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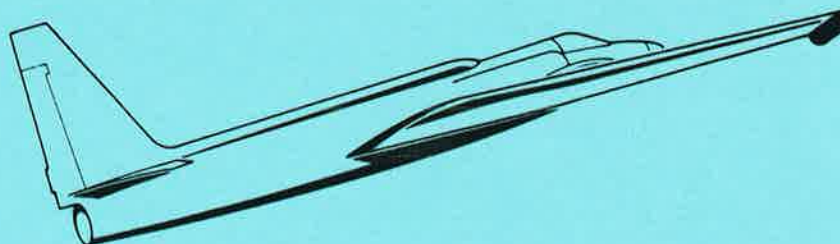
# Airborne Instrumentation Research Project

## Flight Summary Report

Flight No. 85-066

Date 29 March 1985

FSR-



# NASA

National Aeronautics and  
Space Administration

**Ames Research Center**  
Moffett Field, California 94035

**Airborne Missions and Applications Division**

# FLIGHT SUMMARY REPORT

**Flight No:** 85-066

**Date:** 29 March 1985

**FSR No:** ---

**Julian Date:** 088

**Sensor Package:** HR 732 (Camera)  
 Aerosol Particulate Sampler  
 Partical Measurement System  
**Purpose of Flight:** Functional Check Flight  
 #0790 Support  
 Requestor: Chan  
 #1053 Support  
 Requestor: Russell

**Aircraft No:** 709

**Area(s) Covered:** Central California

## SENSOR DATA

<b>Accession No:</b>	03437	---	---	
<b>Sensor ID No:</b>	018	024	068	
<b>Sensor Type:</b>	HR 732	APS	PMS	
<b>Focal Length:</b>	24" 609.6mm	---	---	
<b>Film Type:</b>	Panatomic-X Aerial 3400	---	---	
<b>Filtration:</b>	W12	---	---	
<b>Spectral Band:</b>	510-700nm	---	---	
<b>f Stop:</b>	8.0	---	---	
<b>Shutter Speed:</b>	1/130	---	---	
<b>No. of Frames:</b>	105	---	---	
<b>% Overlap:</b>	60	---	---	
<b>Quality:</b>	Excellent	---	---	
<b>Remarks:</b>	--- <i>Cloud covered</i>	Non-Imaging Sensor	Non-Imaging Sensor	

# FLIGHT SUMMARY

85-066

This flight was flown as a functional check flight and in support of Flight Request #0790 (Chan, NASA/ARC) and Flight Request #1053 (Russell, NASA/ARC) under the FY 1985 Airborne Instrumentation Research Program (AIRP) plan. Black and white photography was acquired over central California. Additionally, aerosol particulate sampling was conducted at stepped altitudes prior to descent.

Cumulus cloud cover was periodically encountered along the first flight line. No other camera or processing discrepancies were noted and the quality of the data is rated excellent.

## Aerosol Particulate Sampler

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.

## Particle Measurement System (PMS)

The Particle Measurement System is a particle size spectrometer experiment containing three basic subsystems; a forward scattering aerosol spectrometer probe, an active scattering aerosol spectrometer probe, and a data acquisition recording system.

The 2-D spectrometer is a shadow graph imaging instrument designed for sizing particles of 25-6000 micrometers at aircraft velocity. It utilizes a laser to illuminate particles whose shadows are imaged onto a photodiode array and are sized as an integral number of occulted elements. Particle image information can be collected at a rate of 128 million bits per second. Automatic data compression is accomplished by recording data only when particles are present. The active scattering aerosol spectrometer covers a size range of 2 to 32 micrometers in 32 size classes.

**CAMERA FLIGHT LINE DATA  
FLIGHT NO.**

85-066

Sensor No.	Check Points	Frame Numbers	Time (GMT—hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
			START	END		
018	A-B	0001-0053	21:29:08	21:41:54	65000/19800	minor cumulus, frames 0037-0038 20-30% cumulus, frames 0039-0040 10-15% cumulus, frames 0044-0045 30-40% cumulus, frames 0046-0050 40-60% cumulus, frames 0051-0053
	C-D	0054-0091	21:47:20	21:56:34	"	10-20% cumulus, frames 0054-0055
	E-F	0092-0105	22:13:28	22:16:39	"	
APS	---	---	22:03:00	22:06:00	70000/21350	APS #3 exposed for 3 minutes at 70000 feet
	---	---	22:07:15	22:07:30	70000/21350	APS #2 exposed for 15 seconds, re-exposed at 60000 feet
	---	---	22:16:00	22:21:00	60000/18300	APS #2 exposed for 2 minutes at 60000 feet IOAT-49 <sup>0</sup> c
	---	---	22:28:00	22:30:00	50000/15250	APS #1 exposed for 2 minutes at 50000 feet IOAT-49 <sup>0</sup> c
PMS	---	---	18:53:46	23:10:31	65000/19800	PMS on prior to take off and off after landing

**FLIGHT 85-066**  
**29 MARCH 1985**  
**DATA RUN**  
**HR 732** —————

ON G-18

