## Interaction between smoke aerosols with clouds and precipitation

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Wildland fires and biomass burning are common and pose a serious environmental problem on a regional as well as global scale. An average of 5 million acres burns every year in the United States, causing millions of dollars damage. Forest fires bring immediate changes on land and also cause atmospheric pollution as a result of emission of various trace gases namely CO, O3, CO2, water vapor. Such short term events have direct and indirect implications on climate on a long term basis. Using remote sensing technique, it is now very common to monitor fire events worldwide on a routine basis. In this paper, we focus on the wildland fire events in the State of Florida using a multisensor based approach to map and assess significant changes on land and atmosphere. In general, aerosols in the atmosphere act as cloud condensation nuclei (CCN) and precipitate cloud formation. However, an excessive increase in aerosol concentration from fires and other such severe events cause a reduction in the cloud droplet size and thus result in reduction in rainfall. Using Moderate Resolution Imaging Spectroradiometer (MODIS) and TRMM Microwave Imager (TMI) sensors, atmospheric and meteorological parameters can be obtained and interaction between smoke aerosols with clouds and precipitation can be investigated and we already have preliminary results. Further, the analysis of Measurement of Pollution in the Troposphere (MOPITT) and Total Ozone Mapping Spectrometer data has also shown the effect of fire on trace gases.