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PROBLEM

Current National Intelligence requirements place highest priority on the collection of data on the Soviet anti-missile defenses. Two indicators of the Soviet capability in this field are: (1) the radars used during Soviet Missile tests at the Tura Tam and Kapustin-Yar ranges; and (2) the actual radars used in detection of large U. S. Satellite systems which are essentially the same carriers as those which will be used for operational Intercontinental Ballistic Missiles.

SOLUTION

1. By launching a small specially instrumented satellite on an orbit to pass directly down the Soviet Missile ranges during a Soviet firing a complete documentation of all the radars used by the Soviets for missile detection and tracking could be accomplished. Readout from this satellite would be in real time at the existing ELINT collection stations located on the periphery of the Soviet Union. Others U. S. ELINT stations could be added during the Soviet long range missile launches involving their ships near the terminal end. Such a satellite launch to be on the correct orbit would have to be made from a point in the Atlantic Ocean off the southern portion of the African Continent. Guidance for these launches would have to be furnished from COMINT sources.

2. To detect the radars used by the Soviets for tracking Ballistic Missiles directed against their heartland, a small satellite could be put into orbit immediately following the launching of one of our large satellite carriers on essentially the same orbit. This launching would have to be made almost simultaneously in secret by the Navy at sea. The large Soviet Anti-Ballistic Missile radars would be expected to test their defenses during such a launch and the small satellite would be capable of detecting them before they shut down following the detection of our missile firing. Again readout of the data from the satellite would be in real time from the existing ELINT sites on the periphery of the Soviet Union.

NAVY'S UNIQUE LAUNCH CAPABILITY

In attempting to solve these important intelligence requirements, the Navy has a unique operational capability for the solution, which can be brought to bear on the problem. By means of its surface and sub-surface missile launching capability the Navy can launch on any desired orbit. By choosing portions of the ocean far from the regular shipping lanes the launch from a submerged submarine can be undetected. Also by properly choosing the proper launch position the first and second stages of the missile can be made to drop in the ocean far from any point of land. Also the Navy can time its firing to take place at any time and if necessary can hold on position for weeks if necessary. The Navy will be launching practice

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firings of Polaris Missiles from its submarines so the actual launching of these satellite vehicles could be a normal part of the practice firings by submarine crews, without the crews even suspecting that anything unusual was being launched.

SATELLITE PARAMETERS

Any of the existing configurations of minimum rocketry is capable of putting a fifty pound satellite into orbit. Since the life of the satellite would only have to be a matter of hours, a unit of this type would be powered with batteries designed to only last this short period of time. Since batteries and solar cells are the major weight and configuration problems in a satellite, this unit would be the essence of simplicity. Several frequency bands could be covered simultaneously and as knowledge of the Soviet defenses is developed, electronic instrumentation to pinpoint discrete system parameters would be developed as part of the program objectives. Since no more than one partial orbit would be ordinarily required, the satellite could be programmed so as to return to the earth's atmosphere and hence would burn up after its vital mission is accomplished, leaving no "tell tale" "space junk" to indicate its former mission. Basic configurations already a part of designs built by the Naval Research Laboratory would serve as the initial units of this program. This "inhouse" capability of the Navy at the Naval Research Laboratory would assure tight control of security and preclude the possibility of security leaks in the program. U. S. ELINT stations already engaged in this sensitive collection effort would be utilized to receive the data thus further assuring the security of the project.

OTHER INTELLIGENCE PRODUCTS

1. During the launching of Soviet ICBM's the probability of collecting intelligence on the electronic guidance during launch is a definite possibility. Since the ranges at which this guidance would have to be supplied is on the order of hundreds of miles, the possibility, that it consists of some type of high power pulse groups being modulated in a unique manner is a definite possibility. These guidance systems could be associated with the high power radar systems such as is used by certain U. S. Guidance systems. These signals would be heard by the proposed satellite system.
2. Data on the guidance for re-entry and recovery projects in the Soviet Satellite program could be obtained with careful programming. By launching the ELINT satellite to pass over the recovery area concurrent with the recovery times this data could be collected.

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3. Coverage of the Missile ranges used for testing Soviet submarine missiles during firing could be effected. A known range for this activity exists in Eastern USSR extending from Olga (north of Vladivostok) northward now about 200 miles. Extension of this range into the Sea of Okhotsk and beyond in the near future is expected. Coverage of this range is not now possible and the proposed program would fill this vital gap.

4. Soviet programs for testing Anti-Ship missiles have been underway for some time in two areas, [REDACTED]

[REDACTED] Coverage of these areas could also be provided by this program.

5. Should a serious political crisis develop, it would be expected that special efforts would be made to protect the two electronic development centers in the USSR where 80% of the production and 95% of the research is done. A pass over these two centers could be easily arranged during any real political crisis.

6. Coverage of the Atomic Bomb test areas at Semipalatinsk and in the Kara Sea could readily be covered by a single orbit. Should Soviet testing be resumed this vehicle could be used to advantage in collecting data in this important scientific field.

7. Coverage now provided by peripheral Ferret missions could be effected in a much much more normal electronic atmosphere. Ferret flights are quickly detected and this leads to the shutting down of certain sensitive and important defensive radar systems and the alerting of other defensive measures such as fighter commands. A provocation exists and the normal defensive arrangement is not observed in this situation. A satellite, such as proposed, would not excite provocation and hence would provide valuable data on the normal defenses of the USSR.

8. Should a rift occur between the USSR and Red China then a careful look at the border defenses of each of these nations could be quickly provided by this satellite system.

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Possibilities:

- 1. During long range missile ballistic firings. Launch down range covering Tura Tam to any point on trajectory out into Pacific or beyond Kamchatka.
- 2. During possible AICBM or AIRBM firings and tests. Similar tactics to above, suggest the range is different geographically, extending from Kapustin-Yar to the shores of Lake Balkash (Sary Shagan). A similar path could be used to test instrumentation and or guidance during IRBM firings in the same general path. Please note different course here. The northern Adriatic, Mediterranean or Atlantic all appear to be possible here. In my opinion the military desperately needs to know what guidance assist the Soviets are using during early phases of both 1 and 2 and this is a most attractive possibility of finding out. It is not though that entirely inertial guidance is used yet in many of these missiles.
- 3. Testing of their space and satellite instrumentation. How do they program their jobs to return to earth? How do they make early corrections in trajectory to permit successes like the moon shots? How do they recover signals from deep probes? How did they propose to eject their Venus probe parabolic antenna? The trajectory to be used could be much the same as one, except the continuation could be made with an ESV or programmed for portion of orbit such as over ship completely from sea or to cover the recovery points from a single orbit such as near Saratov where Gagarin was brought back. Such a pass over the landing phase could start from the South Atlantic, Gulf of Guinea or the Mediterranean.
- 4. Coverage of southern Crimea including radioastronomy installations and probable space center also at Sary Shagan on Lake Balkash during space activity including side coverage of Kapustin Yar and T-T. This could be done from Adra ic, Med or Atlantic.
- 5. Coverage of missile ranges used for testings submarine missiles during firing. This is a most attractive target. There is one known range along the Soviet maritime coast from approximately Riga northeastward along coast. Now about 200 miles this might well be extended on up with longer range missiles to Kamchatcka or further. This could be covered well from sea of Japan.
- 6. Testing of shipborne tactical missiles and anti ship missiles. There are two areas now, the southern Crimea, which could be covered by something like 4 or the Gulf of Riga, which area would include coastal missiles sites suspected at place like Ventspils. These could be covered nicely from the Mediterranean or alternately from the Barents Sea. Testing of anti-ship missiles in the Sea of Japan or North Caspian could be reached as indicated previously.

7. There are two principal electronics development centers in the USSR where 80% of production and 95% of reasearch is done. Besides these are the centers likely to be really protected. A pass over these two centers could be made from the Norwegian Sea which would include Kapustin Yar a dividend.

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8. Coverage of Atomic Bomb tests. There are two areas thus far. That at Semipalatinsk could be well covered from northern Indian Ocean. The other in the Kara Sea could be covered nicely from the Barents Sea and the North Atlantic, which could give good Arctic defense coverage as well.

9. Areas of coverage gaps from other collections such as central Siberia and the western reaches of China could be covered

10. Actually some of the peripheral coverage now given by ferrets could be gathered without two handicaps:

1. The system would not be secured with the knowledge that it is being observed.

2. The political provocation would be less

This assumes non-detection and might even apply with detection of the vehicle.

It is believed this is particularly attractive along the Soviet Arctic and less so along the southern boundaries. The frontier with China might be interesting to probe in case of any suspected strain between the two nations. The [redacted] could be launch point

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