FLIGHT SUMMARY REPORT

Flight Number: 10-004-03

Calendar/Julian Date: 29 June 2010 (180)

Sensor Package: Cirrus Digital Camera System (DCS)
MODIS/ASTER Airborne Simulator (MASTER)

Area(s) Covered: Central California

Investigator(s): Kudella (UCSB) / Ustin (UCD) **Aircraft:** DC-8 #817

SENSOR DATA

Accession #:	05960	___
Sensor ID #:	165	124
Sensor Type:	DCS	MASTER
Focal Length:	50mm	___
Film Type:	___	___
Filtration:	Wratten 12	___
Spectral Band:	510-990nm	___
f-Stop:	11	___
Shutter Speed:	1/500	___
# of Frames:	240	___
% Overlap:	40%	___
Quality:	Good	Good

Remarks:

NASA Airborne 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; Global Hawk 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 medium-format digital 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.

MASTER (MODIS/ASTER Airborne Simulator

The MODIS/ASTER Airborne Simulator (MASTER) is designed to closely match NASA's EOS ASTER (Advanced Spaceborne Thermal Emission and Reflection Radiometer). It is intended primarily to study geologic and other Earth surface properties. It has a variable scan speed which allows data to be acquired on both high and low altitude aircraft. Its fifty spectral bands are configured below:

Band	Bandwidth	Resolution	*Band*	*Bandwidth*	*Resolution*
1	0.438-0.482	5-50m	**26**	3.075-3.231	5-50m
2	0.479-0.522	5-50m	**27**	3.231-3.377	5-50m
3	0.521-0.564	5-50m	**28**	3.385-3.535	5-50m
4	0.562-0.603	5-50m	**29**	3.538-3.694	5-50m
5	0.633-0.692	5-50m	**30**	3.692-3.826	5-50m
6	0.692-0.734	5-50m	**31**	3.846-3.999	5-50m
7	0.731-0.773	5-50m	**32**	3.999-4.154	5-50m
8	0.781-0.823	5-50m	**33**	4.157-4.310	5-50m
9	0.848-0.889	5-50m	**34**	4.307-4.460	5-50m
10	0.886-0.927	5-50m	**35**	4.456-4.603	5-50m
11	0.927-0.966	5-50m	**36**	4.597-4.760	5-50m
12	1.582-1.636	5-50m	**37**	4.753-4.911	5-50m
13	1.638-1.691	5-50m	**38**	4.906-5.054	5-50m
14	1.694-1.745	5-50m	**39**	5.044-5.205	5-50m
15	1.749-1.801	5-50m	**40**	5.203-5.342	5-50m
16	1.803-1.853	5-50m	**41**	7.587-7.943	5-50m
17	1.852-1.898	5-50m	**42**	7.950-8.398	5-50m
18	1.896-1.953	5-50m	**43**	8.447-8.806	5-50m
19	1.956-2.006	5-50m	**44**	8.882-9.307	5-50m
20	2.057-2.105	5-50m	**45**	9.503-9.902	5-50m
21	2.134-2.185	5-50m	**46**	9.912-10.327	5-50m
22	2.185-2.236	5-50m	**47**	10.338-10.922	5-50m
23	2.233-2.284	5-50m	**48**	10.977-11.652	5-50m
24	2.294-2.363	5-50m	**49**	11.864-12.364	5-50m
25	2.362-2.426	5-50m	**50**	12.638-13.119	5-50m

Sensor/Aircraft Parameters:

Spectral Bands:	50 (16-bit resolution)
IFOV:	2.5mrad
Swath width:	19.9nm (36km) at 65,000ft
Ground Resolution	5-50m (variable w/ altitude)
Total FOV:	85.92 degrees
Pixels/Scanline:	716
Scan Rate:	6.25 – 25 Hz
URL Reference:	http://masterweb.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
50mm	4072 x 4072 (pixels)	36.72mm	40.3°	13000	1.6nm	0.7m

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:

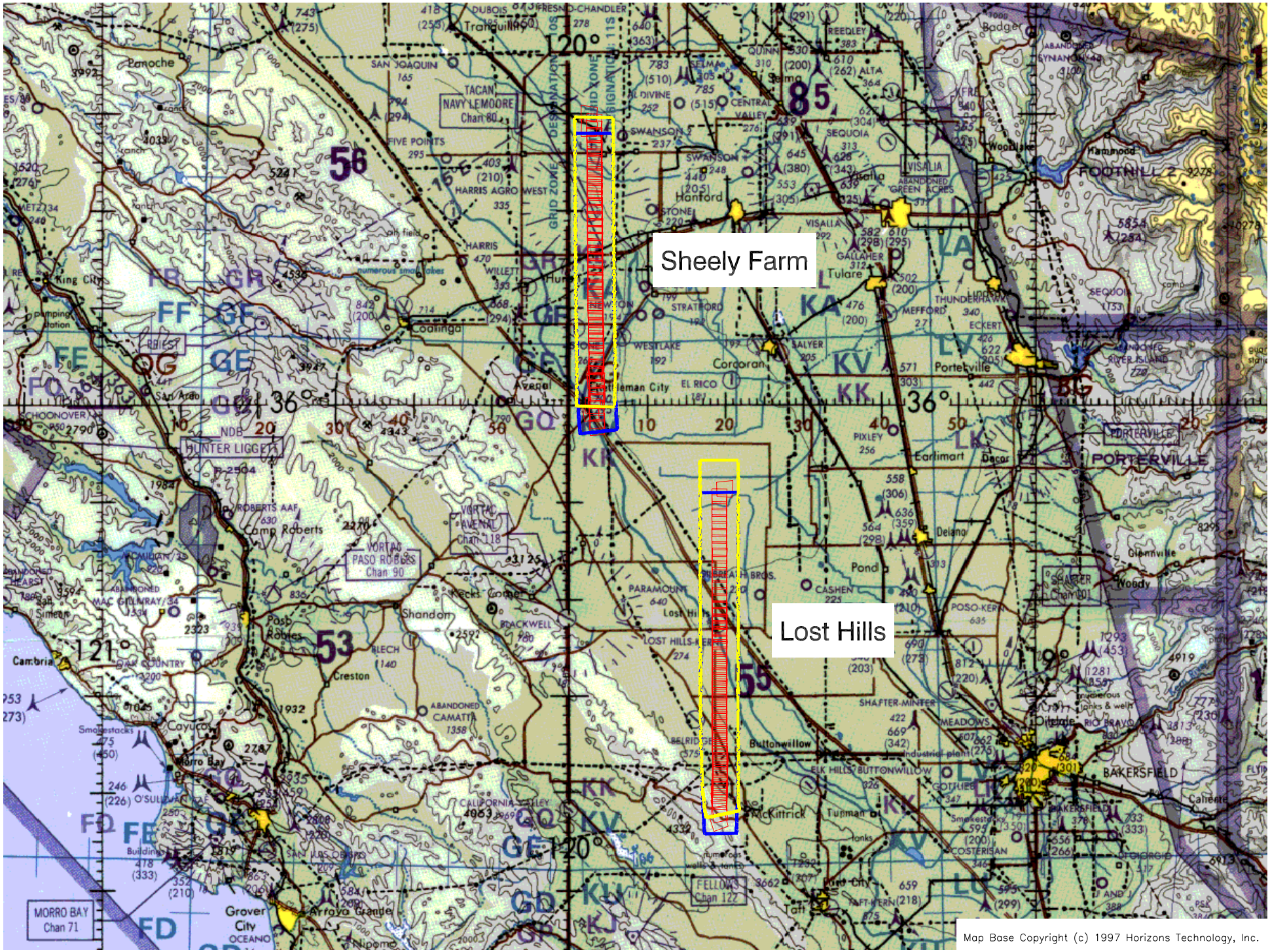
Airborne Sensor Facility
MS 244-15
NASA Ames Research Center
Moffett Field, CA 94035
Telephone: (650)604-6252 (FAX 4987)

CAMERA FLIGHT LINE DATA
FLIGHT NO. 10-004-03

Accession # 05960

Sensor # 165

Site	Line #	Run #	Frame #	Time (GMT-hr, min, sec) START	Time (GMT-hr, min, sec) END	Altitude feet/meters	Cloud Cover/Remarks
CV2	1	1	6334-6366	18:46:19	18:51:04	13100/4000	Clear ; Lost Hills
CV1	1	1	6369-6412	19:02:51	19:09:14	13100/4000	Clear ; Sheely Farm
CV2	1	2	6415-6463	21:02:41	21:09:47	13100/4000	Clear ; Lost Hills
CV1	1	2	6464-6509	21:19:09	21:25:48	13100/4000	Clear ; Sheely Farm
MB1	1	1	6511-6546	22:25:20	22:30:31	10800/3300	Clear
MB1	2	1	6547-6566	22:34:48	22:37:36	10800/3300	0 - 40% strato-cumulus
MB1	3	1	6567-6575	22:42:45	22:43:55	10800/3300	Clear



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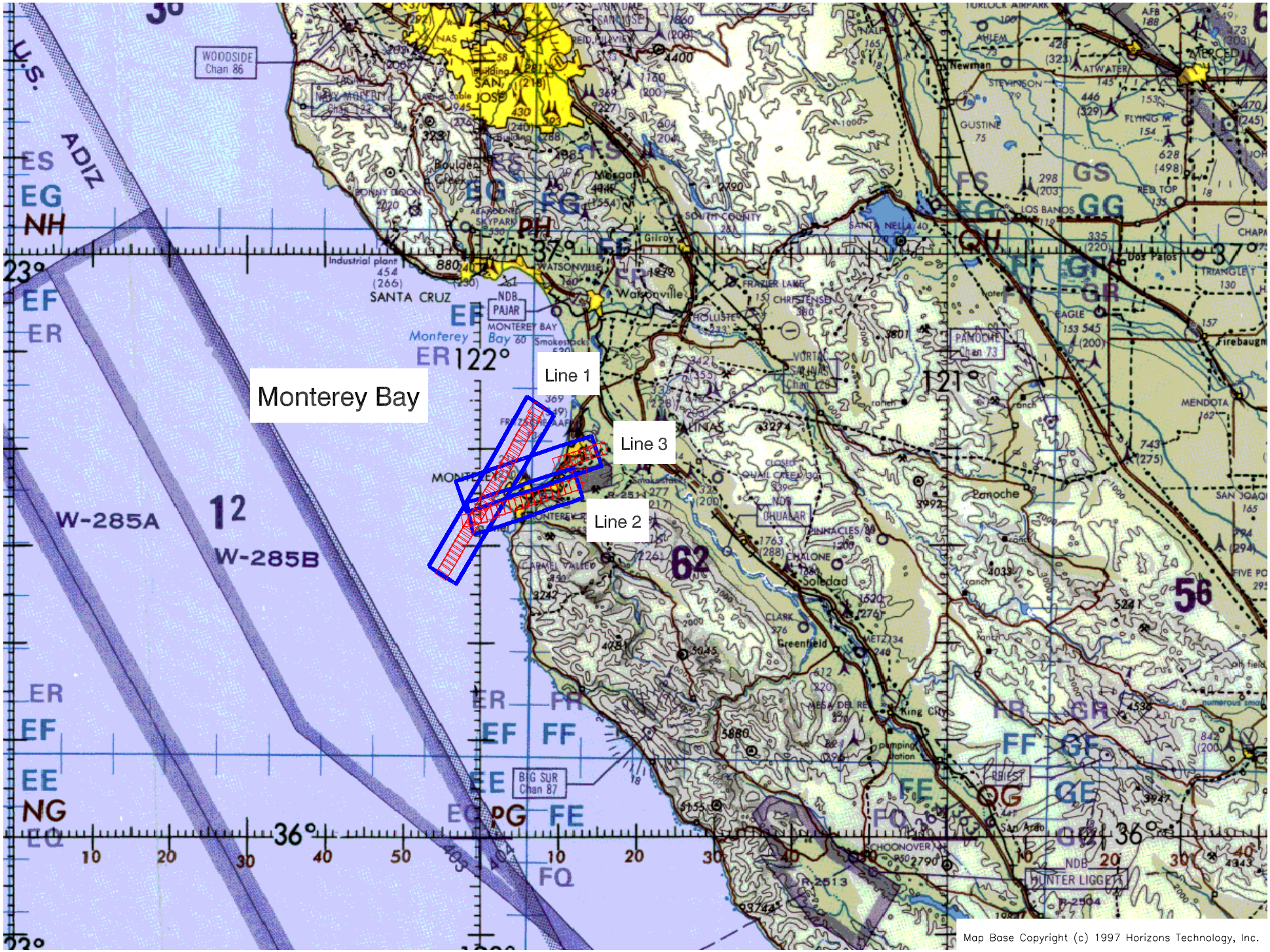
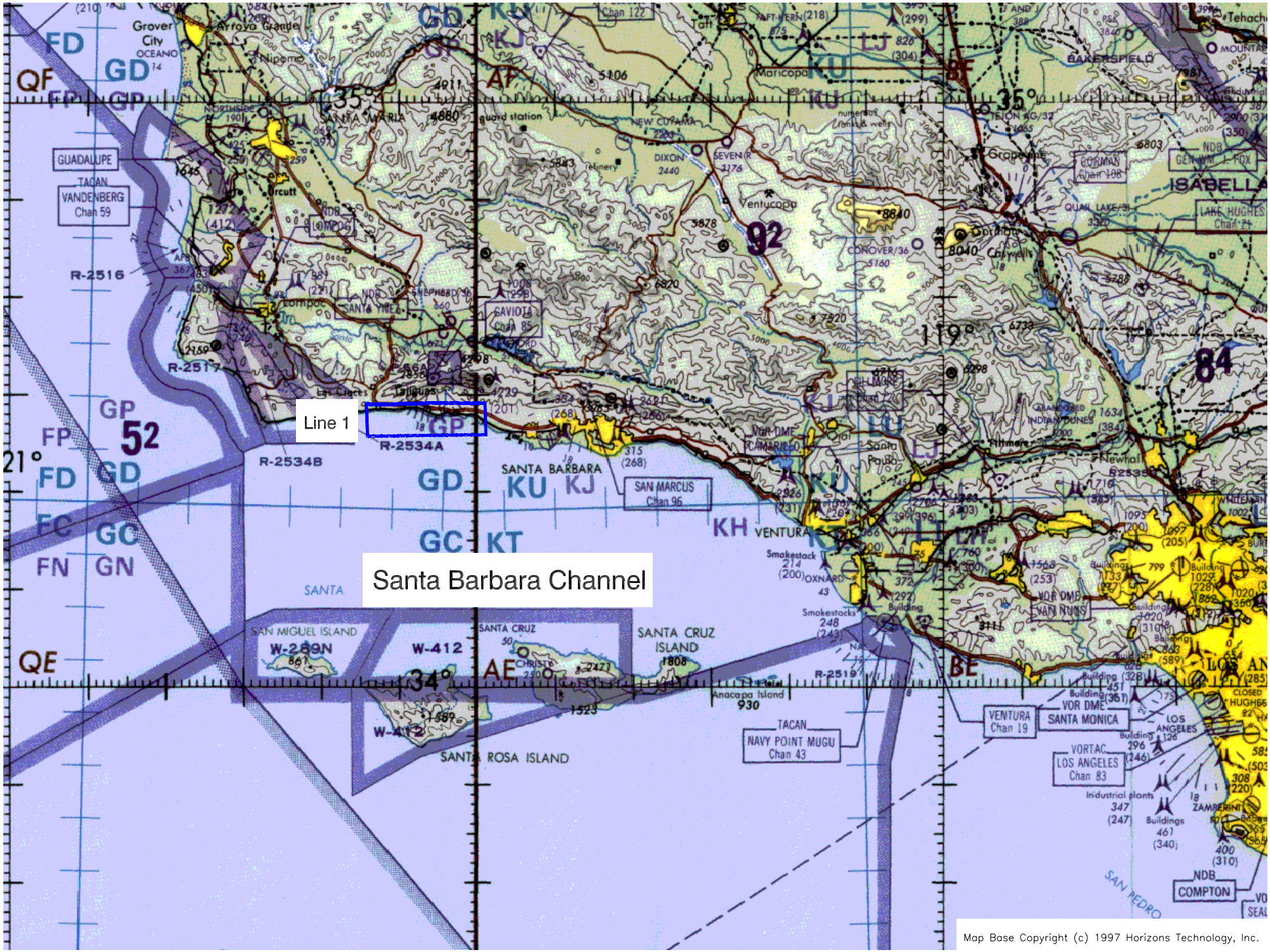
FLIGHT 10-004-03 29 JUNE 2010 A/C 817 DCS MASTER



FLIGHT 10-004-03 29 JUNE 2010 A/C 817 DCS MASTER



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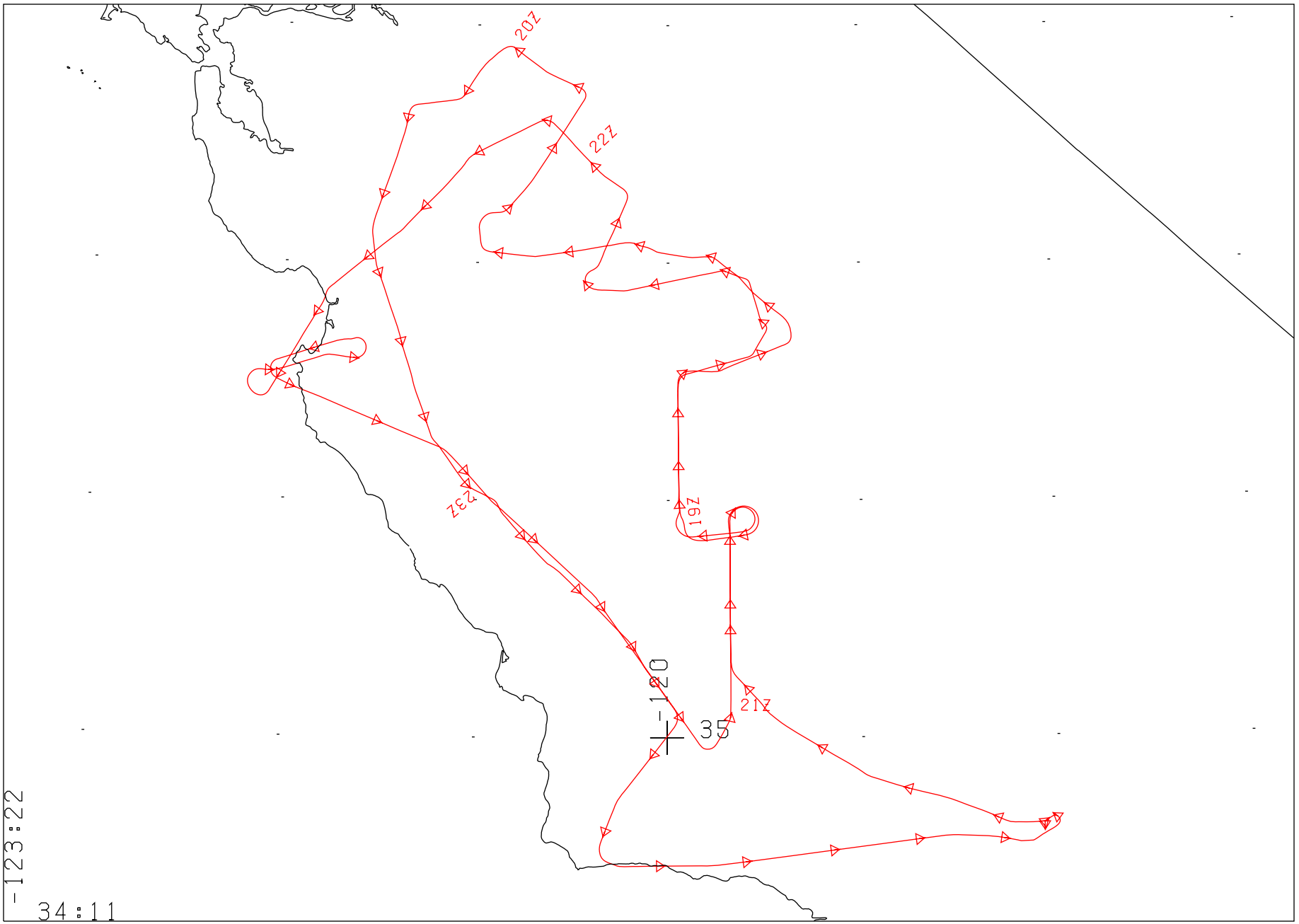

FLIGHT 10-004-03 29 JUNE 2010 A/C 817 SARP 2010 MASTER / DCS

LAMBERT CONFORMAL PROJECTION: SP1 = 33.9 SP2 = 37.3 CM = -120.1 ROTATED BY 0.0

18:25:00 TO 23:59:00 UT SCALE 1:2.50E+06 TIME TICK EVERY 5.00 MINUTES