ECOLOGY – POSTER #35

EPSCoR Climate Change Science for Effective Resource Management and Public Policy in the Western USA Poster Session

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Vegetation phenology is particularly sensitive to climatic change in the semi-arid and arid forests of the globe. Due to the variable nature of weather, climate, and phenology, resource managers need a greater understanding of the climate-vegetation phenology interaction in their locations to better manage resources for a changing climate. Mountainous areas such as Snake Range of Nevada have complex, topographically mediated climates (topoclimates). As topoclimate and its controls vary greatly based upon geography, we will deploy a network of 80 microsensors to record temperature in the Snake Range. The data from the sensor network will be analyzed to produce maps of the topoclimates in GBNP, which will be provide a unique perspective of the Snake Range's interaction with the atmosphere for public lands managers. The maps will highlight areas of the park that have atypical temperature regimes, providing a useful tool in assessing areas of concern as the climate changes. Remotely sensed data are useful in the study of large scale vegetation phenology, as they provide a perspective that would be impractical using solely field studies. Spatially heterogeneous areas such as the Snake Range require high temporal and spatial resolution to conduct vegetation phenology studies. As current sensors are unable to provide these data, we will use the spatial temporal adaptive reflectance fusion model (STARFM), which fuses Landsat and MODIS data, to produce surface reflectance values for the 2013-2015 growing seasons. We will calculate the Normalized Difference Vegetation Index (NDVI) from the surface reflectance values, and analyze this index in conjunction with our climatic data to establish the extent to which topoclimates mediate vegetation phenology in the Snake Range.