National Aeronautics and Space Administration

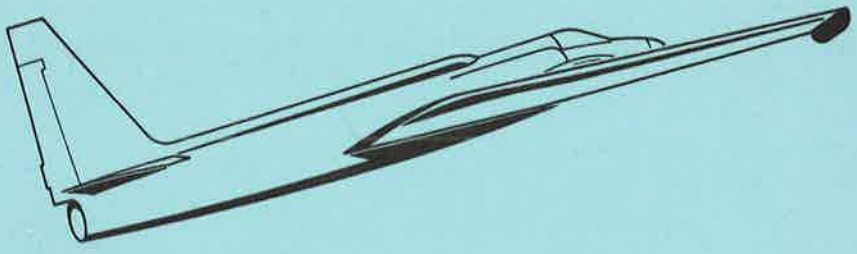
Airborne Instrumentation Research Project

Flight Summary Report

Flight No. 77-009

Date 24 January 1977

FSR- 947



Data Management and Research Branch

Applications Division

Ames Research Center, Moffett Field, California

FLIGHT SUMMARY REPORT

Flight No: 77-009

Date: 24 January 1977

FSR No: 947

Julian Date: 024

Sensor Package: A-3 Configuration/Aerosol Particulate Sampler (APS)/SEMIS

Aircraft No: 4

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

Area(s) Covered: Southern California Coast

SENSOR DATA

Accession No:	02462	02463	02464
Sensor ID No:	018	019	020
Sensor Type:	HR-732F	HR-732C	HR-732R
Focal Length:	24" 609.6mm	24" 609.6mm	24" 609.6mm
Film Type:	High Definition Aerochrome Infrared, SO-127	Aerial Color, SO-242	Panatomic-X, 3400
Filtration:	CC .15B	NONE	Wratten 12
Spectral Band:	510-900nm	400-700nm	510-700nm
f Stop:	8	8	8
Shutter Speed:	1/75	1/75	1/75
No. of Frames:	148	148	178
% Overlap:	60	60	60
Quality:	Excellent	Excellent	Excellent

Remarks: Aerosol Particulate Sampler (APS), Sensor ID No. 024 also flown (non-imaging sensor)

Solar Energy Monitor in Space (SEMIS), Sensor ID No. 050 also flown (tape date only)

FLIGHT SUMMARY

77-009

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 coverage was obtained over selected areas of the southern California coastline and offshore islands (see Track Map). Aerosol Particulate Sampler (APS) data and Solar Energy Monitor in Space (SEMIS) data were collected throughout the flight (see Flight Line Data and Track Map).

Most areas covered were clear, however, light to moderate cirrus was encountered in some areas (see Flight Line Data). A minor Light Emitting Diode (LED) malfunction resulted in some incorrect data annotation displays on the imagery obtained in cameras #018 and #019. A random shutter malfunction occurred between checkpoints b, c, and d resulting in the loss of approximately five frames of data ik all three rolls of film (see Track Map). Due to a short film load cameras #018 and #019 ran out of film prior to the start of the last flight line (see Flight Line Data and Track Map). All three rolls of imagery are of excellent quality with no other camera or processing malfunctions noted.

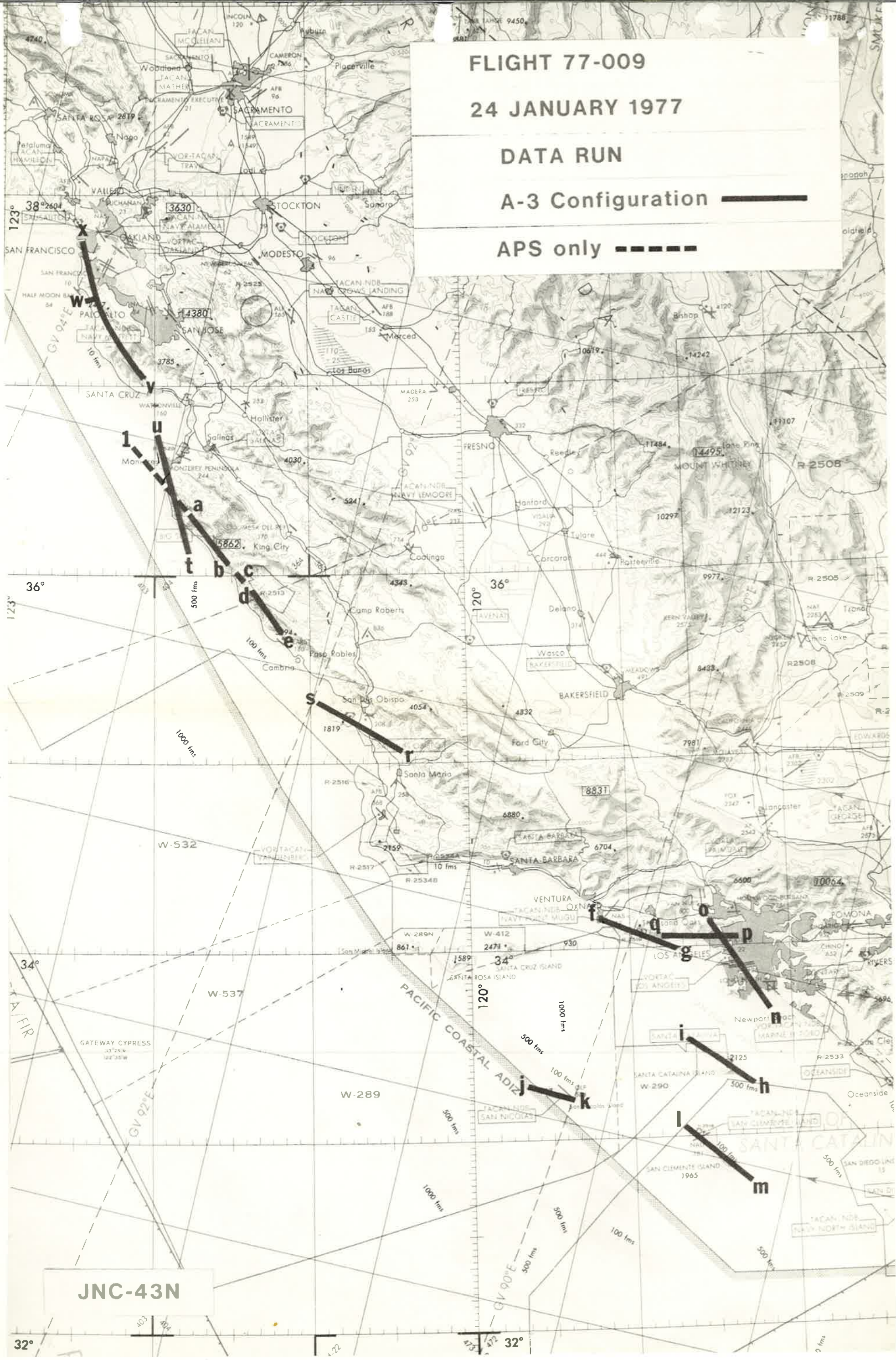
The APS has been developed and is operated by Dr. Guy Ferry of the NASA-Ames Research Center Atmospheric Experiments Branch. The sampler is a non-imaging sensor designed to gather high altitude dust particles for laboratory research. The Track Map and Flight Line Data indicate those segments of the flight during which the sampler was activated.

The Solar Energy Monitor System 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. 77-009

	Check Points	Frame Numbers	Time (GMT—hr, min, sec) START	Time (GMT—hr, min, sec) END	Altitude, MSL feet/meters	Cloud Cover/Remarks
A-3	a-b	0001-0013	19:51:42	19:54:42	65,000/19800	10% light cirrus, frs. 0009-0010
	c	0014	19:55:15	--------	"	Clear
	d-e	0015-0022	19:56:15	19:58:59	"	Clear
	f-g	0023-0035	20:18:04	20:21:05	"	Light cirrus, frs. 0023-0027
	h-i	0036-0050	20:28:27	20:34:19	"	Moderate cirrus
	j-k	0051-0058	20:46:39	20:48:12	"	Moderate cirrus
	l-m	0059-0070	20:54:47	20:57:17	"	Light cirrus, frs. 0059-0062, 0065-0066
	n-o	0071-0092	21:07:09	21:12:07	"	Clear
	p-q	0093-0108	21:16:45	21:20:29	"	Clear
	r-s	0109-0126	21:36:47	21:40:49	"	Clear
	t-u	0127-0148	21:51:38	21:56:44	"	Clear
HR-732R only	v-x	0149-0178	22:01:15	22:07:58	"	Moderate cirrus, frs. 0149-0152
APS	l-w	---	19:45:00	22:04:00	"	APS #1 and #2 opened and closed
SEMIS	a-w	---	19:51:00	22:04:00	"	SEMIS on and off


FLIGHT 77-009
24 JANUARY 1977
DATA RUN
A-3 Configuration
APS only
JNC-43N
SAN FRANCISCO
OAKLAND
SAN JOSE
STOCKTON
MODESTO
SACRAMENTO
Woodland
Placerville
Petaluma
Napa
Vallejo
Lodi
Sonora
Merced
Los Banos
SANTA CRUZ
Hollister
Salinas
FRESNO
Reedley
Bishop
Lone Pine
MOUNT WHITNEY
King City
Coalinga
Hanford
Visalia
Tulare
Corcoran
Porterville
Delano
Camp Roberts
Paso Robles
Cambria
San Luis Obispo
Wasco
BAKERSFIELD
Ford City
Santa Maria
SANTA BARBARA
VENTURA
POMONA
LOS ANGELES
Newport Beach
SANTA CATALINA ISLAND
SAN CLEMENTE ISLAND
Oceanside
SANTA CRUZ ISLAND
SANTA ROSA ISLAND
GATEWAY CYPRESS
W-532
W-537
W-289
W-289N
W-412
W-290
PACIFIC COASTAL ADIZ
GV 92°E
GV 90°E
10 fms
100 fms
500 fms
1000 fms
123°
120°
38°
36°
34°
32°
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