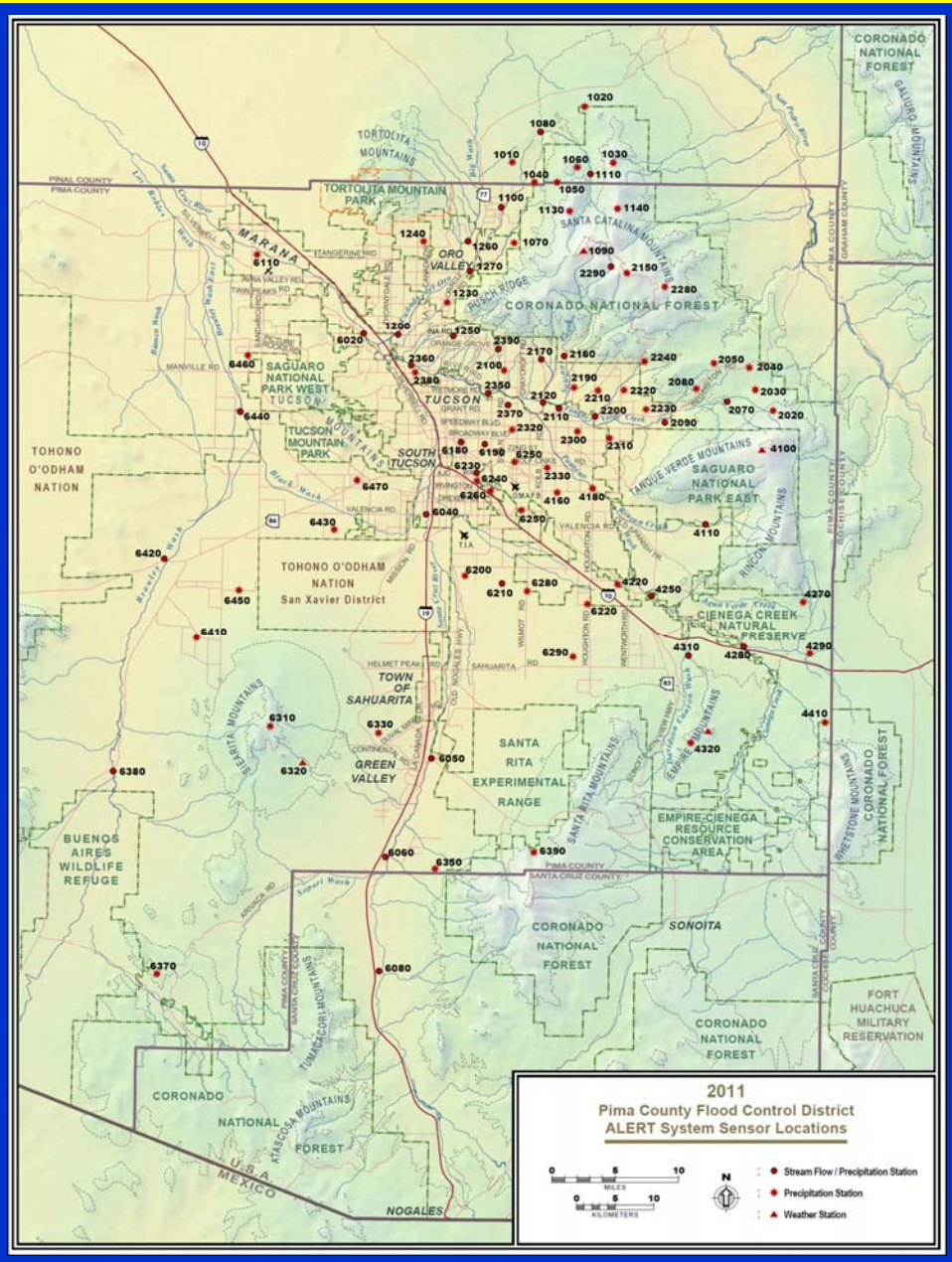
The Pima County Regional Flood Control District's ALERT System

History of ALERT in Pima County

- Established in 1981
- Response to breach of Golder Dam
- Participants
  - National Weather Service
  - Arizona Department of Water Resources
  - Pima County Regional Flood Control District

ALERT Sensor Location

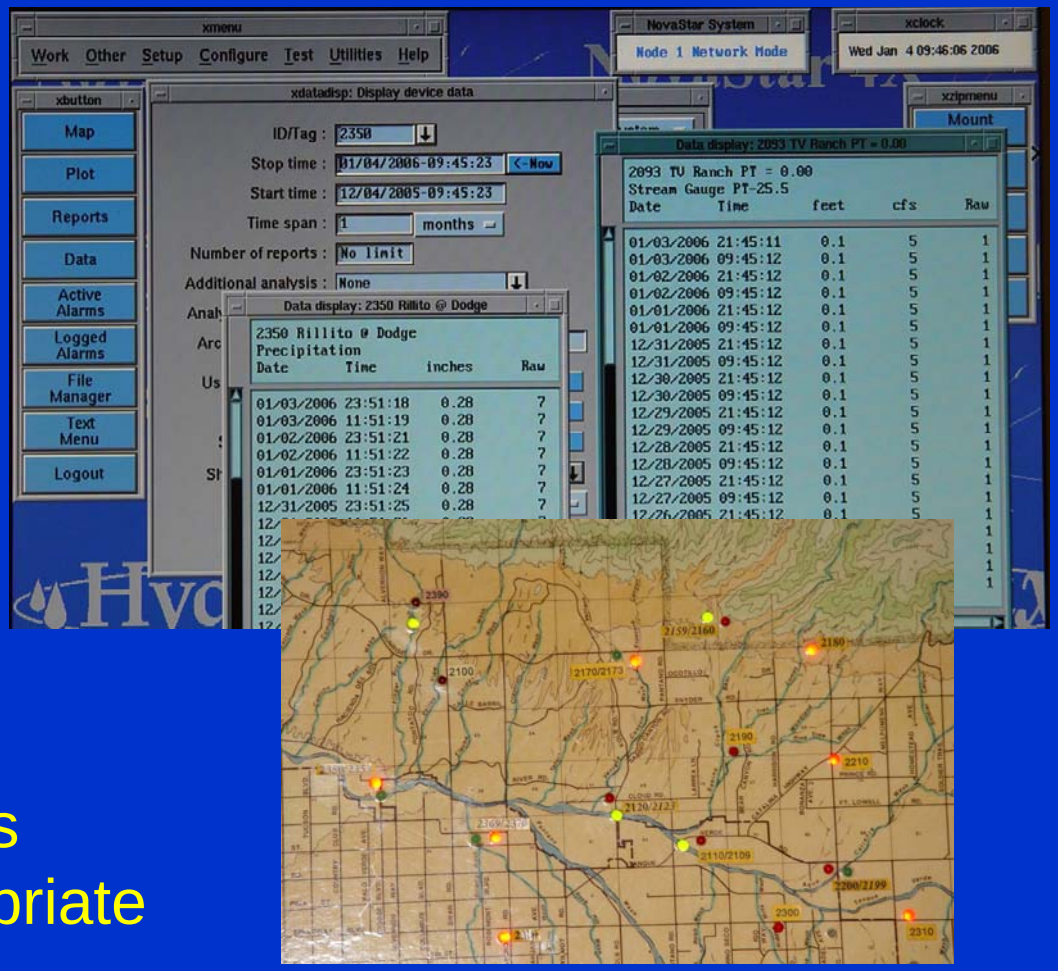
- 36 streamflow gages
- 93 precipitation gages
- 5 weather stations



Maintenance and Operation

- Precipitation - annually
- Streamflow - twice a year and after significant flow events
- Computer hardware and software updated routinely
- Data edited and archived
- Hydraulic models are updated if significant channel modifications occur

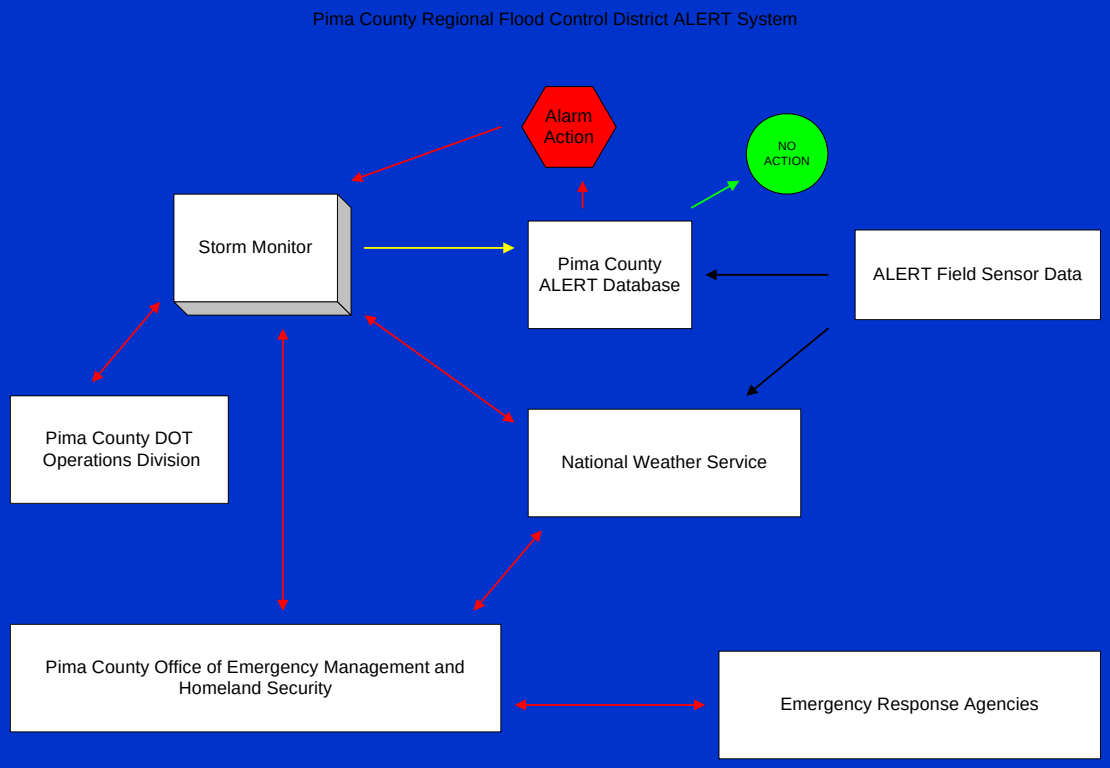
ALERT Database/ Storm Monitoring



- Data is received, processed, formatted, and archived
- When sensors exceed a threshold an Alert is triggered – storm monitor is contacted
- Storm monitor assesses situation, contacts appropriate personnel
- Continues monitoring until threat recedes

Notification

- PCDOT Operations Division
- National Weather Service
- Pima County Office of Emergency Management and Homeland Security



What ALERT provides

- Data specific to a particular location
  - Rainfall
  - Streamflow
- Notification of significant storm activity at a gauge
- Historical record of previous storms

What ALERT can not provide

- Temporal or spatial distribution of rainfall over an entire watershed
- Streamflow on an ungaged watershed

Challenges

- Not a fully automated system – requires analysis and actions by people.
- Development in hazardous areas and changes to watershed characteristics
- No two storms are alike
- Ideal siting of ALERT gauges

ALERT System Summary

- The ALERT System can not provide information where no data exists – it is not a crystal ball.
- In areas where known flood hazards exist along our major waterways, ALERT is a very effective tool.
- ALERT data helps to make roads safer, maintenance more efficient, and travel safer.
- When there is adequate lead time, emergency response agencies can be provided with information to assist them to reduce loss of life and property damage.

ALERT System Data on the Internet

Pima - Windows Internet Explorer

http://159.233.69.3/perl/Pima.pl

File Edit View Favorites Tools Help

Pima County Regional Flood Control District ALERT System

DISCLAIMER: ALERT System data come from remote automatic sensors. These data are being supplied for general information only. The Pima County Regional Flood Control District makes no warranty, expressed nor implied, regarding the accuracy of data provided.

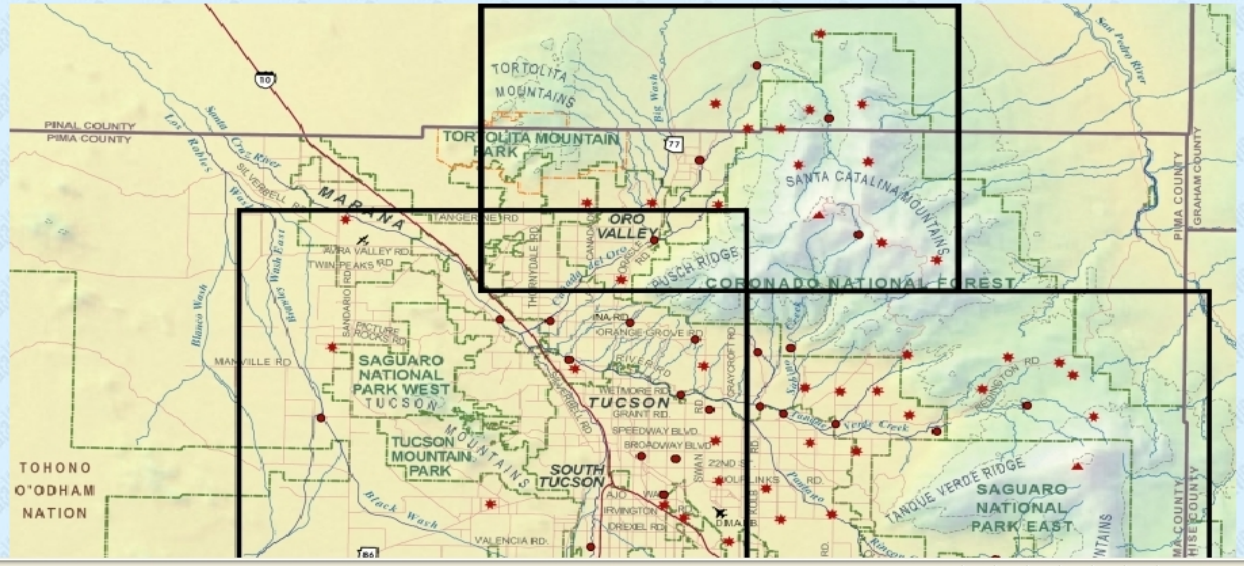
ALERT System Home Page Precipitation and Other Data Reports

For the most recent 24 hour precipitation totals, click on an outlined area on the map below.
For other time periods or other types of sensors, make selections below and press the Set Display Period button.

View ○ Rainfall ⊙ Stage(depth) & WeatherMaps; Ending Date 09/06/11 Ending Time (24 Hr) 1142

Going Back 24 ○ Minutes ⊙ Hours ○ Days

Push Button to Complete [Set Display Period]



Map 2

Map 2 Upper Tanque Verde

For individual sensor data, click on displayed values.

Upper Tanque Verde: 84 days 09/06/11 24:00:00

Group Hourly Precipitation Sensor Data

Due to physical site characteristics, beginning stage values may not accurately reflect water depth at stream gauges.

Main Map Map 1 Map 3 Map 4 Map 5

Text Reports

Reports - Windows Internet Explorer

http://159.233.69.3/temp/Reports.html

File Edit View Favorites Tools Help

REPORTS:

PRECIPITATION - 24 hour report, data updated every 15 minutes

Precipitation Report

STREAMFLOW - 12 hour reports, data updated every 15 minutes

Cañada Del Oro Wash

Tanque Verde Wash

Rillito Creek

Pantano Wash

Santa Cruz River

Brawley Wash

Precipitation Gauge Text Report

http://159.233.69.3/temp/pptreport.txt - Windows Internet Explorer

Pima County Regional Flood Control District ALERT System: Precipitation Report

Precipitation Report for the following time periods ending at: 11:39:00 09/06/11
(data updated every 15 minutes)
Data is preliminary and unedited.
---- indicates missing data

Gauge ID#	15 minutes	1 hour	3 hours	6 hours	24 hours	Name	Location
Catalina Area							
1010	0.00	0.00	0.00	0.00	0.00	Golder Ranch	Horseshoe Bend Road in Saddlebrooke
1020	0.00	0.00	0.00	0.00	0.00	Oracle Ranger Stati	approximately 0.5 mile southwest of Oracle
1040	0.00	0.00	0.00	0.00	0.00	Dodge Tank	Edwin Road 1.3 miles east of Lago Del Oro Parkway
1050	0.00	0.00	0.00	0.00	0.00	Cherry Spring	approximately 1.5 miles west of Charouleau Gap
1060	0.00	0.00	0.00	0.00	0.00	Pig Spring	approximately 1.1 miles northeast of Charouleau Gap
1070	0.00	0.00	0.00	0.00	0.00	Cargodera Canyon	northeast corner of Catalina State Park
1080	0.00	0.00	0.00	0.00	0.00	CDO @ Rancho Solano	Cañada Del Oro Wash northeast of Saddlebrooke
1100	0.00	0.00	0.00	0.00	0.00	CDO @ Golder Rd	Cañada Del Oro Wash at Golder Ranch Road
Santa Catalina Mountains							
1030	0.00	0.00	0.00	0.00	0.00	Oracle Ridge	Oracle Ridge, approximately 1.5 miles north of Rice Peak
1090	0.00	0.00	0.00	0.00	0.00	Mt. Lemmon	Mount Lemmon
1110	0.00	0.00	0.00	0.00	0.00	CDO @ Coronado Camp	Cañada Del Oro Wash 0.3 miles south of Coronado Camp
1130	0.00	0.00	0.00	0.00	0.00	Samaniego Peak	Samaniego Peak on Samaniego Ridge
1140	0.00	0.00	0.00	0.00	0.00	Dan Saddle	Dan Saddle on Oracle Ridge
2150	0.00	0.00	0.00	0.00	0.00	White Tail	Catalina Highway 0.8 miles west of Palisade Ranger Statio
2280	0.00	0.00	0.00	0.00	0.00	Green Mountain	Green Mountain
2290	0.00	0.00	0.00	0.00	0.00	Marshall Gulch	Sabino Creek 0.6 miles south southeast of Marshall Gulch
Santa Catalina Foothills							
2090	0.00	0.00	0.00	0.00	0.00	TV @ Guest Ranch	Tanque Verde Wash at Tanque Verde Guest Ranch
2100	0.00	0.00	0.00	0.00	0.00	DEQ Swan	Swan Road at Calle del Pantera
2160	0.00	0.00	0.00	0.00	0.00	Sabino @ USFS Dam	Sabino Creek at USFS Dam
2170	0.00	0.00	0.00	0.00	0.00	Ventana @ Sunrise	Ventana Canyon Wash at Sunrise Road
2190	0.00	0.00	0.00	0.00	0.00	Al-Marah	near El Marah on Bear Canyon Road
2200	0.00	0.00	0.00	0.00	0.00	AC Wash @ TV Bridge	Agua Caliente Wash at Tanque Verde Road
2210	0.00	0.00	0.00	0.00	0.00	Catalina Boosters	Houghton Road 0.1 miles south of Catalina Highway
2220	0.00	0.00	0.00	0.00	0.00	Agua Caliente Park	Agua Caliente Park
2230	0.00	0.00	0.00	0.00	0.00	El Camino Rinconado	El Camino Rinconado 0.5 miles north of Reddington Road
2240	0.00	0.00	0.00	0.00	0.00	Molino Canyon	Mt Lemmon Highway near Mile Post 3
2390	0.00	0.00	0.00	0.00	0.00	Finger Rock @ Skyli	Finger Rock Wash at Sunrise Road
Redington Pass Area							
2020	0.00	0.00	0.00	0.00	0.00	Park Tank	Redington Pass, 0.8 miles south of Park Tank
2030	0.00	0.00	0.00	0.00	0.00	Italian Trap	Redington Pass, 0.7 miles east southeast of Italian Trap

Stream Gauge Text Report

http://159.233.69.3/temp/TV.txt - Windows Internet Explorer

http://159.233.69.3/temp/TV.txt

Pima County Regional Flood Control District ALERT System

Streamgauge Report for the following time periods ending at: 11:39:00 09/06/11
(data compiled every 15 minutes)
Data is preliminary and unedited.
---- indicates missing data

Tanque Verde Creek

Device ID	2073		2093		2203		2109		2163		2123	
Name:	Chiva Tank		Tanque Verde Guest Ranch		Agua Caliente Wash		Tanque Verde Road		Sabino Canyon at USFS Dam		Sabino Canyon Road	
Units:	(ft)	(cfs)	(ft)	(cfs)	(ft)	(cfs)	(ft)	(cfs)	(ft)	(cfs)	(ft)	(cfs)
11:39	0.9	0.0	-0.1	0.0	0.4	0.0	4.2	0.0	0.5	0.0	0.1	0.0
11:24	0.9	0.0	-0.1	0.0	0.4	0.0	4.2	0.0	0.5	0.0	0.1	0.0
11:09	0.9	0.0	-0.1	0.0	0.4	0.0	4.2	0.0	0.5	0.0	0.1	0.0
10:54	0.9	0.0	-0.1	0.0	0.4	0.0	4.2	0.0	0.5	0.0	0.1	0.0
10:39	0.9	0.0	-0.1	0.0	0.4	0.0	4.2	0.0	0.5	0.0	0.1	0.0
10:24	0.9	0.0	-0.1	0.0	0.4	0.0	4.2	0.0	0.5	0.0	0.1	0.0
10:09	0.8	0.0	-0.1	0.0	0.4	0.0	4.2	0.0	0.5	0.0	0.1	0.0
09:54	0.8	0.0	-0.1	0.0	0.4	0.0	4.2	0.0	0.5	0.0	0.1	0.0
09:39	0.8	0.0	-0.1	0.0	0.4	0.0	4.2	0.0	0.5	0.0	0.1	0.0
09:24	0.8	0.0	-0.1	0.0	0.4	0.0	4.2	0.0	0.5	0.0	0.1	0.0
09:09	0.8	0.0	-0.1	0.0	0.4	0.0	4.2	0.0	0.5	0.0	0.1	0.0
08:54	0.8	0.0	-0.1	0.0	0.4	0.0	4.2	0.0	0.5	0.0	0.1	0.0
08:39	0.8	0.0	-0.1	0.0	0.4	0.0	4.2	0.0	0.5	0.0	0.1	0.0
08:24	0.8	0.0	-0.1	0.0	0.4	0.0	4.2	0.0	0.5	0.0	0.1	0.0
08:09	0.8	0.0	-0.1	0.0	0.4	0.0	4.2	0.0	0.5	0.0	0.1	0.0
07:54	0.8	0.0	-0.1	0.0	0.4	0.0	4.2	0.0	0.5	0.0	0.1	0.0
07:39	0.8	0.0	-0.1	0.0	0.4	0.0	4.2	0.0	0.5	0.0	0.1	0.0
07:24	0.8	0.0	-0.1	0.0	0.4	0.0	4.2	0.0	0.5	0.0	0.1	0.0
07:09	0.8	0.0	-0.1	0.0	0.4	0.0	4.2	0.0	0.5	0.0	0.1	0.0
06:54	0.8	0.0	-0.1	0.0	0.4	0.0	4.2	0.0	0.5	0.0	0.1	0.0
06:39	0.8	0.0	-0.1	0.0	0.4	0.0	4.2	0.0	0.5	0.0	0.1	0.0
06:24	0.8	0.0	-0.1	0.0	0.4	0.0	4.2	0.0	0.5	0.0	0.1	0.0
06:09	0.8	0.0	-0.1	0.0	0.4	0.0	4.2	0.0	0.5	0.0	0.1	0.0
05:54	0.8	0.0	-0.1	0.0	0.4	0.0	4.2	0.0	0.5	0.0	0.1	0.0
05:39	0.8	0.0	-0.1	0.0	0.4	0.0	4.2	0.0	0.5	0.0	0.1	0.0
05:24	0.8	0.0	-0.1	0.0	0.4	0.0	4.2	0.0	0.5	0.0	0.1	0.0
05:09	0.8	0.0	-0.1	0.0	0.4	0.0	4.2	0.0	0.5	0.0	0.1	0.0
04:54	0.8	0.0	-0.1	0.0	0.4	0.0	4.2	0.0	0.5	0.0	0.1	0.0
04:39	0.8	0.0	-0.1	0.0	0.4	0.0	4.2	0.0	0.5	0.0	0.1	0.0
04:24	0.8	0.0	-0.1	0.0	0.4	0.0	4.2	0.0	0.5	0.0	0.1	0.0
04:09	0.8	0.0	-0.1	0.0	0.4	0.0	4.2	0.0	0.5	0.0	0.1	0.0

Done

The End