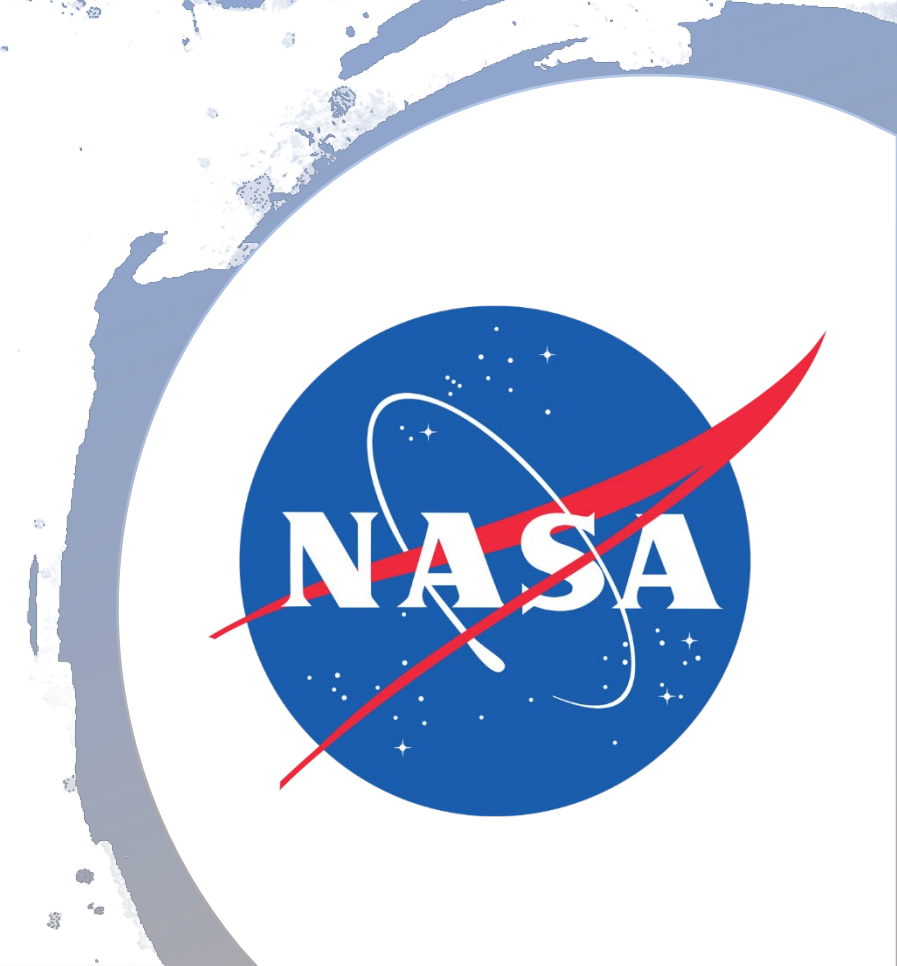


*Identifying, forecasting, mitigating and
adapting to SE US coastal salinization on
farms, forests and grazing lands*

By: Steven McNulty, Ph. D.



About Me



Steven McNulty

Director of USDA Southeast Climate Hub

- Landscape ecologist
- Ph.D. in Natural Resources (1991)
- 30 years of experience with the US Forest Service.
- Co-authored over 250 research publication associated stress impacts, mitigation and adaption on forests, farm and range land

Work focus areas: to develop and deliver science-based, region-specific information and technologies, with USDA agencies and partners, to agricultural and natural resource managers to maintain or increase their resiliency to climate

Team members for your idea: Cynthia West (FS sponsor), Michael Wilson (NRCS sponsor), Rachael Steele (OCE sponsor), Bradley Doorn (NASA), Clement D. D. Sohoulade (ARS)

The Idea

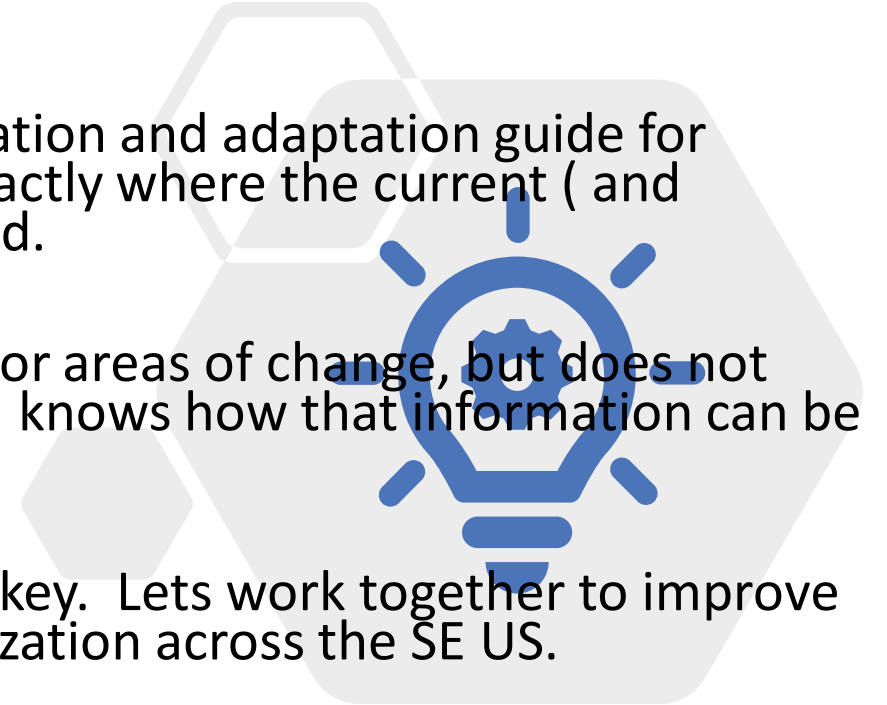


To identify, forecast, mitigate and adapt southeastern US coastal farms, forests and grazing lands to soil salinization from storm surge, sea-level rise, and irrigation

Scope – local focus at a regional scale

The Idea

- Tropical storm surge, sea level rise and saline water irrigation currently impacts 2% of the southeast coastal working lands (i.e., farms, forests, and grazing lands), are currently impacted and this area is expected to increase rapidly in the coming year and decades due to increasing climate change and variability.
- Therefore, SERCH has developed a soil salinization mitigation and adaptation guide for farmers, foresters, and ranchers, but we do not know exactly where the current (and projected) areas of soil salinization are (or will be) located.
- NASA has the sensors to rapidly, and continuously monitor areas of change, but does not know what do to with that information, while the SERCH knows how that information can be applied.
- Therefore, NASA has the roller-skate and SERCH has the key. Lets work together to improve the resiliency and recovery of working lands to soil salinization across the SE US.



Issues being addressed

- Forest health and productivity
- Rangeland productivity
- Agricultural productivity
- Soil moisture
- Vegetation mapping
- Carbon emissions and flux
- Rangeland management
- Soil salinization

Coastal Soil Salinization and Adaptation Guide for Producers in the Southeast United States



What Earth Observation data does this project require?

- Landsat
- Sentinel-1
- Sentinel-2
- MODIS
- VIIRS
- ECOSTRESS
- SMAP
- ICESat-2
- GOES-R
- JPSS
- SRTM
- High spatial resolution R-G-B-NIR
- LiDAR
- Imaging Spectroscopy
- UAVSAR
- Uncertain - looking for guidance

The Idea



The Idea – Outcomes / Societal Benefits



- Increased detection and prediction of soils impacted by salt water
- Improved targeting of mitigation and adaptation measures to combat soil salinization
- Improved resiliency of working lands to climate variability and change
- Improved profit for land owners
- Improved resilience of the US food and fiber system to disturbance
- Fulfills the Forest Service mission “to sustain the health, diversity, and productivity of the nation's forests and grasslands to meet the needs of present and future generations”
- Fulfills the NASA mission to “boldly expand frontiers in air and space to inspire and serve America and to benefit the quality of life on Earth”

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Thank You!

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