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8 June 1962

**MEMORANDUM FOR THE DIRECTOR OF CENTRAL INTELLIGENCE**

**SUBJECT: Soviet Knowledge of US Reconnaissance Satellite Programs**

1. Statements of Soviet officials and articles in the Soviet press and magazines have revealed only such specific knowledge of the US reconnaissance programs as has been readily available from open sources in the US press and technical journals. Such information relates to the SAMOS and MIDAS in considerable detail and in lesser degree to the DISCOVERER series although the relationships between these three are clearly described. Specific details mentioned in US press sources have included the size of an object on the ground that can be identified from the photography, the method used in recovering the photographs, the organization for processing the photography as well as for incorporating the results in SAC target folders.

2. Through their intercept and tracking facilities, the Soviets can determine the exact positions of US satellites of present orbits. By intercepting telemetry from the satellites, they can probably verify the location experiments and other experiments being conducted in the area of the functioning of certain components. With the possible exception of ELINT collecting satellites, we believe that the Soviets can conclusively determine whether

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or not other satellites have, in fact, reconnaissance missions. On the other hand, we are sure that they are estimating with a considerable degree of confidence but obviously not with certainty, that many US satellites have this mission.

3. In view of Soviet monitoring of the programs and their ready access to voluminous technical information in the US press and technical publications there can be little doubt of their knowledge that photographic reconnaissance is being planned or attempted. Their knowledge of the quality and resolution of the photography is probably much less precise. But from what they know of the quality of U-2 photography plus what they get from analysis of recent US open-sources on satellite programs and official statements, they probably conclude that the present US capability is substantial.

Soviet Ability to Acquire Knowledge by Monitoring the Vehicle  
During Its Flight

4. ELINT reconnaissance data collected by SAMOS and DISCOVERER is telemetered on demand as the satellite passes over US ground monitoring stations and presumably could be intercepted by Soviet monitoring facilities. Because of the telemetry system used it is extremely doubtful that the Soviets could read the data contained in SAMOS transmissions and impossible in the case of DISCOVERER.

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5. FLINT data from TRANSIT is telemetered over narrow-band HF channels in real time. It is considered unlikely that these transmissions can be intercepted by Soviet monitoring stations but the possibility cannot be excluded. There are no known instances in which the Soviets have added to their capabilities in these fields.

6. MISCOWSKI II may possibly have been recovered by Soviet personnel on Spitsbergen. Evidence is not conclusive but the capsule apparently landed on Spitsbergen and was not recovered by US or friendly personnel. This capsule was equipped for biomedical experiments but contained no live specimens. In the event that Soviet personnel recovered the capsule it contained no equipment or photographic film which would have disclosed a reconnaissance capability.

7. Soviet recovery of any future capsule in this series is unlikely. Only by a combination of complete system malfunction and their own good fortune could the Soviets recover a capsule. A Soviet attempt at triggering the de-orbiting process might possibly prevent US recovery but would not accomplish descent on Soviet

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territory. The command transmitter and receiver system is active during orbit only when within range of US tracking stations. Any attempt at control of a satellite by a command signal from Soviet ground stations will be detected by US stations and its effect negated. Even if a successful eject command was sent by the Soviets the capsule would descend into the Pacific and sink.

Information Revealed in Open Soviet Sources

8. A lengthy article by G. Zimkov titled "Space Espionage Plans and International Law" which appeared in the Soviet monthly journal, International Affairs, published in October 1960 includes specific details which have appeared in US open sources.

9. The following excerpts are pertinent quotes by G. Zimkov and other Soviet writers from US publications:

"The SAMCS system is scheduled to become operative in 1962. The plan is to put a number of these spy satellites into a polar orbit to keep the territory of the USSR and the other Socialist countries under constant surveillance."

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"Available lenses and TV equipment will make possible photographs equivalent to what can be seen from an altitude of 100 feet."

"Its functions will be to spot missile launching pads, airfields, industrial plants and any massive build-up of Communist military equipment."

"The SAMOS project is closely related to the development of military MIDAS satellite .... The main purpose of the latter is to keep the earth under observation with instruments sensitive to rays emitted by hot gases formed during the launching of rockets."

"SAMOS satellites detect missile bases, MIDAS will register the launching of missiles."

"Closely related to SAMOS and MIDAS is the program for employing DISCOVERER satellites for intelligence purposes. DISCOVERER satellites are intended to solve the problem of bringing containers with photographic intelligence back to earth."

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"The main purpose of the DISCOVERER program was to perfect the launching, orbiting, and retrieving of the sky-spy containers."

"SAMOS II launched on 31 January 1961. However, the satellite's equipment worked for only two weeks and its capsule with photographic equipment could not be returned to earth."

10. The Soviet publication, Aviation and Cosmonautics, for January 1962 has an article, "American Spies in Space". This article presents details on the firings, orbits, missions, and other details concerning SAMOS, MOJAS and DISCO.

Other Information Available from US Press Sources

11. Exhaustive details are available in Aviation Week and Space Technology relating to the manufacture, performance characteristics and construction details, including photography of components, of the AGEE's vehicle which launches SAMOS, MOJAS, and DISCOVERER. Missiles and Rockets reported on the launching of SAMOS III stated that:

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"The polar orbit will carry it over the Soviet Union at frequent intervals. Ground stations will be able to turn its camera on by radio as the satellite crosses Russia or other points on the earth surface."

"Such a flood of photographs is expected from the camera carrying satellite that a photoanalysis unit at the Air Force test center at Sunnyvale, California is being enlarged by between 30 and 50 people. It will be on a three-shift working day to process photographs of Russia."

"At the same time a photo unit will be activated at Strategic Air Command Headquarters, Offutt Air Force Base, Nebraska, to undertake target-planning activities from the SAMOS photos for use by Strategic Air Command bomber and missile crews."

"A UPI story stated that the SAMOS satellite actually would be of greater espionage value than the MIDAS. The SAMOS, which sends televised pictures back to earth, can detect a missile being set up on the ground, even before a launch."

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Soviet Clandestine Collection

12. A Soviet engineer with AMTORG in New York asked an FBI source to get for him 100-foot reels of 35mm film containing photographs taken by TIRDS I. Seven rolls of such film with an accompanying pamphlet identifying each photograph were subsequently delivered to him by the FBI source. Our evidence of other clandestine collection efforts has not pointed so specifically to targets related to the US reconnaissance satellite program.

Estimated Soviet Knowledge Based on State-of-the-Art

13. Soviet accomplishments in the field of optics, camera geometry, films and film processing are probably not equal to those of the US. They have not had the experience in building camera systems such as have been built and tested by the US and therefore may not have learned certain techniques now familiar to US technicians.

14. Soviet scientists apparently were impressed by the high quality of photography recovered from the U-2 in 1960. Statements by Soviet officials and scientists subsequent to this incident bear out the impression that there was surprise at the information being

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collected. Extrapolating from this knowledge of US technology in  
1960 Soviet scientists can readily calculate that when the US has  
a fully operational system in this field it will permit photographic  
resolution of objects 10 to 20 feet on a side.

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