The 36th International Symposium on Remote Sensing of Environment,
11 – 15 May 2015, Berlin, Germany, ISRSE36-489

# THE EFFECT OF CONFIGURATION ON WILDFIRE DETECTION AND BACKGROUND ESTIMATION

S. Mitchell [ab, *], SD. Jones [b], K. Reinke [b]

[a] German Aerospace Center (DLR), Institute of Optical Sensor Systems, Berlin, Germany – Simon.Mitchell@dlr.de*
[b] RMIT University, School of Mathematics and Geospatial Sciences, Melbourne, Australia

**THEME:** Natural disasters monitoring, warning and response.

**KEY WORDS:** Forest fire, Simulation, Disaster, Infrared, Thermal

**ABSTRACT:**

Wildfires are a natural occurrence in many countries, typically occurring during the hotter months of the year. Wildfires globally are a threat to both humans and wildlife, in the potential for death, destruction of property, infrastructure and habitats. The need for the detection and characterization of wildfires has led to the development of satellite sensing systems dedicated to this task.

The TET-1 satellite system (DLR, German Aerospace Center) is designed to fill the gap in the detection of small, low power wildfires (typically wildfires in early stage of life), with a spatial resolution of 350m, while also possessing a high saturation level allowing the detection of large, high power wildfires. Although the algorithm for the detection and characterization of wildfires has been developed for TET-1, improvements can be investigated.

The high spatial resolution of the TET-1 system in comparison to other fire detection systems such as MODIS, allows for the study of smaller area fires and their features in relation to detection and characterization. Presented in this paper are tests on fire features such as the effects of sub-pixel fire configuration and position within the pixel, and the effect of any burnt area surrounding the flaming portion of the fire, on the detection of the fire. From these first two tests, further tests will be performed on the variability of the radiances from different surfaces within a pixel and the effect that this has on estimating the (non-burnt) background surrounding a fire. The background estimation is an important part of the algorithm, and improvements in this estimation will lead to improvement in the detection and characterization of the fire. The current study is based on simulated wildfires and landscapes, with the aim of validation in the future with data from the TET-1 satellite and ground campaigns.

* Corresponding author.