MASTER Spectral Channel	MASTER Spectral Range	MASTER Spatial Resolution	*ASTER Spectral Channel*	*ASTER Spectral Range*	*ASTER Spatial Resolution*
1	0.440-0.480	5-50m			
2	0.480-0.520	5-50m			
3	0.520-0.560	5-50m	*1*	*0.520-0.600*	*15m*
4	0.560-0.600	5-50m			
5	0.630-0.690	5-50m	*2*	*0.630-0.690*	*15m*
6	0.690-0.730	5-50m			
7	0.730-0.770	5-50m	*3*	*0.760-0.860*	*15m*
8	0.780-0.820	5-50m			
9	0.845-0.885	5-50m			
10	0.885-0.925	5-50m			
11	0.925-0.965	5-50m			
12	1.600-1.650	5-50m	*4*	*1.600-1.700*	*30m*
13	1.650-1.700	5-50m			
14	1.700-1.750	5-50m			
15	1.750-1.800	5-50m			
16	1.800-1.850	5-50m			
17	1.850-1.900	5-50m			
18	1.900-1.950	5-50m			
19	1.950-2.000	5-50m			
20	2.050-2.100	5-50m			
21	2.135-2.185	5-50m	*5*	*2.145-2.185*	*30m*
22	2.185-2.235	5-50m	*6*	*2.185-2.225*	*30m*
23	2.235-2.285	5-50m	*7*	*2.235-2.285*	*30m*
24	2.297-2.362	5-50m	*8*	*2.295-2.365*	*30m*
25	2.362-2.427	5-50m	*9*	*2.360-2.430*	*30m*
26	3.075-3.225	5-50m			
27	3.225-3.375	5-50m			
28	3.375-3.525	5-50m			
29	3.525-3.675	5-50m			
30	3.675-3.825	5-50m			
31	3.825-3.975	5-50m			
32	3.975-4.125	5-50m			
33	4.125-4.275	5-50m			
34	4.275-4.875	5-50m			
35	4.425-4.575	5-50m			
36	4.575-4.725	5-50m			
37	4.725-4.875	5-50m			
38	4.875-5.025	5-50m			
39	5.025-5.175	5-50m			
40	5.175-5.325	5-50m			
41	7.70-8.10	5-50m			
42	8.10-8.50	5-50m	*10*	*8.125-8.475*	*90m*
43	8.50-8.90	5-50m	*11*	*8.475-8.825*	*90m*
44	8.90-9.30	5-50m	*12*	*8.925-9.275*	*90m*
45	9.50-9.90	5-50m			
46	9.90-10.30	5-50m			
47	10.30-10.95	5-50m	*13*	*10.25-10.95*	*90m*
48	10.95-11.65	5-50m	*14*	*10.95-11.65*	*90m*
49	11.80-12.30	5-50m			
50	12.50-13.00	5-50m			

MASTER (MODIS/ASTER Airborne Simulator)

NASA's MASTER Airborne Simulator is designed to simulate spectral and spatial characteristics of the NASA EOS ASTER (Advanced Spaceborne Thermal Emission and Reflection Radiometer) satellite instrument currently orbiting on the Terra satellite. Master's primary mission is to collect ASTER-like and MODIS- like land datasets to support the validation of the ASTER and MODIS geophysical Retrieval algorithms. These datasets are collected at a higher resolution than the spaceborne datasets to permit scaling studies and comparisons with *in-situ* measurements. The instrument underflies the Terra ASTER and MODIS sensors to provide an additional radiometric calibration to assist with in-flight instrument performance characterization. MASTER is also an airborne multi-altitude sensor for fulfilling NASA requirements for bio-geophysical and natural hazards research.

MASTER (MODIS/ASTER Advanced Spaceborne Thermal Emission Reflection Radiometer) Airborne Sensor/Aircraft Parameters:	
Spectral Bands:	50 (16-bit resolution)
IFOV:	2.5 mrad
Swath width:	19.9 nmi (36 km) at 65,000 ft
Ground Resolution:	12-50 meters (variable w/ altitude
Total FOV:	85.92 degrees
Pixels/Scanline:	716
Scan Rate:	6.25 - 25 Hz

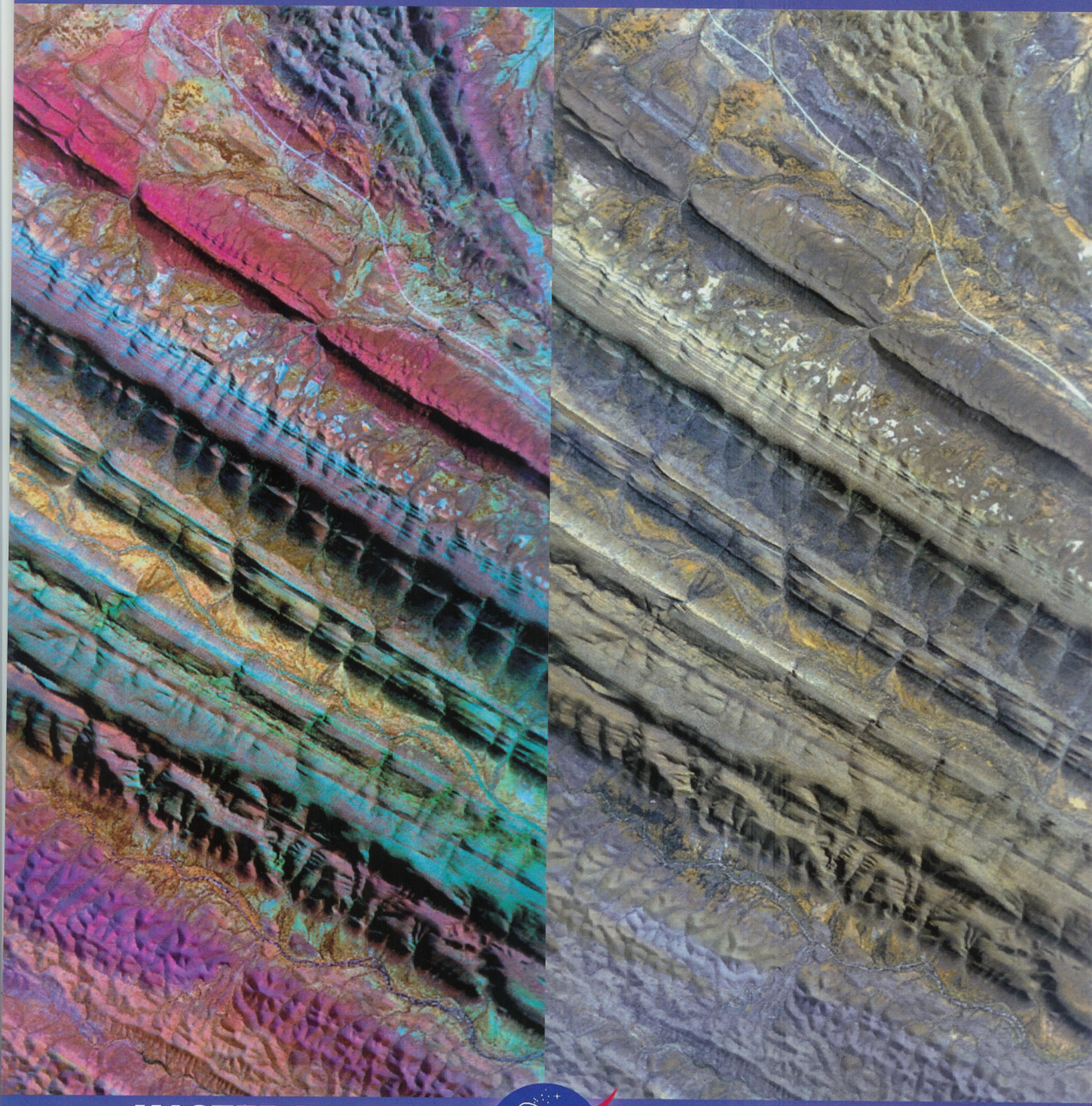
(See the homepage at masterweb.jpl.nasa.gov)

ASTER Parameters	
Orbit:	705km, 10:30am descending node, sun-synchronous, near polar
Swath:	60km (across track), by 60km along track (nominal scene)
Weight:	421kg
Power:	463W (average)
Data Rate:	89Mbps
Quantization:	8 bits (VNIR and SWIR), 12 bits (TIR)

(See the homepage at asterweb.jpl.nasa.gov)

Front page: The image pair on the front page was acquired with the MASTER Airborne Simulator flown onboard the NASA DC-8 over the Macdonnell Range, Northern Territory, Australia on September 4, 2000. These data were collected during the NASA PACRIM deployment conducted throughout the Pacific Basin from July 31 to October 23, 2000.

MODIS/ASTER Airborne Simulator



MASTER Bands

45 — 9.700 µm
12 — 1.625 µm
5 — 0.660 µm

MASTER Bands

5 — 0.660 µm
3 — 0.540 µm
1 — 0.460 µm