Validation of Satellite Digital Elevation Model Data through Field Measurements to Help Improve Landslide Susceptibility Modeling

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Overview

Aimed at improving landslide susceptibility modeling, this project focuses on the assessment of satellite remote sensed data to determine the accuracy of slope and aspect from NASA’s SRTM and ASTER instruments in comparison to field calculated data. The study took place in Santa Fe, Panama at sites consisting of different terrain and slope.

Impact

Because satellite DEM data is such a valuable tool for modeling landslide susceptibility, it is vital to know potential errors or discrepancies it has with field calculated data. This study brings to light some of these discrepancies along with some possible sources of error. Additionally it relates back to the local community given Huntsville’s proximity to landslide susceptible areas.

Key Findings

We found that at a 30 meter resolution, SRTM is more accurate and reliable in measuring slope overall. However, it struggles with areas with dense vegetation cover. Based on our findings, ASTER may be better suited for a courser resolution, such as a 90 meter resolution.

Explanation

This project utilizes data derived from technology in space and encourages the advancement of the accuracy that these instruments are capable of.

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