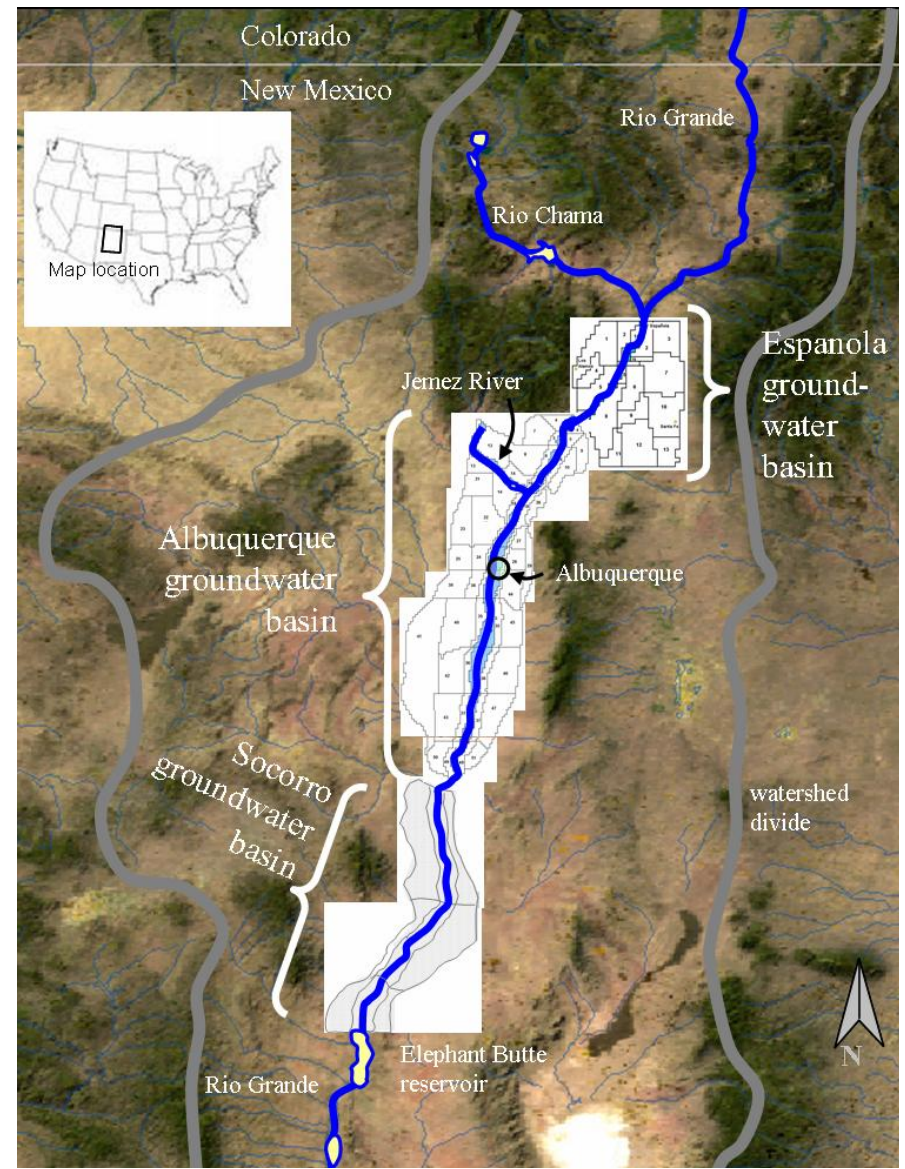


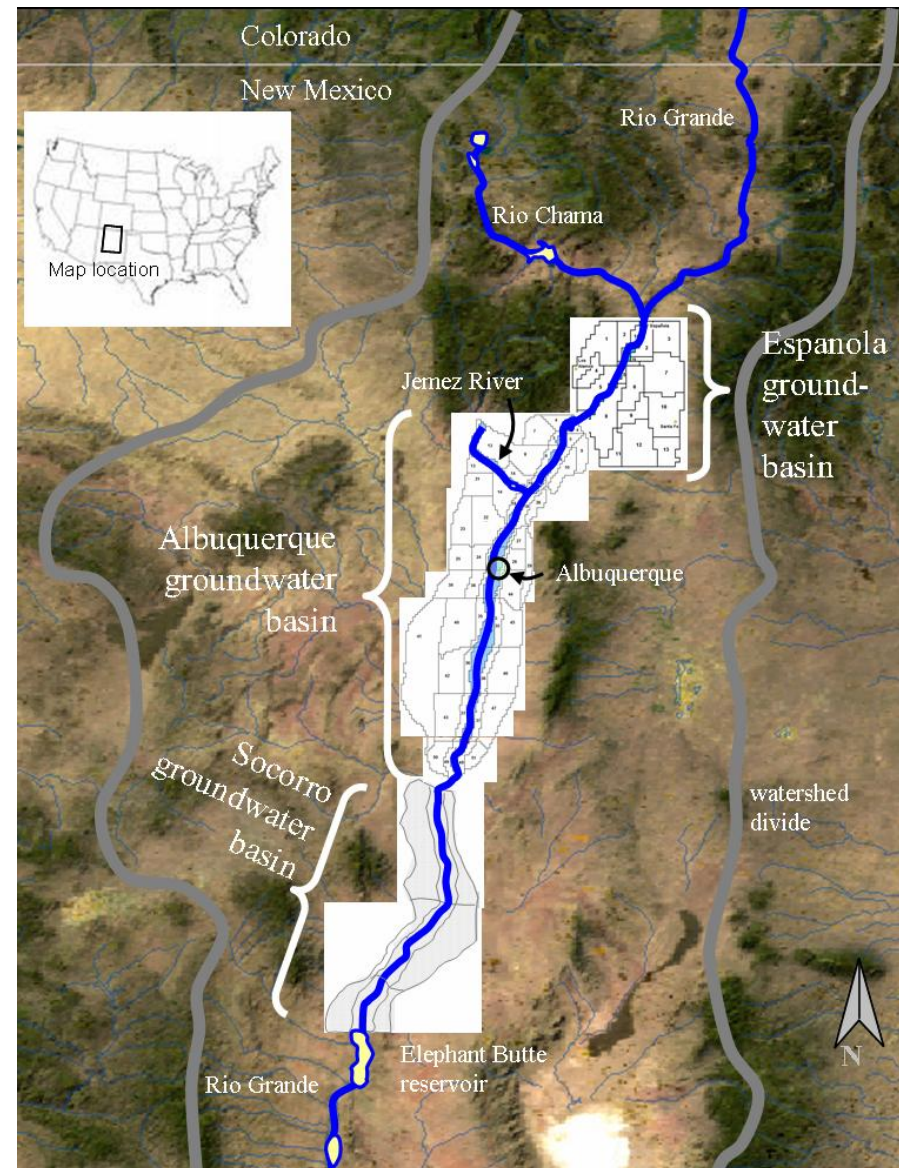
SVP along the Rio Grande: process and products

Jesse Roach
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April 22, 2008



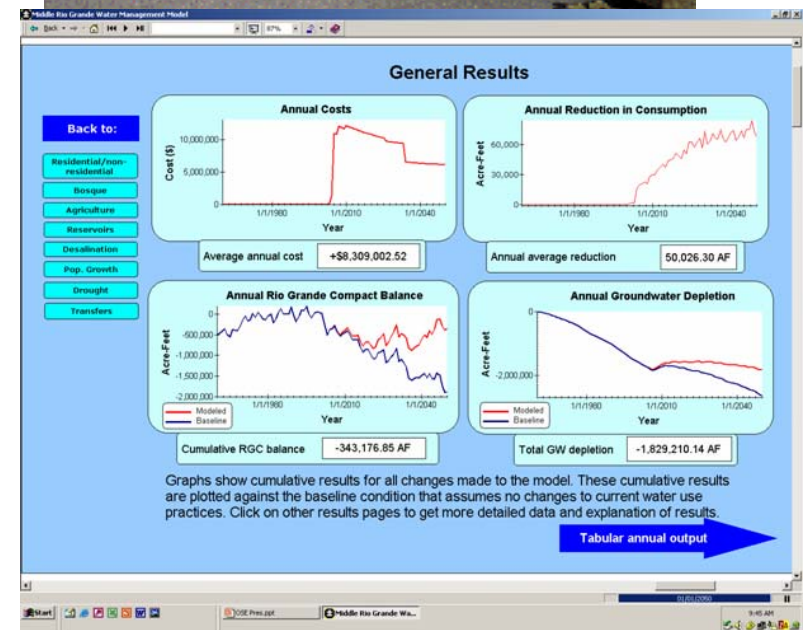
Rio Grande system in New Mexico

- Snowmelt driven system
 - Most water originates in the north
 - Majority of demand in the south
- Human water use
 - Surface water use by agriculture (senior)
 - Groundwater use by municipalities (junior)
- Management challenges
 - Fully allocated and limited supply
 - Endangered species habitat
 - Surface water deliveries to Texas
 - Unsustainable groundwater use by cities
 - Growing population
 - Drought prone
- Established technical analysis tools
 - URGWOM: Daily timestep RiverWare based operations, accounting, forecasting and planning surface water model
 - ET Toolbox: USBoR product for ET estimation
 - MODFLOW: 3 regional gw models



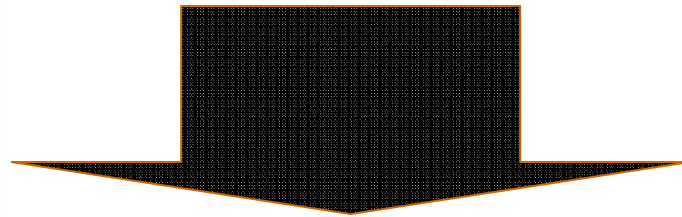
SVP along Rio Grande system in New Mexico

- New Mexico water planning process:
 - 16 planning regions
 - Each tasked with developing a regional water plan
- 2002-2004 SVP used in “Middle Rio Grande” region:
 - Model used to help develop regional water plan.
 - Seeking low cost and sustainable sw and gw use.
 - Annual timestep, spatially lumped.
 - SVP process with non-technical group.
- 2004-2007 next generation of the model
 - Desire among water managers for more spatial and temporal resolution in a rapid “screening” and public outreach tool.
 - Monthly timestep, spatially resolved and extended
 - SVP process with technical group in order to incorporate physical processes as represented by existing analysis tools.



“Tier II” Rio Grande models

Tier I: Conceptual Framework



Tier II:

Annual timestep Middle Rio Grande model

Monthly timestep Upper Rio Grande model: URGSIM



Riverware



Modflow



ETToolbox



Population

Tier III: Detailed Data Sets and Numerical Models



Groundwater Supply, Surface Water Return

- ① Municipal water use has historically been supplied 100% from gw.
- ② Indoor municipal water use goes to wwtp and from there to river.
- ③ Essentially all outdoor municipal water use is lost to atmosphere.

