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NORTH AMERICAN AIR DEFENSE COMMAND

W I R

WEEKLY INTELLIGENCE REVIEW (U)

UNRECORDED INFORMATION



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WIR 19/65
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19-65
4 May 1965

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Weekly Intelligence Review

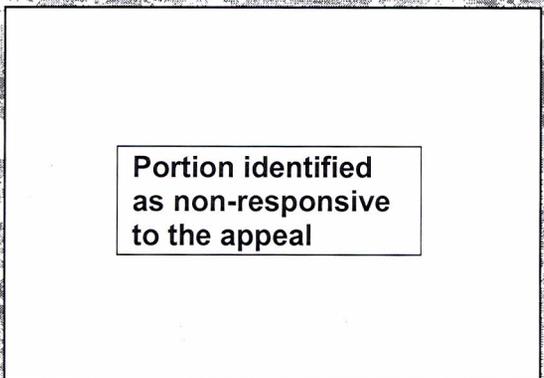
NORAD

Issue No. 19/65, 7 May 1965

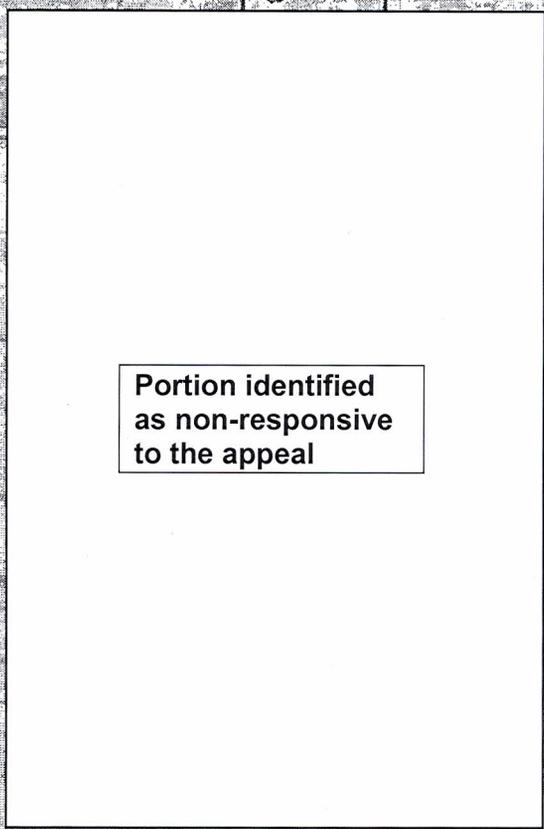
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The WIR in Brief

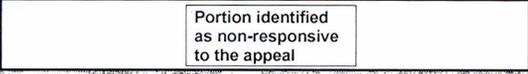


Portion identified as non-responsive to the appeal



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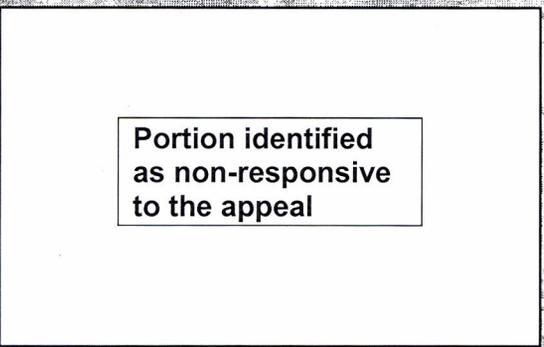
MISSILE RANGE FIRING LOG
For Period 30 March-3 May



Portion identified as non-responsive to the appeal

Space

SOVIETS' SPACE DATA TAKE APPARENTLY COMPARES POORLY WITH WEST'S
Few Soviet payloads still transmitting. Are noted for short transmitting life.
NO VIDEO SIGNALS INTERCEPTED YET FROM MOLNIYA. ORBITAL CORRECTION CLAIMED
Soviets claim IV relayed on SHF frequencies.
COSMOSES 2L and 49 STUDIED EARTH'S MAGNETIC FIELD
Other payloads also have gathered some geomagnetic data.



Portion identified as non-responsive to the appeal

COVER: FARMER fighter of East German Air Force (from book, "Unsere Volksarmee") (OFFICIAL USE ONLY)
NOTE: Pages 30, 31, 32, 39, 35, 38, 39, 42, and 43 of this issue are blank.

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Missile Range Firing Log

US radar detected the following space/missile launches during the period 19 March-3 May 1965:

Approximate Time & Date of Launch

Type

Launch Site

Range

1933Z, 22 Mar	SS-5 IRBM	Kapustin Yar	2000 n.m.
1000Z, 25 Mar	Cosmos 64*	Tyuratam	Orbital
0853Z, 26 Mar	SS-4 MRBM	Kapustin Yar	1050 n.m.
0419Z, 30 Mar	SS-7 ICBM	Tyuratam	3400 n.m.
0840Z, 10 Apr	Probable lunar probe#	Tyuratam	Failure
0750Z, 12 Apr	SS-7 ICBM	Tyuratam	3400 n.m.
0950Z, 17 Apr	Cosmos 65**	Tyuratam	Orbital
0421Z, 19 Apr	Unknown ICBM	Tyuratam	3400 n.m.
1413Z, 22 Apr	Unknown	Kapustin Yar	Unknown
0155Z, 23 Apr	Molniya 1##	Tyuratam	Orbital
1005Z, 24 Apr	Unknown	Kapustin Yar	Unknown
1419Z, 24 Apr	Unknown	Kapustin Yar	Unknown
1318Z, 26 Apr	SS-7 ICBM	Tyuratam	3400 n.m.
0502Z, 27 Apr	SS-9 ICBM	Tyuratam	3400 n.m.
1301Z, 28 Apr	SS-7 ICBM	Tyuratam	3400 n.m.

*Launched by SS-6 ICBM, injected into orbit by Lunik upper stage.

#Launched by SS-6 ICBM, but Venik 3d stage apparently failed.

**Launched by SS-6 ICBM, injected into orbit by Venik upper stage.

##Launched by SS-6 ICBM, injected into parking orbit by Venik 3d stage, re-injected into highly eccentric orbit by 4th interplanetary stage.

(Diyarbakir & Shemya RADINT)

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significant intelligence on space developments and trends

Soviets' Space Data 'Take' Apparently Compares Poorly with West's

The Soviets apparently are not getting nearly as much information about the space environment as the West. This conclusion is suggested by comparison of a listing of Western intercepts from Soviet space payloads, which admittedly may be incomplete, with a partial NASA listing of US vehicles which are still transmitting.

Following is a listing of the most recently reported intercepts of transmissions from Soviet space vehicles which may still be active:

<u>Vehicle</u>	<u>Date of Launch</u>	<u>Signal Characteristics</u>	<u>Date of Most Recent Intercept</u>
Zond 2	30 Nov 64		
Cosmos 53	30 Jan 65		
Cosmos 55	21 Feb 65		
Cosmos 58	26 Feb 65		
Cosmos 61	15 Mar 65		
Cosmos 62	15 Mar 65		
Cosmos 63	15 Mar 65		
Molniya 1	23 Apr 65		

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Other Soviet payloads are considered to be inactive, no transmissions from them having been intercepted in the last 45 days. One of those dropped



since the last listing (WIR 16/65) was Electron 4, which was launched 10 July 1964.

A NASA listing, dated 31 March 1965, of some US satellites still transmitting is shown on page 15.

These listings also are indicative of the short transmitting lives of Soviet space payloads. Only 1 Soviet vehicle launched in 1964 is apparently still transmitting. All four Electron vehicles, the Soviets' most impressive space-research satellites launched to date, are now silent; all four were launched in 1964.

The NASA listing shows that 1 US vehicle launched in 1961 is still transmitting, while 2 launched in 1962, 5 launched in 1963, and 13 launched in 1964, are also transmitting.

The one Canadian payload in space -- launched more than 3.5 years ago -- is still transmitting. Only one US payload has been transmitting longer than Alouette.

Also still transmitting are one UK payload (Ariel 2, launched 27 March 1964) and one Italian payload (San Marco, launched 15 December 1964.)

(Various ELINT sensors; NASA, NORAD)

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No Video Signals Intercepted Yet from Molniya; Orbital Correction Claimed

The West, as of this writing (4 May) has not [redacted] from the Soviets' communications satellite, Molniya 1, which reportedly has relayed TV programs between Moscow and Vladivostok. The Soviets have not announced the frequency that they are using, but a Red Star (25 April issue) article states that it is in the SHF (superhigh frequency) band, which covers the region 3,000 to 30,000 megacycles. It said that this band gives stronger signals than the UHF band ordinarily used (in the USSR) for regular TV.

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Molniya might be transmitting on 3,750 or 6,000 mc/s, two SHF frequencies which the Soviets said in December 1962 would be used on the Mars 1 interplanetary probe. The Soviets have a penchant for using proven rather than new equipment whenever possible. In this connection, it may be significant that the only [redacted] from Molniya 1 were on a frequency of [redacted] nominally the same frequency used on Mars 1 and other Soviet interplanetary probes.

The Red Star article of 25 April stated that Molniya 1's TV signals follow the Soviet standard of 625 lines per frame and 25 frames per second. However, it added, the space system is more sensitive, it uses a higher transmitting frequency and a different form of modulation, and differs also in other unspecified respects.

The 4 May announcement that Molniya's orbit had been corrected may be substantially true. The correction apparently was made on 3 May during Revolution 21 or 22. SPADATS sensors failed to detect it on either orbit.





Partial List of

US Space Vehicles Which Are Transmitting (NASA, 31 March 1965)

	<u>SPADATS</u> <u>Object No.</u>	<u>Date of</u> <u>Launch</u>	<u>Transmitting</u> <u>Frequencies</u>
Transit 4A	116	29 Jun 61	54; 324; 150; 400
Anna 1B	446	31 Oct 62	162; 324
Relay 1	503	13 Dec 62	136.140; 136.620
Telstar 2	573	07 May 63	136.050
Tiros 7	604	19 Jun 63	136.233; 136.922
Syncom 2	634	26 Jul 63	136.467; 136.980; 1814.069; 1815.794; 1820.177
Explorer 18	693	27 Nov 63	136.111
Tiros 8	716	21 Dec 63	136.231; 136.923
EGRS	729	11 Jan 64	136.803
GREB 5	730	11 Jan 64	136.886
Relay 2	737	21 Jan 64	136.620; 136.142
Echo 2	740	25 Jan 64	136.021; 136.170
Syncom 3	858	19 Aug 64	136.470; 136.980; 1820.177; 1815.794; 1814.931
Explorer 20	870	25 Aug 64	136.326; 136.350; 136.680
Nimbus 1	872	28 Aug 64	136.499
OGO 1	879	05 Sep 64	136.200; 400.205; 400.859; 136.146
Explorer 22	899	10 Oct 64	136.171; 162; 324; 20; 40; 41; 360
Explorer 23	924	06 Nov 64	136.080; 136.857
Explorer 24	931	21 Nov 64	136.711
Explorer 25	932	21 Nov 64	136.293; 136.860
Explorer 26	936	21 Dec 64	136.275
Tiros 9	978	22 Jan 65	136.231; 136.920
OSO 2	987	03 Feb 65	136.712
Pegasus 1	1085	16 Feb 65	136.410; 136.890





The US Navy's SPASUR fence may, however, have registered a hit on Molniya at 1130Z, 3 May, on Orbit 22-- some 27 minutes later than the predicted time. Thus, if the hit was a valid one and if, as claimed, the Soviets did attempt to correct the satellite's orbit, they may have applied more thrust than was necessary. The initial orbital period of 707 minutes needed a change of only 11 minutes to attain the optimum orbital period of 718 minutes. However, the Soviets could have applied extra thrust in order to move Molniya's apogee into a more nearly optimum location, with the intention of applying still another correction later to achieve the 718-minute period.

If no change were made, the Earth trace of Molniya's orbit would slowly drift eastward, away from the land mass of the USSR, giving the Soviets less coverage each day over their own territory temporarily.

Molniya's orbit is such that it provides about 9-10 hours of useful coverage of the USSR per day (map on page 41). Three such satellites injected into similar but suitably spaced orbits, would be needed to provide continuous coverage of the USSR.

(Various ELINT sensors; SPADATS; SPASUR; Red Star; NORAD)
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Cosmoses 26 and 49 Studied Earth's Magnetic Field

Two nonrecoverable satellites launched from Kapustin Yar during 1964 had the primary mission of studying the Earth's magnetic field.

50X1 and 3, E.O.13526

Excellent data were obtained even though one of the two magnetometers on Cosmos 26 was not noted operating after Orbit 10. Cosmos 26 is believed to be the first Soviet satellite assigned a primary mission related to the geomagnetic fields; earlier and subsequent vehicles and other missions have, however, also made magnetic field measurements. Investigations conducted by Cosmos 26 and 49 should provide the Soviets with valuable data for studying the geomagnetic field at distances of between about 100 to 250 n. m.

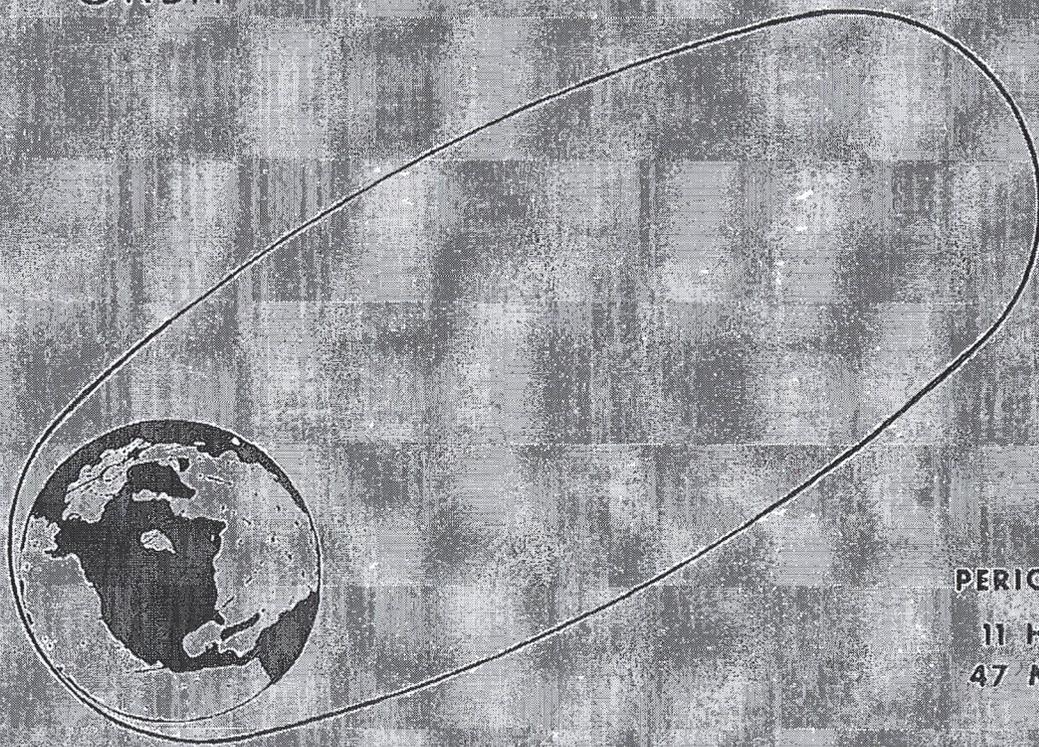
The integration of these measurements with those from Electrons 2 and 4, which were also launched last year, should extend Soviet working knowledge of the geomagnetic field out to a distance of about 37,000 n. m.

(DIA)
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MOLNIYA-1 ORBIT



21,215 NM

300 NM

PERIOD
11 HOURS
47 MINUTES

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-40-

NORAD

WIR 19/65

Molniya 1 -- Earth Trace as of about 2 May

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Molniya 1 is in position to relay communications between distant points of the USSR only on alternate orbits. Three such vehicles, suitably spaced, would be needed to provide round-the-clock relay capability.

Note that, although only a short part of the Earth trace lies in the Northern Hemisphere, Molniya 1, on each orbit, spends about 585 minutes above the Equator, 122 minutes below it. It moves very slowly as it climbs toward and begins to descend from apogee (30°N.) but very swiftly as it falls toward and pulls away from perigee. Before orbital adjustment, Molniya's Earth trace was drifting eastward at about 5 degrees per day.

