

Un-manned Satellites on Postage Stamps : 24

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Eole-series Satellites (and Balloons)

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"; 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 Global Positioning System (GPS) location systems!). Data were stored on the satellites and then relayed to the ground when the satellites were within range of the ground station.

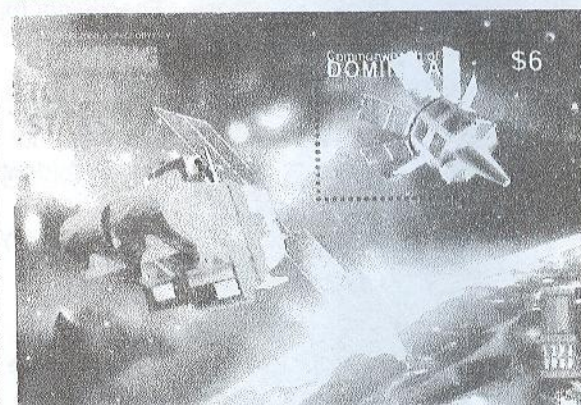
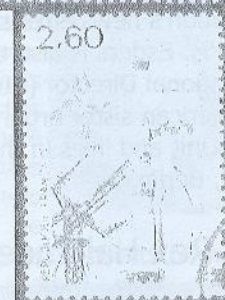
As many as 500 3.6-m diameter Eole Program balloons were launched at the rate of 3 per day from 3 sites in Argentina, with an additional 250 balloons held in reserve. The balloon system was intended to monitor the atmosphere at pressure altitudes of about 200 hPa (approximately 12,000 m), particularly 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, fewer 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.

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 Nimbus series satellites were covered in the second article in this series.

A checklist of postal items showing Eole-series satellites (<http://www.cira.colostate.edu/ramm/hillger/Eole.htm>) is available on the Website developed by the authors for the un-manned satellites featured in this series of articles (<http://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.



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Eole-series satellites

Below is a checklist of **Eole-series satellite** postal items (stamps, souvenir sheets, aerogrammes, postal cards, etc.). Catalog numbers, years of issue, and notes on the satellites featured are given when available. Eole is also known as the **Cooperative Applications Satellite (CAS)**. If readers know of additional information or images, please contact the authors using the e-mail addresses at the bottom of this page.

For **Eole satellite** launch information and covers see the **Eole-series table** on the scientific/research satellites page.

For **Eole program balloon** items, see the **Eole program balloons** section of the weather balloons page.

| Country | Catalog Number* | Type of Item** | Year of Issue | Notes on Content |
|---|------------------|--|---------------|--------------------------------|
| Cameroun | 529 | | 1971 | Eole |
| Central Africa Republic | C115 | | 1973 | Eole |
| Central Africa Republic | C115 proof1 | Die proof (blue) | 1973 | Eole |
| Central Africa Republic | C115 proof2 | Die proof (black) | 1973 | Eole |
| Central Africa Republic | C115 proof strip | 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 and cancel on FDC | 1982 | Eole |
| France | 1835 sc | Stamp and cancel on Souvenir Card | 1982 | Eole |
| French Southern and Antarctic Territories | C51 | | 1978 | Eole |
| Guyana | None | Cachet on cover | 1974 | Eole |
| Guyana | None | Cachet on Super Arcas 35-48 (sub-orbital) launch cover | 1974 | 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 (not Eole) ¹ |

