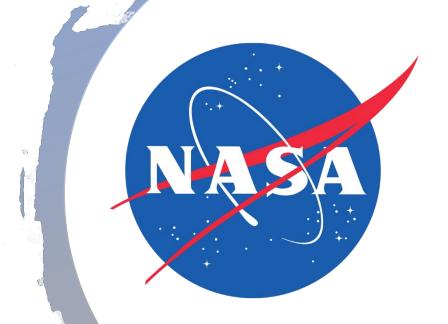






USFS - NASA Virtual Pitch Fest / June 2, 2020

Erosion Potential Predictive Modelling
Nicholas Klein-Baer



About Me

Biography:

Nicholas Klein-Baer Remote Sensing Analyst, TEUI Team, Redcastle Resources Onsite contractor to USDA forest service at GTAC



- Terrestrial Ecological Unit Inventory (TEUI)
- Digital Soil Mapping
- Other environmental modelling / machine learning applications

Team Members:

- Claire Simpson, Remote Sensing Analyst, TEUI Team, Redcastle Resources
- Rob Vaughan, TEUI Team Leader Redcastle Resources
- Nathan Pugh, Geospatial Specialist Resource Mapping, Inventory and Monitoring (RMIM), GTAC USFS









- Develop and validate methods to improve erosion modelling on USFS lands
- Scope: Local or Regional level as proof of concept with aim of applying nationally

The Idea – More Details

Existing USPED Model:

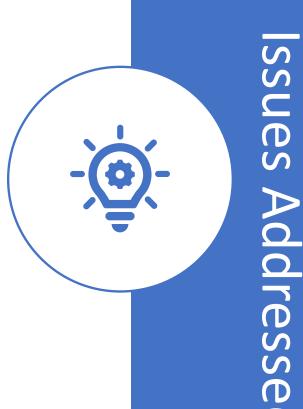
$$E = R * K * LS * C * P$$

- Opportunities for improvement:
 - K-factor interpolation for areas with missing SSURGO data
 - C-factor: Land-Cover / Vegetation
 - LS-factor topography using high resolution LIDAR data



Issue(s) being addressed

- Wildfire impacts
- Water and aquatic resources
- Forest health
- Forest management
- Timber harvesting
- Recreation planning
- Grazing



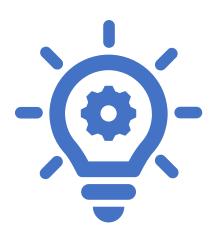
Observation Tools

What EO data does your idea utilize?

- LiDAR
- High spatial resolution R-G-B-NIR
- Landsat
- Sentinel-2
- ECOSTRESS
- SMAP
- ICESat-2
- Uncertain looking for guidance



The Idea – Outcomes / Societal Benefits



- Improve ability to focus post-fire response to erosion hazards on areas of highest risk/erodibility
- Guide forest planning decisions relating to timber harvests, recreation, grazing, etc.
- Improve watershed health and water quality by allowing land managers to make more informed decisions and prevent excessive erosion.

Thank You!

