

## **Modeling of Erosion and Sedimentation Impacts from off-Road Vehicles in Arid Regions**

**Authors :** Abigail Rosenberg, Jennifer Duan, Michael Poteuck, Chunshui Yu

**Abstract :** The Barry M. Goldwater Range, West in southwestern Arizona encompasses 2,808 square kilometers of Sonoran Desert. The hyper-arid range has an annual rainfall of less than 10 cm with an average high temperature of 41 degrees Celsius in July to an average low of 4 degrees Celsius in January. The range shares approximately 60 kilometers of the international border with Mexico. A majority of the range is open for recreational use, primarily off-highway vehicles. Because of its proximity to Mexico, the range is also heavily patrolled by U.S. Customs and Border Protection seeking to intercept and apprehend inadmissible people and illicit goods. Decades of off-roading and Border Patrol activities have negatively impacted this sensitive desert ecosystem. To assist the range program managers, this study is developing a model to identify erosion prone areas and calibrate the model's parameters using the Automated Geospatial Watershed Assessment modeling tool.

**Keywords :** arid lands, automated geospatial watershed assessment, erosion modeling, sedimentation modeling, watershed modeling

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