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Developing CubeSats for Remote Earth Sensing¹ MICHAEL PHILLIPS², MICHAEL FOGLE, JEAN-MARIE WERSINGER, LUKE MARZEN, Auburn University, MICHAEL BRIGGS, PETER JENKE, University of Alabama Huntsville, AUSSP COLLABORATION — There are two Auburn University Student Space Program (AUSSP) missions in which CubeSats are being used for cutting edge scientific research. The Terrestrial Rays Analysis and Detection (TRYAD) mission will utilize two student built nanosatellites to detect terrestrial gamma ray flashes (TGFs). The satellites will be able to determine TGFs beam profile and tilt characteristics while using differential drag for separation control. TRYAD data will be correlated with TGF data collected by very low frequency (VLF) radio receivers on Earth. The Hyperspectral Instrument for Cubesats (HYSPIC) will cover a spectral range of 350 to 1000 nm with 7 nm resolution along with having a RGB spatial imager. The ground sampling distance (GSD) of HYSPIC will be approximately 30 m in the hyperspectral bands and 3 to 5 m for the RGB imager at a 500 km altitude. The data cubes in which hyperspectral data is traditionally stored can be very large. HYSPIC will be using micro mirror array technology to implement compressive sensing techniques. Data reconstruction will be performed on the ground to minimize satellite data handling.

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