

# EARTH

## PLANET EARTH

As viewed from space, our world's distinguishing characteristics are its blue waters, brown and green land masses and white clouds. We are enveloped by an ocean of air consisting of 78 percent nitrogen, 21 percent oxygen and 1 percent other constituents.

The only planet in the solar system known to harbor life, Earth orbits the Sun at an average distance of 150 million kilometers (93 million miles). Earth is the third planet from the Sun and the fifth largest in the solar system, with a diameter just a few hundred kilometers larger than that of Venus.

Our planet's rapid spin and molten nickel-iron core give rise to an extensive magnetic field, which, along with the atmosphere, shields us from nearly all of the harmful radiation coming from the Sun and other stars. Earth's atmosphere protects us from meteors as well, most of which burn up before they can strike the surface. Active geological processes have left no evidence of the pelting Earth almost certainly received soon after it formed about 4.6 billion years ago. Along with the other newly formed planets, it was showered by space debris in the early days of the solar system.

From our journeys into space, we have learned much about our home planet.

The first American satellite, Explorer 1, was launched from Cape Canaveral in Florida on January 31, 1958, and discovered an intense radiation zone, now called the Van Allen radiation belts, surrounding Earth.

Since then, other research satellites have revealed that our planet's magnetic field is distorted into a tear-drop shape by the solar wind, the stream of charged particles continuously ejected from the Sun. We've learned that the magnetic field does not fade off into space but has definite boundaries. And we now know that our wispy upper atmosphere, once believed calm and uneventful, seethes with activity, swelling by day and contracting by night. Affected by changes in solar activity, the upper atmosphere contributes to weather and climate on Earth.

Besides affecting Earth's weather, solar activity gives rise to a dramatic visual phenomenon in our atmosphere. When charged particles from the solar wind become trapped in Earth's magnetic field, they collide with air molecules above our planet's magnetic poles. These air molecules then begin to glow and are known as the auroras or the northern and southern lights.

Satellites about 35,789 kilometers (22,238 miles) out in space play a major role in daily local weather forecasting. These watchful electronic eyes warn us of dangerous storms. Continuous global monitoring provides a vast amount of useful data and contributes to a better understanding of Earth's complex weather systems.

From their unique vantage points, satellites can survey Earth's oceans, land use and resources, and monitor the planet's health. These eyes in space have saved countless lives, provided tremendous conveniences and shown us that

we may be altering our planet in dangerous ways.

- \* The planet is inhabited with plant, animal, and human life.
- \* The Earth goddess of the ancient Greeks was called Terre Mater, Earth Mother, by the Romans.
- \* Earth is the place where we live.
- \* This is the only planet on which we know there is life.
- \* Earth is the third planet from the Sun.
- \* Earth has one moon.
- \* As seen from space, the Earth has a blue and white color.
- \* Over 70% of the planet's surface is covered by water.
- \* Earth's atmosphere is 78 percent nitrogen, 21 percent oxygen, and 1 percent other gases.
- \* Earth has a strong magnetic field.
- \* Earth has a nickel-iron core.
- \* There is some volcanic activity on this planet.
- \* The Earth circles the Sun every 365 days.
- \* A day on Earth is 23 hours and 56 minutes long.
- \* Earth's diameter is 7,909 miles.

- \* Earth's average distance from the Sun is 93 million miles.
- \* This planet tilts  $23.5^{\circ}$  on its axis, causing seasonal changes.
- \* Earth has a changing weather pattern.
- \* Earth consists of three layers: the crust, the mantle, and the core.
- \* This planet is covered with several mountain ranges.
- \* This planet has five continents.
- \* The Van Allen Radiation Belt is an intense radiation zone.

Source: NASA