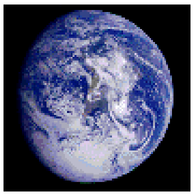

Earth

Planet Profile

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Mass (kg).............................................5.98 x 10^24
Diameter (km).........................................12756
Mean density (kg/m^3) ................................5520
Escape velocity (m/sec)...............................11200

Average distance from Sun (AU)........................1
Rotation period (length of day in Earth hours).......23.93
Revolution period (length of year in Earth days).....365.26

Obliquity (tilt of axis in degrees)..................23.4
Orbit inclination (degrees)..........................0
Orbit eccentricity (deviation from circular).........0.017

Mean surface temperature (K).........................281
Maximum surface temperature (K)......................310
Minimum surface temperature (K)......................260

Visual geometric albedo (reflectivity)...............0.39
Highest point on surface.............................Mount Everest
                                       (over 8 km above sea-level)
Atmospheric components...............................78% nitrogen,
                                                     21% oxygen,
                                                      1% argon
Surface materials....................................basaltic and
                                                granitic rock and
                                                altered materials
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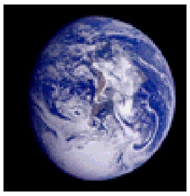
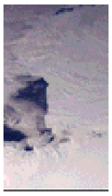


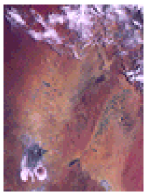
Earth in Color

South America appears near the center of this view of Earth. The white, sunlit continent of Antarctica lies near the bottom of the globe. Picturesque weather fronts are visible in the South Atlantic, lower right. This image was taken at about 14:10 UTC on December 11, 1990, when Galileo was 2 million km (1.3 million mi) from Earth.



Antarctica

Part of Antarctica is captured in this mosaic of 11 Galileo images. The mosaic spans about 1600 km (992 mi) across the south polar latitudes of our planet. This part of Antarctica lies south of South America. At lower left, the dark blue Ross Sea is visible, bounded by the Ross Ice Shelf on the right. The Amundsen Sea is just visible at the top and center of the image.

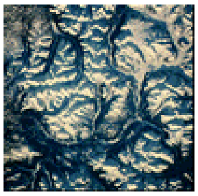


Australia

Simpson Desert, 451 km (280 mi) wide by 547 km (340 mi) long, lies southeast of Alice Springs. At lower left is Lake Eyre, a salt lake below sea level. Its water level changes dramatically throughout the seasons. At the time this image was taken the lake was nearly dry. At lower right is the greenish Lake Blanche. Fields of linear sand dunes stretch north and east of Lake Eyre, shaped by prevailing winds from the south. The various sources and age of the sand can be determined by their color.

Mount Etna, Sicily

This active stratovolcano on the east coast of Sicily is almost always venting steam into the atmosphere. Stratovolcanoes form as alternating layers of volcanic ash and lava flows come from their central vents and cool to form rock. During one eruption in 1969 fragments up to 1 meter (about 3 feet) across were ejected from the volcano. This image was acquired by Space Shuttle astronauts, and is slightly enhanced to bring out details in the volcano. Mount Etna is over 3000 meters (10,000 feet) high, making it the highest peak in Italy south of the Alps.

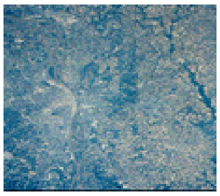


Cassiar Mountains

This part of the Rocky Mountain Range in the Yukon Territory of Canada is an excellent example of mountains on Earth. This space shuttle image was taken when the sun was low on the horizon; the sharp shadows on the snow-covered peaks show how rough and uneven the area is. These mountains are so remote and rugged that ground surveys of the area are very expensive. Due to remote-sensing techniques developed for planetary exploration, many such areas can now be observed and studied from space at much less cost and effort.

Strait of Gibraltar

This space shuttle view of the Atlantic Ocean and Mediterranean Sea illustrates an important feature of Earth-a seacoast. Earth is the only planet with borders of land adjacent to bodies of water because it is the only planet where liquid water is stable at the surface. Seas are important because water has been the catalyst for the development of life on our planet. The Strait of Gibraltar is the border between Africa and Europe. In Spain, to the left, the small spike of land is the Rock of Gibraltar; Africa is on the right side of the image.

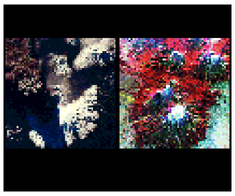


Mississippi River

This view over St. Louis, Missouri, taken in June 1991, shows the Mississippi just left of center. The Mississippi-Missouri river system is the third longest in the world--shorter only than the Nile in Africa and the Amazon in South America. This river system is a meandering river system, where flooding is often responsible for changing the location of channels and leaving behind old riverbeds known as "meander scars." These scars are visible in the river bottom land between the cliffs on either side of the river.

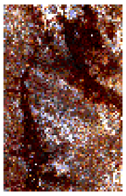
Grand Canyon

This space shuttle image of the Colorado River in Arizona captures the Grand Canyon. The canyon is 30 km (18 miles) across at its widest point and 1.6 km (1 mile) deep at rock bottom. It is 446 km (277 miles) long and covers an area that is over 5000 square km (about 2000 square miles). The Grand Canyon was created by the erosional action of the Colorado River on the surface as this region has continued to rise high above sea level over the last several million years.



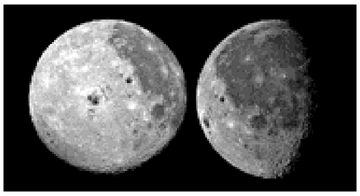
Volcano Views

These side-by-side images of the same volcanic eruption show the differences between optical imaging and radar imaging. On the left is a photograph taken by Space Shuttle astronauts as the Shuttle Endeavor passed over the eruption of Kliuchevskoi volcano in Kamchatka, Russia. On the right is the radar image acquired several days earlier by the SIR-C/X-SAR radar instrument. In the photograph, the ash plume is emerging from a vent on the north flank of Kliuchevskoi. In this view, the volcano is partially hidden by the ash plume and its shadow. The radar image shows how radar can see through the ash and smoke to reveal the contours of the land underneath.



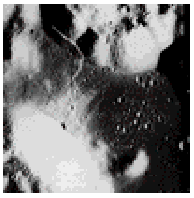
Wadi Kufra, Libya

Radar's ability to penetrate dry sand cover produced the discovery in this image: a previously unknown branch of an ancient river, buried for thousands of years under the sands of the Sahara Desert. This area is near the Kufra Oasis in southeast Libya. The image was acquired by the SIR-C/X-SAR imaging radar when it flew aboard the space shuttle Endeavour in October, 1994. This image reveals a system of old, now inactive stream valleys which, during periods of wetter climate, carried running water northward across the Sahara. The region now receives only a few millimeters of rainfall per year, and the ancient river valleys are mostly buried by windblown sand.



The Moon from Space

These pictures of the moon were taken by the Galileo spacecraft. The picture at left shows the Orientale Basin, with a small, dark mare in its center. The picture on the right shows the globe of the moon rotated, putting Orientale on the western limb. The dark Oceanus Procellarum is in the upper center, with Mare Imbrium above it, and the smaller, circular Mare Humorum below.

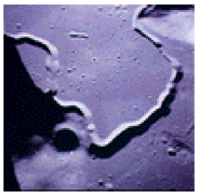


Apollo 17 Landing Site

Apollo 17 astronauts explored this area of the moon in December 1972. The North Massif is located at the top of the image, and the South Massif is located at the bottom on the left. The North Massif is more than 2 km high (1.2 mi). The terrain between the mountains is peppered with impact craters, the largest of which is about 1 km (0.6 mi) in diameter. A bright scarp, named the Lee-Lincoln scarp, winds around the left side of the North Massif and down through the cratered field.

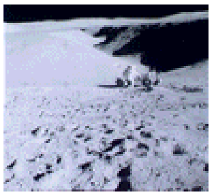
Plum Crater

An Apollo 16 astronaut stands near the rim of Plum Crater (30m, or over 200 yards, in diameter) on the moon. Although Earth has experienced many meteorite impacts throughout its history, the action of wind and water quickly erases the resulting craters. Because these forces don’t exist on the moon, the only way evidence of impact craters can be removed is by being destroyed by later impacts. However, this is not a very efficient process so craters last a long time on the moon’s surface.



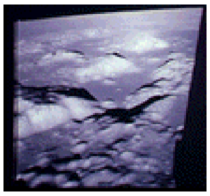
Hadley from Space

Molten basaltic lava cut this channel, known as Hadley Rille, through the surface of the moon. The channel winds along the base of the Apennine Front, one of the sites explored by the Apollo 15 astronauts. It measures 1500m (nearly 1 mi) wide, 400m (433 yards) deep, and 100 km (60 miles) long. The walls of the channel are very steep, with slope angles of 25 to 30 degrees.



Hadley on the Surface

An Apollo 15 astronaut looks down on the Hadley Rille, nearly 1.5 km (.9 mi) across at its widest point. The astronauts observed layering in the lava flows in the wall on the opposite side of the rille, indicating that multiple lava flows formed the bedrock in this region.



Taurus-Littrow

These highland massifs in the Taurus-Littrow region of the moon are mountains composed of highland material--the oldest type of rock on the moon. Between the mountains are narrow valleys where mare basalt once flowed. This image was recorded from lunar orbit by the Apollo 17 mission to the moon. The Apollo landing site is in the upper right quadrant of the image.

North Massif

Apollo 17 astronaut Harrison "Jack" Schmitt is here collecting a sample from the North Massif site, Taurus-Littrow.

Highland Anorthosite

When the moon first formed it probably had a surface composed mostly of feldspar-rich igneous rocks. This rock type still exists today and makes up the lunar highlands, which is the lighter-colored part of the moon visible from Earth. This 4.4-billion-year-old rock sample is an anorthosite collected from the lunar highlands of the moon by Apollo 16 astronauts.

Mare Basalt

This igneous rock was collected from one of the darker areas on the moon known as mare. The mare formed billions of years ago. Large meteorites impacted the surface of the moon and broke up the crust. Later lavas formed by melting of rock within the moon due to the decay of radioactive elements. The broken crust under the big impact craters allowed the lava to come to the surface. Over time the craters came to be filled with lava flows. This basalt sample, estimated to be 3.7 billion years old, was collected by Apollo 17 astronauts.

Highland Breccia

On Earth, the surface is eroded by the action of water and wind. The most important process for altering the surface of the moon, however, is that of meteorites impacting upon and breaking up the surface. This lunar sample is a rock type named breccia. On the moon a breccia is made when meteorites break up the surface and the pieces are welded together by the heat and pressure of impact processes. This breccia was collected by Apollo 16 astronauts and is 3.9 billion years old.

Welcome to the Planets Home Page