Earthrise Images from the Moon  Don Hillger and Garry Toth

As follow-on to our article “The Blue Marble Image of the Earth”, we now explore “Earthrise” images of the Earth as seen from the Moon. The first and most well-known of these is a photo taken by the crew of Apollo-8 from lunar orbit on 24 December 1968.

If the image is rotated 135 degrees counter-clockwise, then north is at the top and western and southern Africa are easily recognizable just to the west of the day/night terminator. Antarctica is fully illuminated because it’s the Southern Hemisphere summer.

Because of the tidal lock between the Earth and the Moon, one side of the Moon always faces towards the Earth. The slight libration of the Moon allows the Earth to appear to rise above the lunar horizon, but only from locations near the edges of the Earth-observable surface. However, such an Earthrise as seen from a point on the lunar surface is slow, unlike the quick Moonrise seen from Earth. This means that an apparent quick upward motion of Earth can be seen only from lunar orbit (due to the motion of the orbiting platform toward the position of the Earth). The Apollo-8 photo was taken from the command module as it moved in its orbit toward the lunar horizon and the Earth.

Less well-known Earthrise photos are also available from the Apollo-10 and 11 missions (both from 1969). There may be some from later Apollo missions as well. The Apollo-10 Earthrise photo was taken from lunar orbit in March 1969. The cloud features suggest that an 80 degree counterclockwise rotation puts north at the top of the image. This rotation also places the day-night terminator in a north-south orientation, in agreement with the near-equinox (March) date of the image. The large white area at the top can then be identified as high-latitude clouds and Arctic ice; the illuminated half disk possibly covers the North and South Atlantic Oceans.

Some Earthrise photos were also taken by the Apollo-11 astronauts from the command module on 20 July 1969 when in orbit around the Moon. Early in the fifth orbit, they noticed the Earth rising above the lunar horizon and at around 0402 UTC one of them took a series of photographs as the command module moved in its lunar orbit toward the position of Earth. One of those photos is shown above. A 70 degree counterclockwise rotation probably puts north at the top of the image; the illuminated area possibly covers the central and western Pacific Ocean.

In the search for Earthrise images on postal items, the authors found hundreds of depictions of the Earth as seen from the Moon. Only a few postal items contained one of the three Apollo Earthrise photos presented above. A few others include realistic-looking Earthrise images that do not match any of the three. The vast majority show unrealistic images (i.e. artistic rather than based on photographs) of the Earth. This article emphasizes stamps that include one of the Earthrise images from Apollo-8, 10, or 11. Other “generic” Earthrise-type images on stamps will be mentioned only briefly.

Reproductions of Earthrise photos on US postal items
The first postal item to feature a reproduction of the Apollo-8 Earthrise photo was issued by the United States in 1969 (Scott 1371, Michel 981).
That same 1968 Earthrise photo was reused in 1994 (Scott 2841, Michel 2477) in the upper-right margin of a souvenir sheet marking the 25th anniversary of the Apollo-11 manned Moon landing. The partial-Earth image on the stamps in that sheet is an Earthrise image, with the day/night terminator in a different orientation and with different cloud and Earth-surface features than the image of the Earth in the margin. That same Earthrise image appeared on another high-face-value US stamp from the same set (Scott 2842, Michel 2478). This image is realistic but does not match the Apollo-8, 10, or 11 Earthrise images.

Note however, although these stamps show an Earthrise, the location of the Apollo-11 Moon landing, not being near the edge of the Moon, would not allow an Earthrise to be visible on the horizon. Therefore, the existence of an Earthrise on the many of the postal items showing men on the moon is due to artistic license.

**Reproductions of Earthrise photos on other than US stamps**

Gambia produced a souvenir sheet (Scott 1345, Michel BL178) for the 1992 Earth Summit that has a detailed reproduction of the Apollo-8 Earthrise on the stamp portion of the souvenir sheet. The image is a bit greener than most renditions of the 1968 Earthrise photo and is quite detailed, so that Earth’s land and clouds features can be easily matched up with the original Apollo-8 image.

Another Earthrise reproduction, this time of the Apollo-11 photo, is found on a Gibraltar stamp (Scott 1157b, Michel 1290), part of a sheet of 4 stamps (not shown) for NASA’s 50th anniversary in 2008. The stamp image reproduces only part of the illuminated area of the Earth in the original photo, but the cloud patterns clearly show that it is from the Apollo-11 original.

Two (unlisted) stamps from Komi from 1996 and 1998 also include the 1969 Apollo-11 Earthrise.

Both are from sheets of 6 stamps (not shown).
For many years Manama produced a large number of space-related items, most of which were not considered legitimate postage. Among those items is a stamp (Michel 312) from 1970 that reproduces an Earthrise photo from the Apollo-11 mission, showing the Lunar Module in orbit as seen from the Command Module. The small Earth image on this stamp does not have enough detail to be matched to any of the three reference Earthrise photos, but from the stamp and its context must be the Apollo-11 image. This stamp was part of both a souvenir sheet of 16 stamps with various lunar images, and a sheet of 32 stamps (which contains two each of those 16 stamps).

A sheet of four stamps from the Cook Islands (Scott 535a, Michel BL92, below) from 1979 has a very detailed Apollo-10 Earthrise in the upper-right margin. The first stamp in the sheet also has one of the many generic depictions of an Earthrise, as part of an Apollo-11 mission patch of an eagle landing on the Moon. This patch is found on many other postal items. The sheet was issued for the 10th anniversary of the first manned Moon landing.

A stamp from Guinea Republic (Scott 808, Michel 803) from 1980 also reproduces the Apollo-10 Earthrise in great detail, like the previous item, so that it is easily identifiable. The stamp was issued for the 10th anniversary of the first manned Moon landing.

Another sheet of four stamps from Nevis (Scott 1544, Michel 2312-2315) from 2008 has the Apollo-11 Earthrise in the lower-right margin. This sheet was issued to celebrate 50 years of space exploration beginning with the launch of Sputnik-1 in 1957.

In 2006, Sierra Lone (Scott 2874, Michel BL627) issued a souvenir sheet with the Apollo-11 Earthrise. This item also has a small Apollo-11 mission patch in the lower-right corner, the second Earthrise on this item, a tiny generic reproduction that is found on many other Apollo-11 items as well.

A stamp from Guinea Republic (Scott 808, Michel 803) from 1980 also reproduces the Apollo-10 Earthrise in great detail, like the previous item, so that it is easily identifiable. The
The Apollo-11 Earthrise was also featured on an Apollo-11 stamp issued by Togo (Scott 1041, Michel 1393) in 1979. The stamp marked the 10th anniversary of the first manned Moon landing by Apollo-11 in 1969.

Yet another Apollo-11 Earthrise was found on one five different stamps (Scott 2787a, Michel 3491) in a souvenir sheet of 10 (not shown) issued by France in 2000 showing a number of notable 20th Century events or milestones.

The next item from Guyana (Scott 2811d, Michel 4719) from 1994 contains an Apollo-10 Earthrise image, but the stamp instead commemorates the Apollo-8 mission. This stamp was issued as part of a sheet of 6 (not shown) marking the 25th anniversary of the first manned moon landing.

Another consideration is the fact that sometimes the Earthrise reproductions found on postal items are flipped, making the identification of the source of the image more difficult. The flipping of images is not uncommon, as was found by the authors in their search for Blue Marble imagery on postal items, for which some of the images were horizontally or vertically flipped, or rotated, or both! In the following example, from Guyana (Scott 2876, Michel BL441) from 1994, the Earthrise reproduction in the upper margin is seen to be that from Apollo-11 when the sheet is flipped horizontally.

Another example of a flipped Earthrise is found in the upper margin of a sheet of two stamps issued by Bhutan (Scott 1101, Michel 1548-1549) in 1994. The cloud features are the same as those of the Apollo-8 Earthrise photo when flipped horizontally and rotated slightly for comparison.

A third postal item that needs to be flipped horizontally comes from the Bahamas (Scott 677, Michel 804) in 1989. It is for the 20th anniversary of the first manned Moon landing (Apollo-11). However, the text on the left side of the stamp correctly indicates that the Earthrise image is from Apollo-8 in lunar orbit.

**Blue Marble as Earthrise**

An interesting mix of Earth imagery can be found on the following postal items which show the well-documented Blue Marble image as an Earthrise seen from the Moon. The Blue Marble image, covered previously by the authors, was taken on 7 December 1972 by the crew of Apollo-17 on the way to the Moon. It was not taken from lunar orbit. Nevertheless, Bhutan issued a sheet of 6 stamps in 2000 (Scott 1290, Michel 2119-2124) with the Blue Mable in an Earthrise position beyond the Moon’s horizon in the lower-right margin of the sheet.
Another Blue Marble as Earthrise is found in the upper-right margin of a souvenir sheet issued by Maldive Islands (Scott 2022, Michel BL321) in 1994. The cloud features are clearly those from the Blue Marble image. An inverted “comma” cloud (typical of clouds with organized low pressure systems in the southern hemisphere) is a distinguishing feature that is immediately noticeable even on small renditions of the Blue Marble image.

And a further Blue Marble as Earthrise is found in the upper-right margin of a souvenir sheet from Mongolia (Scott 2122, Michel BL221) from 1993. This item contains a disparate combination of unrelated design elements that stem from artistic license rather than reality.

Finally, one more Blue Marble as Earthrise is found on a stamp issued by Romania (Scott 5111, Michel 6365) in 2009. In this case it is harder to identify the image as a Blue Marble, since the portion including the inverted “comma” is omitted. However, on closer examination the other clouds match nicely with the Blue Marble image.

**Generic Earthrise Images**

Of the hundreds of generic Earthrise images that can be found on postal items, one group stands out: a set of common design items from 1999, of which the following is an example.

The design of this souvenir sheet from the Bahamas (Scott 946, Michel BL94), with a circular stamp in the center, was common to 14 countries, and commemorates the 30th anniversary of the first manned Moon landing. Interestingly, the images of the Earth on these common design items are not all identical: there are three different images, none of which appear to be actual Earthrise photos. (The reason why the Earthrise images are a bit different among the various issues is that the territory which issued the sheet is supposed to be central to the image. That was the design rationale according to some sources.) All of these common design stamps also contain a small Apollo-11 mission patch in the upper-right. As already mentioned, it too contains a generic Earthrise image. Images of the complete set of these 14 stamps can be found on the authors’ web page devoted to the Earthrise as found on postal items.

**Additional online information**

A checklist of postal items with reproductions of the known Earthrise photos, as well as numerous other generic depictions of the Earth as seen from the Moon, is available at [http://rammb.cira.colostate.edu/dev/hilger/satellite-images.htm#earthrise](http://rammb.cira.colostate.edu/dev/hilger/satellite-images.htm#earthrise). The link leads to a table of Earthrise items. That table is part of the authors’ web page devoted to postal items with the theme of satellite remote sensing of the Earth-atmosphere system. We would like to hear from anyone who knows of additional reproductions of known Earthrise photos on postal items. The online details will be updated as new information is received. E-mail correspondence is welcomed.
China has so far launched over 20 recoverable satellites. Onboard have been many instruments for scientific and imaging studies. Together with these studies were flown different kinds of items such as seeds and covers.

The 18th recoverable satellite carried onboard 116 postal covers to commemorate the flight. The cover has franks of the launch and recovery dates. Each flown cover has a dry impress mark.

The designer of the China Beijing Aerospace City cover was Hongtao Sun. The planners for the cover were Fugen Ling and Jianming Pang who asked the mission commander of the satellite to put their covers into the capsule.

Others also asked for their covers to be flown in the capsule so a number of different types of covers were flown. The first flown covers were onboard the 16th recoverable satellite in 1994.

The satellite was launched on November 3, 2003 by a Long March 2D carrier rocket. It lifted off from the Jiuquan Satellite Launch Center in the Gansu Province in northwest China. This was the 73rd Long March launch.

The recoverable descent module of the satellite subsequently returned to Earth landing in the Sichuan Province in southwest China. The landing took place at 10.04 am (Beijing Time) on November 21, 2003. It had spent 18 days in space.

The satellite was designated Jianbing-4A1 or FSW-31. It was also known as the seed satellite having carried various seeds from cotton, licorice root, vegetables and trees.