

WDTLAR

13 December 1956

SUBJECT: Geophysical Information

TO: General Electric Company
Missile & Ordnance Systems Department
Aerophysics Laboratory
Attn: Mr. D. Vachon
3198 Chestnut Street
Philadelphia 4, Pennsylvania

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1. Reference your recent telephone conversation with Maj W. W. Ebelke, the items listed under Inclosures are forwarded herewith for your utilization and retention. (Uncl)

2. In using Item 1, you should keep in mind that the recommendations provided are tentative in many areas and therefore should not be acted upon without further analysis. A case in point is indicated in the margin of page 17. (Uncl)

3. With regard to your request for a duplicate set of the 1000 ft wind soundings provided W-1 in April 1955 (by Air Weather Service through Mr. E. Sierrenine of AFOSG), it is suggested that you visit W-1 to determine whether you need all of the 1000 ft cards involved (estimated at about 10,000) for your CM calculations. There appears to be some question as to how typical these soundings are of the areas they represent, and also as to their value at high levels because of the limited number of observations that extend to altitudes of interest. (Uncl)

4. For your information, these soundings were taken between 1953 and 1955 at the following locations:

AF Stations:

Portland, Oregon
Salfridge AFB, Michigan
Griffiss AFB, N.Y.

Weather Bureau Stations:

Great Falls, Montana
Spokane, Washington
Buffalo, N.Y.

They were provided to facilitate wind drift computations for two (2) probable target areas (45°N, 15°E and 55°N, 35°E). Since high altitude wind soundings were not available for the target areas, it

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was decided to use data for analogous wind regime areas where GUP-1 radar observing equipment was located. Item 2, "High Altitude Wind Comparisons", was prepared by AFCRC from "Upper Winds Over the World" by Brooks et al and indicates the best analogous areas. "The calmest area of the U. S. A., the Northwest, has a wind field with nearly the same average strength and deviations as the windiest target area, 45°N, 145°W. Consequently, both average drift and the contribution to the CMP when average drift is considered in aiming, should closely represent the target error and its distribution.... Average wind field strength analogous to the 55°N, 35°E target area cannot be found in the U. S. A. However, the distribution of vector deviations around the mean vector very closely approximates such deviations over the Great Lakes area" (extract from "Report on Activities of and Technical Information Provided by AFCRC geophysical Consultant" dated 4 March 1955). (Secret)

5. The suggested visit would also enable you to discuss requirements you probably have for additional geophysics data (that may have already been provided by Mr. Siscozzano), and to coordinate with R-1 personnel on the assumptions, correlations, etc. that are necessary in connection with utilization of same. For example, we understand that in your wind drift calculations you are using a sigma value of 4 as opposed to the value of 0.3 generally used; your reasons for this are not apparent to the R-1 analysts and should be discussed with them. (Confidential)

SIGNED *[Signature]*

JOHN L. DODGE
Lt Colonel, USAF
Chief, Armament Group

9 Incls:

1. Summary of Information, Geophysical Discussions with AFCRC Consultants at WDD(ARDC), 5-9 Nov 56.
2. Tables and Graphs (Metric) of the ARDC Model Atmosphere, 1956. (Preliminary Edition).
3. Abbreviated English Tables of the ARDC Model Atmosphere, 1956.
4. Announcement of Committee on Extension to the Standard Atmosphere.
5. Graph, Synthetic Wind Speed Profiles for the Calmest Area of the U.S.
6. Graph, Synthetic Wind Speed Profiles for the Windiest Area of the U.S.
7. Graph, Derived Temperature vs Geometric Altitude.
8. Graph, Atmospheric Winds Between 30 & 80 Kms (from Signal Corps soundings and paper by W.C. Stroud in Journal of Geophysical Research).
9. High Altitude Wind Comparisons, Potential Target Areas and Analogous U.S.

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