22. The OAO Series

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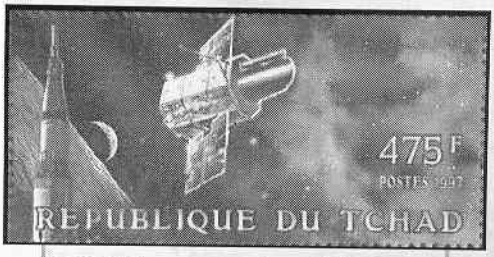
This is the twenty-second in a series of articles about un-manned satellites on postage stamps. This article features the **Orbiting Astronomical Observatory** *(OAO)- series satellites. Three OAO satellites were successfully launched, starting with OAO-1 on 8 April 1966, and ending with OAO-3 on 21 August 1972. There was one mission failure, that of OAO-B in 1970, when a shroud failed to separate from the spacecraft*

The OAO satellites were intended to make precision astronomical observations and to measure the absorption and emission characteristics of stars, planets, nebulae, and interplanetary and interstellar space at wavelengths ranging from the visible to gamma rays. A three-axis stabilization system allowed accurate pointing of the spacecraft after a star tracker acquired a guide star.

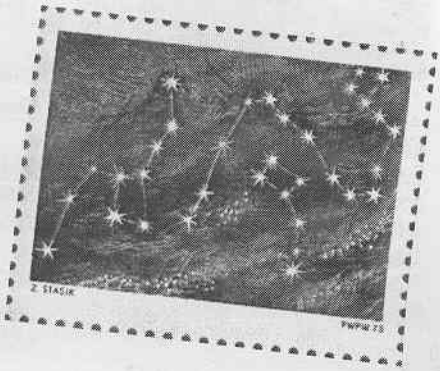
All the OAOs were of a similar basic design with an octahedronal body and two large solar panels, one on each side of the spacecraft. However, the details of the individual spacecraft varied enough to make them distinguishable from each other to some degree. According to reference images, the following details, which are different among the OAOs, were used to classify the images seen on the postal items listed in the checklist that accompanies this article.

OAO-1 has an opening flap/lid with ears, and broad L-shaped solar panels.

OAO-2 has an opening flap/lid with ears, and rectangular solar panels. In the checklist, several postal items were designated as OAO-2 based on their rectangular solar panels, despite the fact that they all show a rounded opening flap/lid without ears. This discrepancy may be due to the fact that OAO-2 was capable, with different instruments, of viewing out of both ends of the spacecraft.

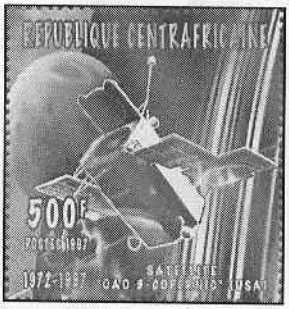


OAO-B has a smooth angled-off sun shroud, a smaller tube attached to the larger sun shroud, and rectangular solar panels.



OAO-3 (also called **Copernicus**) has an angled-off sun shroud, a sun shroud with ridges (or multiple smaller tubes), and rectangular solar panels.

Besides OAO-3, the Copernicus name has been associated with two other satellites: the Russian scientific satellite Interkosmos-9 is also called **Kopernik-500**, and the German communications satellite DFS (Deutscher Fernmelde Satellit) is called **Kopernikus**. Neither are included in this article, and should not be confused with OAO-3.



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Checklist of OAO-series Satellites Postal Items

Country	Catalog #*	Type of Item**	Year	Notes
Benin	502		1980	OAO-3*
Central Africa Rep.	1174a	One of SS4 (1174a-d)	1997	OAO-3*
Chad	709a	One of MS6 (709a-f)	1997	OAO-B[3]
Chad	923		2001	OAO-3*
Chad	923a	SS1	2001	OAO-3*
Chad	923b	MS4 (4x #923)	2001	OAO-3*
Dominica	2237c	One of MS6 (2237a-f)	2000	OAO-3*
Equatorial Guinea	Mi1276		1978	OAO-1[2]
Gambia	799		1988	OAO-3*
Ghana	166a	Margin of imperforate SS4 (4x (166))	1964	OAO-2[1]
Liberia	657		1973	OAO-3*
Maldive Islands	488	SS1	1974	OAO-3*
Mali	C301		1977	OAO-1
Poland			1973	OAO-3*
Poland	1979	May be paired with label	1973	OAO-3*
Poland	1979a	SS6 (6x #1979) + 2 labels	1973	OAO-3*
Poland	2248a	selvedge of MS6 (6x #2248) + 2 labels	1977	OAO-3*
Poland	2366		1979	OAO-3*
Poland	2369a	SS5 (2365-2369) + label	1979	OAO-3*
Satellite Beach Florida, USA	Local	set-C10 (blue)	1964	OAO-1
Satellite Beach Florida, USA	Local	set-C10 (blue) overprinted in gold	1965	OAO-1
Sharjah	42		1964	OAO-2[1]
Sharjah	42A	#42 overprinted with new currency	1967	OAO-2[1]
Togo	500		1964	OAO-1
Togo	504		1964	OAO-1
Togo	505a	Imperf. SS4 (502-505)	1964	OAO-1
United Nations (Geneva)	46	First Day Cover Cachet	1975	OAO-3*
United States	1488	First Day Cover Cachet	1973	OAO-B[3]
United States		Cancel on postal card	1973	OAO-3*
Yemen Arab Republic	C86	Also imperforate deluxe sheet	1982	OAO-2[1]

*Scott catalog number, unless prefixed with Mi or BL for Michel; "i" prefix denotes imperforate version.
SS# = souvenir sheet, MS# = miniature sheet # is number of stamps in sheet; numbers in parentheses are catalog numbers of the stamp(s).

[1] These items are labeled as OAO-2 satellites based on the rectangular solar panels.
[2] OAO-1, not Kosmos-894 as indicated on the stamp.
[3] OAO-B, not OAO-3 / Copernicus as indicated on these items.
*OAO3 is also known as as Copernicus.

Readers are referred to the authors' website for images of OAO satellites, as well as launch covers and postal items featuring these satellites. A checklist is presented both here and on the Website, to accompany this series of articles, at: www.cira.colostate.edu/ramm/hillger/satellites.htm E-mail correspondence is welcome. Don Hillger can be reached at hillger@cira.colostate.edu and Garry Toth at garry_toth@hotmail.com.