National Aeronautics and Space Administration

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A Terrestrial Hydrology Information Dashboard for Water Management Decision Support in the Rio Grande Basin

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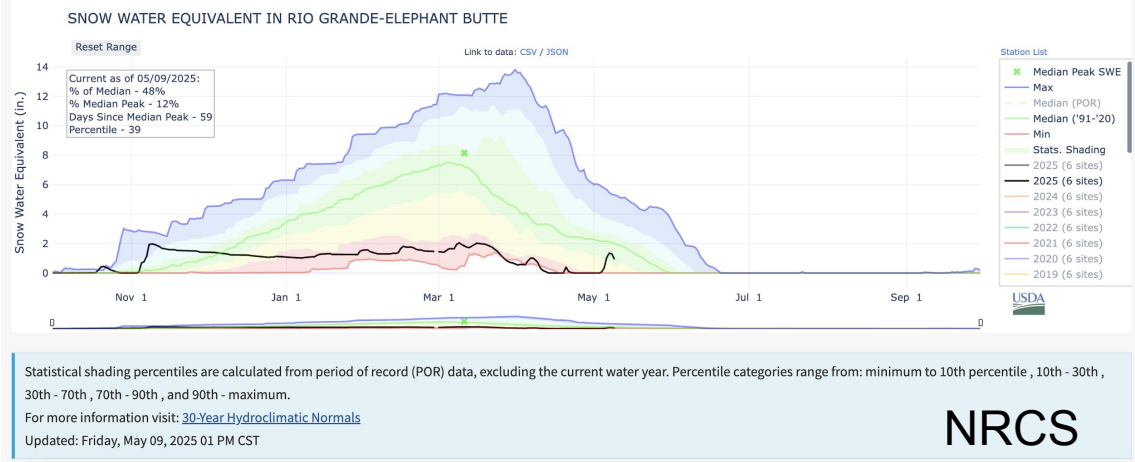
WATER MANAGEMENT NEED

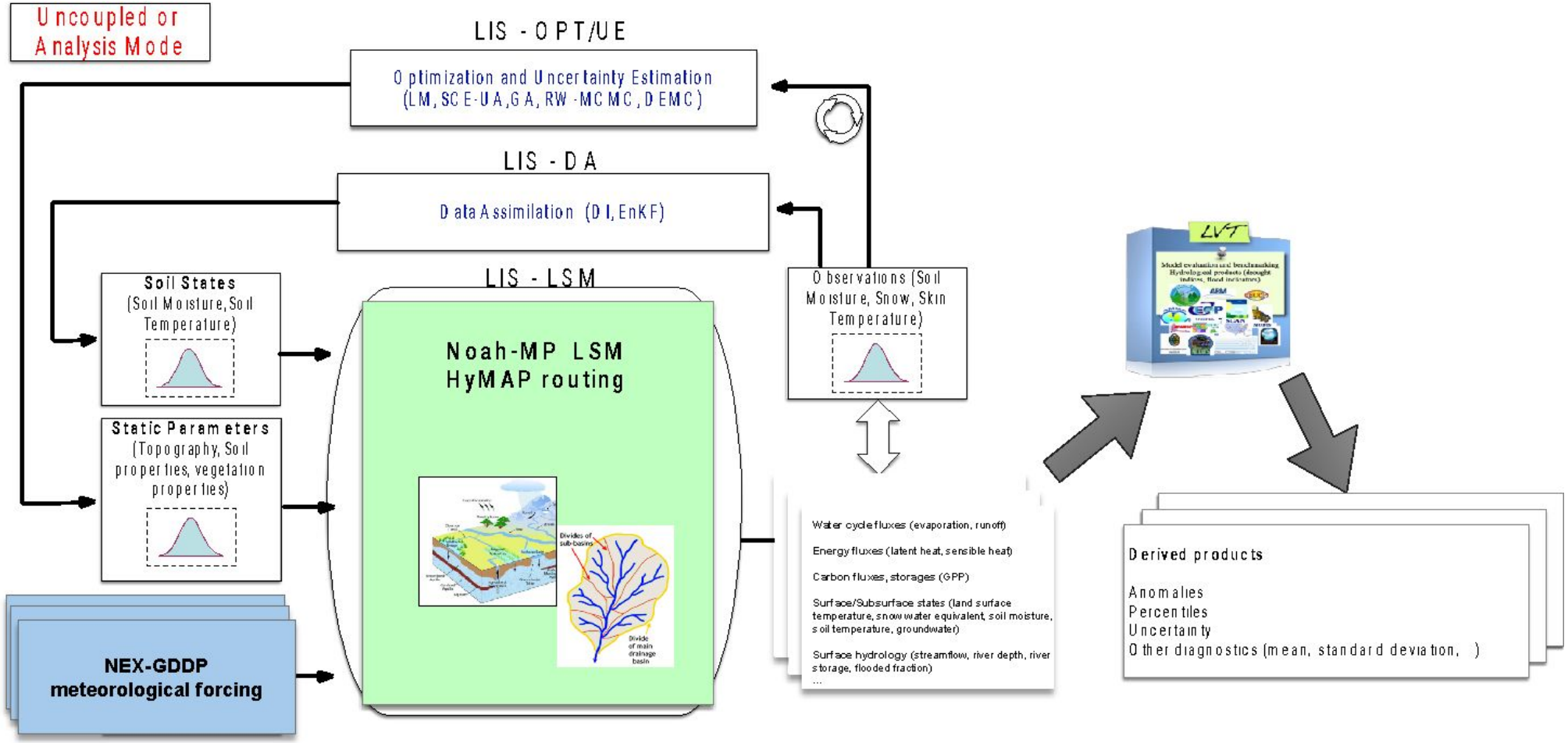
Water Availability in the Rio Grande Basin

- Home to over 1.1 million people (~55% of New Mexico's population)
- Includes 20 Pueblos and Tribes
- Supports ~100,000 acres of irrigated agriculture
- Includes 3 of New Mexico's 4 largest cities
- Includes 2 hydroelectric powerplants (24 MW capacity)
- 3 National Wildlife Refuges

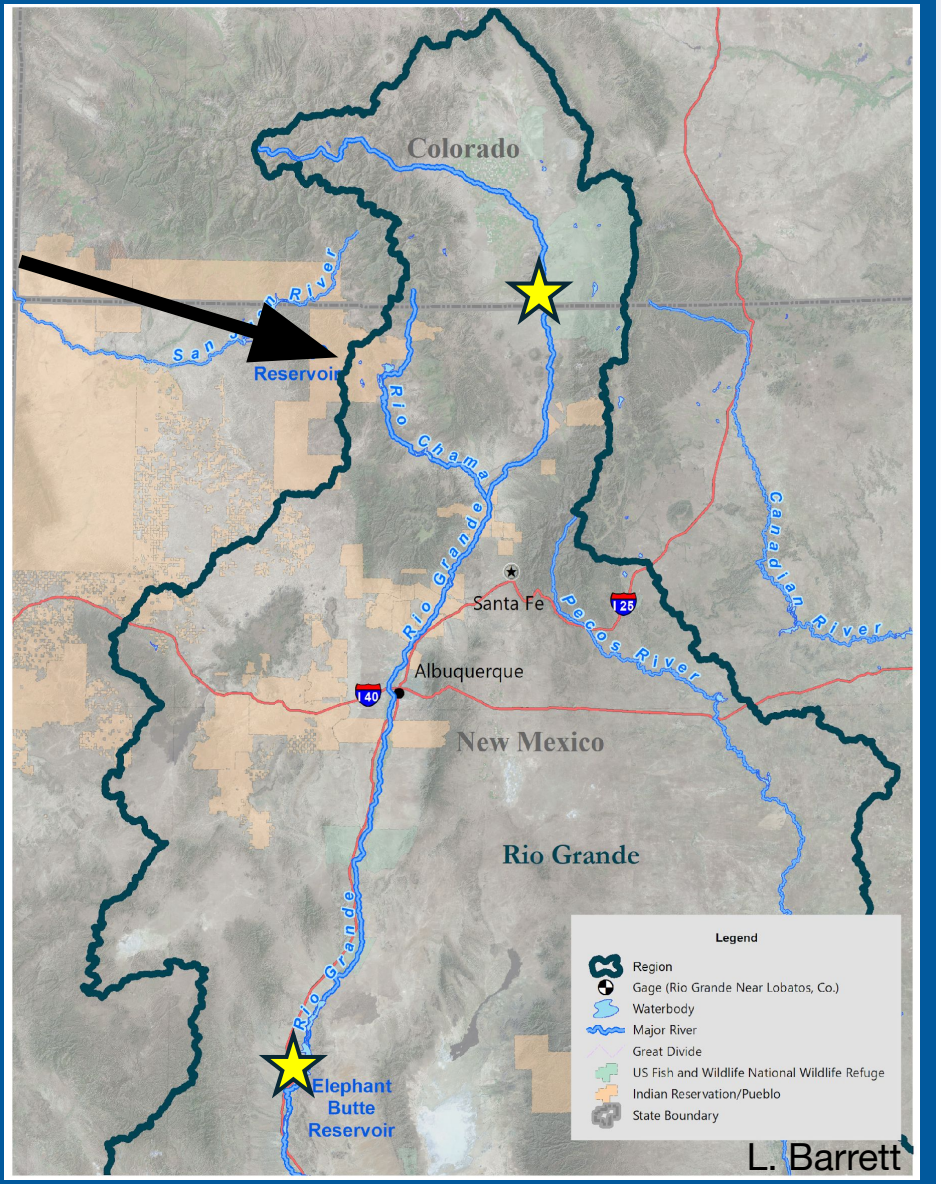
<u>Co-developing dashboard to access NASA hydrological information</u>



Risk Analysis and Solutions Investigators (RASI) Land Information System (LIS)



Schematic of RASI LIS Dataset Production



Reclamation Basin Study

- **Rio Grande Basin** Colorado-New Mexico state line (Lobatos stream gage) to Elephant Butte Reservoir and **trans-basin diversion** San Juan – Chama Project
- **Partners**: Reclamation Albuquerque Area Office (AAO), Middle Rio Grande Conservancy District, local water management agencies, irrigation districts and acequias, farmer organizations, tribes, municipalities, etc.
- **Basin Study Goals**:
  - Increase basin's water security by assessing water supply and demand
  - Provide technical bases for water planning infrastructure

Map of the Reclamation Rio Grande basin study area. The study area spans from the Lobatos Gage to the Elephant Butte Dam.

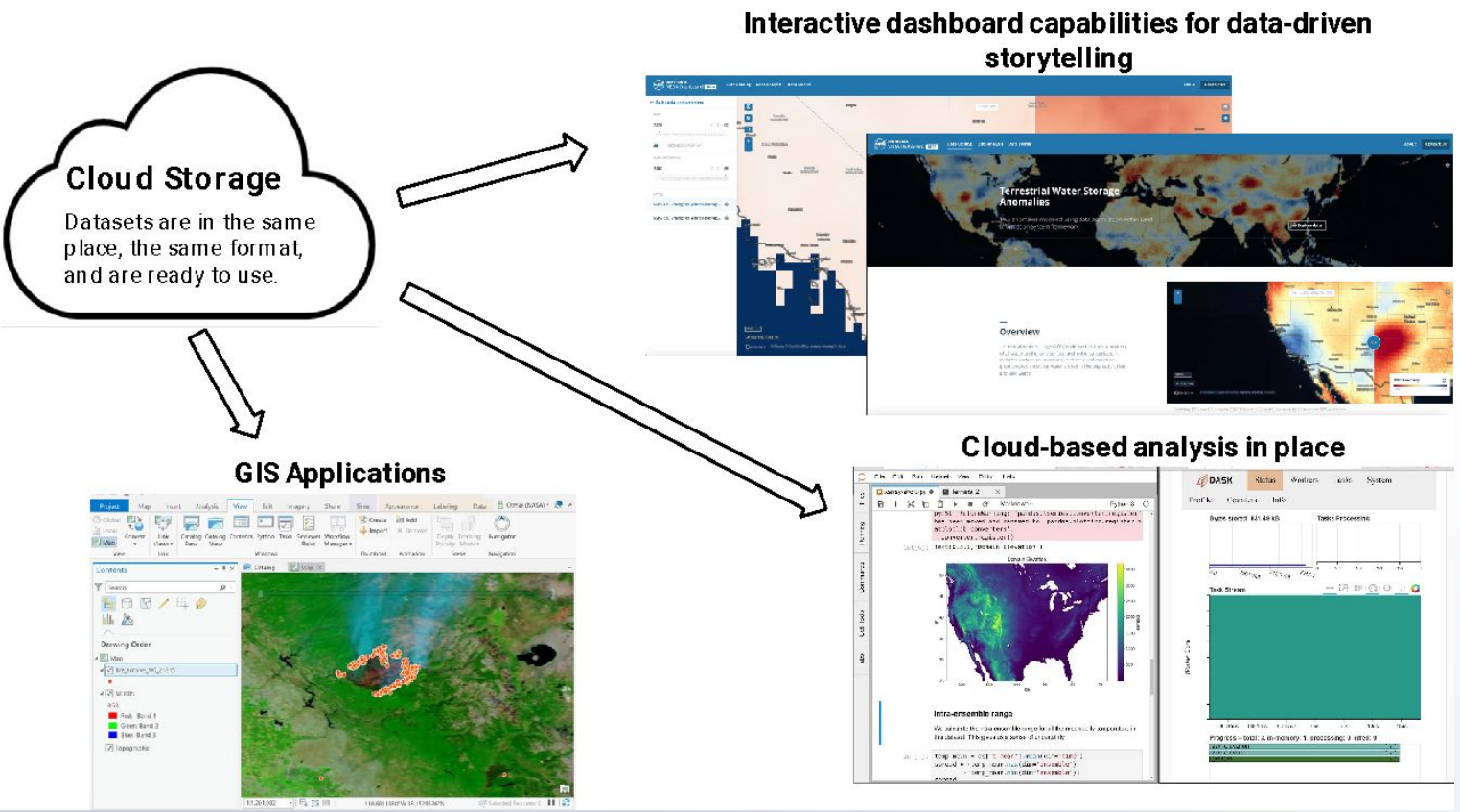
Project Impact

- Co-create Jupyter notebooks for analysis
- Results will appear on NASA's Visualization, Exploration, and Data Analysis (VEDA) open-source science dashboard
- VEDA provides metrics of final tool use (e.g., number of users, sessions per user, engagement time per page)

Tier	Variables (monthly)
1	SWE (mean); total precipitation (total); streamflow (mean); root zone soil moisture (mean); surface temperature (mean)
2	Snowfall (total); snow depth (mean); surface runoff (total); subsurface runoff (total)
3	Soil temperature (mean); terrestrial water storage (mean); groundwater storage (mean); GPP (mean); LAI (mean)

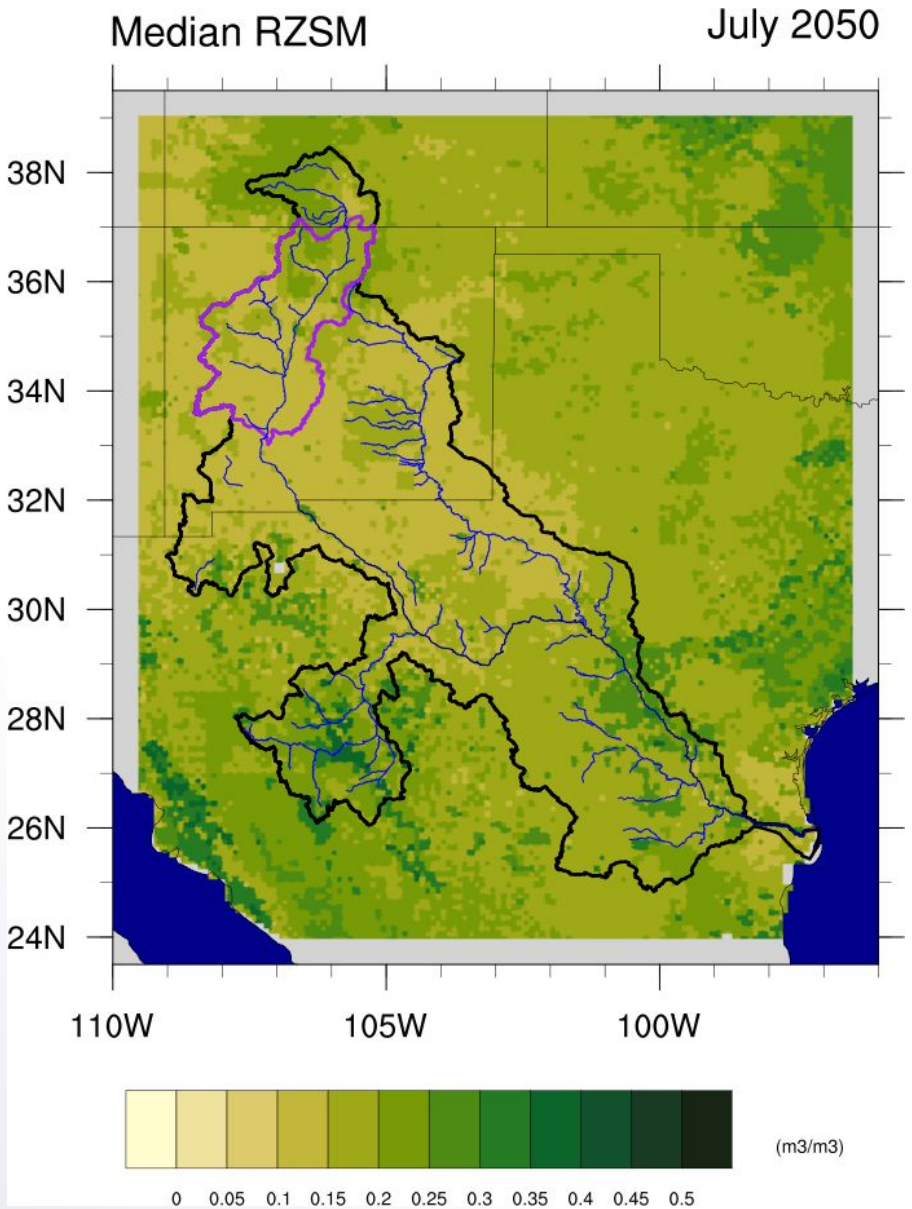
Target variables for dashboard

Project Visuals



Examples of datasets and analyses currently available on VEDA

https://www.earthdata.nasa.gov/dashboard/



Decadal-scale estimate of modeled median root zone soil moisture (RZSM). The study domain in shown in purple.