



## Electro Optical/Infrared Weather System Rapid Revisit Optical Cloud Imager (EWS RROCI)

### | OVERVIEW

Striving to bridge gaps and improve functionality of space-based environmental monitoring (SBEM) systems, United States Space Force (USSF) Space Systems Command (SMC) sought a commercial prototype EWS mission capable of characterizing global clouds in near real-time to support Department of Defense operations.

SMC selected Orion Space Solutions (OSS), in collaboration with Lockheed Martin; Science and Technology Corporation; Pumpkin, Inc.; and Atmospheric & Environmental Research (AER), for the first phase of the EWS mission to design, develop, and demonstrate its eight (8)-channel RROCI prototype. OSS' imagery utilizes commercial off-the-shelf systems to produce cloud characterization, mitigate weather risk, provide theater weather, and compare payload outputs to existing satellite data from a 12U satellite meeting USSF mission requirements.

OSS' solution provides a cost-effective and agile demonstration mission, reducing risk and demonstrating readily available commercial technology that meets USSF's required operational mission capabilities.

### | PROGRAM HIGHLIGHTS

- RROCI is a demonstration mission as part of the USSF EWS program
- RROCI combines a comprehensive instrument package, leveraging COTS optics, lenses, and custom filters, with a proven 12U spacecraft platform to create an integrated mission design
- RROCI payload uses multi-pass filters combined with four cameras to provide eight spectral channels—multi-pass filters allow a single camera to make observations at multiple wavelengths

### | KEY BENEFITS

- Capable of characterizing global clouds in near real-time
- Utilizes commercial off-the-shelf systems to produce cloud characterization

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### | PROGRAM STATUS

Base Phase & Optical TRL raising complete Q4 2020

- Assembly, integration, and Test Phase I complete July 2022
- Major milestone include:
  - » Initial design review
  - » Final design review
  - » Test readiness review
  - » Assembly, integration, and environmental testing complete
  - » Pre shipment review
  - » Launch readiness review

### | PROGRAM FUTURE

- RROCI is currently undergoing the final environmental tests at the OSS facilities in Louisville, CO
- OSS expects to be awarded Phase II (launch and orbital operations) in August 2022
- RROCI will be delivered to the launch site in September 2022 and launched on board SpaceX Transporter-6 in November 2022
- OSS will manage orbital operations and data retrieval for a minimum of one-year

