

RROCI SMALLSAT



Rapid Revisit Optical Cloud Imager



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Render of the 12U RROCI smallsat to produce real-time cloud characterization for the United States Space Force (USSF).

The safety and success of military operations depend on having access to reliable weather data. Striving to bridge gaps and improve functionality of space-based environmental monitoring systems, the United States Space Force's (USSF) Space Systems Command (SMC) selected Orion Space Solutions (Orion), a wholly owned subsidiary of Arcfield, to build a commercial prototype electro-optical/infrared weather system (EWS) capable of characterizing global clouds in near real time. As part of the first phase of SMC's weather-imaging mission, Orion and its team of partners designed, developed and began a one-year demonstration of its novel Rapid Revisit Optical Cloud Imager (RROCI) satellite.

NEXT-GENERATION DESIGN

RROCI is a state-of-the-art weather sensor that characterizes cloud cover in real time

with high accuracy to predict weather patterns, mitigating weather risk for military operations. The SmallSat comprises a comprehensive instrument package, leveraging commercial off-the-shelf optics, lenses and custom filters on a proven 12U spacecraft platform. The RROCI payload also combines four cameras with multi-pass filters—which allow a single camera to make observations at multiple wavelengths—to provide eight spectral channels for data collection.

HIGH PRECISION, LOW COST

Because of its small size and use of readily available commercial technology, RROCI is an affordable solution that has high potential to scale as part of an integrated EWS constellation. During its demonstration mission, the RROCI payload is expected to establish that low-cost SmallSats like RROCI, which meets USSF's exacting mission requirements, are durable, high-precision systems with the capabilities to drive mission success.

RROCI

The RROCI SmallSat in its canister before shipping to Vandenberg Space Force Base for deployment.

