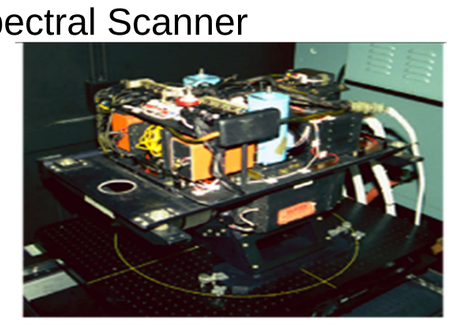
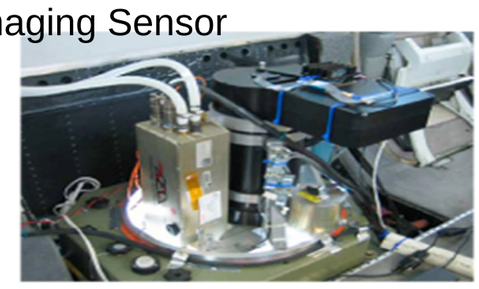
CARTA 2005
Sensors Description

RC-30 Metric Camera 	Film Type: Kodak Aerochrome III MS 2427 Spectral Response: 400-700nm Filtered Response: 510-900nm (w/Wratten 12) Lens Focal Length: 12 inch (306mm) Field of View: 55 ° Format: 9 x 9 inch (228 x 228 mm) Ground Coverage: 5.7 x 5.7 km Nominal Resolution: 1.0 - 3.0 m Nominal Scale: 1:25 000 f/ stop: f/4
DCS Digital Camera 	Lens: Zeiss (Germany) 14 lenses available (5°to60°Total FOV) Camera body: Hasselblad (Sweden) Camera Back & 16M pixel (4K x 4K) CCD array: Kodak (USA) “Stand-alone” or computer-controlled operation Produces either “color-infrared” or “natural-color” imagery 12-bit image digitization “Raw” image size: ~16Mbyte / Processed image size: ~48 / 96Mbyte Recording media: 2 x 8GB Compact Flash (~800 images) Environmental: >100,000 ft altitude and –15 degrees C GPS data and ancillary file appended to each image Optional metric mapping capability
HyMap Hyperspectral Scaner 	The HyMap provides 126 bands across the reflective solar wavelength region of 0.45 – 2.5 nm with contiguous spectral coverage (except in the atmospheric water vapour bands) and bandwidths between 15 – 20 nm. The sensor operates in a 3-axis gyro stabilised platform to minimise image distortion due to aircraft motion. The system can be rapidly adapted into any aircraft with a standard aerial camera port and is transported between international survey sites by air freight. The Hymap provides a signal to noise ratio (>500:1) and image quality that is setting the industry standard. Laboratory calibration and operational system monitoring ensures the calibrated imagery required for demanding spectral mapping tasks. Geolocation and image geocoding achieved with DGPS and an integrated IMU (inertial monitoring unit).
MASTER Multispectral Scanner 	Instrument: Suborbital scanning spectrometer Platform: NASA ER-2, DC-8 aircraft, DOE B200, Caravan (Sky Research), NASA WB-57F Bands: 50 from 0.4-13.0 µm Spatial Resolution: 5-30 m (depending on platform) Swath: 3.5-14 km
LVIS Laser Imaging Sensor 	Ranging and imaging techniques for future paceborne implementation of wide-swath laser altimetry capable of global mapping of topography and vegetation Science applications of full-waveform altimetry, e.g., carbon cycle studies, solid earth science, natural hazards,hydrology, surface roughness,fire modeling, etc. Return-waveform processing algorithms and measurement approach development
AVEMS Mass Spectrometer 	The Aircraft-Based Volcanic Emissions Mass Spectrometer (AVEMS) is the first system developed under the Advanced Hazardous Gas Detection System plan. The goal of this multiplayer plan is to develop small, lightweight, portable, and power-efficient MS systems for various types of gas analysis. Developing the AVEMS instrument had two specific goals to determine the Hazardous Gas Detection Laboratory’s current ability to build small, lightweight systems capable of high altitude flight and to monitor volcanic emissions. The first goal was met by integrating the system into a WB-57 high altitude research plane. AVEMS has a total weight of 104 pounds and a volume of 3 cubic feet. It requires 350 watts of power at steady state, can operate at a temperature range of +25 degrees Celsius (to -65 C, and has a pressure range of 760 to 50 torr. Within this range, the system operated properly up to an altitude of 41 000 feet above sea level (asl)

