

Arizona Game & Fish Department



Lakes ALERT System

IAFSM Annual Conference, 2011
Bloomington-Normal, Illinois

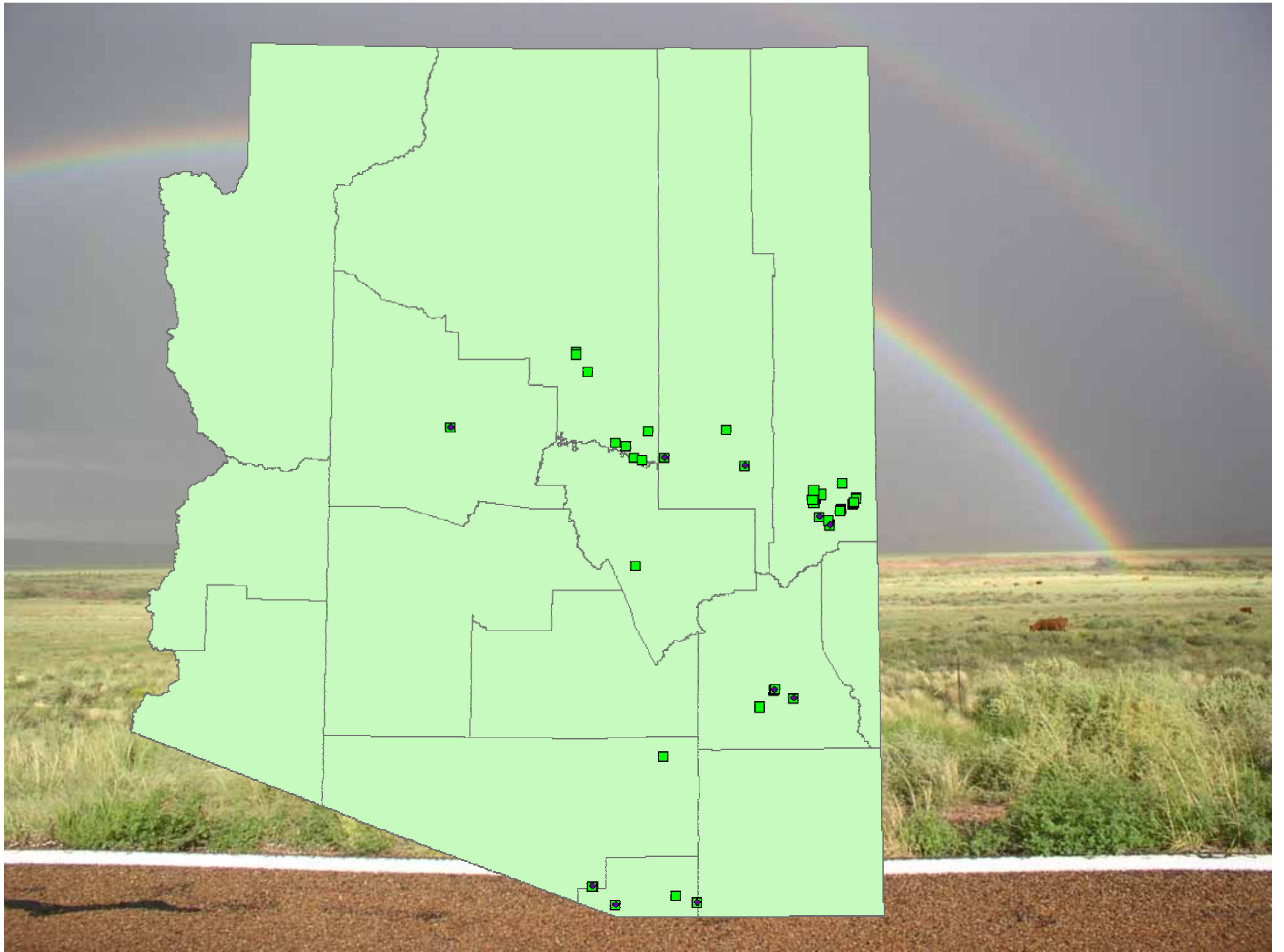
Presenter: David Meyer, RG, EIT, CFM



Synopsis



- AZ G&F Department Dams
- ALERT System Primer
- Lakes ALERT System





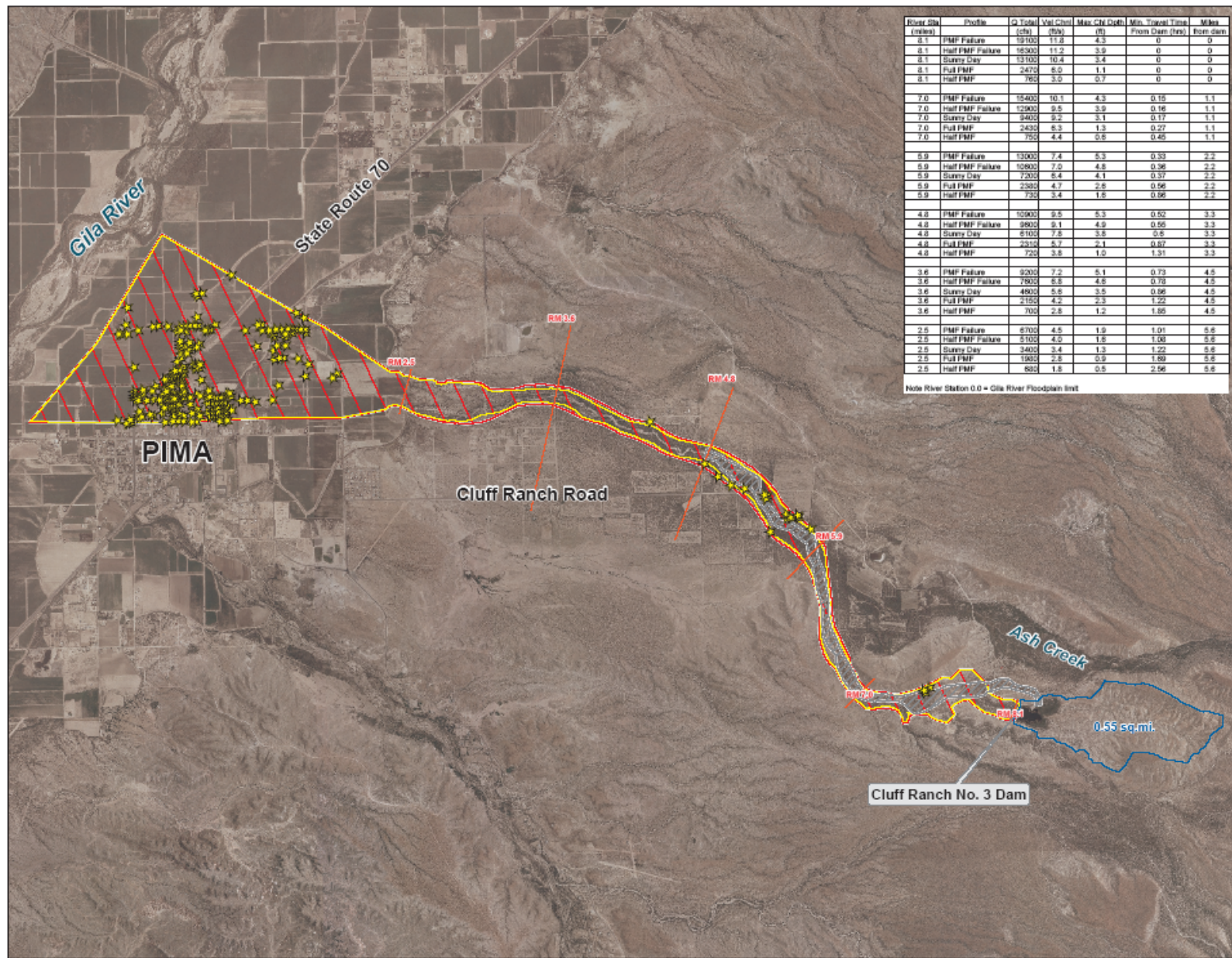












River Sta. (miles)	Profile	Q Total (cfs)	Vol Chd (ft³)	Max Chd Depth (ft)	Min. Travel Time From Dam (hrs)	Miles From Dam
8.1	PMF Failure	19102	11.8	4.3	0	0
8.1	half PMF Failure	16303	11.2	3.9	0	0
8.1	Sunny Day	13102	10.4	3.4	0	0
8.1	Full PMF	2470	6.0	1.1	0	0
8.1	half PMF	760	3.0	0.7	0	0
7.0	PMF Failure	15402	10.1	4.3	0.18	1.1
7.0	half PMF Failure	12902	9.5	3.9	0.16	1.1
7.0	Sunny Day	9402	9.2	3.1	0.17	1.1
7.0	Full PMF	2430	6.3	1.3	0.27	1.1
7.0	half PMF	755	4.4	0.8	0.46	1.1
5.9	PMF Failure	13000	7.4	5.3	0.33	2.2
5.9	half PMF Failure	10900	7.0	4.8	0.36	2.2
5.9	Sunny Day	7200	6.4	4.1	0.37	2.2
5.9	Full PMF	2380	4.7	2.8	0.56	2.2
5.9	half PMF	735	3.4	1.8	0.96	2.2
4.8	PMF Failure	10900	9.5	5.3	0.52	3.3
4.8	half PMF Failure	8900	8.1	4.9	0.56	3.3
4.8	Sunny Day	6100	7.5	3.8	0.6	3.3
4.8	Full PMF	2310	5.7	2.1	0.87	3.3
4.8	half PMF	720	3.8	1.0	1.31	3.3
3.6	PMF Failure	9200	7.2	5.1	0.73	4.5
3.6	half PMF Failure	7900	6.5	4.6	0.78	4.5
3.6	Sunny Day	4900	5.8	3.5	0.86	4.5
3.6	Full PMF	2150	4.2	2.3	1.22	4.5
3.6	half PMF	705	2.8	1.2	1.85	4.5
2.5	PMF Failure	6700	4.5	1.9	1.01	5.6
2.5	half PMF Failure	5100	4.0	1.8	1.06	5.6
2.5	Sunny Day	3400	3.4	1.3	1.22	5.6
2.5	Full PMF	1800	2.8	0.9	1.89	5.6
2.5	half PMF	600	1.8	0.5	2.66	5.6

Note: River Station 0.0 = Gila River Floodplain limit

Cluff Ranch No. 3 Emergency Action Plan

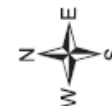
Inundation Study

Inundation Map Legend

- ★ Structures Potentially at Risk
- Cross Sections
- Cluff No. 3 Watershed
- Emergency Spillway IA
- Sunny Day Failure Potential IA
- PMF Failure Potential IA

IA = Inundation Area

Background photo date Aug. 2005.



0 1,500 3,000 4,500 6,000
Feet



1400 S. Phoenix Road, Suite 201
Tempe, AZ 85284
Phone (480) 752-2124
Fax (480) 839-2193

www.jefuller.com

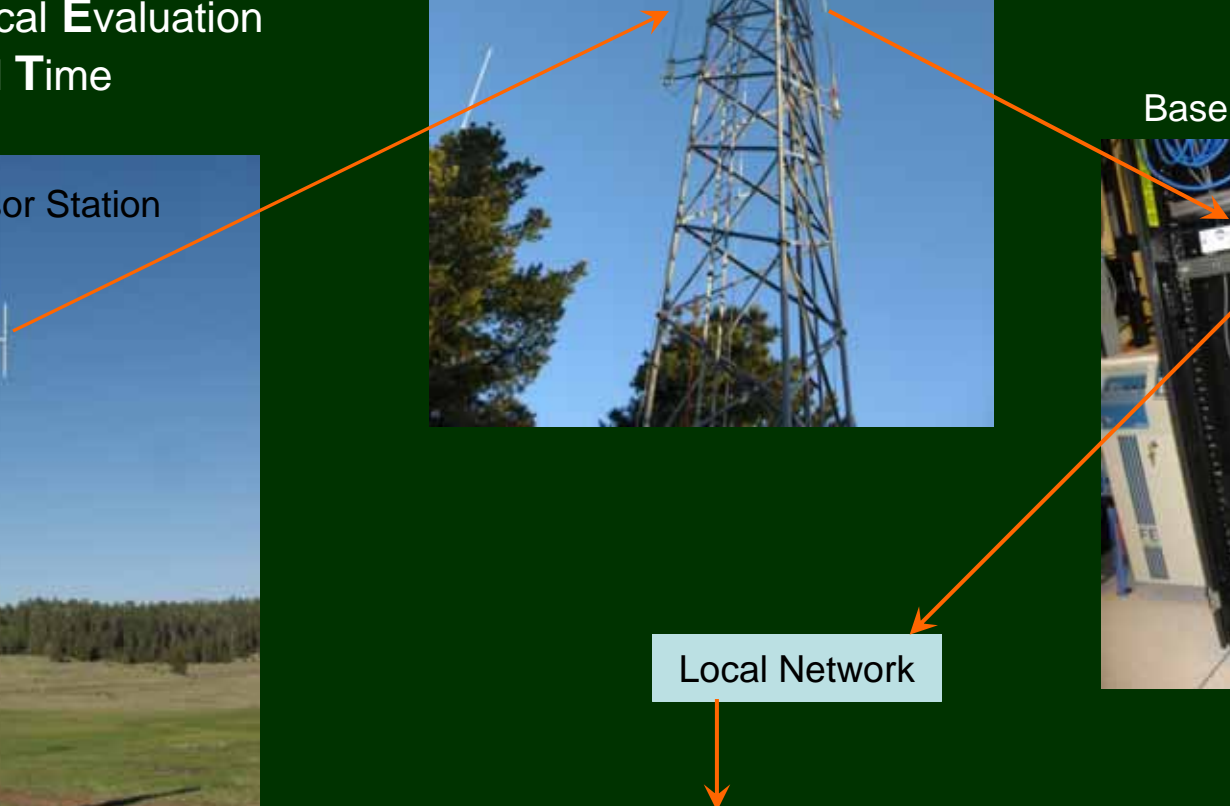
ALERT System Primer

Automated Local Evaluation in Real Time



Local Network

INTERNET



ALERT System Primer

Pressure Transducer Stage Sensor



Remote Sensor Station



Tipping Bucket Rain Gauge



Ultrasonic Stage Sensor



ALERT Transmitter



ALERT System Primer

Repeaters



Arizona Statewide Flood Warning System ALERT Repeaters



ALERT System Primer

Base Station Antenna



Antenna

Coaxial
Cable

Server

Base Station



UPS

Decoders

Base Station Decoders/Server

ALERT System Primer

Base Station Server Functions

Data Collection & Storage

Data Reports & Display

Data Error Checking

Automated Alarms & Notification

Scheduled Functions

Real-Time Watershed Modeling / Forecasting

Browser Interface Host (LAN / WAN)

Lakes ALERT System



Phase I - Design

100 50 0 100 Feet

Notes:

- 1) Power Amp
- 2) Directional antenna
- 3) FCC Licensing needed
- 4) USFS Permit
- 5) 2 Pressure transducers



314" standpipe conduit
314" standpipe conduit

Parker Canyon
Lake Dam

Standpipe

Conduit

Phase 2



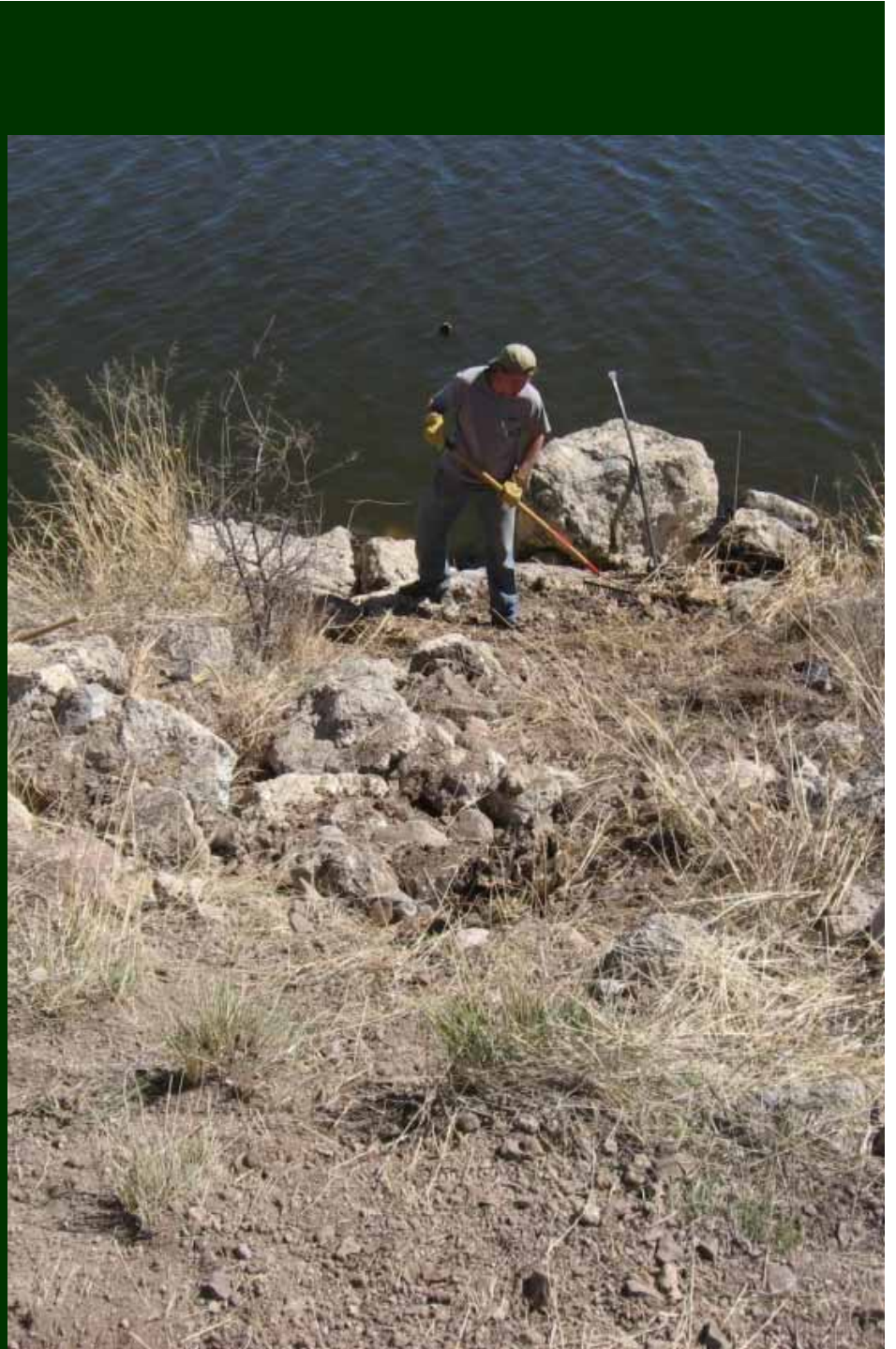












Phase 3

- Seepage/Sediment Monitoring
- Base Station Enhancements
- Repeater Upgrades



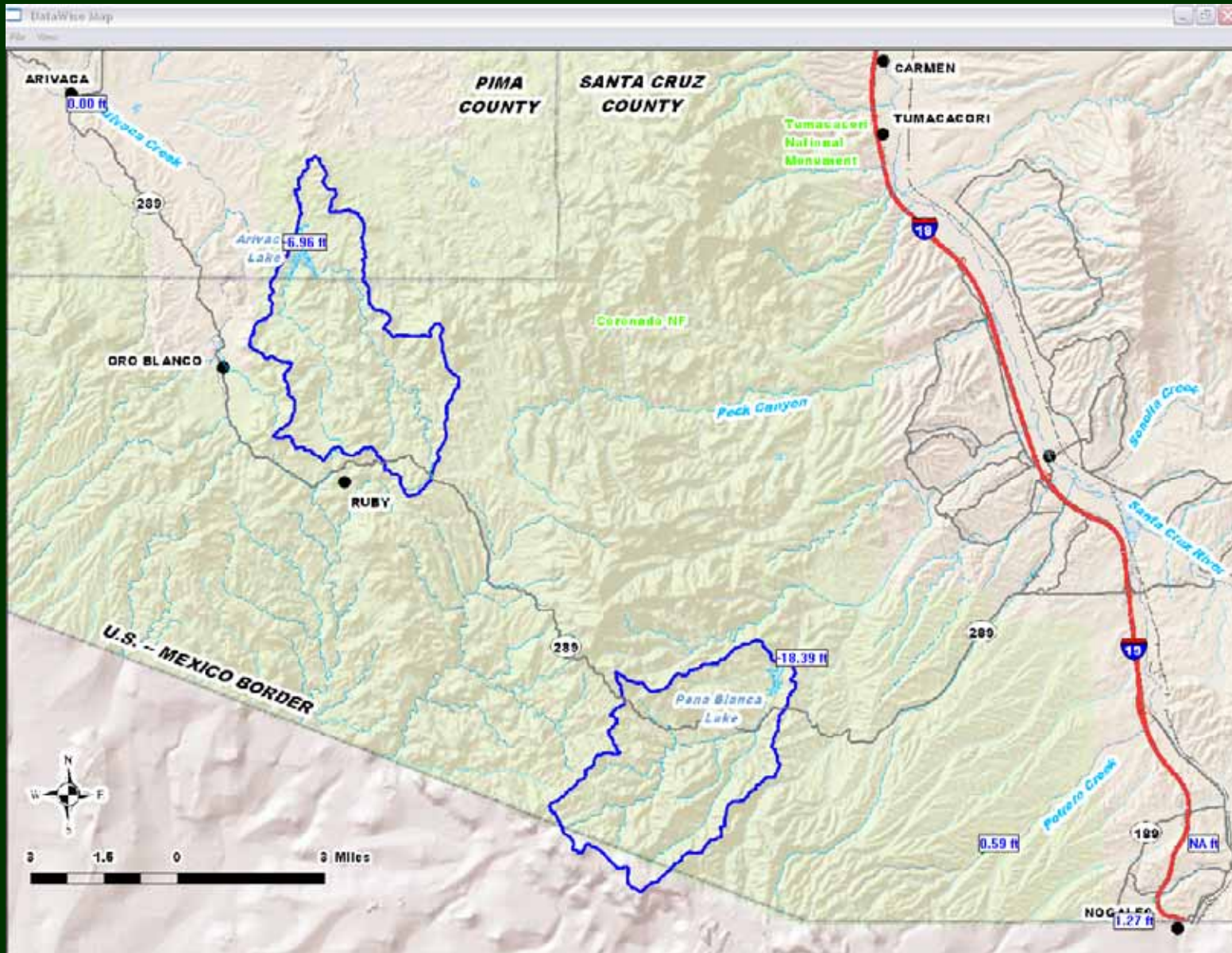
Seepage/Sediment Monitoring



Seepage/Sediment Monitoring



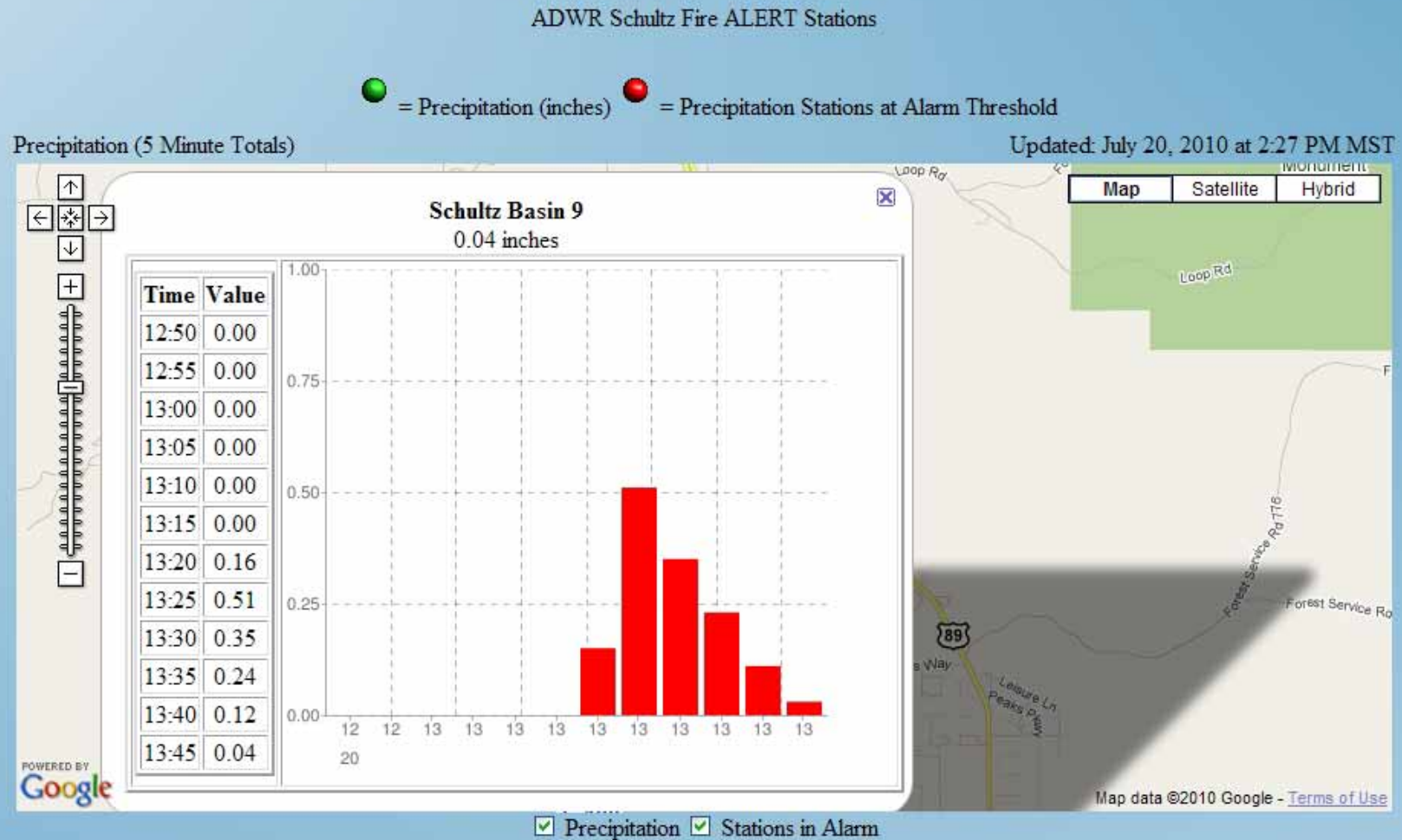
Base Station Enhancements



Base Station Enhancements



Base Station Enhancements



Repeater Upgrades

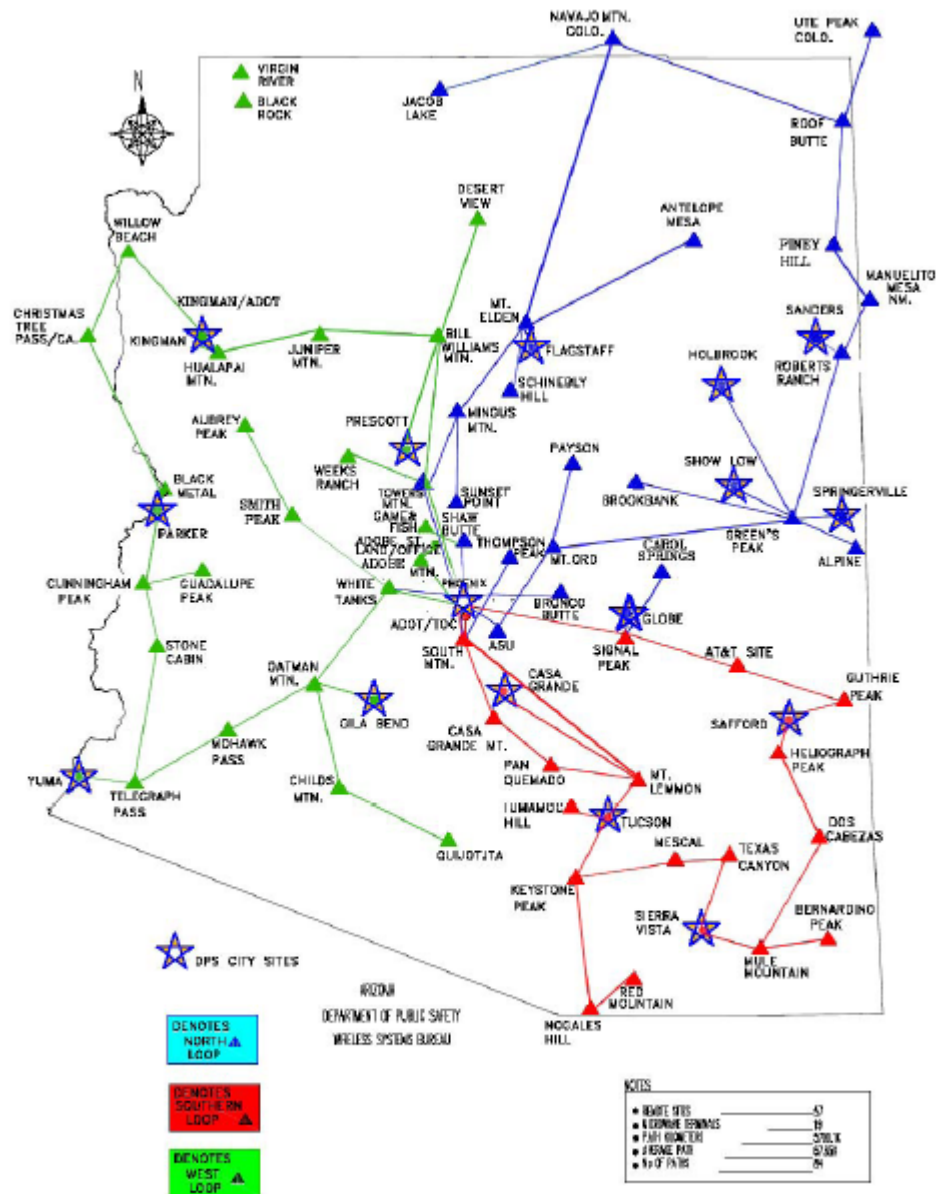


Figure 16 - STATE MICROWAVE MAP¹⁶

Web Sites



National Hydrologic Warning Council
hydrologicwarning.org

Arizona Flood Warning System
afws2.org

JE Fuller Hydrology & Geomorphology
Jefuller.com

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