



MEMORANDUM FOR : Deputy Director (Research)

SUBJECT : Evaluation of AROCH Mission 9034A

1. [redacted] in conjunction with Army Map Service, have prepared a presentation on initial results of the first AROCH mission to be recovered. They plan a series of briefings next week as more data is analyzed. Tentatively, it is planned to brief General Curtis and perhaps Dr. Charyk on 12 June 1962.

2. In general, while the mapping people are disappointed that the stellar photography was absent on daylight passes, they feel they can recover the majority of the geometry through standard photogrammetric techniques. This procedure will take about twice as long and perhaps be only half as accurate as the system capability with stellar (which was to have been to within 300 meters).

3. The geometry of the basic terrain frame is very good. A quick check by [redacted] of fiducial points on the film (as compared with the calibration data) shows that the camera maintained dimensional stability, on almost all frames checked, to within 5 microns. In addition, the stereo pairs show excellent relief.

4. Both Army and [redacted] were extremely enthusiastic over the photography. In the short period they have had the material, they have found a number of interesting facts which were reported at a meeting at AMS on 8 June 1962:

A. Out of a total of 6840 frames taken, there were only 2970 frames over land for possible use. (This due primarily to the vast amount of ocean coverage obtained) Of the 2970 frames possible for use, actually 1940 were acquired with useable data. The term useable was defined as rated good to excellent photographically and having at least five conjugate points available for control.

B. Also, on the land photography, there was a possible nucleus of 900 frames which could have contained surveyed points for geodetic positioning. We actually acquired 740 of the total on this mission.

~~HANDLER VNA TARRHE~~
~~SECRET~~

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on NOV 26 1997

C. A check was made on system capability by using a terrain frame in the stellar coordinate reader at [REDACTED]. The computer gave an answer for the width of the Suez Canal, at one point, to three meters of the actual measurement of 120 meters.

D. Three of the large loading docks at Port Said were discernible and many airfields are detectable. Land/water boundaries are excellent and drainage patterns very good. The intelligence value is probably nil, unless we locate something that appears to be an airfield, or object of similar size, in an area where we have no previous cover.

5. A detailed review was held by DFB on 5 June 1962 with all contractors on the ARCCO program. It is generally felt that a change of film from SO-102 to SO-130 will resolve the overexposure problem with the terrain camera without any modification to equipment. (The terrain lens has a factory installed shutter fixed at 1/500th of a second, with no variance.) The new SO-130 is about one third as fast as SO-102 and will place the exposure well within [REDACTED] normal processing curves. In addition, this newer emulsion has more latitude in processing and is of finer grain for enlargements.

[REDACTED]
6. The stellar exposure problem was also reviewed in great detail with added information from CORONA horizon photography and some color slides taken by [REDACTED] on his first flight. Stars are detectable in some of this photography and a shutter speed of between 1/15th and 1/25th of a second on SO-130 film (since the same film supply is used for both terrain and stellar) should give adequate exposure when combined with an appropriate filter. Several tests are underway to resolve the exposure problem on the stellar camera including use of two of the four horizon cameras on CORONA for actual photography from space.

7. SO-130 film in the five inch size for ARCCO has been ordered from Eastman, but will require 30 to 45 days for delivery. This will probably be the pacing item on earliest possible scheduling of another ARCCO mission. The current schedule calls for the next ARCCO in September, but Army is attempting to move this to some earlier date.

[REDACTED]
(11 June 1962)
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[REDACTED]
[REDACTED]
[REDACTED]

for [REDACTED]
Acting Chief, DFB