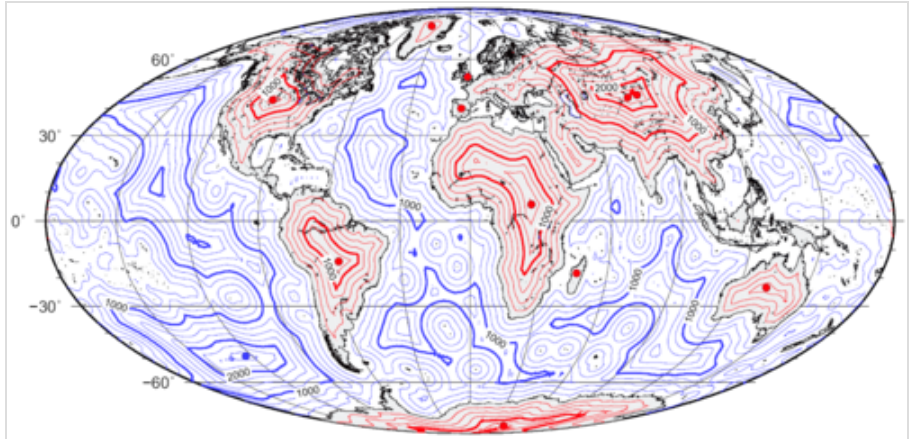


# Pole of inaccessibility

In geography, a **pole of inaccessibility** is the farthest (or the most difficult to reach) location in a given landmass, sea, or other topographical feature, starting from a given boundary, relative to a given criterion. A geographical criterion of inaccessibility marks a location that is the most challenging to reach according to that criterion. Often it refers to the most distant point from the coastline, implying the farthest point into a landmass from the shore, or the farthest point into a body of water from the shore. In these cases, a pole of inaccessibility is the center of a maximally large circle that can be drawn within an area of interest only touching but not crossing a coastline. Where a coast is imprecisely defined, the pole will be similarly imprecise.



Map of distance to the nearest coastline<sup>[1]</sup> (including oceanic islands, but not lakes) with red spots marking the poles of inaccessibility of main landmasses, Great Britain, and the Iberian Peninsula, and a blue dot marking the oceanic pole of inaccessibility. Thin isolines are 250 km (160 mi) apart; thick lines 1,000 km (620 mi). Mollweide projection.

## Northern pole of inaccessibility

The northern pole of inaccessibility, sometimes known as the Arctic pole, is located on the Arctic Ocean pack ice at a distance farthest from any landmass. The original position was wrongly believed to lie at 84°3'N 174°51'W. It is not clear who first defined this point, but it may have been Sir Hubert Wilkins, who wished to traverse the Arctic Ocean by aircraft in 1927. He was finally successful in 1928. In 1968 Sir Wally Herbert came very close to reaching what was then considered to be the position by dogsled, but by his own account, *Across the Top of the World*, did not make it due to the flow of sea ice.<sup>[2]</sup> In 1986, an expedition of Soviet polar scientists led by Dmitry Shparo claimed to reach the original position by foot during a polar night.



Northern pole of inaccessibility

In 2005, explorer Jim McNeill asked scientists from The National Snow and Ice Data Center and Scott Polar Research Institute to re-establish the position using modern GPS and satellite technology. This was published as a paper in the *Polar Record*, Cambridge University Press in 2013.<sup>[3]</sup>

McNeill launched his own, unsuccessful attempt to reach the new position in 2006, while measuring the depth of sea-ice for [NASA](#).<sup>[4]</sup> In 2010 he and his [Ice Warrior](#) team were thwarted again by the poor condition of the sea ice.<sup>[5]</sup>

The new position lies at [85°48'N 176°9'W](#), 1,008 kilometres (626 mi) from the three closest landmasses: [Henrietta Island](#) in the [De Long Islands](#), at [Arctic Cape](#) on [Severnaya Zemlya](#), and on [Ellesmere Island](#). It is over 200 kilometres (120 mi) from the originally accepted position.<sup>[6]</sup> Due to constant motion of the pack ice, no permanent structure can exist at this pole. On 12 September 2024, the French icebreaking cruise ship [Le Commandant Charcot](#) became the first ship to reach the Northern Pole of Inaccessibility.<sup>[7]</sup>

## Southern pole of inaccessibility

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The southern pole of inaccessibility is the point on the [Antarctic](#) continent most distant from the [Southern Ocean](#). A variety of coordinate locations have been given for this pole. The discrepancies are due to the question of whether the "coast" is measured to the grounding line or the edges of ice shelves, the difficulty of determining the location of the "solid" coastline, the movement of ice sheets and improvements in the accuracy of survey data over the years, as well as possible topographical errors.

The point commonly referred to as the pole of inaccessibility is the site of the [Soviet Union](#) research station mentioned below, which was constructed at [82°6'S 54°58'E](#)<sup>[8]</sup> (though some sources give [83°6'S 54°58'E](#)<sup>[9]</sup>). This lies 1,301 km (808 mi) from the [South Pole](#), at an [elevation](#) of 3,718 m (12,198 ft). Using different criteria, the [Scott Polar Research Institute](#) locates this pole at [85°50'S 65°47'E](#).<sup>[10]</sup>



The old Soviet Pole of Inaccessibility Station, revisited by [Team N2i](#) on 19 January 2007

Using recent datasets and cross-confirmation between the adaptive gridding and B9-Hillclimbing<sup>[11]</sup> methods discussed below, [Rees et al. \(2021\)](#)<sup>[12]</sup> identify two poles of inaccessibility for Antarctica: an "outer" pole defined by the edge of Antarctica's floating ice shelves and an "inner" pole defined by the grounding lines of these sheets. They find the Outer pole to be at [83.904°S 64.890°E](#), 1,590.4 km (988.2 mi) from the ocean, and the Inner pole to be at [83.610°S 53.720°E](#), 1,179.4 km (732.8 mi) from the grounding lines.

The southern pole of inaccessibility is far more remote and difficult to reach than the [geographic South Pole](#). On 14 December 1958, the [3rd Soviet Antarctic Expedition](#) for [International Geophysical Year](#) research work, led by [Yevgeny Tolstikov](#), established the temporary [Pole of Inaccessibility Station](#) ([Russian](#): [полюс недоступности](#), *polyus nedostupnosti*) at [82°6'S 54°58'E](#). A second Russian team returned there in 1967. A building marked by a bust of [Vladimir Lenin](#) that faces towards [Moscow](#) still remains at this location, which is protected as a historical site.

On 11 December 2005, at 7:57 UTC, [Ramón Hernando de Larramendi](#), [Juan Manuel Viu](#), and [Ignacio Oficialdegui](#), members of the [Spanish Transantarctic Expedition](#), reached for the first time in history the southern pole of inaccessibility at [82°53'14"S 55°4'30"E](#), updated that year by the [British Antarctic Survey](#). The team continued their journey towards the second southern pole of inaccessibility, the one that accounts for the ice shelves as well as the continental land, and they were the first expedition to reach it, on 14 December 2005, at [83°50'37"S 65°43'30"E](#). Both achievements took place within an ambitious pioneer crossing of the eastern

Antarctic Plateau that started at Novolazarevskaya Station and ended at Progress Base after more than 4,500 km (2,800 mi). This was the fastest polar journey ever achieved without mechanical aid, with an average rate of around 90 km (56 mi) per day and a maximum of 311 km (193 mi) per day, using kites as their power source.<sup>[13][14][15][16]</sup>

On 4 December 2006, Team N2i, consisting of Henry Cookson, Rupert Longsdon, Rory Sweet and Paul Landry, embarked on an expedition to be the first to reach the historic pole of inaccessibility location without direct mechanical assistance, using a combination of traditional man hauling and kite skiing. The team reached the old abandoned station on 19 January 2007, rediscovering the forgotten statue of Lenin left there by the Soviets some 48 years previously.<sup>[17]</sup> The team found that only the bust on top of the building remained visible; the rest was buried under the snow.<sup>[18]</sup> The explorers were picked up from the spot by a plane from Vostok base, flown to Progress Base and taken back to Cape Town on the Akademik Fyodorov, a Russian polar research vessel.<sup>[18]</sup>

On 27 December 2011, Sebastian Copeland and partner Eric McNair-Laundry also reached the 82°6'S 54°58'E southern pole of inaccessibility. They were the first to do so without resupply or mechanical support, departing from Novolazarevskaya Station on their way to the South Pole to complete the first East/West crossing of Antarctica through both poles, over 4,000 km (2,500 mi).<sup>[19]</sup>

As mentioned above, due to improvements in technology and the position of the continental edge of Antarctica being debated, the exact position of the best estimate of the pole of inaccessibility may vary. However, for the convenience of sport expeditions, a fixed point is preferred, and the Soviet station has been used for this role. This has been recognized by Guinness World Records for Team N2i's expedition in 2006–2007.<sup>[20]</sup>

## Oceanic pole of inaccessibility

The oceanic pole of inaccessibility, also known as **Point Nemo**, is located at roughly 48°52.6'S 123°23.6'W<sup>[21]</sup> and is the place in the ocean that is farthest from land. It represents the solution to the "longest swim" problem.<sup>[22]</sup> The problem entails finding such a place in the world ocean where, if a person fell overboard while on a ship at sea, they would be as far away from any land in any direction as possible. It lies in the South Pacific Ocean, and is equally distant from the three closest land vertices which are each roughly 2,688 km (1,670 mi) away. Those vertices are Pandora Islet of the Ducie Island atoll (an island of the Pitcairn Islands) to the north; Motu Nui (adjacent to Easter Island) to the northeast; and Maher Island (near the larger Siple Island, off the coast of Marie Byrd Land, Antarctica) to the south.<sup>[21]</sup> The exact coordinates of Point Nemo depend on what the exact coordinates of these three islands are, since the nature of the "longest swim" problem means that the ocean point is equally far from each.<sup>[22]</sup>



Location of Point Nemo in relation to three closest coastline points

The area is so remote that, since no regular marine or air traffic routes are within 400 kilometres (250 mi), sometimes the closest human beings are astronauts aboard the International Space Station when it passes overhead.<sup>[23][24]</sup>

The antipode of Point Nemo – the point on the surface of the Earth that is diametrically opposite of it – is located at roughly 48°52.6'N 56°36.4'E, in the Aktobe Region of western Kazakhstan, roughly 50 km (30 miles) SSE of the town of Shubarkuduk.

Point Nemo is relatively lifeless; its location within the South Pacific Gyre blocks nutrients from reaching the area, and being so far from land it gets little nutrient run-off from coastal waters.<sup>[23]</sup>

To the west the region of the South Pacific Ocean is also the site of the geographic center of the water hemisphere, at 47°24'42"S 177°22'45"E near New Zealand's Bounty Islands. The geographic center of the Pacific Ocean lies further north-west where the Line Islands begin, west from Starbuck Island at 4°58'S 158°45'W.<sup>[25]</sup>

## History

Point Nemo was first identified by Croatian survey engineer Hrvoje Lukatela in 1992.<sup>[24]</sup> In 2022, Lukatela recalculated the coordinates of Point Nemo using OpenStreetMap data and Google Maps data in order to compare those results with the coordinates he first calculated using Digital Chart of the World data.<sup>[22]</sup>

The point and the areas around it have attracted literary and cultural attention, and the point has become known as Point Nemo, which is Latin for "nobody" and a reference to Captain Nemo from Jules Verne's 1870 novel *Twenty Thousand Leagues Under the Seas*.<sup>[23][21]</sup> The novel was a childhood favorite of Lukatela's, and as such, he named the point after the character,<sup>[21][26]</sup> who had in the sequel *The Mysterious Island* his lair island in the South Pacific, though much further west from Point Nemo at 34°57'S 150°30'W. The general area also plays a major role in the 1928 short story "The Call of Cthulhu" by H. P. Lovecraft, as holding the location of the fictional city of R'lyeh, although this story was written 66 years before the identification of Point Nemo.<sup>[23]</sup>

The wider area is also known as a "spacecraft cemetery", because hundreds of decommissioned satellites, space stations, and other spacecraft have been made to fall there upon re-entering the atmosphere, to lessen the risk of hitting inhabited locations<sup>[27]</sup> or maritime traffic. The International Space Station (ISS) is planned to crash into Point Nemo in 2031.<sup>[28][29]</sup>

## Continental poles of inaccessibility

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### Eurasia

The Eurasian pole of inaccessibility (EPIA) is located in northwestern China, near the Kazakhstan border. It is also the farthest possible point on land from the ocean anywhere on Earth.

However, Eurasia (or even Asia alone) being the largest continent does not necessarily mean that its pole of inaccessibility is the farthest from the ocean anywhere.

Earlier calculations suggested that it is 2,645 km (1,644 mi) from the nearest coastline, located at 46°17'N 86°40'E, approximately 320 km (200 mi) north of the city of Ürümqi, in the Xinjiang Autonomous Region of China, in the Gurbantünggüt Desert. The nearest settlements to this location are Hoxtolgay Town at

46°34'N 85°58'E, about 50 km (31 mi) to the northwest, Xazgat Township (Chinese: \_\_\_\_\_; pinyin: *Xiàzīgài xiāng*) at 46°20'N 86°22'E, about 20 km (12 mi) to the west, and Suluk at 46°15'N 86°50'E, about 10 km (6.2 mi) to the east.

However, the previous pole location disregards the Gulf of Ob as part of the oceans, and a 2007 study<sup>[1]</sup> proposes two other locations as the ones farther from any ocean (within the uncertainty of coastline definition): EPIA1 44.29°N 82.19°E and EPIA2 45.28°N 88.14°E, located respectively at 2,510±10 km (1,560±6 mi) and 2,514±7 km (1,562±4 mi) from the oceans.<sup>[1]</sup> These points lie in a close triangle about the Dzungarian Gate, a significant historical gateway to migration between the East and West. EPIA2 is located near a settlement called *Kas Kîr Su* in a region named *Kîzilîkum* (قزىلقۇم) in the Karamgay Township, Burultokay County.

Elsewhere in Xinjiang, the location 43°40'52"N 87°19'52"E in the southwestern suburbs of Ürümqi (Ürümqi County) was designated by local geography experts as the "center point of Asia" in 1992,<sup>[30]</sup> and a monument to this effect was erected there in the 1990s. The site is a local tourist attraction.<sup>[31]</sup>

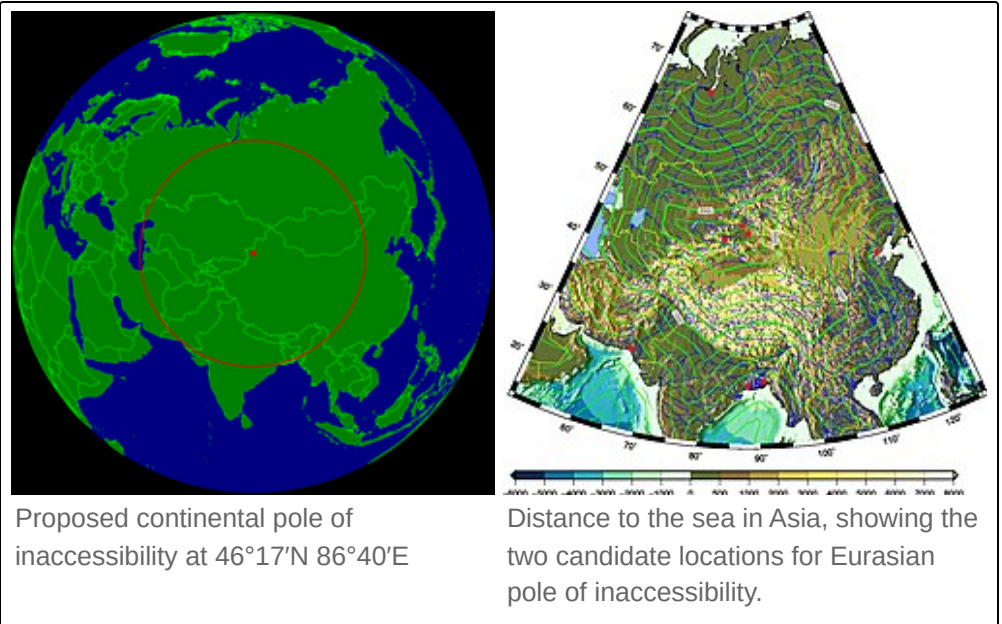
Coincidentally, the largest continental and oceanic poles of inaccessibility have a similar radius; the Eurasian poles EPIA1 and EPIA2 are about 178 km (111 mi) closer to the ocean than the oceanic pole is to land.

## Africa

In Africa, the pole of inaccessibility is at 5.65°N 26.17°E, 1,814 km (1,127 mi) from the coast,<sup>[1]</sup> near the town of Obo in the Central African Republic and close to the country's tripoint with South Sudan and the Democratic Republic of the Congo.

## North America

In North America, the continental pole of inaccessibility is on the Pine Ridge Reservation in southwest South Dakota about 11 km (7 mi) north of the town of Allen, 1,650 km (1,030 mi) from the nearest coastline at 43.36°N 101.97°W.<sup>[1]</sup> The first documented visit was in 2014 by two travelers and a local resident.<sup>[32]</sup> The pole was marked in 2021 with a marker that represents the 7 Lakota Values and the four colors of the Lakota Medicine Wheel.<sup>[33]</sup>



## South America

In South America, the continental pole of inaccessibility is in Brazil at  $14.05^{\circ}\text{S}$   $56.85^{\circ}\text{W}$ , near Arenópolis, Mato Grosso,<sup>[1]</sup> 1,504 km (935 mi) from the nearest coastline. In 2017, the Turner Twins went from coastal Chile to the South American Pole of Inaccessibility, becoming the first adventurers to go from the nearest coastline to the pole by foot.<sup>[34]</sup> In 2019, it was discovered that there is a second South American pole of inaccessibility to the north, its position varying greatly between the two coastline datasets used.<sup>[11]</sup>



The North-West portion of the North American Pole of Inaccessibility 

## Australia

In Australia, the continental pole of inaccessibility is located at  $23.17^{\circ}\text{S}$   $132.27^{\circ}\text{E}$ <sup>[1]</sup> 920 km (570 mi) from the nearest coastline, approximately 161 km (100 miles) west-northwest of Alice Springs. The nearest town is Papunya, Northern Territory, about 30 km (19 mi) west-southwest of the pole.



Australian Pole of Inaccessibility 

## Methods of calculation

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As detailed below, several factors determine how a pole is calculated using computer modeling.

Poles are calculated with respect to a particular coastline dataset. Currently used datasets are the GSHHG (Global Self-consistent, Hierarchical, High-resolution Geography Database)<sup>[35]</sup> as well as OpenStreetMap (OSM) planet dumps. The GSHHG claims 500-meter precision for 90% of identifiable coastal features, while the volunteer-built OSM gives no such guarantee but nevertheless has "characteristics suggesting accuracy".<sup>[11]</sup>

Next, a distance function must be determined for calculating distances between coastlines and potential Poles. Some works tended to project data onto planes or perform spherical calculations; more recently, other works have used different algorithms and high-performance computing with ellipsoidal calculations.<sup>[11]</sup>

Finally, an optimization algorithm must be developed. Several works<sup>[1][3]</sup> use the 2007 adaptive grid method of Garcia-Castellanos and Lombardo. In this method, a rectangular grid of, e.g.,  $21 \times 21$  points is created. Each point's distance from the coastline is determined and the point farthest from the coast identified. The grid is then recentered on this point and shrunk by some factor. This process iterates until the grid becomes very small (e.g. at 100-meter precision).<sup>[3]</sup> Some authors claim this method could sink into a local minimum.<sup>[12]</sup> A more recent method from 2019, B9-Hillclimbing by Barnes, uses a polyhedron in 3D space to find initial points evenly spaced by 100 kilometers. These points are then grouped; the more "unique" points are subject to numerical optimization (hill climbing, simulated annealing) for the farthest distance, accelerated by a 3D Cartesian point cloud.<sup>[11]</sup> Rees (2021) shows that the two methods agree with each other to meter level.<sup>[12]</sup>

To date, there has been no meta-study of the various works and their algorithms and datasets. However, successive works have compared themselves with previous calculations and claimed improvement. For example, the GC & L article from 2007 was able to find hundred-kilometer errors in the "traditional" Eurasian PIA in Crane & Crane, 1987.<sup>[1]</sup> Rees, using the same method, updated the arctic PIA by over 200 kilometers.<sup>[3]</sup> Barnes, which improved upon the method and the dataset used, was able to improve the GC & L South American PIA by 50 kilometers, showing that bad coastline data caused an error of 57 kilometers in their reported PIA-to-coast distance.<sup>[11]</sup>

## List of poles of inaccessibility

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Poles of Inaccessibility, as determined by some authors, are listed in the table below. This list is incomplete and may not capture all works done to date.

Poles of inaccessibility as calculated by various authors

| Pole           | Location                              | Distance from coast (km) | Dataset                             | Projection | Method          | Reference                                   |
|----------------|---------------------------------------|--------------------------|-------------------------------------|------------|-----------------|---------------------------------------------|
| Africa         | <u>5.65°N</u><br><u>26.17°E</u>       | 1,814                    | GSHHS 1996                          | Sphere     | Adaptive Grid   | Garcia-Castellanos (2007) <sup>[1]</sup>    |
| Africa         | <u>5.6413°N</u><br><u>26.1533°E</u>   | 1,814.5158               | GSHHG v2.3.6 (L1)                   | WGS84      | B9-Hillclimbing | Barnes (2019) <sup>[11]</sup>               |
| Africa         | <u>5.6589°N</u><br><u>26.1295°E</u>   | 1,815.4150               | OpenStreetMap                       | WGS84      | B9-Hillclimbing | Barnes (2019) <sup>[11]</sup>               |
| Antarctica     | <u>82°06'S</u><br><u>54°58'E</u>      | 1,301                    | ? Traditional                       | ?          | ?               | Soviet site (1958) <sup>[8]</sup>           |
| Antarctica     | <u>77.3963°S</u><br><u>105.3855°E</u> | 1,136.2129               | GSHHG v2.3.6 (L1+L6).<br>Erroneous. | WGS84      | B9-Hillclimbing | Barnes (2019) <sup>[11]</sup>               |
| Antarctica     | <u>78.2633°S</u><br><u>103.6340°E</u> | 1,273.2928               | GSHHG v2.3.6 (L1+L5).<br>Erroneous. | WGS84      | B9-Hillclimbing | Barnes (2019) <sup>[11]</sup>               |
| Antarctica     | <u>83.904°S</u><br><u>64.890°E</u>    | 1,590.36                 | ADDv7.2 "Outer"                     | WGS84      | B9-Hillclimbing | Rees (2021) <sup>[12]</sup>                 |
| Antarctica     | <u>83.610°S</u><br><u>53.720°E</u>    | 1,179.40                 | ADDv7.2 "Inner"                     | WGS84      | B9-Hillclimbing | Rees (2021) <sup>[12]</sup>                 |
| Arctic Pole    | <u>85.802°N</u><br><u>176.149°E</u>   | 1,008                    | GSHHG 2014                          | WGS84      | Adaptive Grid   | Rees (2014) <sup>[3]</sup>                  |
| Arctic Pole    | <u>85.7911°N</u><br><u>176.2386°E</u> | 1,008.9112               | OpenStreetMap                       | WGS84      | B9-Hillclimbing | Barnes (2019) <sup>[11]</sup>               |
| Arctic Pole    | <u>85.8015°N</u><br><u>176.1423°E</u> | 1,007.6777               | GSHHG v2.3.6 (L1)                   | WGS84      | B9-Hillclimbing | Barnes (2019) <sup>[11]</sup>               |
| Atlantic Ocean | <u>24.1851°N</u><br><u>43.3704°W</u>  | 2,033.8849               | OpenStreetMap                       | WGS84      | B9-Hillclimbing | Barnes (2019) <sup>[11]</sup>               |
| Atlantic Ocean | <u>24.1923°N</u><br><u>43.3728°W</u>  | 2,033.5187               | GSHHG v2.3.6 (L1)                   | WGS84      | B9-Hillclimbing | Barnes (2019) <sup>[11]</sup>               |
| Australia      | <u>23.17°S</u><br><u>132.27°E</u>     | 928 <sup>[note 1]</sup>  | GSHHS 1996                          | Sphere     | Adaptive Grid   | Garcia-Castellanos (2007) <sup>[1]</sup>    |
| Australia      | <u>23°2'S</u><br><u>132°10'E</u>      | not claimed              | SF53-13                             | ?          | Planar map      | Geoscience Australia (2014) <sup>[36]</sup> |
| Australia      | <u>23.1732°S</u><br><u>132.2759°E</u> | 925.4459                 | GSHHG v2.3.6 (L1)                   | WGS84      | B9-Hillclimbing | Barnes (2019) <sup>[11]</sup>               |
| Australia      | <u>23.1948°S</u><br><u>132.1727°E</u> | 921.9290                 | OpenStreetMap                       | WGS84      | B9-Hillclimbing | Barnes (2019) <sup>[11]</sup>               |
| Eurasia 1      | <u>45.28°N</u><br><u>88.14°E</u>      | 2,514                    | GSHHS 1996                          | Sphere     | Adaptive Grid   | Garcia-Castellanos (2007) <sup>[1]</sup>    |

| Pole          | Location                              | Distance from coast (km)  | Dataset           | Projection | Method          | Reference                                |
|---------------|---------------------------------------|---------------------------|-------------------|------------|-----------------|------------------------------------------|
| Eurasia 1     | <u>45.3413°N</u><br><u>88.2483°E</u>  | 2,513.9415                | GSHHG v2.3.6 (L1) | WGS84      | B9-Hillclimbing | Barnes (2019) <sup>[11]</sup>            |
| Eurasia 1     | <u>45.4435°N</u><br><u>88.3172°E</u>  | 2,509.9536                | OpenStreetMap     | WGS84      | B9-Hillclimbing | Barnes (2019) <sup>[11]</sup>            |
| Eurasia 2     | <u>44.29°N</u><br><u>82.19°E</u>      | 2,510                     | GSHHS 1996        | Sphere     | Adaptive Grid   | Garcia-Castellanos (2007) <sup>[1]</sup> |
| Eurasia 2     | <u>44.3184°N</u><br><u>82.1144°E</u>  | 2,509.9685                | GSHHG v2.3.6 (L1) | WGS84      | B9-Hillclimbing | Barnes (2019) <sup>[11]</sup>            |
| Eurasia 2     | <u>44.6740°N</u><br><u>83.9694°E</u>  | 2,505.2134                | OpenStreetMap     | WGS84      | B9-Hillclimbing | Barnes (2019) <sup>[11]</sup>            |
| Great Britain | <u>52.65°N</u><br><u>1.56°W</u>       | 108                       | GSHHS 1996        | Sphere     | Adaptive Grid   | Garcia-Castellanos (2007) <sup>[1]</sup> |
| Great Britain | <u>52.0141°N</u><br><u>0.9640°W</u>   | 114.4462                  | OpenStreetMap     | WGS84      | B9-Hillclimbing | Barnes (2019) <sup>[11]</sup>            |
| Great Britain | <u>52.6552°N</u><br><u>1.5641°W</u>   | 108.0925                  | GSHHG v2.3.6 (L1) | WGS84      | B9-Hillclimbing | Barnes (2019) <sup>[11]</sup>            |
| Greenland     | <u>76.50°N</u><br><u>41.0°W</u>       | 469                       | GSHHS 1996        | Sphere     | Adaptive Grid   | Garcia-Castellanos (2007) <sup>[1]</sup> |
| Greenland     | <u>75.9660°N</u><br><u>40.4239°W</u>  | 471.9905                  | GSHHG v2.3.6 (L1) | WGS84      | B9-Hillclimbing | Barnes (2019) <sup>[11]</sup>            |
| Greenland     | <u>76.0305°N</u><br><u>40.3902°W</u>  | 474.2257                  | OpenStreetMap     | WGS84      | B9-Hillclimbing | Barnes (2019) <sup>[11]</sup>            |
| Indian Ocean  | <u>47.6319°S</u><br><u>99.9677°E</u>  | 1,940.8913                | OpenStreetMap     | WGS84      | B9-Hillclimbing | Barnes (2019) <sup>[11]</sup>            |
| Indian Ocean  | <u>47.7347°S</u><br><u>100.0547°E</u> | 1,943.3848                | GSHHG L1          | WGS84      | B9-Hillclimbing | Barnes (2019) <sup>[11]</sup>            |
| Madagascar    | <u>18.33°S</u><br><u>46.67°E</u>      | 260                       | GSHHS 1996        | Sphere     | Adaptive Grid   | Garcia-Castellanos (2007) <sup>[1]</sup> |
| Madagascar    | <u>18.3382°S</u><br><u>46.6663°E</u>  | 259.5957                  | GSHHG v2.3.6 (L1) | WGS84      | B9-Hillclimbing | Barnes (2019) <sup>[11]</sup>            |
| Madagascar    | <u>18.2645°S</u><br><u>46.7003°E</u>  | 264.0657                  | OpenStreetMap     | WGS84      | B9-Hillclimbing | Barnes (2019) <sup>[11]</sup>            |
| North America | <u>43.46°N</u><br><u>101.97°W</u>     | 1,639 <sup>[note 2]</sup> | GSHHS 1996        | Sphere     | Adaptive Grid   | Garcia-Castellanos (2007) <sup>[1]</sup> |
| North America | <u>43.3764°N</u><br><u>102.0111°W</u> | 1,639.6549                | GSHHG v2.3.6 (L1) | WGS84      | B9-Hillclimbing | Barnes (2019) <sup>[11]</sup>            |

| Pole                       | Location                                                                                                                                   | Distance from coast (km)  | Dataset           | Projection | Method          | Reference                                |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|-------------------|------------|-----------------|------------------------------------------|
| North America              | <u><span><span><span>43.4370°N</span></span></span><span><span> </span></span><u><span><span><span>102.0101°W</span></span></span></u></u> | 1,643.7562                | OpenStreetMap     | WGS84      | B9-Hillclimbing | Barnes (2019) <sup>[11]</sup>            |
| Pacific Ocean (Point Nemo) | <u><span><span><span>48.89°S</span></span></span><span><span> </span></span><u><span><span><span>123.45°W</span></span></span></u></u>     | 2,690                     | GSHHS 1996        | Sphere     | Adaptive Grid   | Garcia-Castellanos (2007) <sup>[1]</sup> |
| Pacific Ocean (Point Nemo) | <u><span><span><span>49.0031°S</span></span></span><span><span> </span></span><u><span><span><span>123.3920°W</span></span></span></u></u> | 2,701.1721                | OpenStreetMap     | WGS84      | B9-Hillclimbing | Barnes (2019) <sup>[11]</sup>            |
| Pacific Ocean (Point Nemo) | <u><span><span><span>49.0273°S</span></span></span><span><span> </span></span><u><span><span><span>123.4345°W</span></span></span></u></u> | 2,704.7991                | GSHHG v2.3.6 (L1) | WGS84      | B9-Hillclimbing | Barnes (2019) <sup>[11]</sup>            |
| South America              | <u><span><span><span>14.05°S</span></span></span><span><span> </span></span><u><span><span><span>56.85°W</span></span></span></u></u>      | 1,517 <sup>[note 3]</sup> | GSHHS 1996        | Sphere     | Adaptive Grid   | Garcia-Castellanos (2007) <sup>[1]</sup> |
| South America 1            | <u><span><span><span>14.3902°S</span></span></span><span><span> </span></span><u><span><span><span>56.9922°W</span></span></span></u></u>  | 1,490.5321                | GSHHG v2.3.6 (L1) | WGS84      | B9-Hillclimbing | Barnes (2019) <sup>[11]</sup>            |
| South America 1            | <u><span><span><span>6.3248°S</span></span></span><span><span> </span></span><u><span><span><span>63.1885°W</span></span></span></u></u>   | 1,511.6636                | OpenStreetMap     | WGS84      | B9-Hillclimbing | Barnes (2019) <sup>[11]</sup>            |
| South America 2            | <u><span><span><span>10.7342°S</span></span></span><span><span> </span></span><u><span><span><span>59.2126°W</span></span></span></u></u>  | 1,467.2206                | OpenStreetMap     | WGS84      | B9-Hillclimbing | Barnes (2019) <sup>[11]</sup>            |
| South America 2            | <u><span><span><span>5.0537°S</span></span></span><span><span> </span></span><u><span><span><span>65.5487°W</span></span></span></u></u>   | 1,476.4901                | GSHHG v2.3.6 (L1) | WGS84      | B9-Hillclimbing | Barnes (2019) <sup>[11]</sup>            |

1. Claimed; actually 915.6601 in GSHHG v2.3.6.<sup>[11]</sup>
2. Claimed; actually 1629.7740 in GSHHG v2.3.6.<sup>[11]</sup>
3. Claimed; actually 1449.9471 in GSHHG v2.3.6.<sup>[11]</sup>

ArcGIS personnel wrote a 2015 page with their calculations based on a flat Earth. The results are too inaccurate to be included here.<sup>[11]</sup>

## See also

- Antipodes
- Extremes on Earth
- Geographical pole
- Geographical centre
- Land and water hemispheres
- List of mainland settlements that are inaccessible by road
- Pole of Inaccessibility research station
- Spacecraft cemetery

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## External links

- How to calculate PIAs (<https://sites.google.com/site/polesofinaccessibility/>)
  - Team N2i successfully conquer the Pole of Inaccessibility by foot and kite on 19th Jan '07 (<https://web.archive.org/web/20090303234631/http://www.teamn2i.com/>)
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