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Reply to  
Attn of: SAFEP-0/1966

7 March 1961

SUBJECT: Meteorological Requirements for SAMOS

TO: Air Weather Service (AWS)  
Scott Air Force Base  
Illinois

1. Reference correspondence from AFED (INEXC) to AWS (INEXF-2), Attachment 1, same subject, dated 31 March 1960 and amended 5 May 1960, which stated a requirement for meteorological support to the SAMOS system and requested that Air Weather Service (AWS) evaluate their capability to support test and operational phases of the program. In view of certain changes resulting from reorientation of the program and reorganization of the Project Office under the Secretary of the Air Force in September 1960, a further delineation of the SAMOS meteorological support requirements to AWS is appropriate.
2. The current concept dictates that the program will retain its "R&D complexion," with no operational system being planned for SAMOS. The inherent R&D nature of initial test vehicles and technical restraints on launch scheduling will preclude full use of meteorological considerations to optimize the E-2 SAMOS tests. It is anticipated, however, that the overall success of the E-5 and E-6 test programs may depend heavily upon accurate information of cloud cover, visual range, snow cover, etc., particularly, over areas of interest in the Sino-Soviet Bloc.
3. On 15 November 1960, Dr. Robert D. Fletcher, Director of Scientific Services, Headquarters AWS, briefed SAFEP on the capabilities of AWS to support the SAMOS program. It is recommended that the general AWS program outlined by Dr. Fletcher (see Attachment 2) for providing support to the SAMOS project be implemented as soon as possible.
4. The current and planned SAMOS simulated and actual weather exercises at the 6594th Test Wing (Satellite) will further define meteorological requirements for support. The meteorological support for the simulation exercises was requested in SAFEP message, SAFEP-DOF-3-12-217, 5 December 1960, and subsequent AWS/SAFEP contacts. Dr. Fletcher indicated in his 15 November briefing to SAFEP that data covering a four-year period of record for the Soviet Union alone would be available early in 1961. It appears that this collection of data would provide basic information for possible future operational research studies.

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5. Future meteorological requirements in support of E-5 and E-6 system tests are envisioned as those pertaining to the 1) planning phase, 2) launch phase, 3) the orbit phase, and 4) the recovery phase.

a. The planning phase may include the development of special prognostic programs as well as a prediction capability in the event of any future reduction or cutoff of the normal flow of meteorological data from the Communist Bloc. Also included in this phase are the studies and simulations mentioned in paragraph 4 which may influence concepts of employment, time in orbit, etc.

b. As launch schedules become more flexible, climatic estimates of the best orbits and seasons or periods of the year for SAMDS launches will be required. These estimates would be based not only on gross-area coverage, but also on specific points.

c. During orbit operation of the E-5 and E-6 systems, it is anticipated that the program for viewing specific areas will be influenced largely by "seeing conditions." For example, turn-on and turn-off decisions would be, in part, determined by meteorological considerations.

d. The decision to recover will be influenced by both on orbit and recovery area weather. For example, the observed (or forecast) "seeing conditions" over specific areas could determine whether or not the vehicle has seen (or will be able to see) the desired areas and should be recovered. Since it is planned that E-5 satellites will be recovered over water and E-6 satellites over land as well as over water, different recovery criteria will be involved. Those criteria will be specified in more detail as the program progresses.

6. "Seeing conditions" previously recommended by AMS are:

- a. Category I, Sky Cover - 0 to 1/8  
Visibility - Greater than 2 miles
- b. Category II, Sky Cover - 2/8 or 3/8  
Visibility - Greater than 2 miles
- c. Category III, Sky Cover - 4/8 or 5/8  
Visibility - Greater than 2 miles
- d. Category IV, Sky Cover - 6/8 or greater  
Visibility - 2 miles or less

A categorical type forecast (Category 1, 2, 3, and 4) appears sufficient for initial SAMDS E-5 and E-6 R&D efforts. As system development proceeds, more sophistication may be required. The basic format of climatic data for planning and launch scheduling will be specified by AMS.

7. Request that this further requirement for integrated meteorological support to the SAMDS program be directed upon the AMS. Priority

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classification should be the same as indicated in the previously cited requirements letter of 31 March 1960 (Attachment 1) (i.e., DE Brick-Bat .01; USAF precedence I-1).

8. This letter is classified ~~SECRET~~ in accordance with paragraph 10b(10) AFR 205-1, 10 June 1960, and Section V, AFMID Master Security Guide, WELIPL, 15 March 1959. Furthermore, the fact that AMS is supplying Sino-Soviet Elec meteorological information specifically for SAMOS operations is classified ~~SECRET~~. In addition, a strict "need-to-know" must be established and observed on a continuing basis regarding the dissemination of all information relative to the SAMOS project.

/s/

JOSEPH W. NIKEL  
Colonel, USAF  
Deputy Director, Operations  
SAMOS Project Office

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1. (C) Ltr, AFMID to ARDC, Subj: Meteorological Reports for SAMOS Satellite Sys, 31 Mar 60 w/attached Ltr, same subj, 5 May 60 (WELIPL-147) 1 cy
2. (S) AMS Rpt, Meteorological Suppt for SAMOS Satellite Sys, 15 Nov 60 (AMS 3478), Cy 2

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MILITARY AND SECURITY  
REQUIREMENTS AND CAPABILITIES  
OF THE  
NATIONAL OPERATIONAL  
METEOROLOGICAL  
SATELLITE SYSTEM

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30 Apr 61

**MILITARY AND SECURITY REQUIREMENTS AND CAPABILITIES**

**Classified Annex**

**to**

**The Joint Strategic Operational Meteorological Satellite System**

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## MILITARY AND SECURITY REQUIREMENTS AND CAPABILITIES

### Introduction

This annex has been separated from the main body of the POMS report so that it need not be classified.

In the preparation of the plan, considerable care has been taken to insure that all U.S. national requirements, military as well as civilian, have been, insofar as possible, fulfilled. It is the purpose of this annex to:

1. Discuss special military requirements.
2. Establish the military capabilities of the system.
3. Demonstrate that the plan is compatible with military requirements.

Incorporation of a U.S.-controlled command capability can terminate "in-the-clear" data transmissions and substitute coded transmissions when necessary. U.S. control of the system is insured by this command security and because:

1. The central analysis facility will be the NMC of the United States.
2. The primary CDA stations will be located on the territory of the United States and its allies.
3. The majority of the requirements could be met with only CDA stations on the North American continent.

### Military Meteorological Requirements

There is an immediate and continuing operational requirement for the following data:

1. Global cloud cover twice per 24-hour period.
2. Direct readout of cloud pictures covering each local area of tactical interest four times per 24-hour period.
3. High resolution infrared (for nighttime cloud cover).
4. Temperature of the radiating surfaces.

The above data would provide for the following:

1. Support to air operations.
2. Support to missile operations.

3. Support to missile test ranges.
4. Support to polar operations.
5. Support to the reconnaissance satellite programs.
6. Support of land combat and training maneuvers.
7. Support to naval operations.

Direct read out by commanders is required in support of:

1. Air operations.
2. Amphibious operations.
3. Land operations.
4. Naval operations.

In addition, there are and will continue to be requirements for the additional types of data which will become available as a result of growth potential of the system.

Furthermore, the possibility of "weather control" as a weapon of the future cannot be overlooked. Data to be gathered by meteorological satellites will contribute to the determination of the feasibility of such modification and (if feasible) the development of appropriate techniques.

### Ability of the System to Satisfy These Military Requirements

Comparison of the observational requirements stated above with the requirements and capabilities described in the main portion of this report demonstrates that:

1. These requirements are included in the overall national requirements, and
2. These requirements will be satisfied by the system.

Such comparison makes it obvious that civilian and military requirements with regard to meteorological satellite observations are quite similar so that it is clearly in the national interest to satisfy them through the use of a single system designed to satisfy both types of users. The primary differences are greater frequency of observations over certain geographical areas for the support of tactical operations.

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