

Coyote Crier

Volume 11, Issue 2

April 2007

Open
House
Saturday
April 28th
from 9am
until 3pm

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NWS and USGS Open House

On April 28, 2007 from 9 am until 3 pm MST the National Weather Service (NWS) and the United States Geological Survey (USGS) will be hosting an open house to celebrate the 10th anniversary of our location together on the University of Arizona (U of A) campus.

In 1997 the doors opened to the Environment and Natural Resources Building on the University of Arizona campus. This building became home to the southwest field offices of the USGS as well as the NWS Tucson forecast office. In 1999 the building name was changed to the Dennis DeConcini Environment and Natural Resources

Building. Dennis DeConcini served in Congress from 1977 until 1995 and led a congressional effort to build the structure on campus near research departments at the U of A.

For 10 years now, the USGS and the NWS have worked in conjunction with The University of Arizona. The USGS and the NWS have both drawn from the large student body at the U of A to find eager employees for their agencies. Many research projects and papers have been worked on jointly between the three agencies.

To celebrate the successful relationship between USGS, NWS and U of A please join us for our open house. Everyone is welcome at the open house, so spread the news! For additional information please see the enclosed invitation or contact the National Weather Service office at (520)670-6526 and ask to speak with Pamela Elslager or Tom Evans.



Directions to the Dennis DeConcini Environment and Natural Resources Building:
From Interstate-10
Exit I-10 at exit 257 (Speedway Boulevard/St. Mary's)
Go East on Speedway Boulevard to Park Avenue
Head South on Park Avenue to Lowell Street
Go East on Lowell

The DeConcini Environment and Natural Resources Building is on the southeast corner of Park Avenue and Lowell Street. There is a large parking garage to the east of the building that will be open and available for free parking!

Tucson Upper-Air Program

By: Glen Sampson, Meteorologist in Charge

Please keep your personal information up-to-date. Do we have your correct mailing address, location, phone number and e-mail address? If not, please update us so that our database is as current as possible. The best way to update your information is by e-mail, or to call and speak with Pamela Elslager or Tom Evans. Thanks!

**Pamela.Elslager
@noaa.gov**

The National Weather Service is in the process of upgrading the systems that provide upper-air data. Upper-air observations come from weather balloons released twice a day (4 am and 4 pm) at the Tucson International Airport, and at 100 other locations around the Nation. Attached to each balloon is instrumentation called a radiosonde. A radiosonde is a small, expendable instrument package containing sensors to measure pressure, temperature and relative humidity. By tracking the position of the radiosonde in flight, information on wind speed and direction aloft can also be obtained.



The existing systems used to take upper-air observations utilizes World War II technology and are obsolete. When the new technology is implemented in early June, the location of the balloon launch will move from the Tucson Airport to the roof top of the Weather Forecast Office (WFO) on the University of Arizona campus. The new equipment is much more reliable, contains radiosonde GPS tracking and has increased data sensitivity.

Upper air observations are used extensively in the NWS numerical models, and are invaluable during the monsoon season for understanding daily changes in atmospheric stability. Having the new equipment at the WFO will allow us to easily take additional upper-air observations during critical weather days.

National Weather Service Mission: "The National Weather Service (NWS) provides weather, hydrologic, and climate forecasts and warnings for the United States, its territories, adjacent waters and ocean areas, for the protection of life and property and the enhancement of the national economy. NWS data and products form a national information database and infrastructure which can be used by other governmental agencies, the private sector, the public, and the global community."

National Weather Service Tucson Office Staff

Meteorologist in Charge.....Glen Sampson
 Warning Coordination Meteorologist.....Tom Evans
 Science and Operations Officer.....Erik Pytlak
 Electronic Systems Analyst.....Jim Schmidt
 IT Specialist.....Evelyn Bersack
 Electronic Technicians.....Norm Phelps, Joseph Lockridge
 Senior Forecasters.....Jeff Davis, Brian Francis, John Glueck, Jim Meyer, Greg Mollere
 Forecasters.....Pamela Elslager, Chris Rasmussen, Steve Reedy, Craig Shoemaker, Gary Zell
 Meteorologist Intern.....Glenn Lader
 Observation Program Leader.....Angel Corona
 Hydrometeorological Technicians.....Hans Hanson, Mic Sherwood

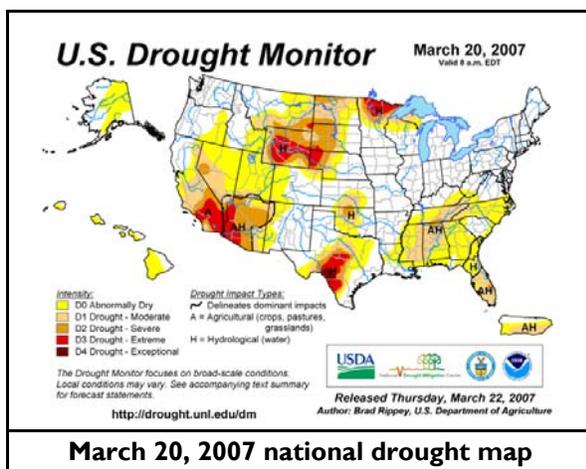
Winter 2006-2007 Rainfall

By: John R. Glueck, Senior Forecaster and Climate Focal Point

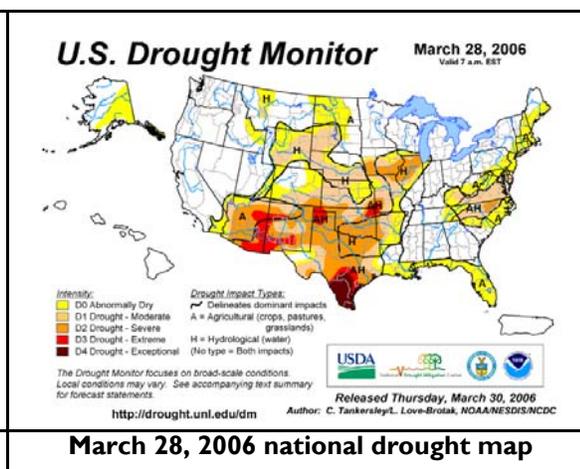
Warming sea surface temperatures in the equatorial Pacific Ocean during the second half of 2006 led to the development of an El Niño last fall. During El Niño conditions, the winter storm track is located further south and, in most cases, brings above normal precipitation to southeast Arizona. This brought hope that the 2006-07 winter would bring much more precipitation to the area than what occurred during the very very dry 2005-06 winter season. However, it appears that the atmosphere did not respond to the warmer waters which resulted in the main storm track being further north. Thus few storms moved through Arizona which resulted in less precipitation being recorded than what would occur during an El Niño. **(Meteorological Winter is December through February)**

Location	2006-2007 Winter	2005-2006 Winter	Winter Normal	Location	2006-2007 Winter	2005-2006 Winter	Winter Normal
Tucson airport	1.37"	0.01"	2.90"	Safford Ag. Center	2.15"	0.33"	2.43"
Green Valley	0.70"	0.09"	2.77"	Duncan	2.93"	0.38"	3.09"
Vail	2.31"	0.02"	2.56"	Clifton	3.73"	0.54"	3.44"
Redington	2.02"	0.09"	4.17"	Cascabel	1.68"	0.13"	2.45"
Arivaca	0.44"	0.20"	4.01"	Pearce-Sunsites	1.83"	0.33"	2.62"
Kitt Peak	3.36"	0.09"	5.91"	Willcox	1.52"	0.50"	3.36"
Sells	0.75"	0.02"	3.04"	Bisbee	2.33"	0.55"	5.02"
Ajo	0.41"	0.00"	2.22"	Coronado N.M.	3.65"	0.37"	5.48"
Organ Pipe N.M.	0.59"	0.00"	2.80"	Sierra Vista	1.30"	0.21"	2.82"
Oracle	4.59"	0.17"	7.33"	Tombstone	1.48"	0.46"	2.85"
Picacho Peak	1.13"	0.02"	3.31"	Y Lighting Ranch	1.90"	0.34"	3.08"
San Manuel	2.17"	0.08"	3.76"	Bowie	1.93"	0.36"	3.12"
Kearny	2.18"	0.03"	4.82"	Portal	3.93"	0.68"	4.57"
Nogales	2.22"	0.09"	3.87"	San Simon	1.42"	0.00"	2.89"
Patagonia	1.66"	0.26"	4.13"	Douglas	1.44"	0.22"	2.45"
Tumacacori N.M.	0.89"	0.20"	3.71"	McNeal	1.67"	0.18"	2.23"
Ft. Thomas	2.39"	0.13"	3.16"	Rucker Canyon	3.23"	0.28"	4.30"

Drought conditions a year ago (right image below) were severe to extreme, eventually peaking at **EXCEPTIONAL** in early June, then improving after a very wet summer thunderstorm season. Current drought conditions (left image below) range from abnormally dry near the Arizona/New Mexico border to extreme in western Pima county.



March 20, 2007 national drought map



March 28, 2006 national drought map



Pictures displayed on this page were sent from various spotters throughout Southeast Arizona.

“The greatest weather hazard in Arizona is Extreme Heat/Cold, which is responsible for the largest number of fatalities.”



E-mail your pictures to Pamela.Elslager@noaa.gov

HAZARDOUS WEATHER DEATHS IN ARIZONA

By: Craig Shoemaker, Forecaster

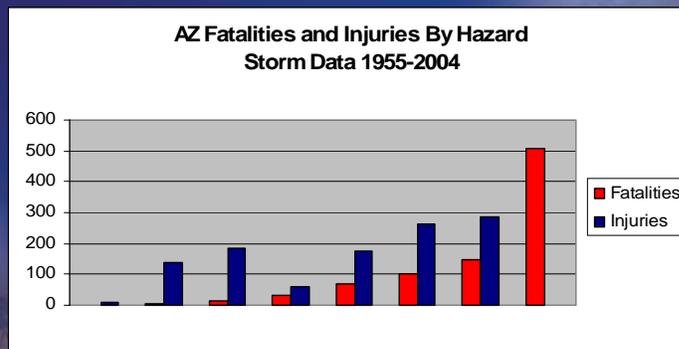
Arizona is the sixth largest state in the United States, with just over 114,000 sq mi. and elevations vary from under 1,000 ft to over 12,000 ft. This great topographical variation over a vast spatial area brings to Arizona an extreme collection of climate regimes with extraordinarily diverse weather.

The greatest weather hazard in Arizona is Extreme Heat/Cold, which is responsible for the largest number of fatalities. The highest

component is extreme heat and this is actually an even greater killer than shown here. Untold numbers of illegal immigrant deaths go unreported yearly, so the fatalities may be significantly higher. This figure is only over a ten year period (1990-2000) making it even more impressive compared to other weather events. Floods and flash floods are the next most dangerous hazards when considering injuries and fatalities, followed closely by dust storms. Tornadoes and

winds are responsible for a number of injuries across the state, however only three fatalities due to tornadoes have been reported. The greatest number of fatalities outside of extreme heat occurs from May to September, primarily caused by dust storms, flash floods and lightning. Most injuries occur during the months of May through September, with wind in addition to dust storms, flash floods and lightning as the major contributors to the totals.

Arizona Deaths and Injuries by Hazardous Weather Type



Data Sources:

- Arizona Climate- *The First Hundred Years* (Sellers, Hill and Sanderson-Rae)
- NCDC Storm Data 1950-2004
- NCDC Storm Events Database: *Online- www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storms*
- DOT Fatality Analysis Reporting System: *Online- www-fars.nhtsa.dot.gov*
- University of Arizona Storm Database: *Online- ag2.calsnet.arizona.edu/cgi-bin/storms.cgi*
- Injury Mortality Among Arizona Residents, 1990-2000 Report (March 2002)

Figure. Injuries and fatalities in Arizona sub-divided by weather event for the period 1955-2004. This figure depicts the number of weather-related injuries and deaths in Arizona reported from 1955 to 2004.

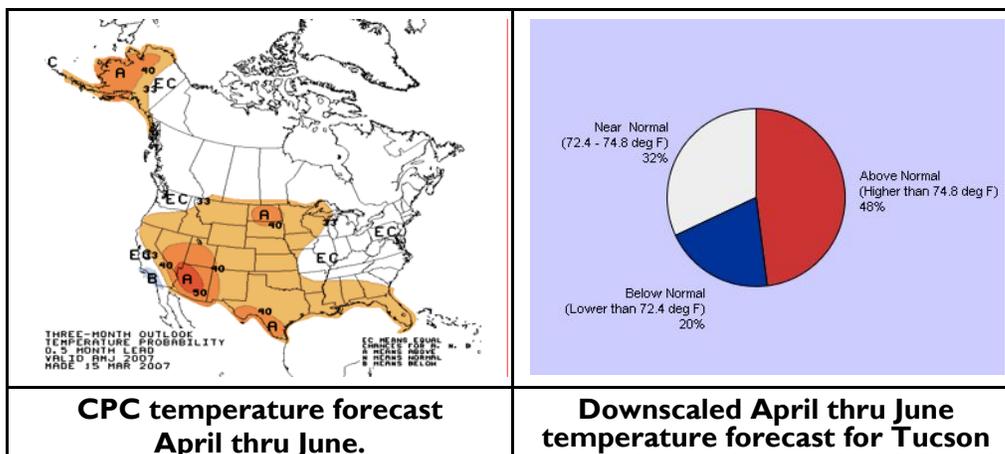
Local Three Month Temperatures Outlook (L3MTO)

By: John Glueck, Senior Forecaster and Climate Focal Point

In February 2007, the National Weather Service officially launched a new product called “**Local 3-month temperature outlook (L3TMO)**” for approximately 1200 site specific stations across the continental United States and Alaska. For southeast Arizona, 10 sites were selected.

Pima County	Cochise County
Tucson	Douglas
Kitt Peak	Willcox
Organ Pipe Cactus National Monument	Chiricahua National Monument
Pinal County	Graham County
Oracle	Safford
Santa Cruz County	Greenlee County
Nogales	Clifton

So why was this product developed? It was developed to downscale or tweak the official Climate Prediction Center (CPC) seasonal temperature forecast down to a local station. For example, the national map below is the 3-month temperature forecast for the period April through June, issued on March 15th. It shows that there is an enhanced probability (40-50% chance) of above normal temperatures across Arizona. What the map does not show over Arizona is that there is a 33% chance of near normal temperatures and a 17-27% chance of below normal temperatures. When the CPC forecast is downscaled to the local level it gives a probabilistic forecast for all three categories. So, the pie chart below shows the three category breakdown for Tucson with the downscaled forecast indicating that there is a 48% chance of above normal temperatures; a 32% chance of near normal temperatures and a 20% chance of below normal temperatures. The average April to June temperature for Tucson is 74.8 degrees.



These 3-month temperature outlooks are updated on the 3rd Thursday of each month and can be found on the NWS Tucson website at the following URL:

http://www.weather.gov/climate/calendar_outlook.php?wfo=twc

A detailed user guide can be found at the URL above that explains the entire process further information than this newsletter. Sometime in 2008, the NWS is scheduled to introduce “*Local 3-month Precipitation outlook (L3MPO)*”.



Lead Forecaster, Jeff Davis

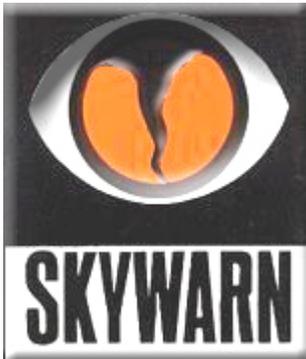
Employee Spotlight: Jeff Davis, Lead Forecaster

Jeff Davis is one of the five Lead forecasters at the Weather Service Forecast Office in Tucson. Jeff, along with the other forecasters, works around the clock to provide constant weather observations, forecasts, and hazardous weather information for southeast Arizona. As a Lead forecaster, Jeff is responsible for the quality and timeliness of all products and warnings issued by the staff on shift.

Jeff grew up in Boulder, Colorado where he was surrounded by a large community of atmospheric scientists at the National Center for Atmospheric Research (NCAR) and several of NOAA's research laboratories. Jeff's interest in science was sparked by a school field trip to NCAR's research aviation facility where scientists and engineers rig aircrafts with instrumentation to study the atmosphere.

Jeff started college majoring in physics but took a break from his studies to work as a radar operator directing aircrafts into hailstorms on a weather modification project in northern Spain. Once returning to the states, he changed majors to study meteorology at the University of Northern Colorado. Soon after, Jeff was off to Norman, Oklahoma to work at NOAA's National Severe Storm Laboratory in the cooperative education student work program. There he became interested in weather forecasting, and upon graduation from college went to work for the National Weather Service in Amarillo, Texas as a Meteorologist Intern.

Jeff's passion for mountains and outdoor activities brought him to Arizona in 1993 as a Journeyman Forecaster at the Phoenix forecast office. In 1998 he was promoted to a Lead Forecaster position at Tucson as the office received all forecast responsibilities for southeast Arizona from the office in Phoenix.



Send us your storm photos! We always welcome photos of storms and storm damage from your area. Please send all photos to:

Pamela.Elslager@noaa.gov

Below and to the right are a few of the photos that were sent in by spotters.



When Seconds Count...

By: Tom Evans, Warning Coordination Meteorologist

A growing trend for NOAA Weather Radio All Hazards to become the communication link for vital, life saving information has prompted the U.S. Departments of Education, Homeland Security and Commerce to distribute NOAA Weather Radios to all public schools across the nation. The NOAA Public Alert Radio, the name given for this distribution project, is a powerful safety tool, with dozens of alerts and broadcast capabilities that ensures direct access to information on a wide range of emergencies. The NOAA Public Alert Radio has the ability to alarm you of an approaching tornado, flash floods, a derailed train posing a hazardous material threat, or an immediate need to be on the lookout for an abducted child. With any of these life threatening conditions the radio has the means to sound an immediate alarm (similar to how a smoke detector alarms you for threatening fire conditions). And whether the emergency is national or specific to your community, you can count on the NOAA Public Alert Radio to signal the danger and recommend safety steps. In Southeastern Arizona, Broadcasters, Emergency Managers and the National Weather Service are working on plans to have all Emergency

Alert System messages broadcast on NOAA Weather Radios. However, at this time only weather related emergencies are available on NOAA Weather Radios. For more information on the NOAA Public Alert Radios visit:

<http://public-alert-radio.nws.noaa.gov>

Preparedness for everyone begins with a plan of action. Each school, business and family should have a crisis plan. Plans should address the fundamentals of safety, including alerts and warnings, adequate staff and education, training in preparedness and first aid, evacuation and sheltering procedures, and communication processes to loved ones and associates. And finally, we all need to train, practice, and drill according to the plan. Documents on a shelf do not work in a crisis. For more information on emergency plans visit:

<http://www.ready.gov>

So, ask yourself: Is my NOAA Weather Radio in ready mode? Have I replaced my batteries lately? Do I have an action plan if a threat materializes? If your answer is no to any of these questions, then take action now to remedy the situation.

When calling in a report to the **National Weather Service office, please state the following:**

- **Your Spotter Number and location**
- **What you are seeing**
- **Where you are seeing it**
- **What time you saw it**

Phone Numbers to call spotter reports into:

1-800-238-3747

or

(520) 670-5162

What should a spotter report?

- **Tornado: A tornado or a funnel cloud aloft**
- **Heavy Rain: A half inch or more in less than an hour**
- **Hail: Any size hail, please estimate size**
- **High Wind: 40 mph or greater**
- **Flooding: Flooding or any kind**
- **Snow: 1" or more (2" or more above 5000 feet)**
- **Visibility: Less than one mile**



**NATIONAL
WEATHER SERVICE**

520 North Park Avenue
Suite #304
Tucson, Arizona 85719
Phone: 520-670-5162
Fax: 520-670-5167
E-mail:
pamela.elslager@noaa.gov

Visit our web site:
Weather.gov/Tucson

Any and all are welcome at the spotter training sessions. So if you know someone interested in weather bring them along! We look forward to seeing you all there.

Spotter Training Dates

<u>Date</u>	<u>Time</u>	<u>Location</u>
May 8, 2007	6:30 pm	Oscar Yrun Community Center 3020 E. Tacoma Street, Sierra Vista
May 9, 2007	7:00 pm	U of A Campus, ENRB Room 253 520 N. Park Avenue, Tucson
May 16, 2007	6:30 pm	Safford General Services Building 921 Thatcher Blvd., Safford
May 24, 2007	6:30 pm	Oro Valley Town Hall 11000 N. La Canada Dr., Oro Valley

Online Spotter Training... Coming Soon

The newest advancement being developed in our office is online spotter training. The training is currently being developed and will hopefully be up and running by this summer.

The goal is to have the system set up so that once you complete the course and pass an online test, an e-mail message will be sent to our office stating that you have successfully completed the online spotter training. So whether a new spotter is joining the spotter community or a current spotter just needs a refresher course, it will all be available online.

Please continue to monitor our web site at:

Weather.gov/Tucson

for this upcoming tool!

Questions, comments or concerns? Please contact Pamela Elslager or Tom Evans

Pamela.Elslager@noaa.gov
Tom.Evans@noaa.gov

(520) 670-5162