

~~SECRET~~

Defense Intelligence

NO FOREIGN DISSEMINATION

DIGEST

(U)

December 1968 • Volume 6 • Number 12



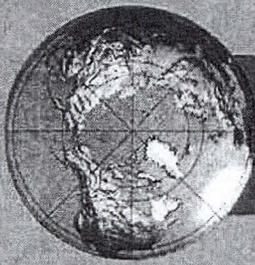
DECLASSIFIED UNDER AUTHORITY OF THE
INTERAGENCY SECURITY CLASSIFICATION APPEALS PANEL,
E.O. 13526, SECTION 5.3(b)(3)

ISCAP APPEAL NO. 2009-068, document no. 272
DECLASSIFICATION DATE: May 14, 2015

EXCLUDED FROM AUTOMATIC
REGRADING: DOD DIR. 5200.10
DOES NOT APPLY

DEFENSE INTELLIGENCE AGENCY

~~SECRET~~



Contents

MANAGING EDITOR..... Dr. Edgar L. Hoff, Jr.
 ASSOCIATE EDITOR..... Andrew Pasternak
 ART EDITOR..... Robert L. Burleigh
 SR. ILLUSTRATOR..... Brian W. McMullin
 SENIOR EDITORS..... Francis A. Deha
 Philip McDonnell
 D. Edwin Schmelzer
 EDITORS..... Jane R. Hooper
 Diana Dee Houston
 Susan F. Hirschmann
 EDITORIAL ASSISTANTS..... Mary Mattison
 Martha M. Jacobsen

Contributing Analysts:	Page
DIAAP-9C3.....	2
Earl V. McMaugh (DIAAP-3A4).....	4
Norman H. Powers, Maj, USAF (DIAAP-3A4).....	8
Raymond G. Taylor (DIAAP-5B3).....	10
Douglas R. Burgess, Maj, USA (DIAAP-4A3).....	14
Jack L. Kirkpatrick (DIAAP-7G2).....	18
John B. Sparkman (DIAAP-5B) and Harold T. MacDonald (DIAAP-5C).....	20
James R. Guthrie (F5TC-GET).....	22
E. Dick Cornepius, Cdr, USN (DIAST-3D).....	24
William H. Stanton, Maj, USA (DIAST-3C).....	28
Ruth E. Brown (DIAAP-3A6).....	30
Edward Lipp (DIAAP-3A6).....	32
Frederick P. Gilliam (DIAAP-4A3).....	35
Domenick Fabrizio, Jr. (DIAAP-7G2).....	38

December 1968 • Volume 6 • Number 12

Portion identified as non-responsive to the appeal	2
	4
	8
	10
	14
	18
	20
	22
	24
	28
Soviet Meteorological Program Scanned	30
Portion identified as non-responsive to the appeal	32
	35
	38
	40
	44

FOREWORD

MISSION: The mission of the monthly *Defense Intelligence Digest* is to provide all components of the Department of Defense and other United States agencies with timely intelligence of wide professional in-

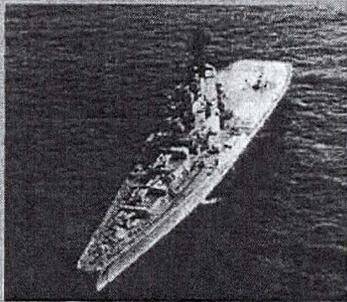
terest on significant developments and trends in the military capabilities and vulnerabilities of foreign nations. Emphasis is placed primarily on nations and forces within the Communist World.

WARNING: This publication is classified secret because it reflects intelligence collection efforts of the United States, and contains information affecting the national defense of the United States within the meaning of the Espionage Laws, Title 18 U.S.C., Section 793 and Section 794. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law. Although the publication is marked "No Foreign Dissemination," certain articles are releasable to

foreign governments; however, such release is controlled by the Defense Intelligence Agency.

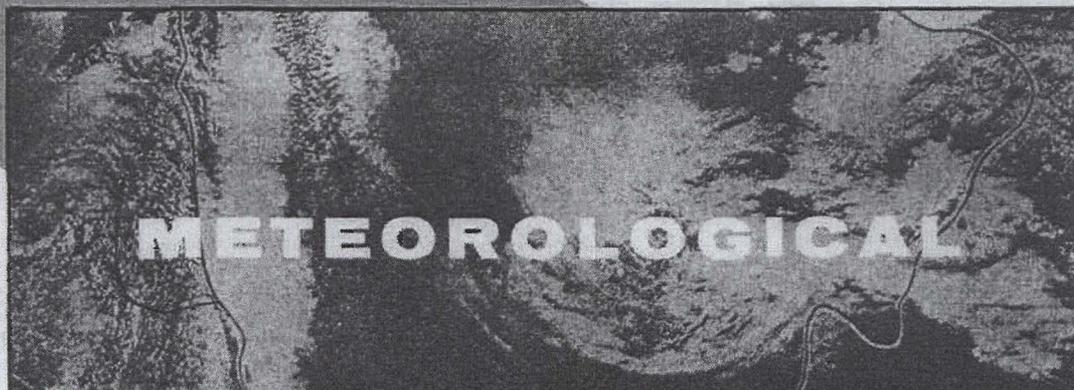
Joseph F. Carroll

JOSEPH F. CARROLL
Lt General, USAF
Director



Soviet helicopter carrier Moskva. For details, see article entitled "Moskva Helicopter Carrier Makes Mediterranean Debut," page 24. [U]

SOVIET



PROGRAM SCANNED

THE Soviets are showing considerable interest in performing advanced experiments in the field of weather satellites. They have stated that they will attempt to establish an operational system with two or three satellites in orbit at the same time and that they intend eventually to use polar orbits for their meteorological satellites. They also have expressed considerable interest in using manned spacecraft for meteorological observations.

One of the earliest and clearest expressions regarding the Soviet weather satellite program came forth at US-USSR negotiations in March 1963. Academician A. A. Blagonravov disclosed that the USSR was testing meteorological satellite equipment in the Cosmos series; that the weather satellites would be earth-oriented; that the Soviet aim was to achieve as near a polar orbit as possible; and that "coordinated launchings of US-USSR meteorological satellites would be possible in 1964."

The Soviet state of the art has been developing rapidly for the last four years, 10 satellites having been launched. The program thus far has been highlighted by transmission of cloud-cover pictures from two of its three currently active vehicles and the achievement of almost total daily coverage of the temperate-climate areas of the world. Behind this progress the picture looks something like this:

- The first of the weather satellites



apparently was Cosmos 44, launched on 28 August 1964. It was placed into a nearly circular orbit at an altitude of about 400 nautical miles. The altitude and low-orbit eccentricity were compatible with requirements for a weather satellite.

- The next vehicle in the program was Cosmos 58, launched on 26 February 1965. It was followed 10 months later by Cosmos 100, the first to transmit pictures.

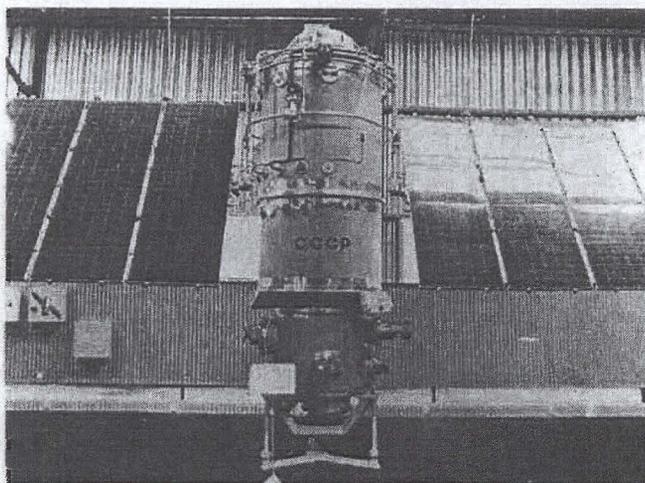
- The next two satellites in the program, Cosmos 122 and 118, also transmitted pictures. The 122 was launched in June 1966, in the presence of French President de Gaulle, but the Soviets did not announce its mission until two months after launching. The Cosmos 118 was launched in May 1968.

Shortly after August 1966, the Soviets began to disseminate cloud-cover data which they claimed satisfied the terms of the 1962 US-USSR meteorological data-exchange agreement. This agreement, however, called for the transmission of actual photographs as well as weather analyses. On 11 September 1966, the Soviets began to transmit video data from Cosmos 122 daily on a special weather-communications circuit between Moscow and Washington. The Soviet video data as received in Washington were degraded by the photo-facsimile transmission, particularly with respect to contrast. The pictures were received 12 hours after Soviet satellite transmission; the bilateral agreement had called for delays of no longer than six hours. Although the Soviets still have not met the six-hour deadline, since mid-1967 they have improved both timeliness and quality.

February 1967 marked the launch of the Cosmos 144 and of a new phase of the weather satellite program—the Meteor system, which was soon to involve other satellites phased in coordination with each other for a more complete coverage of the earth. The Meteor system was supplemented by Cosmos 156, launched 27 April 1967 and injected into an orbit similar to that of Cosmos 144. The orbits were phased 95 degrees apart so that the area covered by one vehicle would be viewed six hours later by

VEHICLES IN SOVIET METEOROLOGICAL SATELLITE PROGRAM

Satellite	Launch Date	Launch Site	Inclination	Cloud Pictures	Comments
Cosmos 44	28 Aug 64	Tyuratam	65°	None	16-day useful lifetime.
Cosmos 58	26 Feb 65	Tyuratam	65°	None	48-day useful lifetime.
Cosmos 100	17 Dec 65	Tyuratam	65°	Orbit 1	1-day useful lifetime.
Cosmos 118	11 May 66	Tyuratam	65°	2 weeks	3-week useful lifetime.
Cosmos 122	25 Jun 66	Tyuratam	65°	16 weeks	Announced by TASS as a weather satellite.
Cosmos 144	28 Feb 67	Plesetsk	81°	1 year	Along with Cosmos 156 formed Meteor, an experimental Cosmic Meteorological Program.
Cosmos 184	24 Oct 67	Plesetsk	81°	6 months	Not announced as part of Meteor until 3 Jan 1968.
Cosmos 206	14 Mar 68	Plesetsk	81°	Continuing	Not announced as part of Meteor until 18 Mar 1968.
Cosmos 226	12 Jun 68	Plesetsk	81°	Continuing	Expected to be announced as part of Meteor. [8]



Cosmos 122 [8]

the other. Coverage of 50 percent of the earth's surface was provided every 24 hours.

Data from Cosmos 144 and 156 were processed by the USSR Hydrometeorological Center in Moscow. The Soviets have since disclosed that they receive and process data at three other centers: Obnisk (near Moscow), Khabarovsk, and Novosibirsk.

Two additional satellites, Cosmos 184, launched 24 October 1967, and Cosmos 206, launched 14 March 1968, apparently replaced the 156 and 144, respectively. TASS announced the launching of Cosmos 184 approximately 55 hours after the fact, and the 206 was belatedly announced by TASS, four days after launch, as part

of the Meteor system. Cosmos 226 was launched in June 1968, and is the third of the three currently active satellites—184, 206, and 226—that now compose the Meteor system. Cosmos 226 was launched approximately 115 degrees out of phase with the 206, allowing nearly full daily coverage of temperate climate areas.

All Soviet weather satellites have been launched with an SS-6 booster/sustainer and a Lunik third stage (SL-3). This system has been used also in each of the manned Vostok vehicles and the early lunar probes, and in a number of photoreconnaissance satellites. The estimated weight of the meteorological payload is 3,000 pounds—close to the SL-3 capacity at 300 to 400 nautical miles orbit alti-

tude, direct ascent mode. Two solar panels—119 inches long and 86 inches high—extend from the sides of the spacecraft. They weigh about 250 pounds, and their combined power is about 1,500 watts while in the sunlight, which is about two-thirds of the time. This power, converted from the sunlight, provides the satellites with a continuous capability of about 600 to 700 watts.

The Soviets probably will launch more weather satellites in order to replace those which malfunction or to increase coverage. In addition, they could be developing smaller satellites, providing less data but also less expensive. This approach may have been represented by the Cosmos 149, launched from Kapustin Yar in March 1967, using the SL-7 launch system (SS-4, plus restartable upper stage). The 149 carried both a good-quality television system and an infrared system. It was placed in a low earth orbit probably to test a new type of stabilization, using the earth sensors for vehicle attitude information.

The Soviets have also displayed video data transmitted from their Molniya communications satellites that could have meteorological applications.

Whether the Soviets will choose the small individual mission approach or the multimission satellite approach in carrying out the bulk of their future meteorological program is not yet apparent; but research and development for improved weather satellite payloads undoubtedly will receive increasing attention. [END]