**Future GOES-R Capability: SO₂ Detection**

Principle Investigator: Mike Pavolonis (STAR)

**Abstract**

The timely detection of SO₂ is important to aviation and, as such, SO₂ detection (and volcanic ash detection) is a priority of the National Weather Service. Through GOES-R Risk Reduction, a fully automated volcanic ash cloud alerting system was developed. The system automatically alerts users to the presence of new volcanic ash clouds in near real-time with an accuracy that is comparable to a trained human expert. The automated notification of volcanic hazards is absolutely critical, as even current data volumes prohibit manual analysis of all satellite images. The increase in data volume with GOES-R will make manual analysis even more challenging. The automated system, known as the Volcanic Cloud Analysis Toolkit (VOLCAT), utilizes spectral, spatial, and temporal metrics provided by the GOES-R ABI and other sensors to detect and characterize volcanic ash clouds. In this project we are leveraging the successful volcanic ash detection techniques and previous GOES-R Algorithm Working Group (AWG) SO₂ development to incorporate SO₂ detection and characterization into the VOLCAT system.