

**WIRELESS  
EMERGENCY  
ALERTS  
CAPABLE**



# Wireless Emergency Alerts

Ken Waters

NOAA/National Weather Service

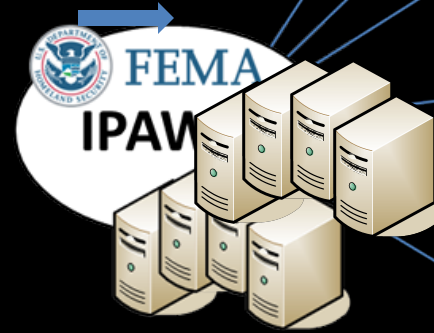
Phoenix, AZ

March 5, 2013

Southern Arizona Dust Workshop

# WEA and IPAWS

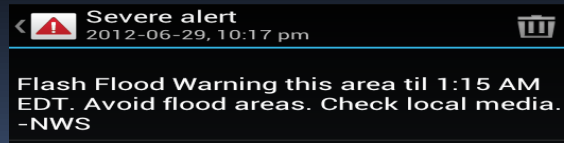
IPAWS is a national alerts aggregator run by FEMA that feeds CMAS/WEA and other alerting channels



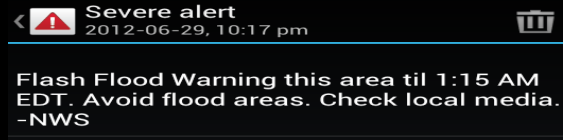
WEA



WEA is a free public mobile alerting service that targets your current location using radio like technology



# WEA



## WEA

- Available to general public
- Alerts for your current location
- **No graphics or full text**
- Not subject to network congestion
- Cemented in FCC regulations
- **Cell broadcast bleed-over can cause false alarm for some**



# WIRELESS EMERGENCY ALERTS CAPABLE



Emergency alerts settings

RECEIVE ALERTS

- Presidential alert  
Mandatory alert
- Extreme alert  
Extreme threat to life and property
- Severe alert  
Severe threat to life and property
- AMBER alert  
Child abduction emergency

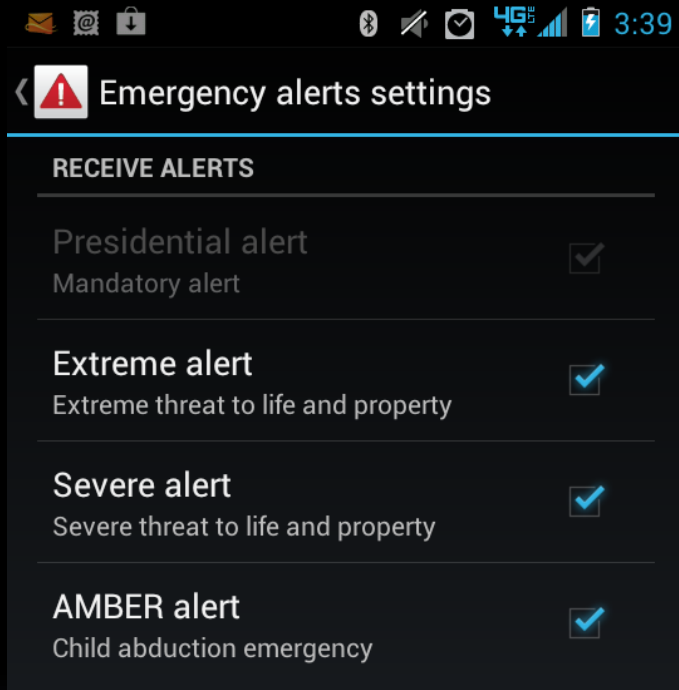
Government Alerts

- AMBER Alerts
- Emergency Alerts

Severe alert  
2012-06-29, 10:17 pm

Flash Flood Warning this area til 1:15 AM EDT. Avoid flood areas. Check local media.  
-NWS

# Wireless Emergency Alerts (WEA)



## Alert Categories

- **Presidential**
- **Imminent threat to life and property (e.g., severe weather, HazMat, earthquake)**
- **AMBER Alert/child abduction**

## Opt-out/in differences between cell phones

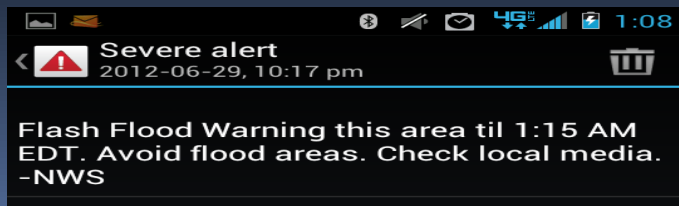
- **Many droid phones break out imminent threats into two categories- Extreme and Severe**
- **Can opt out of Severe and still get Extreme**

### Extreme

Tornado Warning  
Extreme Wind Warning  
Tsunami Warning\*  
Hurricane/Typhoon Warnings

### Severe

Flash Flood Warning  
Dust Storm Warning  
Blizzard Warning  
Ice Storm Warning



\*Tsunami Warnings coming to WEA later in 2013

# WEA Messages Originated by NWS

Warning Type	CMAS Message
Tsunami Warning (coming 2013)	Tsunami danger on the coast. Go to high ground or move inland. Check local media. -NWS
Tornado Warning	Tornado Warning in this area til hh:mm tzT. Take shelter now. Check local media. -NWS
Extreme Wind Warning	Extreme Wind Warning this area til hh:mm tzT ddd. Take shelter. -NWS
Flash Flood Warning	Flash Flood Warning this area til hh:mm tzT. Avoid flooded areas. Check local media. -NWS
Hurricane Warning	Hurricane Warning this area til hh:mm tzT ddd. Check local media and authorities. -NWS
Typhoon Warning	Typhoon Warning this area til hh:mm tzT ddd. Check local media and authorities. -NWS
Blizzard Warning	Blizzard Warning this area til hh:mm tzT ddd. Prepare. Avoid Travel. Check media. -NWS
Ice Storm Warning	Ice Storm Warning this area til hh:mm tzT ddd. Prepare. Avoid Travel. Check media. -NWS
Dust Storm Warning	Dust Storm Warning in this area til hh:mm tzT ddd. Avoid travel. Check local media. -NWS

**Legend**

tzT = timezone

ddd= three letter abbreviation for day of the week

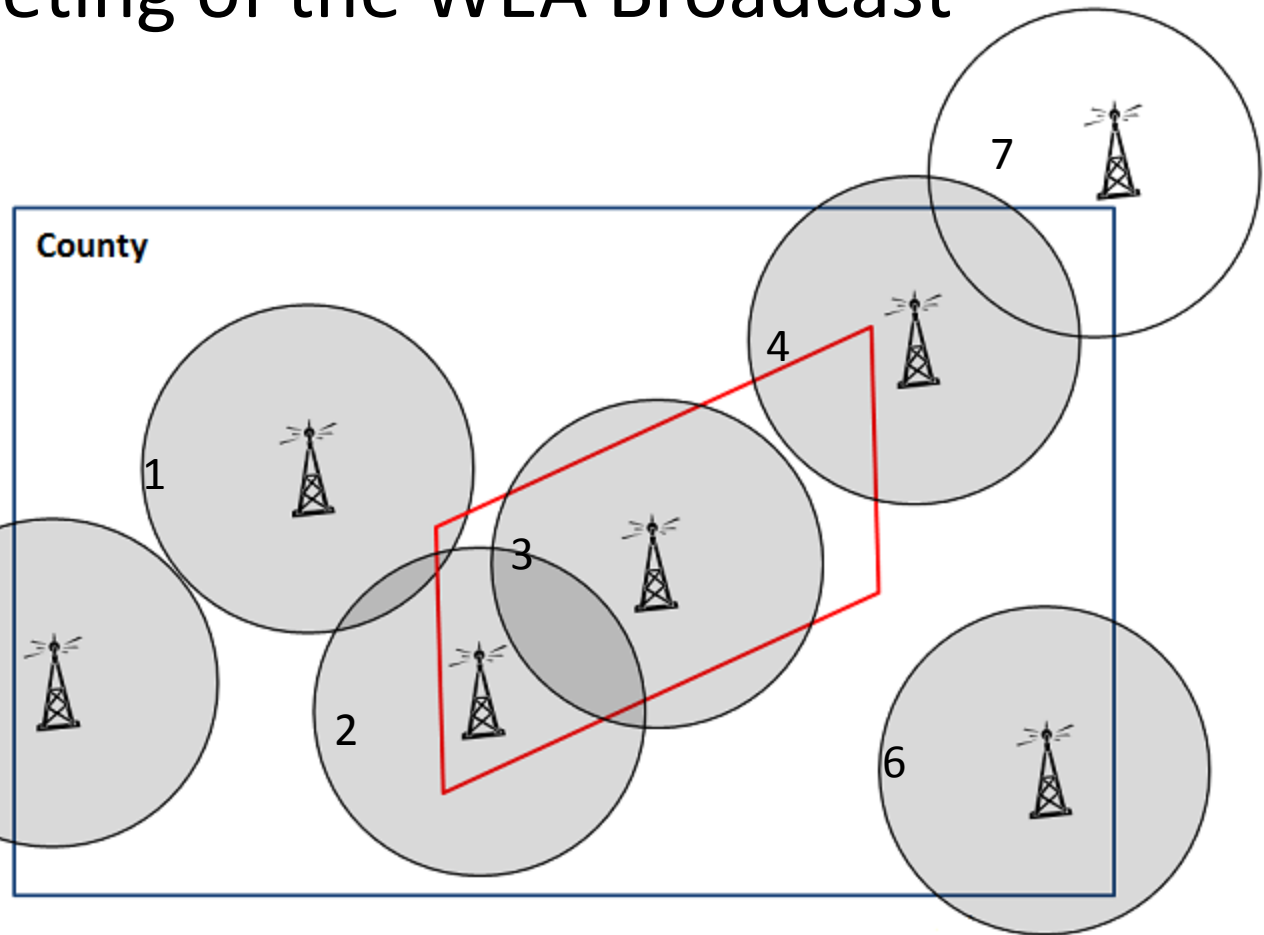
# Quick Facts about WEA

- Purpose to notify (i.e., a bell ringer), recipient should seek details from traditional sources
- Is a free opt-out service
- Uses cell broadcast technology
  - *Merely a radio broadcast, so the service doesn't track you*
  - *Alerts not subject to network congestion as with traditional text messaging*
- Major carriers are committed to producing WEA capable phones
- If you travel into an alert area after the alert was originally sent, you should still receive it
- Each WEA is only displayed once, so you don't receive duplicates
- WEA has a distinct vibration cadence and audio tone

# **NWS Warnings Targeting WEA**



# Carrier Targeting of the WEA Broadcast



Note: Map is not drawn to scale and is for illustrative purposes only.

Red polygon represents an alert issued at the sub-county level.

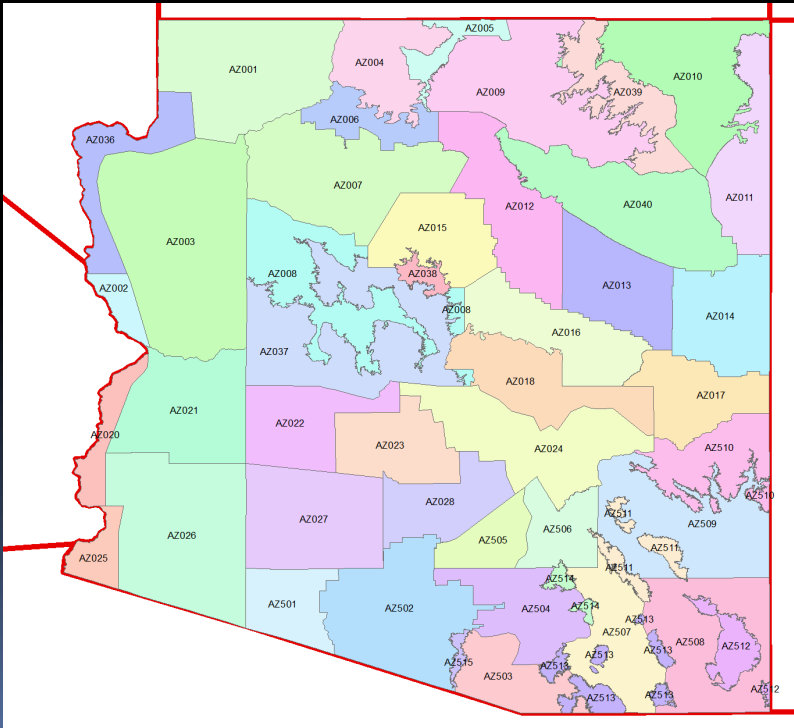
- FCC reg says carriers can broadcast to county (towers 1-6), even if alert only at sub-county level
- As of 2/7/13, all major carriers target sub-county (a good thing) when sub-county alerts are issued
  - Some carriers broadcast from cell towers within sub-county alert area (towers 2 and 3)
  - Some also broadcast where signal overlaps sub-county alert area (adds towers 1 and 4)

# Dust Storms

Dust Storm Warnings (and Blizzard Warnings) are unlike other, polygon warnings

Defined by a predefined “zone”

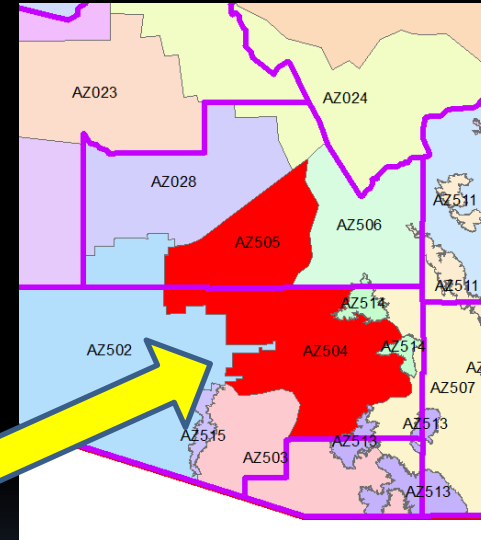
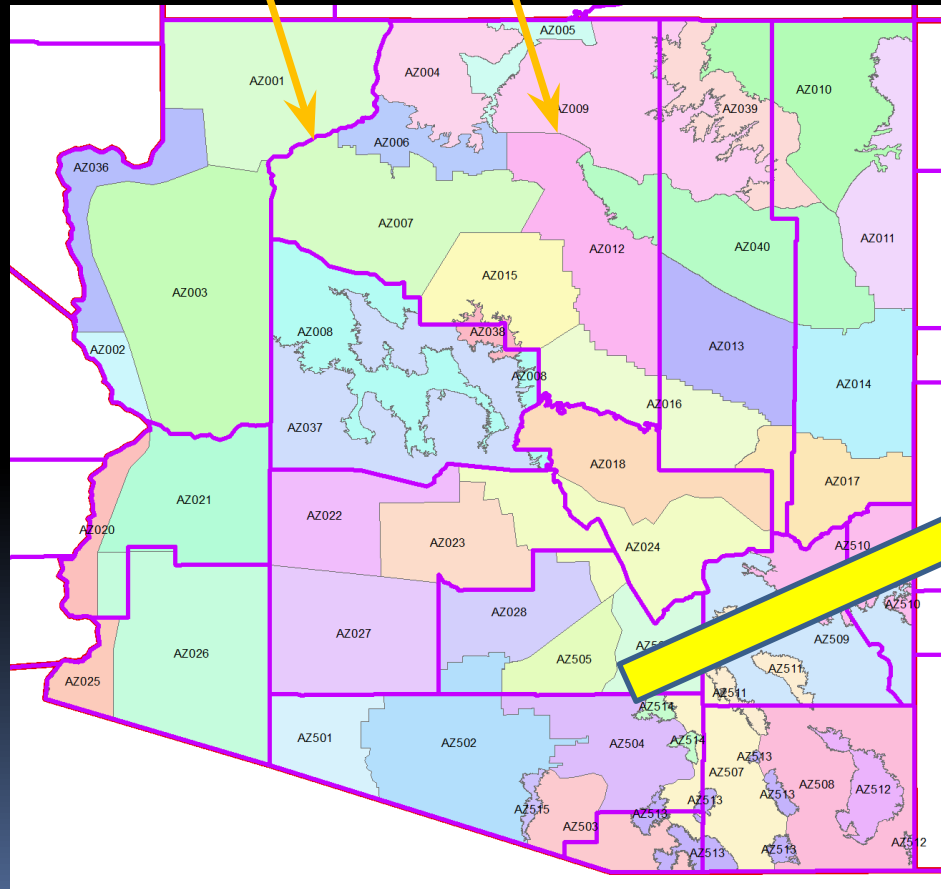
When issued the cell phone providers will “intersect” *the zone(s) covered against the affected counties*



# Dust Storms

County lines  
(magenta)

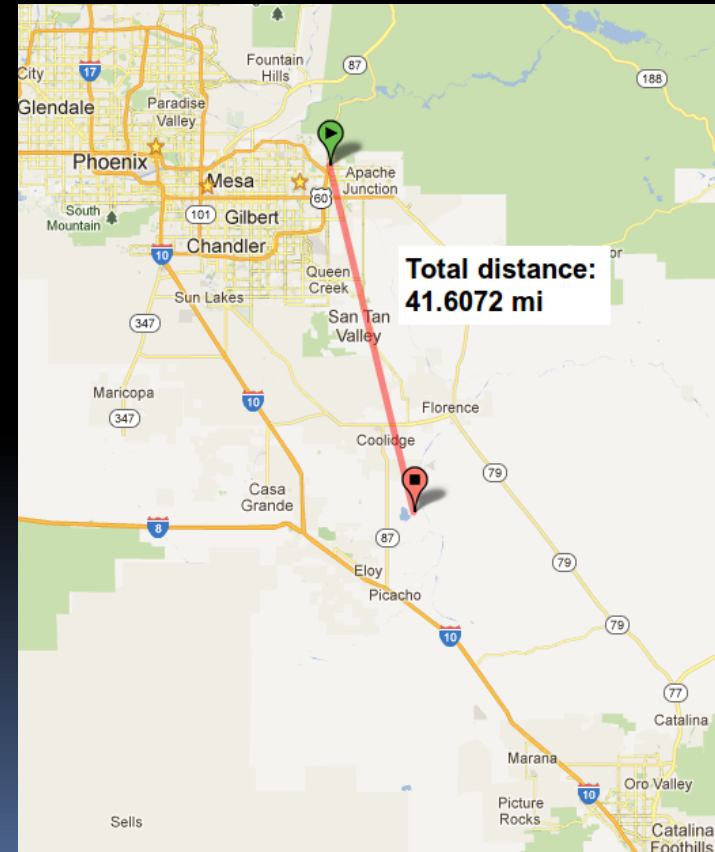
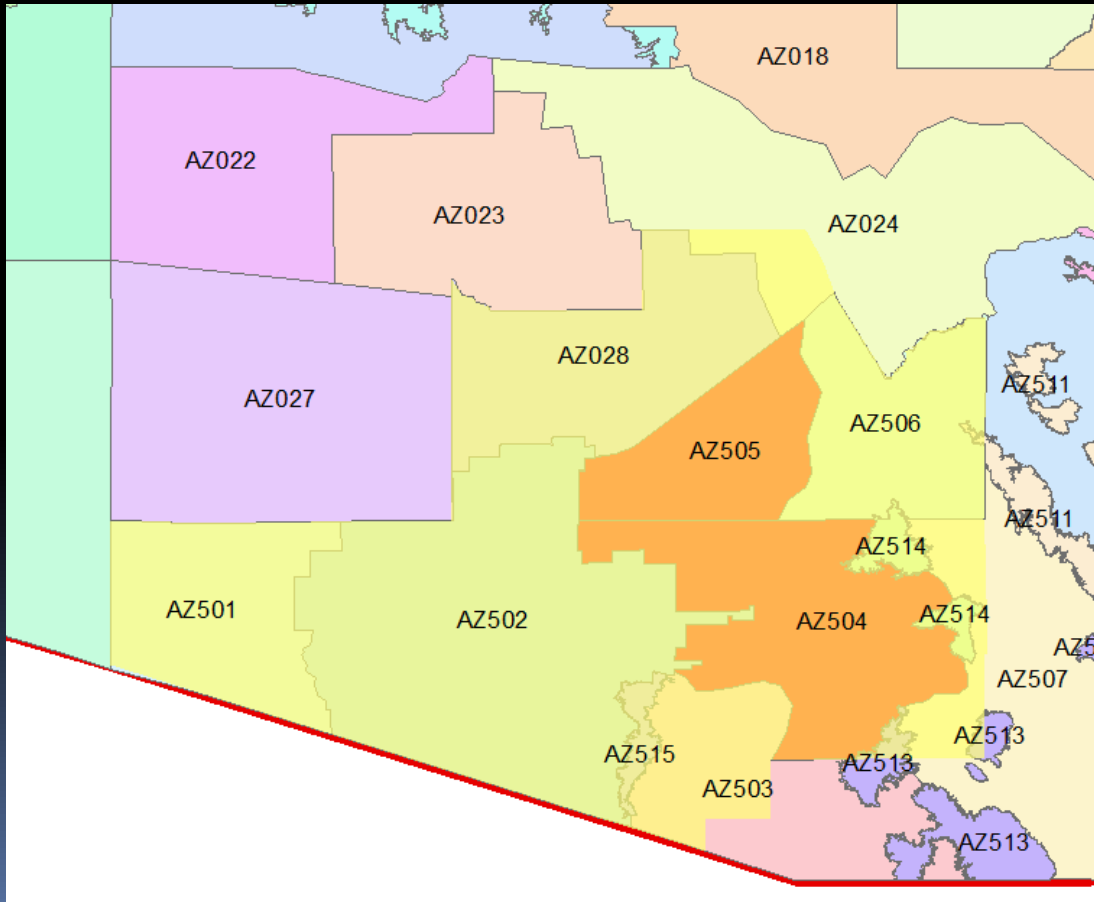
Zone lines  
(grey)



Dust storm covers two zones  
(AZ504 and AZ505) which overlaps  
parts of two counties (Pima and  
Pinal)

# Dust Storms

Final result is cell phones activated across entire portion of both counties and even overlap into some adjacent counties due to cell phone tower coverage  
Specific example was Dust Storm Warning issued 8/5/2012 by Tucson NWS  
Radios in southeast Maricopa County were activated even though the actual original zones affected were over 40 miles away



# Questions