**NASA DEVELOP National Program**

****NASA Langley Research Center

**Summer 2015**

**Short Title: Colorado Water Resources II**

**Updated Abstract**

The September 2013 flooding in Denver, CO, characterized as a “one in 1,000” rainfall event, resulted in excessive runoff and sedimentation, which altered surrounding watershed structure and hydrology. This flooding event and the uncharacteristic weather in Spring 2015 prompted a study by the NASA DEVELOP team to address community concerns regarding water quality. DEVELOP worked with Denver Water, the city’s primary water supplier, to determine erosion mitigation sites in the Ralston Creek Watershed using the Revised Universal Soil Loss Equation (RUSLE). This model combines rainfall, slope, land cover, and conservation practices to predict soil loss. This research integrated land cover maps derived from NASA EOS Landsat 8 with a high resolution LiDAR digital elevation model, which provided Denver Water with a fine scale map detailing potential mitigation sites. Mitigation sites were determined based on RUSLE outputs and accessibility.