

Un-manned Satellites on Postage Stamps : 3

By Guest Contributors Don Hillger and Garry Toth

The ITOS/NOAA series

This is the third in a series of articles about un-manned satellites on postage stamps. This article features the Improved TIROS Operational System (ITOS) / National Oceanic and Atmospheric Administration (NOAA) series of weather satellites. These satellites follow the TIROS and ESSA satellites covered in the first article.

The first satellite, TIROS-M, was launched on 23 January 1970, followed by NOAA-1. The ITOS/NOAA sub-series continued through NOAA-5 launched on 29 July 1976. Then a change in satellite procurement and design resulted in the next-generation TIROS-N launched on 13 October 1978, followed by NOAA-6. This TIROS-N/NOAA sub-series continued through NOAA-7 launched on 23 June 1981. Then followed the Advanced TIROS-N (ATN) satellites, the first being NOAA-8 launched 28 March 1983. This ATN/NOAA sub-series continues through the most recent NOAA-17 launched on 24 June 2002.

Three satellites in this series never attained successful orbits and so did not become operational: ITOS-B, ITOS-E1, and NOAA-B. A fourth satellite, ITOS-C/E2, was not needed and was never launched, due to the longevity of the satellites already in orbit. The complete satellite series with launch dates is given on the Website developed by the authors for the satellites featured in these articles. Look for the ITOS/NOAA series under the polar-orbiting-weather satellite category, which can be found along with other types of satellites at: <http://www.cira.colostate.edu/ramm/hillger/satellites.htm>

NOAA satellites are placed in circular near-polar sun-synchronous orbits ranging in altitude from 800 and 1400 km. Two satellites are operational at any time. Each satellite views all portions of the earth below at a fixed local time, one in the morning and the other in the



evening. Data and measurements are available every 12 hours from each satellite, reduced to every 6 hours for a two-satellite system.

The instrumentation on NOAA satellites provides high-spatial-resolution visible and infrared imagery, as well as "sounding" instrumentation for determining the temperature and water vapor structure of the atmosphere. Lower-spatial-resolution microwave instruments are used to sense through clouds that obscure the view in the visible and infrared. Data from these instruments are used for weather analysis and forecasting as well as input to numerical models of the atmosphere.

Identifying the Satellites

Images of several postal items showing ITOS and NOAA satellites are presented with this article. The ITOS sub-series have three slightly-curved solar panels attached to a square body, looking somewhat like a cardboard box with three flaps standing open.

TIROS-N and ATN satellites have one large rectangular solar panel attached via an arm to a long body with instruments on the side facing the earth.

The TIROS-N sub-series has three circular louvered radiant coolers on each side of the body.

The ATN sub-series has a longer body and four radiant coolers that are somewhat hidden behind additional instrumentation attached to the body of the spacecraft.

A table of all postal items known to show the NOAA series accompanies this article and is also available on the Website mentioned above. All of the satellites in the table are identified according to which sub-series of NOAA satellites they belong. One of the stamps in the table, Netherlands B652, is different from the others, in that it does not show a NOAA satellite. Rather, it shows an image identified as being from NOAA-11. Satellite images have been shown on other stamps, but it is rare that they are connected to a specific satellite.



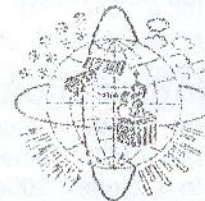
Checklist of Postal Items Showing NOAA satellites

Country	Catalog Number*	Type of Item**	Year	Notes on Content***
Barbados	516		1979	ITOS/NOAA
Central Africa Republic	BL203	In margin of SS1 (535)	1982	TIROS-N/NOAA
China (Taiwan)	2221		1981	TIROS-N/NOAA
Comoro Islands	BL350	In margin of SS1 (768)	1991	ATN/NOAA
French Southern and Antarctic Territory	C50		1979	TIROS-N/NOAA
French Southern and Antarctic Territory	C114		1991	TIROS-N/NOAA
French Southern and Antarctic Territory	C147		1998	TIROS-N/NOAA
Indonesia	1882		2000	ATN/NOAA
Malagasy Republic	969		1990	ATN/NOAA
Malagasy Republic	BL135	SS1 (969)	1990	ATN/NOAA
Malagasy Republic	967-72MS6	MS6 (967-972)	1990	ATN/NOAA
Malagasy Republic	1047A	SS1 (1047)	1992	TIROS-N/NOAA
Micronesia	298	SS1	1998	ATN/NOAA
Netherlands	B652		1990	ATN/NOAA-11 image
Russia	5603	In margin of SS1	1987	ATN/NOAA
Senegal	390		1973	ITOS/NOAA
Switzerland	None	Meter	1988	TIROS-N/NOAA
Tonga	785b	From strip of 3 (785a-c)	1991	TIROS-N/NOAA
Tonga	785c	From strip of 3 (785a-c)	1991	TIROS-N/NOAA
Viet Nam	447		1973	ITOS/NOAA
Viet Nam	497	447 overprinted	1974	ITOS/NOAA

*Scott number, unless indicated with Mi or BL for Michel.

**SS# = souvenir sheet, MS# = miniature sheet, where # = number of stamps in sheet, and the numbers in parentheses are the catalog numbers of the stamps in the sheet.

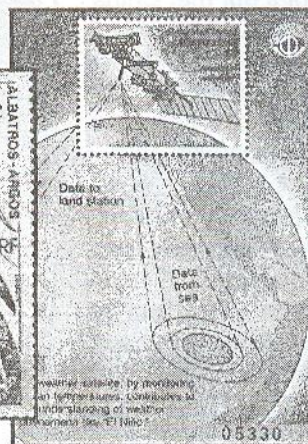
***ITOS/NOAA includes ITOS-1 (TIROS-M) and NOAA-1 through NOAA-5; TIROS-N/NOAA includes TIROS-N, NOAA-6 through NOAA-7, and NOAA-12; ATN/NOAA includes NOAA-8 through NOAA-17.



25 YEARS
WORLD
WEATHER
WATCH
1938-1963



E-mail correspondence with the authors is welcome.
Don Hillger can be reached at hillger@cira.colostate.edu
and Garry Toth at garry.toth@ec.gc.ca



See also page 34 for another article in this series which was first published in *The Astrophile* in 2002 and is republished here by kind permission of authors and editor Bill York