

Timeliness of Remotely-Sensed Active Fire Products

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Abstract

Wildfire is a global-scale phenomenon and a major driver of land cover and atmospheric change. It is both a natural and human-induced disturbance which has positive and negative consequences. Fire management requires timely, accurate information for situational awareness to allocate resources and make informed decisions. Over the past few decades, the advent of remote sensing technologies, particularly spaceborne assets, has delivered fire information and support to operational users responding to fires.

In this talk, I will discuss the relationship between reported fire stats, as cataloged by various fire agencies, and active fire detections from polar-orbiting and geostationary sensors. Hot spots from MODIS, VIIRS, and ABI active fire products were examined for spatial and temporal congruity with incident reports to understand when and where these early-fire detections play a critical role.

Our results demonstrate the effectiveness of RS detections, particularly in less populated areas, such as national forests or wildernesses or vast regions of Alaska. Detections occurred within minutes to hours of first reports of a fire, but this varied by the size of the fire and time of day. Polar-orbiting sensors, which greater spatial resolution, detected smaller fires than geostationary sensors, but lagged reports by several hours in many cases.