



National Aeronautics and
Space Administration

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Enhancing Hydrologic Forecasting
in the Rio Grande Basin

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Introduction

- RATES is working towards the development of **1) a demonstrable hydrologic forecasting framework** and **2) prototype decision support tool (PDST)** for the stakeholders within the Rio Grande Basin between the Amistad Reservoir and the Gulf of America that assists with water supply forecasting. Given that 90% of the region's water supply comes from the Rio Grande River, understanding water availability is critical for stakeholders. Findings from the US-IBWC indicate a decline in water availability in the region over the past two decades.



NASA earth



Partner
Outreach
and
Coordination



Workshop
with
Stakeholders



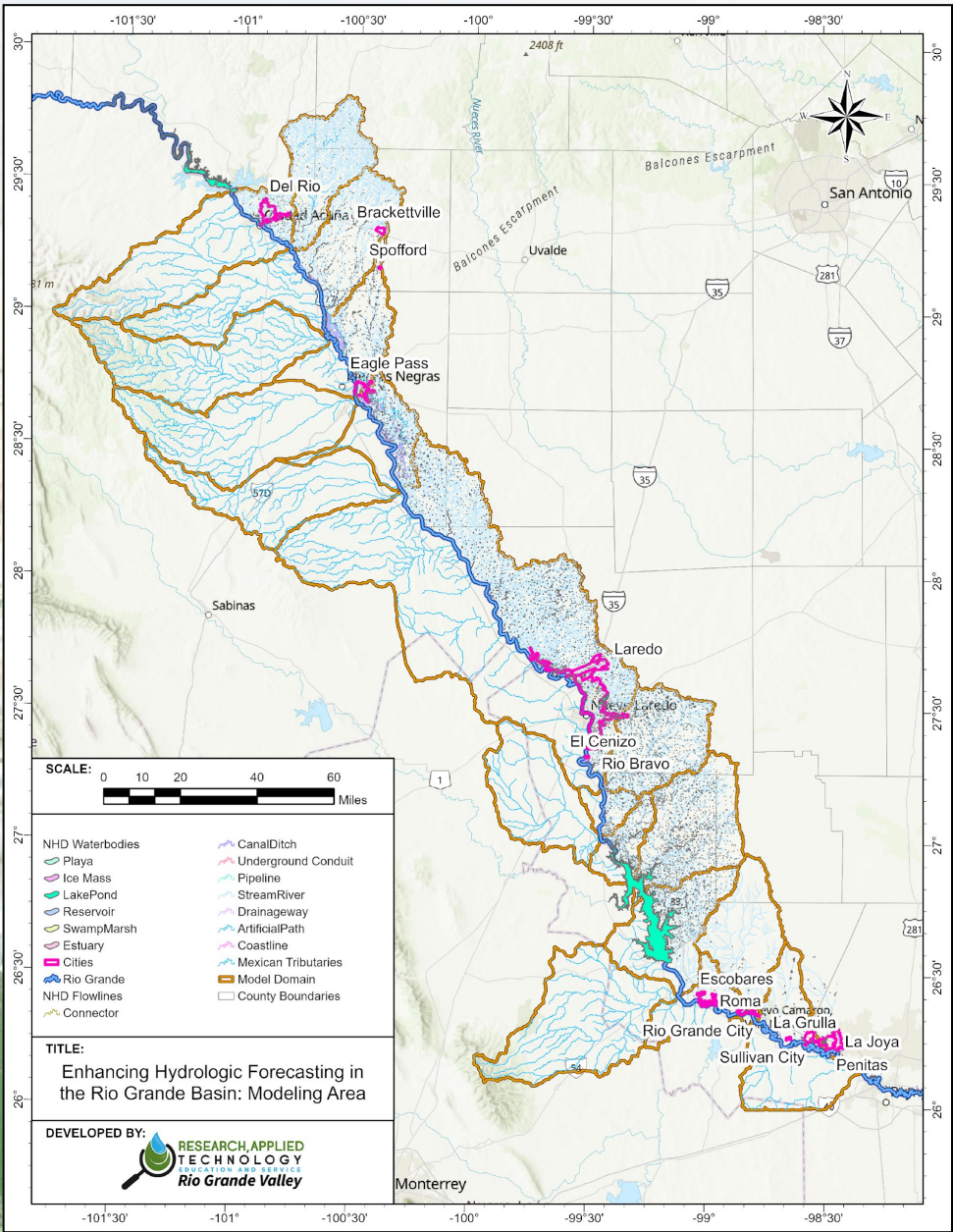
Computer
Model
Development



Prototype
Decision
Support Tool



Project Process.



Modeling area (Focus remain to be the Texan side of the Rio Grande Basin, including a portion of the basin in Mexico).

NASA Dataset Name	Data Applications
GEOS (Global Earth Observing System)	Extract precipitation and temperature.
Modern-Era Retrospective analysis for Research and Applications, Version 2 (MERRA-2)	Estimate evapotranspiration and precipitation.
Moderate Resolution Imaging Spectroradiometer (MODIS)	Land Cover for basin model setup towards obtention of Curve Number.
Visible Infrared Imaging Radiometer Suite (VIIRS)	Update or Verify land cover findings.
Applied NASA data and Technology. Additional datasets might be included.	

Key Partners

Our key partners are the United States – International Boundary Water Commission (US-IBWC) and the Lower Rio Grande Regional Flood Planning Group Region 15 (RFPG-15).

Our partners:

- Provide real-time and historical flow data within the Rio Grande Basin in both nations.
- Provide space to disseminate information related to the project and ease engagement with the stakeholders.
- Deliver them a tool that allows to forecast water availability.

Other Partners:

Texas Water Development Board (TWDB), Texas Commission on Water Quality (TCEQ), Texas Integrated Flood Framework (TIFF), U. S. Bureau of Reclamation (USBR), Additional pertinent entities and Individuals identified through the project's outreach activity.



REGION 15 Lower Rio Grande
Regional Flood Planning Group

Impact

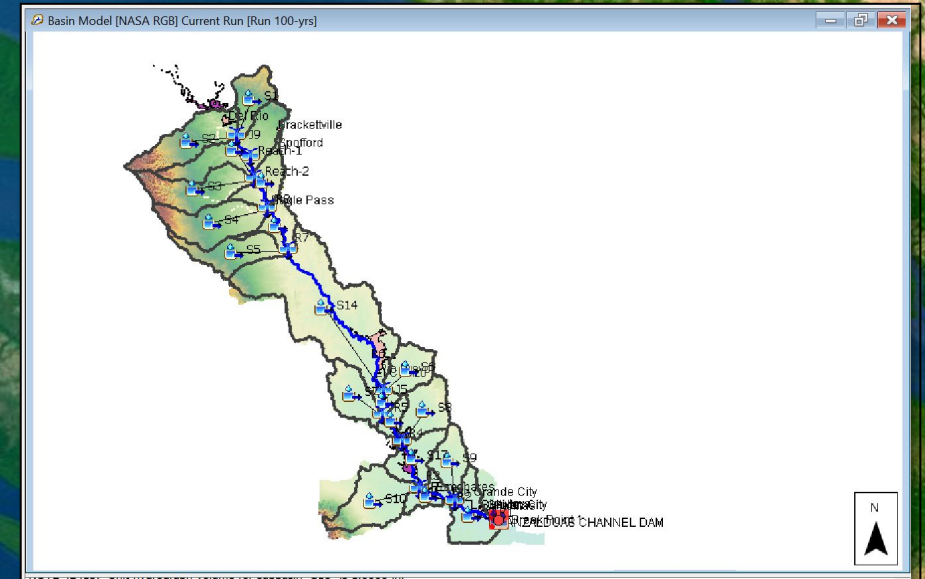
By working with irrigation districts, municipalities, and other partners, we understand their water supply forecasting needs and assess if modeling and PDST can fill data gaps. Most of these municipalities are small, and data is sparse.

With this project we expect to provide a hydrologic model and a water supply forecast that help partners and stakeholders to:

- Dissemination of NASA datasets,
- Inform decision-making (flood and drought conditions),
- Enhance public awareness,
- Enable long-term planning to address water supply challenges.

Keys:

- Hydrologic Model using HEC-HMS, a standard for the region.



Initial Hydrologic Model in HEC-HMS.



Workshop No. 1 hosted at Laredo, TX.

Contact us:

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Our Websites:

- <https://arcg.is/0z8bC9>
- [Enhancing Hydrologic Forecasting in the Rio Grande Basin](#)



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