



NOAA's NATIONAL WEATHER SERVICE

Western Region Notes

June 24, 2009

REGIONAL DIRECTOR'S OFFICE

Kudos to WFO Tucson for Providing Monsoon Information: Erik Pytlak and Glen Sampson of WFO Tucson helped the Arizona Daily Star produce an informative graphic on the monsoon. This graphic won the Arizona Press Club's first place award for best graphic produced in Arizona last year!

e6-7 Star

ARIZONA DAILY STAR / Sunday, June 15, 2009

Sunday, June 15, 2009 / ARIZONA DAILY STAR / E7

What is monsoon?

Derived from the Arabic word "ma'adin," monsoon means season. Specifically, it is the wind or weather system that brings powerful thunderstorms throughout the region. The monsoon is not a weather system that blows from the southwest through Tucson. It is a seasonal wind system that blows from the southwest through Tucson. It is a seasonal wind system that blows from the southwest through Tucson.

Mid July Monsoon in full swing

As temperatures drop in the Southwest, the monsoon is in full swing. The monsoon is a seasonal wind system that blows from the southwest through Tucson. It is a seasonal wind system that blows from the southwest through Tucson.

Monsoon start date changes

The monsoon start date changes from year to year. It is a seasonal wind system that blows from the southwest through Tucson. It is a seasonal wind system that blows from the southwest through Tucson.

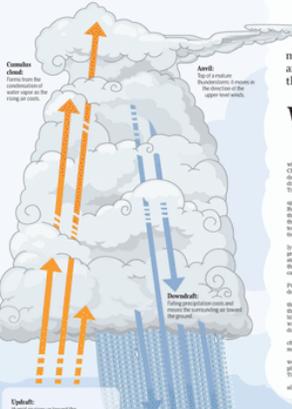
Did you know?

The monsoon is a seasonal wind system that blows from the southwest through Tucson. It is a seasonal wind system that blows from the southwest through Tucson.

Understanding watches, warnings and advisories

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Awesome, awful monsoon



Some downed power lines and trees. Others swept away cars, homes and lives. • Rescuers still remember how a gentle Tanque Verde Creek turned into raging floodwaters that took eight lives in the summer of '81. • The monsoon in Tucson can indeed be memorable — a season we both look forward to and sometimes dread. • Still, we can't even fathom a summer without it. Welcome, then, to the beginning of this year's monsoon season. We say, bring it on.

Wall of water swept away eight in 1981



Stories by Bonnie Henry
The monsoon was quiet and clear when it arrived in Tucson on Tuesday, June 15, 1981. It was a quiet monsoon, but it was a monsoon nonetheless. It was a quiet monsoon, but it was a monsoon nonetheless.

MEMORABLE STORMS
A list of memorable monsoon storms that have struck Tucson. It includes details about various storms and their impacts on the region.

- July 4, 1981: A lightning storm struck Tucson, causing damage to homes and businesses.
- Aug. 25, 1986: A lightning storm struck Tucson, causing damage to homes and businesses.
- Aug. 19, 1992: A lightning storm struck Tucson, causing damage to homes and businesses.
- Aug. 2, 1996: A lightning storm struck Tucson, causing damage to homes and businesses.
- July 24, 1998: A lightning storm struck Tucson, causing damage to homes and businesses.
- July 21, 2006: A lightning storm struck Tucson, causing damage to homes and businesses.

20 areas to avoid during summer flash floods

Stay safe this monsoon

Prepare your home

- Make an emergency plan. This should include flashlights with fresh batteries, a battery-powered radio, and a first aid kit.
- Know your evacuation route. Know where to go if you need to leave your home quickly.
- Know your emergency contact information. Know who to call if you need help.

Lightning

- If you see a lightning storm, seek shelter immediately. Do not stay in an open field or under a tree.
- If you are in a car, stay inside. The car's metal body will protect you from lightning.
- If you are in a building, stay away from windows and doors.

Flooded roads

- Do not drive through flooded roads. It is dangerous and illegal.
- If you are stuck in a flooded car, stay inside until help arrives.
- If you are stuck in a flooded car, stay inside until help arrives.

Rainy season, by the numbers

Month	Most rainfall	Least rainfall
July	1.58"	0.00"
August	1.58"	0.00"
September	1.58"	0.00"
October	1.58"	0.00"
November	1.58"	0.00"
December	1.58"	0.00"

Monsoon rainfall by month

Tucson receives about half of its annual rainfall during monsoon months. Average monsoon rainfall is 1.58 inches.

How to stay safe

- Call the National Weather Service for more information. Contact your local weather office at 520-223-3333.
- Visit the National Weather Service website for more information. Visit www.weather.gov.
- Call the National Weather Service for more information. Contact your local weather office at 520-223-3333.



High Impact Weather: Over the last few months, WFO Great Falls has been in the process of documenting weather impacts with their local users and recently came across an unusual one. In early June there was a chance of accumulating snow in the mountains and northern zones. They received a call from one of their spotters, who is a rancher, questioning the forecast of accumulating snow. Here is why – June snow can have an unforeseen impact on cattle. In June, most cows have been bred or are in the process of being bred and have been turned out to free range graze on the new green grass that is available. A wet June snow of even an inch or two will cover the grass and only sunflowers and Lupine will stick through. The cows will eat the lupine rather than dig through the snow. Lupine is known to cause calf deformities when eaten by the mother during the first few weeks of pregnancy. The spotter said he had seen this several times and recalled one event where 15 two-headed calves were born in the Bear Paws Mountains in the winter/spring following a June snow event. Thus the accuracy of accumulating June snow is very important to ranchers. This kind of information is helping the forecasters understand weather impacts and the importance of an accurate forecast. Further information on this phenomenon can be found here:

<http://www.vetmed.wsu.edu/depts-fdiu/CrookCalf.asp>

METEOROLOGICAL SERVICES DIVISION

Eureka Participates in Education Fair: Forecasters from WFO Eureka, CA recently participated as instructors at the Redwood Environmental Education Fair. This annual event includes groups from nature conservation organizations, the State and National Parks Service, biologists, and ecologists. The fair is designed to spark scientific interest in elementary students and raise awareness of environmental issues. The fair was targeted at 4th, 5th, and 6th graders whose California school curriculum at that level includes earth science studies. The National



Weather Service's presentation included brief experiments and demonstrations that show the impact of atmospheric pressure on our daily lives. Several aspiring meteorologists were found within the students; and hopefully we will be seeing these bright individuals in our ranks in the future!

WFO San Diego Visits NOAA Fisheries: Brandt Maxwell and Ted Mackechnie, meteorologists at WFO San Diego, California visited the National Marine Fisheries Service's Southwest Fisheries Science Center (SWFSC) in La Jolla, California on May 14, 2009. Jonathan Phinney, Associate Director of SWFSC, gave Brandt and Ted a tour of the facility. Brandt and Ted gave a presentation to various members of the SWFSC staff about National Weather Service products and services for the marine community in Southern California. NWS grids and potential SWAN model output was discussed as being very useful to the SWFSC to model upwellings, which impact the productivity regimes in the Southern California bight. Other ideas discussed included including more information about cloud heights and clearing times of stratus over the coastal waters in the NWS Area Forecast Discussions due to aerial surveys of marine mammals that SWFSC conducts in those areas and the need (by both the NWS and SWFSC) for a buoy off the west coast of Baja California to monitor incoming south swells, wind conditions and sea surface temperatures.



Southwest Fisheries Science Center (SWFSC) and NWS San Diego personnel at the meeting included from left to right: Paul Feidler (SWFSC), Rich Cosgrove (SWFSC), Jonathan Phinney (SWFSC), Ted Mackechnie (Lead Forecaster NWS San Diego), Brandt Maxwell (Forecaster NWS San Diego), Candy Hall (SWFSC), Jeff Seminoff (SWFSC); and Rosa Runcie (took picture) (SWFSC).

WFO Los Angeles/Oxnard at World Ocean Day 2009: Eric Boldt and Mark Jackson recently staffed a booth at the Aquarium of the Pacific in Long Beach as part of the aquarium's recognition of World Ocean Day 2009. The booth, which was alongside a booth from NOAA's



National Marine Fisheries Service, was headlined by the WFO's Teaching Tornado, along with providing teachers important weather education material – including posters educating students on lightning safety. Nearly 2000 Los Angeles area elementary students visited the aquarium that day to learn more about our world's ocean and earth environment.

While some browse for weather education materials, WFO Los Angeles WCM Eric Boldt (right) helps explain how tornadoes form to students visiting the Aquarium of the Pacific as part of World Ocean Day 2009

SCIENTIFIC SERVICES DIVISION

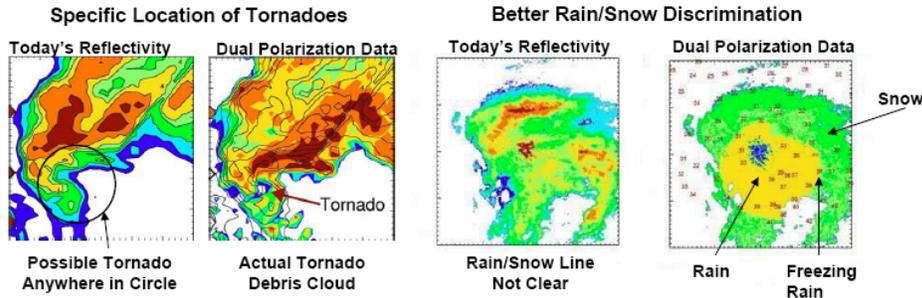
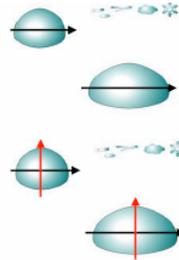
Upcoming Science Meetings:

- **AMS Conference on Mesoscale Process** – Aug 17-20, Salt Lake City, UT – more information available on the AMS web site
- **AMS Symposium on Fire and Forest Meteorology** – October 13-15, Kalispell, MT – more information available on the AMS web site
- **Great Divide Workshop** – October 19-21, Missoula, MT – Contact Chris Gibson

WSR-88D Dual Pol Upgrade: SSD sent out the latest update on the dual pol installation to all MIC/HICs, SOOs, DOHs, WCM's and ESAs. The critical Norman radar alpha test starts this week. The first installation in WR should occur next fall, probably August/September 2010. Dual pol will be installed at all sites within the following two years.

Dual Polarization – what is it?

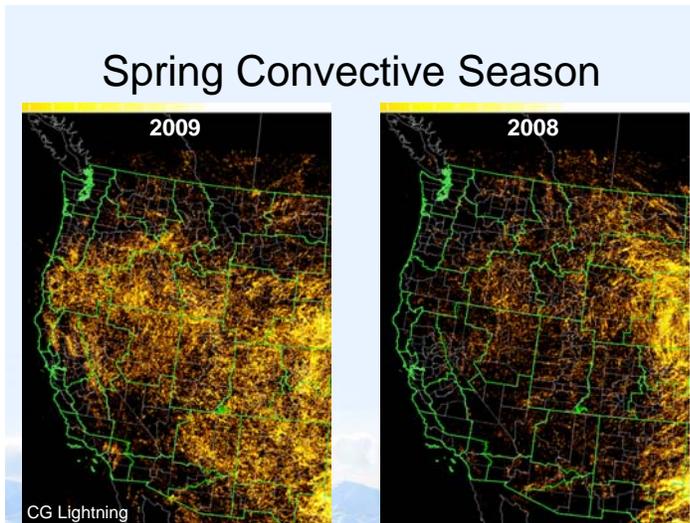
- Current radar transmits horizontal beam only
- Dual Polarization radar will transmit horizontal and vertical beams
- Provides improved detection of weather events



Hardware, software and training outline

ID	Task Name	2008				2009				2010				2011				2012				2013		
		Q4	Q1	Q2	Q3	Q4	Q1	Q2																
1	CONTRACT AWARD	◆																						
2	SYSTEM REQUIREMENTS REVIEW		◆																					
3	PRELIMINARY DESIGN REVIEW			◆																				
4	CRITICAL DESIGN REVIEW				◆																			
5	DEVELOPMENT	[Bar]																						
6	KOUN INTEGRATION TEST																							
7	SYSTEM TEST																							
8	PRE-BETA (OPERATIONAL) ACCEPTANCE TEST																							
9	BETA ACCEPTANCE TEST																							
10	OSIP GATE 4 DECISION																							
11	DEPLOYMENT																							
12	NPI SCIENCE IMPLEMENTATION	[Bar]																						

Summer Lightning Project: A recent conference call and mod note are part of this summer's focus on improving lightning forecasts. The guidance is coming from Phil Bothwell's work at SPC. Chris Gibson (SOO at WFO Missoula) has been proving the GFE related changes. As a reminder, it has been an active lightning season to date – the lightning graphic below is activity from Jan 1 to June 8.



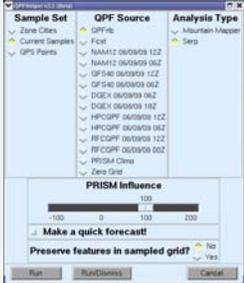
iNWS – New Enhancements: Aaron Sutula (WRH SSD) recently added a short (hyper) link capability to the iNWS SMS and email links. For phones that have a data service, the user can click on the short link and get a small cell phone sized graphic that depicts the area warned and show it in relation to the area they have chosen to be alerted for. Andrew Murray (WRH HCSD) has developed a prototype of observed and forecast hydrographs for river stages, including action stages colored coded to match the AHPS web pages on cell phones.



QPFHelper: Ken Pomeroy will be sending a new version out shortly for testing and feedback. Most of the enhancements are based on last winter's feedback.

QPFHelper

- Version 2.1 to be posted this week
- Strictly a test version
 - Quick Forecast option (skip the sample GUI)
 - Preserve previous edits
- If you have an interest in testing, feel free to play around with it and give me feedback



New WDTB Updates:

- [WES 9.0 Update 1](#) now available!
- [AWIPS OB 9.0 Training](#)
- [WDTB Training Disk Inventory](#)
- [WDTB's FY09 Training Schedule](#)
- [Advanced Storm-Based Warning Training](#) now available!

New COMET Releases: You can access all COMET modules through the LMS.

- [Precipitation Estimates, Part I: Measurement](#)
- [Mesoscale Ocean Circulation Models](#)
- [Nearshore Wave Modeling](#)
- [Climate Change: Fitting the Pieces Together](#)
- [S-290 Unit 9: Observing the Weather](#)
- [Understanding Drought](#)
- [Using Climatological Products in Common Operations](#)
- [Topics in Tropical Meteorology](#)

Teletraining Sessions for July: See the teletraining calendar at:

<http://rammb.cira.colostate.edu/visit/ecal.asp> Offices can register for the teletraining sessions by sending email to: visit@comet.ucar.edu.

July 2009						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2 Enhanced-V 9:30 AM MDT 15:30 UTC	3	4
5	6	7 NHC Hurricane Track Models 9:00 AM MDT 15:00 UTC HPC, CHS, BUF, GSP	8 CRAS Forecast Imagery in AWIPS 8:00 AM MDT 14:00 UTC	9 MODIS Products in AWIPS 9:30 AM MDT 15:30 UTC	10	11
12	13 NHC Hurricane Intensity Models 9:00 AM MDT 15:00 UTC HPC, REV	14 Utility of GOES Imagery for Severe Weather 9:30 AM MDT 15:30 UTC	15 Water Vapor Imagery and Potential Vorticity Analysis 12:00 PM MDT 18:00 UTC BIS	16 Basic Satellite Principles 8:00 AM MDT 14:00 UTC MAF	17 Interpreting Satellite Signatures 8:00 AM MDT 14:00 UTC MAF	18
19	20	21 Mesoscale Convective Vortices 1:30 PM MDT 19:30 UTC MAF	22 Utility of GOES Imagery for Severe Weather 9:30 AM MDT 15:30 UTC BUF	23 Enhanced-V 12:00 PM MDT 18:00 UTC MAF	24	25
26	27	28 MODIS Products in AWIPS 12:00 PM MDT 18:00 UTC CAE, REV	29	30 Water Vapor Imagery and Potential Vorticity Analysis 9:30 AM MDT 15:30 UTC MAF	31	
<-- View June View August -->						

All previous sessions including those with recorded instructor audio and annotations are available at: <http://rammb.cira.colostate.edu/visit/ts.html>

SYSTEMS OPERATIONS DIVISION

It's that time of the year when we roll out our BBQs, so here are a few safe tips for cooking outdoors:

- Keep meat chilled until you're ready to cook it.
- Allow meat to completely thaw in the refrigerator before placing on the grill.
- Marinate meat in a tight-sealing container, especially when transporting meat in a cooler to a picnic or tailgate party.
- Wash hands frequently with soapy water when working with raw meat.

- Keep food and drink separate.
- Avoid cross contamination. A prime cause of summer food-borne illness is the transfer of bacteria from uncooked to cooked meat.
- Don't forget the cutting board. Remember to wash all cutting boards and containers that touched uncooked meat in hot, soapy water.
- Use a meat thermometer. Meat must reach a temperature of 160 degrees before it is safe to serve. Use a thermometer to avoid serving undercooked meat.
- Take out the trash. Dispose of all refuse in a covered bin or trash receptacle.
- Keep it cool. Avoid overgrowth of bacteria by storing food in a refrigerator/cooler within two hours of serving. When the temperature rises above 85 degrees, food should generally be stored in a cool place within one hour of serving.
- Leftovers should be packed in clean containers and put back in the coolers.
- When in doubt throw it out. Food left out more than two hours has often been contaminated as a result of heat exposure. **DON'T TAKE ANY CHANCES!**