

**Using NASA Satellite Observations to Map Wildfire Risk in the United States for Allocation of Fire Management Resources**

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Fires are a key disturbance globally acting as a catalyst for terrestrial ecosystem change and contributing significantly to both carbon emissions and changes in surface albedo. The socioeconomic impacts of wildfire activities are also significant with wildfire activity results in billions of dollars of losses every year. Fire size, area burned and frequency are increasing, thus the likelihood of fire danger, defined by United States National Interagency Fire Center (NFIC) as the demand of fire management resources as a function of how flammable fuels (a function of ignitability, consumability and availability) are from normal, is an important step toward reducing costs associated with wildfires. Numerous studies have aimed to predict the likelihood of fire danger, but few studies use remote sensing data to map fire danger at scales commensurate with regional management decisions (e.g., deployment of resources nationally throughout fire season with seasonal and monthly prediction). Here, we use NASA Gravity Recovery And Climate Experiment (GRACE) assimilated surface soil moisture, NASA Atmospheric Infrared Sounder (AIRS) vapor pressure deficit, NASA Moderate Resolution Imaging Spectroradiometer (MODIS) enhanced vegetation index products and landcover products, along with US Forest Service historical fire activity data to generate probabilistic monthly fire potential maps in the United States. These maps can be useful in not only government operational allocation of fire management resources, but also improving understanding of the Earth System and how it is changing in order to refine predictions of fire disasters.