21 APR 1976

MEMORANDUM FOR THE DIRECTOR, NATIONAL RECONNAISSANCE OFFICE

SUBJECT: Quarterly Program Report

Attached is the Program A Quarterly Program Report for the period from 1 January 1976 through 31 March 1976. Also attached is an Annex detailing Applied Research/ Advanced Technology and Advanced Development contractual information.

SIGNED
DAVIS P. PARRISH
Colonel, USAF
Vice Director, SAFSP

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QUARTERLY PROGRAM REPORT

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QUARTERLY PROGRAM REPORT

Program 989 Project

Project Director: LtCol James D. Everett

1. Summary

a. During this reporting period five P-989 satellites were operational. MABELI, now in its 50th month of operational life, continued to collect information on Soviet ABM radars. Although impacted by failures, URSALAs I and II continued to support operational requirements and the Search mission. RAQUEL I was used to support very limited Operational ELINT collection requirements in addition to its primary role of Search and providing ELINT Technical Intelligence on several high priority Soviet weapon systems. TOPHAT continued to be used for location and collection of CW emitters.

b. Three P-989 satellites were under development during this reporting period. URSALA III was removed from storage and entered launch preparation tests. The delivery schedule for URSALA IV is phased six months behind URSALA III. RAQUEL IA procurement proceeded on schedule.

2. Specific Status

a. On-Orbit Spacecraft

(1) Mission 7338/URSALA I. URSALA I, which had a predicted Mean Mission Duration (MMD) of 15 months, has been on-orbit since 7 July 1972 (44 months). This satellite has numerous operational problems associated with hardware failures and degraded tape recorder operation and requires a high level of support for the useful collection operations achieved. Therefore, after coordination with SORS, URSALA I payload operations were terminated on 15 December 1975. The spacecraft was maintained with minimal health care for use in Special Project Bold Eagle, which it supported, in February 1976. Following an URSALA II failure on 10 February, URSALA I was returned to intelligence collection use and continues in that status; however, its many problems result in

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very limited daily use. We plan to terminate the URSALA II mission after launch of URSALA III.

(2) Mission 7339/MABELI. MABELI, which had a predicted MMD of 12 months, has been on-orbit since 20 January 1972 (50 months). This satellite has numerous operational problems associated with the failed/degraded condition of the payload, spacecraft, and tape recorders; however, it continues to provide a unique collection capability against ABM radars. The pre-detection capability continues to be intermittent and Band 4 (1.5 - 2.5 GHz) sensitivity remains degraded. One tape recorder has failed completely; the other two operate unreliably, resulting in frequent loss of data.

(3) Mission 7340/TOPHAT II. TOPHAT II, which had a predicted MMD of 23 months, has been on-orbit since 10 April 1974 (23 months). The technical status of TOPHAT II is excellent. The primary mission of CW emitter mapping continues. The problem with the [redacted] subsystem has been resolved, restoring the capability to locate the [redacted] signals. 25X1 25X1

(4) Mission 7341/RAQUEL I. RAQUEL I, which has a predicted MMD of 24 months, has been on-orbit since 29 October 1974 (17 months). RAQUEL I has experienced no new failures during this reporting period. Band 5 (10 - 12 GHz) failed at launch and the CW Technical Intelligence receiver failed on 30 June 1975. The satellite continues to provide Search and TI mission support as well as limited Operational support.

(5) Mission 7342/URSALA II. URSALA II, which had a predicted MMD of 15 months, has been on-orbit since 10 November 1973 (28 months). On 10 February 1976, URSALA II experienced a failure in the payload which resulted in a 20 db sensitivity decrease in the pulse collection capability. The CW collection capability remains unaffected. Analysis of the failure indicates that the most probable cause is a failure associated with the tunnel diode detector located in the monopulse measurement subsystem. URSALA III and URSALA IV have designs different from URSALA II; the tunnel diode detector which failed in URSALA II has been replaced by a Schotky detector in URSALAs III and IV. Also, URSALAs III and IV have redundancy which would allow switching around the failed area of the payload.

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Limited operational use of URSALA II for CW collection is planned until launch of URSALA III.

b. Vehicles in Test

(1) Mission 7343/URSALA III. URSALA III will be launched in July 1976. The vehicle was removed from storage and entered launch preparation tests. Acoustics test was completed successfully. Thermal Vacuum test began on 29 March 1976.

c. Vehicles Under Development

(1) Mission 7344/URSALA IV. The current launch strategy is to maintain the URSALA IV system available for flight within six months of the URSALA III launch.

(2) RAQUEL IA. RAQUEL IA development is continuing on schedule for October 1977 launch availability.

(3) Pallet Mission: ESE. Funding has been protected beginning in FY 77 for an 18 - 42 GHz search mission. Reduced cost design concepts are being prepared for this mission.

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30 JUL 1976

MEMORANDUM FOR THE DIRECTOR, NATIONAL RECONNAISSANCE OFFICE

SUBJECT: Quarterly Program Report

1. Attached is the Program A Quarterly Program Report for the period from 1 April 1976 through 30 June 1976 and the Annex detailing Applied Research/Advanced Technology and Advanced Development contractual information.

2. We are also providing for the first time a financial management annex with financial and program milestone information for each of our major programs.

DAVIS P. PARRISH
Colonel, USAF
Vice Director, SAFSP

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QUARTERLY PROGRAM REPORT

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QUARTERLY PROGRAM REPORT

Program 989 Project

Project Director: Lt Col John H. Dean

1. Summary

a. During this reporting period five P989 satellites were operational. MABELI, now in its 53rd month of operational life, continued to collect information on Soviet ABM radars. Although impacted by failures, URSALAs I and II continued to support Operational requirements and the Search Mission. RAQUEL I was used to support limited Operational ELINT collection requirements in addition to its primary role of Search. It provided ELINT Technical Intelligence on several high priority Soviet weapon systems. TOPHAT continued to be used for location and collection of CW emitters.

b. Three P989 satellites were under development during this reporting period. URSALA III was mated to the host spacecraft 4 June 1976 in preparation for launch on 8 July 1976. The delivery schedule for URSALA IV is phased six months behind URSALA III. RAQUEL IA procurement proceeded on schedule.

2. Specific Status

a. On-Orbit Spacecraft

(1) Mission 7338/URSALA I. URSALA I, which had a predicted Mean Mission Duration (MMD) of 15 months, has been on orbit since 7 July 1972. This satellite has numerous operational problems associated with hardware failures and degraded tape recorder operation and requires a high level of support to achieve useful collection operations. We plan to terminate the URSALA I mission after the launch and checkout of URSALA III.

(2) Mission 7339/MABELI. MABELI, which had a predicted MMD of 12 months, has been on orbit since

20 January 1972. This satellite has numerous operational problems associated with the failed/degraded condition of the payload, spacecraft, and tape recorders; however, it continues to provide a unique collection capability against ABM radars. The pre-detection capability continues to be intermittant and Band 4 (1.5 - 2.5 GHz) sensitivity remains degraded. One tape recorder has failed completely; the other two operate unreliably, resulting in frequent loss of data.

(3) Mission 7340/TOPHAT II. TOPHAT II, which had a predicted MMD of 23 months, has been on orbit since 10 April 1974. The primary mission of CW emitter mapping continues. The technical status of TOPHAT II is excellent.

(4) Mission 7341/RAQUEL I. RAQUEL I, which has a predicted MMD of 24 months, has been on orbit since October 1974. The satellite continues to provide Search and TI mission support in addition to limited Operational support. Band 5 (10 - 12 GHz) failed at launch and the CW Technical Intelligence receiver failed on 30 June 1975.

(5) Mission 7342/URSALA II. URSALA II, which had a predicted MMD of 15 months, has been on orbit since 10 November 1973. On 10 February 1976, URSALA II experienced a failure in the payload which resulted in a 20 db sensitivity decrease in the pulse collection capability. The CW collection capability remains unaffected. Limited operational use of URSALA II for CW collection is planned until the launch of URSALA III when the cost effectiveness of its contribution to the intelligence community will be reevaluated.

b. Vehicles in Test

(1) Mission 7343/URSALA III. URSALA III will be launched in July 1976. The vehicle completed all its environmental test requirements with no failures. URSALA III was mated to the host vehicle 4 June 1976 in preparation for launch on 8 July 1976.

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c. Vehicles under Development

(1) Mission 7344/URSALA IV. The current launch strategy is to maintain the URSALA IV system available for flight within six months of the URSALA III launch.

(2) RAQUEL IA. RAQUEL IA development is continuing on schedule for October 1977 launch availability.

(3) Pallet Mission: ESE. Funding has been protected beginning in FY77 for a 26-42 GHz Search mission.

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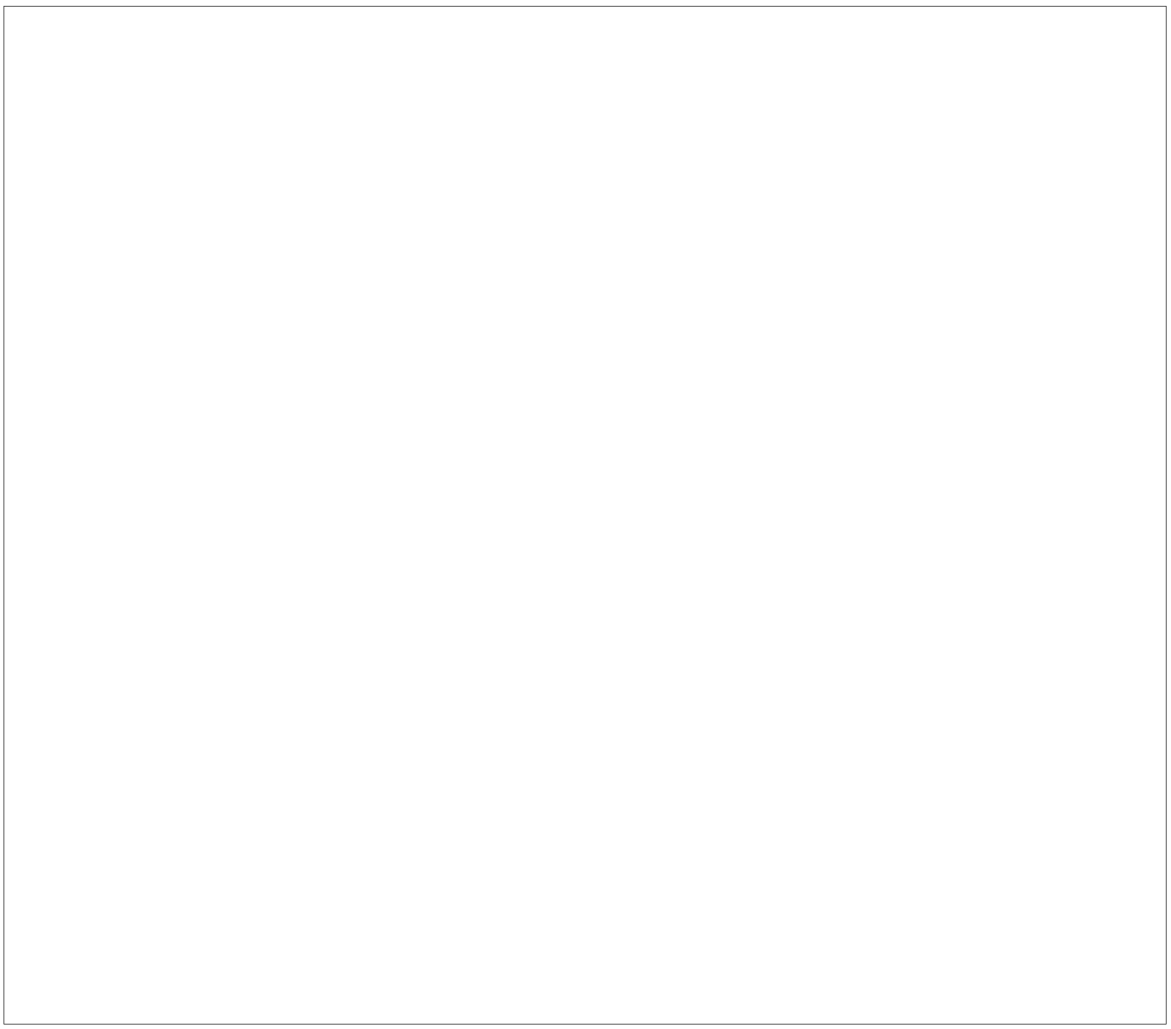

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QUARTERLY PROGRAM REPORT

Program 989 Project

Project Director: Lt Col John H. Dean

1. Summary

a. During this reporting period, six P989 satellites were operational. MABELI, now in its 56th month of operational life, continued to collect information on Soviet ABM radars. Although impacted by failures, URSALA I was used to support operational requirements until URSALA III was launched, checked out and declared operational. URSALA II continued its search mission of CW radars and COMINT mapping. URSALA III was successfully launched on 8 July 1976 and has completed its on-orbit evaluation phase demonstrating excellent performance. RAQUEL I continued to be used to support limited operational ELINT collection requirements in addition to its primary role of search. TOPHAT continued to be used for location and collection of CW emitters.

b. Two P989 satellites were under development during this reporting period. Both URSALA IV and RAQUEL IA developments proceeded on schedule. URSALA IV development, testing and delivery is phased to support a January 1977 launch, if required. If there is no requirement for launch in January 1977, URSALA IV will be placed in long-term storage. RAQUEL IA delivery is phased to support an October 1977 launch.

2. Specific Status

a. On-Orbit Spacecraft

(1) Mission 7338/URSALA 1. URSALA I, which had a predicted Mean Mission Duration (MMD) of 15 months, has been on orbit since 7 July 1972. URSALA I has numerous operational problems associated with hardware failures and degraded tape recorder operation and requires a high level of support to achieve useful collection operations. With the launch and checkout of

URSALA III, the URSALA I mission has been terminated and processing of URSALA I intercept data is no longer accomplished.

(2) Mission 7339/MABELI. MABELI, which had a predicted MMD of 12 months, has been on orbit since 20 January 1972. This satellite has numerous operational problems associated with the failed/degraded condition of the payload, spacecraft, and tape recorders; however, it continues to provide a unique collection capability against ABM radars. The pre-detection capability continues to be intermittent and Band 4 (1.5-2.5 GHz) sensitivity remains degraded. One tape recorder has failed completely; the other two operate unreliably, resulting in frequent loss of data.

(3) Mission 7340/TOPHAT II. TOPHAT II, which had a predicted MMD of 23 months, has been on orbit since 10 April 1974. The primary mission of CW emitter mapping continues. The technical status of TOPHAT II is excellent.

(4) Mission 7341/RAQUEL 1. RAQUEL I, which has a predicted MMD of 24 months, has been on orbit since October 1974. The satellite continues to provide Search and TI mission support in addition to limited operational support. Band 5 (10-12 GHz) failed at launch and the CW Technical Intelligence Receiver failed on 30 June 1975.

(5) Mission 7342/URSALA II. URSALA II, which had a predicted MMD of 15 months, has been on orbit since 10 November 1973. On 10 February 1976, URSALA II experienced a failure in the payload which resulted in a 20 db sensitivity decrease in the pulse collection capability. The CW collection capability remains unaffected. Operational use of URSALA II for CW collection continues.

(6) Mission 7343/URSALA III. URSALA III was launched on 8 July 1976 into its nominal 340 nm orbit. All subsystems exhibit normal operations and the overall system performance is excellent. Automatic shipment of unedited pulse data commenced on

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9 September 1976, and the vehicle/processing system is fully operational. All the vehicle and ground data processing hardware checkout has been completed.

b. Vehicles Under Development and Test

(1) Mission 7344/URSALA IV. The current launch strategy for URSALA IV is to prepare it for possible launch in January 1977. If there is no requirement for flight in January 1977, URSALA IV will be placed in long-term storage until a requirement is established for its use.

(2) RAQUEL IA. RAQUEL IA development is continuing on schedule for October 1977 launch availability.

(3) Pallet Mission - ESE - Funding has been protected beginning in FY77 for a 26-42 GHz Search mission.

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MEMORANDUM FOR THE DIRECTOR, NATIONAL RECONNAISSANCE OFFICE

SUBJECT: Quarterly Program Report

Attached is the Program A Quarterly Program Report for the period from 1 October 1976 through 31 December 1976. Also attached is an Annex detailing Applied Research/ Advanced Technology and Advanced Development contractual information.

Davis P. Parrish

DAVIS P. PARRISH
Colonel, USAF
Vice Director

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QUARTERLY PROGRAM REPORT

PROGRAM 989 (P989)

Program Director: Lt Col John H. Dean

1. Summary

a. During this reporting period, five P989 satellites were operational. MABELI, now in its 59th month of operational life, contined to collect information on Soviet ABM radars. URSALA II continued its search mission of CW radars and COMINT mapping. URSALA III, launched in July 1976, has completed its on-orbit evaluation phase and has demonstrated excellent performance. RAQUEL I continued to be used to support limited operational ELINT collection requirement in addition to its primary role of search. TOPHAT was used for location and collection of CW emitters.

b. Two P989 satellites were under development during this reporting period. Both URSALA IV and RAQUEL IA developments proceeded on schedule. URSALA IV development and testing have been completed and this spacecraft will be placed into long term storage. RAQUEL IA delivery is phased to support an October 1977 launch.

c. Funding has been approved for a 26-42 GHz search mission, and we are evaluating contractor proposals for this project. The P989 Integrating Contractor, Lockheed Missiles and Space Company (LMSC), is conducting a system definition study for the next P989 spacecraft development.

2. Specific Status

a. On-orbit Spacecraft

(1) Mission 7338/URSALA 1. URSALA I, which had a predicted Mean Mission Duration (MMD) of 15 months, has been on orbit since July 1972. Following launch and successful operation of URSALA III, the URSALA I mission tasking was terminated. Although a

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malfunction in the spacecraft prevents recovery of data in the normal read-in mode, the system operates well in the "transpond" or "recorder-bypass" configuration. For this reason, URSALA I is being maintained in a caretaker status so that it can be tasked and utilized during the deployment of the RTIP van.

(2) Mission 7339/MABELI. MABELI, which had a predicted MMD of 12 months, has been on orbit since January 1972. This satellite has numerous operational problems associated with the failed/degraded condition of the payload, spacecraft, and tape recorders; however, it continues to provide a unique collection capability against ABM radars. The pre-detection capability continues to be intermittent and Band 4 (1.5-2.5 GHz) sensitivity remains degraded. One tape recorder has failed completely; and the other two operate unreliably, resulting in frequent loss of data.

(3) Mission 7240/TOPHAT II. TOPHAT II, which had a predicted MMD of 23 months, has been on orbit since April 1974. The primary mission of CW emitter mapping continues. The technical status of TOPHAT II is good.

(4) Mission 7341/RAQUEL I. RAQUEL I, which has a predicted MMD of 24 months, has been on orbit since October 1974. The satellite continues to provide Search and TI mission support in addition to limited operational support. Band 5 (10-12 GHz) failed at launch and the CW technical Intelligence Receiver failed in June 1975.

(5) MISSION 7342/URSALA II. URSALA II, which had a predicted MMD of 15 months, has been on orbit since November 1973. In February 1976, URSALA II experienced a failure in the payload which resulted in a 20 dB sensitivity decrease in the pulse collection capability. The CW collection capability remains unaffected. During this reporting period, the Attitude Control System failed resulting in the inability to alter the spacecraft's spin axis. However, successful operational use of URSALA II for CW collection continues.

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(6) Mission 7343/URSALA III. URSALA III which has a predicted MMD of 26 months was successfully launched in July 1976. All subsystems continue to exhibit normal operations and the overall system performance is excellent.

b. Vehicles under Development and Test

(1) Mission 7344/URSALA IV. URSALA IV has completed required testing and will be placed in long term storage to await planned launch availability in October 1978.

(2) RAQUEL IA. RAQUEL IA development is continuing on schedule for October 1977 launch availability.

(3) Pallet Mission. Funding has been approved for the Pallet or Extra High Frequency Search Experiment (ESE) mission. Contractor proposals are being evaluated and contractual go-ahead is anticipated for the first quarter of calendar year 1977.

(4) SAT I. LMSC has been funded to perform a system definition study for the next P989 mission which is temporarily being referred to as SAT I. NSA and SORS have both reviewed and commented upon the requirements for this mission. The definition study will require approximately five months; a system technical description will be ready by 1 April 1977, with a detailed cost proposal following on 1 June 1977.

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