

INFORMATION REPORT

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REPORT #

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SUBJECT

Soviet Rocket Progress and Earth Satellite  
(Rocket-Satellite Conference, Washington)

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SUPPLEMENT TO REPORT #

DATE OF INFO (if known) (If omitted, dates which, events or conditions described in report excluded)

PLACE AND CIRCUMSTANCES (If known)

THIS IS UNEVALUATED INFORMATION

SOURCE

1. On 3 Oct 57, A. A. Elagoravov gave a paper discussing the lifetime of the satellite. He wished to leave the impression that the set of conditions he postulated were purely hypothetical and had no relationship to the Russian program. (Obviously, if the Russians had made all of these calculations, they were going to use them.) These calculations were based on the satellite's being 10 kilograms in weight and having a diameter of one-half meter. This would be comparable to the U. S. satellite.
2. The above data were based on the presumption that the orbit had a perigee of 350 kms and apogee of 700 kms. Then Elagoravov gave data for three other sets of conditions which really gives information on what the Russians think densities in the atmosphere are at these heights:
  - a. Perigee - 200 kms Apogee 350 kms Lifetime of satellite 3 days
  - b. Perigee - 350 kms Apogee 800 kms Lifetime of satellite 15 mos.
  - c. Perigee - 500 kms Apogee 1500 kms Lifetime of satellite 30 yrs.

Source commented that the atmosphere that they are using is one in which the densities postulated for the middle region (100-200 miles) are somewhat smaller than the densities further out might possibly be higher. In the afternoon session, FNU Zakharchenko took notes for the Russians. He interpreted some of the things that they had said a day or so previously when they could not be well understood because of FNU Dudenkov's poor interpreting. He said two significant things: (1) They felt that guidance was the most complicated engineering problem they had. (2) The Russians had tried to make clear that they were not too concerned about tracking on their first orbit attempts because they expected these to be way off the predicted course. Later they said they would try to be more precise. (These two statements go together. They indicate the Russian methods or approach is a buckshot one since their guidance is weak.)

3. It has become very evident that they will not use 108 megacycles in their early attempts; that the frequencies of the radio emission will be 20 and 40 megacycles. When pressed, Kasatkin did indicate that 108 megacycles might well be included in "our next series of satellites". It was impossible to determine what was meant by this phrase.
4. He was asked whether the Russians would entertain any sort of action on the part of this country or of CSAGI to ensure this 108 megacycle use and he indicated that really nothing could be done. If they were going to do it, they would do it without any further request.

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22

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5. When pressed, A. M. Kasatkin expressed ignorance of the details of the satellite program. He claims to be a rocket man. He was a bit inconsistent. He uses 20-40 megacycles in rockets; yet when asked what the antenna configuration was, he said he did not know. The Russians had not as yet set up radio tracking networks for satellite observation. It was being considered but had not yet been done. Kasatkin also said there was an optical tracking program on an amateur scope similar to our Moonbeam program and used the number 66 as the number of stations they had lined up. He was not clear on whether signals would be plane or circularly polarized. He said he would at a later date send information to us as to what kind of information the Russians would like out of any radio reception the U. S. should make. A list of questions was drawn up as to what kind of observations the radio observers should make which would be of use in the eyes of the Russians.
6. The Working Group #6 Tracking and Computation desires to emphasize the scientific value of precision orbital information and recognizing the limitation of optical methods with respect to the number of observations in a limited period recommends that whenever possible all satellites carry means for transmitting radio signals at a frequency high enough to make possible high precision radio measurements of satellite positions.
7. The Russians accepted this as a resolution. They also pointed out that they had described the 20 and 40 megacycle equipment in a publication Radio, number 6.
8. When asked how they were going to handle the larger antenna, Kasatkin replied that he did not know. Later he said that in the beginning they are not interested in the way "in which the U. S. is interested" but they expected to get principally the time of Zenith crossing by observing the Doppler effect. In other words the note would be high as it approached and would rapidly drop off; but by drawing a curve of the change in frequency you can draw a curve of the orbit, although admittedly it is very crude. Kasatkin is interested in the research aspects of the satellite. (Concerning the statement made many times by the Soviet delegates to the effect that their instruments were put into a "package" and given to the military for firing, source drew the inference that the scientific personnel are quite far removed from the hardware personnel, that the military must have a very tight security policy with respect to the satellite program and that the military have insisted that the scientific personnel make a rather complete self-contained package which they call a container and hand it to the military who then fit it into the satellite or the rocket.)
9. Following are source's impressions based on the conference proceedings up to 3 Oct 57. He gathered the impression which rather confirmed what earlier had been believed about the Soviet earth satellite effort and that is that it is based on the use of their ballistic missile the IRBM; that the satellite application is a patched up job; that it is probably weak on guidance and that it is a hit or miss affair. It is hard to draw a conclusion as to whether or not they have already fired a shot. There are two ways of looking at it: (1) they did fire and now realize "they have a bear by the tail" and there is much more work to do before they can go much further, or (2) they have not gotten to the point where they are ready to take a shot and again they have a bear by the tail. Source believes they are a long way from letting one of these go. (This comes from small shadings.) Possibly they have taken a shot: The statement



was made not too long ago which indicated that some people in Russia felt this was imminent and if it did happen it would be tied up with 17 Sept. There was also the fact that the three satellite personnel did not come to the conference. All the Russians asked for this conference. They scheduled the group coming here on the ground that when they got here they would be able to make this world-shaking announcement, that the satellite was now a fact. When this did not come to pass, they were caught with little or no material and they just would not let the people who could answer questions come to Washington. The first day of the meeting when they cancelled the paper which should have been given as the first paper, they talked later in that session. There was a talk by some of them on tracking, and the situation after we asked some questions was really embarrassing because the answers they gave were so inadequate that people in the room laughed. At the time the answer was given - the first answer made was something to the effect that the Soviets would announce the launching of the satellite in plenty of time for us to make modifications in our radio tracking system if he wanted to track it, but then Blagonravov pulled the man back (presumably the interpreter) and talked to him a bit and he changed his answer to go something like this: Once the satellite was launched the Soviets would announce it and it would stay in orbit long enough for the rest of the world to make changes in their radio apparatus.

10. In the working session 3 Oct 57, Kasatkina sat alone except for the interpreter who was with him and was bombarded with many questions, many of which he had to answer with, "that is out of my field", "I do not know", "I am really a rocket man". Before the afternoon was over he was quite upset about this, quite red in the face and disturbed, but he remained pleasant and managed to smile though obviously upset at the kind of question being asked and at his inability to answer. He could appear stupid to a sympathetic person as he was quite inconsistent. Obviously he was instructed not to answer specific questions about the satellite.