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DIRECTORATE OF
SCIENCE & TECHNOLOGY

Scientific and Technical Intelligence Report

Soviet Space Events in 1972

~~Secret~~

FMSAC-STIR/73-8
May 1973

SECRET

Scientific and Technical Intelligence Report

SOVIET SPACE EVENTS IN 1972

FMSAC-STIR/73-0

May 1973

CENTRAL INTELLIGENCE AGENCY
DIRECTORATE OF SCIENCE AND TECHNOLOGY
FOREIGN MISSILE AND SPACE ANALYSIS CENTER

SECRET

PREFACE

This publication provides under one cover a brief summary plus pertinent details on 79 Soviet space events that occurred in 1972. A space event is defined as any launching of an earth satellite vehicle or a space probe whether earth orbit or ejection out of earth orbit was successful or not.

This report was produced by CIA. It was prepared by the Foreign Missile and Space Analysis Center of the Directorate of Science and Technology. Information available up to 31 January 1973 was included. Questions regarding the content of this report should be addressed to

FMSAC

SOVIET SPACE EVENTS IN 1972

SUMMARY

Soviet space events in 1972 numbered 79. For the first time in recent years, the number of such events was not greater than in the previous year. The Soviets conducted nearly 700 space launches in the 15 years from their first launch (Sputnik I in 1957) to the end of 1972. During 12 of these years, the number of launches increased annually or remained the same as in the previous year. Only in 1959, 1966 and 1972 did the number decrease.

The events that occurred in 1972 can be grouped into 15 categories:

Category	*Number of Launches*		
	S	*F*	*Total*
Venus Probes	1	1	2
Lunar Probe	1	0	1
Manned Support	1	1	2
Photoreconnaissance	29	1	30
Satellite Intercept	1	0	1
Possible Ocean Reconnaissance	1	0	1
Elint Collection	5	0	5
Calibration	10	1	11
Communications	10	1	11
Navigation	3	0	3
Geodetic	2	0	2
Meteorological	3	0	3
Scientific	5	0	5
Engineering Test	0	1	1
Unidentified	1	0	1
	73	6	79

VENSUS PROBES

The interplanetary program in 1972 was limited to the launch of two Venus probes, one of which failed to eject from earth orbit and was subsequently assigned a Cosmos number (482) by the Soviets.

Venus 8, probably the USSR's most successful Venus probe to date, was launched on 27 March. On 22 July, it soft landed on the planet where, according to TASS, it carried out scientific investigations for 50 minutes. The capsule landed on the day side of the planet. In addition to the surface investigations, the capsule performed studies of the atmosphere during its descent. TASS stated that experiments were carried out to determine illumination, pressure, and temperature of the atmosphere and of the day side of the planet's surface for the first time. TASS claimed that, in addition, data have been obtained on the nature of the rocks of the planet's surface layer.

LUNAR PROBE

Luna 20, a successful lunar-lander/return spacecraft, was the only lunar vehicle launched by the USSR in 1972. According to TASS, Luna 20 collected soil samples from mountainous terrain on the northeastern edge of the Sea of Fertility and completed the operation 2 hours 14 minutes after landing. The weight of the sample returned to earth is estimated to be less than a pound. The weight of the return capsule was probably about 100 pounds.

MANNED SUPPORT

There were no manned launches in 1972. The last manned launch was Soyuz 11 in June 1971. The stand-down in the manned program since that

time is probably due to the tragic death of the three cosmonauts during the reentry of that vehicle on 29 June 1971.

The Soviets did launch two vehicles related to the manned program, however. The first, Cosmos 496, was an unmanned Soyuz vehicle that was successfully launched and recovered after 6 days in orbit. Cosmos 496 is thought to have been launched to test modifications made in the spacecraft after the Soyuz 11 disaster, especially modifications in the reentry compartment hatch seal that failed in that mission.

The other launch was that of the second Salyut space station payload, an event that resulted in an early in-flight failure. Had this launch been successful, a manned Soyuz probably would have been launched to dock with the Salyut spacecraft. No further man-related launches were carried out.

PHOTORECONNAISSANCE

Taking into account two satellites assessed as having photo/geodetic missions, the number of satellite-days of Soviet photoreconnaissance coverage in 1972 was slightly greater than in 1971. Thirty recoverable satellites with photographic equipment aboard were launched. Of these, one

—failed in flight.

SATELLITE INTERCEPT

There was only one launch in this category, that of Cosmos 521, an SL-8-boosted target satellite, on 29 September. The Soviets appear to have postponed plans for another satellite intercept operation. The last such operation occurred on 3 December 1971 and involved Cosmos 459, a target satellite similar to Cosmos 521, and Cosmos 462, the SL-11-boosted interceptor.

POSSIBLE OCEAN RECONNAISSANCE

The only launch in this category was of Cosmos 516 on 21 August.

ELINT COLLECTION

Five Elint collection satellites were launched in 1972, three of the second-generation type that uses the SL-8 as the launch vehicle, and two of the third-generation type that uses the SL-3. All five apparently were successful.

CALIBRATION

The mission of 11 satellites launched by the SL-7 system in 1972 is assessed as ground radar site calibration and check-out.

COMMUNICATIONS

Eleven vehicles that may be grouped under the general heading of communications satellites were launched in 1972. Of these, three were Molniya 1 and three were Molniya 2 elliptical-orbit communications relay satellites. The other five were of the store/dump type having relatively circular orbits. Three of these had single payloads and two had eight payloads, each with an assigned Cosmos number. One of the single-payload store/dump satellites suffered an in-flight failure, but all the other communications satellite events apparently were successful.

NAVIGATION

Three navigation satellites were launched in 1972. All had a high (approximately 550-nautical mile) circular orbit. The third (Cosmos 514, 16 August) differed from all previous navigation satellites: its inclination was 83 degrees rather than 74 degrees.

GEODETIC

Two satellites launched in 1972 had geodetic missions. They were Cosmos 480, launched on 25 March, and Cosmos 539, launched on 21 December. Cosmos 480 was the first geodetic satellite to be launched on an inclination of 83 degrees rather than 73 degrees. Cosmos 539 differed from previous geodetic satellites in that its near-circular orbit was about 100 nautical miles higher (750 versus 650 nautical miles).

METEOROLOGICAL

Three meteorological satellites were launched in 1972—Meteor 11, 12 and 13. All apparently were successful and all were placed in a 486-nautical mile circular orbit like Meteor 5 and Meteor 10.

SCIENTIFIC

Five vehicles that may be classified as scientific data acquisition and experimental satellites were successfully launched. Of these, three were in the intra-Bloc Intercosmos series that began with Intercosmos 1 in 1969. It is notable that in 1972—in contrast to the three previous years—an Intercosmos satellite (Intercosmos 6) was launched by an SL-4, rather than by the smaller SL-7 system, and was recovered.

The other two scientific satellites inaugurated a new program called Prognoz (forecast). According to the Soviets, both were intended to study solar radiation and its effects in interplanetary space and on the earth's magnetosphere. They were thus placed in highly elliptical orbits. The second of the two carried French-supplied scientific apparatus, as part of the Soviet-French cooperative space program.

ENGINEERING TEST

One space vehicle that evidently failed in flight is assessed as a probable engineering/development test of a new, probably large, space booster. The abortive event occurred on 23 November at Tyuratam.

UNIDENTIFIED

This mission of Cosmos 520 is as yet unidentified. The vehicle was launched by the SL-6 system into a highly elliptical, Molniya-like orbit

p. 4 BLANK

COSMOS 471

12 January 1972—1000:00Z

DESIGNATION

Cosmos 471, Sputnik 588, International 1972-001, SPADATS 5764.

LAUNCH SITE

Tyuratam.

MISSION

Photoreconnaissance—high-resolution camera and orbit-adjust capability.

RESULTS

Successfully completed a 13-day mission. Performed three in-plane maneuvers while in orbit.

RECOVERY

Deorbited on 25 January. Touched down near Tselinograd.

LAUNCH VEHICLE

SL-4.

PAYLOAD

About 13,000 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	174.4
Perigee (nm)	109.1
Period (min)	89.5
Inclination (deg)	65.0

P. 6 BLANK

SPACE EVENT NO. 72-02

COSMOS 472

25 January 1972—1115:00Z

DESIGNATION

Cosmos 472, Sputnik 589, International 1972-004, SPADATS 5804.

LAUNCH SITE

Plesetsk.

MISSION

Calibration/check-out of ground sites (Type 5).

RESULTS

Probably successful. Decayed in the atmosphere on 18 August 1972.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	846.7
Perigee (nm)	111.8
Period (min)	102.4
Inclination (deg)	82.0

LAUNCH VEHICLE

SL-7.

PAYLOAD

300-500 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement.

P. 8 BLANK

SPACE EVENT NO. 72-03

COSMOS 473

3 February 1972—0840:00Z

DESIGNATION

Cosmos 473, Sputnik 590, International 1972-006, SPADATS 5821.

LAUNCH SITE

Tyuratam.

MISSION

Photoreconnaissance/Elint

RESULTS

Successfully completed a 12-day mission.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	180.0
Perigee (nm)	113.0
Period (min)	89.7
Inclination (deg)	65.0

RECOVERY

Deorbited on 15 February. Touched down near Orenburg.

LAUNCH VEHICLE

SL-4.

PAYLOAD

About 13,000 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement.

P. 10 BLANK

SPACE EVENT NO. 72-04

LUNA 20

14 February 1972—0328Z

DESIGNATION

Luna 20, Sputnik 591, International 1972-007, SPADATS 5835.

LAUNCH SITE

Tyuratam.

MISSION

Luna 20 was a lunar-lander/return spacecraft launched for the purpose of delivering lunar rock samples to the earth.

RESULTS

Successful. TASS announced that Luna 20 collected soil samples from mountainous terrain on the northeastern edge of the Sea of Fertility, completing the operation 2 hours and 14 minutes after landing. The weight of the sample was not announced, but was probably less than one pound.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	None
Perigee (nm)	None
Period (min)	None
Inclination (deg)	None

RECOVERY

Luna 20, according to TASS, was recovered in the Soviet Union about 22 nm NW of Dzhezkazgan at 0912Z on 25 February.

LAUNCH VEHICLE

SL-12.

PAYLOAD

The weight of the module landed on the moon was probably the same as that of Luna 16, i.e., 4,184 lb. The weight of the return capsule was probably about 100 lb.

SOVIET PRESS COMMENTS

TASS, 14 February—"The Soviet Union launched the automatic station, Luna 20, today with the aim of further exploration of the moon and near-lunar space.

"The automatic station was launched from the orbit of an artificial satellite of the earth. The trajectory of the station's flight is close to the estimated one.

"According to the telemetric information, the station's on-board systems and equipment are functioning normally. The ground command and measuring complex is maintaining reliable radio contact with the station. The coordinating and computing center is processing the incoming information."

TASS, 26 February—"Soviet space science has scored a new victory in lunar studies: the flight program of the Luna 20 automatic station has been successfully concluded.

"The return capsule of the Luna 20 automatic station landed in a preset area of the Soviet Union on February 25,

1972. The new assignment in studying the moon was brilliantly fulfilled. Samples of lunar soil taken for the first time in a rugged continental area of the moon have been brought to earth.

"The complex space experiment was carried out in several stages. The Luna 20 automatic station was launched on February 14, 1972. After 105 hours of space flight the station was put on a lunar orbit. It was corrected on February 19 to ensure landing in the preset area of the moon.

"The automatic station soft-landed in a mountainous continental area between the Sea of Abundance and the Sea of Crises on February 21 at 22 hours, 19 minutes Moscow time. The scientific-technical problem of landing an automatic vehicle in an area with a complex relief was thus solved.

"Telephotometric devices were switched on after the landing and a check of the on-board systems was made. The pictures of lunar surface obtained with their aid made it possible to select the site for taking soil samples. All the sample-taking operations were conducted on commands from earth. The sample-taking mechanism conducted the drilling and taking of samples that were then placed in the container of the return vehicle and sealed.

"At one hour 58 minutes Moscow time on February 23 the space rocket with the return capsule blasted off the moon using the landing stage as a launching pad.

"In the course of radio communication sessions during the flight on the moon-earth route, the ground stations of the command-measurement complex received telemetric information and carried out trajectory measurements. The obtained data were processed at the coordination-computing center with the aim of control of the condition of the on-board systems and the actual flight trajectory.

"On February 25 the Luna 20 station's space rocket approached the earth at escape velocity. The return vehicle was separated from the space rocket at a preset time. After this the flight of the return capsule, till landing on earth, was tracked by ground radars.

"Aerodynamic deceleration began after the return capsule had entered the dense layers of the atmosphere. A parachute system was activated at the concluding section of descent."

TASS, 4 May—"Lunar rock brought back by the Soviet Luna 20 automatic station from the continental region of the moon substantially differs from the 'marine' rock samples brought earlier by Luna 16 and Apollo spaceships. The results of researching into the lunar rock are the subject of an article in PRAVDA by Academician Aleksandr Vinogradov.

"Luna 20 landed and took samples of rock in the mountainous region in the area of the Apollonium crater.

"The rock on the whole is a loose, inequigranular material considerably lighter in color than the sample taken from the Sea of Fertility, brought by Luna 16. This time fragments of crystalline rocks and minerals with well preserved facets and shear surfaces dominated. The bulk of particles are rocks of anorthosite type, consisting in a considerable degree of feldspar (plagioclase).

"The bulk weight is 1.1 to 1.2 grams per cubic centimeter. The average size of particles is 70-80 microns.

"While in the 'marine' rock there occurs about 1-2 percent of anorthosite; in the continental one there is about 50-60 percent of it. In the thin fraction of rock brought by Luna 20 out of iron-containing minerals there are 36 percent of olivine, 57 percent of pyroxene and only one percent of ilmenite, whereas in the Luna 16 sample there was 10 percent of that titanium-containing mineral, and in the rock brought from the Sea of Tranquility (Apollo 11), there was more than 25 percent of it.

"In the surface layer of the rock delivered by Luna 20 there was discovered a thinly-diffused metallic iron in larger quantity than in the Luna 16 samples. It does not oxidize in the air. It has been experimentally proved that iron which possesses such properties is sublimated in vacuum out of basalts heated to high temperatures.

"No samples of regolith with such high content of aluminum oxides and especially calcium oxides were brought from the moon before.

"The high content of nickel and platinoids both in the marine and continental rock indicates that micrometeorites fell in the same degree onto the lunar surface on its visible side and on the reverse highland side. Somewhat surprising is the low content of chromium.

"By a mass spectral method it has been determined that the rock samples taken by Luna 20 contain more than 70 chemical elements. Through the comparison of the samples taken by Luna 16 and Luna 20 it can be seen that there is a considerable difference in the nature of the surface rocks of marine provinces and highland regions of the moon.

"Academician Vinogradov points out that anorthosites occur on the earth, too, in most ancient formations. The discovery of these rocks in highland regions of the moon revives the old geological ideas of the primary anorthosite crust of the earth."

COSMOS 474

16 February 1972—0929:55Z

DESIGNATION

Cosmos 474, Sputnik 592, International 1972-008, SPADATS 5839.

PAYLOAD

About 13,000 lb.

LAUNCH SITE

Tyuratam.

MISSION

Photoreconnaissance—

RESULTS

Successfully completed a 13-day mission. Performed 2 in-plane maneuvers while in orbit.

RECOVERY

Touched down near Ladyzhenka.

LAUNCH VEHICLE

SL-4.

SOVIET PRESS COMMENTS

Standard TASS announcement.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	187.4
Perigee (nm)	111.8
Period (min)	89.8
Inclination (deg)	65.0

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P. 14 BLANK

SPACE EVENT NO. 72-06

COSMOS 475

25 February 1972—0750Z

DESIGNATION

Cosmos 475, Sputnik 593, International 1972-009, SPADATS 5846.

LAUNCH SITE

Plesetsk.

MISSION

Navigation—the first such satellite of this type to be launched in 1972.

RESULTS

Successful.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	547.2
Perigee (nm)	527.6
Period (min)	105.0
Inclination (deg)	74.0

LAUNCH VEHICLE

SL-8.

PAYLOAD

Probably 1,200-1,500 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement.

P. 16 BLANK

SPACE EVENT NO. 72-07

COSMOS 476

1 March 1972—1114:50Z

DESIGNATION

Cosmos 476, Sputnik 594, International 1972-011, SPADATS 5852.

LAUNCH SITE

Plesetsk.

MISSION

Elint- collector. Was evidently a replacement for Cosmos 405,

RESULTS

Successful. This was the third launch of this type of Elint collection system.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	351.5
Perigee (nm)	333.7
Period (min)	97.2
Inclination (deg)	81.2

LAUNCH VEHICLE

SL-3.

PAYLOAD

About 4,400 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement.

P. 18 BLANK

SPACE EVENT NO. 72-08

COSMOS 477

4 March 1972—1000:00Z

DESIGNATION

Cosmos 477, Sputnik 595, International 1972-013, SPADATS 5862.

LAUNCH SITE

Plesetsk.

MISSION

Photoreconnaissance/Elint

RESULTS

Successfully completed a 12-da

ORBITAL ELEMENTS

	TASS
Apogee (nm)	177.1
Perigee (nm)	114.5
Period (min)	89.6
Inclination (deg)	72.9

RECOVERY

Deorbited
n 16 March. Touch down
Orenburg.

LAUNCH VEHICLE

SL-4.

PAYLOAD

About 13,000 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement.

p. 20 BLANK

SPACE EVENT NO. 72-09

COSMOS 478

15 March 1972—1300:00Z

DESIGNATION

Cosmos 478, Sputnik 596, International 1972-015, SPADATS 5885.

PAYLOAD

About 13,000 lb.

LAUNCH SITE

Plesetsk.

MISSION

Photoreconnaissance—

RESULTS

Successful. Completed a normal 13-day flight

RECOVERY

Deorbited d
on 28 March
he vicinity of
Karaganda.

LAUNCH VEHICLE

SL-4.

SOVIET PRESS COMMENTS

Standard TASS announcement.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	172.3
Perigee (nm)	115.0
Period (min)	89.5
Inclination (deg)	65.4

p. 22 BLANK

SPACE EVENT NO. 72–10

COSMOS 479

22 March 1972—2031Z

DESIGNATION

Cosmos 479, Sputnik 597, International 1972-017, SPADATS 5894.

LAUNCH SITE

Plesetsk.

MISSION

Elint–

RESULTS

Successful.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	296.5
Perigee (nm)	279.2
Period (min)	95.2
Inclination (deg)	74.0

LAUNCH VEHICLE

SL-8.

PAYLOAD

1,200-1,500 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement.

p.24 BLANK

SPACE EVENT NO. 72-11

COSMOS 480

25 March 1972—0220Z

DESIGNATION

Cosmos 480, Sputnik 597, International 1972-019, SPADATS 5905.

LAUNCH SITE

Plesetsk.

MISSION

Geodesy.

RESULTS

Successful. Was the first of this type of satellite to be launched at an inclination of 83 deg.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	654.5
Perigee (nm)	638.7
Period (min)	109.2
Inclination (deg)	83.0

LAUNCH VEHICLE

SL-8.

PAYLOAD

Probably 1,200-1,500 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement.

P.26 BLANK

SPACE EVENT NO. 72-12

COSMOS 481

25 March 1972—1040:03Z

DESIGNATION

Cosmos 481, Sputnik 598, International 1972-020, SPADATS 5906.

LAUNCH SITE

Plesetsk.

MISSION

Calibration/check-out of ground sites

RESULTS

Probably successful. Decayed in the earth's atmosphere on 2 September.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	291.6
Perigee (nm)	150.7
Period (min)	92.4
Inclination (deg)	71.0

LAUNCH VEHICLE

SL-7.

PAYLOAD

300-500 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement.

P.28 BLANK

SPACE EVENT NO. 72–13

VENUS 8

27 March 1972—0415Z

DESIGNATION

Venus 8, Sputnik 600, International 1972-021, SPADATS 5918.

LAUNCH SITE

Tyuratam.

MISSION

To continue the scientific exploration of Venus by soft-landing a capsule on the planet

RESULTS

Probably generally successful. According to TASS, the vehicle made a parachute descent, landed on the day side of the planet at about 1230Z on 22 July. It conducted studies of the atmosphere and the surface layer of the planet during the descent and for 50 minutes after landing.

LAUNCH VEHICLE

SL-6.

PAYLOAD

About 2,600 lb. The Venus 8 landing capsule itself weighed 1,089 lb.

SOVIET PRESS COMMENTS

Launch and Ejection

TASS, 27 March—"Under the program of exploration of space and the planets of the solar system, the Soviet Union launched the automatic station Venus 8 at seven hours 15 minutes Moscow time today.

"The main tasks of the space experiment is to continue the research of the planet Venus conducted by automatic stations. The scientific equipment on board the station Venus 8 will make it possible to obtain more information about the planet.

"In the process of the flight along the Earth-Venus path, it is planned to conduct research in the physical characteristics of the interplanetary space, in particular measurements of concentration of neutral hydrogen and fluxes of solar plasma.

"The station Venus 8 carries pennants showing a base-relief of Lenin and the coat-of-arms of the USSR.

"The automatic station weighs 1,180 kilograms. At eight hours 42 minutes Moscow time, the station was launched to Venus from the orbit of an artificial earth satellite. The engines of the last stage of the carrier rocket burned for 243 seconds and imparted to the station the speed of 11.5 kilometers per second (25,724 miles per hour), which is somewhat greater than the second cosmic speed. According to the data of the ballistic measurements, the parameters of the trajectory are close to the preset ones.

"The station Venus 8 must get close to the planet Venus in July 1972. By that time it will cover on its trajectory 312 million kilometers (about 194 million miles). The program provides for the separation of the landing craft which must make a smooth descent in the Venusian atmosphere and take scientific measurements.

"According to telemetric data, the on-board systems of the automatic inter-planetary station Venus 8 operate normally. The radio contact with the station, and reception of scientific data, is to be maintained on a frequency of 928.4 megacycles. At 12 hours Moscow time on March 27 the station was at a distance of 65,000 kilometers (40,389 miles) from the earth above the point on the earth's surface with the following coordinates: 00°33'N 78°25'E.

"The flight of Venus 8 is being controlled from the long-distance space communications center. The coordinating and computing center is processing the incoming information."

Mid-Course and Landing

TASS, 22 July—"Having covered a distance of more than 300 million kilometers (186 million miles) in the course of 117 days of flight, the Soviet automatic station, Venus 8, reached the vicinity of Venus. When entering the planet's atmosphere, the descent module was separated from the station and made a parachute descent, soft-landing on the day side of Venus at 12 hours, 29 minutes Moscow time today.

"Studies of the atmosphere and surface layer of the planet were conducted during the parachute descent and for fifty minutes after landing. The information was transmitted to earth. Eighty-six communication sessions were conducted with the station during its flight. A trajectory correction was carried out on April 6. Subsequent measurements showed that the second correction envisaged by the program was no longer necessary. The descent module was detached at 10 hours 40 minutes Moscow time. In the process of aerodynamic deceleration its speed dropped from 11.6 kilometers per second (about 26,000 mph) to 250 meters per second (559 mph). Carried out for the first time were experiments to determine brightness, pressure, and temperature in the atmosphere and on the surface of the planet on its day side. Data have been obtained on the nature of the rocks of the planet's surface layer. The results of the measurements are being processed.

"One of the leading specialists who created Venus 8 said that in its main design characteristics it is identical in many ways to the previous stations. The main distinction is in a certain change in the composition of scientific equipment. The creators of Venus 7 did not have specific data on the value of pressure at the very surface of the planet. To guarantee the work of the descent module on the surface, they had therefore to increase the design's margin of safety. This made the module heavier. When the flight of Venus 7 was analyzed it became clear that the descent module of Venus 8 could be made lighter. So the weight of the station's scientific payload was increased, thus expanding its research possibilities."

Preliminary Results

PRAVDA, 10 September 1972, "Venus 8: Results of a Space Voyage" (excerpts)—"The year of the 50th anniversary of the formation of the USSR has been marked by a new, remarkable achievement of Soviet cosmonautics. On 22 July 1972 the Venus 8 interplanetary automatic station completed its four-month flight and transmitted unique scientific data from the planet Venus.

"For the first time since the exploration of Venus began, entry into the atmosphere and landing on the surface were achieved on the side of the planet illumined by the sun. The parachute descent in Venus' atmosphere lasted about one hour. After the soft landing had been made, the station's descent module worked for 50 minutes on the surface of Venus, transmitting scientific information to earth. The unique data obtained during descent and while on the surface on the properties of the atmosphere, the characteristics of illumination on the planet, and the nature of the ground on its surface layer are of fundamental scientific significance.

"The Venus 8 automatic station was equipped with scientific instruments which made it possible to carry out for the first time a wide complex of investigations of the atmosphere and surface of the planet on the day side and also investigations of the interplanetary medium along the flight path.

"The basic aim in the choice of scientific experiments on the descent module of the Venus 8 station was to obtain answers to a number of new fundamental questions on the physiochemical properties of the Venusian atmosphere and surface.

"The scientific equipment installed on the descent module was designed to solve the following tasks:

—investigation of the atmosphere (measurement of temperature and pressure) on the day side of Venus;

—measurement of the illumination in the atmosphere and on the surface of the planet;

—determination of wind velocity at different levels in the atmosphere;

—determination of the ammonia content in the atmosphere;

—measurement of overloads occurring in the areodynamic braking segment;

—determination of the physical characteristics of the surface layer and the nature of the surface rocks in the landing place of the descent module.

"The Venus 4, 5, 6 and 7 stations, which landed on the night side of the planet, investigated in sufficient detail the variation of the atmosphere's temperature and pressure from a high altitude down to the surface. . . . No marked differences in the altitude profiles of the temperature and pressure on the day and night sides of Venus were discovered, and this confirms theoretical estimates of these characteristics. In the landing place of the Venus 8 station, the temperature was 470 degrees celsius plus or minus 8 degrees and the pressure 90 kilograms per square centimeter (1,280 pounds per square inch) plus or minus 1.5 kilograms per square centimeter. These values are very close to the values obtained as a result of the experiment on the Venus 7 station which landed on the night side of the planet."

SPACE EVENT NO. 72–14

METEOR 11

30 March 1972—1405:00Z

DESIGNATION

Meteor 11, Sputnik 601, International 1972-022, SPADATS 5917.

LAUNCH SITE

Plesetsk.

MISSION

Meteorological information for the weather forecast service.

RESULTS

Successful.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	487.6
Perigee (nm)	473.1
Period (min)	102.6
Inclination (deg)	81.2

LAUNCH VEHICLE

SL-3.

PAYLOAD

About 3,000 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement for a meteorological satellite.

P. 32 BLANK

SPACE EVENT NO. 72–15

COSMOS 482

31 March 1972—0403Z

DESIGNATION

Cosmos 482, Sputnik 602, International 1972-023, SPADATS 5919.

LAUNCH SITE

Tyuratam.

MISSION

Venus probe. Had it been ejected from earth orbit, it probably would have been called "Venus 9." Trajectory calculations indicate it would have arrived in the vicinity of Venus about one day before Venus 8. The mission of both vehicles was probably the same.

RESULTS

Unsuccessful. The payload was not ejected into a trans-Venus trajectory probably because of premature shutdown of the fourth-stage ejection engine.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	5299.0
Perigee (nm)	113.4
Period (min)	201.4
Inclination (deg)	52.0

LAUNCH VEHICLE

SL-6.

PAYLOAD

About 2,600 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement for an earth satellite vehicle.

P. 34 BLANK

SPACE EVENT NO. 72–16

COSMOS 483

3 April 1972—1015:00Z

DESIGNATION

Cosmos 483, Sputnik 603, International 1972-024, SPADATS 5924.

PAYLOAD

About 13,000 lb.

LAUNCH SITE

Plesetsk.

MISSION

Photoreconnaissance–

RESULTS

Succe.sful. Completed a 12-day mission and performed two in-plane maneuvers early in the flight

RECOVERY

Deorbited
on 15 April touched down in the vicinity of Ural'sk.

LAUNCH VEHICLE

SL-4.

SOVIET PRESS COMMENTS

Standard TASS announcement.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	186.3
Perigee (nm)	114.5
Period (min)	89.8
Inclination (deg)	72.9

p. 36 BLANK

SPACE EVENT NO. 72-17

MOLNIYA 1/20

4 April 1972—2039Z

DESIGNATION

Molniya 1/20, Sputnik 604, International 1972-025, SPADATS 5927.

LAUNCH SITE

Plesetsk.

MISSION

Communications relay was the primary mission as in past Molniya satellites. A small autonomous French scientific satellite (MAS) was carried as a "piggyback" payload. This was the first time a foreign payload has been carried as a secondary payload on a Soviet satellite. One of the stated purposes of the French-built satellite was to study the characteristics of solar batteries in space conditions. French sources later referred to this satellite as SRET-I.

RESULTS

Molniya 1/20 was successful. SRET-I apparently was also successful.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	21,200.4
Perigee (nm)	259.2
Period (min)	705.0
Inclination (deg)	65.6

LAUNCH VEHICLE

SL-6.

PAYLOAD

Molniya 1/20-

SOVIET PRESS COMMENTS

TASS, April 5—"A single rocket carrier with another 'Molniya 1' communications satellite and a French small autonomous 'MAS' satellite was launched in the USSR on 4 April. The 'Molniya 1' and 'MAS' satellites have been put into a high elliptic orbit with an apogee of 39,260 kilometers in the northern hemisphere and a perigee of 480 kilometers in the southern hemisphere.

"The period of revolution of the satellites is 11 hours 45 minutes; the orbital inclination is 65.6 degrees.

"The 'Molniya 1' communications satellite is intended to ensure the operation of a remote telephone—telegraph radio-communications system, as well as the transmission of Soviet central television programs to stations of the 'Orbita' network situated in the areas of the extreme north, Siberia, the Far East and Central Asia.

"The French 'MAS' satellite is intended for study of the characteristics of different solar batteries in space conditions.

"The launching of the 'MAS' satellite is carried out under a program for cooperation between the USSR and France in exploring and using space for peaceful purposes.

"Flight tracking and reception of information from the 'MAS' satellite is being carried out by French ground stations."

P. 38 BLANK

SPACE EVENT NO. 72-18

COSMOS 484

6 April 1972—0800Z

DESIGNATION

Cosmos 484, Sputnik 605, International 1972-026, SPADATS 5933.

LAUNCH SITE

Plesetsk.

MISSION

Photoreconnaissance/Elint

RESULTS

Successfully completed a 12-day mission.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	127.4
Perigee (nm)	109.6
Period (min)	88.8
Inclination (deg)	81.3

RECOVERY

Deorbited early on 18 April. Touched down near Orenburg.

LAUNCH VEHICLE

SL-4.

PAYLOAD

About 13,000 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement.

p. 40 BLANK

INTERCOSMOS 6

7 April 1972—1000Z

DESIGNATION

Intercosmos 6, Sputnik 606, International 1972-027, SPADATS 5936.

LAUNCH SITE

Tyuratam.

MISSION

Scientific. According to TASS, the purpose of Intercosmos 6 was to investigate the chemical composition and energy spectrum of cosmic rays, as well as the special features of the interaction of particles of very high energy cosmic radiation with atomic nuclei. The experiment entailed the return for analysis of a nuclear photoemulsion unit. Involved were the scientists of six nations—Hungary, Mongolia, Poland, Romania, Czechoslovakia and the USSR. This was the first Intercosmos satellite to be launched from Tyuratam, the first to use the SL-4 launch vehicle, and the first to be recoverable.

RESULTS

Apparently successful. The payload was recovered after a four-day mission.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	138.2
Perigee (nm)	109.6
Period (min)	89.0
Inclination (deg)	51.8

RECOVERY

Intercosmos 6 was deorbited [redacted] on 11 April. The landing point probably in western sector of Kazakhstan.

LAUNCH VEHICLE

SL-4.

PAYLOAD

According to TASS, the weight of the scientific apparatus aboard was 1,070 kilograms (2539 lb.). The total payload weight was about 13,000 lb.

SOVIET PRESS COMMENTS

TASS, 7 April—"In accordance with the program of cooperation by the socialist countries in the field of research and utilization of space for peaceful ends, the artificial earth satellite Intercosmos 6, was launched in the Soviet Union on 7 April.

"Intercosmos 6 is intended for research into:

Particles of primary space radiation with an energy of 10^{12} to 10^{13} electron-volts; the chemical composition and energy spectrum of space beams in the high energy sphere; meteoric particles in inner space.

"For research into primary space radiation, the following have been installed in the satellite: a photo-emulsionary block and ionization calorimeter of a total weight of 1,070 kilograms produced in the Soviet Union according to a design worked out by specialists of the Hungarian People's Republic, the Mongolian People's Republic, the Polish People's Republic and the Socialist Republic of Romania, the Soviet Union and the Czechoslovakian Socialist Republic.

" 'This new experiment is a logical development of the studies begun by the Soviet *Proton* station,' Academician Sergey Vernov told a TASS correspondent in connection with the launching today of the Intercosmos 6 satellite. 'The most important task to be carried out by Intercosmos 6 is the comprehensive exploration of cosmic rays beyond the earth's atmosphere. Cosmic rays represent the nuclei of various chemical elements traveling in interstellar space at speeds close to the velocity of light. Most of them are the nuclei of hydrogen (protons).

" 'Still more sophisticated instruments and a new method of particle registration is used on board Intercosmos 6—which allows to broaden considerably the scope of research and obtain more detailed characteristics of interaction with the matter of high energy protons," said Vernon. The scientist is the head of the Scientific Research Institute of Nuclear Physics at Moscow University.' "

TASS, 10 April—" 'We decided to carry out comprehensive studies of high-energy cosmic rays in the near-terrestrial space along different lines and made use of the advantages of various methods allowing us to observe each registered particle,' Professor Nat Grigorov, one of the leaders of the experiment, told a TASS correspondent. 'The nature of cosmic ray particles and the results of interaction with the atomic nucleus can be determined most reliably and precisely if special photographic materials—thick layer photo-emulsion packets—are used as the traps. Photographic registration of cosmic ray particles with energies counted in thousands of billions of electron-volts, may provide new information on the peculiarities in the behavior of high-energy particles in matter. The recording medium of thick layer photo-emulsion is taken in a volume of 45 liters (about 12 gallons). The unit weighs 1,070 kilograms. Such cosmic ray sensors are unique. They have been made in the Soviet Union and it is the first time they have been used in a satellite,' Professor Grigorev said.

" 'Another experiment carried out by this satellite, a study of micrometeors, has been prepared by the scientists of Hungary, the USSR and Czechoslovakia. It involves the study of the physical and chemical properties of tiny dust specks in terrestrial space.

" 'The most important stage of the experiment is treating the photo-emulsion back on earth, after the return of Intercosmos 6,' remarked Professor Grigorev. 'The emulsion will be developed by the laboratory of the Joint Institute of Nuclear Research at Dubna, near Moscow, where scientists from socialist countries work. The emulsion sheets will be pasted onto special glass plates manufactured by Czechoslovakian experts. After development, the glass plates with the emulsion will be very accurately cut in parts by a machine built by Polish scientists. Then half of the processed material will go to the Krakow Institute, where Polish scholars will investigate the traces of interaction between the heavy nuclei of cosmic rays with the substance of the photo-emulsions.' "

SPACE EVENT NO. 72-20

COSMOS 485

11 April 1972—1104:57Z

DESIGNATION

Cosmos 485, Sputnik 607, International 1972-028, SPADATS 5938.

LAUNCH SITE

Plesetsk.

MISSION

Calibration/check-out of ground sites

RESULTS

Probably successful. Decayed in the atmosphere on 30 August 1972.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	273.2
Perigee (nm)	151.2
Period (min)	92.1
Inclination (deg)	71.0

LAUNCH VEHICLE

SL-7.

PAYLOAD

300-500 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement.

p. 44 BLANK

SPACE EVENT NO. 72-21

PROGNOZ 1

14 April 1972—0054:35Z

DESIGNATION

Prognoz 1, Sputnik 608, International 1972-029, SPADATS 5941.

LAUNCH SITE

Tyuratam.

MISSION

Scientific. According to TASS Prognoz—meaning "forecast"—is intended to study the effects of solar radiation on the earth's magnetosphere and its influence on interplanetary space.

RESULTS

Probably successful.

ORBITAL ELEMENTS

	TASS Final Orbit
Apogee (nm)	108,000
Perigee (nm)	513
Period (min)	5,820 (97 hr)
Inclination (deg)	65.0

LAUNCH VEHICLE

SL-6.

PAYLOAD

According to TASS, 845 kg. (1,860 lb.)

SOVIET PRESS COMMENTS

TASS, 14 April—"Automatic station, Prognoz, was launched in the Soviet Union today at 0345 Moscow time to study the processes of solar activity and their influence on interplanetary space and the earth's magnetosphere. The station weighs 845 kilograms.

"Scientific equipment installed aboard Prognoz is intended for research into the corpuscular, gamma, and x-ray activity of the sun and the streams of solar plasma and their interaction with the earth's magnetosphere and for further study of magnetic fields in near terrestrial space.

"Apart from scientific equipment, the station has a radio transmitter using the frequency of 928.4 megacycles, a radio system for precise measurement of the orbit's elements, a radiotelemetric system to transmit back to earth data of the operation of the instruments and scientific equipment."

TASS, 15 April—"The orbital solar observatory, Prognoz, carries 15 instruments for studying solar irradiation and the magnetosphere," writes the paper *Komsomolskaya Pravda*.

"The Prognoz station is intended to study solar plasma fluxes which scientists believe are very important for investigating the mechanism of their ejection from within the sun, a phenomenon connected in its turn with the forecasting of solar flares.

"The instruments carried by Prognoz will measure the characteristics of the sun's roëntgen radiation. During chromospheric flares the flux of the sun's X-rays increases several times.

"Sudden turbulences take place in the ionosphere, accompanied by radio communications interference in the entire lighted hemisphere. X-ray radiation is closely connected with the ejection of plasma and of still faster particles from within the sun.

"In this case putting the satellite into an orbit closer to the earth would be inadequate. As a matter of fact, the earth's radiation belts and magnetosphere either expel or absorb the particles of low energy rays. Fluxes of secondary energy particles arise in the same zone due to the interaction of solar plasma with the magnetosphere. This reduces the accuracy and authenticity of the studies.

"Not only is the study of the sun's radio emission of great interest because it provides information about physical processes occurring on the sun, but also because this emission may cause interference during communication sessions with space apparatus.

"Experiments conducted from on board the Prognoz station will help to delve deeper into processes taking place on the sun and to better understand the nature of the interaction between the sun's rays and the space surrounding our planet."

TASS, 19 May—"The automatic space probe, Prognoz, in accordance with the scientific program of the mission, was locked in its apogee on the sun. One distinguishing feature of such an orbit is that its minimum distance from the earth may change considerably under the effects of the gravitational fields of the sun and the moon. This change of height may reach 400 kilometers during one orbit.

"The ground sun service can make short-term forecasts of possible solar flares, but such forecasts are of statistical character and are not reliable enough. The new Soviet station was sent into space to observe the sun from beyond the frontier of the earth's magnetosphere, which makes it possible to follow changes in the parameters of the solar wind, characteristics of X-ray and gamma-ray radiation of the sun, its radio emission and solar cosmic rays. The information thus obtained, together with data from ground observatories, will be used to study the mechanisms of solar activity.

"Almost at every flare the sun throws off tremendous numbers of charged particles of different energy into surrounding space. Sometimes their energy is so great that they easily penetrate through the skin of a spacecraft, influence the performance of its apparatus, and may represent a certain hazard to space travelers.

"Prognoz represents a hermetically sealed cylinder-shaped container closed on both ends by spherical bottoms. Inside the container, there are scientific instruments, apparatus of a radiotelemetric complex, elements of a solar orientation system, temperature control and power supply systems. The hermetically sealed container is filled with an inert gas. Fixed on the container's exterior surface are some sensors and scientific instrument units, executive organs of the solar orientation system, cylinders with nitrogen and four panels of solar batteries.

"The information so far obtained with the help of the Prognoz space probe since April 14 indicates that the interplanetary medium is now in a comparatively quiet state characteristic of a period of minimum solar activity. Throughout April 20, the instruments recorded effects caused by a solar flare, followed by generation of fluxes of charged particles.

"Information has been obtained on the form of the magnetosphere in the area of high latitudes as characteristic of the transition area between the frontier of the magnetosphere and the interplanetary medium."

SPACE EVENT NO. 72–22

COSMOS 486

14 April 1972—0800:00Z

DESIGNATION

Cosmos 486, Sputnik 609, International 1972-030, SPADATS 5945.

PAYLOAD

About 13,000 lb.

LAUNCH SITE

Plesetsk.

MISSION

Photoreconnaissance–

y.

RESULTS

Successful. Completed a 13-day mission and performed four in-plane maneuvers while in orbit.

RECOVERY

Deorbited
on 27 April. Impact occured

southeast of Kustanay.

LAUNCH VEHICLE

SL-4.

SOVIET PRESS COMMENTS

Standard TASS announcement.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	144.2
Perigee (nm)	115.6
Period (min)	89.1
Inclination (deg)	81.4

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SPACE EVENT NO. 72-23

COSMOS 487

21 April 1972—1159:56Z

DESIGNATION

Cosmos 487, Sputnik 610, International 1972-033, SPADATS 6006.

LAUNCH SITE

Plesetsk.

MISSION

Calibration/check-out of ground sites

RESULTS

Probably successful. Decayed in the earth's atmosphere on 24 September 1972.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	286.7
Perigee (nm)	150.1
Period (min)	92.3
Inclination (deg)	71.0

LAUNCH VEHICLE

SL-7.

PAYLOAD

300-500 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement.

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SPACE EVENT NO. 72-24

SL-7 FAILURE

25 April 1972—1129:59Z

DESIGNATION

None.

LAUNCH VEHICLE

SL-7.

LAUNCH SITE

Plesetsk.

PAYLOAD

300-500 lb.

MISSION

Calibration/check-out of ground sites (, similar to Cosmos 487 (Space Event No. 72-23).

RESULTS

Failed in flight

SOVIET PRESS COMMENTS

None.

p. 52 BLANK

SPACE EVENT NO. 72-25

COSMOS 488

5 May 1972—1120Z

DESIGNATION

Cosmos 488, Sputnik 611, International 1972-034, SPADATS 6016.

LAUNCH SITE

Plesetsk.

MISSION

Photoreconnaissance.

Appeared to be similar to four previously launched modified photoreconnaissance satellites—Cosmos 364, 383, 427 and 438.

RESULTS

Successfully completed a 13-day mission.

RECOVERY

Deorbited on 18 May. Touched down in the general area of Tselinograd.

LAUNCH VEHICLE

SL-4.

PAYLOAD

About 13,000 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	172.3
Perigee (nm)	113.9
Period (min)	89.5
Inclination (deg)	65.4

P. 54 BLANK

SPACE EVENT NO. 72-26

COSMOS 489

6 May 1972—1125Z

DESIGNATION

Cosmos 489, Sputnik 612, International 1972-035, SPADATS 6019.

LAUNCH SITE

Plesetsk.

MISSION

Navigation—the second such satellite to be launched in 1972.

RESULTS

Successful.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	545.4
Perigee (nm)	529.2
Period (min)	105.0
Inclination (deg)	74.0

LAUNCH VEHICLE

SL-8.

PAYLOAD

Probably 1,200-1,500 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement.

p. 56 BLANK

SPACE EVENT NO. 72-27

COSMOS 490

17 May 1972—1020Z

DESIGNATION

Cosmos 490, Sputnik 613, International 1972-036, SPADATS 6021.

LAUNCH VEHICLE

SL-4.

LAUNCH SITE

Plesetsk.

PAYLOAD

About 13,000 lb.

MISSION

Photoreconnaissance/Elint—

payload.

RESULTS

Successfully completed a 12-day mission.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	167.4
Perigee (nm)	114.5
Period (min)	89.5
Inclination (deg)	65.4

RECOVERY

Deorbited on 29 May. Touched down near of Kustanay.

SOVIET PRESS COMMENTS

Standard TASS announcement.

p.58 BLANK

SPACE EVENT NO. 72–28

MOLNIYA 2/2

19 May 1972—1430Z

DESIGNATION

Molniya 2/2, Sputnik 614, International 1972-037, SPADATS 6031.

LAUNCH SITE

Plesetsk.

MISSION

Second of new generation of communications relay satellites.

RESULTS

Successful.

LAUNCH VEHICLE

SL-6.

PAYLOAD

Probably about 2,000 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement for a communications satellite.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	21,222.0
Perigee (nm)	248.4
Period (min)	705.0
Inclination (deg)	65.5

P. 60 BLANK

SPACE EVENT NO. 72-29

COSMOS 491

25 May 1972—0635Z

DESIGNATION

Cosmos 491, Sputnik 615, International 1972-038, SPADATS 6035.

LAUNCH SITE

Tyuratam.

MISSION

Photoreconnaissance-

RESULTS

Successfully completed an unusually long 14-day missior

RECOVERY

Deorbited during
on 8 June. Touch
the general area
Tselinograd.

LAUNCH VEHICLE

SL-4.

PAYLOAD

About 13,000 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	163.6
Perigee (nm)	113.4
Period (min)	89.5
Inclination (deg)	65.0

P. 62 BLANK

SPACE EVENT NO. 72–30

COSMOS 492

9 June 1972—0700Z

DESIGNATION

Cosmos 492, Sputnik 616, International 1972-040, SPADATS 6049.

PAYLOAD

About 13,000 lb.

LAUNCH SITE

Tyuratam.

MISSION

Photoreconnaissance–

RESULTS

Successful. Completed a normal 13-day mission

RECOVERY

Deorbited
1 22 June. Touched down in the vicinity
of f Kustanay.

LAUNCH VEHICLE

SL-4.

SOVIET PRESS COMMENTS

Standard TASS announcement.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	184.7
Perigee (nm)	112.9
Period (min)	89.9
Inclination (deg)	65.0

P. 64 BLANK

SPACE EVENT NO. 72-31

COSMOS 493

21 June 1972—0625:00Z

DESIGNATION

Cosmos 493, Sputnik 617, International 1972-042, SPADATS 6053.

LAUNCH SITE

Tyuratam.

MISSION

Photoreconnaissance/Elint

RESULTS

Successful. The payload was recovered after a normal 12-day mission.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	166.0
Perigee (nm)	115.0
Period (min)	89.5
Inclination (deg)	65.0

RECOVERY

Deorbited on 3 July. Touched down in the general area of Aktyubinsk.

LAUNCH VEHICLE

SL-4.

PAYLOAD

About 13,000 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement.

p. 66 BLANK

SPACE EVENT NO. 72–32

COSMOS 494

23 June 1972—0924:02Z

DESIGNATION

Cosmos 494, Sputnik 618, International 1972-043, SPADATS 6059.

LAUNCH SITE

Plesetsk.

MISSION

Probably store-dump communications relay.

RESULTS

Probably successful.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	448.0
Perigee (nm)	427.0
Period (min)	100.8
Inclination (deg)	74.0

LAUNCH VEHICLE

SL-8.

PAYLOAD

About 1,500 lb.

SOVIET PRESS COMMENTS

Routine TASS announcement.

P. 68 BLANK

SPACE EVENT NO. 72–33

COSMOS 495

23 June 1972—1120:00Z

DESIGNATION

Cosmos 495, Sputnik 619, International 1972-044, SPADATS 6060.

LAUNCH SITE

Plesetsk.

MISSION

Photoreconnaissance—

RESULTS

Successful.

RECOVERY

Deorbited on 6 July. Touched down a NE of Kustanay.

LAUNCH VEHICLE

SL-4.

PAYLOAD

About 13,000 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	160.0
Perigee (nm)	111.0
Period (min)	89.3
Inclination (deg)	65.4

P. 70 BLANK

SPACE EVENT NO. 72-34

COSMOS 496

26 June 1972—1453Z

DESIGNATION

Cosmos 496, Sputnik 620, International 1972-045, SPADATS 6066.

LAUNCH SITE

Tyuratam.

MISSION

Cosmos 496 was an unmanned Soyuz spacecraft believed to have been launched to check out the vehicle in the wake of the Soyuz 11 failure that caused the death of three cosmonauts.

RESULTS

Probably successful. A subsequent Salyut/Soyuz mission was apparently planned, but was cancelled when the SL-13 launch vehicle carrying a Salyut space station failed.

The vehicle was recovered after a six-day mission.

RECOVERY

Deorbited on 2 July in an undetermined area of the USSR.

LAUNCH VEHICLE

SL-4.

PAYLOAD

About 13,000 lb.

SOVIET PRESS COMMENTS

None. Standard TASS announcement for an earth satellite vehicle.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	185.0
Perigee (nm)	105.0
Period (min)	89.6
Inclination (deg)	51.6

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P.72 BLANK

SPACE EVENT NO. 72-35

PROGNOZ 2

29 June 1972—0347Z

DESIGNATION

Prognoz 2, Sputnik 621, International 1972-046, SPADATS 6068.

LAUNCH SITE

Tyuratam.

MISSION

Scientific. According to TASS, Prognoz 2, like Prognoz 1, is designed to continue and widen the research into the processes of solar activity and their influence on interplanetary space and the earth's atmosphere

RESULTS

Probably successful.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	108,000.0
Perigee (nm)	300.0
Period (min)	5,820.0
Inclination (deg)	65.0

LAUNCH VEHICLE

SL-6.

PAYLOAD

Weight of Prognoz 2 not announced, but in view of the announced weight of Prognoz 1 (1,860 lb) and the addition of French equipment, was probably about 2,000 lb.

SOVIET PRESS COMMENTS

TASS, June 29—"To continue and widen the research of the processes of solar activity and their influence on interplanetary space and the earth's magnetosphere that was started by the station Prognoz, the Soviet Union launched on June 29, 1972 at six hours, 47 minutes Moscow time, the automatic station, Prognoz 2.

"The joint scientific experiments that will be conducted during the flight of the two automatic stations designated Prognoz, put into highly elliptical orbits in space near the earth, are part of the program of exploration of outer space conducted in the USSR.

"The station, Prognoz 2, was put into the preset trajectory the same way as the first Prognoz station—from the intermediate orbit of an earth's artificial satellite. The scientific equipment on board the station is meant for studying the corpuscular radiation, gamma ray and X-ray emission of the sun, the fluxes of solar plasma and their interaction with the earth's magnetosphere, and for further study of the magnetic fields in the space near the earth.

"The station also carries French equipment for conducting an experiment to study the characteristics of the solar wind, outer regions of magnetosphere, gamma rays of the sun, and for search of neutrons of solar origin. These experiments are envisaged by the program of the Soviet-French cooperation in exploration and uses of outer space.

"The automatic station, Prognoz, launched on April 14, 1972 continues scientific research under the program of the flight and had made 20 orbits around the earth by June 29."

P. 74 BLANK

SPACE EVENT NO. 72-36

INTERCOSMOS 7

30 June 1972—00587

DESIGNATION

Intercosmos 7, Sputnik 622, International 1972-047, SPADATS 6075.

LAUNCH SITE

Kapustin Yar.

MISSION

Scientific. According to TASS, Intercosmos 7's mission was the study of the sun's ultraviolet and X-ray radiation, and the influence of these radiations on the earth's upper atmosphere.

RESULTS

Probably successful. Intercosmos 7 decayed in the earth's atmosphere on 5 October 1972.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	306.0
Perigee (nm)	144.0
Period (min)	92.6
Inclination (deg)	48.4

LAUNCH VEHICLE

SL-7.

PAYLOAD

300-500 lb.

SOVIET PRESS COMMENTS

TASS, June 30—"The artificial satellite of the earth, Intercosmos 7, was launched in the Soviet Union on June 30 in accordance with the program of cooperation of socialist countries in the field of studies and exploration of outer space.

"The sputnik is intended to continue joint studies of the sun's ultraviolet and X-ray radiation and the influence of these radiations on the structure of the earth's upper atmosphere started by the sputniks Intercosmos 1 and Intercosmos 4.

"On board the sputnik is scientific equipment designed and built by specialists of the German Democratic Republic, the USSR and Czechoslovakia. . . . While preparing the sputnik for launching, GDR, Soviet and Czechoslovak specialists took part in the assembly and trials of the sputnik's on-board equipment.

"The satellite's flight is controlled by a group consisting of specialists from the three countries.

"Simultaneously with measurements conducted by sputnik Intercosmos 7, observatories in socialist countries are conducting radio astronomical, ionospheric and optical observations according to a previously agreed-upon program."

p. 76 BLANK

SPACE EVENT NO. 72-37

COSMOS 497

30 June 1972—0920Z

DESIGNATION

Cosmos 497, Sputnik 623, International 1972-048, SPADATS 6076.

LAUNCH SITE

Plesetsk.

MISSION

Calibration/check-out of ground sites.

RESULTS

Probably successful.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	438.0
Perigee (nm)	152.0
Period (min)	95.2
Inclination (deg)	71.0

LAUNCH VEHICLE

SL-7.

PAYLOAD

300-500 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement.

p. 78 BLANK

SPACE EVENT NO. 72–38

METEOR 12

30 June 1972—1852Z

DESIGNATION

Meteor 12, Sputnik 624, International 1972-049, SPADATS 6079.

LAUNCH SITE

Plesetsk.

MISSION

Meteorological information. TASS stated that taking pictures of cloud cover, the snow cover of the lighted and dark sides of the globe, as well as the collection of information on thermal energy reflected or radiated by the earth and atmosphere would be performed by Meteor 12.

RESULTS

Successful.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	502.0
Perigee (nm)	484.0
Period (min)	103.0
Inclination (deg)	81.2

LAUNCH VEHICLE

SL-3.

PAYLOAD

About 3,000 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement for a meteorological satellite.

p. 80 BLANK

SPACE EVENT NO. 72-39

COSMOS 498

5 July 1972—0929:57Z

DESIGNATION

Cosmos 498, Sputnik 625, International 1972-050, SPADATS 6086.

LAUNCH SITE

Plesetsk.

MISSION

Calibration/check-out of ground sites (Type 5).

RESULTS

Probably successful.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	276.0
Perigee (nm)	152.0
Period (min)	92.1
Inclination (deg)	71.0

LAUNCH VEHICLE

SL-7.

PAYLOAD

300-500 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement.

p. 82 BLANK

SPACE EVENT NO. 72–40

COSMOS 499

6 July 1972—1040Z

DESIGNATION

Cosmos 499, Sputnik 626, International 1972-051, SPADATS 6090.

LAUNCH SITE

Tyuratam.

MISSION

Photoreconnaissance-

RESULTS

Successful. Completed an 11-day mission

RECOVERY

Deorbited c
on 17 July. Touched down
SE of Orsk.

LAUNCH VEHICLE

SL-4.

PAYLOAD

About 13,000 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	153.0
Perigee (nm)	113.0
Period (min)	89.0
Inclination (deg)	52.0

P. 84 BLANK

SPACE EVENT NO. 72–41

COSMOS 500

10 July 1972—1615Z

DESIGNATION

Cosmos 500, Sputnik 627, International 1972-053, SPADATS 6097.

LAUNCH SITE

Plesetsk.

MISSION

Elint.

RESULTS

Successful.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	299.0
Perigee (nm)	275.0
Period (min)	95.2
Inclination (deg)	74.0

LAUNCH VEHICLE

SL-8.

PAYLOAD

1,200-1,500 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement.

p. 86 BLANK

SPACE EVENT NO. 72–42

COSMOS 501

12 July 1972—0600:09Z

DESIGNATION

Cosmos 501, Sputnik 628, International 1972-054, SPADATS 6099.

LAUNCH SITE

Kapustin Yar.

MISSION

Calibration/check-out of ground sites (Type 5).

RESULTS

Probably successful.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	1160.0
Perigee (nm)	120.0
Period (min)	108.8
Inclination (deg)	48.5

LAUNCH VEHICLE

SL-7.

PAYLOAD

300-500 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement.

P. 88 BLANK

SPACE EVENT NO. 72–43

COSMOS 502

13 July 1972—1430Z

DESIGNATION

Cosmos 502, Sputnik 629, International 1972-055, SPADATS 6105.

LAUNCH VEHICLE

SL-4.

LAUNCH SITE

Plesetsk.

PAYLOAD

About 13,000 lb.

MISSION

Photographic/geodesy

RESULTS

Probably successful. Completed a nominal 12-day mission.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	153.0
Perigee (nm)	111.0
Period (min)	89.2
Inclination (deg)	65.4

RECOVERY

Deorbited on 25 July. Touched down NE of Tselinograd.

SOVIET PRESS COMMENTS

Standard TASS announcement.

P. 90 BLANK

SPACE EVENT NO. 72–44

COSMOS 503

19 July 1972—1345:01Z

DESIGNATION

Cosmos 503, Sputnik 630, International 1972-056, SPADATS 6114.

PAYLOAD

About 13,000 lb.

LAUNCH SITE

Plesetsk.

MISSION

Photoreconnaissance–

RESULTS

Successful. Was recovered after a nominal 13-day mission.

RECOVERY

Deorbited on 1 August. Touched down [illegible] NW of Kustanay.

LAUNCH VEHICLE

SL-4.

SOVIET PRESS COMMENTS

Standard TASS announcement.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	164.0
Perigee (nm)	112.0
Period (min)	89.4
Inclination (deg)	65.4

p. 92 BLANK

SPACE EVENT NO. 72-45

COSMOS 504-511

20 July 1972—1811Z

DESIGNATION

Cosmos 504-511, Sputniks 631-638, International 1972-057, SPADATS 6117-6124.

LAUNCH SITE

Plesetsk.

MISSION

Believed to be part of a store/dump data relay communications system. Was the fourth SL-8, eight-payload launch, all of which were from Plesetsk.

RESULTS

Successful.

LAUNCH VEHICLE

SL-8.

PAYLOAD

Each payload weighs about 150 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement for a multi-payload launch.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	832.0
Perigee (nm)	770.0
Period (min)	115.2
Inclination (deg)	74.0

p. 94 BLANK

SPACE EVENT NO. 72–46

COSMOS 512

28 July 1972—1020Z

DESIGNATION

Cosmos 512, Sputnik 639, International 1972-059, SPADATS 6130.

LAUNCH VEHICLE

SL-4.

LAUNCH SITE

Plesetsk.

PAYLOAD

About 13,000 lb.

MISSION

Photoreconnaissance/Elint

RESULTS

Successful. Completed a 12-day mission.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	159.0
Perigee (nm)	112.0
Period (min)	89.3
Inclination (deg)	65.4

RECOVERY

Touched down on 9 August in the general area of Tyuratam.

SOVIET PRESS COMMENTS

Standard TASS announcement.

P. 96 BLANK

SPACE EVENT NO. 72-47

SALYUT FAILURE

29 July 1972—0318:00Z

DESIGNATION

None.

LAUNCH SITE

Tyuratam.

MISSION

This Salyut space station vehicle—the second to be launched—was evidently intended to continue the Soviet manned space station development program. In the previous Salyut/Soyuz mission in June 1971, the cosmonauts perished during reentry.

RESULTS

The launch vehicle failed during second-stage operation. The vehicle attained an altitude of only about 60 nm.

LAUNCH VEHICLE

SL-13.

PAYLOAD

About 46,000 lb.

SOVIET PRESS COMMENTS

None.

p. 98 BLANK

SPACE EVENT NO. 72-48

COSMOS 513

2 August 1972—0814:58Z

DESIGNATION

Cosmos 513, Sputnik 640, International 1972-065, SPADATS 6135.

PAYLOAD

About 13,000 lb.

LAUNCH SITE

Tyuratam.

MISSION

Photoreconnaissance—

RESULTS

Successful. Completed a 13-day mission.

RECOVERY

Deorbited on 15 August.
Touched down at W of Kustanay.

LAUNCH VEHICLE

SL-4.

SOVIET PRESS COMMENTS

None.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	183.0
Perigee (nm)	113.0
Period (min)	89.8
Inclination (deg)	65.0

p. 100 BLANK

SPACE EVENT NO. 72-49

COSMOS 514

16 August 1972—1340Z

DESIGNATION

Cosmos 514, Sputnik 641, International 1972-062, SPADATS 6148.

LAUNCH SITE

Plesetsk.

MISSION

Navigation. Had a higher inclination—83 deg versus 74 deg—than previous navigation satellites.

RESULTS

Apparently successful.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	539.0
Perigee (nm)	518.0
Period (min)	104.4
Inclination (deg)	83.0

LAUNCH VEHICLE

SL-8.

PAYLOAD

Probably 1,200-1,500 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement.

P. 102 BLANK

~~SECRET~~

SPACE EVENT NO. 72–50

COSMOS 515

18 August 1972—1000Z

DESIGNATION

Cosmos 515, Sputnik 642, International 1972-063, SPADATS 6150.

LAUNCH SITE

Plesetsk.

MISSION

Photoreconnaissance—

LAUNCH VEHICLE

SL-4.

PAYLOAD

About 13,000 lb.

RESULTS

Successful. Completed a 13-day mission

RECOVERY

Deorbited on 31 Aug
Touched down

NW of Tselinograd.

SOVIET PRESS COMMENTS

Standard TASS announcement.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	162.0
Perigee (nm)	110.0
Period (min)	89.3
Inclination (deg)	72.9

P. 104 BLANK

~~SECRET~~

SPACE EVENT NO. 72-51

COSMOS 516

21 August 1972—1036Z

DESIGNATION

Cosmos 516, Sputnik 643, International 1972-066, SPADATS 6154.

LAUNCH SITE

Tyuratam.

MISSION

Cosmos 516 was the eighth in an R&D series—the first this year—of maneuverable satellites carrying relatively heavy payloads. The precise mission of these satellites is undetermined

RESULTS

Apparently successful.

LAUNCH VEHICLE

SL-11.

PAYLOAD

About 9,500 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	149.0
Perigee (nm)	138.0
Period (min)	89.6
Inclination (deg)	65.0

P. 106 BLANK

SPACE EVENT NO. 72-52

COSMOS 517

30 August 1972—0820:20Z

DESIGNATION

Cosmos 517, Sputnik 644, International 1972-067, SPADATS 6168.

LAUNCH SITE

Tyuratam.

MISSION

Photoreconnaissance/Elint

RESULTS

Successful. Completed a 12-day mission.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	165.0
Perigee (nm)	112.0
Period (min)	89.4
Inclination (deg)	65.0

RECOVERY

Deorbited
11 September. Touched down

NW of Ladyzhenka.

LAUNCH VEHICLE

SL-4.

PAYLOAD

About 13,000 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement.

p. 108 BLANK

SPACE EVENT NO. 72–53

RECONNAISSANCE SATELLITE FAILURE

2 September 1972—1049:44Z

DESIGNATION

None.

LAUNCH SITE

Plesetsk.

MISSION

Probably photoreconnaissance y

RESULTS

The launch vehicle failed in flight

ORBITAL ELEMENTS

None.

LAUNCH VEHICLE

SL-4.

PAYLOAD

Probably about 13,000 lb.

SOVIET PRESS COMMENTS

None.

p. 110 BLANK

SPACE EVENT NO. 72-54

COSMOS 518

15 September 1972—0939:27Z

DESIGNATION

Cosmos 518, Sputnik 645, International 1972-070, SPADATS 6186.

LAUNCH SITE

Plesetsk.

MISSION

Photoreconnaissance/Elint

RESULTS

Successful. Completed an unusually short 9-day mission.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	178.1
Perigee (nm)	112.3
Period (min)	89.6
Inclination (deg)	72.9

RECOVERY

Deorbited on 24 September. Touched down W of Aktyubinsk.

LAUNCH VEHICLE

SL-4.

PAYLOAD

About 13,000 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement.

p. 112 BLANK

SPACE EVENT NO. 72-55

COSMOS 519

16 September 1972—0819:25Z

DESIGNATION

Cosmos 519, Sputnik 646, International 1972-071, SPADATS 6188.

PAYLOAD

About 13,000 lb.

LAUNCH SITE

Tyuratam.

MISSION

Photoreconnaissance—l

e.

RESULTS

Probably successful. As in the case of Cosmos 518, was deorbited after a shorter-than-nominal 10-dav mission.

RECOVERY

Deorbited
on 26 September. Touched down
ı SE of Kustanay.

LAUNCH VEHICLE

SL-4.

SOVIET PRESS COMMENTS

Standard TASS announcement.

ORBITAL ELEMF[illegible]

	TASS
Apogee (nm)	185.0
Perigee (nm)	113.0
Period (min)	89.9
Inclination (deg)	71.3

p.114 BLANK

SPACE EVENT NO. 72-56

COSMOS 520

19 September 1972—1919:11Z

DESIGNATION

Cosmos 520, Sputnik 646, International 1972-072, SPADATS 6192.

PAYLOAD

Probably slightly over 3,300 lb.

LAUNCH SITE

Plesetsk.

MISSION

Undetermined.

RESULTS

Probably successful.

LAUNCH VEHICLE

SL-6.

SOVIET PRESS COMMENTS

Standard TASS announcement.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	21,232.0
Perigee (nm)	352.0
Period (min)	710.0
Inclination (deg)	62.8

p. 116 BLANK

SPACE EVENT NO. 72-57

COSMOS 521

29 September 1972—2019:15Z

DESIGNATION

Cosmos 521, Sputnik 648, International 1972-074, SPADATS 6210.

LAUNCH SITE

Plesetsk.

MISSION

Target for a satellite intercept operation. Was the fourth such target to be launched by the SL-8 system. The previous ones were Cosmos 394, 400, and 459.

RESULTS

Successfully placed in orbit. As of 31 December 1972, however, no intercept operation involving Cosmos 521 had been performed. The last previous satellite intercept operation occurred on 3 December 1971.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	556.0
Perigee (nm)	525.0
Period (min)	104.9
Inclination (deg)	65.8

LAUNCH VEHICLE

SL-8.

PAYLOAD

Probably 1,200-1,500 lb.

SOVIET PRESS COMMENTS

Standard TASS announcment.

p. 118 BLANK

SPACE EVENT NO. 72–58

MOLNIYA 2/3

30 September 1972—2019:16Z

DESIGNATION

Molniya 2/3, Sputnik 649, International 1972-075, SPADATS 6208.

LAUNCH SITE

Plesetsk.

MISSION

Communications relay. Was the third in the new generation of satellites.

RESULTS

Successful.

LAUNCH VEHICLE

SL-6.

PAYLOAD

Probably about 2,000 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement for a communications satellite.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	21,164.0
Perigee (nm)	259.0
Period (min)	703.0
Inclination (deg)	65.3

p. 120 BLANK

SPACE EVENT NO. 72-59

COSMOS 522

4 October 1972—1200Z

DESIGNATION

Cosmos 522, Sputnik 650, International 1972-077, SPADATS 6219.

PAYLOAD

About 13,000 lb.

LAUNCH SITE

Plesetsk.

MISSION

Photoreconnaissance—

RESULTS

Successful. (

RECOVERY

Deorbited on 17 October after a 13-day mission. The payload landed in the vicinity (of Kustanay.

LAUNCH VEHICLE

SL-4.

SOVIET PRESS COMMENTS

Standard TASS announcement.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	184.7
Perigee (nm)	117.6
Period (min)	89.8
Inclination (deg)	72.9

p. 122 BLANK

SPACE EVENT NO. 72-60

COSMOS 523

5 October 1972—1130Z

DESIGNATION

Cosmos 523, Sputnik 651, International 1972-078, SPADATS 6222.

LAUNCH SITE

Plesetsk.

MISSION

Calibration/check-out of ground sites

RESULTS

Successful.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	273.8
Perigee (nm)	152.8
Period (min)	92.0
Inclination (deg)	71.0

LAUNCH VEHICLE

SL-7.

PAYLOAD

300-500 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement.

p. 124 BLANK

SPACE EVENT NO. 72-61

COSMOS 524

11 October 1972—1320Z

DESIGNATION

Cosmos 524, Sputnik 652, International 1972-079, SPADATS 6229.

LAUNCH SITE

Plesetsk.

MISSION

Calibration/check-out of ground site

RESULTS

Successful.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	290.0
Perigee (nm)	149.6
Period (min)	92.3
Inclination (deg)	71.0

LAUNCH VEHICLE

SL-7.

PAYLOAD

300-500 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement.

p. 126 BLANK

SPACE EVENT NO. 72–62

MOLNIYA 1/21

14 October 1972—0616:00Z

DESIGNATION

Molniya 1/21, Sputnik 653, International 1972-081, SPADATS 6231.

LAUNCH SITE

Plesetsk.

MISSION

Communications relay.

RESULTS

Successful.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	21,222.0
Perigee (nm)	259.2
Period (min)	705.0
Inclination (deg)	65.3

LAUNCH VEHICLE

SL-6.

PAYLOAD

About 2,000 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement for a communications satellite.

p.128 BLANK

SPACE EVENT NO. 72-63

SL-8 LAUNCH VEHICLE FAILURE

17 October 1972—1959:03Z

DESIGNATION

None.

LAUNCH SITE

Plesetsk.

MISSION

A store/dump communications relay satellite similar to Cosmos 494 (Space Event No. 72-32).

RESULTS

The SL-8 launcher successfully placed the satellite into an elliptical parking orbit. However, the second stage probably failed to re-ignite, causing the vehicle to decay in the atmosphere during revolution zero.

LAUNCH VEHICLE

SL-8.

PAYLOAD

Probably about 1,500 lb.

SOVIET PRESS COMMENTS

None.

p. 130 BLANK

SPACE EVENT NO. 72-64

COSMOS 525

18 October 1972—1200Z

DESIGNATION

Cosmos 525, Sputnik 654, International 1972-83, SPADATS 6248.

LAUNCH VEHICLE

SL-4.

LAUNCH SITE

Plesetsk.

PAYLOAD

About 13,000 lb.

MISSION

Photoreconnaissance/Elir

RESULTS

Successfully completed an 11-day mission.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	157.7
Perigee (nm)	112.3
Period (min)	89.3
Inclination (deg)	65.4

RECOVERY

Deorbited on 29 October. Touched down W of Ladyzhenka.

SOVIET PRESS COMMENTS

Standard TASS announcement.

p. 132 BLANK

SPACE EVENT NO. 72-65

COSMOS 526

25 October 1972—1039:58Z

DESIGNATION

Cosmos 526, Sputnik 655, International 1972-084, SPADATS 6254.

LAUNCH VEHICLE

SL-7.

LAUNCH SITE

Plesetsk.

PAYLOAD

300-500 lb.

MISSION

Calibration/check-out of ground sites

RESULTS

Successful.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	275.9
Perigee (nm)	152.3
Period (min)	92.0
Inclination (deg)	71.0

SOVIET PRESS COMMENTS

Standard TASS announcement.

p. 134 BLANK

SPACE EVENT NO. 72-66

METEOR 13

26 October 1972—2205Z

DESIGNATION

Meteor 13, Sputnik 656, International 1972-085, SPADATS 6256.

LAUNCH SITE

Plesetsk.

MISSION

Meteorological information. Was the fourth consecutive meteorological satellite and the fifth in all to be placed in the higher 900-kilometer (486-nm) circular orbit. The others were Meteor 5, 10, 11, and 12.

RESULTS

Successful.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	488.2
Perigee (nm)	482.2
Period (min)	102.6
Inclination (deg)	81.2

LAUNCH VEHICLE

SL-3.

PAYLOAD

About 3,000 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement.

p. 136 BLANK

SPACE EVENT NO. 72-67

COSMOS 527

31 October 1972—1331Z

DESIGNATION

Cosmos 527, Sputnik 657, International 1972-086, SPADATS 6260.

LAUNCH SITE

Plesetsk.

MISSION

Photoreconnaissance—

RESULTS

Successful. Completed a normal 13-day mission

RECOVERY

Deorbited ON 13 on 13 November Touched down NW of Orenburg.

LAUNCH VEHICLE

SL-4.

PAYLOAD

About 13,000 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	178.2
Perigee (nm)	115.6
Period (min)	89.7
Inclination (deg)	65.4

p.138 BLANK

SPACE EVENT NO. 72–68

COSMOS 528–535

1 November 1972—0208Z

DESIGNATION

Cosmos 528-535, Sputniks 658-665, International 1972-087, SPADATS 6262, 6264-6270.

LAUNCH SITE

Plesetsk.

MISSION

Multiple store/dump communications relay satellites.

RESULTS

Probably successful.

LAUNCH VEHICLE

SL-8.

PAYLOAD

About 150 lb per payload.

SOVIET PRESS COMMENTS

Standard TASS announcement for a multi-payload launch.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	807.3
Perigee (nm)	742.5
Period (min)	114.0
Inclination (deg)	74.0

P.140 BLANK

SPACE EVENT NO. 72–69

COSMOS 536

3 November 1972—0134Z

DESIGNATION

Cosmos 536, Sputnik 666, International 1972-088, SPADATS 6272.

LAUNCH SITE

Plesetsk.

MISSION

Elint-

RESULTS

Successful.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	299.7
Perigee (nm)	277.6
Period (min)	95.2
Inclination (deg)	74.0

LAUNCH VEHICLE

SL-8.

PAYLOAD

1,200-1,500 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement.

p. 142 BLANK

SPACE EVENT NO. 72-70

UNIDENTIFIED SPACE PROBE FAILURE

23 November 1972—0612Z

DESIGNATION

None.

PAYLOAD

Unknown.

LAUNCH SITE

Tyuratam.

MISSION

Possibly an engineering flight test of a large space booster.

RESULTS

Apparently failed in flight.

LAUNCH VEHICLE

Unknown.

SOVIET PRESS COMMENTS

None.

P.144 BLANK

SPACE EVENT NO. 72-71

COSMOS 537

25 November 1972—0910Z

DESIGNATION

Cosmos 537, Sputnik 667, International 1972-93, SPADATS 6287.

LAUNCH SITE

Tyuratam.

MISSION

Photoreconnaissance/Elint

RESULTS

Successful. Completed a 12-day mission.

ORBITAL ELEMENTS

	TASS	*F*
Apogee (nm)	175.0	
Perigee (nm)	111.8	
Period (min)	89.6	
Inclination (deg)	65.0	

RECOVERY

Deorbited on 7 Decem-
ber. Touched down E of Magnitogorsk.

LAUNCH VEHICLE

SL-4.

PAYLOAD

About 13.000 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement.

p. 146 BLANK

SPACE EVENT NO. 72-72

INTERCOSMOS 8

30 November 1972—2150Z

DESIGNATION

Intercosmos 8, Sputnik 668, International 1972-094, SPADATS 6291.

LAUNCH SITE

Plesetsk.

MISSION

Scientific. According to TASS, the satellite will continue earlier joint studies of the ionosphere. This is the first satellite designated Intercosmos to be launched from Plesetsk.

RESULTS

Probably successful.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	366.7
Perigee (nm)	115.6
Period (min)	93.2
Inclination (deg)	71.0

LAUNCH VEHICLE

SL-7.

PAYLOAD

300-500 lb.

SOVIET PRESS COMMENTS

TASS, 1 December—"The artificial satellite of the earth, Intercosmos 8, was launched in the Soviet Union today [sic] in accordance with the program of cooperation of socialist countries in the field of studying and exploring outer space for peaceful purposes.

"The sputnik will continue studies of the characteristics of the earth's ionosphere: concentration of electrons and positively charged ions near the sputnik, the temperature of electrons and their integral concentration between the sputnik and the surface of the earth. Besides, streams of electrons with an energy of more than 40 kiloelectronvolts and protons with an energy of more than one megaelectronvolt will be recorded.

"On board the sputnik is scientific equipment manufactured in Bulgaria, the GDR, Czechoslovakia and the USSR. Specialists from the countries participating in the experiment prepared the scientific equipment for launching at the cosmodrome."

Moscow Domestic Service, 1 December—"On board the satellite the following scientific equipment is installed: an electronic set for ion traps and a Langmuir probe designed and manufactured by Bulgarian specialists; a radio transmitter and coordinating devices for recording the indications of the Langmuir probe on the satellite's memory devices, designed and manufactured in the GDR; an electronic set for the high-frequency probe designed and manufactured by scientific specialists of Czechoslovakia; sensitive elements of the instruments for measuring the parameters of the ionosphere, transistor and gas-discharge meters of high-energy electrons and protons, designed and manufactured in the USSR."

TASS, 2 December—"Intercosmos 8, artificial earth satellite which was launched under a program of cooperation between socialist countries in the exploration of space for peaceful purposes, is to continue global research of the ionosphere," Academician Boris Petrov said in a Pravda interview. The scientist heads the council for international cooperation in the exploration and use of outer space called Intercosmos. Under the Intercosmos program the scientists of the socialist countries are studying different cosmic ray particles and micrometeorites which influence the weather, climate, radio communication and many biological processes on the earth.

"The orbit of Intercosmos 8 is more inclined to the equator than those of the previous satellites of this series.

Therefore, it passes through the ionosphere in high latitudes, crosses the zones of polar lights in the areas of the earth's geomagnetic poles. It is in these regions that the earth's magnetic field has a lesser barring effect on particles.

" 'The amount of scientific apparatus used aboard Intercosmos 8 and the participation of specialists of the socialist countries in making this equipment have increased considerably,' Academician Petrov said. 'Bulgaria has built the electronic elements of the instrument which measures positive ion concentrations in the upper atmosphere, and Czechoslovakia manufactured the electronic unit of the apparatus measuring electron temperature. Sensitive elements for these experiments were built in the Soviet Union. The device speeding up the process of recording information as well as the two-frequency radio transmitter *beacon* were built in the GDR.'

" 'Within the next few years, the scientists of the Socialist countries will continue scientific experiments aboard artificial earth satellites and geophysical rockets,' Boris Petrov said. 'Specialists of Hungary, the GDR, Poland, the Soviet Union and Czechoslovakia are working on a single telemetric system to receive scientific information from Intercosmos satellites. This system will enable all socialist countries to receive information. There will also be greater opportunities for them to take part in directing Intercosmos experiments.' "

SPACE EVENT NO. 72-73

MOLNIYA 1/22

2 December 1972—0439:59Z

DESIGNATION

Molniya 1/22, Sputnik 669, International 1972-095, SPADATS 6294.

LAUNCH SITE

Tyuratam.

MISSION

Communications relay. Was the first satellite in the series to be launched from Tyuratam since Molniya 1/17 on 25 December 1970.

RESULTS

Successful.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	21,114.0
Perigee (nm)	270.(
Period (min)	703.(
Inclination (deg)	65.(

LAUNCH VEHICLE

SL-6.

PAYLOAD

Probably about 2,000 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement for a communications satellite.

p. 150 BLANK

SPACE EVENT NO. 72-74

MOLNIYA 2/4

12 December 1972—0651Z

DESIGNATION

Molniya 2/4, Sputnik 670, International 1972-098, SPADATS 6308.

LAUNCH SITE

Plesetsk.

MISSION

Communications relay—

RESULTS

Successful. Probably represented the initial completion of a three-satellite system comprised of the three 1972-launched Molniya 2 satellites.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	21,222.0
Perigee (nm)	253.8
Period (min)	717.0
Inclination (deg)	65.3

LAUNCH VEHICLE

SL-6.

PAYLOAD

Probably about 2,000 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement for a communications satellite.

p. 152 BLANK

SPACE EVENT NO. 72-75

COSMOS 538

14 December 1972—1340Z

DESIGNATION

Cosmos 538, Sputnik 671, International 1972-099, SPADATS 6311.

PAYLOAD

About 13,000 lb.

LAUNCH SITE

Plesetsk.

MISSION

Photoreconnaissance

RECOVERY

Deorbited n 27 December 1972.

NW of Orsk.

LAUNCH VEHICLE

SL-4.

SOVIET PRESS COMMENTS

Standard TASS announcement.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	164.7
Perigee (nm)	114.5
Period (min)	89.4
Inclination (deg)	65.4

p. 154 BLANK

COSMOS 539

21 December 1972—0205Z

DESIGNATION

Cosmos 539, Sputnik 672, International 1972-102, SPADATS 6319.

LAUNCH SITE

Plesetsk.

MISSION

Geodesy—was the third satellite with this mission to be launched in 1972.

RESULTS

Successful. Was placed in an orbit about 100 nm higher than that of Cosmos 480 (Space Event No. 71-11), the last previous geodetic satellite.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	751.7
Perigee (nm)	741.4
Period (min)	113.0
Inclination (deg)	74.0

LAUNCH VEHICLE

SL-8.

PAYLOAD

Probably 1,200-1,500 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement.

p. 156 BLANK

SPACE EVENT NO. 72-77

COSMOS 540

25 December 1972—2305Z

DESIGNATION

Cosmos 540, Sputnik 673, International 1972-104, SPADATS 6323.

LAUNCH SITE

Plesetsk.

MISSION

Probably store/dump communication relay.

LAUNCH VEHICLE

SL-8.

PAYLOAD

About 1,500 lb.

RESULTS

Probably successful.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	444.4
Perigee (nm)	420.7
Period (min)	100.8
Inclination (deg)	74.0

SOVIET PRESS COMMENTS

Standard TASS announcement.

p. 158 BLANK

SPACE EVENT NO. 72-78

COSMOS 541

27 December 1972—1030Z

DESIGNATION

Cosmos 541, Sputnik 674, International 1972-105, SPADATS 6326.

LAUNCH SITE

Plesetsk.

MISSION

Photography/geodesy—the third satellite of this type. Was the first to be launched on an 81-deg inclination; the other two were on a 65-deg inclination.

RESULTS

Successful.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	200.3
Perigee (nm)	130.7
Period (min)	90.3
Inclination (deg)	81.4

RECOVERY

Deorbited on 8 January 1973. Landed SE of Kustanay.

LAUNCH VEHICLE

SL-4.

PAYLOAD

About 13,000 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement.

p. 160 BLANK

COSMOS 542

28 December 1972—1100Z

DESIGNATION

Cosmos 542, Sputnik 675, International 1972-106, SPADATS 6328.

LAUNCH SITE

Plesetsk.

MISSION

Elint—third-generation system. Was the fourth satellite of this series. Of the previous three, only Cosmos 476 (Space Event No. 72-07) was active.

RESULTS

Successful.

ORBITAL ELEMENTS

	TASS
Apogee (nm)	352.6
Perigee (nm)	299.2
Period (min)	96.4
Inclination (deg)	81.2

LAUNCH VEHICLE

SL-3.

PAYLOAD

About 4,400 lb.

SOVIET PRESS COMMENTS

Standard TASS announcement.