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COMOR MAPPING, CHARTING, AND GEODESY WORKING GROUP

Minutes of Meeting Held in Room 5B2830  
Central Intelligence Agency, Langley  
1000-1200, 25 May 1966

PRESIDING

[Redacted]

Chairman

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MEMBERS PRESENT

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[Redacted]

Deputy Chairman

Mr. G. W. Wolf, ONI

Mr. A. M. Eldridge, AFNIN

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[Redacted]

Mr. M. W. Matthews, OACSI

[Redacted]

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CONSULTANTS PRESENT

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[Large Redacted Area]

Briefing on the Value of Information

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1. The Chairman stated that CIA had a contract with the [Redacted] which was generally aimed toward establishing some figures which might reflect the value of intelligence; included as part of the analysis was the effect of locational uncertainties of targets. He stated that this might be of interest to the Mapping, Charting and Geodesy Working Group, and introduced [Redacted] of DDS&T/CIA, as the agency representative on the project. [Redacted] indicated that the [Redacted] proposed a contract to the CIA a few months ago which would develop analysis data to express "the value of information". Basically this was a war games exercise, and since the project had been in effect only briefly, should be only a status report. [Redacted] introduced

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DIA and NRO review(s) completed.

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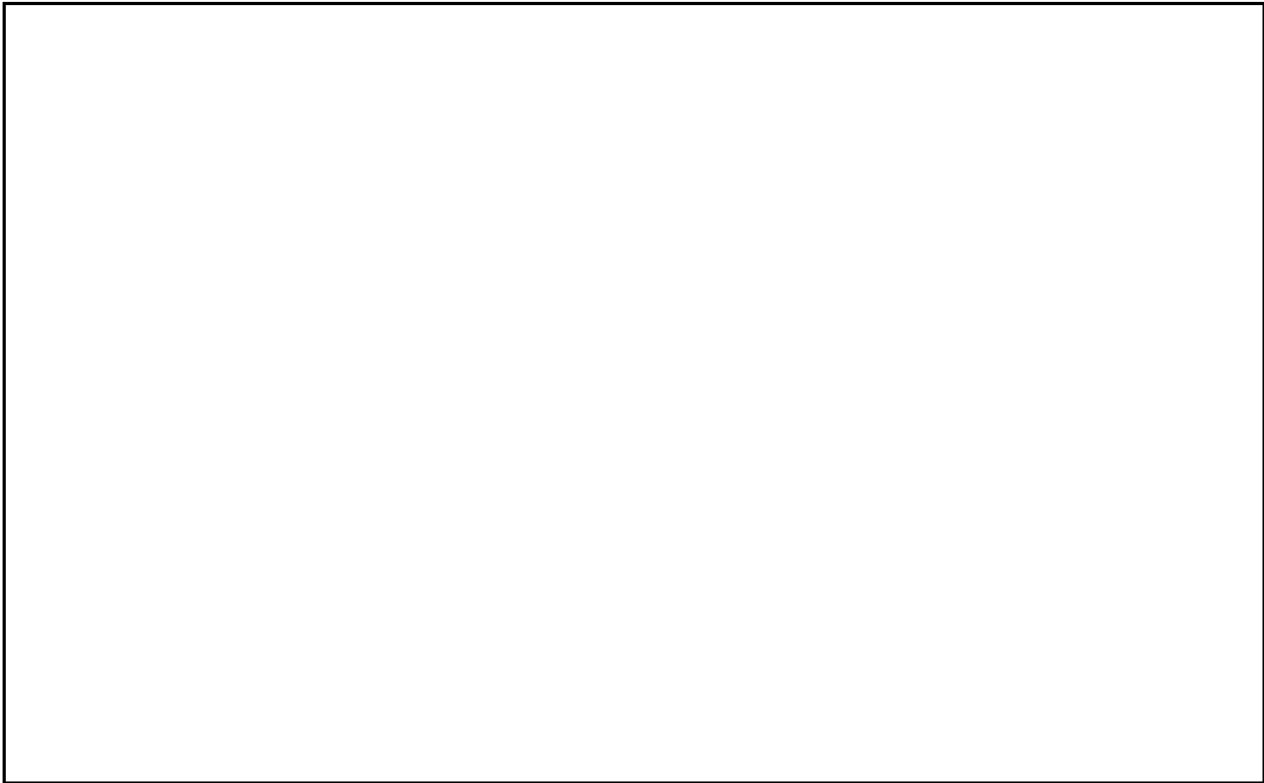
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Limits of Useable Factors

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2. [redacted] indicated that his concern about limits of useable factors dealt with the criteria which would express the characteristics of satellite photography needed for mapping, charting, and geodesy. He had received these queries from CIA personnel involved in preparing computer programs for guiding satellite operations. [redacted] further mentioned this query was part of the NRO operational activity, and was an updating being done in line with the expanded programming capability soon to be available for the KH-4 system. [redacted] mentioned that the criteria presently being used by Army Map Service in evaluating satellite collection efforts for MC&G purposes was the most pertinent data now on hand. He mentioned that criteria established last summer (see MCGWG-D-5, dated 26 July 1965, para 2) was the latest documentation, but that further detailed criteria had been developed, particularly involving snow cover in Siberia. After discussion, it was concluded that documentation of the KH-4 evaluation criteria needed updating. It was concluded that AMS would update the criteria now being used, and [redacted] particular questions would be answered with development of further criteria as needed. These criteria would be reviewed with the DoD production activities, and the DIA would provide an updated set of criteria to the MC&G Working Group. This action should be completed in 3-5 weeks.

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MCGWG-M-15

Contribution of Overt Geodetic Systems in Meeting Worldwide Geodetic Position and Elevation Requirements

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3. [redacted] presented a statement which had been prepared by DIA to reflect overt system geodetic accuracies and programs from 1966-70, which would directly contribute to meeting world-wide geodetic position and elevation requirements. This statement is attached as Tab A to these minutes. These accuracies are the objectives of the programs described in Tab A. Production activities in Army and Air Force can provide estimates of accuracies obtainable when the overt system accuracies in Tab A are integrated with alternate [redacted]

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systems, in various operational modes. [redacted] stated that our long range requirements paper showed that present [redacted] systems integrated with the accuracies of Tab A would marginally meet the world-wide geodetic requirement by 1970. Regardless of the consideration that the geodetic deficiency is not of great magnitude, it does not mean that R&D to support the geodetic requirement should be minimal, because it may be possible through [redacted] systems to realize a cost-effectiveness tradeoff whereby achieving accuracies better than required would permit savings in other geodetic and geophysical programs. The accuracies and the programs set forth in Tab A are subject to continuous review, and will be updated as changes occur.

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Increased Flexibility for Weather in Accomplishing KH-4 Photography by Area Priorities

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4. [redacted] of NRO reviewed again the discussion that had taken place previously in the COMOR and MC&G Working Group, whereby it was recognized that increased flexibility was needed by the NRO to maximize the results obtainable. He stated that world-wide weather on an entire year basis was being analyzed in order to obtain best results.

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[redacted] indicated that the priorities were being respected, in that the cameras would be operated over highest priority areas at considerably greater cloud cover prediction percentages and that all film was intended to be used. It was generally agreed that the increased flexibility was needed, and that NRO would use good judgment consistent with area priorities. Refined specific criteria for NRO guidance was not indicated at this time, but the results of the next search missions would be observed, and if there were significant imbalances observed in obtaining high priority coverage versus low priority coverage, the matter could be reopened.

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Long Range MC&G Requirements for Image Sensor Acquisition Systems

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5. [redacted] confirmed that the NRO briefing on the application of R&D search-surveillance systems toward meeting long range MC&G requirements was scheduled for 1000 hours on Friday, 27 May 1966.

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[redacted]

Chairman

COMOR MCG Working Group

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- Copy 1 DIA TCO [redacted]
- 2,3 DIA TCO [redacted]
- 4,5 Army TCO (Mr. Matthews)
- 6,7 Navy TCO (Mr. Wolf)
- 8,9 Air Force TCO (Mr. Eldridge)
- 10,11 CIA Member [redacted]
- 12 NRO ([redacted])
- 13,14 NPIC [redacted]
- 15 State TCO (Mr. Moyer)
- 16 NSA TCO [redacted]
- 17 CIA COMOR Member
- 18,19 Ch/PWG
- 25-24 Ch/MCGWG

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## Geodetic-Geophysical Accuracies and Program (1966-1970)

A. Accuracies (Expressed in Standard Error (1 Sigma))

	<u>FY66</u>	<u>FY68</u>	<u>FY70</u>
1. Equatorial Radius	25m	15-18m	10m
2. Primary Net (Horizontal Position)	-	-	15m
3. Satellite Orbital Position Accuracies Attributable to Uncertainties in Our Knowledge of the Earth Gravitational Potential	75m	30m	10-15m

B. Programs

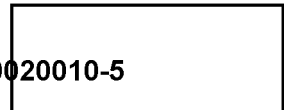
1. Geodetic and Geophysical programs have been designed to provide world-wide data in support of the advanced weapons systems. Principal programs which will contribute to improving the accuracy of the above-cited parameters are the DoD Geodetic Satellite Program and the 5-Year Gravity Program.

2. The Geodetic Satellite Program consists of observations with both electronic and optical tracking systems to provide an improved equatorial radius, precise geodetic locations on a world-wide basis, and a better definition of the earth's gravity potential. A SECOR equatorial belt of approximately 30 stations will be accomplished during FY67, to an accuracy of approximately 30 meters. By 1970, an accurate geometrical net of approximately 41 stations will be determined by the BC-4 cameras which, together with new precise ground distance measurements, will yield an accuracy of about 15 meters. In 1968 and 69, densification will be accomplished within the primary net, primarily in Africa and South America, by SECOR and the PC-1000 cameras to an accuracy of 20-30 meters. Densification within the U. S., Canada, and the Middle East has been, or is being, accomplished by the BC-4s to an accuracy of 20-30 meters. Spacing of the primary BC-4 and SECOR networks will be about 2000 miles. The densification points will be spaced at a distance of about 800 miles. Earth-centered positions for selected locations will be provided by Doppler and the PC-1000 cameras operating in an orbital mode.



3. The Doppler system, and to a lesser extent the PC-1000s, will collect data to be used in a better definition of the earth's gravitational potential. The data from the analysis of satellite orbits, along with land, sea, and air gravity measurements, will be used to reduce the uncertainties that exist in the gravity potential. Presently these uncertainties cause errors in determination of a satellite's position of about 75 meters. By 1970, when all data has been incorporated, this error should be around 10-15 meters.

4. The 5-Year Gravity Program will provide a global gravity field by 1970, consisting of 5° x 5° mean anomalies to an accuracy of 7.5mcs in the Northern Hemisphere and 10° x 10° mean anomalies in the Southern Hemisphere to an accuracy of 10mcs. The reconciliation of this surface field with the field generated from satellites at 600 miles will provide the increased confidence in orbital positons in the 1970 period.



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MCGWG

COMOR MAPPING, CHARTING, AND GEODESY WORKING GROUP

12 May 1966

AGENDA for MCGWG-M-15

Room 5B2830, CIA Headquarters 1000, Wednesday, 18 May 66

- 1. Increased Flexibility for Weather in Accomplishing KH-4 Photography by Area Priorities (continuation of same item discussed in 2 May meeting).
2. Contribution of Overt Geodetic Systems in Meeting World-wide Geodetic Position and Elevation Requirements.
3. Any matters affecting Long Range MC&G Requirements for Image Sensor Acquisition Systems that should be discussed prior to the NRO briefing.
4. Limits of Usable Factors for MC&G.

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[Redacted]

Chairman

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20-24 Ch/MCGWG

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