24. Eole Series Satellites (& Balloons)

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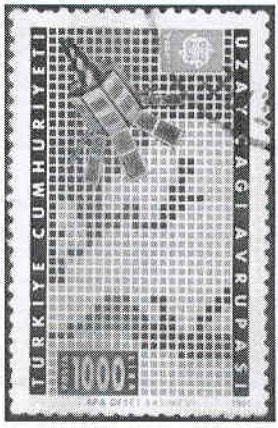
This is the twenty-fourth in a series of articles about un-manned satellites on postage stamps. This article features the French **Eole***-series satellites. One* **Preliminary Eole (Peole)** *and one* **Eole** *were successfully launched, the former on 12 December 1970 and the latter on 16 August 1971. Eole was also known as* **CAS (Cooperative Applications Satellite)**, *having been launched by NASA under a cooperative agreement with France's Centre National d'Etudes Spatiales (CNES).*

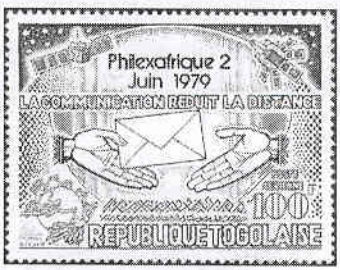
The word "Eole" comes from a Greek word meaning "wind", and the Greek God of wind was called Eole. The Eole program refers to a system of helium-filled balloons as well as the satellites used to track them. The Eole balloon system was a series of instrumented earth-circling constant-density meteorological balloons. The Eole spacecraft served primarily as communications satellites to relay data collected by the Eole balloons on upper-atmospheric altitude, pressure, temperature, moisture, and wind velocities.

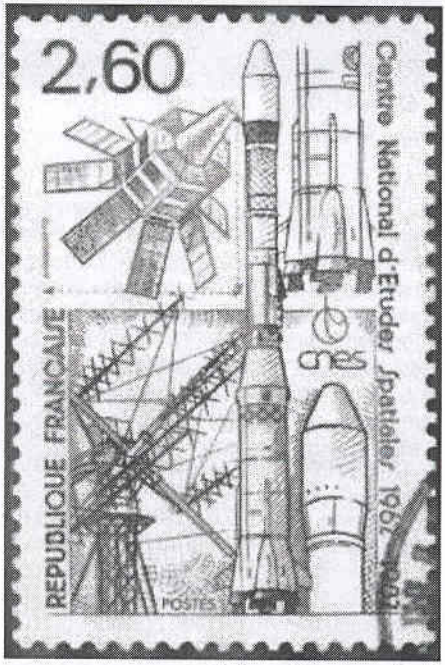
The Eole satellites consisted of an octagonal body with 8 solar panels fanned out at a 45 degree angle from the main spacecraft body. The satellites occupied low-earth elliptical orbits and used a Doppler system to locate the balloons' horizontal positions to within plus or minus 3 km (far from the accuracy obtained by more modern GPS location systems!). Data were stored on the satellites and then relayed to the ground when they were within range of the ground station.

As many as 500 3.6-m diameter Eole program balloons were launched at the rate of 3 per day from 3 sites in Argentina, with an additional 250 balloons held in reserve. The balloon system was intended to monitor the atmosphere at pressure altitudes of about 200 hPa (approximately 12,000 m), particularly between 30 and 60 degrees south latitude where observations from conventional upper-air weather balloons are particularly sparse. On 11 September 1971, 71 of the 115 balloons then in operation were accidentally destroyed when a general destruct command was sent instead of an interrogation command! The number of Eole balloons gradually decreased during the program's lifetime, which ended in 1973 when the last balloons were intentionally destroyed.



While the Eole satellite is featured on stamps from several countries, only three countries are known to specifically show Eole program balloons. Those items were issued in the 1972-1973 timeframe when the Eole program was in effect. Of note is the stamp issued by Central Africa Republic in 1973 (Scott C115), which shows both an Eole satellite and an Eole balloon, and is therefore listed in both parts of the checklist.



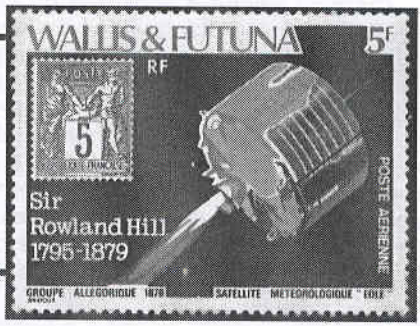


Enlarged to show detail.

The U.S. forerunners of the Eole balloon system were the GHOST (Global HOrizontal Sounding Technique) super-pressure balloons launched starting in 1966 and tracked by the Nimbus-4 satellite starting in 1970. The GHOST program lasted 10 years. The authors are unaware of any stamps showing GHOST balloons, however the Nimbus satellite series was covered in the second article in this series.

OOPS! Somebody made a major mistake when they labeled this Syncom communication satellite as an "EOLE" meteorological satellite.

Obviously the stamp designer chose the "future" image to contrast with Sir Rowland Hill's "history."



Checklist of Eole Series Satellites & Balloons Postal Items

Country	Catalog #*	Type of Item**	Year	Notes
Eole / CAS				
Cameroun	529		1971	Eole
Central Africa Republic	C115		1973	Eole
Central Africa Republic	C115 proof	Die proof	1973	Eole
Central Africa Republic	C115 proof	Die proof, black	1973	Eole
Central Africa Republic	C115 proof	Color proof strip	1973	Eole
Central Africa Republic	C115 FDC	Stamp on FDC	1973	Eole
Central Africa Republic	598		1983	Eole
Dominica	2240	SS1	2000	Eole
France	None	Cancel	1971	Eole
France	1835		1982	Eole
France	1835 FDC/ Stamp & cancel	Cancel on FDC	1982	Eole
France	1835 SC	Stamp and cancel on Souvenir Card	1982	Eole
French Southern and Antarctic Territories	C51		1978	Eole
Niger	959a	One of MS4 (959a-d)	1997	Eole
Togo	C379		1979	Eole
Turkey	2502		1991	Eole
Wallis and Futuna Islands	C90		1979	Syncom[1]
Eole Program Balloons[2]				
Argentina	977		1972	Eole balloon
Central Africa Republic	C115		1973	Eole
Central Africa Republic	C115 proof	Die proof	1973	Eole balloon
Central Africa Republic	C115 proof	Die proof, black	1973	Eole balloon
Central Africa Republic	C115 proof	Color proof strip	1973	Eole balloon
Central Africa Republic	C115 FDC	Stamp on FDC	1973	Eole balloon
Mali	174		1972	Eole balloon
United States	None	Cover cachet (1)	1971	Earth as an Eole balloon
United States	None	Cover cachet (2)	1971	Eole balloon
United States	None	Cover cachet (3)	1971	Eole balloon

1 Syncom, not Eole as indicated on the stamp.
2 Instrumented earth-circling constant-density meteorological balloons tracked by French Eole-series satellites.

*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)*

Readers are referred to the authors' website for images of Eole satellites and balloons, 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/Eole.htm E-mail correspondence is welcome. Don Hillger can be reached at hillger@ cira.colostate.edu and Garry Toth at garry_toth@hotmail.com.