

R



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. 233
DECLASSIFICATION DATE: May 14, 2015



NORTH AMERICAN AIR DEFENSE COMMAND W3485

W I R

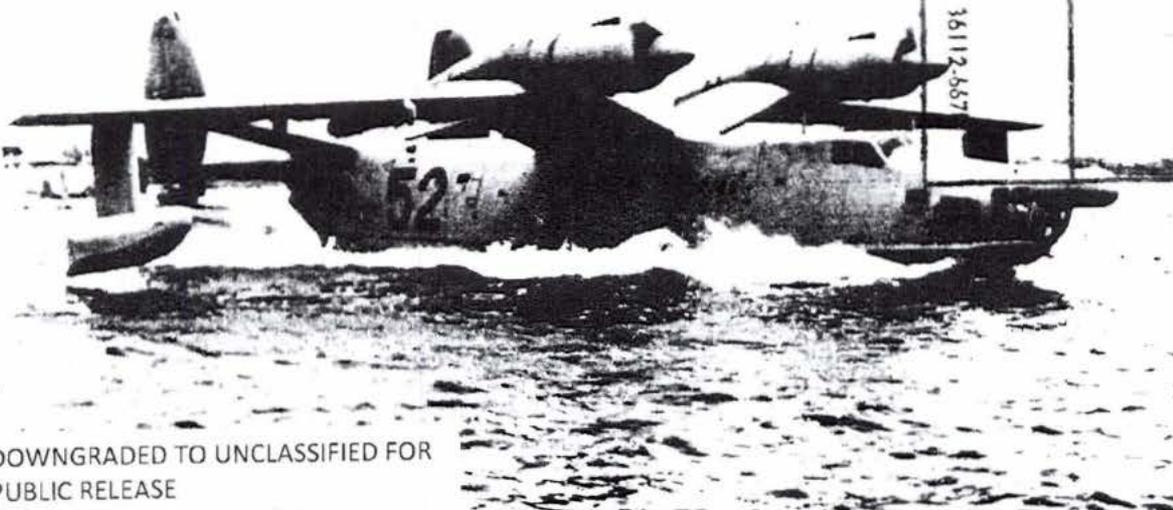
UNCLASSIFIED

WEEKLY INTELLIGENCE REVIEW (U)

PRIVILEGED INFORMATION

SEE INSTRUCTIONS ON THE BACK COVER

RETURN TO:
HQ USAF/PC
MAXWELL AFB #1 36112-857



DOWNGRADED TO UNCLASSIFIED FOR PUBLIC RELEASE BY NORAD/NORTHCOM/CSO SEPTEMBER 2009

MICROFILMED BY ADM

FOR OFFICIAL USE ONLY

SPECIAL HANDLING REQUIRED
This document is releasable only to U.S. and Canadian Nationals

~~EXCLUDED FROM AUTOMATIC REGRADING, DOD DIRECTIVE 5200. 10 DOES NOT APPLY~~

WIR
2 Ja
NITA-P&E 6

880830

DECLASSIFY ON 24 Jul 09

UNCLASSIFIED

NORAD

Weekly Intelligence Review

Issue No. 1/70, 2 January 1970

UNCLASSIFIED
R70-001-566

The WIR in Brief

Portion identified as non-responsive to the appeal

Space

CURRENT HUMAN ISOLATION TRIALS REPRESENT SOVIET COMMITMENT TO VERY PROLONGED SPACEFLIGHTS ~~187~~ 6
 But tests are far removed from development of actual spaceflight hardware.

SOVIETS HAVE MOST PREREQUISITES FOR LONG-WAVE INFRARED DETECTION OF INCOMING RVs, ORBITING SPACECRAFT ~~187~~ 7
 At least 7 Soviet space or space-related programs could have been applicable.

SL-12 FAILURE OF 28 NOV POSSIBLY AN ATTEMPT TO OBSERVE 4th STAGE BURN OVER U.S.S.R. ~~187~~ 8
 Probably a Zond, not Proton, payload involved.

COSMOS 316 A MANEUVERING SATELLITE (S) 8
 At least 1 maneuver detected.

COSMOS 315 PROBABLY HAS ELINT/SURVEILLANCE MISSION ~~187~~ 9
 3d member of currently active net.

COSMOS 317 A MANEUVERABLE RECSAT WHICH MAY ORBIT FOR 12 OR 13 DAYS ~~187~~ 10
 First of series launched from Plesetsk.

INTERCOSMOS 2 LAUNCHED IN JOINT RESEARCH EFFORT BY EAST EUROPEAN RED NATIONS (U) 10
 Studying ionosphere.

ATTEMPT TO LAUNCH ANOTHER POSSIBLE ELINT OR NAVIGATION SATELLITE FAILS ~~187~~ 11

Portion identified as non-responsive to the appeal

Portion identified as non-responsive to the appeal

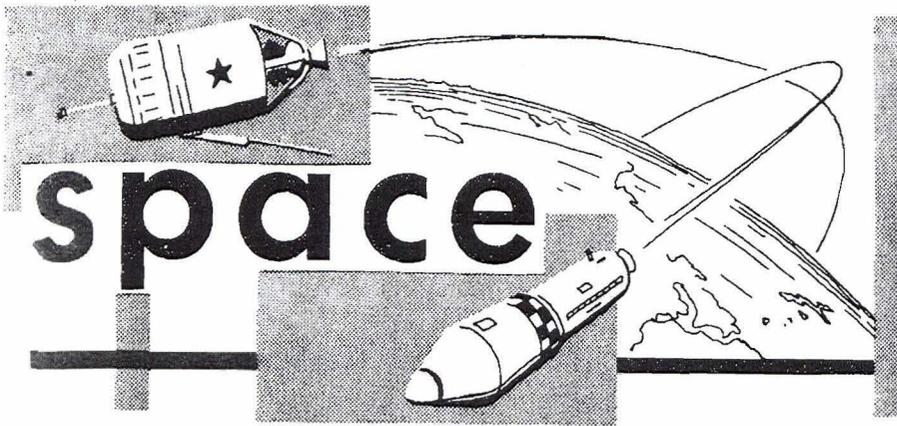
COVER: MAIL/BE-12 amphibian (OFFICIAL USE ONLY)
 NOTE: Pages 30, 32, 33, 36, 37, 40, 41, 44 and 45 of this issue are blank.

FOR OFFICIAL USE ONLY

UNCLASSIFIED

UNCLASSIFIED

~~SECRET~~



significant
intelligence
on space
developments
and trends

Current Human Isolation Trials Represent Soviet Commitment to Very Prolonged Spaceflights (C)

The Soviets are reported to have carried out many chamber tests in the past two years involving the effects on man of food produced by bioregenerative methods (conversion of human waste products to food by biological means) as well as the effects of microbiological contamination from close confinement. The tests have involved 1-3 subjects and have been geared to the requirements of very prolonged spaceflights.

Several such trials are now going on. Earlier this year Y. G. Nefedov began a series of double-chamber tests in which one or two subjects in each closed chamber have switched chambers after each group had stayed in one chamber long enough to contaminate it with their microorganisms.

I. I. Gitelson and L. V. Kirenskiy have a man living in a closed chamber under normal atmospheric conditions and eating wheat which has been grown in a closed bioregenerative system. His diet is supplemented with other spaceflight food rations.

In another experiment involving two chambers, a subject is being fed a similar diet but based partially on plant materials grown from his own gaseous and liquid wastes.

Although these tests are far removed from development -- much less test -- of actual spaceflight hardware, the feeding trials exemplify the substantial Soviet commitment to using higher plants for feeding cosmonauts -- a source which would be required only on flights too long in duration to carry stored food.

The microbiological contamination trials appear to have shown no significant problem if properly matched normal subjects are used. However the Soviets' 12-month trial which ended early in 1969 and was reported on in the Soviet press indicated some alteration and proliferation of indigenous microorganisms, possibly due to special diets and the stress of confinement in an alien environment. These Soviet tests do not appear to have

-6-

WIR 1/70 2 Jan 70

~~SECRET~~

considered potential problems which could arise from cross-infection with pathogens not detected during preflight screening.

(CIA)

~~(SECRET~~ NFD/Releasable to US, UK & Can)

Soviets Have Most Prerequisites for Long-Wave IR Detection of Incoming RVs, Orbiting Spacecraft ~~(S)~~

The Soviets are not believed to have, at present, an operational LWI (long-wave infrared) system for detecting incoming missile RVs (re-entry vehicles) or orbiting spacecraft. They have, however, demonstrated or are believed to possess all but two of the basic component technologies and systems features required for such purposes. The requirements would include:

- 1) Photon-noise limited detectors
- 2) High-quality reflective optics and spectral filters
- 3) Coolers which can sustain cryogenic temperatures
- 4) An extensive model of background radiation
- 5) Instrumentation to process and transmit sensor data
- 6) A stable platform
- 7) Arrays of perhaps 100 separate detectors

In its potential for producing a viable detection system, Soviet technology limited only in the first and last of these requirements. No evidence is available to indicate that the Soviets have ever used or worked with multi-element arrays, and, although they are believed to be working on photon-noise limited detectors for reduced field-of-view backgrounds, they are estimated to be limited at present to 300 degrees K. and 2-pi steradian backgrounds.

The most likely uses to which a Soviet capability for LWIR detection would be put would include:

- 1) A detection/discrimination system aboard an ABM, for terminal defense against incoming RVs.
- 2) A spaceborne detection/discrimination system, for use against incoming RVs or spacecraft in orbit.
- 3) A detection-and tracking system serving as a rendezvous aid aboard an antisatellite or inspector spacecraft.

There is little evidence in the way of operational tests of specific LWIR hardware on which to state definitely that the Soviets are pursuing a developmental spaceborne or missileborne program, or even one involving development of the ground-based control and data-processing equipment.

At least seven Soviet space or space-related programs appear to be generally applicable to all three mission areas named above. These could have contributed to acquiring the required IR-background data and to testi



of individual subsystems, techniques, and systems features. (See table on page 42.)

(Various)

~~(SECRET)~~ NFD/Releasable to US, UK & Can)

SL-12 Failure of 28 Nov Possibly an Attempt To Observe 4th Stage Burn Over USSR ~~(S)~~

The space-launch failure of 28 November, which involved the Soviets' large 4-stage SL-12 propulsion system, was initially assessed as a test of the SL-12 system, during which, as a secondary mission, a heavy Proton-type scientific payload would be sent into near-Earth orbit (p. 7, WIR 49/69)

Further analysis now suggests that the payload was probably not a Proton but a member of the Zond series, the last four of which have been sent on circumlunar missions or simulations thereof. It also appears now that the Soviets intended that, instead of being sent into a near-Earth orbit, the craft would have been sent into a highly elliptical orbit with injection occurring over the USSR. The main purpose of the launch thus may have been an engineering test, designed to permit monitoring of 4th-stage ejection from points on the Soviet land mass. Similar Soviet attempts to observe burn of the SL-12 4th stage from the USSR may have occurred during the first two SL-12 launches, when Cosmoses 146 and 154 were orbited (10 March and 8 April 1967).

The Soviets' desire to monitor burn of an SL-12 fourth stage is quite understandable, since this stage has been responsible for a number of the SL-12's many failures. The fact that this latest mission failed may require that another be scheduled.

(NORAD)

~~(SECRET)~~

Cosmos 316 A Maneuvering Satellite ~~(S)~~

Cosmos 316, which the Soviets launched from Tyuratam at about 0925Z 23 December, is a maneuvering satellite. NORAD Space Defense Center reports the following initial orbital parameters, and the parameters after a maneuver which occurred during Zero Revolution (before first northbound crossing of the Equator) or early on Revolution One:

	<u>Initial Parameters</u>	<u>Parameters After 1st Maneuver</u>
Inclination	49.31 degrees	49.39 degrees
Period	101.2 minutes	102.8 minutes
Apogee	1456.6 km (780 n.m.)	1614.95 km (867 n.m.)
Perigee	169.43 km (91 n.m.)	164.29 km (88 n.m.)



Cosmos 316 is one of a series of such satellites launched from Tyutarny by the SL-11 propulsion system, which consists essentially of the 2-stage SS-9 ICBM plus a maneuverable upper stage and payload. Here are the known launches or launch attempts of this series:

	<u>Launch Date</u>
Cosmos 185	27 Oct 67
Cosmos 198	27 Dec 67
Cosmos 209	22 Mar 68
Cosmos 217	23 Apr 68
Cosmos 248	19 Oct 68
Cosmos 249	20 Oct 68
Cosmos 252	01 Nov 68
Failure	24 Jan 69
Cosmos 291	06 Aug 69 (mission failure; did not transmit)
Failure	01 Nov 69
Cosmos 316	23 Dec 69

The exact mission of this series of satellites, which is believed to be still in the test phase, is not known. Maneuvering is required for a variety of space missions, such as assembling large space stations or propulsion systems in orbit, station keeping, adjustment or change of orbit to allow more flexible surveillance, crew rotation and replenishment of supplies and equipment of long-life space stations, satellite inspection, and satellite interception.

It may be significant that the testing of this particular satellite series has been carried on parallel with, and even subsequent to, the successful development of other space maneuver systems, such as the Soyuz manned spacecraft, a maneuver system for Cosmos-series photoreconnaissance satellites, and a system for keeping the Molniya communication satellites on station (NORAD)

~~(SECRET)~~

Cosmos 315 Probably Has ELINT/Surveillance Mission ~~(S)~~

Cosmos 315, which the Soviets launched from Plesetsk at about 0320 20 December, is believed to be a nonrecoverable satellite with the same ELINT or surveillance mission as Cosmoses 250 and 269 (pp. 7-8 WIR 49). NORAD Space Defense Center reports the following orbital parameters for Cosmos 315:

Inclination	74.02 degrees
Period	94.99 minutes
Apogee	546.84 km (295 n.m.)
Perigee	496.41 km (268 n.m.)



Cosmoses 250 and 269, which were launched, respectively, on 30 October 1968 and 5 March 1969, are still active. A sample of the Northern Hemisphere areas which they can monitor during a single orbit was shown on page 32, WIR 51/69. The addition of Cosmos 315 to this net will, of course, expand the area of coverage.

All three active satellites of this series, as well as one which never transmitted (Cosmos 189) and one which is no longer transmitting (Cosmos 200), were launched from Plesetsk by the SL-8 propulsion system into nearly circular 74-degree orbits with apogees close to 300 n.m. (See listing on page 39, WIR 49/69.) The SL-8 consists of the SS-5 IRBM plus an upper stage.

(NORAD)
~~(SECRET)~~

Cosmos 317 a Maneuverable Recsat Which May Orbit for 12 or 13 Days ~~(S)~~

Cosmos 317, which the Soviets launched from Plesetsk at about 1350Z, 23 December, is a recoverable military reconnaissance satellite which carries a high-resolution camera system. It is the 32d Soviet photorecce satellite launched in 1969.

An analysis of [redacted] indicates that Cosmos 317 is similar in purpose to Cosmoses 251, 264, and 280, each of which carried a maneuver engine which separated from the payload about one day prior to deorbit of the latter. These satellites flew missions of 12 or 13 days; thus, Cosmos 317 may be expected to be deorbited on 4 or 5 January.

Cosmos 317 is the first maneuverable recoverable recsat to be launched from Plesetsk: the first three members of the series were launched from the Tyuratam missile test range. The move to Plesetsk could indicate that this latest modification of the Soviets' recoverable photorecce satellite is fully operational. Since Plesetsk became the Soviets' third space-launch facility in 1966, the Soviets have moved several types of launches to that range-head after first testing them at Tyuratam or Kapustin Yar.

(NORAD)
~~(SECRET)~~

Intercosmos 2 Launched in Joint Research Effort by East European Red Countries (U)

Intercosmos 2, which the Soviets launched from Kapustin Yar with an SL-7 propulsion system, at about 1000Z, 25 December, is the second satellite launched this year in support of a joint space-research effort by the USSR and several East European Communist nations. The first, Intercosmos 1, was launched 14 October 1969.

Orbital parameters for Intercosmos 2 have been reported as follows



25X1 and 3, E.O.13526

by the NORAD Space Defense Center:

Inclination	48.4 degrees
Period	98.6 minutes
Apogee	1184.5 km (640 n.m.)
Perigee	199.2 km (108 n.m.)

TASS has announced that parts of the satellite's instruments were made in East Germany and that other elements were designed in Bulgaria, Czechoslovakia, and the USSR. These and other Communist countries reported they will make ionospheric observations by receiving transmissions from the satellite. This spacecraft thus is not a repeat of Intercosmos 1, whose mission was solar research. Intercosmos 2's apogee of 1184 kilometers, which would be compatible with the ionospheric mission, is much higher than the 607-kilometer apogee of Intercosmos 1. Radar signature analysis indicates that the two Intercosmoses are different in design. Intercosmos 2 is smaller in cross-section and lacks the paddles of its predecessor.

(NORAD; TASS)

~~(SECRET)~~

Attempt to Launch Another Possible ELINT or Navigation Satellite Fails ~~(S)~~

A Soviet attempt to launch a satellite from Plesetsk with an SL-8 propulsion system at about 1422Z, 27 December, failed when the craft apparently did not achieve orbit.

25X1 and 3, E.O.13526

The payload apparently was to be either a navigation or an ELINT/surveillance satellite.

(NORAD)

~~(SECRET)~~

