

Planet Earth

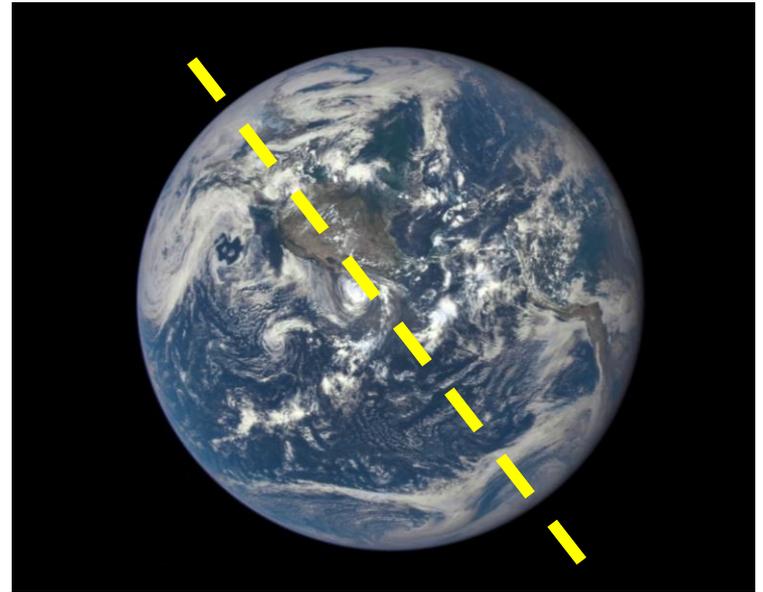
Part 2



(image by
NASA/NOAA)

Earth and Moon from a million miles out
Captured by Deep Space Climate Observatory (DSCOVR) satellite

Earth Facts

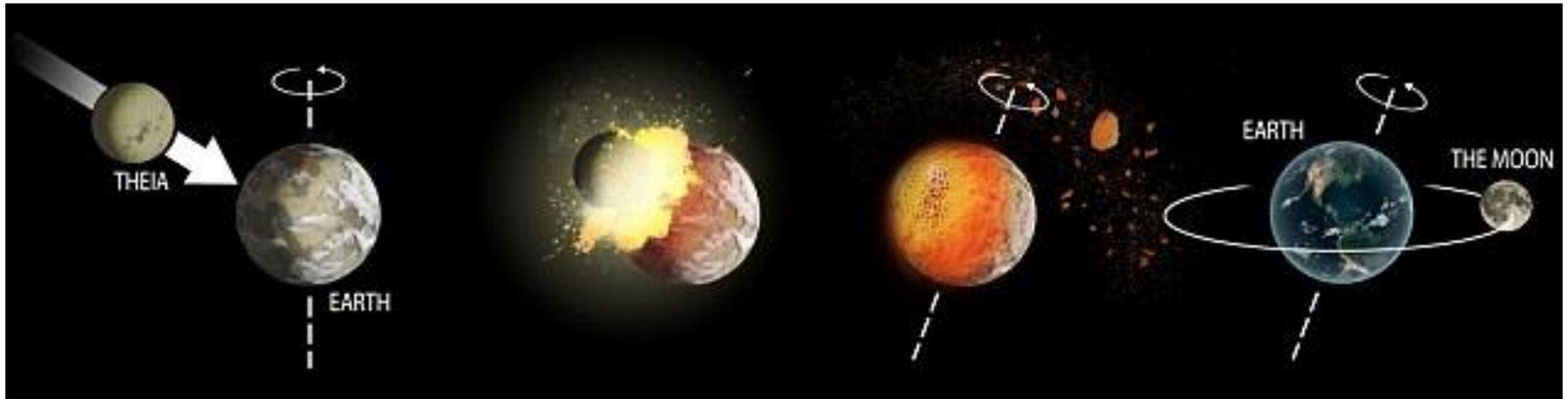


- Earth is a **terrestrial (rocky) planet**, third from the Sun.
- Earth has a *single natural satellite*, the **Moon**.
- Earth has **LIFE!**
- Of the four terrestrial planets in the Solar System:
 - Earth is the largest both in size and mass.
 - Earth has the highest density, the strongest magnetic field, and the fastest rotation.
 - Earth has the highest surface gravity equal to 9.807 m/s^2 .

Fun Fact: from the Earth's surface, the apparent sizes of the Sun and the Moon are approximately the same!

Formation of the Moon

The Giant Impact Hypothesis

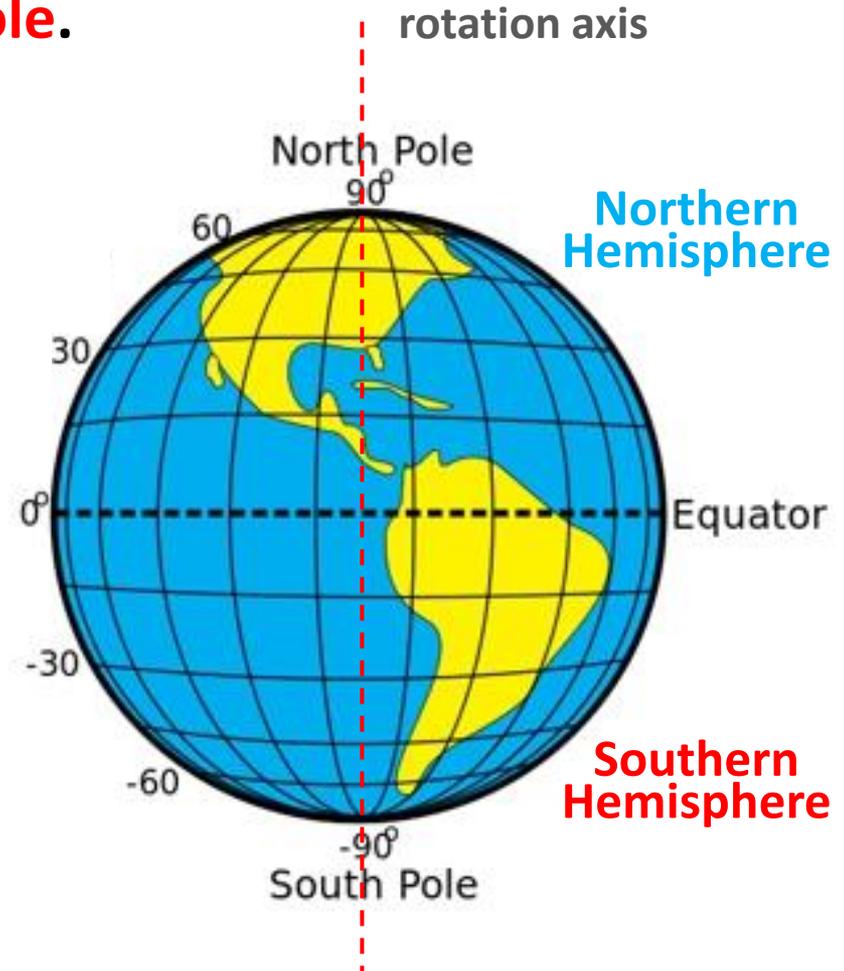


- Suggests that the Moon formed out of the debris left over from a **collision between Earth and an astronomical body the size of Mars**, approximately 4.5 billion years ago, about 20 to 100 million years after the Solar System coalesced.
- The colliding body is sometimes called **Theia**.
- **Fun Fact:** Earth and Moon have almost **identical composition!**

Earth's Axis, Poles and Equator

Our planet Earth spins around on an imaginary line running through it. This line is called the Earth's axis. The two points where axis meets the surface are called the **Geographic North Pole** and the **Geographic South Pole**.

- The area around the North Pole is called the **Arctic**, while the area around the South Pole is called the **Antarctic**.
- The **Equator** is an imaginary line on the Earth's surface which is at equal distance from the North Pole and South Pole. It is about 40,075 km (24,901 mi) long; 78.7% is across water and 21.3% is over land.
- The Equator divides Earth into the **Northern Hemisphere** and **Southern Hemisphere**.



North Pole vs South Pole

Arctic	Antarctic
What kind	of surface?
How much ice	does it have?
How much oil	does it store?
How	cold?
Unique	fauna?



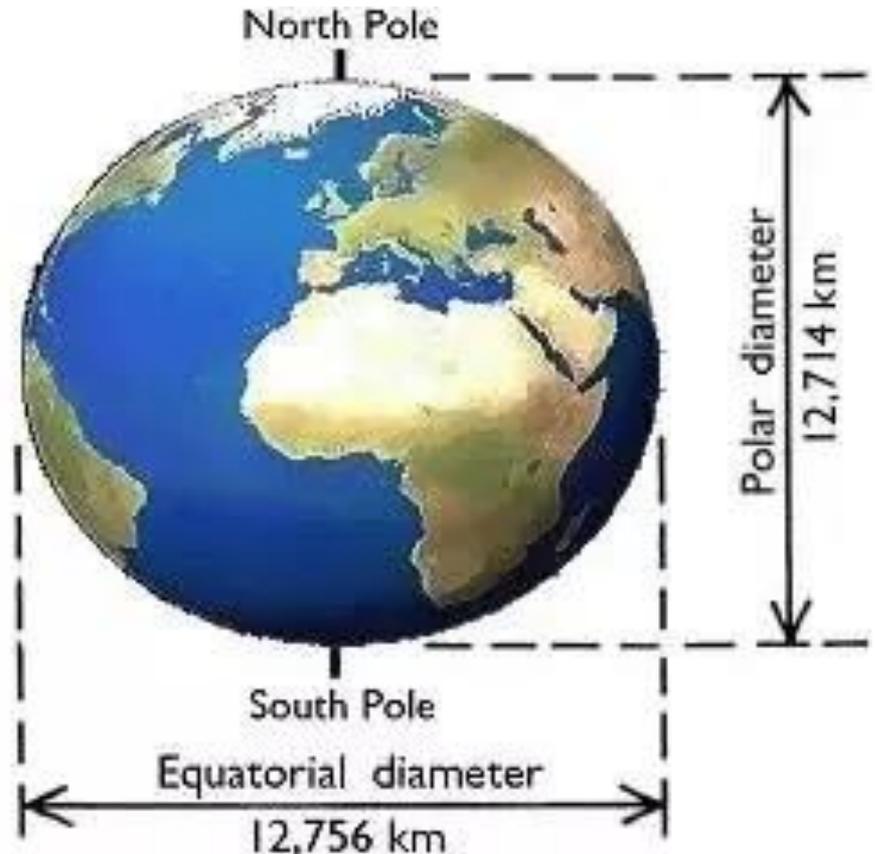
North Pole vs South Pole

Arctic	Antarctic
Basically is a frozen ocean	Continent
<i>A little bit</i> of ice	90% of all ice on Earth!
Half of the world's remaining oil deposits	No known oil deposits
Temperature from 0°C to -49°C	Temperature from -25°C to -72°C
Polar bears	Penguins



Earth Shape and Size

- Earth shape can be described as an *oblate spheroid* which is a sphere slightly flattened along the axis from pole to pole such that there is a bulge around the middle resulting from the planet's rotation.
- The Earth's diameter at the equator is just about **0.33%** (42 km or 27 mi) larger than its pole-to-pole diameter.
- Still, Earth is so close to a spherical shape that from any (far) point in space it looks exactly like a perfect sphere with a **mean radius of 6371.0 km (3959 miles)**!



Can YOU see the Curve?

All aboard the **International Space Station!**



254 miles orbit height

<https://apod.nasa.gov/apod/ap130331.html>

View of the Earth from the Moon **(distance: 238,900 miles)**



View from the Apollo 11 spacecraft, captured on July 20, 1969

Ferdinand Magellan (1480-1521)
led the 1st expedition around the world that **proved** that Earth
can be *circumnavigated*.

