

# RECHARGE

A newsletter of the Arizona Master Watershed Steward Program

Vol. 1 Issue 3 Fall 2006

A Partnership of:

THE UNIVERSITY OF ARIZONA®



A publication of the University of Arizona Cooperative Extension System © 2004 Arizona Board of Regents. All contents copyrighted. All rights reserved

## The Return of ENSO

### El Nino is back!

It has been a busy year with respect to tracking changes in sea-surface temperature and wind circulation patterns across the equatorial Pacific Ocean. The weak La Nina event present last winter which may have been responsible for our record dry winter has given way over the past summer to an El Nino event underway right now.

### So...what is El Nino again?

El Nino literally means, the Christ Child, referring to a periodic warming of water along the South American coast noticed by fishermen around Christmas.

Scientists have adopted the term to refer to the broader, periodic shift towards warmer-than-average waters in the eastern Pacific and the accompanying shift in larger-scale circulation patterns. El Nino is the warm phase of the El Nino-Southern Oscillation (ENSO) which typically cycles between a warm phase and cool phase (also known as La Nina where water in the eastern Pacific is unusually cool) every

El Nino and La Nina events can have major impacts on global circulation patterns by shifting major areas of warm water and accompanying thunderstorms back and forth across the Pacific Ocean. The position of large areas of warm water and thunderstorms can impact the location of surface high and low pressure systems and the track of jet streams. Global impacts can include extreme drought in some locations while other areas experience extreme flooding. event is underway. This connection between either El Nino or La Nina is strongest during the winter season for Arizona because of their ability to disrupt jet-stream patterns important for winter precipitation. (continued to page 2)



### In this Issue

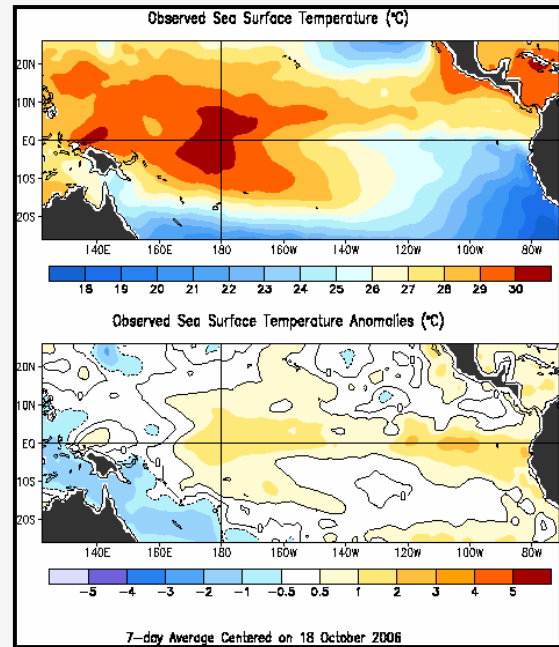
The Return of ENSO	P. 1
Volunteer Spotlight	P. 3
Invasive Species Spotlight	P. 3
Upcoming Events	P. 3
A Note from Robert Emanuel	see insert

## ENSO...

### Why should I care?

#### I don't live on the Pacific Ocean.

El Nina and La Nina events produce disruptions to larger-circulation patterns very distant from the center of action in the Pacific. This is called a teleconnection pattern. Over a season, global-scale circulation patterns will adjust to the changes occurring across the Pacific. In Arizona, we can experience a teleconnection as a strengthening of the sub-tropical jet stream during an El Nino event. The sub-tropical jet can be an excellent mechanism to deliver moisture and energy for winter storms across the entire southern U.S. and especially so when an El Nino event is underway. This connection between either El Nino or La Nina is strongest during the winter season for Arizona because of their ability to disrupt jet-stream patterns important for winter precipitation.



Sea-surface temperature patterns across the Pacific Ocean  
(from the NOAA Climate Prediction Center,  
<http://www.cpc.noaa.gov>)

### What is going on now?

Warm-than-average waters (or positive sea surface temperature anomalies) extend from the coast of South America out to the international date line. This warm water has been building in the eastern Pacific since last June when easterly winds which normally carry the warm water to the west weakened. Sea surface temperatures are over 2 °C above average in some areas and the atmosphere is beginning to show weak signs of responding to the El Nino pattern of warm water in the Pacific (check out the Southern Oscillation Index for more information. This index is based on the atmospheric response to El Nino and La Nina).

### What is the forecast for this winter?

All seasonal forecasts are based on probabilities and do not forecast actual amounts. Many past El Nino events have brought above-average precipitation to Arizona, but some haven't. That would mean that a forecast based on past experiences with El Nino events would suggest a higher probability of above-average precipitation versus below-average or even normal. That is what the forecast for this winter reflects (see [http://www.cpc.noaa.gov/products/predictions/long\\_range/lead02/off\\_index.html](http://www.cpc.noaa.gov/products/predictions/long_range/lead02/off_index.html)). The official winter forecast from the NOAA Climate Prediction Center is for an increased chance of above-average precipitation for most of Arizona. The important thing to remember is that not El Nino events produce wet conditions across all of Arizona. The position of the sub-tropical jet can be very critical in where the precipitation fall. El Nino events typically favor southern Arizona, but a slight shift to the north can mean increased precipitation for all of Arizona while a southerly shift can mean less precipitation. Stay tuned as the 2006-07 El Nino continues to develop!

Contact Mike Crimmins ([Crimmins@u.arizona.edu](mailto:Crimmins@u.arizona.edu)) with questions.

**Volunteer Spotlight**  
**Karrol Braddock**



Karrol Braddock is originally from Indiana and moved to Arizona in 1972. She earned a degree in Range Management from Utah State University and subsequently worked as a Range Conservationist for the Forest Service for 10 years. Today, Karrol is a physical therapist and lives in Globe, Arizona. Natural resource management remains an interest.

Karrol participated in the first Gila County Master Watershed Steward class in Spring 2006. During the class on Noxious Weeds, she asked Rob Emanuel, the Statewide Coordinator, if there were any specimens to examine. He replied “No, you’d have to create them.” So she did! For her volunteer project, she joined with Patti Fenner from Tonto National Forest to collect and document over half of the noxious weed species found in Gila County. Each specimen she prepared is herbarium quality. The specimen collection she created now serves as a learning tool for future MWS classes.

***Thank you for all your hard work Karrol!***

❖❖ **WANTED-DEAD** ❖❖

**SCOTCH THISTLE  
 (ONOPORDUM ACANTHIUM)**



Photo courtesy of W. Albrecht

**Description:** A native of Europe, this plant was originally cultivated and planted adjacent to castle moats in the British Isles and northern Europe to ward off invaders. Individual plants can exceed 10’ in height, leaves are up to 2’ long and 1’ wide. The plant is spiny and covered densely in fine hair giving a grey green appearance. The plant flowers in the second and final year of growth.



Photo Courtesy USDA Nat’l Agricultural Library

**Threat:** Scotch thistle out competes native plants and in riparian areas can choke the stream bank, aiding seed dispersal by wildlife accessing the stream for water. Scotch thistle is found in 40 US states.

**Spread:** wind dispersed seed.

**Management:** Because the seeds from this plant can persist for up to 20 years, the best approach to the eradication of this weed is early detection and consistent monitoring. It is best removed by severing the root of the rosette just beneath the growing crown (at the soil line) and leaving them for dead. Once in the second year of growth, removal should include bagging the severed weeds and properly disposing of them in a land fill or burning them at an incarceration site.

