



National Aeronautics and
Space Administration



Western Water
Applications Office

NASA earth

**A collaborative Human-Centered Design
approach towards new NASA products
for satellite snow monitoring**

Yolanda Lin

Adrian Marziliano

Will Tatman

Earth Science Division



THE UNIVERSITY OF
NEW MEXICO



— BUREAU OF —
RECLAMATION

A collaborative Human-Centered Design approach towards new NASA products for satellite snow monitoring

Agency Collaborators:

Emma Metcalf

Resource Management Coordinator, Bureau of Reclamation

Chris Frans

Water Availability Research Coordinator, Bureau of Reclamation

Research Team:

Dr. Yolanda Lin

Assistant Professor, University of New Mexico

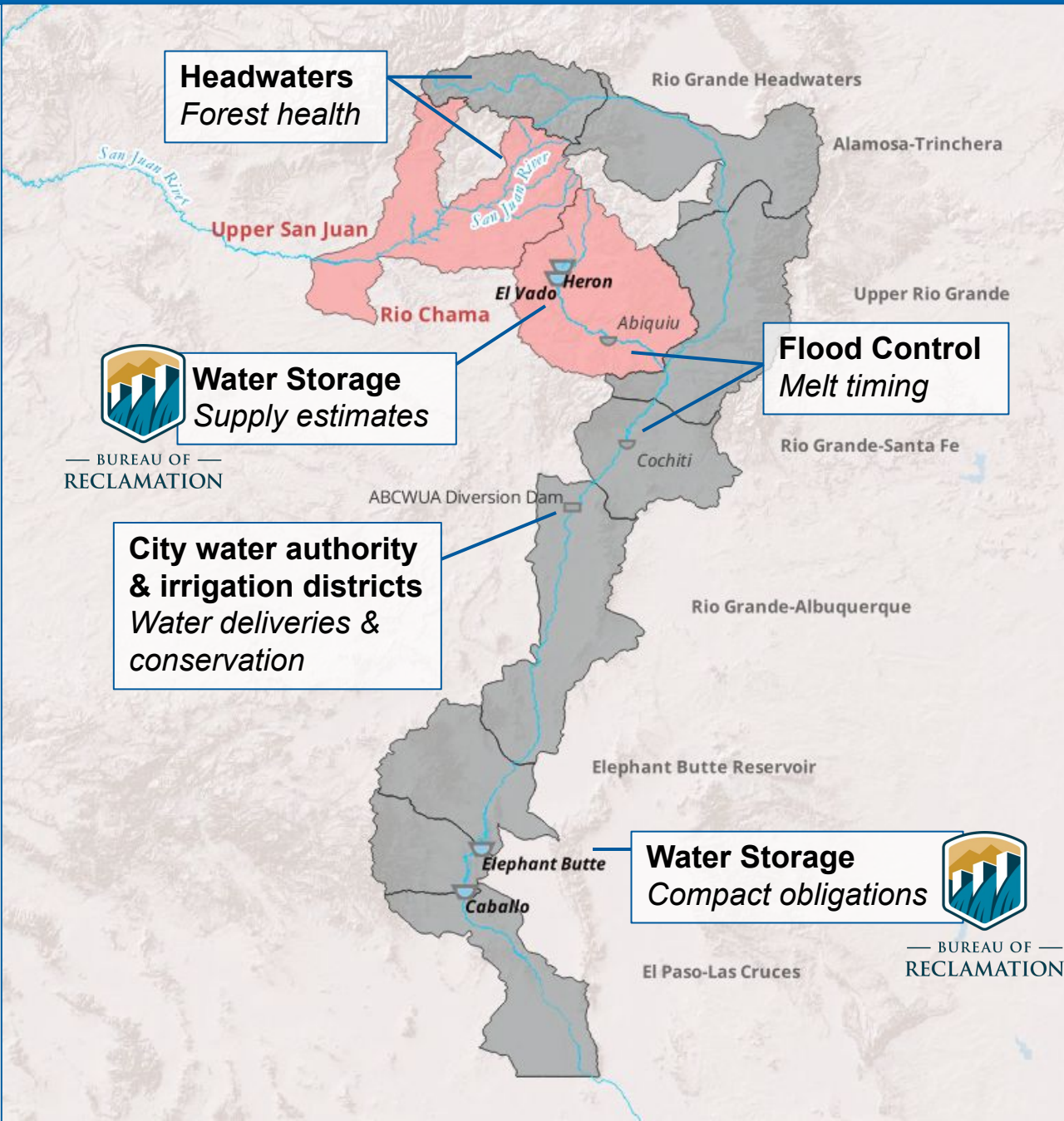
Adrian Marziliano

PhD Student, University of New Mexico

Will Tatman

Graduate Student, University of New Mexico

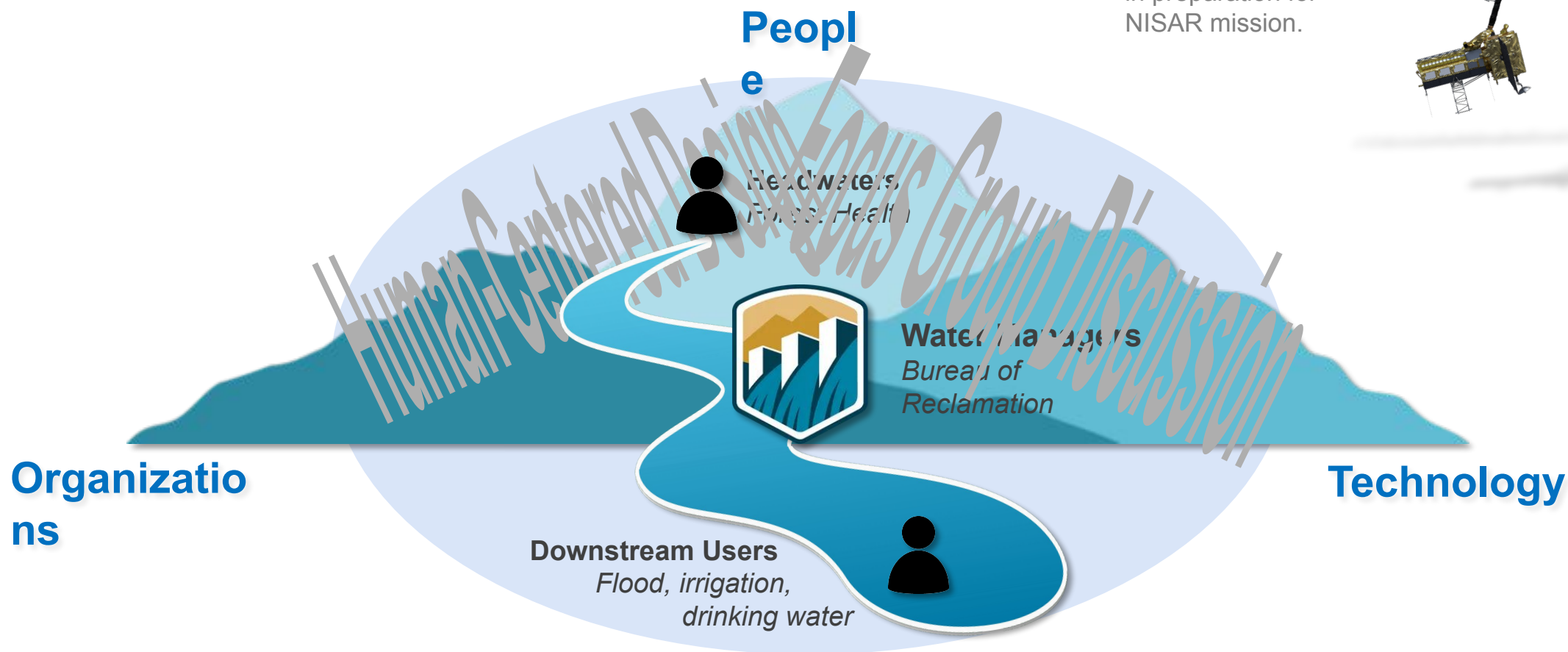




Snow-Water Data Perspectives

- Snow-water data perspectives may differ when moving down the basin system.
- Focus on Bureau of Reclamation's operations.
- Also useful to consider secondary perspectives, consider Reclamation's obligations to disseminate information along with water.

Human Centered Design (HCD)



TOP Model

Boy, G.A. (2023). An epistemological approach to human systems integration. *Technology in Society*, 74: 102298. DOI: [10.1016/j.techsoc.2023.102298](https://doi.org/10.1016/j.techsoc.2023.102298)

Impact Statement

The **mission** for this project is to utilize human-centered design (HCD), to build a lasting relationship with water supply managers, and to receive agency-centered feedback to assist in the technology transfer between satellite snow retrieval researchers and data user decision makers.

The **impact** will be an improvement in the access and usability of runoff prediction and streamflow generation data, which will allow the agency to better manage and deliver water to Rio Grande Basin users.

Focus Group 1

- April Focus Group 1 Meeting.
- Two-hour session with introductions and two activity-based interactions.
- Follow-up meeting with regional office.

Preliminary Results

- Need for both **quantitative** and **qualitative** satellite products.
- New satellite snow datasets will be used to improve River Forecast Center (RFC) models.
- SNOTEL stations are still important!
- Hey this is cool! How can I use it? (e.g., satellite moisture index product)

Project Timeline

Spring/Summer 2025

- ✓ Focus Group 1
- ✓ Hire graduate student assistant
 - Code responses & analysis

Fall 2025

- Focus Group 2
- FG2 coding & analysis

Spring 2026

- Focus Group 3
- FG3 coding, analysis & final reporting



Thank
You!



NASA
earth

science.nasa.gov/earth

Your Home. Our Mission.