Future GOES-R Capability: SO_2 Detection

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Abstract

The timely detection of SO_2 is important to aviation and, as such, SO_2 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) SO_2 development to incorporate SO_2 detection and characterization into the VOLCAT system.