

# STS-mission and ISS-related Earth images

By Don Hilger and Garry Toth

This article features images of the Earth taken during Space Transportation System (STS) [Space Shuttle] missions or those related to the International Space Station (ISS). Most of the STS-related images feature aspects of Space Shuttle activity with a view of the Earth below the Shuttle. For the ISS, most of the images were taken by astronauts aboard the ISS, with some portion of the Earth below them.

Reference photos that the authors found that match their use on postal items will be presented along with the postage stamps or launch/event covers that utilize those photos. There are relatively few Earth view photos on postal items that can be specifically identified, and not all of them can be traced to specific NASA photo numbers. Since finding NASA photo numbers for specific images is sometimes a challenge, some of those photo numbers remain a mystery.

Only postal items matched to specific NASA photo numbers will be presented in this article, with a couple of exceptions, and the images/photos will be given in chronological order. Other matches, many without specific NASA photo numbers, are available on the authors' website as provided at the end of this article.

## Views of the Earth found on postal items traced to NASA photos



The first examples of Earth imagery are associated with STS-7. They were photographed by a camera mounted on the free-flying SPAS-1 satellite deployed by the STS-7/Challenger mission. The first postal item is the stamp from a Guinea-Bissau souvenir sheet of one stamp issued in 2023. This stamp features Sally Ride and two views of Challenger, one view with the cargo bay open and the Earth and clouds below. The cloud patterns below and next to the inflight Shuttle line up with the clouds around the Shuttle in NASA photo no. S07-32-1650.



A second example for the same STS-7 mission has a quite different Earth and cloud background. A stamp issued by Benin in 2003 depicts Challenger with dense clouds but with breaks in the clouds that line up with those in NASA photo no. S07-32-1660. The stamp image is nicely enhanced in both contrast and color compared to the original photo.

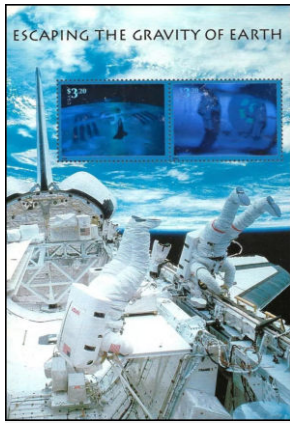


There are 2 other postal items with images from this same STS-7 mission that the reader can

(top) Guinea-Bissau, no Scott or Michel numbers (2023), from a souvenir sheet of one stamp.  
(bottom) NASA photo no. S07-32-1650 from 22 June 1983 cropped around STS-7.

(left) Benin, no Scott or Michel numbers (2003), one of a sheet of 6 [a known illegal issue].  
(right) NASA photo no. S07-32-1660 from 22 June 1983 cropped around STS-7.

check out in the authors' website. One of them has been associated with a specific NASA photo number, while the other has not.



A USA sheet of 2 hologram stamps issued in 2000 has an Earth image of (un-identified) land and cloud in the non-hologram margin of the sheet. The image shows Astronauts David Leestma and Kathryn Sullivan working in STS-41G/Challenger's open cargo bay in October 1984.

This still image, identified as part of the IMAX film *The Dream is Alive*, has no NASA photo number. The identification of the peninsula-like piece of land just above the Shuttle engines and behind the Shuttle tail is a mystery that readers might help identify, as there was no mention of the Shuttle location at the time of this image in any references where it is found.

(left) USA Scott 3411 Michel BL54, Mi3359-3360 (2000).

(right) Earth image of (unidentified) land and cloud taken October 1984, from the IMAX film *The Dream is Alive*.



(left) Canada, Scott 2999e Michel 3499 (2017), one of a sheet of 10.

(right) Ocean and cloud image from an IMAX film of HST in the STS-31R/Discovery payload bay on 25 April 1990.

The next example was found on a self-adhesive stamp issued by Canada in 2017, featuring the Canadarm used to manipulate cargo on STS missions. The image on the stamp came from an IMAX film of the deployment of the Hubble Space Telescope (HST) from the STS-31R/Discovery cargo bay on 25 April 1990. The edge of the Earth below is curved due to the fisheye lens being used, but that is not obvious from the cropped image on the postage stamp other than a curve in the Canadarm. This still photo from the IMAX film has no NASA photo number, but it clearly matches the image on the stamp based on details such as the cloud pattern of the Earth image below the Shuttle as well as the positions of the astronauts working in the Shuttle bay.



Another Shuttle-related example is found on a stamp issued by Abkhazia in 1996, an image of the cargo bay of STS-43/Atlantis with the Earth behind the Shuttle. The bright spot on the Earth at the upper left is sun glint off the ocean. There are also some dark clouds in the scene, as well as the curvature of the edge of the Earth at the top. The image is identified as NASA photo no. STS-43-83-082 from 11 August 1991.

(left) Abkhazia, no Scott or Michel numbers (1996), one of a sheet of 6.

(right) NASA photo no. STS-43-83-082 from 11 August 1991 of STS-43/Atlantis.



The next Shuttle-related example is a nice image of Hurricane Bonnie over the Atlantic Ocean as photographed from STS-47/Endeavour on 19 September 1992. This image is found on a stamp issued by Germany in 2006. The source of the image is NASA photo no. STS-47-151-620. The stamp image emphasizes blue tones, whereas the photo is more yellow.

(top) Germany Scott B966 Michel 2508 (2006).

(bottom) NASA photo no. STS-47-151-620 from 19 September 1992.



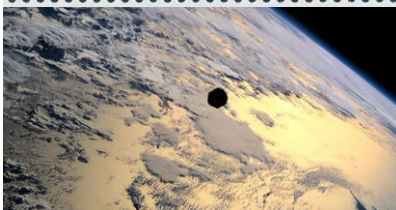
Yet another Shuttle-related image is found on a stamp issued by Isle of Man in 2020. This fish-eye top-down view of the STS-71/Atlantis was taken from the Russian Mir space station, possibly on 29 June 1995. The clouds in the background show that the stamp image matches NASA photo no. STS-71-741-004.

(left) Isle of Man Scott 2079 Michel 2557 (2020) from a sheet of 11.  
(right) NASA photo no. STS-71-741-004 from ~29 June 1995 of STS-71/Atlantis.



The next Shuttle-related image is a visible-band image of sun glint, including the OSCAR-34 satellite deployed from STS-95/Discovery on 30 October 1998. The stamp is from a series of Smithsonian Institution National Air and Space Museum stamps issued by the Marshall Islands in 2021. (A few other countries likewise have issued stamps to honor the Smithsonian Institution with air and space themes.) The match is NASA photo no. STS-95-5041. The OSCAR-34 spacecraft is dark against the bright background of the Earth, clouds, and sun glint.

(top) Marshall Islands Scott 1342b Michel 4423 (2021), from a sheet of 6.  
(bottom) NASA photo no. STS-95-5041 from 30 October 1998 of OSCAR-34.



Another good view of Earth's clouds and atmosphere is a photo of the Atlantic Ocean taken from STS-107/Columbia on 22 January 2003. The Moon, which is very small, appears in the upper-right of the image at the end of the text caption on the stamp and is not easy to find in the low-resolution reproduction of the image. Ghana issued this stamp in 2023, with a good color-match reproduction of what was found to be NASA photo no. STS-107-E-5311.

(top) Ghana, no Scott or Michel numbers (2023), one of sheet of 6.  
(bottom) NASA photo no. STS-107-E-5311 from 22 January 2003.



A final Shuttle-related example for this article is another stamp issued by Isle of Man in 2020, with an image of the International Space Station (ISS) as it was configured in 2011. This image was taken from the last Shuttle mission, STS-135/Atlantis, during its final fly-around before returning to Earth. This is NASA photo no. STS-135-E-011914 from 19 July 2011.

(left) Isle of Man Scott 2080 Michel 2558 (2020), from a sheet of 11.  
(right) NASA photo no. STS-135-E-011914 from 19 July 2011 of the ISS.

Finally, one example of an image taken from the ISS is in the cachet on a cover for the MSG-3 launch from Kourou, French Guiana on 5 July 2012. This is a visible-band image of Cleveland volcano (in the Aleutian Islands of Alaska) taken much earlier, on 23 May 2006. The image is identified as NASA photo no. ISS-013-E-24184.



(left) French Guiana cover for the MSG-3 launch on 5 July 2012.

(right) NASA photo no. ISS-013-E-24184 from 23 May 2006.

## Summary

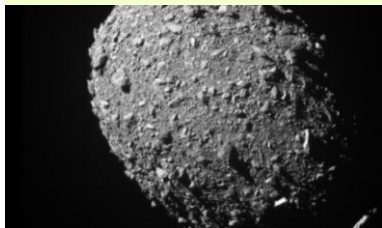
This article has made a total of 11 comparisons of photos taken either during STS missions or from the ISS, with those found on postal items. Only the best examples were featured here; those and the rest, more than 25 of them, can be viewed in the authors' website noted below.

## Online and author contact information

A checklist of postal items showing STS mission and ISS-related images is available at [http://rammb.cira.colostate.edu/dev/hillger/STS\\_and\\_ISS-images.htm](http://rammb.cira.colostate.edu/dev/hillger/STS_and_ISS-images.htm). The authors would like to hear from anyone who knows of additional examples of Earth images on postal items that can be matched with NASA photos. The authors will update the online details as new information is received. E-mail correspondence with the authors is welcome. Don Hillger can be reached at [don.hillger@colostate.edu](mailto:don.hillger@colostate.edu) and Garry Toth at [gmt.varia@gmail.com](mailto:gmt.varia@gmail.com).

## DART's Impact Repercussions

(by Nik Steggall)



The surface of Dimorphos before the impact.

The Double Asteroid Re-direction Test, (DART), a 21,000km/ph kinetic impact with the target asteroid Dimorphos on 27 September 2022, successfully altered the asteroid's orbit. The goal of the mission was to shorten the asteroid's 12-hour orbit around its parent asteroid, Didymos. While the mission was successful, Dimorphos' orbit has continued to shrink. It now completes an orbit 33 minutes faster than before the impact.



The moment of impact imaged from the LicaCube sub-satellite.

The DART impact blasted over 907 tonnes of dust and rock from the asteroid. The collision left a huge trail of debris, which was seen drifting away from the asteroid after the impact and then dispersed into a complex pattern in the days following the impact. The orbit is now continuing to change long after the impact, possibly due to the material thrown up by the impact, including rocks several metres across. These rocks will eventually fall back onto the surface of the asteroid, changing its orbit even more.



The impact debris field as seen from the Hubble Space Telescope.

The European Space Agency is launching a mission called HERA, was launched 7 October 2024 on a SpaceX Falcon 9 rocket. HERA will arrive at Dimorphos in 2026 and enter orbit around the binary asteroid system. During a six-month study period, the HERA mission will be able to reveal more details about what happened to the asteroid after the impact four years later. The data received has led scientists to rethink their understanding of asteroid behaviour after collisions.

Like Earth's Moon, Dimorphos was tidally locked, meaning that the same side of the satellite always faced its host body. The impact may now have changed, causing Dimorphos to tumble around as the tidal forces of the system altered its orbit. In time, Dimorphos is likely to return to a tidally locked state.



The mission of DART including the asteroid impact on stamps from the Republique de Djibouti.



Stamps from Djibouti including the Lowell Discovery Telescope, (LDT), in Flagstaff, Arizona that observed the asteroid impact.