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The Value of [] Image-Forming Satellite System

[] image-forming satellite systems (described below) should increase our knowledge of Soviet military capabilities and operational procedures and should greatly increase our knowledge of the readiness for use (or posture) of major components of Soviet Forces. This improvement in knowledge should improve the analytical process that will continue to be required to deduce from marginally indicative information a conclusion on whether or not the Soviets intend to use the Force. An image-forming system cannot provide the direct answer to this ultimate question of intentions in the Warning/Indicator problem.

Physical Product

With an initial cost of up to [] and an annual operating cost of [] the US Government may be able to operate a long-life, image-forming satellite system in 1974/1976. The system might consist of as [] sensing satellites, one communications-relay satellite, and a ground station, each with adequate back-up. (These costs cover operations up to the delivery of the picture to an equivalent of NPIC.) The product would be pictures, of about KH-7 quality, of ground areas 5 to 10 miles square, from [] half-a-day old. Depending on multiple variables-- e.g., scale of effort, technical progress, crypto-security requirements, time of year, weather, and stereo requirements--the system might produce from [] pictures per day.

The Information Gained

The system would provide (down to about 30" resolution) reasonably firm information on the major physical changes in the photographically observable phenomena in the target area that had occurred since the last coverage of the area. The system would indicate with less firmness the nature of change in progress. That is, it would provide exactly the same kind of information that we now get from KH-7 or KH-8, but sooner, and to a much greater

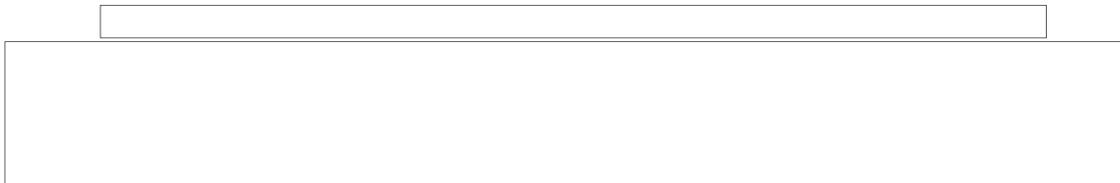
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degree on targets considered relevant to the Warning/Indications problem. Under the concepts in the several papers on the system, some five hundred prime targets are identified for early warning. Daily coverage of from about 80 to 150 (the variation results in significant part from the short winter day in the Soviet north) constitutes the normal daily mission. USIB's annual surveillance goal of some 6,000 targets (repetitive coverage for many) can be had with only a 15-20% additional capacity for the system. These data illustrate that the system concept points strongly to strategic warning, seven days per week, fifty-two weeks per year, without much regard for the real question at hand or information needs of the moment.

The Requirement for the Information

Successful operation of such a system should greatly improve the quality of finished intelligence on the readiness of major components of the Soviet Forces. The system should also contribute to an improvement in the quality of intelligence on the capabilities of Soviet Forces and to our understanding of Soviet military procedures. The system cannot, however, directly answer the \$64 question, "What are Soviet intentions?".



The [redacted] system would provide exactly the same kinds of pictures with exactly the same kinds of information.

The volume of such information--ignoring possible weather limits (remember the Battle of the Bulge)--should, however, be increased manifold. For example, we would now be receiving daily pictures of some of the units that would probably be used to occupy Rumania. This pictorial information would be current--which today it is not. The analytic process for the use of this pictorial information would be improved by some uncertain order. Because we would have

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highly repetitive, possibly daily, coverage of the units that might be oriented towards Rumania, [redacted]

[redacted]

[redacted] Having this base of knowledge, changes should be more discernable and possibly more meaningful.

Together, the increased volume, timeliness, and improved techniques for the use of this information should greatly increase our knowledge of changes in the activities, locations, equipment levels, and other factors of military readiness for specific military units and for major components of the total Soviet Force. [redacted]

[redacted]

This increased knowledge (collated with other data) should increase the quality of intelligence conclusions on the capability of Soviet Forces and greatly increase the quality of conclusions on the readiness of the Soviet Forces to exercise their capabilities. The increased quality of these conclusions on capability and readiness creates a stronger base on which the analyst attempts to reason to a conclusion on Soviet intent to use the Force.

The COMIREX paper (written well before KH-8 collection on units in the Czech occupation permitted a Monday morning quarter-back evaluation of the utility of such information to the warning process) correctly anticipated that knowledge of physical changes, either under way or recently completed, can stimulate other collection, may indicate preparations for hostilities, and can trigger increased analytic effort.

[redacted]

[redacted] A direct answer to this question requires access to channels that record decisions or transmit orders.

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DATE: 9 Dec 1968

TO: Jack
FROM: Ed
SUBJECT: The Requirement for [redacted]
Satellite

REMARKS:

You asked me to look into whether there is really a need for a [redacted] photo-satellite. About a year ago COMIREX prepared a 100-page paper on the subject; USIB sent the paper to NRO asking about feasibility and costs. We also have a draft of D/NRO's reply (not yet signed) to USIB.

Using these two papers, Harry has formulated his views with which I concur. As you might guess, a [redacted] photo-satellite would give us a lot more information about indicative changes in military capability but certainly not about the intention to use this changed capability. Whether this increased information is worth the very high cost is still up for grabs. You should know that Tidwell and company believe that part of the cost could be off-set by using [redacted] satellites in non-crisis situations to fill the need for surveillance and thus cut down the number of other satellites we use. This is still questionable.

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