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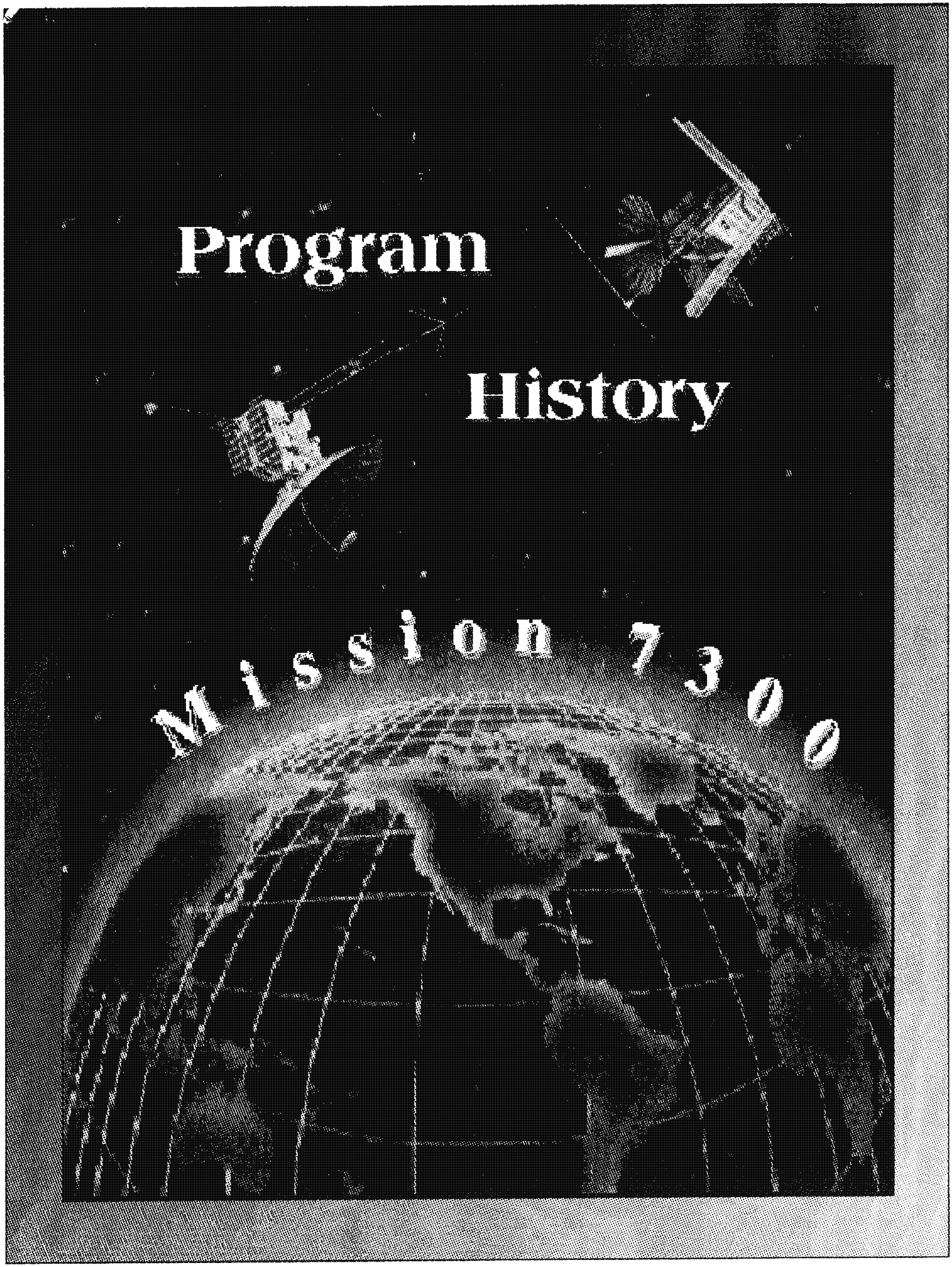


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Mission 7300

# Chapter 1 Program History

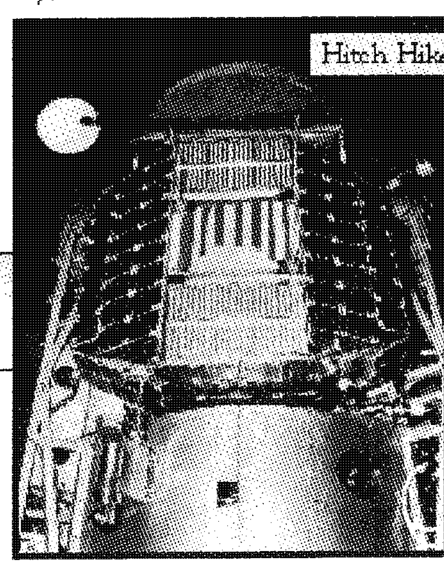
In August of 1960, the first of a series of "SIGINT Black Boxes" were carried into orbit on the aft rack of Agena 1057. The first re-entry capsule to be returned successfully to earth came from this spacecraft, which became world famous as Discoverer XIII. The mission of the SIGINT Black Box aboard Discoverer XIII was to determine whether any country had the technology to perform radar skin tracking of the Agena spacecraft.

The missions of the Black Boxes launched on various Agena aft racks broadened considerably during the following years. The SIGINT missions included ELINT as wel as Communications Intelligence (COMINT) tasks. Twenty-two different Agena spacecraft were launched with Black Boxes aboard before the National Reconnaissance Office (NRO) mission numbering system was applied to the Agena aft rack program.

A significant limitation of SIGINT missions flown on Agenas in the early 1960s was the limited lifetime of the spacecraft. It was well recognized that long life would be an extremely valuable capability for these missions.

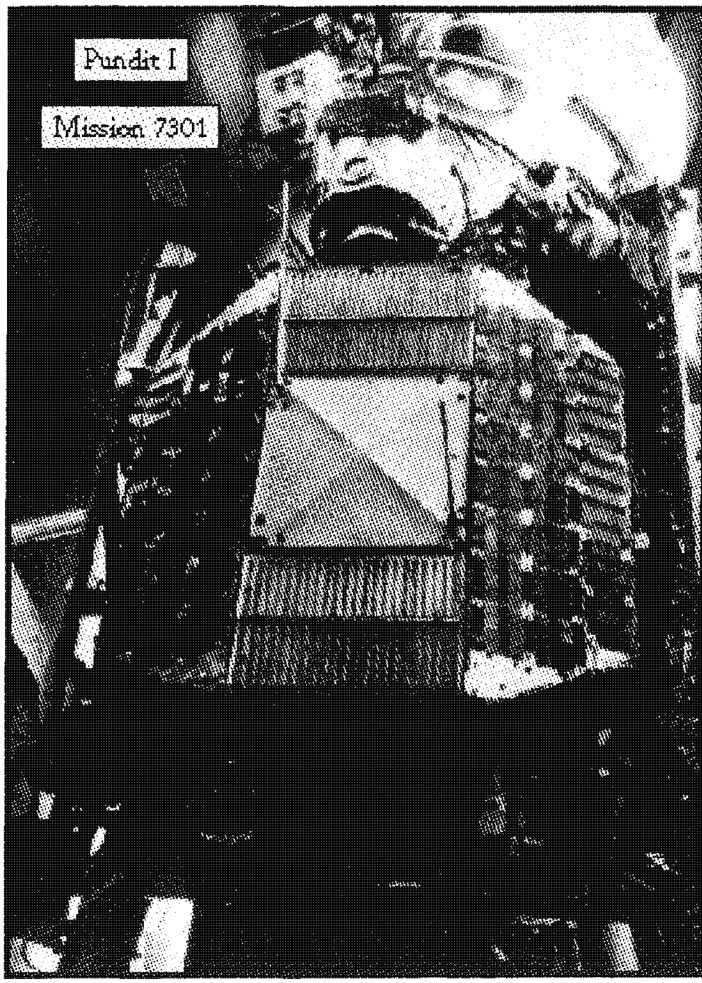
A team of Lockheed and government personnel decided that a small, simple, and long-lived subsatellite could be economically designed and launched into orbit directly off the Agena itself. Subsequently, the first subsatellite, Hitch Hiker I, was launched aboard Agena 4051 on March 18, 1963. It's mission was to monitor radiation in the inner Van Allen radiation belt. Unfortunately, the host vehicle did not achieve orbit. On July 1, 1963, Hitch Hiker II was launched and orbited successfully. It operated for 2 1/2 months and returned an abundance of significant radiation data from the Van Allen belt. These missions provided the unclassified cover story for later covert missions.

***Monitored radiation in the Van Allen radiation belt***


Hitch Hiker II

Mission
7302

While the highly publicized Hitch Hiker missions were taking place, a covert activity was also under way that would lead to the launch of the first covert Air Force SIGINT mission aboard Agena 1601 on October 30, 1963. This subsatellite, Pundit I, performed a Telemetry Intelligence (TELINT) collection mission for the National Security Agency (NSA) during its months on orbit. It had encyphered data links and was operationally controlled through the Satellite Control Facility ((SCF), currently Onizuka Air Station (OAS)) and by remote NSA facilities in Europe.



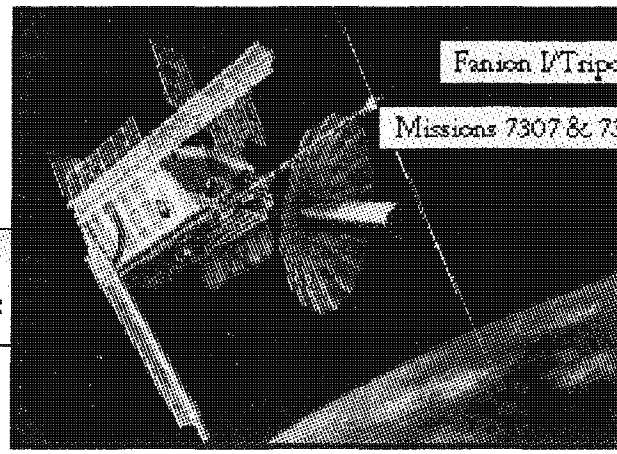

**First covert Air Force SIGINT mission**

Pundit I was designed to be spin-stabilized because this was the simplest and most economical attitude control system that would support thrust direction control. It was equipped with an orbital boost motor used to boost the spacecraft into a higher orbit than its host vehicle. A cold gas system was used for initial spinup.

The strongest asset of Pundit I's design was its flexible equipment bay layout. This permitted installation of a large variety of SIGINT black boxes, which interfaced with an even larger number of different signal collection antennas.

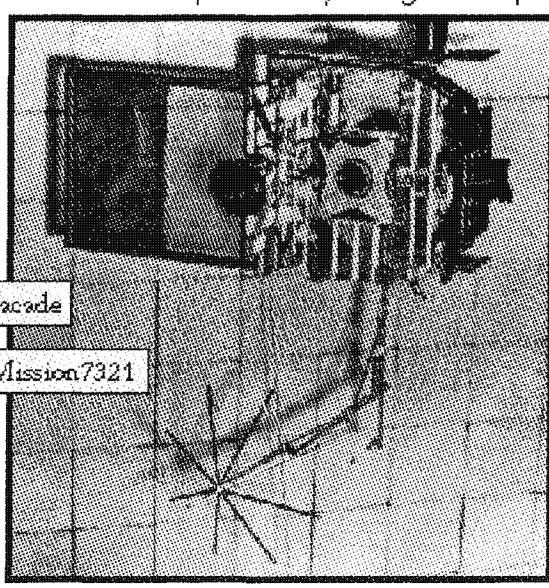
Mission 7302

As the sophistication of the SIGINT missions increased, so did the sophistication and complexity of the electronics, mechanisms, and antennas flown. In April 1965, dual orbital boost rocket motors were first flown on Pundit IV, permitting a circular orbit to be achieved for the first time. The first high-gain, unfurlable, SIGINT collection antennas suitable for a DF mission were installed and flown on Fanion I/Tripos I in June 1965. Its mission was to perform directed search for Soviet [redacted] 25X1 and general search for new and unusual signals. Thereafter, emitter location finding was an important feature of most missions.




***First high-gain, unfurlable SIGINT collection antennas***

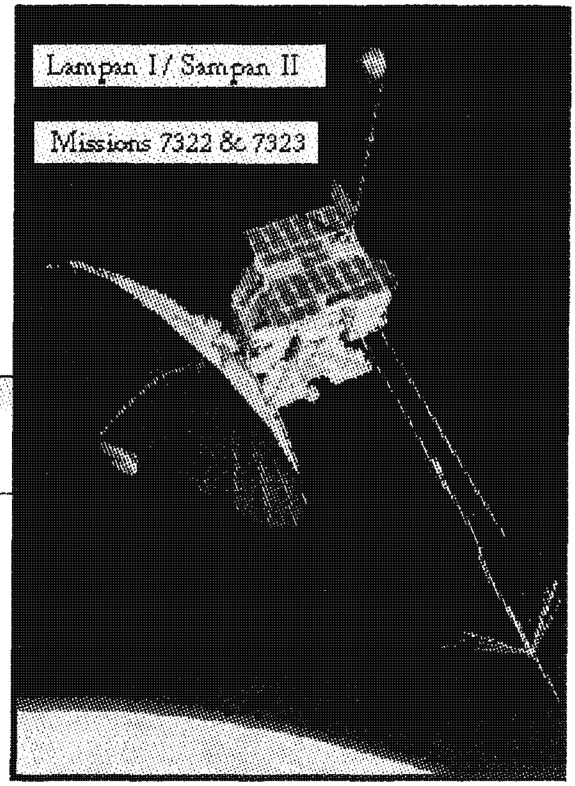
In June 1967, the cold gas spin system was replaced with solid-fuel spin rockets, a system with greater simplicity and reliability. In late 1967, the first of a series of spacecraft were specifically designed to provide overhead reconnaissance of the burgeoning Soviet Anti-Ballistic Missile (ABM) and Surface to Air Missile (SAM) radar development programs. The first of these spacecraft, the Facade QRC mission, successfully intercepted the Soviet Dog House signal the first day in orbit. From this intercept came the analysis that the Dog House radar was a modulated CW radar.




***Overhead reconnaissance of the Soviet ABM & SAM radar development***

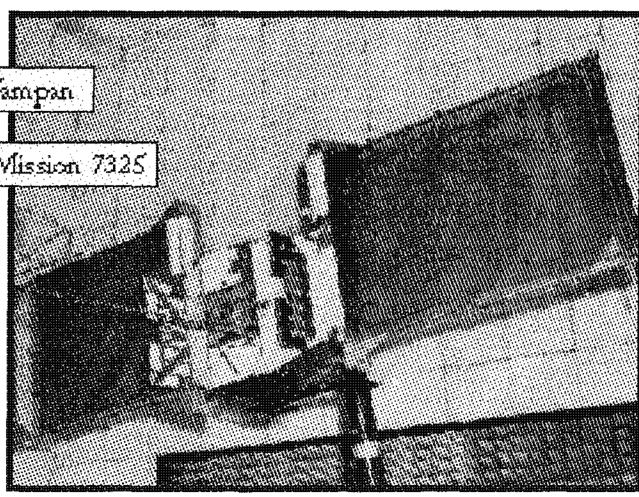
## Missions 7300

In early 1968, the first deployable 6-foot parabolic reflector was launched aboard Lampan I / Sampan II. This reflector, with improved feeds, has now been used on nine different missions. Lampan I / Sampan II's mission was to search for new and unusual pulsed and CW signals.




**First deployable 6-foot parabolic reflector**

Later that same year, the Vampan spinning interferometer system was launched. This DF system, operating from 100 to 1000 MHz, used pairs of flat spirals rotating at the spacecraft spin rate to measure unambiguously target signal angle of arrival in two planes, with a two-channel phase-measuring receiver.




**Spinning interferometer system**

Mission
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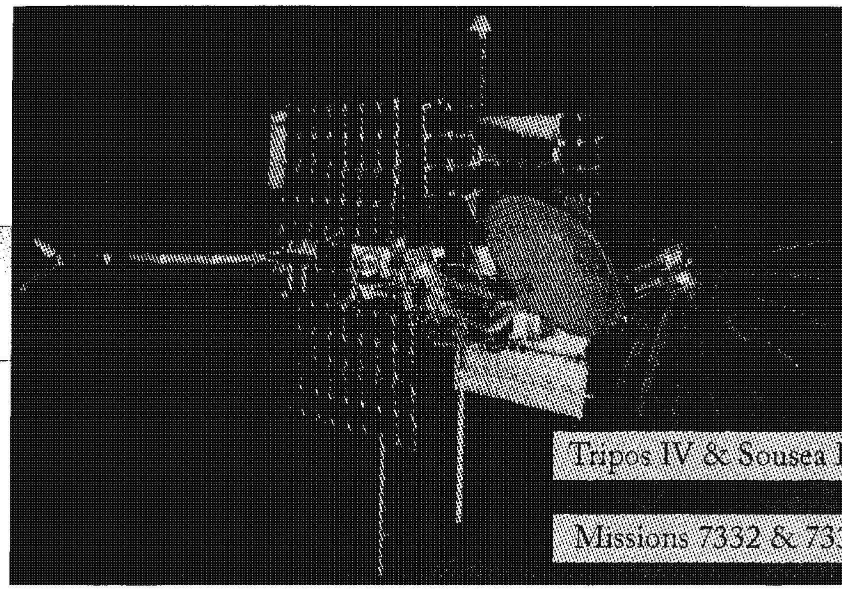
The year 1970 brought the first all-digital configuration aboard Tripos IV / Sousea III. All significant payload outputs were digitized to permit more rapid and accurate ground data processing. The availability of reliable, high-speed digital integrated circuits made it possible to greatly enhance mission collection capability without large increases in spacecraft volume and weight. This spacecraft was also the first to use an all S-band data transmission system.

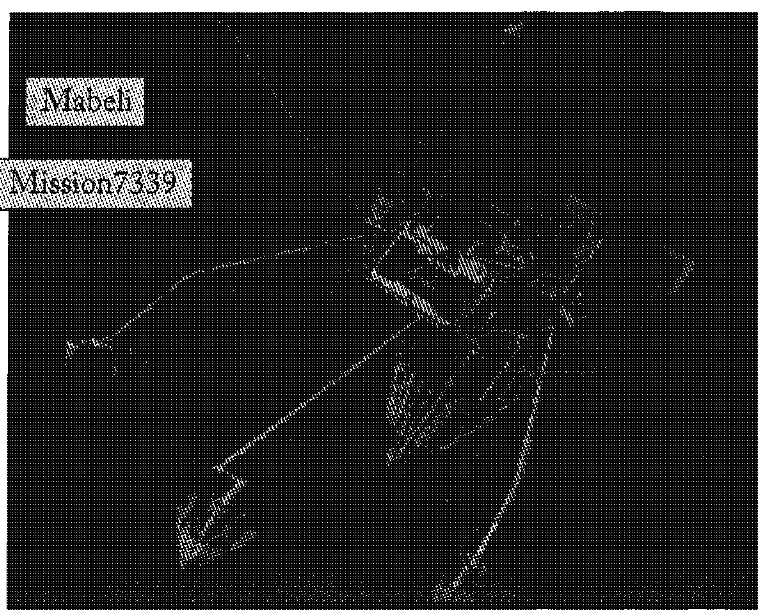
***First all-digital configuration***



Tripos IV & Sousea III

Missions 7332 & 7333

The Mabeli collection system was launched in early 1972 to provide continuing TI intercept coverage of the Soviet ABM program. This system was designed with an array of polarimeter antennas which permitted the measurement of received power and signal polarization to an accuracy +1 dB and 20 deg. This spacecraft was operated successfully for more than seven years before it re-entered the earth's atmosphere.



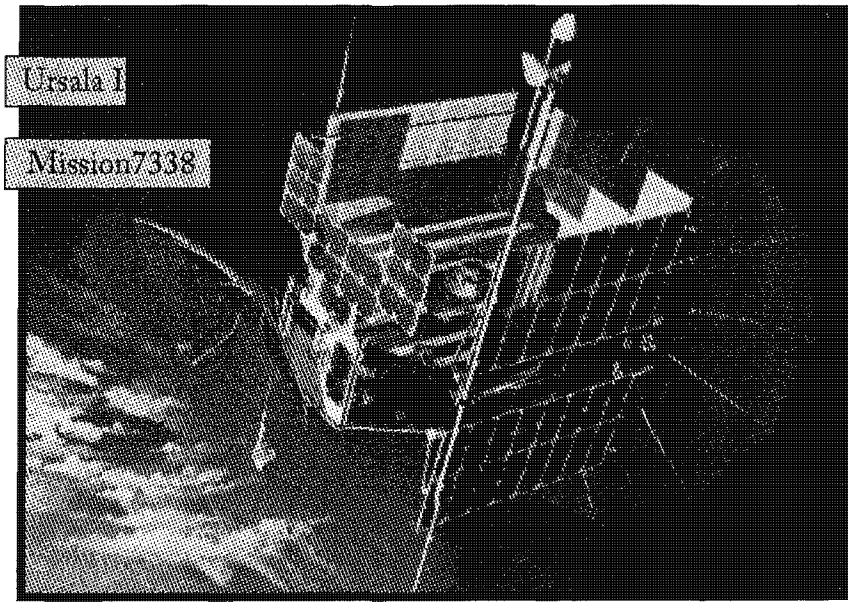
Mabeli

Mission7339

***Operated successfully for more than seven years***

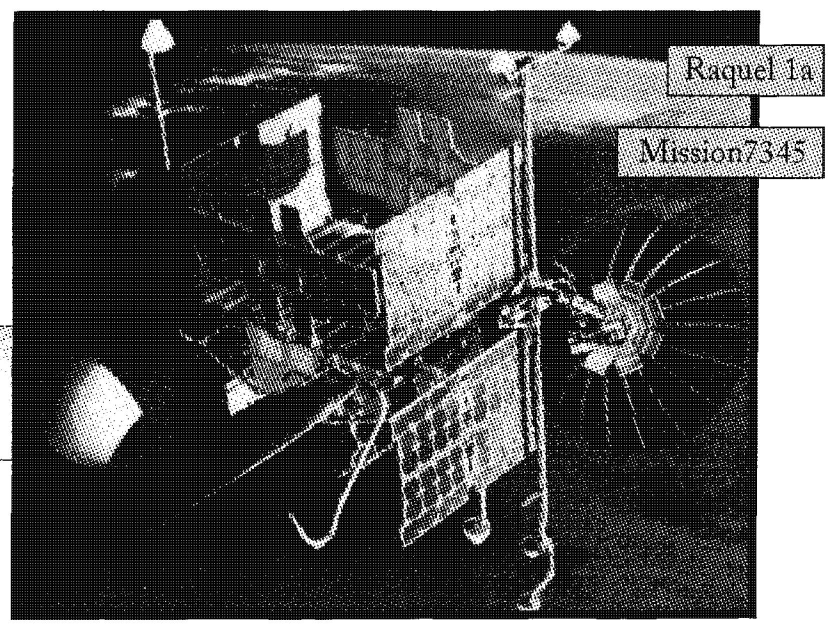
## Mission 7300

Launched in mid-1972, the Ursala ELINT/COMINT collection system added a monopulse geopositioning system as a standard feature , which permitted Ursala to perform an extremely successful general search, Electronic Order of Battle (EOB), and tactical support mission throughout the decade. Ursala I utilized both a 6-foot and a 3-foot parabolic reflector, each with 4-ARM multimode spiral monopulse feed for [redacted] 25X1 measurement.




***Monopulse geopositioning system***

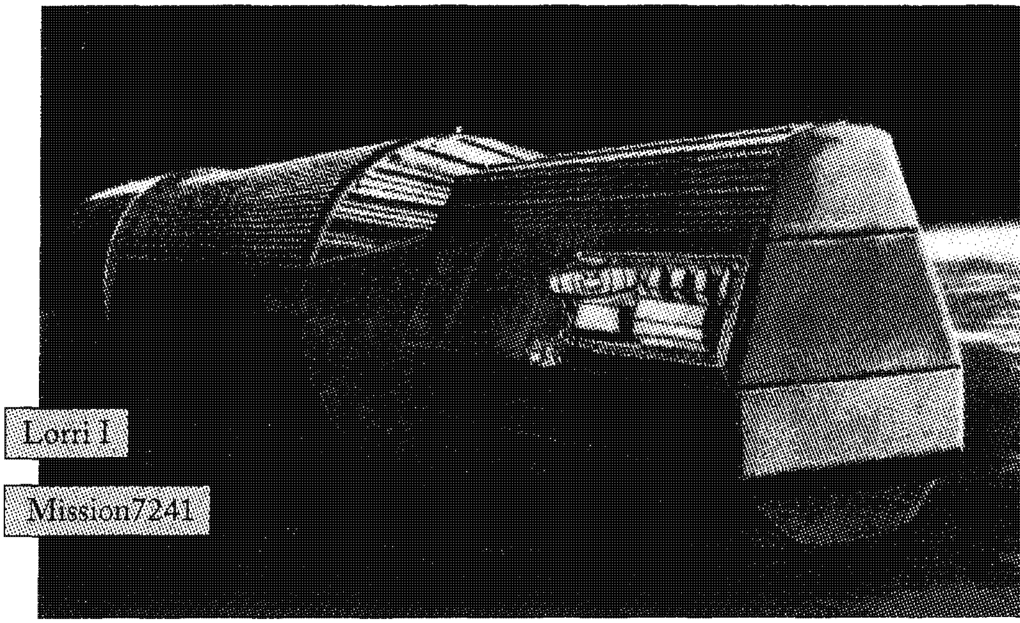
To compliment the Ursala system, another collection system known as Raquel was launched in late 1974. Raquel was designed and optimized to perform a technical intelligence mission including predetection waveform recording of targets operating in the frequency range from 4 to 18 GHz. This system also provided intercept coverage of target mainbeams, permitting beam shape, scan rates, and sector coverage (Az and El) to be determined.




***Technical Intelligence mission***

Mission
7300

Launched in mid-1980, Lorri I was the first satellite collector of SIGINT in the 26 to 42 GHz frequency range. The Lorri system was designed as a pallet to the host spacecraft, and unlike the earlier spacecraft, remained with the host for its entire mission life of eight months.



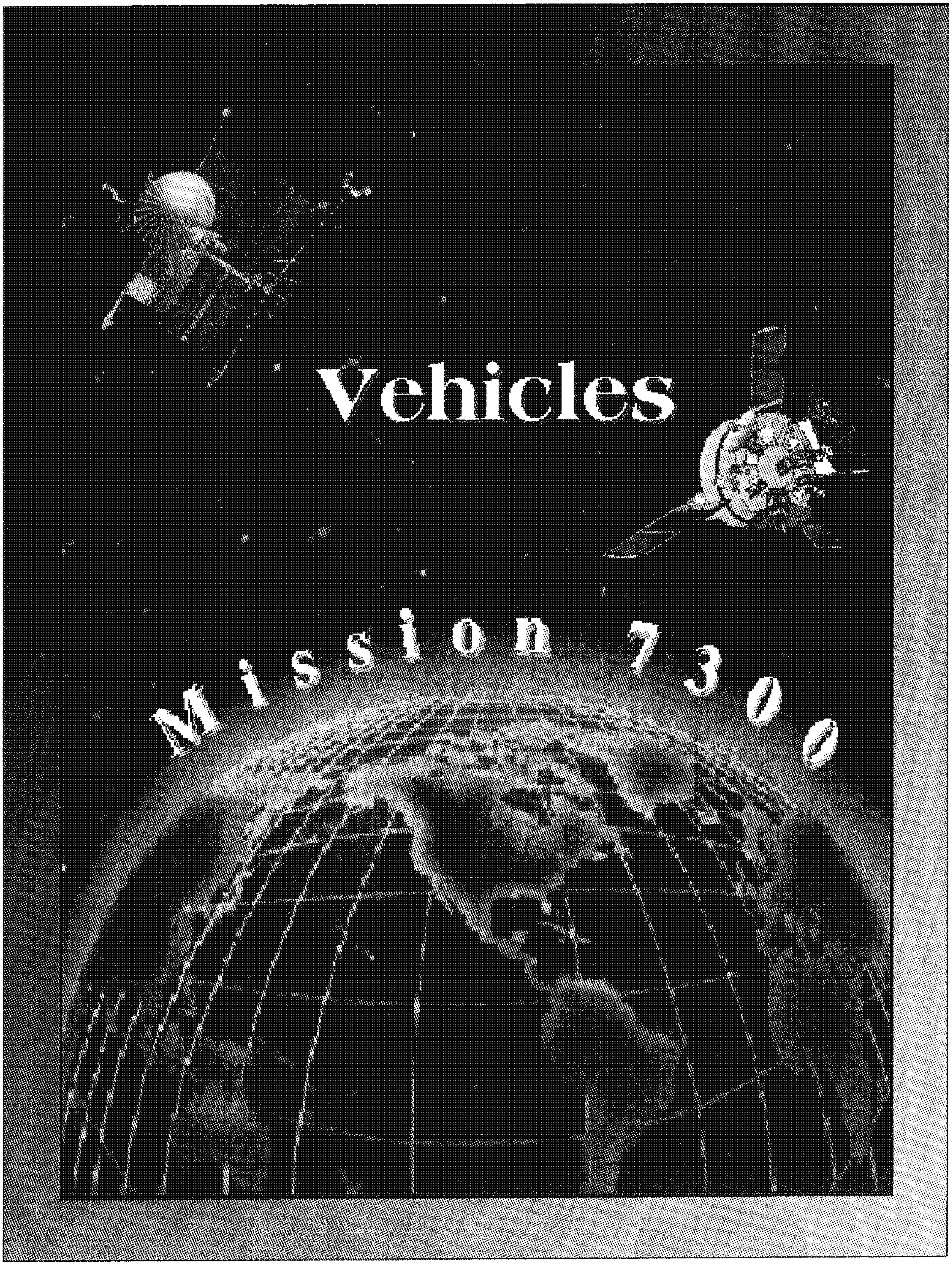

**First to collect SIGINT in the 26-42 GHz range**

25X1

In 1982, [redacted] operational. Farrah I combined the capabilities of Ursala and Raquel with improved DF and parameter measurement accuracies. Farrah II was launched in 1984 and was identical to Farrah I. Both are still providing valuable data.

[redacted]

25X1

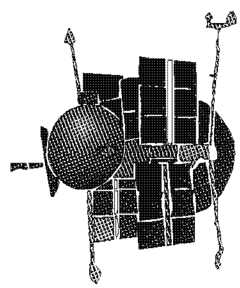

Vehicles
Mission 7300

Mission
7300

# Chapter 2 Vehicles

FARRAH I and II were the [redacted] spacecraft to employ monopulse DF capability in combination with a TI receiver. This permitted a single spacecraft to support highly accurate, rapid reporting on the EOB and GS mission, while providing a TI mission capability in the 2 to 18 GHz frequency range. FARRAHs I and II were launched on 11 May 1982 and 25 June 1984, respectively, into 382 nmi circular, near-polar inclination (96 degrees) orbits. Although both vehicles were designed with a 36 month mean mission duration, both continue to provide valuable SIGINT data via their transpond capability.

FARRAH I



**P-11 Spacecraft:** 4433
**Mission Name:** FARRAH I
**Mission Number:** 7346
**Launch Date:** 11 May 1982
**Design Life:** 36 months
**Operational Life:** Operational as of November 1996

## MISSION

EOB, GS, TI, and directed search for pulsed and CW emitters in the 2.0 to 18.0 GHz frequency range (sidelobes and mainbeams).

## CAPABILITIES

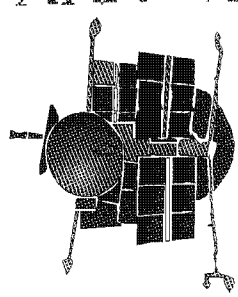
This spacecraft has the combined capabilities of the URSALA and RAQUEL spacecraft on a single platform. Improved DF and parameter measurement accuracies were achieved and major increases in the power subsystem and the command and control subsystem were included. The spacecraft contains an on-board general purpose digital computer used for real-time ELINT deinterleaving and readout directly to remote tactical support vans.

Mission 7300

## L I M I T A T I O N S

- Limited to transpond collection since the final tape recorder failure on 22 February 1991
- CW DF receiver inoperative
- Carrier 1 failed May 1989 (Backup carrier 6 in use)
- -Y antenna not acceptable for Stored Command Sequence (SCS) loading in the shade
- DF Pulse receiver Band 8 failed at maximum sensitivity
- Primary Data Control Unit (DCU) fuse failed December 1982
- Recent average collection has been 50 minutes per day in direct support of Bosnian and Korean activities

FARRAH II



**P-11 Spacecraft:** 4434
**Mission Name:** FARRAH II
**Mission Number:** 7347
**Launch Date:** 25 June 1984
**Design Life:** 36 months
**Operational Life:** Operational as of June 1996

## M I S S I O N

EOB, GS, TI, and directed search for pulsed and CW emitters in the 2.0 to 18.0 GHz frequency range (sidelobes and mainbeams).

## C A P A B I L I T I E S

This spacecraft is a duplicate copy of FARRAH I

## L I M I T A T I O N S

- Limited to transpond collection since the final tape recorder failure on 23 January 1991
- +Y antenna not usable for commanding
- TI CW receiver inoperative
- Recent average collection has been 68 minutes per day against the Korean and Bosnia targets and in direct support of the Army Electronic Processing and Dissemination System (EPDS) vans

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Mission
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*TACTICAL ON-BOARD PROCESSING SYSTEM (TOPS)* provides real-time identified signal data directly from the spacecraft processor to tactical users. Using an on-board SOI list, which can be changed as needed by the ground station, TOPS inputs wideband data, histograms the pulses and CW blips to form a burst, assembles the bursts into signals, and finally identifies the signals. Once identified, the signals are reported directly to tactical users/ subscribers. Currently, TOPS-collected data is being compared with the take forwarded to the [redacted] for Quality Control purposes. Also, TOPS is able to report signals not included in the SOI list (Signals Not of Interest - SNOI's). Finally, the output from the CR can be reported via the TOPS systems to authorized tactical users.

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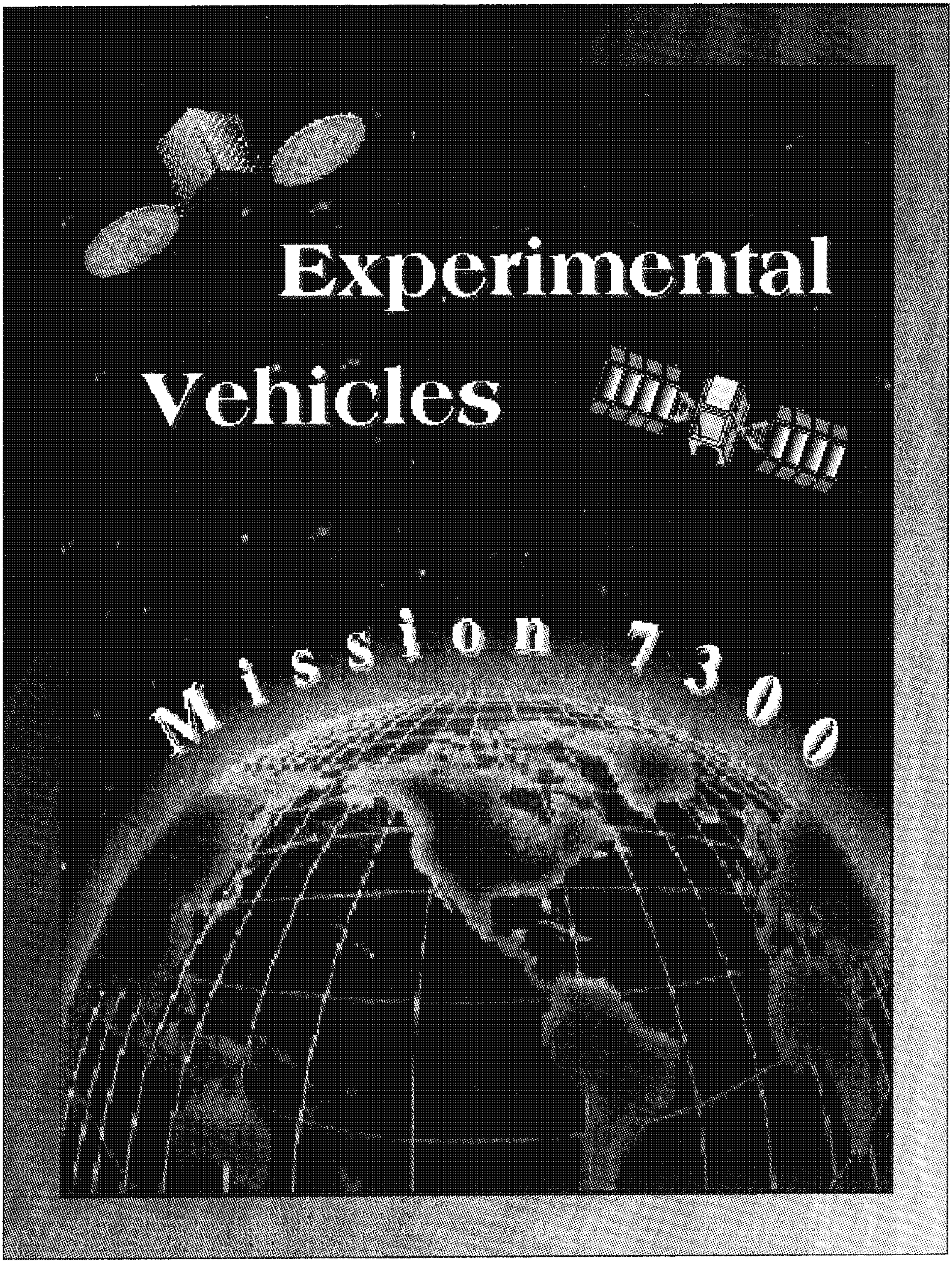
## LIMITATIONS

WDR IF filter No. 5 (out of 8 installed in the spacecraft) failed February 1993; WDR tasking has been modified to avoid the affected RF ranges.


Experimental
Vehicles
Mission 7300

Chapter 3

Mission 7300

# Experimental Vehicles

# GLORIA I & II

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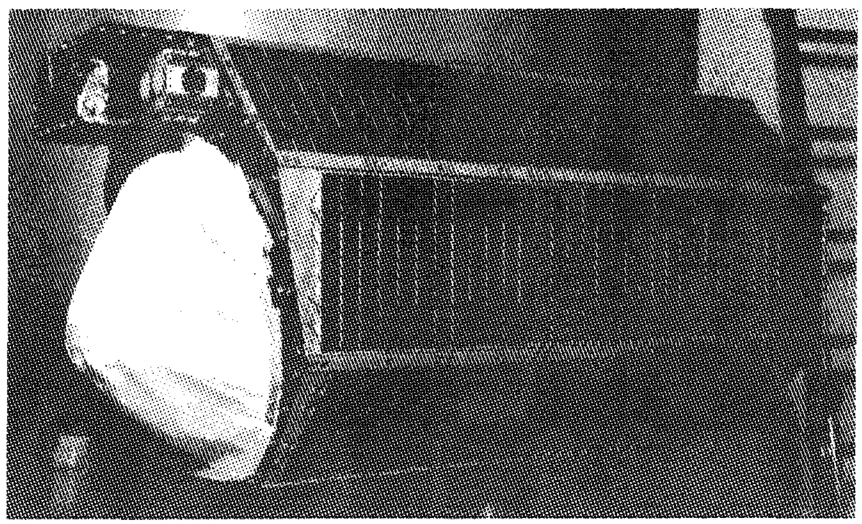


Mission
7302

Mission 7300

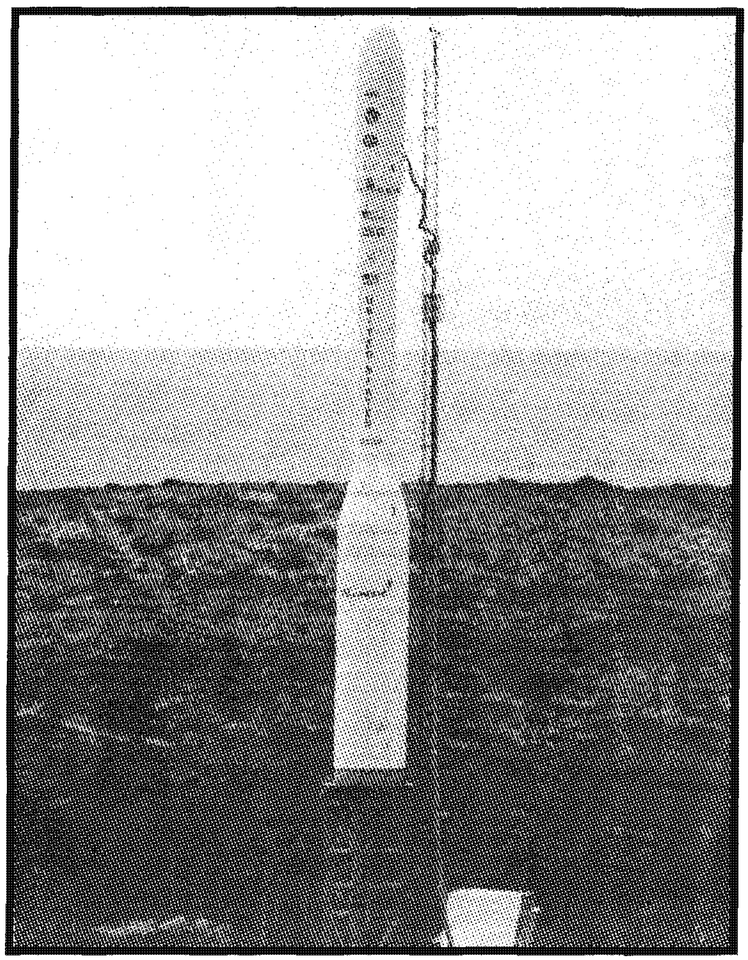
# CARRIE

## COMINT And Rapid Reporting Interferometry Experiment

Mission 7245 (CARRIE) is one of several experimental SIGINT systems which are designed to provide force enhancement data to operational warfighters and theater commanders. The CARRIE mission is to demonstrate how new (experimental) capabilities and techniques will improve space system support to military forces, deployed in theater, who are the primary users of CARRIE mission data.

Mission 7245 was launched directly into orbit by a TAURUS ELV on March 13,1994. The spacecraft is in a retrograde orbit inclined at 105 degrees and at an altitude of 290 nautical miles. The period is approximately 96 minutes. The spacecraft's orbit lifetime is estimated at 10 years.

The CARRIE mission is intended to demonstrate improved space system support to military users in the field. As such, the CARRIE system is designed to respond to military commands and theater commanders in a timely manner. The CARRIE spacecraft collects COMINT signals in the 100 MHz to 850 MHz range. The collected data is transmitted to an EPDS van in realtime if the Area of Interest (AOI) is within the EPDS acquisition circle. If the AOI is outside the EPDS acquisition circle, the data is stored onboard until CARRIE is within the circle.



Mission
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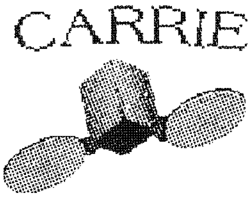


CARRIE mission implementation begins when the EPDS van(s) sends collection requirements to the Overhead Collection Management Center (OCMC) via a Terminal Emulation Processor (TEP) message. The OCMC, in turn, converts the TEP message into an ITEMY message and forwards these requirements to the CARRIE Ground Segment Mission Planning Organization via the Special Operations Communications (SOCOMM). The collection requirements are transferred from the SOCOMM to the Mission Planning database via a floppy disk. They are then converted into tasks which identify collection target areas in an AOI and point targets of interest around or near a particular EPDS van. Other mission planning functions use a spacecraft ephemeris to identify those times when the spacecraft will be in view of the AOI's, the AFSCN's RTSs, or the EPDS vans. From this composite, those times for actual spacecraft operation (whether receiving COMINT signals over a target area, transmitting telemetry to and receiving commands from an RTS, or transmitting telemetry to and receiving commands from an EPDS van) are chosen to become part of a daily mission plan. Contact Support Plans (CSPs) are then generated to implement the daily mission plan including what commands will be transmitted to the spacecraft and when they will be sent. Reports transmitted to the EPDS van(s) are fully processed reports which require no further processing by the van.

Since CARRIE Ground Segment architecture is designed to allow corps commanders to receive timely COMINT data, provisions are in place for changing spacecraft collection requirements. These requirements can be changed as late as 90 minutes prior to the last RTS contact preceding the implementation of the specific target collection. To further enhance utility, Military Exploitation of Reconnaissance and Intelligence Technology (MERIT) funded an effort that gives field commanders the option of changing tasking scenarios as CARRIE passes through the EPDS acquisition circle. All hardware and procedures are in place and will be exercised as part of this M7245 experiment.

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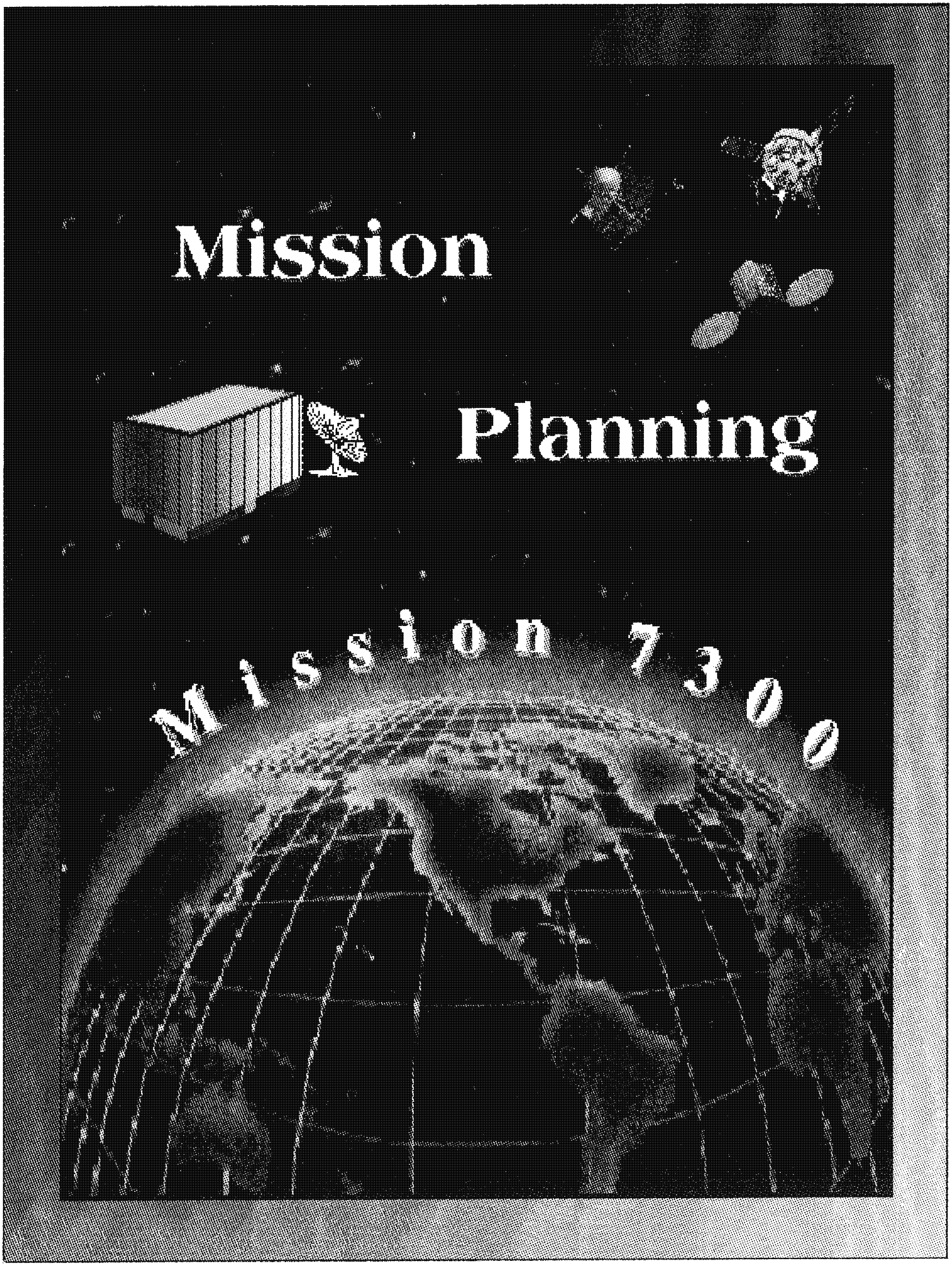

Mission
Planning
Mission 7300

Chapter 4

Mission 7300

# Mission Planning

Collection requirements is the mechanism used to justify and validate user requests on a system. Through the OCMC, the intelligence user has their requirements levied on the overhead systems as authorized by the basic mission guidance approved by the SIGINT community. For the Mission 7300 system, the receipt and consolidation of collection requirements, mission planning, and command generation is performed within the Mission Planning Operations (MPO)/Command Generation (CG)Section.

## REQUIREMENTS FLOW AND VALIDATION

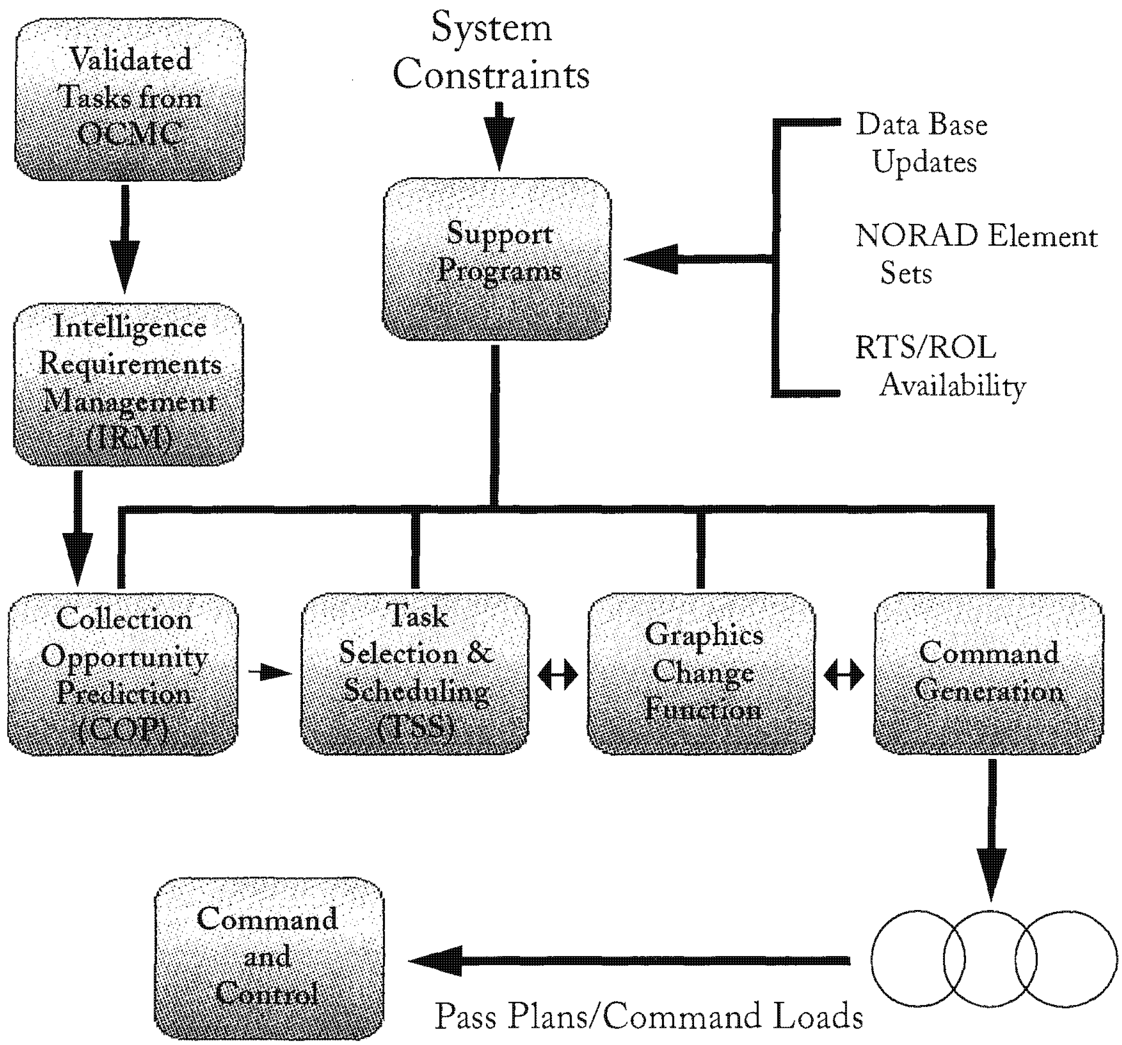
The operations flow for Mission 7300 begins with customer requirements and ends with the consolidation of all requirements into a database used to generate collection plans and commands for the spacecraft. There are two paths where requirements for overhead system support are generated. NSA requirements are evaluated internally to NSA, while all other intelligence requirements are passed to the Defense Intelligence Agency (DIA) for a determination as to whether or not to task overhead resources.

The determination of whether or not to task an overhead resource is based upon the ability of the system to provide the required information. This ability is reflected in the Basic Mission Guidance (BMG) for each specific overhead resource and is issued by the SIGINT Overhead Resources Subcommittee (SORS). The BMG defines exactly what can be expected from a system and contains basic operation guidance including the system's mission, usage, priorities, and targets. Once the requirement has been validated for overhead systems, the requirement is passed to the OCMC.

The OCMC is the tasking authority through which all collection and reporting requirements are levied on overhead systems. The OCMC's function is to broker customer requirements to the various overhead systems. Once a requirement is received, the OCMC interprets the requirement and determines the proper system(s) for collection. If it is deemed necessary by the OCMC to focus selected resources on a particular situation, a Special Mission Guidance message is sent to the site(s) affected. At the OCMC, each overhead system is assigned a point of contact who can receive and respond to site(s) feedback on the special guidance.

# MISSION PLANNING PROCESS

The tasking path as requirements are transformed into vehicle commands is shown below.




When a validated task is received by the Mission Control Complex (MCC), MPO personnel use the tasking to create a target (location, duration, priority, frequencies requested, reporting requirements, special guidance, etc.) and enter the target into the Intelligence Requirements Management database.

Mission
7300

# INTELLIGENCE REQUIREMENTS MANAGEMENT (IRM) DATABASE

The IRM database is maintained by MPO personnel and consists of automatic tracking of targets, all current targets, Tactical On-board Processing System (TOPS) user locations, all tasks currently active in the database, and all necessary sub-payload configurations currently allowed by the [redacted] spacecraft. Examples of these subsystem configurations include: DF; OMNI and Polarimeter (PAR) programs; DF stepping patterns; the Wideband Digital Receiver (WDR); TOPS; CR; and any vehicle health and safety constraints.

# SUPPORT PROGRAMS (SP)

The support programs are a series of databases maintained by MPO/CG to assist the automated tasking scheduler of Mission 7300. These databases include:

✔ Payload Information Database - contains various factors concerning payload component functionality.

✔ Spacecraft Information Database - contains information concerning vehicle subsystem failures, configurations, and limitations.

✔ RTS/Remote Operating Location (ROL) Information/Availability - provides information on the type of equipment installed at each ROL or RTS, any visibility or tracking constraints, communications link capabilities, and projected downtimes on the network.

✔ Power/Thermal Modelling Database - predicts temperature loading on various spacecraft components as a function of payload tasking scenarios.

✔ Tape Recorder Usage - an important limiting factor with respect to how the spacecraft is employed. Tape balancing and daily usage are so important that SORS sets the maximum daily tape recorder usage. Included in this data base are tape recorder health and safety limitations.

✓Command and Control System (CCS)/MCT Operational Parameters - Data concerning maximum allowable simultaneous contacts, minimum required turn-around times and other "people" limitations are provided in this database.

✓External Environment Interface - contains the interface for receiving ephemeris vector files on spacecraft orbits, attitude and solar position data, and spacecraft spin rates

With this detailed collection of spacecraft equipment, health, location within the orbit and targets to be collected, the next piece of software actually creates the initial collection plan. This program is called Collection Opportunity Prediction (COP).

## COLLECTION OPPORTUNITY PREDICTION (COP)

COP takes the spacecraft and other ephemeris vectors and propagates them within the planning period of interest. This generates ground station events, target acquisition predicts, TOPS acquisition predicts, ground tracks, and antenna footprint files.

## TASK SELECTION AND SCHEDULING (TSS)

TSS is the heart of the mission planning process. It is the most man-intensive and time consuming process. TSS combines the IRM and SP databases with the COP output files and generates a predicted daily mission schedule. Mission planning operations personnel review the computer generated daily mission schedule and modify it, if necessary, to ensure that all tasking objectives are met, spacecraft operating constraints haven't been violated, and last minute changes to tasking or network status are taken into account. Additionally they ensure that target priorities are best weighed with minimal wear and tear in the spacecraft.

Mission
7300

# GRAPHICS CHANGE FUNCTION (GCF)

GCF is the Digital Equipment Corporation's Alpha based software where manual changes to the daily plan are manipulated. It provides an easy to understand interface to tasks, task satisfaction, tape usage, and RTS usage. With this tool, corrections, changes, and conflicts for resources are resolved. Once this portion of the mission planning process is complete (called the Station Utilization Listing (SUL) span), the mission control center makes it's first RTS request to the Air Force Range Schedulers by providing them with a Data Entry Format Tape (DEFT). This tape lists all the required RTS supports, the necessary communications equipment, and support time requests. Range scheduling takes the RTS requests and deconflicts them with station requests from the rest of the network. The output from this activity is a conflicts listing.

## Mission Planning Timeline

| SUL | FINALS | REALTIME |
|---|---|---|
| | 1600Z | 1600Z |
| N-2 | N-1 | N-0 |
| - Databases updated<br>- Initial MPO plan<br>- DEFT tape to Range | - Range conflicts resolved<br>- Final DEFT tape received<br>- Final MPO plan<br>- MCT planning function<br>- Command generation processing<br>- Spacecraft loaded before 1600z | - Spacecraft collects using mission load |

The next morning, Finals span begins with all MCCs performing deconfliction to bargain and negotiate for their station requests. Because of our mission, our priority is usually the highest with the notable exception of vehicle emergencies, launch support, etc. When the schedule is complete, Range scheduling produces another DEFT tape with approved RTS locations and times. Mission planning operations receives this tape and reruns graphic change function to adjust the daily mission plan in light of possible changes caused by RTS deconfliction. When the daily mission plan is complete, it's ready for CG.

Mission
1300

# COMMAND GENERATION (CG)

Command generation takes the scheduled events in the daily mission plan and translates them into payload commands. All necessary payload configurations, spacecraft on and off times, and other housekeeping functions are combined and turned into spacecraft command blocks. In addition, daily planning summaries, mission plans, and pass plans are created.

At this point the mission planning process is complete and everything is passed to the Command and Control Section (CCS) of MCC-III. Planer/Analysts check the pass plans and create the CSP. CSP generation creates the necessary linking of spacecraft command blocks, RTS pointing angles, and CCS scheduling so supports can be run. Spacecraft loading usually takes place during mid shift. The spacecraft begins executing the plan at 1600Z (called realtime).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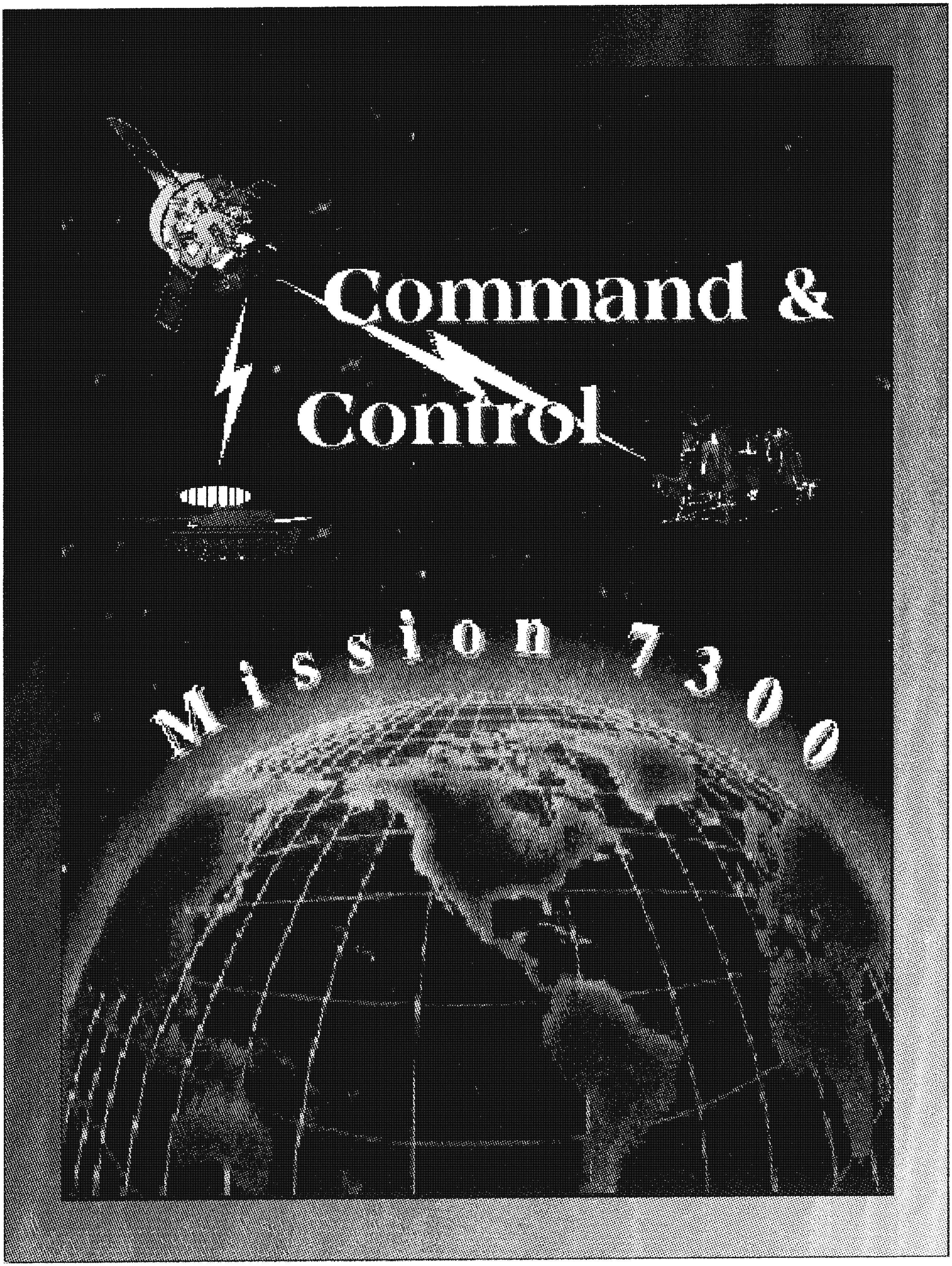
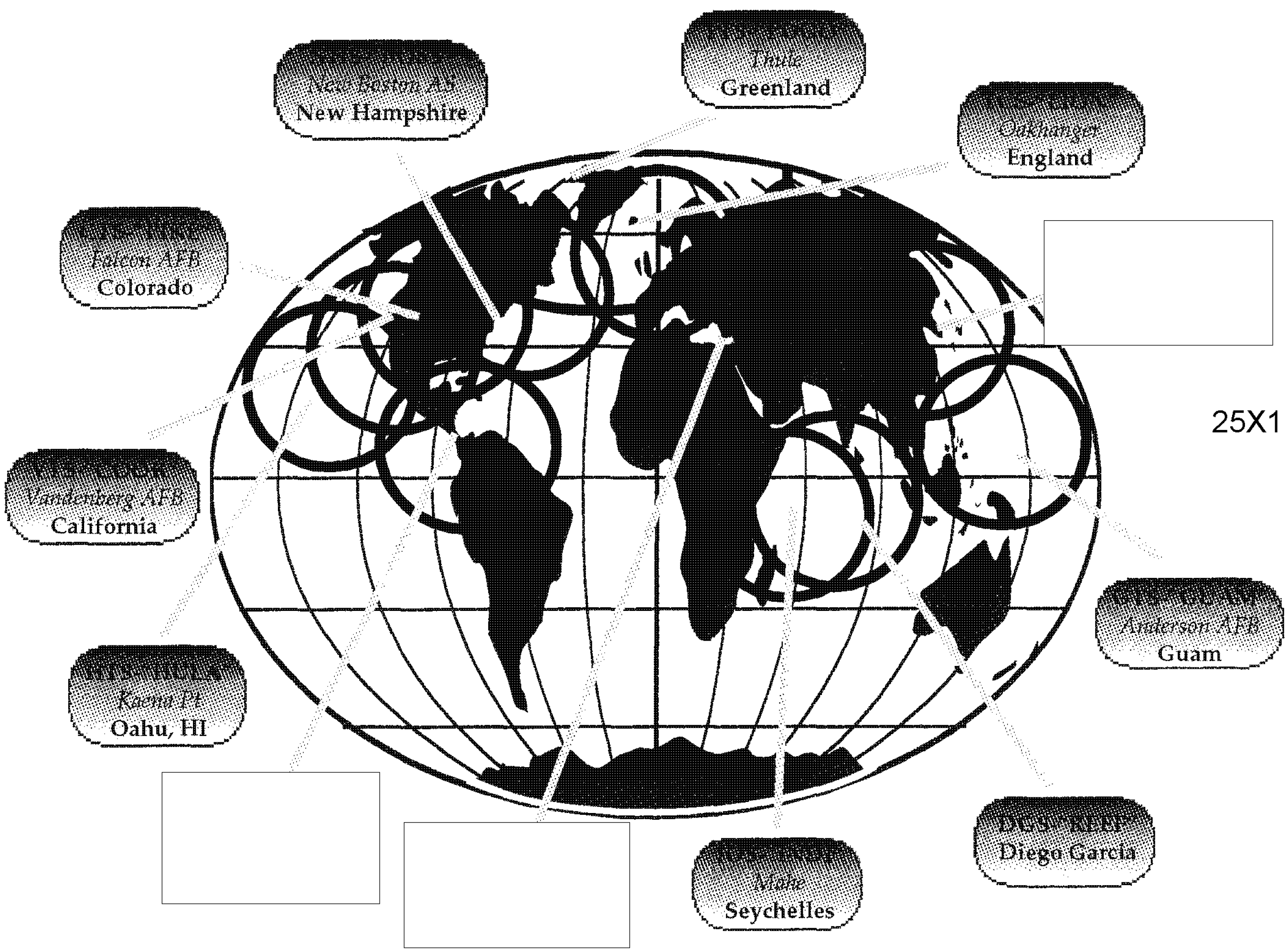

Command &
Control
Mission 7300

Mission 7300

# Chapter 5 Command & Control

**P**rimary command and control of M7300 satellites originates out of MCC-III at Onizuka Air Station, Sunnyvale, California. [redacted] uses the AFSCN as its primary $C^3$ resource to interface with the M7300 satellites. The AFSCN, a common user element, has 9 RTSs located throughout the world (colored in red below; note the "Indi" station will close 15 Aug 96; reconstitution of this station is TBD). Augmenting our collection capability are 3 ROLs which are NRO-assets, strategically placed near high areas of interest (colored in green).



Mission
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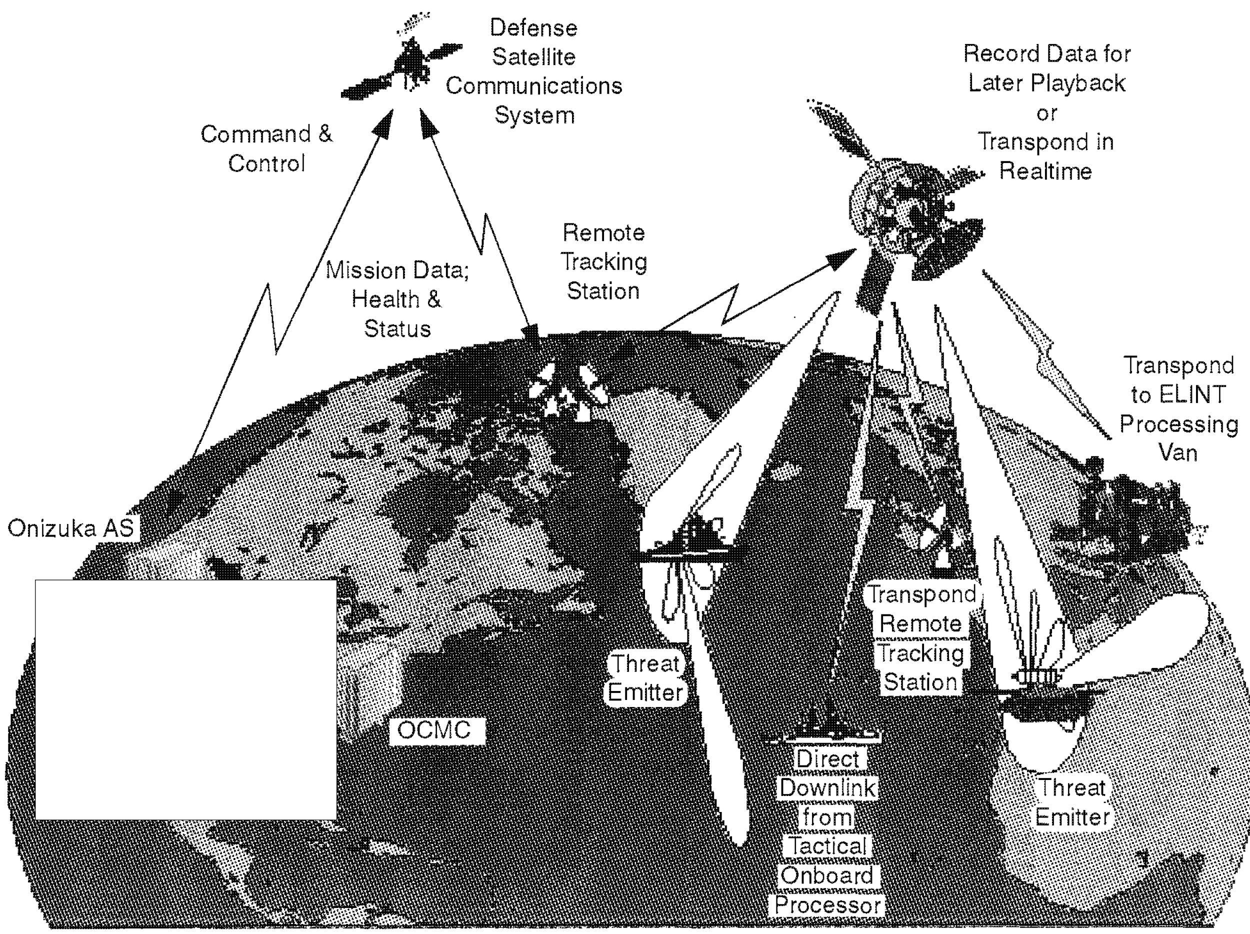
MCC-III and the RTSs are linked through a primary Wideband communication network of Defense Satellite Communications System (DSCS) satellites operated by Defense Information Services Agency (DISA).




25X1

A Backup communication link is also available through commercially leased lines called T1. The M2P1 payload on [redacted] vehicles provides an additional alternative for data relay when the above means are unavailable. Finally, a capability exists to run MCC-III operations out to the RTS through the other control node the AFSCN, Falcon (Colorado Springs, CO). This is called Reverse BACKHAUL and is used as a last resort due to resource limitation and scheduling difficulty.

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# INSIDE THE OPERATION

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Of all programs on the AFSCN, [redacted] has the most contacts per day. Because of the importance and time sensitive of its mission data, MCC-III has become affectionately known as the "Big Dog" on the network to those competing for RTS resources.

With nearly 100 contacts per day, a Mission Control Team (MCT) is always in support with a M7300 vehicle. The MCT consists of a Mission Controller (MC), a Ground Controller (GC) and a Planner/ Analyst (PA). The MCT prepares for a typical contact 15 minutes prior to RTS acquisition of the satellite when it breaks the horizon. During this prepass time, the GC is coordinating with network offices to configure the communications resources between the MCC and the RTS. Some of those activities include: establishing a secure voice net (DoD secret) to coordinate the subsequent activities such as directing wideband to configure the digital comm switch and DISA link; coordinating with the RTS operator on establishing antenna setup and ensuring error-free comm links; checking error-free connectivity to the user [redacted] etc. Once fully error 25X1 checked from the MCC to the RTS antenna, the GC continues to monitor the links while the MC prepares for satellite acquisition and subsequent commanding. The MC has overall responsibility for mission objectives and contingency operations during contact. As a guide, the MC uses a "pass plan" to manage their activities during the contact. The pass plan describes the RTS antenna parameters for initial acquisition and fade, the comm configuration required, the command sequences, the tape recorder status, contingency commands for safing the vehicle, times of possible interference, etc. Finally, the PA ensures vehicle health and safety before and during contact. As such, the PA will review the pass plan well before prepass time and ensure it is accurate. During support, the PA acts as a sanity check, a second set of eyes, verifying the satellite health before commanding and during commanding, that the proper command codes were selected before the MC transmits them. The actual satellite contact (i.e. pass or support) lasts 8-12 minutes depending on mission requirements and visibility. In terms of mission, the vehicles can be scheduled to readout stored data, or commanded to transpond data as it is being collected (assuming target area of interest and an RTS/ROL have mutual visibility). Such data is then forwarded via commercially leased, dedicated T1 or T3 circuits to the [redacted] There, it is processed, analyzed, exploited and 25X1 reported; more on this in the following sections. In conjunction with our support to military missions, data are also transponded to a number of EPDS Vans deployed throughout the world, and also in realtime with [redacted]

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Depending on the vehicle, the MCT will uplink between one and three memory loads per day. These memory loads are stored instructions which are time tagged to command various payload receivers when over the target area, command the appropriate downlink receivers on or accept commanding uplinks, etc. Thus, as an example, when the vehicle passes over a scheduled RTS, the vehicle will turn on and transmit telemetry to the awaiting RTS and MCC-III. PA will periodically perform postpass memory compare between what the vehicle received and the original ground version - this ensures that what was communicated was clearly and accurately communicated.

The command and control capability within the MCC is subdivided in 5 separate control points. The computer resources will support up to 5 simultaneous contacts at any one time. However, since one control point is a dedicated cut out for [redacted] contingency operations (into the AFSCN), only four simultaneous contacts are possible for M7300 operations. Based on the current levels of activity, this not an operational constraint.

25X1

# ADDITIONAL CAPABILITIES

The **M2P1 link** is very versatile but takes much time to set up and play data back. Since the M2P1 link is limited to a 256Kbps, our mission data at 1024Kbps, must be played back at quarter speed. M2P1 playbacks can be brought back either by direct playback to a [redacted] antenna at Onizuka or by "hopping" the data - first down to an RTS through a [redacted] antenna and then relaying the data through a DSCS satellite back to Onizuka (MCC-III).

The **External Control System** (ECS) is a backup facility for M7300 operations out of Onizuka. It is located on [redacted] It is limited to state of health supports only, and 25X1 because of computer resources, to one support at a time. Vehicle contacts supported from here require specific AFSCN network resources. The ECS, also known as the Alternate Operating Location, is only meant to safe the vehicles and keep them healthy - no mission.

The **Remote Operating Locations** are NRO assets strategically located near high interest areas, providing greater, near realtime coverage without putting tape recorder cycles on the satellites. This contiguous field of view between

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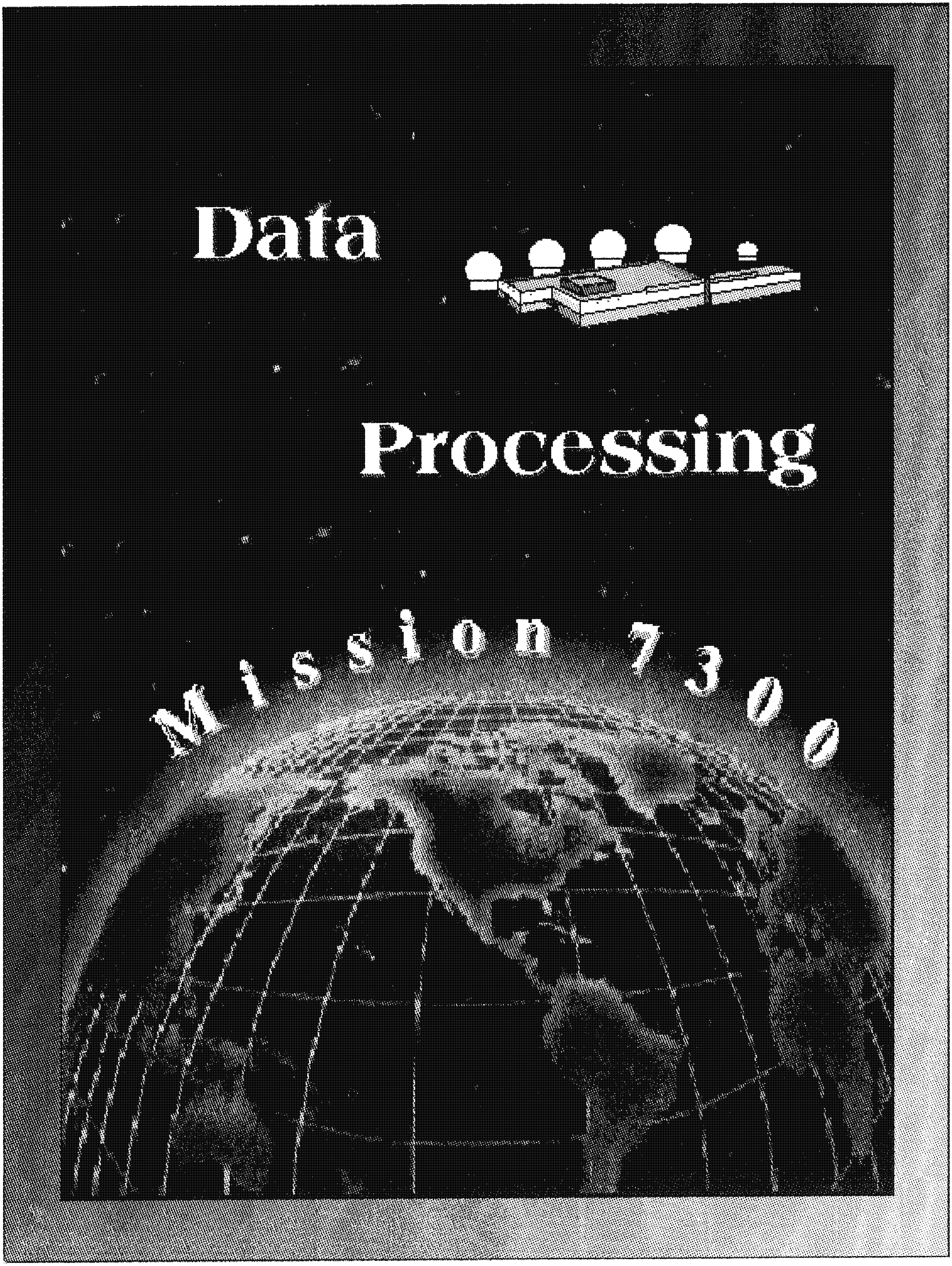
target area and receive site reduces the number of tape recorder cycles on the vehicles while preserving the intelligence collection value. The mechanical tape recorders are the life-limiting factor on our store-and-forward mission capability. The three ROLs are located in [redacted] DISA provides the comm link between the ROLs and MCC-III.



[redacted]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6.7.4 Fused

The consolidation reporting center provides the capability to fuse M7300 an [redacted] data within and across SIGINT disciplines, along with [redacted] information. Both M7300 and [redacted] data will be used to produce real-time and off-line fused reports in the consolidated reporting center. To effectively integrate M7300 resources into the site´s fused analysis and reporting effort, the consolidated reporting center will require access to M7300 signal data in the tactical fusion center (currently the Prototype Tactical Fusion Center Phase I (PTFC) with follow-on development) or a similar integrated workstation. 25X1

The thrust of this fusion effort is to correlate essential elements of information from diverse sources in real-time. One of the benefits from this approach, is it provides collection managers with information needed to optimize event coverage. Another benefit, which is the ultimate goal of the fusion process, is to provide the customer with a more complete and coherent picture of events.

The Analysis and Reporting organization will be the focal point for all fused reporting, although ELTs, and some informal reports, may involve fused reporting.

6.8 Production Control Center (PCC)

PCC provides support for efficient utilization of M7300 computer resources around-the-clock. PCC receives, processes, distributes and provides accountability of M7300 data. It provides support to operate the M7300 computer resources for data processing analysis, and serves as a focal point for M7300 resource operations. PCC reports to and coordinates with the [redacted] MC, and Resource Manager (RM) for M7300-related processing anomalies. 25X1

The Action Request System (AR System) is a distributed computer based system used to manage all M7300 problem reports. PCC performs system administration of the AR System and each day sends out a morning report containing a summary of the ARs written during the previous day [redacted] Figure 6-2, "M7300 Action Request Problem Reporting Process," depicts the activities of the AR system implemented at the [redacted] There is one system for monitoring and tracking the ARs as they generated. PCC acts as a central collection and status node to alert the [redacted] functions of a M7300 problem. PCC will determine whether or not the [redacted] infrastructure services should be notified that an AR could potentially affect mission capabilities.

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# Acronyms

**ABM** - Anti-Ballistic Missile
**AFSCN** - Air Force Satellite Control Network
**AOI** - Area Of Interest

**BMG** - Basic Mission Guidance

**CARRIE** - COMINT And Rapid Reporting Interferometry Experiment
**CCS** - Command & Control Section
**CCS** - Command & Control System (formerly DSM)
[redacted] 25X1
**CG** - Command Generation
**COMINT** - Communications Intelligence
**COMSAT** - Communications Satellite
**COP** - Collection Opportunity Prediction
**CR** - COMINT Recognizer
**CSP** - Contact Support Plan
**CSTC** - Consolidated Space Test Center
**CW** - Continuous Wave

**DCU** - Data Control Unit
**DEFT** - Data Entry Format Tape
**DF** - Direct Finding
**DIA** - Defense Intelligence Agency
**DISA** - Defense Information Services Agency
**DSCS** - Defense Satellite Communications System

**ECS** - External Control System
**ELINT** - Electronic Intelligence
**EOB** - Electronic Order of Battle
**EPDS** - Electronic Processing and Dissemination System
**ERP** - Effective Radiated Power

**GC** - Ground Controller
**GCF** - Graphics Change Function
**GS** - General Search

**I&W** - Indications & Warnings
**IRM** - Intelligence Requirements Management (Database)
**MC** - Mission Controller

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**MCC** - Mission Control Complex
**MCT** - Mission Control Team
**MERIT** - Military Exploitation of Reconnaissance and Intelligence Technology
**MOP** - Modulation on the Pulse
**MPO** - Mission Planning Operations

**NRO** - National Reconnaissance Office
**NSA** - National Security Agency

**OAS** - Onizuka Air Station
**OCMC** - Overhead Collection Management Center
**OPELINT** - Operational ELINT

**PA (receiver)** - Polarization Analysis
**PA** - Planner/Analyst
**PAR** -Polarimeter

**RF** -Radio Frequency
**ROL** - Remote Operating Location
**ROW** - Rest Of World
**RTS** - Remote Tracking Station

**SAFSP** - Secretary of the Air Force Special Projects
**SAM** - Surface to Air Missile
**SCF** - Satellite Control Facility
**SCS** - Stored Command Sequencer
**SEI** - Specific Emitter Identification
**SIGINT** - Signals Intelligence
**SNOI** - Signals Not Of Interest
**SOCOMM** - Special Operations Communications
**SOI** - Signals Of Interest
**SORS** - SIGINT Overhead Resources Subcommittee
**SP** - Support Programs
**SUL** - Station Utilization Listing

**TELINT** - Telemetry Intelligence
**TEP** - Terminal Emulation Processor
**TI** - Technical Intelligence
**TOPS** - Tactical Onboard Processing System
**TSS** - Task Selection & Scheduling

**WDR** - Wideband Digital Receiver