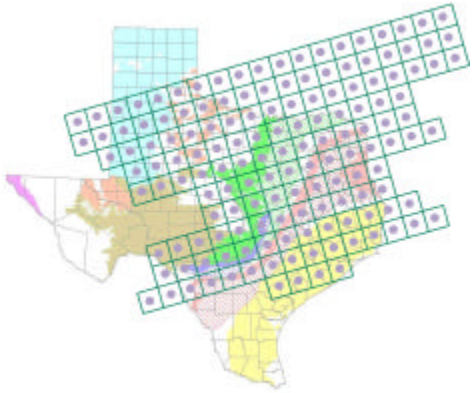
texas water development board

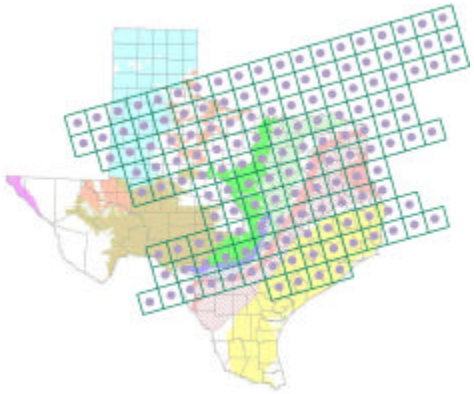


GAM

- Purpose: to develop the best possible groundwater availability model with the available time and money.
- Public process: you get to see how the model is put together.
- Freely available: standardized, thoroughly documented, and available over the internet.
- Living tools: periodically updated.

What is a Numerical Groundwater Flow Model?

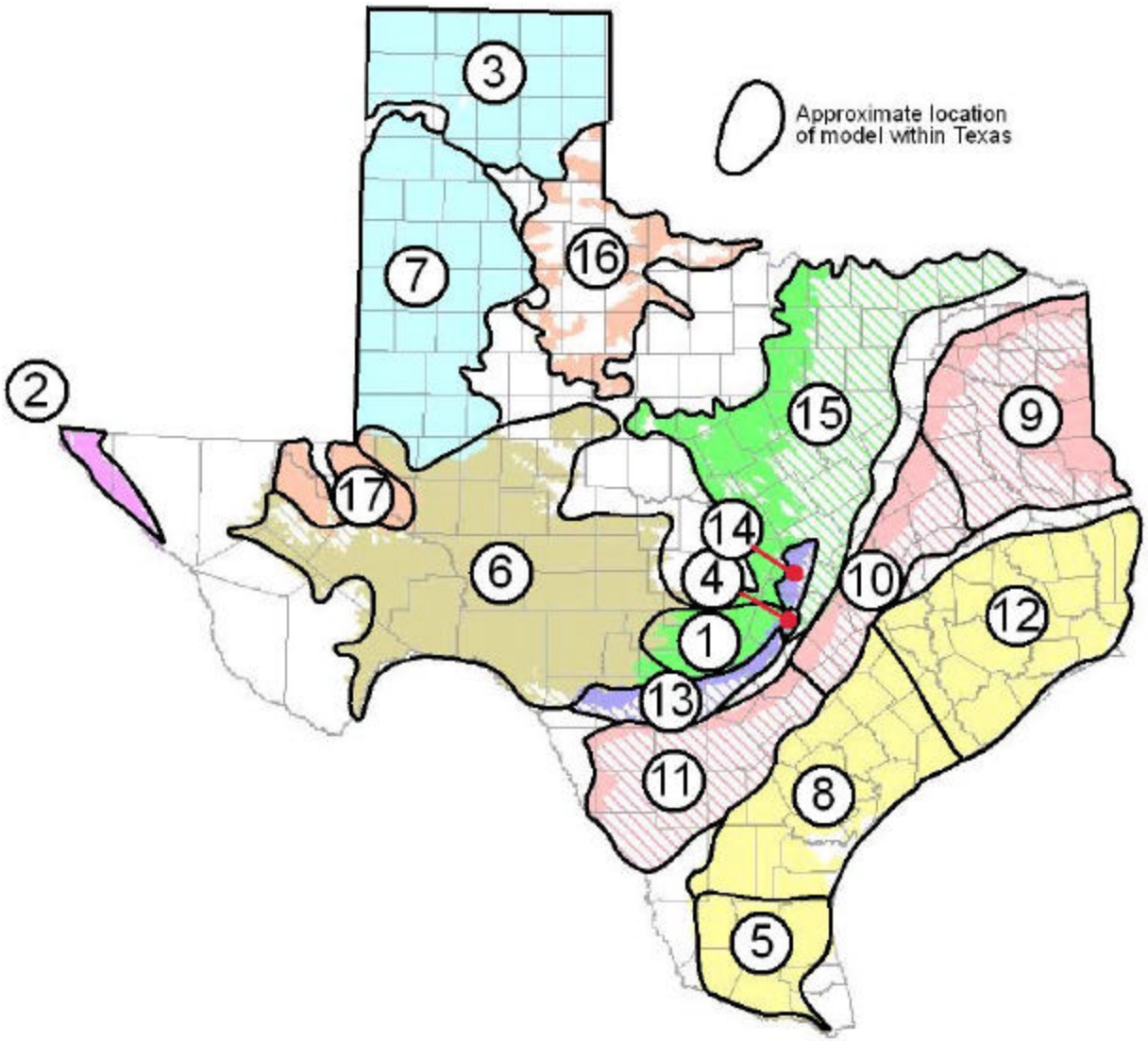
- **'The aquifer in a computer!'**



Groundwater Modeling

- Includes everything we know about the aquifer
- a regional tool to help define groundwater availability
- evaluate water management strategies
- run “What ifs…”

Location of Completed, Ongoing, and Proposed Models for GAM

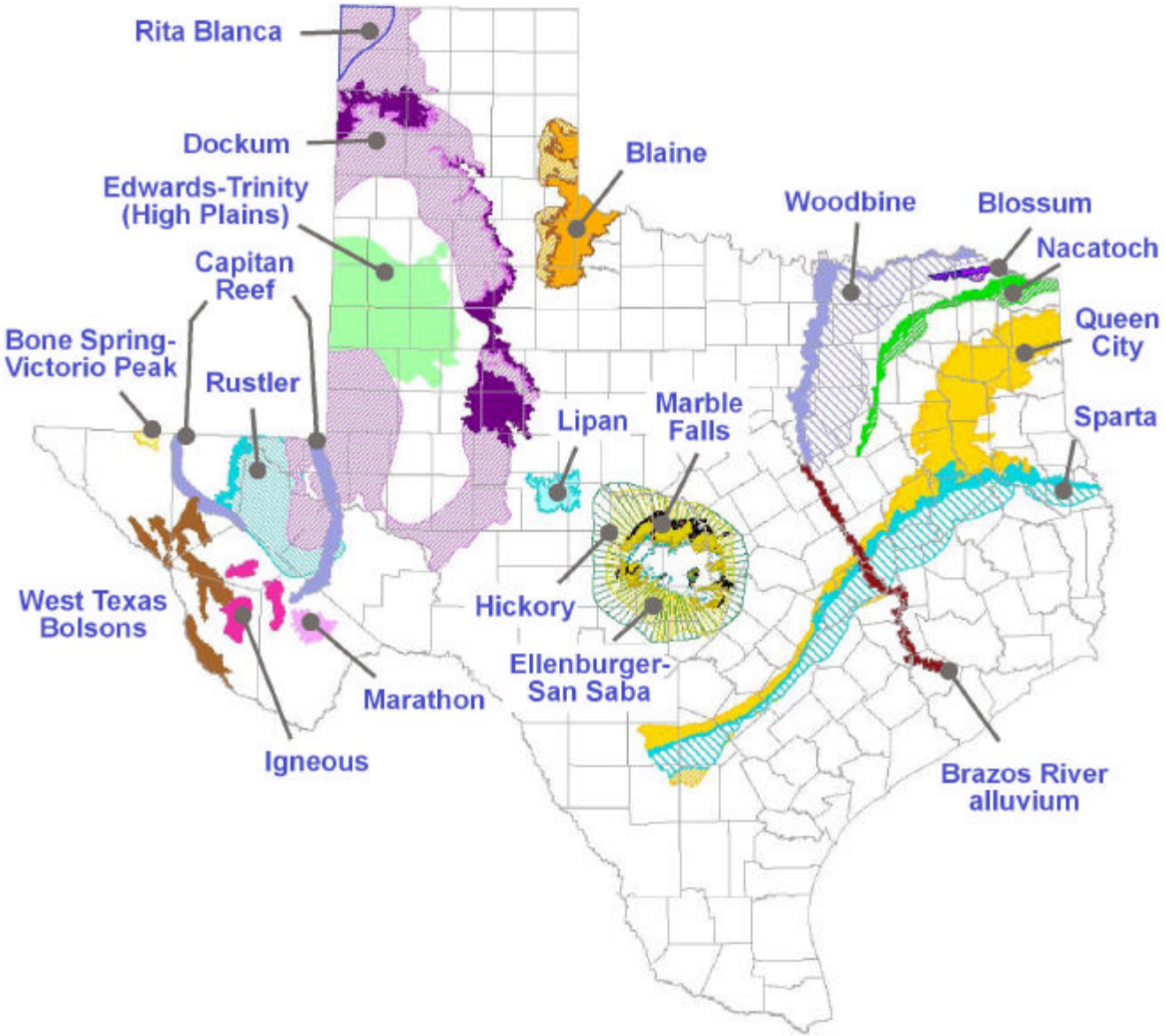


c = completed
o = ongoing
p = proposed

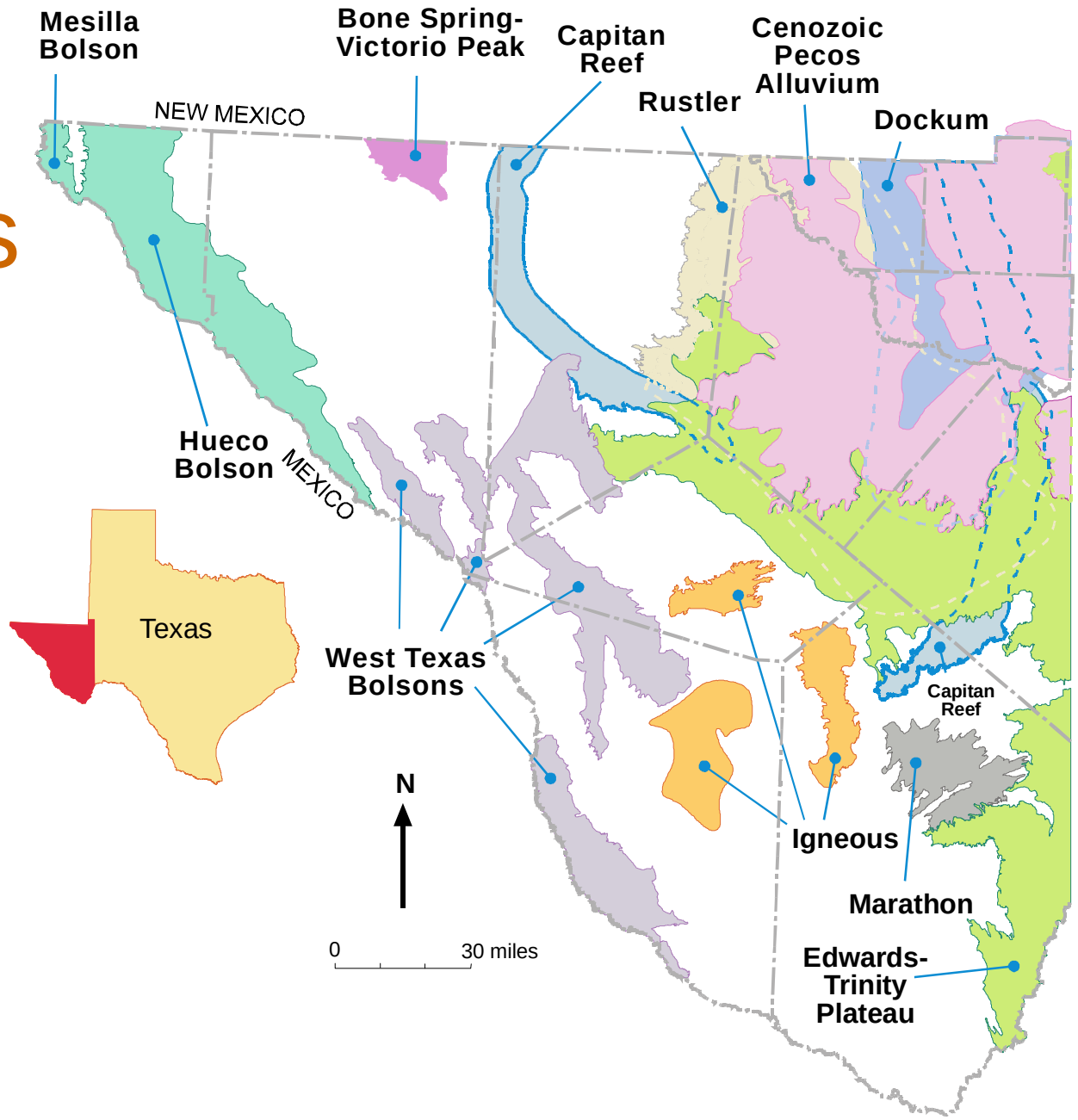
1. Trinity (Hill Country) c
2. Hueco Bolson c
3. Ogallala (northern part) c
4. Edwards (Barton Springs segment) c
5. Lower Rio Grande Valley o
6. Edwards-Trinity Plateau o
7. Ogallala (southern part) o
8. Gulf Coast (central part) o
9. Carrizo-Wilcox (northern part) o
10. Carrizo-Wilcox (central part) o
11. Carrizo-Wilcox (southern part) o
12. Gulf Coast (northern part) o
13. Edwards (San Antonio segment) o
14. Edwards (northern segment) p
15. Trinity (northern part) p
16. Seymour p
17. Pecos Alluvium p

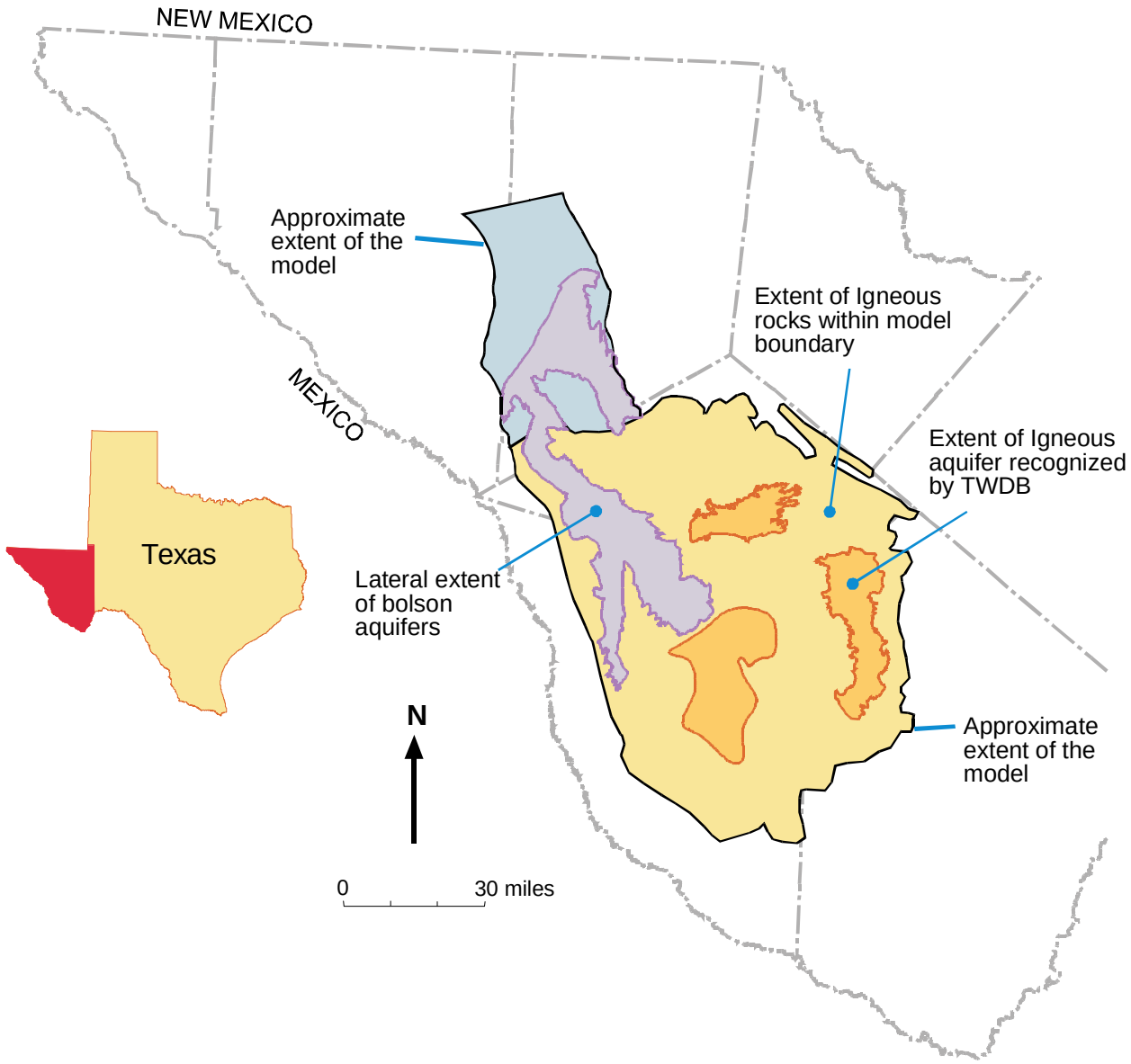
October 2000

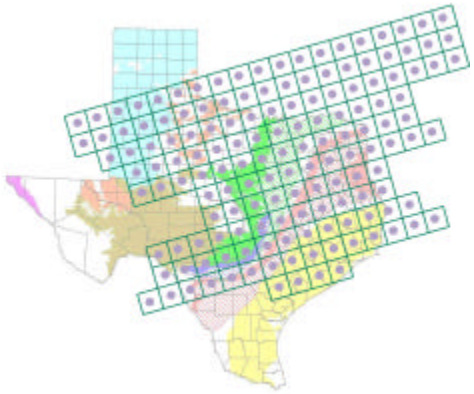
Location of the Minor Aquifers in Texas



aquifers of west texas

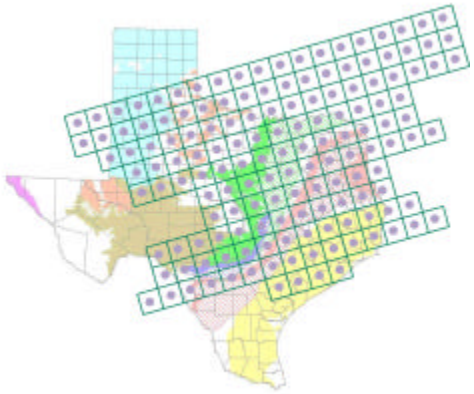



NEW MEXICO
MEXICO
Texas
Approximate extent of the model
Extent of Igneous rocks within model boundary
Extent of Igneous aquifer recognized by TWDB
Lateral extent of bolson aquifers
Approximate extent of the model
N
0
30 miles



We need your help!

- we need:
  - your guidance on the important issues
  - your knowledge on the area
  - your review of the model as it is developed



Stakeholder Advisory Forum (SAF)

- SAF will consist of knowledgeable and interested people
- will meet periodically

On March 11, 2002, the Texas Water Development Board held the first Stakeholders advisory meeting for the West Texas Bolsons/Igneous Aquifer Groundwater Availability Model in Fort Davis, Texas.

Attendance list:

Name	Affiliation
Curtis Schrader	City of Marfa
Liz Hightower	----
David Hartsfield	AMEC Earth and Environmental INC.
Katy Hoskins	Culberson GCD
Janet Adams	Jeff Davis UWCD
Bill Hutchinson	El Paso Water Utilities
Patti Bell	Guadalupe Mts N.Park
James Beach	LBG Guyton Assoc.
John Ashworth	LBG Guyton Assoc.
John Karges	The Nature Conservancy
Andrew Chastain-Howley	WPRC
Jeffery Bennett	John Shoemaker and Assoc.
David P.Dean	----
Gorden Bell	National Park Service
Judith Dyess	NRCS
Larry Turnbough	Reeves County Water Improvement Dist. #1
Crews Adams	Reeves County Water Improvement Dist. #1
Clay E. Miller	Landowner
Bill Miller	Landowner
Bob Dillard	Landowner/newspaperman
Bill Jenkins	Zoresources
Zhuping Sheng	TAMU
Barbara Kauffman	RGCOG

On March 11, 2002, the Texas Water Development Board held the first Stakeholders advisory meeting for the West Texas Bolsons/Igneous Aquifer Groundwater Availability Model in Fort Davis, Texas. The meeting focused on a basic discussion of GAM and requirements for the West Texas Bolsons/Igneous Aquifer model. Some of the questions asked during the forum included:

Question:	Response:
Flow from the West Texas Bolsons into the Balmorhea area, will it be in the model?	The springs won't be modeled but flow out of the West Texas Bolsons will be modeled.
What will the northern edge of the model be?	The northern edge will be somewhere up in the southern portion of the Salt Flats area.
Will there be funding for additional data collection like pumping test, more water levels, or will you just model with the data the you have presently?	Right now we plan to model with the available data. We think there is sufficient data to develop a useful model. While you can't have to much data, it is expensive to collect and there may not be enough funding in the GAM process to support much data gathering.
What kind of recharge data is available and is it good enough?	Let RFQ respondents recommend what would be best.
How do you determine what is flaw in the model and what are "really" results?	The calibration phase of the model is you can determine how well the model will perform. It is likely that the portion of the model that covers the Igneous Aquifer will be more interpretive.
Will we be able to see how recharge has changed over time?	It will depend how well recharge is estimated and determined.
Is the water old or new?	Water in the Bolsons is new on the margins where recharge is likely to occur and older in the center where the water has migrated over time.
In the Igneous Aquifer is there more information from Public wells than private wells?	Yes.
Will water quality be modeled?	No water quality will not be included in this version of the model, it is possible that it could be added at a later date. The report will include a section on water quality though.
Is there good pump test data available for the model?	The are approximately 64 test available for the Salt Basin area, but
Will the Capitan be include in this model?	Probably not, unless there are strong reasons for doing so.
Will we be able to measure the contribution from the Bolsons to the Springs at Balmorhea?	We think that will be possible when the model is finished.
How often will Stakeholder Advisory Forums be held?	Once every three months.