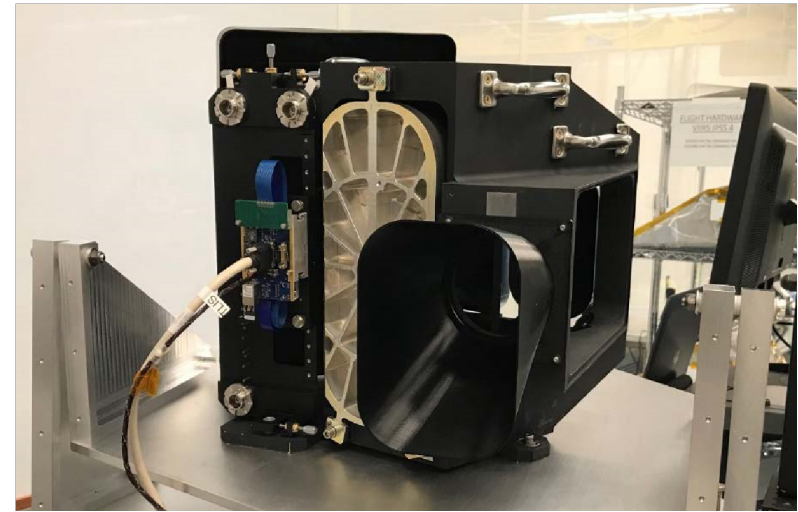


Advanced Technology Land Imaging Spectroradiometer (ATLIS)

PI: Jeff Puschell, Raytheon

Objective

- Demonstrate compact, low mass ATLIS design approach with wide field of view (WFOV), compact Free Form Reflective Triplet (FFRT) telescope, large format, small detector digital FPA and on-chip processing meets or exceeds SLI-T VSWIR requirements
- Technologies include:
 - WFOV, nearly telecentric Reflective Triplet (RT) telescope with free form optics
 - Production digital FPA with on-chip processing
 - Detailed instrument system ATLIS Performance Model
- ATLIS technology enables much smaller land imagers than current and previous flight systems, offering promise for much reduced system acquisition cost, while simultaneously improving system performance.



Accomplishments

- Designed, built, tested and demonstrated a multispectral ATLIS-Prototype (ATLIS-P) based on the world's first FFRT for VNIR wavelengths:
 - Designed an ATLIS-P system scaled to meet SLI-T RMA VSWIR requirements
 - Procured, integrated, tested and completed demonstration of ATLIS-P performance with respect to SLI-T RMA requirements in a laboratory environment
 - Compared demonstrated ATLIS-P performance with model predictions, updated and documented model and used verified model to extend predictions to other SLI systems
 - Documented learned lessons that reduce risk for future SLI/ NASA Earth science system developments
 - Assessed telescope thermal and opto-mechanical stability in response to flight qualification like environmental disturbance
 - Characterized ATLIS-P imaging system performance versus de-focus and compared results with model predictions, which verified the performance to meet or exceed SLI RMA-15 specifications.

Co-Is/Partners: None

TRL_{in}= 3

TRL_{out}= 5