



# The Pacific Tradewinds Quarterly

The official newsletter of the Schools of the Pacific Rainfall Climate Experiment

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## El Nino 2009/10 Weather Pattern Ends

Wed May 12, 2010

By: Michael Perry

The 2009/10 El Nino weather pattern that worsened Australia's drought, caused the failure of last year's monsoon in India sending food prices soaring and threatened Southeast Asia's palm oil and rubber crops is over.

"The El Nino event of 2009/10 has concluded, with all the major indicators now below El Nino thresholds," Australia's weather bureau said on Wednesday in its latest El Nino report.

El Nino, or little boy in Spanish, is driven by an abnormal warming of the eastern Pacific Ocean, and can create havoc in weather patterns across the Asia-Pacific region.

The last severe El Nino in 1998 killed more than 2,000 people and caused billions of dollars in damages to crops, infrastructure and mines in Australia and Asia.

Widespread protests against rising food prices in India as a result of the failure of last year's June-September monsoon has seen the government reluctant to export grain even though the country has a huge wheat surplus.

The Indian government has forecast a normal monsoon this year, but analysts remain skeptical. Any sign of a poor monsoon would push up domestic and global prices of grains, sugar, oilseeds and lentils. It would also add to pressure on the central bank to further tighten policy.

A current severe dry spell across a wide swathe of Southeast Asia threatens to curb output of palm oil and rubber, while the weakest rainfall in more than a decade may

cripple rice planting in top exporters Thailand and Vietnam.

The El Nino in a region that is the world's biggest producer of palm oil, rice and rubber and a key supplier of coffee and cocoa has brought hotter weather to farms and plantations, drying out trees and sapping yields.

Australia, the world's fourth-largest wheat exporter, could harvest 22.6 million tonnes of the grain in 2010/11, say analysts, putting its forecast at the top of a range of estimates, after initially being hit by the El Nino.

### LA NINA NOW EXPECTED

Australia's weather bureau said all El Nino indicators, Pacific sea surface temperatures, trade winds, the Southern Oscillation Index (which indicates El Nino strength) and cloudiness over the Pacific, have returned to neutral levels.

"The timing of the decline in the 2009/10 El Nino event has been fairly typical, with the event peaking over (the southern hemisphere) summer then decaying during autumn," said the bureau.

(Click here for Australian Bureau of Meteorology latest El Nino report: [www.bom.gov.au/climate/enso/](http://www.bom.gov.au/climate/enso/)).

The bureau said that there was now a 40 percent chance of a La Nina developing. La Nina translates from Spanish as "the girl-child" and is the opposite of El Nino.

La Nina events are associated with increased probability of wetter conditions in the western Pacific, particularly in eastern Australia and Asia, and drier conditions in South America.

The bureau said current conditions below the

surface of the Pacific Ocean show large volumes of cooler than normal water, indicating that further cooling of the surface is likely.

"The majority of climate model predictions suggest the tropical Pacific will cool further during the coming months, with the possible

development of La Nina conditions by late (southern hemisphere) winter or spring," it said.

Source: Reuters India (<http://in.reuters.com/article/domesticNews/idINSGE64B0C520100512?PageNumber=2&virtualBrandChannel=11732&sp=true>)  
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## Storm Surge Reached 26 Feet During Fiji Cyclone

*Village completely inundated*

**Friday, March 19, 2010—Suva, Fiji**

Islands in Fiji's Lomaiviti group were hit by eight meter-high storm surges at the height of Cyclone Tomas, according to the National Disaster Management Office, DISMAC.

DISMAC spokesman Anthony Blake said the agency has been receiving reports about eight meter [26 ft] high waves.

Blake said a satellite system available to DISMAC recorded five meter [16 ft] high waves in the open sea.

He said based on that, reports of the eight meter high waves can be confirmed "because the wave heights are likely to be higher closer to shore".

"One village in Nairai was completely inundated," Blake said.

"Other places whether storm surges occurred are yet to be confirmed," he said.

Reprinted from: *Pacific Islands Report* (<http://pidp.eastwestcenter.org/pireport/2010/March/03-19-02.htm>)

Source: *Fijilive*: <http://www.fijilive.com>  
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## Cyclone Tomas Racks up \$A5 Million Bill in Fiji

**Thursday, March 25, 2010—AAP**

By Nicky Park

Tropical Cyclone Tomas whipped up nearly \$A5 million worth of damage in Fiji, preliminary assessments have revealed.

The director of the Fiji Disaster Management Office, Pijiliai Dobui, said ground assessments had been completed in the regions of Fiji battered by the category four cyclone last week.

A state of natural disaster was declared in the South Pacific nation after winds peaking at 200km/h and massive storm surges flattened buildings, uprooted trees and forced the evacuation of 17,000 people.

Disaster assessment experts concluded the northern islands in the Lau Group, in the Fiji's east, had copped the most damage.

Mr Dobui said infrastructure, including roads and jetties had been wrecked, 400 homes had been destroyed and another 400 were damaged.

"We are yet to ascertain the number of people that have lost their homes," Mr Dobui told AAP from his office in Suva.

Australian and New Zealand Defence Force

aircraft delivered emergency aid to Vanua Levu, Fiji's second-largest island, for distribution among the isolated islands last week.

"Right now I think we are just about OK," he said in the wake of the cyclone.

"Our major concern now is if there's another cyclone coming before the end of this (cyclone season, in April)."

Earlier reports that three people had died in the cyclone were incorrect, Mr Dobui said.

A post-mortem examination revealed a man found in the northern town of Labasa had died of "health related causes", he said.

A man from the northern island of Rabi was confirmed dead after a tree fell on his house during the cyclone and a woman drowned while trying to save family members caught in pounding waves off the coast of Vanua Levu.

Australia and New Zealand governments dedicated up to \$A1 million to help Fiji in the aftermath of Tomas.

Source: AAP: <http://news.smh.com.au/breaking-news-world/cyclone-tomas-racks-up-a5m-bill-in-fiji-20100325-qyth.html> Copy-right © 2010

"Infrastructure, including roads and jetties had been wrecked, 400 homes had been destroyed and another 400 were damaged" —  
Mr. Pijiliai Dobui,  
Director, Fiji Disaster Management Office

## TRMM Satellite Rainfall Map of Cyclone Ului's Queensland Flooding

Thursday, March 25, 2010

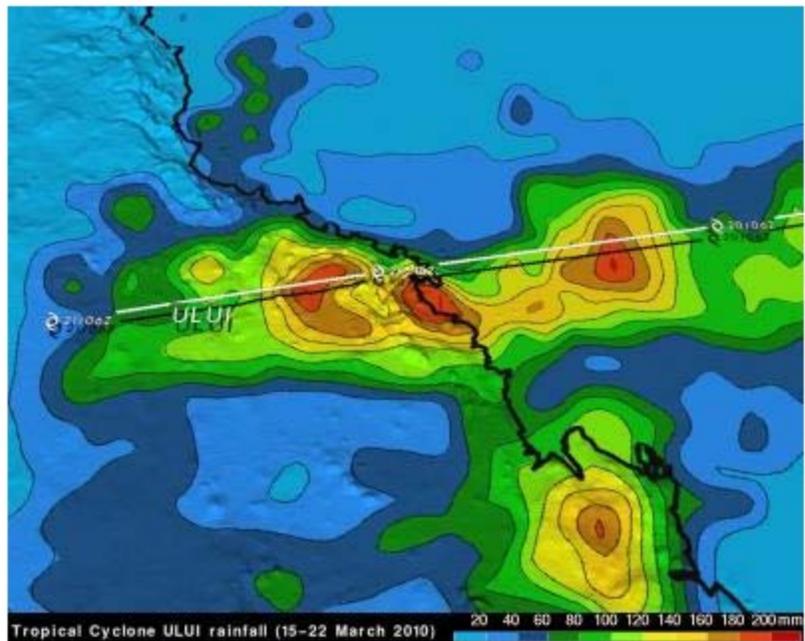
By: Hal Pierce, SSAI/NASA

Queensland, Australia was recently hit by its second tropical cyclone of the season. Tropical Cyclone Olga, which made landfall on the east coast of Queensland just south of Cairns back in late January, brought widespread rains to the region. The most recent cyclone to hit Queensland is Tropical Cyclone Ului, which also made landfall on the east coast of Queensland but much farther south near Airlie Beach south of Townsville.

Ului, which formed near Vanuatu in the South Pacific, was at one time a powerful Category 5 cyclone with winds estimated at 140 knots (~160 mph) as it passed well to the south of the Solomon Islands. The cyclone then weakened as it turned southwest and headed through the Coral Sea towards Australia. Ului hit the Whitsunday Islands, located just off the Australian mainland, early Sunday morning (about 1:30 am local time) on the 21st of March 2010 as a Category 3 cyclone with winds gusting to 200 kph (~125 mph, equivalent to a Category 2 hurricane on the US Saffir-Simpson scale).

The storm quickly weakened to Category 2 as it made landfall near Airlie Beach on the mainland. Proserpine, just south of where the center crossed the coast, reported a wind gust of 146 kph (~90 mph). In addition to the strong gusty winds, which resulted in widespread power outages, Ului dumped heavy rains over the area.

Launched back in November of 1997 and armed with an array of active and passive sensors, the primary objective of the Tropical Rainfall Measuring Mission satellite (better known as TRMM) is to measure rainfall from space. For increased coverage, TRMM can be used to calibrate rainfall estimates from other additional satellites. The TRMM-based, near-



TRMM's rainfall estimates for the one-week period March 15-22, 2010, for the central east coast of Queensland, Australia, show that Ului dumped upwards of 180 mm (~7") of rain along its path.

real time Multi-satellite Precipitation Analysis (TMPA) at the NASA Goddard Space Flight Center in Greenbelt, Md. is used to monitor rainfall over the global Tropics.

TMPA rainfall estimates for the 1-week period of March 15 to 22, 2010 for the central east coast of Queensland, Australia show that Ului dumped upwards of 180 mm (~7 inches, shown in orange) of rain along its path. Mackay airport, located about 100 km (~60 mi) south of Airlie Beach, reported 145 mm (~6 inches) of rain in 24 hours. Ului then quickly weakened as it moved westward and further inland and was downgraded to just a tropical low.

Reprinted from: *E! Science News* <http://esciencenews.com/articles/2010/03/25/trmm.satellite.rainfall.map.cyclone.uluis.queensland.flooding> Copyright© 2010 e! Science News

Source: NASA/Goddard Space Flight Center



## Toxic Algae New Threat to Samoa Marine Life

*Called threat to fish, coral, lifestyles*

**Monday, February 22, 2010—Apia, Samoa**  
By Alan Ah Mu

In Samoa, a new menace to tourism has emerged from the sea.

It is not as swift as a tsunami but it can be just as destructive.

It is algae.

When it flourishes it can slowly but surely wipe out the coral and other attractive qualities of a tropical lagoon that attract tourists. Samoa Hotel Association (SHA) has identified the threat. "Well it's happening," said Chief Executive Officer of SHA, Nynette Sass, of algae growth in the sea. "We've seen it in some areas," said Ms. Sass. She recently saw trials of green algae near the shore from the air at the western end of Upolu.

*[Pacific Islands Report editor's note: According to the University of Minnesota's Institute of Technology, a team of researchers, including University of Minnesota aerospace engineering and mechanics faculty member Jian Sheng, has recently uncovered new information about a toxic alga that shows it to be a vicious, venom-producing predator rather than merely a helpless sun-loving microbe. The alga has been blamed for massive fish kills by releasing a substance called karlotoxin, which is extremely damaging to the gills of fish. In a series of experiments using 3-D*

*digital holographic microscopy initially developed at The Johns Hopkins University, Sheng and his colleagues have found that the release of these toxins also serve to stun prey before ingestion. This shifts the role from one of protection to one of aggression.]*

It is a warning of things to come if waste is not disposed off properly. Algae flourish in parts of the sea where liquid waste leaches to. Faulty septic tanks and water from the sink in kitchens that drip underground end up in the sea. There, they provide additional nutrients for algae which then spread. Fertilizer used in farms run off to the sea and boost algae growth. Ms. Sass said the problem can be solved if guidelines set by Planning and Urban Management Agency (PUMA) are followed. A joint presentation with PUMA on the matter is planned for Wednesday. It is when stakeholders in tourism gather for the announcement of the Tourism Tsunami Re-building Programme (TTRP). TTRP is funded by Samoa and New Zealand to the tune of 3.5 million tala [US\$1.4 million] for the reconstruction of beach fale [traditional huts] and budget accommodation businesses harmed by the tsunami on 29 September last year.

Reprinted from: *Pacific Islands Report*  
(<http://pidp.eastwestcenter.org/pireport/2010/February/02-24-18.htm>)

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"It is a warning of things to come if waste is not disposed off properly" —  
Nynette Sass, Chief Executive Officer-Samoa Hotel Association.

## Pacific Tuna Tagging Project Advances

**Wednesday, March 17, 2010—New Caledonia**

The world's largest-ever tuna tagging project has released over 250,000 tagged tuna into the equatorial Western and Central Pacific Ocean; 35,000 tags have already been recovered.

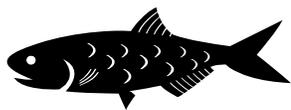
The data collected will help sustain and protect the world's largest tuna resource, stated twenty scientists gathered recently at an International Tuna Tagging Workshop at the Secretariat of the Pacific Community's (SPC) headquarters.

In August 2006, the joint SPC/PNG National Fisheries Pacific Tuna Tagging Programme began in Papua New Guinean waters, where 15 per cent of the world's tuna is fished. In 2007,

the New Zealand government invested NZD 5 million (USD 3.5 million) and the European Union (EU) EUR 1.56 million, which allowed the project to cover the whole equatorial Western and Central Pacific Ocean.

The last tagging cruise ended in October 2009. For around 90 days at a time, a 30-strong team of experienced Solomon Islands fishers and SPC biologists navigated the ocean on a pole-and-line fishing vessel, easing the fish on board to measure, tag and return them to sea within 15 seconds.

Most tags are thin rods inserted under the tuna's dorsal fin. Bigger fish, though, were given express surgery and sent back to swim



with an archival tag.

Tags carry only a serial number, but the hi-tech archival tags keep track of geographical movement. They measure light throughout the fish's journey and is then interpreted based on sunrise and sunset schedules per time zone.

A vast communications operation was arranged to inform fishers, tuna canneries and fishery agencies across the globe about the project and a reward offered for every tag sent back to SPC.

The results of the tagging project will provide information on various biological and fishery processes such as exploitation rates, mortality, movement, growth rates and spatial and temporal variability.

The SPC team met earlier this month with representatives from the Indian Ocean Tuna Commission (IOTC), the Inter American Tropical Tuna Commission (IATTC) and PNG National Fisheries.

They were joined by independent leaders in the field of data analysis from the US's University of Hawaii, National Oceanic and Atmospheric Administration (NOAA) and National Marine Fisheries Service (NMFS) and New Zealand's National Institute of Water & Atmospheric Research (NIWA) for an analysis workshop.

A work plan for the months ahead will be created by these groups to transform the statistics into useful information for fisheries.

"The growth of the tuna industry in the Pa-



Bluefin tuna being returned to the sea after being tagged. (Photo: NOAA)

cific over the last decade has occurred in parallel with the growing use of fish aggregating devices (FADs). It is really exciting that we now have data that can measure the impact of these FADs on the quantity and quality of tuna in the region," said Brian Kumasi of PNG National Fisheries.

"This information, in addition to the other analyses that are planned, will lead to better management of our shared fishery resource," he added.

Source: Fish Info & Services Co.Ltd: <http://www.fis.com/fis/worldnews/worldnews.aspxmonthyear=&day=17&id=35887&l=e&special=&ndb=1%20target=> Copyright 1995 - 2010. All Rights Reserved.



## Australia Gives Samoa \$893,000 for Climate Impacts

*Funds to monitor effects of climate change on health, crops*

**Wednesday, February 17, 2010—Apia, Samoa**

Australia has given Samoa 2.3 million tala [US\$893,000] (AU\$1.150 million) as a first tranche of funding to help tackle the impacts of climate change over the next six years.

Australia's assistance will support Samoa's coordinated approach to monitor the impacts of climate change on health, agriculture and food security, develop adaptation measures for vulnerable communities.

Including coastal infrastructure and develop-

ment of early warning systems and to develop viable options for clean and renewable energy.

The funding is delivered under the Samoa-Australia Partnership for Development.

Head of AusAID in Samoa, Ian Bignall, handed over the funding to the Chief Executive Officer for the Ministry of Natural Resources and Environment, Taule'ale'ausumai Tufuisa'a La'avasa Malua yesterday.

"Samoa, like many countries in the Pacific, is very vulnerable to the impact of climate change, given the rising sea levels, flooding, coastal erosion and fragile ecosystems," said

"Samoa, like many countries in the Pacific, is very vulnerable to the impact of climate change, given the rising sea levels, flooding, coastal erosion and fragile ecosystems,"

— Taule'ale'ausumai Tufuisa'a La'avasa Malua, Chief Executive Officer for the Ministry of Natural Resources and Environment

Taule'ale'ausumai.

"With this support from Australia, we can take positive steps to manage these impacts for the future development of Samoa and improved livelihood of all Samoans.

"On behalf of the Government and people of Samoa, I extend my thanks to Australia for this additional funding and for its ongoing commitment to help Samoa deal with the impacts of climate change."

Mr. Bignall said the climate change funding is the first of many of the activities starting this year from the new Samoa-Australia Partnership for Development which will make a difference to all Samoans.

"Through this new partnership, Australia is providing more long term and effective aid to Samoa to make more rapid progress towards achieving the Millenium Development Goals," Mr. Bignall said.

"In addition to tackling climate change, support is also being provided to private sector growth and employment (including agricultural development and regional economic integration) and improving health, education and governance."

Mr. Bignall said the climate change funding follows the 800,000 tala [US\$310,000] (AU\$400,000) grant given in 2008 to the United Nations Development Program's (UNDP) Global Environment Facility Small Grants Program to support community based activities in Samoa to reduce the climate change impacts on ecosystems and livelihoods.

The new agreement supports core activities identified in Samoa's National Adaptation Programme of Action (NAPA), including:

- further development of climate change monitoring early warning systems,
- zoning and strategic planning,
- surface flood adaptation, including a national strategy for surface flood adaptation and pilot to manage surface floods in Apia urban area,
- forest fire prevention including upgrade of national climate system to support early warning in the water, forest and tourism sectors,
- sustainable tourism adaptation including a national strategy, capacity building in tourism

infrastructure environmental impact assessment, standards for tourism services and pilot to offset carbon emissions from visitors travelling to Samoa, and

- technical assistance to assess the feasibility and then construction of a biomass gasification plant to produce clean and renewable energy.

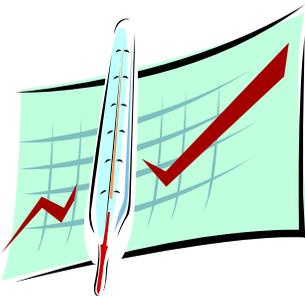
The breakdown of the 2.3 million tala [US\$893,000] funding includes:

- 1.5 million tala [US\$582,000] - for the implementation of the NAPA 4 priorities - Integrating climate change risks into the land-use planning, water, forestry and tourism sectors,
- 500,000 tala [US\$194,000] - for implementation of the Biomass Gasification Pilot Project,
- 200,000 tala [US\$78,000] - for supporting sustainable and coordinated financing for climate change adaptation, and
- 100,000 tala [US\$39,000] - for capacity building and increasing climate change awareness and technical understanding, especially across government.

During the next 12 months, the Samoa-Australia Partnership for Development supports five mutually agreed priority areas to:

- Promote private sector growth and employment with an emphasis on agriculture and fisheries, regional economic integration and trade liberalization, economic infrastructure and lowering costs of doing business,
- Improve health by supporting the reduction of non-communicable diseases and workforce development in the health sector,
- Improve education by supporting equitable access to and quality of education including disability services,
- Improve governance through public sector improvement, greater public financial management and strengthening statistics and data on development and governance indicators, and
- Provide climate change assistance to support Samoa monitor the impacts of climate change, provide adaptation measures for vulnerable communities and develop viable options for renewable energy.

A sixth priority area, strengthening law and



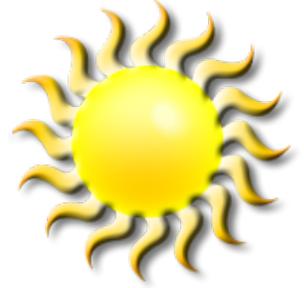
justice, is currently being developed.

Australia is one of the largest development partners to Samoa, providing more than 74 million tala [US\$28.7 million] (AU\$37 million) every year to support activities that deliver benefits to all Samoans. Australia also pro-

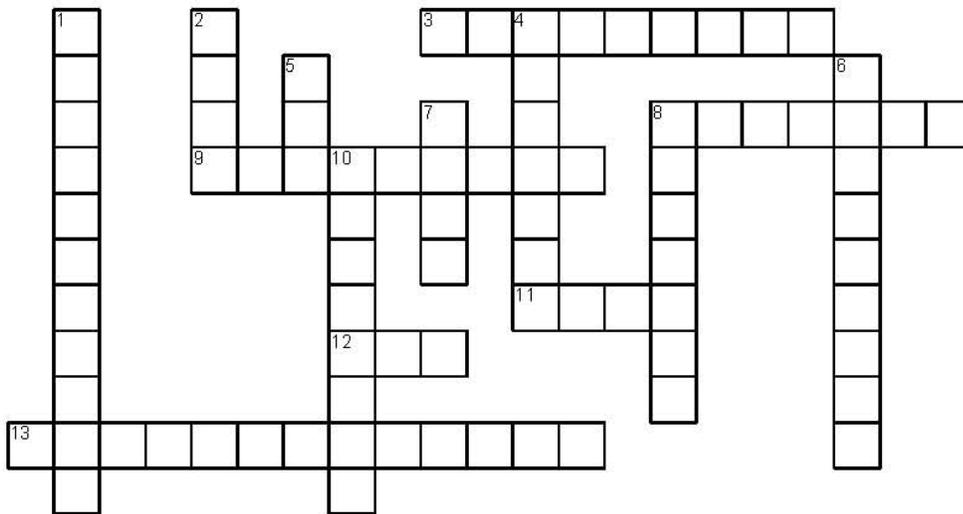
vided 24 million tala [US\$10.3 million] (AU\$12 million) towards the recent tsunami relief and rebuilding efforts.

Reprinted from: *Pacific Islands Report* (<http://pidp.eastwestcenter.org/pireport/2010/February/02-19-18.htm>)

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### BONUS! Weather Crossword



**ACROSS**

- 3. Tropical cyclones that blow in a large spiral around a relatively calm center eye.
- 8. A vortex of air rising into a cloud.
- 9. Visible electrical releases created by thunderstorms.
- 11. Horizontal movement of air in relation to the earth's surface.
- 12. Water that has condensed on a cool surface overnight from water vapor in the air.
- 13. Any form of water that falls from clouds and reaches the ground.

**DOWN**

- 1. The degree of hotness or coldness.
- 2. Frozen rain droplets created by the up drafts of convective thunderstorms.
- 4. An arc of colored light in the sky caused by refraction of the sun's rays by rain.
- 5. Droplets of water vapor suspended in the air near the ground.
- 6. An instrument used to measure atmospheric pressure.
- 7. Frozen precipitation in the form of white or translucent ice crystals.
- 8. A booming or crashing noise caused by air expanding along the path of a bolt of lightning.
- 10. Is a measure of the amount of water vapor content of the air.

Source: [http://cybersleuth-kids.com/games/crossword/weather\\_CW\\_1.htm](http://cybersleuth-kids.com/games/crossword/weather_CW_1.htm)

## What's Going on with SPaRCE

Greetings friends! As always, I hope this newsletter finds you safe and well. For those of you that have been affected by the recent cyclones in the Pacific, we wish you a speedy recovery. Just a couple days ago, a few tornadoes touched down not too far from the SPaRCE headquarters (one was actually about a half mile from my house!). No worries though, we all survived the storms unharmed.

Be sure to keep collecting your rainfall and temperature data. Starting in the next newsletter there will be a series of activities that use data that you have collected. If anyone needs instrument replacements please let me know as soon as possible.

Also, I would love to hear more from our participants. If you have some spare time feel free to send me an email (nikkiacton@gmail.com) and tell me a bit about yourself, students, and your school.

-Nikki Acton, on behalf of the SPaRCE crew.

### Send in Your Questions!

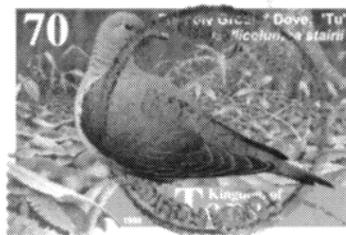
If you or your students have any questions relating to science please send them to us here at SPaRCE. Once we receive a question we will publish the question and an answer in

### Call for Newsletter Contributions

In order to get to know our schools and participants a bit better, please send us items to be published in the SPaRCE newsletter.

Here is a list of ideas:

- Accounts of extreme weather events
- School history
- Pictures of students taking measurements
- Activities using SPaRCE data
- Songs or poems about weather

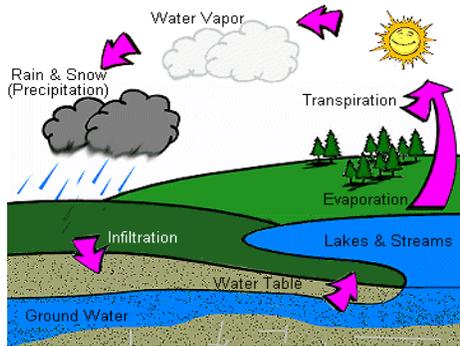


## Classroom Science Focus

# The Water Cycle

**Materials:**

Student record sheet  
Crushed ice  
Water  
Aluminum pie plate  
Heavy-duty oven mitt  
Glass beaker  
Hot plate  
Flashlight

**Steps to Follow:**

1. Discuss with students the concepts of evaporation, condensation, and cloud formation. Tell them that, with this lesson, they will see how all of these processes tie together in nature.
2. Draw a model of the water cycle on the chalkboard, leaving out the arrows and labels.
3. Show students the materials you will be using for this experiment. Tell them that since a hot plate and hot water will be used, they need to use their best laboratory behavior.
4. Fill a pie tin with water and crushed ice. Place a beaker of water on the hot plate and turn it on high.
5. Explain that the pie tin filled with crushed ice and water represents the cooler air in the upper atmosphere. The steaming water represents warm moist air rising from the surface of the Earth.
6. Once the water has started boiling, put on the oven mitt and hold the ice and water filled pie plate 2 to 3 feet (0.6 to 0.9 m) above the steam. Have a student turn off the room lights. Have another student shine the flashlight underneath the pie plate.
7. Within a few minutes, students should notice a cloud forming where the warm moist air hits the cooler air under the pan. As more condensation occurs, the air underneath the pie plate becomes saturated. Drops of water will form under the pie plate, and rain will begin to fall as **precipitation**.
8. Once students return to their seats, discuss all the elements of the water cycle (evaporation, condensation, precipitation) and relate them to this demonstration. Introduce the term **water cycle**, and explain that the water cycle describes how water moves from Earth's surface into the air, and then back to the surface again.
9. Add arrows to the water cycle illustration you made on the chalkboard earlier and have student volunteers add the labels.

## Student Record Sheet

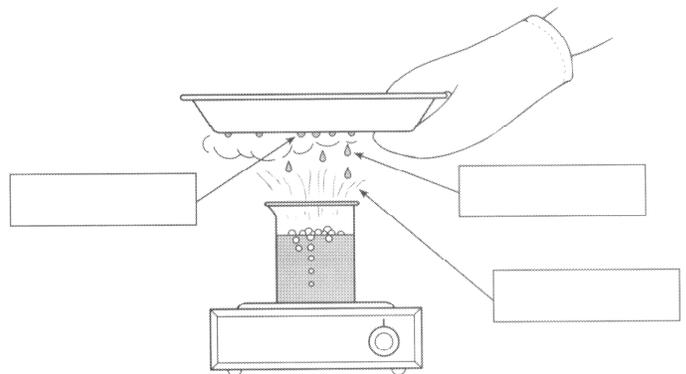
### The Water Cycle

Procedure and Observations

1. Watch as your teacher performs the water cycle demonstration.
2. Label each part of the water cycle model as demonstration. Use the water cycle words to fill in the blanks.

Water Cycle Words:

Evaporation  
Condensation  
Precipitation

Conclusions

3. What ingredients were needed to make a water cycle model in the classroom?  
\_\_\_\_\_  
\_\_\_\_\_
4. On the back of this sheet, draw a model of the water cycle as it would occur in nature. Use the water cycled words. Include the Sun, a large body of water like the ocean, and mountains in your model. Use arrows to indicated how water moves through the water cycle.

## Schools of the Pacific Rainfall Climate Experiment

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## ENSO Discussion

issued by The Climate Prediction Center/NCEP 6 May 2010

**Synopsis: A transition to ENSO-neutral conditions is expected by June 2010, which will continue into the Northern Hemisphere summer 2010.**

El Niño weakened during April 2010 as positive surface temperature (SST) anomalies decreased across the equatorial Pacific Ocean. However, SST anomalies still exceeded +0.5°C across most of the Pacific at the end of the month. Since the end of February, subsurface heat content anomalies (average temperatures in the upper 300m of the ocean) have decreased steadily in association with the expansion and strengthening of below-average temperatures at depth (25-200m). Also, enhanced convection developed over Indonesia, while suppressed convection strengthened and expanded over the tropical Pacific, south of the equator. The low-level equatorial trade winds remained near-average, and anomalous upper-level westerly winds prevailed over the central Pacific during much of April. Collectively, these oceanic and atmospheric anomalies reflect a weakening El Niño.

Nearly all models predict decreasing SST anomalies in the Niño-3.4 region through the Northern Hemisphere summer 2010. Most models predict a transition to ENSO-neutral conditions during April-June 2010, followed by ENSO-neutral conditions through the end of the year. However, by July-September 2010, the envelope of model solutions includes a significant number (nearly a third) indicating the onset of La Niña conditions. Even though ENSO-neutral conditions are most likely during the second half of the year, the general tendency of the models in recent months has been toward increasingly negative SST anomalies in the Niño-3.4 region. These forecasts, in addition to various oceanic and atmospheric indicators, indicate a growing possibility of La Niña developing during the second half of 2010.

This discussion is a consolidated effort of the National Oceanic and Atmospheric Administration (NOAA), NOAA's National Weather Service, and their funded institutions. Oceanic and atmospheric conditions are updated weekly on the Climate Prediction Center web site ([El Niño/La Niña Current Conditions and Expert Discussions](#)). Forecasts for the evolution of El Niño/La Niña are updated monthly in the [Forecast Forum](#) section of CPC's Climate Diagnostics Bulletin. The next ENSO Diagnostics Discussion is scheduled for 10 June 2010. To receive an e-mail notification when the monthly ENSO Diagnostic Discussions are released, please send an e-mail message to: [ncep.list.ens-update@noaa.gov](mailto:ncep.list.ens-update@noaa.gov).

**WE ARE ON THE WEB!**

<http://sparce.evac.ou.edu/>



## Get to Know: Jeannie Freeman



My name is Jeannie Freeman, and I am the Administrative Assistant here at the Environmental Verification Analysis Center. I have a B.S. degree in Accounting from the University of Central Oklahoma and feel fortunate to be putting my degree to use here at EVAC. I have always felt passionate

about environmental issues, so it is a great feeling to be able to incorporate my accounting background into assisting our students and staff in their research, education, and public outreach programs. I am also on the Organizational Staff Council here at the University of Oklahoma.

When I am not working I enjoy spending time with my husband, four children, and great friends. We spend most of our summer weekends together at the lake, camping, boating, fishing, hiking and enjoying the great outdoors. Some of my other interests are walking, meditating, yoga and tennis.



Jeannie and her family.

