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NORTH AMERICAN AIR DEFENSE COMMAND

WIR

WEEKLY INTELLIGENCE REVIEW (U)

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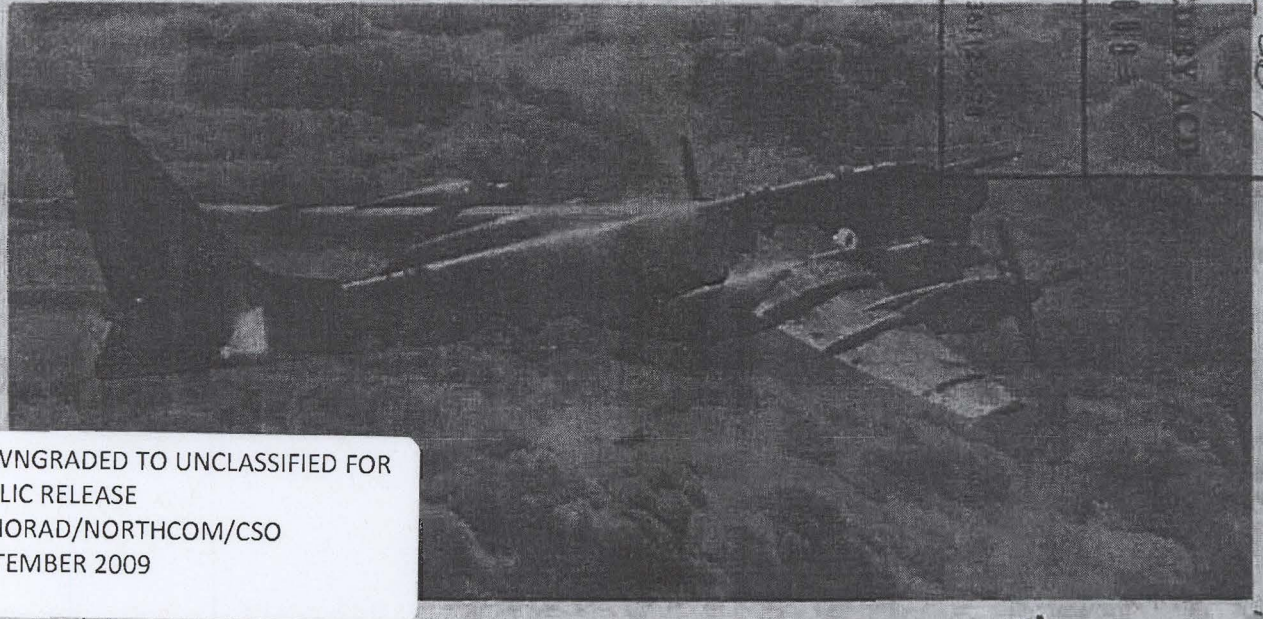

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NORAD Weekly Intelligence Review

Issue No. 2/70, 9 January 1970

The WIR in Brief

COVER: (Photo OUO) Soviet Naval BEAR D, a reconnaissance aircraft which has no weapon carrying capability. ~~(SECRET)~~

NOTE: Pages 22, 23, and 26 of this issue are blank.

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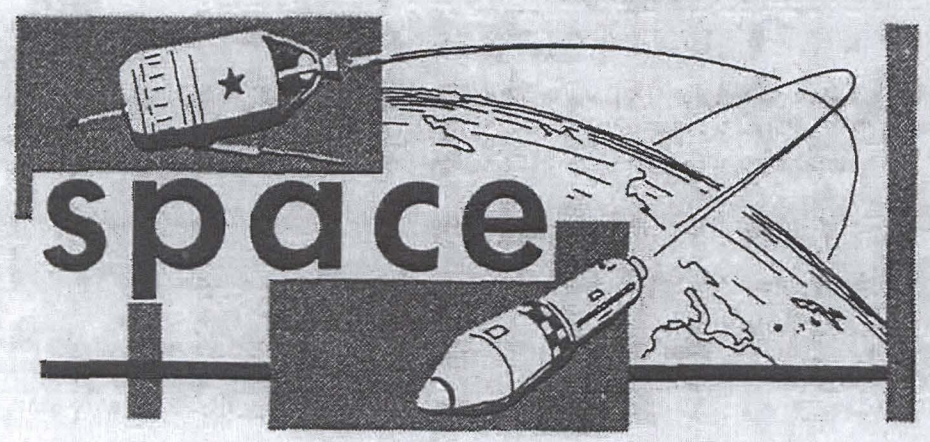

significant intelligence on space developments and trends

Recsat Cosmos 317 Maneuvers 3 Times in 3 Days; Deorbited After 13-Day Flight ~~(S)~~

The Soviet military reconnaissance satellite Cosmos 317, which the Soviets launched into a nominal 65-degree orbit on 23 December, maneuvered as follows:

Time and Date of Maneuver	Change in Orbital Period
0920Z, 24 December	Increased by 18 seconds
1506Z, 25 December	Decreased by 29 seconds
1206Z, 26 December	Increased by 12 seconds

Cosmos 317 is the Soviets' 4th known photorecce satellite capable of maneuvering. The others were Cosmoses 251, 264, and 280. Maneuvering can increase the flexibility of target coverage.

The Soviets deorbited Cosmos 317 on Revolution 205 on 5 January 1970 after a flight of slightly more than 13 days. Impact is estimated to have occurred at about 0719Z in the vicinity of 5045N-5600E, about 70 n.m. southeast of Orenburg
(NORAD)
~~(SECRET)~~

Franco-Soviet Solar Interferometer Will Have One Sensor on Earth, Other on Moon (U)

France and the USSR reportedly are preparing to establish a radio-interferometer to measure solar radiowave activity which will have an Earth-Moon baseline, that is, one receiver on the Moon and a second one on the Earth. Preliminary observations are being made now in France on the 18-centimeter wave band with the help of Soviet equipment. (OFFICIAL USE ONLY)

The antennas for this ambitious project, named Stereo, will be 5-meter dishes. The Soviets will land one dish on the Moon, the other dish will be

operated at Nancy, France. A deployable dish 5 meters in diameter could have adequate surface accuracy for 18-centimeter waves and could fit under the shroud of the SL-12 propulsion system, which the Soviets would be expected to use for sending the dish to the Moon. The payload would probably be similar to that of Luna 15, which landed on the Moon--- somewhat harder than the Soviets expected -- last July. But this project will probably be delayed considerably if the Soviets continue to experience difficulty with their SL-12 space booster or with their soft-lander payload.

The proposed radio-interferometer could provide extremely high resolution in measuring solar radiowave radiation. But the system would have to be designed to overcome differences in environmental radio-background noise and would have to take into account the approximate 1.25-second lapse in relaying signals from the lunar receiver to the Earth, the problem of simultaneous pointing of the two dishes, and the effects of the great temperature extremes of the lunar surface on the equipment landed on the Moon.

The dish on the lunar surface, if used alone, could be beneficial, since much of the radio noise experienced by earthbound radiotelescopes would be absent. However, the high resolution of the interferometer system using an Earth-Moon base line would be lost if the receiver on the Moon were used independently.

(CIA)

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

New Micrometeorite Detector May Give Same Erroneous Data That Predecessor Gave ~~(C)~~

A recent Soviet article describes the use of luminescent detectors on Cosmos 213, Zond 5, and Zond 6 to measure the density and energy characteristics of meteor particles in space. Light flashes made when a particle strikes the luminescent panel are transformed into electrical signals which are amplified by a photomultiplier. Maximum sensitivity of the instrument is reported at 40 ergs, which is equivalent to a particle with a mass of 0.00000000003 gram impacting with a velocity of 15 kilometers (8.1 n.m.) per second.

The new instrument may, however, suffer from the same limitation which caused older instruments to give the Soviets erroneous data.

The author of the recent Soviet article had previously mounted piezoelectric transducers on several early satellites to measure the number of micrometeorite impacts. The data thus derived led her to the conclusion that there is a dust cloud around the earth, in which the number of impacts of micrometeorite particles is considerably greater than would be encountered in interplanetary space. Later Soviet data, more consistent with US estimates, showed that the number of impacts was considerably less than had been estimated. But data collected with the new instrument again leads to the dust-cloud hypothesis.

US data obtained with instruments based on similar principles showed that not only micrometeorites but high-energy protons (a component of cosmic rays, both from the sun and from far-off celestial bodies) could trigger the light flash. Thus, the new Soviet instrument will again yield erroneous data if it cannot distinguish between high-energy-proton and micrometeorite impacts. It will not be possible, however, to make a final determination of the validity of the new data until more is known about the instrumentation and experimental techniques used.
(CIA)
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Automated Blood-Count System Could Find Use On Long Space Flights, Undersea Missions ~~(C)~~

The Soviets have developed a technique which will enable real-time readouts of the relative counts of the three types of white cells found in human blood. Such a technique would be advanced over the US's system, which requires many hours to obtain a read-out.

The new Soviet technique involves a scan using color TV to give voltage readouts proportional to the number of white cells of each type. Nonmedical personnel would be able to make differential counts of the red eosinophils, blue basophils, and pink-to-yellow neutrophils in real time.

This technique could be useful during manned space flights and undersea missions of long duration. It could be a diagnostic aid to the crew physician, or it could enable paramedical personnel to read out information useful as presumptive evidence for a number of pathological conditions.

Although the Soviets are striving to be able to make onboard diagnoses with automated devices, the development of operational flight hardware for medical diagnosis probably will take years.
(CIA)
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