



SAN ANTONIO
RIVER AUTHORITY

Leaders in Watershed Solutions

Flood Technology Initiatives

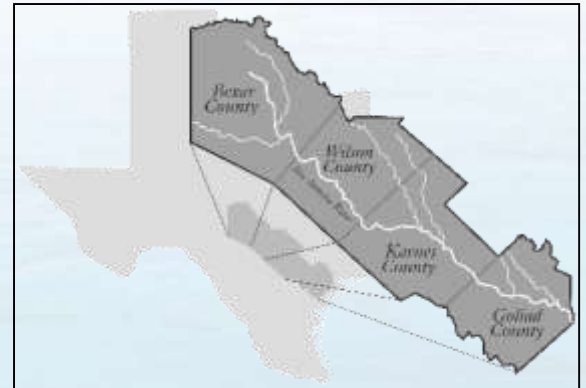
CAHMDA-VI

8 September 2014

General Information

San Antonio River Authority

- Texas enabling legislation passed in 1937.
- Charged with protection and management of the San Antonio River and its tributaries.
- Jurisdiction covers 3,666 square miles (9,494 sq-km).



Regional Flood Challenges

- Watershed response times are fast
- Stream velocities are high
- NWS model runs too far apart
- Response resources often overwhelmed
- Event magnitudes are “unbelievable”



South-Central Texas Rainfall Records

- Thrall (1921): 36"/18 hrs
- Ingram (1932): 36"/24 hrs
- D'Hanis (1935): 22"/3 hrs
- Pandale (1954): 32"/24 hrs
- New Braunfels (1972): 10"/1 hr
- TS Amelia (1978): 48"/52hrs
- TS Claudette (1979): 43"/24 hrs
- Zorn (1998): 32"/18 hrs
- TS Charley (1998): 18"/4 hrs
- Kerr County (2002): 42"/5 days

High Resolution Topography



Data Comparison:

Top: USGS 10 meter
Digital Elevation Model

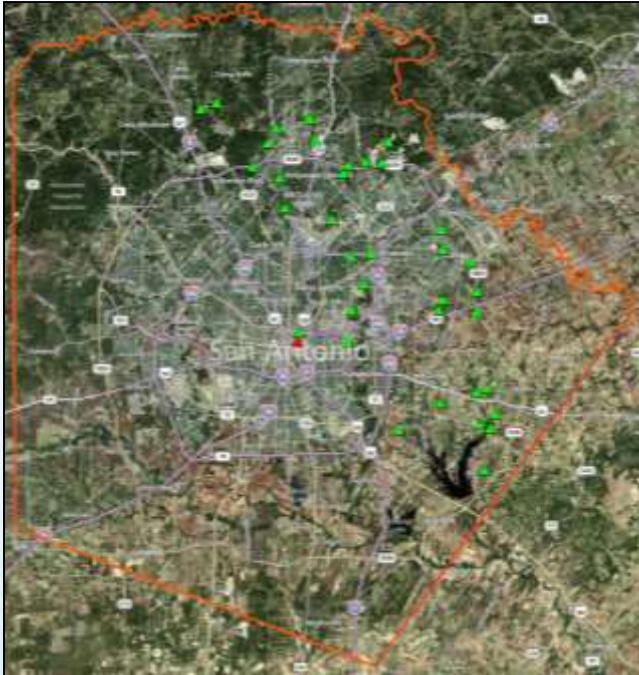
Bottom: LiDAR 1 meter
Digital Elevation Model



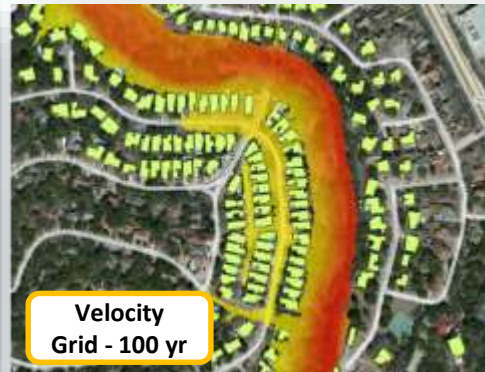
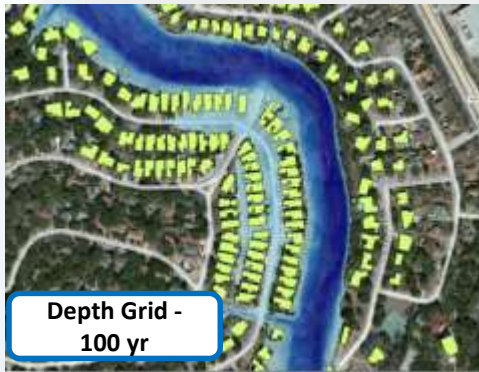
Dam & Spillway:

SARA Dam in Karnes
County, Texas

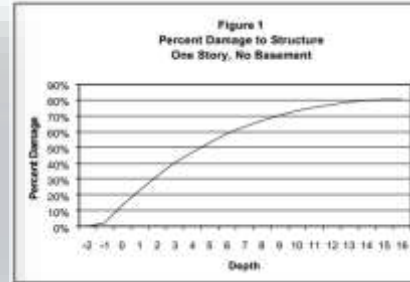
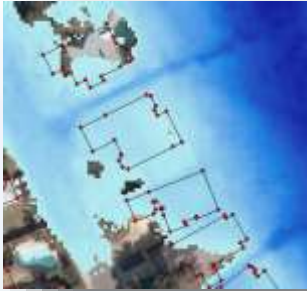
Dam Instrumentation



RiskMap



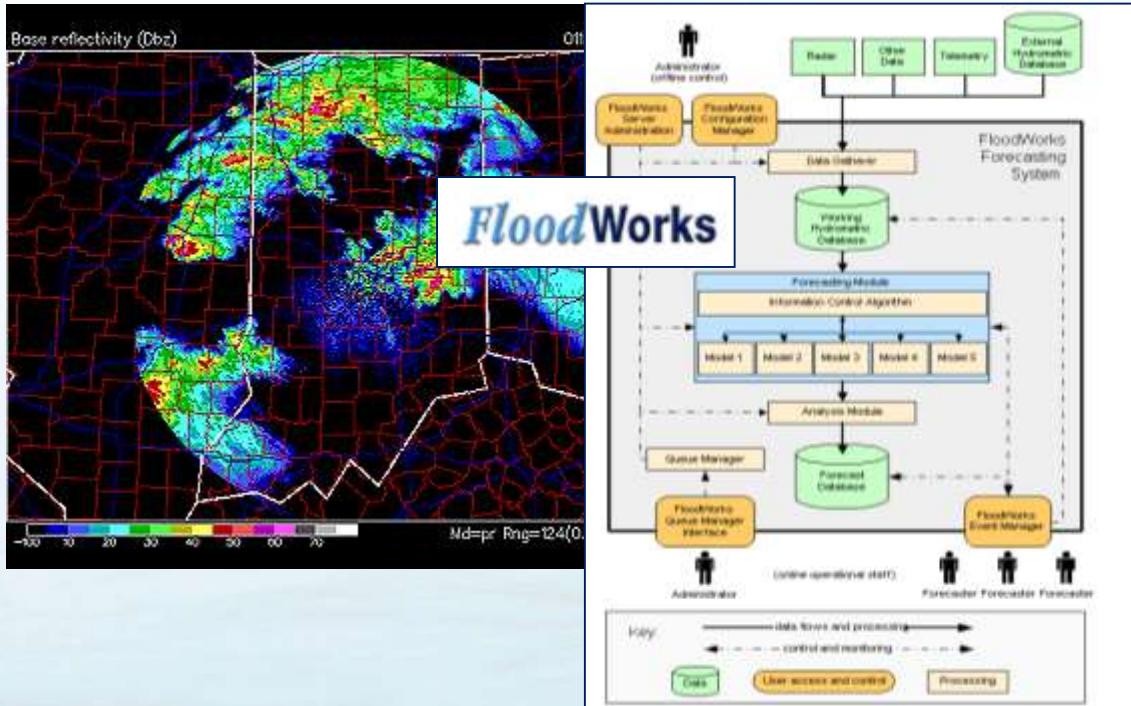
RiskMap



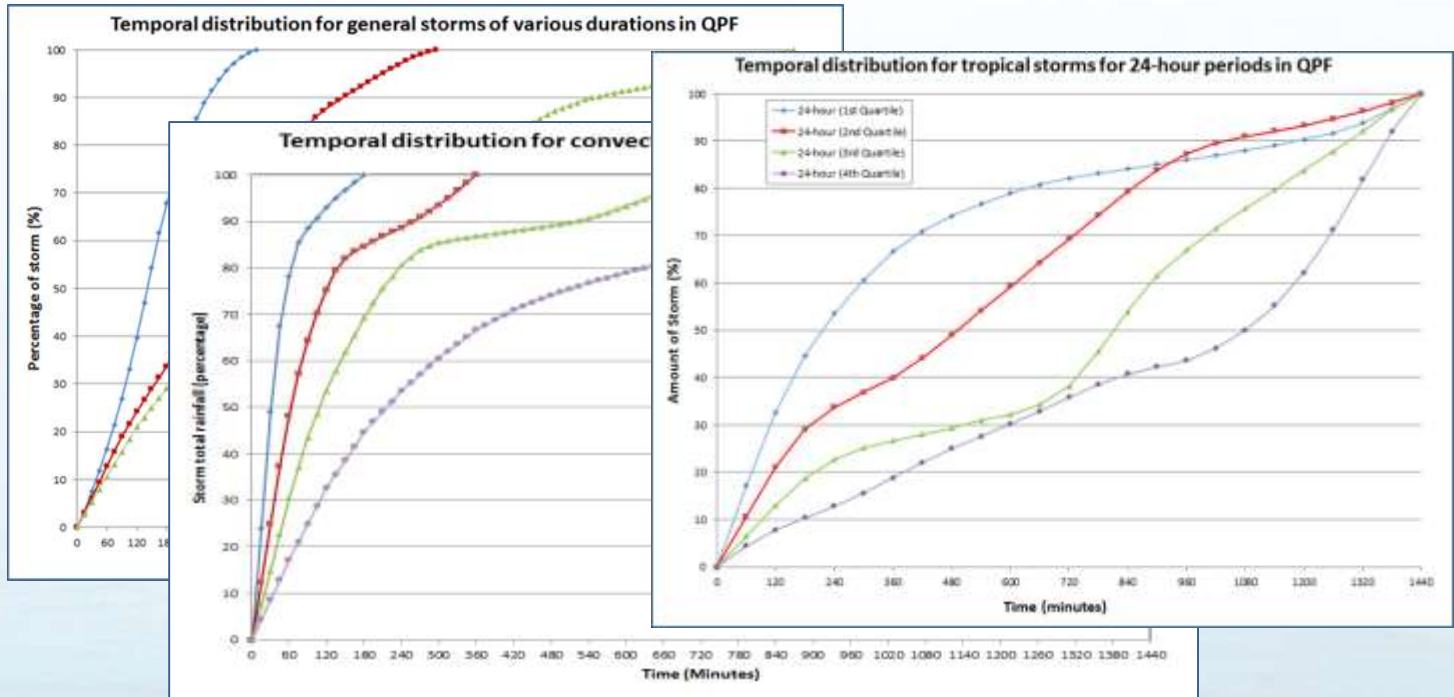
	10%	4%	2%	1%	0.2%
Generalized Method	\$5,568,110	\$14,784,840	\$23,035,450	\$34,361,110	\$69,414,180
Depth vs. Damage	\$1,931,794	\$5,156,434	\$8,544,032	\$13,403,508	\$32,134,934

	AAL Estimates
Generalized Method	\$1,829,703
Refined Method	\$705,812

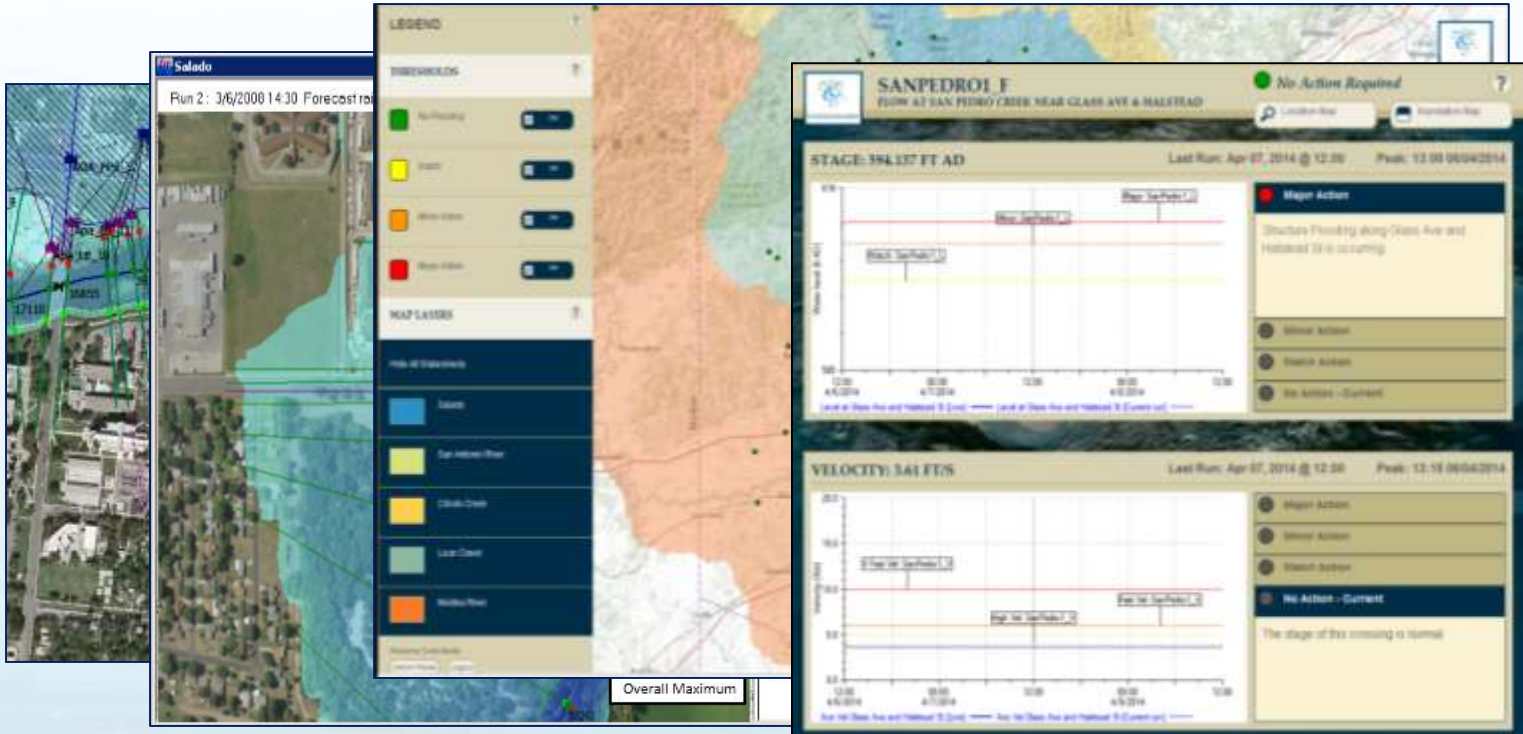
Near-Real Time Flood Modeling



Near-Real Time Flood Modeling



Near-Real Time Flood Modeling



Questions?



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