

National Aeronautics and Space Administration

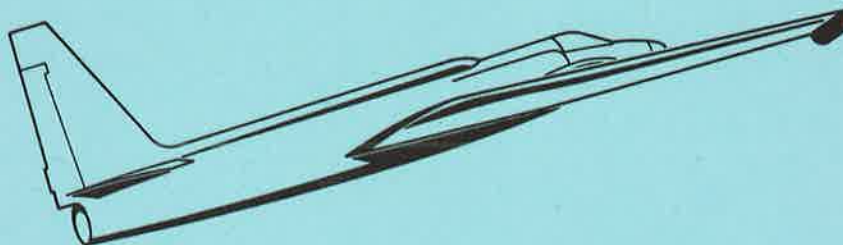
Airborne Instrumentation Research Project

Flight Summary Report

Flight No. 77-016

Date 15 February 1977

FSR- 954



Data Management and Research Branch

Applications Division

Ames Research Center, Moffett Field, California

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FLIGHT SUMMARY REPORT

Flight No: 77-016

Date: 15 February 1977

FSR No: 954

Julian Date: 046

Sensor Package: A-3 Configuration (single camera only)
Aerosol Particulate Sampler (APS)/Solar
Energy Monitor in Space (SEMIS)

Aircraft No: 4

Purpose of Flight: #0599 Support (Mikkelsen)
#0047 Support (Ferry)
#0318 Support (Williams)

Area(s) Covered: Big Sur Coast, San Luis Obispo, and
Watsonville, California

SENSOR DATA

Accession No:	02467	---	---
Sensor ID No:	019	024	050
Sensor Type:	HR-732C	APS	SEMIS
Focal Length:	24" 609.6mm	---	---
Film Type:	Panatomic-X, 3400	---	---
Filtration:	Wratten 12	---	---
Spectral Band:	510-700nm	---	---
f Stop:	8	---	---
Shutter Speed:	1/75	---	---
No. of Frames:	45	---	---
% Overlap:	60	---	---
Quality:	Excellent	---	---
Remarks:	---	Non-imaging sensor	Tape data only

FLIGHT SUMMARY

77-016

This flight was flown in support of Flight Requests #0599 (Mikkelsen, California Coastal Zone Conservation Commission), #0047 (Ferry, NASA/ARC), and #0318 (Williams, NASA/GSFC) under the FY 1977 Airborne Instrumentation Research Program (AIRP) plan. Photographic and Solar Energy Monitor in Space (SEMIS) data were acquired over selected areas of central California (see Track Map). Aerosol Particulate Sampler (APS) data was collected throughout the flight and is not shown on the track map.

All areas were clear except for some very minor cumulus over the ocean. The imagery is of excellent quality with no processing malfunctions noted. The LED system had a partial failure resulting in poor annotation on all frames. No color or color infrared photography was acquired on this flight.

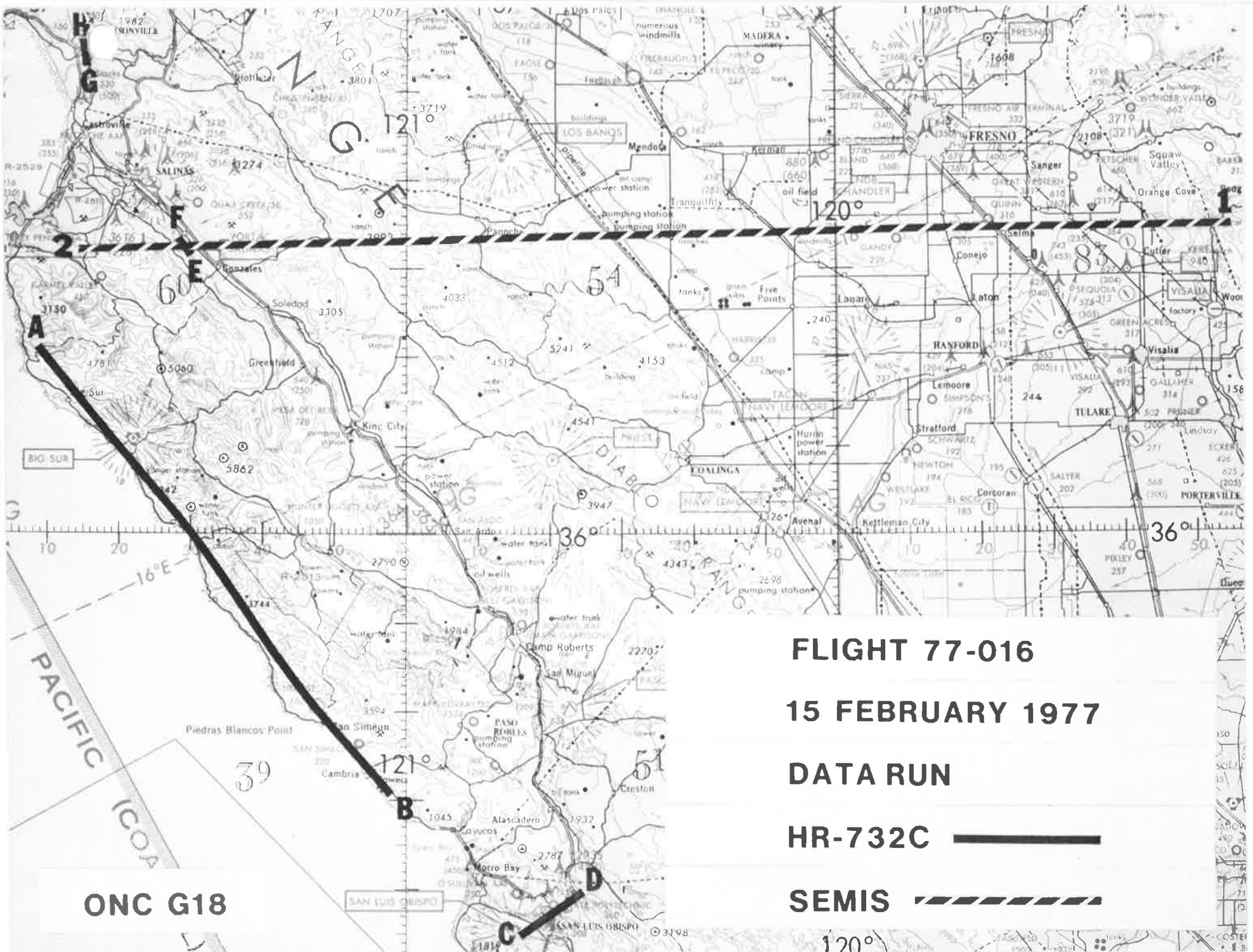
The APS has been developed and is operated by Dr. Guy Ferry of the NASA-Ames Research Center Atmospheric Experiments Branch. The sampler is a non-imaging sensor designed to gather high altitude dust particles for laboratory research.

The Solar Energy Monitor in Space (SEMIS) consists of a spectroradiometer for measuring solar spectral irradiance and a broadband, thermal radiometer for measuring total solar irradiance. The spectroradiometer utilizes a miniature prism monochromator and two sensors: an MOS photodiode and a PbS infrared detector. This combination enables measurements to be made over the entire 300 to 2500nm wavelength region. A 600 Hz tuning fork type chopper modulates the monochromatic flux at the exit slit of the monochromator such that the MOS detector is irradiated during half the cycle and the PbS is irradiated during the second half. The preamplifiers provide differential outputs for amplifications and detection of later stages. The thermal detector consists of a wire-wound thermopile and measures the total irradiance incident on the detector. Calibration of the system is based on the NBS standards of total and spectral irradiance. All the data is recorded on a digital cassette recorder. The SEMIS is flown for Don Williams of the NASA-Goddard Space Flight Center in Greenbelt, Maryland.

FLIGHT LINE DATA

FLIGHT NO. 77-016

	Check Points	Frame Numbers	**Time (GMT—hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
			START	END		
HR-732C	A-B	0001-0036	20:26:58	20:35:46	65,000/19800	Minor cumulus over ocean, frs. 0032-0036
	C-D	0037-0042	20:40:23	20:41:07	"	Clear
	E-F	0043	20:55:13	-----	"	Clear
	G-H	0044-0045	21:01:33	21:01:48	6500/2130	Clear; acquired over Watsonville during descent
APS	---	---	19:44:--	20:50:--	65,000/19800	APS #1 and #2 opened and closed
SEMIS	1-2	---	19:31:--	-----	-----	SEMIS on - take-off
		---	20:06:--	20:25:--	65,000/19800	Begin and end data run
		---	-----	21:15:--	-----	SEMIS off - landing
						**TIMES LISTED ARE CORRECT. EXPOSURE TIMES ANNOTATED ON FILM ARE GMT MINUS ONE HOUR



FLIGHT 77-016

15 FEBRUARY 1977

DATA RUN

HR-732C 

SEMIS 

ONC G18