FLIGHT SUMMARY REPORT

Flight Number: 10-920

Calendar/Julian Date: 18 May 2010 (138)

Sensor Package: Cirrus Digital Camera System (DCS)
Airborne Visible and Infrared Imaging Spectrometer (AVIRIS)

Area(s) Covered: Gulf Coast Oil Spill

Investigator(s): Leifer (UCSB) **Aircraft:** ER-2 #809

SENSOR DATA

Accession #:	05953	___
Sensor ID #:	165	099
Sensor Type:	DCS	AVIRIS
Focal Length:	50mm	___
Film Type:	___	___
Filtration:	Wratten 12	___
Spectral Band:	510-990nm	___
f-Stop:	11	___
Shutter Speed:	1/500	___
# of Frames:	312	___
% Overlap:	40%	___
Quality:	Excellent	

Remarks:

NASA Suborbital Science Program

The National Aeronautics and Space Administration maintains a variety of aircraft and sensor systems dedicated to the support of remote sensing research. Two Lockheed ER-2s (S-model U-2); two WB-57 high altitude aircraft; a DC-8; a Lockheed Orion P-3B; and the Altair unmanned aerial vehicle (supported by General Atomics) provide multi-level platforms for both NASA and investigator-owned sensors. Data are collected for the atmospheric, land, and ocean processes in support of the NASA Earth Science program, as well as for universities and other government agencies.

Additionally contracted aircraft from Department of Energy, and Twin Otter International provide remote sensing platforms for the program.

The NASA aircraft, located at Dryden Flight Research Center and Johnson Space Center, are used as test-beds for advanced sensor design and satellite simulation, as well as to support scientific and operational data collection campaigns. Numerous sensor systems are in use and under development by NASA, including multispectral imaging devices, a SAR system, and a suite of large-format metric cameras. All instruments are spectrally, spatially, and radiometrically calibrated on a routine basis. The aircraft themselves are equipped with navigation systems that continuously record GPS location and platform attitude data.

Airborne Visible and Infrared Imaging Spectrometer

The Airborne Visible and Infrared Imaging Spectrometer (AVIRIS) is the second in the series of imaging spectrometer instruments developed at the Jet Propulsion Laboratory (JPL) for earth remote sensing. This instrument uses scanning optics and four spectrometers to image a 614-pixel swath simultaneously in 224 contiguous spectral bands (0.4-2.4 μm).

AVIRIS parameters are as follows:

IFOV:	1 mrad
Ground Resolution:	66 feet (20 meters) at 65,000 feet
Total Scan Angle:	34°
Swath Width:	5.9 nautical mile (11 km) at 65,000 feet
Spectral Coverage:	0.41-2.45 μm
Pixels/Scan Line:	677
Number of Spectral Bands:	224
Digitization:	12-bits
Data Rate:	20.4 MBPS

Spectrometer	Wavelength Range	Number of Bands	Sampling Interval
1	0.41 - 0.70 μm	31	9.4 nm
2	0.68 - 1.27 μm	63	9.4 nm
3	1.25 - 1.86 μm	63	9.7 nm
4	1.84 - 2.45 μm	63	9.7 nm

All AVIRIS data is processed and archived at JPL. For further information contact Rob Green at Jet Propulsion Laboratory, 4800 Oak Grove Drive, Mail Stop 183-501, Pasadena, California 91109-8099. http://aviris.jpl.nasa.gov/

Cirrus Digital Camera System (DCS)

Cirrus Digital Systems provides the digital camera. It consists of a Hasselblad camera body with a Kodak camera back and CCD array. It can be configured to acquire either false color infrared or natural color imagery.

Lens	Array Size	Array Width	Field of View (FOV)	Altitude (feet)	Ground Coverage	Nominal Resolution
50mm	4072 x 4072 (pixels)	36.72mm	40.3°	65000	7.9nm	3.5m
50mm	4072 x 4072 (pixels)	36.72mm	40.3°	45000	5.4nm	2.5m
50mm	4072 x 4072 (pixels)	36.72mm	40.3°	28000	3.4nm	1.5m

Note: Nominal resolution references the smallest target that can be imaged.

Airborne Sensor Facility

The Airborne Sensor Facility at NASA Ames Research Center web site:

http://asapdata.arc.nasa.gov/

Additional information regarding flight documentation to include archive searches may be obtained from the following:

Airborne Sensor Facility
MS 244-15
NASA Ames Research Center
Moffett Field, CA 94035
Telephone: (650)604-6252 (FAX 4987)

CAMERA FLIGHT LINE DATA
FLIGHT NO. 10-920

Accession # 05953

Sensor # 165

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	True Heading / Line ID
		START	END		
A - B	3674-3676	17:26:50	17:27:53	45000/13720	73° / Texas Cal
C - D	3677-3703	18:00:29	18:14:21	45000/13720	94° / Stennis-Pensacola Cal
E - F	3704-3737	18:24:38	18:42:14	40200/12260	255° / Oil 1
G - H	3738-3772	18:45:54	19:04:01	38000/11590	74° / Oil 2
I - J	3773-3809	19:08:07	19:27:18	38000/11590	257° / Oil 3
K - L	3810-3839	19:30:55	19:46:23	38000/11590	72° / Oil 4
M - N	3840-3872	19:51:09	20:08:12	38000/11590	257° / Oil 5
O - P	3873-3902	20:15:22	20:30:50	30000/9150	72° / Oil 6
Q - R	3903-3929	20:34:28	20:48:18	30000/9150	257° / Oil 7
S - T	3930-3951	20:53:03	21:04:14	30000/9150	79° / Oil 8
U - V	3952-3974	21:08:28	21:20:11	30000/9150	85° / Oil 9
W - X	3975-3985	21:29:21	21:34:41	45000/13720	294° / Pilot OBTWA

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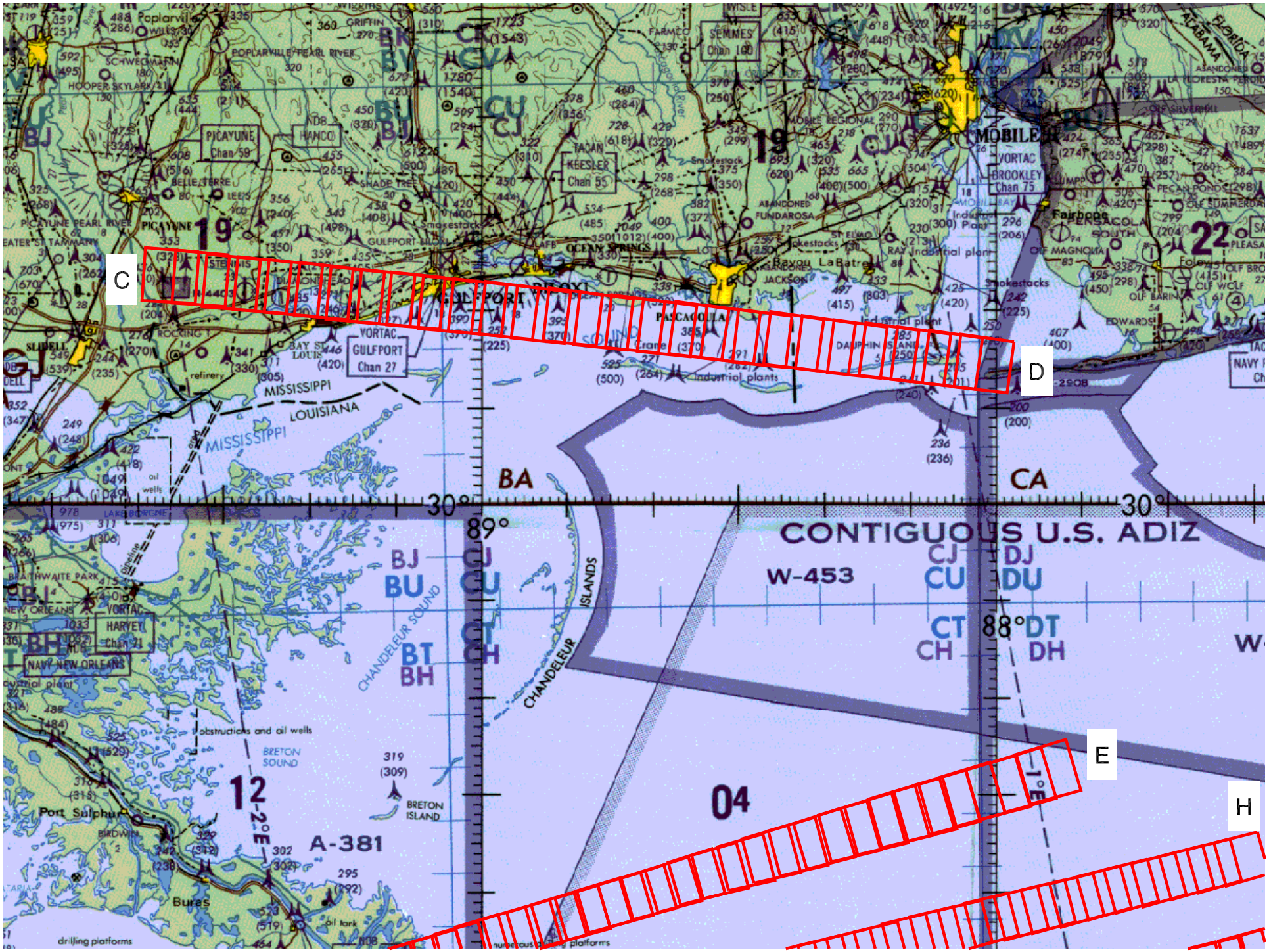

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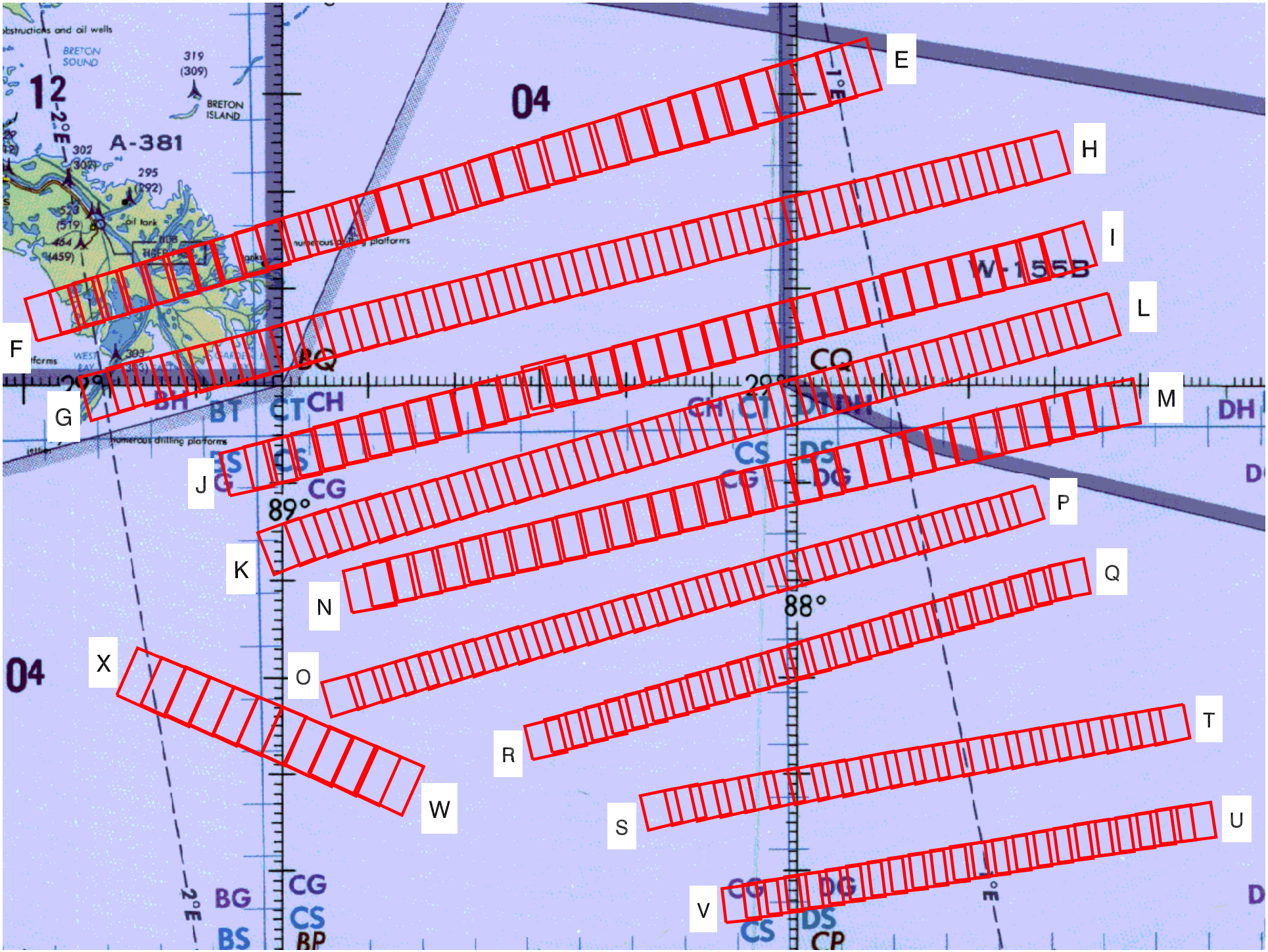

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