**NASA DEVELOP National Program**

****NASA Jet Propulsion Laboratory

**Summer 2015**

**Short Title: California Disasters II**

**Updated Abstract**

The need for efficient wildfire monitoring and assessment is paramount in California due to increasing ecological and economical losses caused by wildfire. The California Disasters II team at the NASA Jet Propulsion Laboratory partnered with the California Department of Forestry and Fire Protection (CAL FIRE) and the US Forest Services Remote Sensing Activities Center (RSAC) to examine the potential of using radar-derived imagery from NASA’s Uninhabited Aerial Vehicle Synthetic Aperture Radar (UAVSAR) sensor for active fire assessment. Currently, remote sensing support for active fire response is limited to infrared-detecting satellites with relatively low spatial or temporal resolutions, or to airborne sensors that have limited availability and that may be interfered by cloud and smoke. The UAVSAR instrument mounted on NASA’s Gulfstream III plane, however, has a high spatial resolution of 5m, can be flown day or night, and can penetrate cloud and smoke. The team studied wildfires throughout California from 2009 to the present and analyzed the ability of the UAVSAR sensor to detect burn scars and classify burn severity using a simple method with minimal computational demands. The results showed that the UAVSAR sensor is capable of detecting changes in vegetation due to wildfires. This preliminary study suggests that polarimetric SAR has the potential to become a powerful tool for active fire response.