Impact assessment of Forest Fire in Eastern United States on the Air Quality Sanjeeb Bhoi, Dr. John Qu

Abstract

Forest fires are a major contributor of air pollutants like CO, Aerosols, and Ozone etc. Study of air pollutants due to forest fire in Eastern United states is important because of the fact that there is a significant amount of urbanization in the near vicinity of most of the forested land. Hence any increase in air pollutants above the EPA specified norms will adversely affect the population near the source region. In the current study forest fire in the Osceola National Forest in northeast Florida has been taken. The Osceola National Forest started as a prescribed burn on March 2, 2004 but due to windy conditions it went out of control and ravaged a total area of 38000 acres. This study focuses on the effect the Osceola National Forest fire had on the Carbon Monoxide concentration, Aerosols concentration and Ozone concentration. Carbon Monoxide data was taken from MOPITT (Measurements of Pollution in the Troposphere) on board TERRA. MOD08 product acquired by MODIS (Moderate Resolution Imaging Spectroradiometer) on board TERRA was used to study the temporal variation of the Aerosol Optical Depth and the Total Ozone concentration over the study area. Because of the coarser resolution of the MOD08 product (1 degree), only Carbon Monoxide data from MOPITT has been used for spatial variation in the Carbon Monoxide concentration. Preliminary results show an anomalous increase in the Ozone and Aerosol concentration in March 2004 as compared to historical mean values for the region. The forest fire is also seen to be affecting the Carbon Monoxide concentration in the area where the forest fire occurred, a net increase is seen for the Carbon Monoxide concentration values.