

# What is OC Public Works doing to reduce risk?

- ✓ Inspecting flood and road facilities with heightened focus on canyon burn areas
- ✓ Removing debris, vegetation, sediment and trash buildup from flood facilities and roadways in unincorporated areas
- ✓ Making repairs to drain gates, catch basins, inlets, channels and roadways to ensure storm water flows freely
- ✓ Testing gates, maintaining dams and retarding basins
- ✓ Installing preventative barriers, such as sandbags, hay bales, silt boards and k-rails to redirect flow
- ✓ Monitoring National Weather Service weather forecasts
- ✓ Maintaining and monitoring the ALERT (Automated Local Evaluation in Real Time) flood warning system consisting of numerous automated rain gages, water level sensors and computer base stations for monitoring of storm conditions
- ✓ Disseminating flood prevention information to residents



2010 Storm in Laguna Beach  
Source: OC Register



Los Alamitos- Flooding from 1995 storms  
Source: Marvin Jempsa, Orange County resident

## Additional Resources

United States Geological Survey  
[www.usgs.gov](http://www.usgs.gov)

National Oceanic and Atmospheric Administration  
[www.noaa.gov](http://www.noaa.gov)

Federal Emergency Management Agency  
[www.fema.gov](http://www.fema.gov)

Floodsmart  
[www.floodsmart.gov](http://www.floodsmart.gov)

Orange County Public Works  
[www.ocpublicworks.com](http://www.ocpublicworks.com)  
[www.ocflood.com](http://www.ocflood.com)

*It is the mission of Orange County Flood Control District to "reduce risk of Orange County life and property from the threat and damage of floods."*



OC Public Works

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# Are you ready for an El Niño?

Have you been thinking lately about the possibility of :

- Heavy Rain?
- Flooding Conditions?



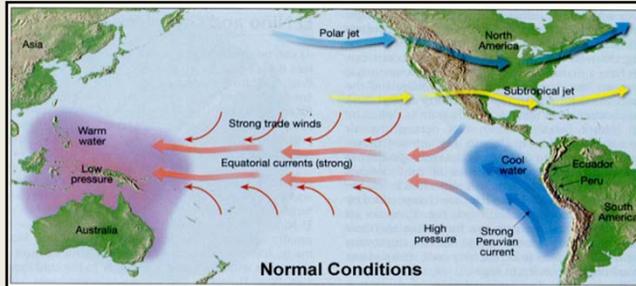
Trabuco Creek over Trabuco Canyon Road- Damage by 2010 storms  
Source: OC Register



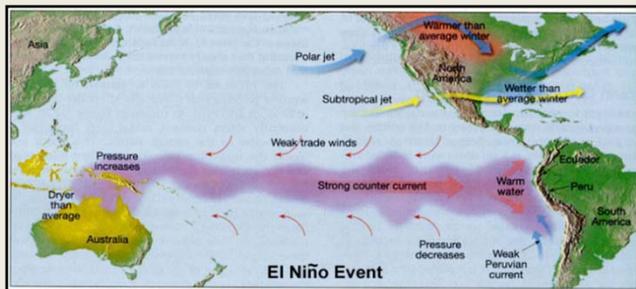
Huntington Beach Pier-Damage by 1983 El Niño  
Source: OC Register

# What is an "El Niño?"

El Niño, was originally recognized by fishermen as the appearance of unusually warm water in the Pacific Ocean. Due to its tendency to arrive around Christmas, "El Niño" means "The Little Boy" or "Christ Child."



In normal conditions, the trade winds blow from east towards the west across the Pacific, dragging warm water as the cool water upwells. This warm water causes warm air to rise, along with more evaporation and rainfall in the western Pacific. The eastern Pacific experiences lower rainfall as the cooler water that has risen from the deeper levels decreases evaporation.



In an El Niño event, the trade winds weaken in the central and western Pacific with less upwelling of cooler water from deeper levels. The push of warmer water to the western Pacific does not occur, resulting in much greater precipitation in South America, Central America, and parts of North America. Conversely, droughts occur in areas that are normally very rainy at that time of the year, notably in Australia and Indonesia. The El Niño phenomenon happens every 2 to 7 years.

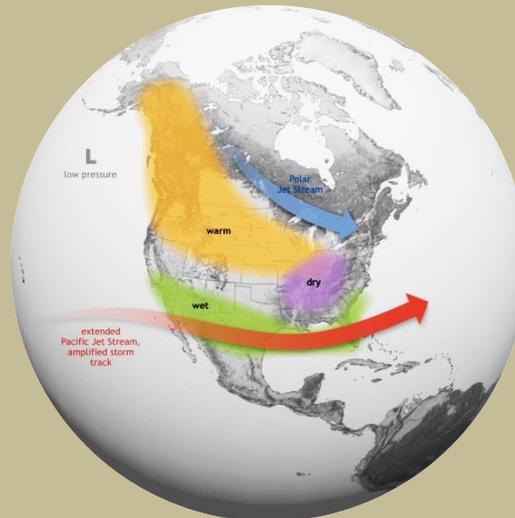
Sources: NOAA; Pearson Prentice Hall, Inc.

## Historic El Niño Years

Moderate	Strong	Very Strong
1963-1964	1957-1958	1982-1983
1986-1987	1965-1966	1997-1998
1987-1988	1972-1973	
1991-1992		
2002-2003		
2009-2010		

Events are defined as 5 consecutive overlapping 3-month periods at or above the +0.9° F Sea Surface Temperature (SST) anomaly for El Niño events. The threshold is further broken down into Weak (with a .9° F to 1.62° F), Moderate (1.63° F to 2.52° F), Strong (2.53° F to 3.42° F) and Very Strong (≥3.43° F)

Sources: NOAA; Golden Gate Weather Service



Source: NOAA



San Juan Creek-Damage from 2005 storm  
Source: Orange County

According to the October 2015 publication of NOAA/National Weather Service, "there is an approximately 95 % chance that El Niño will continue through Northern Hemisphere winter 2015-16..."

## Prepare for heavy rains- Here's what *you* can do!

Consider purchasing flood insurance, even if you are not in the floodplain . Most flood policies have a 30-day waiting period. Most homeowner policies do not cover flood damage

Have roof repairs made and all leaks fixed before the rains

Make sure gutters are clear of leaves and any other debris

Have weakened trees inspected by arborist. Downed trees and branches can significantly damage homes, vehicles and power lines

Prepare a Disaster supply kit and have an emergency plan for your family



Buena Park-Flooding in 1938  
Source: Orange County Archives