Union boundaries, the Sun now is in Taurus at the June solstice. According to sidereal astrology,



Road sign South of Dakhla, Western Sahara marking the Tropic of Cancer. The sign was placed by the Budapest-Bamako rally participants, thus the inscription is in English and Hungarian.



Tropic of Cancer passes through National Highway 34 in Nadia District, West Bengal, India

which divides the zodiac into 12 equal parts, the Sun is in Gemini at that time. However, according to tropical astrology, which divides the ecliptic in twelve 30° sectors, starting with the vernal equinox, the Sun is always entering Cancer at this time, as the Earth's axial tilt is most inclined towards the Sun. The word “tropic” itself comes from the Greek “trope (τροπή)”, meaning turn (change of direction, or circumstances), inclination, referring to the fact that the sun appears to “turn back” at the solstices.

2 Geography

The Tropic of Cancer position is not fixed, but varies in a complicated manner over time.^[2] It drifts south almost half a second (0.47″) of latitude per year (it was at exactly 23° 27′ in year 1917).^[3] See circles of latitude for further information.



Tropic of cancer passes through Madhya Pradesh



Carretera 83 (Via Corta) Zaragoza-Victoria, km 27+800. Of all crossings of the Tropic of Cancer with Mexican federal highways, this is the only place where the latitude is marked with precision and where the annual drift between the years 2005 and 2010 can be appreciated.



Tropic of cancer Mark in Ruesuei Township, Hualien County, Taiwan

North of the tropic are the subtropics and the North Temperate Zone. The equivalent line of latitude south of the Equator is called the Tropic of Capricorn, and the region between the two, centered on the Equator, is the tropics.

Starting at the Prime Meridian and heading eastward, the Tropic of Cancer passes through:

3 Climate

Excluding cooler highland regions in China, the climate at the Tropic of Cancer is generally hot and dry except for easterly coastal areas where orographic rainfall can be very heavy, in some places reaching 4 metres (160 in). Most regions on the Tropic of Cancer experience two distinct seasons: an extremely hot summer with temperatures often reaching 45 °C (113 °F) and a warm winter with maxima around 22 °C (72 °F). Much land on or near the Tropic of Cancer is part of the Sahara Desert, whilst to the east the climate is torrid monsoonal with a short wet season from June to September and very little rainfall for the rest of the year.

The highest mountain on or adjacent to the Tropic of Cancer is Yushan in Taiwan; though it had glaciers descending as low as 2,800 metres (9,190 ft) during the Last Glacial Maximum, none survive and at present no glaciers exist within 470 kilometres (290 mi) of the Tropic of Cancer; the nearest currently surviving are the Minyong and Baishui in the Himalayas to the north and on Iztaccihuatl to the south.

4 Circumnavigation

According to the rules of the Fédération Aéronautique Internationale, for a flight to compete for a round-the-world speed record, it must cover a distance no less than the length of the Tropic of Cancer, cross all meridians, and end on the same airfield where it started.

To calculate the length of the Tropic:

- At present, the radius of the Tropic of Cancer (or Capricorn) circle, computed from the radius of Earth's equatorial circle, is $6378 \text{ km} \times \cos(23^\circ 26' 16'')$ which results in 5,851.77 kilometres (3,636.12 mi).
- Then the length of either Tropic circle is $\ell = \pi \cdot 2r = 3.1416 \times 2 \times 5851.77$ which equals 36,768 kilometres (22,847 mi).
- Therefore, assuming the Earth to be a perfect sphere, the length of the circumference at the parallel of the Tropic of Cancer or Capricorn is **36,768 kilometres (22,847 mi)**.

For an ordinary circumnavigation the rules are somewhat relaxed and the distance is set to a rounded value of at least 37,000 kilometers.

5 External links

- [Article on the Tropic of Cancer in Oman](#)

- Temporal Epoch Calculations
- Useful constants See: Obliquity of the ecliptic

6 See also

- 23rd parallel north
- 24th parallel north
- Tropic of Capricorn
- Antarctic Circle
- Arctic Circle
- Axial tilt
- Equator
- Milankovitch cycles
- Ducking and shaving

7 References

- [1] “PHP Science Labs”. Retrieved 2014-01-01.
- [2] *obliquity of the ecliptic (Eps Mean)*
- [3] Montana State University: Milankovitch Cycles & Glaciation

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