

# Un-manned Satellites on Postage Stamps: 48

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## ESRO

This is the forty-eighth in a series of articles about un-manned satellites on postage stamps. This article features the European Space Research Organization (ESRO) series satellites: six ESRO-series and two HEOS-series satellites, for a total of eight launches, including the failure of the first one in 1967. The last satellites in the ESRO series were launched in 1972.

ESRO was the forerunner of the current European Space Agency (ESA). The ESA was formed in 1973 by combining ESRO with the European Launcher Development Organization (ELDO).



ESRO-1A, or *Aurorae*, and ESRO-1B, or *Borealis*, were appropriately named for their mission to measure a wide range of auroral effects. Measurements included auroral luminosity, ionospheric composition and temperature, as well as energetic particles. In order to make these studies, both were placed in low polar orbits, which resulted in shortened lifetimes for these satellites. Both were spin-stabilized and cylindrically-shaped.

ESRO-2B, or *Isis*, was intended for the study of solar radiation and cosmic rays. The experiments were similar to those on the NASA OSO (Orbiting Solar Observatory) series (OSO-D in particular [the OSOs were covered in the 21<sup>st</sup> article in this series]), and the UK Ariel series (Ariel-1 in particular [the Ariels were discussed in the 25<sup>th</sup> article in this series]). A similar satellite, ESRO-2A, the first of this group to be launched, did not achieve orbit due to a launch vehicle failure. Both were spin-stabilized and 12-sided almost-cylindrically shaped. This ESRO design is found on numerous launch covers, often for many non-ESRO satellites. The rubber-stamp image, attributed to Carl Swanson, is found in many colours and is sometimes noted as a "secret satellite" in the associated text when used for the launch of a military satellite for which the design was unknown. But the ESRO cachet was also used for many other satellite launches where an image of the satellite should have been available.



ESRO-4 was a spin-stabilized cylindrically-shaped spacecraft

similar to ESRO-2. The mission was intended to investigate ionospheric and magnetospheric particles and ions. The spacecraft occupied a polar orbit, similar to those of the other ESRO satellites.

ESRO TD-1A had an astrophysical mission, to make a sky survey in the ultraviolet and high-energy regions of the spectrum. TD is the acronym for Thor-Delta, the launch vehicle used for this satellite. Unlike the ESROs already mentioned, TD-1A was three-axis stabilized, with one axis pointing towards the sun. The body of the spacecraft was rectangular, with dimensions of about 1 m by 1 m by 2 m. Rectangular solar panels extended symmetrically from opposite sides of the spacecraft.

Two of the ESRO satellites were named HEOS (Highly Eccentric Orbit Satellite). HEOS-1 and 2 were spin-stabilized spacecraft with highly-eccentric orbits, as indicated by their name. They made measurements in interplanetary space and the magnetosphere, and also measured solar activity and cosmic radiation. They were cylindrical in shape with axial booms for antennas and magnetometers, making them resemble instrumented ocean buoys.

ESRO is known to be featured on postal items from Benin, Panama, and Paraguay, as well as a couple non-launch covers from the USA. HEOS, however, is depicted on a larger number of postal items from several countries, as well as pictorial cancels from Belgium and West Germany. See the links below for access to images of all the items the authors have found for these two satellite series. There are also many launch covers for these two series, but this article focuses primarily on non-launch postal items.

Checklists of postal items showing the ESRO-series satellites (<http://rammb.cira.colostate.edu/dev/hillger/esro.htm>), as well as HEOS-series (<http://rammb.cira.colostate.edu/dev/hillger/heos.htm>), are available on the Website developed by the authors for the un-manned satellites featured in this series of articles (<http://rammb.cira.colostate.edu/dev/hillger/satellites.htm>). 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).





ESRO-1A

## ESRO-series satellites



ESRO-2B

This page contains philatelic information on the ESRO (European Scientific Research Organization) series satellites. Catalog numbers, years of issue, and notes on the satellites featured are given when available. If readers know of additional information or images, please contact the authors using the e-mail addresses at the bottom of this page.

Launch information (found elsewhere)	Reference images (found elsewhere)	Launch covers (including anniversary-of-launch covers, and launch-related event covers) (further below)	Other postal items (stamps, souvenir sheets, aerogrammes, postal cards, etc.) (immediately below)
ESRO (ESRO)	ESRO (ESRO)	ESRO (ESRO)	ESRO (ESRO)
		ESRO (on other than ESRO launch covers)	

Below is a list of ESRO-series postal items (stamps, souvenir sheets, aerogrammes, postal cards, etc.).

Country	Catalog Number	Type of Item	Year of Issue	Notes on Content
<b>European Scientific Research Organization (ESRO) (ESRO)</b>				
Berlin	Unknown a (Mi7) Unknown ic	One of MS4 (a-d) One of imperforate MS4 (a-d)		
Berlin	Unknown a-d file	One of four stamps on FDC		
Berlin	Unknown a proof Unknown ic proof	One of MS4 proof (a-d) One of imperforate MS4 proof (a-d)	2014	"ESRO-4" (also launch date in text)
Berlin	Unknown ams proof	Signed-proof MS4 (a-d)		
Berlin	Unknown ams proof file Unknown ams proof file	MS4 proof on FDC Imperforate MS4 proof on FDC		
Berlin	Unknown d (Mi7) Unknown id	One of MS4 (a-d) One of imperforate MS4 (a-d)	2014	"ESRO-1" (also launch date in text)
Berlin	Unknown aad	One of four stamps on FDC		
Berlin	Unknown d proof Unknown id proof	One of MS4 proof (a-d) One of imperforate MS4 proof (a-d)		
Berlin	Unknown ms proof	Signed-proof MS4 (a-d)		
Berlin	Unknown ms proof file Unknown ms proof file	MS4 proof on FDC Imperforate MS4 proof and cachet on FDC		
Gabon	Unknown d (Mi7) Unknown id	One of MS4 (a-d) One of imperforate MS4 (a-d)		
Gabon	Unknown ms cachet	Signed-proof MS4 (a-d)		
Gabon	Unknown ms file Unknown ms file	MS4 on FDC Imperforate MS4 on FDC	2017	"ESRO-1" (also launch date in text)
Gabon	Unknown aad file	One of four stamps on FDC		
Germany (West)	None	(ESRO) cachet on cover	1968	"ESRO"
Panama	C165f (Mi1142)	One stamp and on (right) selvedge of MS6 (C365 (a-f)) (Mi1137-1142)	1969	"ESRO-2"
Paraguay	1220 (BL134)	On stamp of SS1	1969	"ESRO-1B"
Paraguay	1230 maestro	SS1 overprinted "maestro"		
United States	None	(R.E. Nichol) cachet on cover, also back	1969	"ESRO" (only satellite in red, above "G" in text)
United States	None	(DuBeau?/Swanson cyan rubber-stamp) cachet on (airmail) cover	1970	ESRO-2A image <sup>1</sup>

<sup>1</sup>This Swanson blue rubber-stamp cachet has radial antennas like those on ESRO-2A.

Below is a list of ESRO-series launch covers (including anniversary-of-launch covers, and launch-related event covers).

Country	Catch Date	Catch Location	Type of Item	Notes on Content
<b>European Scientific Research Organization (ESRO) (ESRO)</b>				
<b>1967-05-29: ESRO-2A / IRIS-1 [failed]</b>				
United States	1967-05-29	Vandenberg AFB, CA	SpaceCraft-Swanson cachet (with ESRO logo in low position) on cover, also insert1 and insert2 front and insert2 back	ESRO-2A launch [failed] (also "ESRO-1" on insert3, and "TD-1" (TD-1A) and "TD-2" (omitted) on insert2 back)
United States	1967-	Vandenberg	SpaceCraft-Swanson cachet	ESRO-2A launch [failed] (also "ESRO-1"

[www.csb.csb.nasa.gov/STSC/ESRO/ESRO.htm](http://www.csb.csb.nasa.gov/STSC/ESRO/ESRO.htm)



Paraguay 1220 (BL134) 1969



United States (DuBeau?/Swanson cyan rubber-stamp) cachet on (airmail) cover

Belgium pictorial cancel 1971  
Dhufar Local\_f 1972

Paraguay 1149 (Mi1906) 1969