

The Pacific Tradewinds Quarterly

Underwater Volcano Creates New Island off Tonga

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Saturday, March 21, 2009

The powerful underwater volcano that erupted in the south Pacific this week has created a new island off the coast of Tonga. The eruption, about 39 miles north-west of the Tongan capital, Nuku'alofa, began on Monday, shooting rocks, steam and ash thousands of feet into the air.

Tonga's chief geologist, Kelepi Mafi, said the volcano had two vents, one on a small uninhabited island and another about 100 metres (330 ft) offshore. Rock and ash spewing from the

sea have filled the gap between the two vents, creating a new land mass measuring hundreds of square metres.

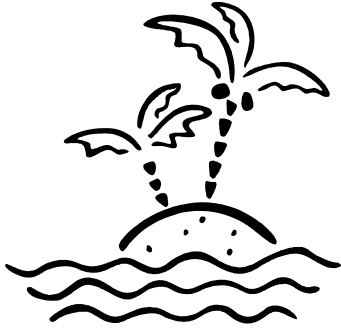
Last night, spectacular columns of smoke and ash were still spewing from the sea, but trade winds blew gas and steam away from the mainland and local authorities said nearby coastal villages were not at risk. Around 36 undersea volcanoes are clustered in the surrounding area.

Radio journalist George Lavaka, who visited the island with a sightseeing



Ash rising into the air from an undersea volcanic eruption, part of the uninhabited islet of Hunga Ha'apai, 63 kilometres northwest of the Tongan capital Nuku'alofa.

Photograph: Telusa Fotu/AFP/Getty Images
<http://static.guim.co.uk/sys-images/Guardian/Pix/pictures/2009/3/20/1237591219261/Ash-rising-into-the-air-f-002.jpg>



group, said the explosions were accompanied by a deep rumbling. "We were close to the island and there was huge explosion and the smoke was coming toward us, and people were yelling 'start the boat, start the boat'," he said. "The smoke stopped 30 metres short of the boat. We were a bit shaken actually."

Tonga, a 170-island archipelago between Australia and Tahiti, is part of the Pacific "ring of fire" - an arc of

earthquake and volcanic zones stretching from Chile in South America through Alaska and down through Vanuatu to Tonga.

On Wednesday the island was shaken by a powerful undersea earthquake, prompting fears of a tsunami, but there were no reports of damage or sea surges.

Reprinted From:
<http://www.guardian.co.uk/world/2009/mar/21/tonga-volcano-island-nuku-alofa>

Major Quake Hits Tonga, No Tsunami Generated

Friday, March 20, 2009

A powerful earthquake has struck off the coast of Tonga, after a week of volcanic activity in the area. But a tsunami warning for the region has been cancelled.

The US Geological Survey says a 7.7 magnitude quake struck shortly after 0615 local time Friday, about 200 kilometers south-east of the Tongan capital, Nuku'alofa.

The US Pacific Tsunami Warning Centre says sea-level readings indicate a tsunami was generated. And it may have been destructive along coasts near the earthquake epicenter.

Tongans living along the coast moved inland after the alert but the centre's oceanographer, Dailin Wang, says the tsunami turned out to be very small.

"Three or four centimeters. That's very small. We are pretty sure it's very much over for this event, [but] if an other quake occurs, that's a different

story."

Tongans have now returned to their homes. No one was injured in earthquake and locals say there was very little damage.

Nuku'alofa resident Katrina Ma'u says while the quake was felt in the capital, it caused no real disruption.

"We did feel the earthquake earlier this morning," she said.

"It went on for a while. I think about four minutes or maybe less. At the moment, everyone is just at work. There are no signs at all of a tsunami, but we have heard of the warning."

Recent Volcanic Activity:

Tonga has been waiting to assess the environmental impact of a series of volcanic eruptions off the coast of the Pacific nation.

Radio Australia's Pacific Beat reports an inspection of the area by Tongan government geologists was delayed

Tongans living along the coast moved inland after the alert but the centre's oceanographer, Dailin Wang, says the tsunami turned out to be very small.

due to negotiations over which government agency would pay the diesel fuel bill for a Tongan navy patrol boat.

George Lavaka told Pacific Beat's Campbell Cooney he was one of the first people to travel by boat to the affected area around the coast of the small island of Hunga Ha'apai.

"The explosions we saw went as high as 300 meters to the sky," he said.

Mr. Lavaka says witnessing the eruptions was a spectacular experience that left him inspired.

"It's a one in a lifetime experience but now after coming back from there I thought to myself: How stupid can you be?"

"There is no sign of when the eruptions will end," he added.

Officials in Tonga expect to know soon the extent of the underwater eruption and the impact it will have on the environment.

The eruption began on Monday off the coast from Nuku'alofa. A survey team has visited the site where the eruption began. It is located one day's travel by boat from Tonga's capital.

Clouds of smoke, steam and ash it is sending high into the air means it is clearly visible from the capital.

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<http://pidp.eastwestcenter.org/pireport/2009/March/03-20-01.htm>



Surprise Asteroid Buzzed Earth

By Victoria Jaggard
[National Geographic News](#)

Monday, March 2, 2009

Sky-watchers in Asia, Australia, and the Pacific islands welcomed a surprise guest Monday: an asteroid that passed just 41,010 miles (66,000 kilometers) above Earth.

Discovered only days ago, asteroid 2009 DD45 zipped between our planet and the moon at 13:44 universal time. The asteroid was moving at about 12 miles (20 kilometers) a second when it was closest to Earth.

"We get objects passing fairly close, or closer than this, every few months," Timothy Spahr, director of the International Astronomical Union's Minor Planet Center in Massachusetts, said in an email.

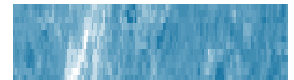
"Also, though, note these are only the ones that are discovered. Many more pass this close undetected"—as asteroid 2009 DD45 nearly did.

Astronomers didn't notice the oncoming asteroid until February 28, when it showed up as a faint dot in pictures taken at the Siding Spring Observatory in Australia.

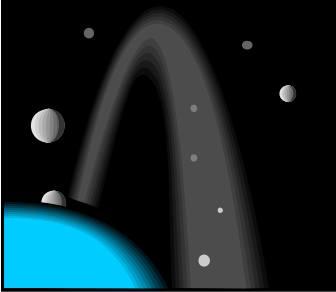
At that point the asteroid was already a mere 1.5 million miles (2.4 million kilometers) from Earth, and closing in fast.

Asteroids are rocks that generally range from a few feet to several miles in diameter. In our solar system most asteroids orbit the sun in the asteroid belt between Mars and Jupiter.

At just 65 to 164 feet (20 to 50 meters) wide, the asteroid "was much



...asteroid 2009 DD45 zipped between our planet and the moon at 13:44 universal time. The asteroid was moving at about 12 miles (20 kilometers) a second when it was closest to Earth.



fainter than anything visible to the naked eye" even during close approach, Spahr said.

But on Monday observers using backyard telescopes were able to track the asteroid speeding through the constellation Virgo for at least a few hours after the object's closest approach.

According to Spahr, amateur astronomers contributed to the center's monitoring efforts by sending in measurements, which are helping to refine

calculations of the asteroid's orbit.

Thanks to data from Siding Spring, other observatories, and amateurs, the orbit for 2009 DD24 is "very well determined now," he said.

Astronomers now know that the asteroid is moving within the inner solar system and that the space rock completes an orbit around the sun every 1.56 years.

Reprinted From:
<http://news.nationalgeographic.com/news/2009/03/090302-asteroid-earth.html>

New Bird Species Found in Solomon Islands

Sunday, March 15, 2009

The recent discovery of the Vanikoro White-eye in the Solomon Islands reinforces the importance of conservation in the island countries, said Don Stewart, Director of BirdLife's Pacific Partnership Secretariat.

Dr. Guy Dutson of BirdLife Australia led the team of scientists and conservationists who found the bird on the small island of Vanikoro.



The Vanikoro White-eye

Image Courtesy of: <http://go635254.s3.amazonaws.com/ecoworldly/files/2009/03/white-eye.jpg>

Mr. Stewart said that the discovery of the white-eye, coupled with the rediscovery of birds that were thought extinct (like the Long-legged warbler in Fiji) stresses the importance of protecting the habitat where these birds have been found.

"We continue to work with the people in the region on conservation, on saving the forests where many of these species live. And by protecting them against alien invasive predators, like rats, that are endangering these birds' very existence," he added.

He said the recent commitment by landowners to protect over 6,000 hectares of their native forest in the remote Natewa Peninsula on Fiji's second largest island Vanua Levu, is a reflection of increased awareness of the need for conservation.

Mr. Stewart said the discovery illustrates how little is known about biodi-



versity in the islands, especially in Melanesia.

"We believe that there are more undiscovered bird species in the islands.

"Finding them is an ongoing effort as we explore the many forests, wetlands, and shorelines in the region," said Stewart.

The new bird was named after Vanikoro Island. Its full name is Vanikoro White-eye *Zosterops gibbsi*; the scientific name gibbsi is in honour of the first person to see the new species, David Gibbs.

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<http://pidp.eastwestcenter.org/pireport/2009/March/03-16-03.htm>

Vanuatu Workshop Explores Climate Change Adaptation

Sunday, March 29, 2009

A three-day national workshop on the SPC/GTZ Regional Programme on Adaptation to Climate Change in the Pacific Islands Region was concluded yesterday at the Melanesian Hotel.

A new Pacific German Regional Programme Adaptation to Climate Change in the Pacific programme began in January this year. The goal is to build the capacity of national and regional institutions to better cope with the effects of climate change.

This week's workshop was a follow-up after the first regional planning workshop in Fiji in February this year which government representatives from the three participating island nations of Tonga, Fiji and Vanuatu attended.

The Programme's Chief Adviser Dr. Hermann Fickinger, who was the main facilitator of the workshop, told Daily Post the Federal Republic of Germany is committing 4.2 million Euros to a four-year programme with activities to be undertaken in Vanuatu, Fiji and Tonga.

Dr. Fickinger said Vanuatu is so lucky to be one of the host nations because the implementation of the Joint Country Strategy of the three island nations will reflect the strategies of this new climate project, which includes the wide consultation with their governments as one of its main objectives.

"This national workshop was organized in Vanuatu in order to elaborate a sound planning and monitoring basis for the Vanuatu component of the programme and will at the same time assist the country with a strategic plan to address issues of climate change," he said.

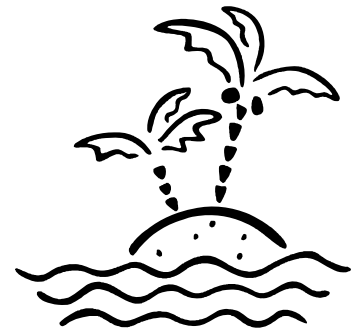
The workshop was attended by government stakeholders from different departments – agriculture, lands, environment, forestry, meteorology, foreign affairs and non-government organisations.

Reprinted From:

Vanuatu Daily Post: <http://www.vanuatudaily.com>

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<http://www.pidp.org/pireport/2009/April/04-01-09.htm>



Solomons to Establish Environmental Archive

Tuesday, April 7, 2009

The Ministry for Environment, Conservation and Meteorology plans to establish an archive, Parliament was told yesterday.

This was part of the ministry's move to establish effective and accessible environment information in a well-managed system.

Environmental Minister Gordon Darcy Lilo said his ministry had engaged and utilised South Pacific Regional Environment Programme (SPREP's) support and partnership to provide computer logistics for data storage and information sharing.

"The system was established under the ministry to properly manage environment and biodiversity information and data," Mr Lilo said.

"The system will slowly build into computerised environmental information resource library," he said.

Mr. Lilo said the ministry is now focus-

ing on establishing a house clearing mechanism to ensure the effectiveness and accessibility of information coordination and sharing.

"The ministry has recently built a library office for storage of hard information and copies.

"This is part of the plan to make accessible information for interested schools or learners in the field of environment, biodiversity and even climate change and meteorology," he said.

Lilo said an officer had been appointed and was trained on information management.

"In terms of meteorology and climate change, a website has already been established (www.met.gov.sb)," he added.

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<http://pidp.eastwestcenter.org/pireport/2009/April/04-08-08.htm>



Pacific Education Coordinators Meet In Tonga

Friday, March 20, 2009

A project that aims to develop students' learning by strengthening the capacity of 15 Pacific island Ministries of Education to plan and deliver quality basic education, had a regional meeting in Tonga this week.

Called PRIDE, or the Pacific Regional Initiative for the Delivery of Basic Education, the five-year project draws to an end this year.

Eighteen Project Coordinators from the Pacific are in Nuku'alofa to report on the status of their respective projects.

The two-day State and National Project Coordinators Workshop was opened on March 18 at the Fa'onelua Centre, and also include a PRIDE team from the University of the South Pacific who are implementing the project.

Director of PRIDE, Dr. Pricilla Puamau, said after the opening that the workshop would discuss challenges faced and prepare a report to be presented to the Pacific Ministers of Education Meeting and the Project Steering Committee to be opened in Nuku'alofa next week.

PRIDE serves the 15 countries of Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu and Vanuatu.

It was initiated in 2004-09 with a joint fund from the European Union of 8 million Euros and NZ\$5 million dollars from NZAID. Its objective is to develop students' learning by strengthening the capacity of each Ministry of Education to plan and deliver quality basic education.

Basic education as defined by PRIDE is all education provisions for children and youth except higher education. It includes early childhood, elementary,

primary and secondary education, together with Technical and Vocational Education and Training.

Dr. Pricilla said Tonga joined the project in 2006 and was allocated close to 1 million pa'anga for the implementation of two PRIDE projects: Early Childhood Education and Inclusive Education.

The assistance has been in the form in policy development, capacity building, teacher training, and development of resources.

The success of the project is evident in the formation of an Education Policy for Early Childhood Education, which Tonga did not have before as well as the establishment of the first Foundation Certificate Training for teachers in Early Childhood Education provided by the Tonga Institute of Higher Education.

The 10th PRIDE Regional Meeting will be opened on March 20-24 with the theme 'Sharing Best Practice in Pacific Education', followed by the Pacific Ministers of Education Meeting on March 25.

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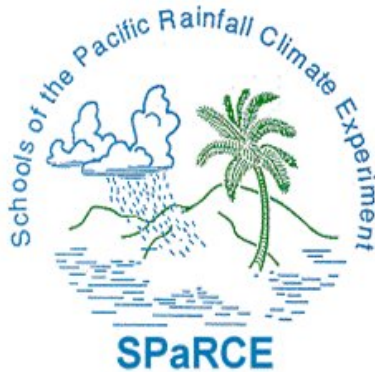


The success of the project is evident in the formation of an Education Policy for Early Childhood Education...

What's Going on With SPaRCE

- ➔ Mike Klatt will be traveling to Nadi, Fiji to attend the 13th Annual Regional Meteorological Services Directors Meeting as the PACRAIN/SPaRCE representative. The meeting is May 5-9, 2009.

As always if you have any suggestions for the SPaRCE newsletter, please let us know!



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 the next newsletter.

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
- Any other interesting facts about your school or culture.



Welcome to SPaRCE!

Palauli College—Apia, Samoa

Welcome to the SPaRCE family!
We look forward to working with you!

Classroom Science Focus

Tsunami!

Rationale

Tsunamis are a series of ocean waves created by the sudden displacement of water by seismic movement of the ocean floor.

Focus

How are tsunamis generated?

Do earthquakes occur underwater?

Objectives

Students will be able to:

1. Generate a tsunami and observe the results on a model shoreline.
2. Relate the analogy of the motion of the lid to the motion of the ocean floor during an earthquake as a means of water displacement and subsequent tsunami generation.
3. Explain that not all underwater earthquakes will generate a tsunami.

Materials

- Large tub
- Water
- Plastic lid or other thin flat object
- Scissors
- String
- Sand
- Small objects to represent shoreline features
- Ruler
- Book or block of wood to serve as a wedge

Procedure

Explain to the students:

1. All tsunamis are generated by a sudden displacement of water. It usually requires an earthquake with a magnitude greater than 7 on the Richter scale to generate a significant tsunami. Tsunamis travel from the point of origin at a speed of 480-800 km/hr. Earthquake (seismic) waves travel 50 times faster than tsunamis, thus seismographs would provide a warning of a potential tsunami within minutes after a large earthquake occurred. This often gives time to prepare for a tsunami after the tsunami warning has been issued.

2. Begin the class discussion with what other things students know about tsunamis.
3. Divide the students into groups, distribute materials, and give the following directions:
 - A. Use the wedge to tilt the tub at an angle about 20 degrees.
 - B. Pour water into the tub to cover the lower end, leaving about a third of the tub at the upper end dry.
 - C. Pack a layer of sand 2-3 cm thick on the dry end of the tub to create a beach/coastline. Mold dunes and drifts, draw roads, build docks and other structures to complete the scene.
 - D. Punch the plastic lid on one end near the rim to make a hole, thread it with a piece of string 20 cm long. Tie knots to hold the string in place.
 - E. Gently (in order not to make waves) place plastic onto the bottom at the deep end of the tub. Trim to fit if necessary. The string should be next to the low side of the tub.
 - F. Have one student use several fingers to hold the plastic down tightly on the shallow end, while another student pulls the string up at the deep end with a rapid movement. Tsunami! Repeat experiment and measure the parts of the wave with the ruler.

Conclusion

Ask the students:

1. What does the sudden motion of the lid represent? (The sudden motion of the ocean floor.)
2. Using the lid as an analogy, explain that like the lid, a sudden release of energy as the upward motion of the ocean floor literally pushes the water away in the form of waves, thus a tsunami.
3. Remember that not all earthquakes generate tsunamis, only those that significantly displace the ocean floor.



ENSO Diagnostic Discussion

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Synopsis: A transition to ENSO-neutral conditions is expected during April 2009.

Atmospheric and oceanic conditions during March 2009 continued to reflect weak La Niña conditions. The monthly sea surface temperatures (SST) remain below-average across parts of the east-central and eastern Pacific Ocean. The Niño-3.4 SST index value persisted near -0.5°C during the month. Negative subsurface oceanic heat content anomalies (average temperatures in the upper 300 m of the ocean) weakened further across the eastern half of the equatorial Pacific Ocean. At thermocline depth, positive temperature anomalies in the western and central Pacific expanded eastward, while negative temperature anomalies became confined to the far eastern Pacific. Convection remained suppressed near the Date Line, and enhanced across Indonesia, but weakened during the later part of the month due to Madden-Julian Oscillation (MJO) activity. Enhanced low-level easterly winds and upper-level westerly winds also decreased across the equatorial Pacific Ocean. Collectively, these oceanic and atmospheric anomalies are consistent with a weakening La Niña.

A majority of model forecasts for the Niño-3.4 region show that once ENSO-neutral conditions are reached, it will continue through the remainder of 2009. Several models indicate La Niña will continue through March-May 2009. Based on current observations, recent trends, and model forecasts, a transition to ENSO-neutral conditions is expected during April 2009.

Over the equatorial Pacific Ocean, La Niña-like impacts are expected to linger during April-June 2009, including above-average precipitation over Indonesia, and below-average precipitation over the central Pacific. During December 2008-February 2009, tropical precipitation anomalies reflected La Niña, characterized by a westward retraction of deep tropical convection towards Indonesia, suppressed precipitation centered on the Date Line, and enhanced rainfall over northeastern South America.

NOAA Climate Prediction Center

http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/ensodisc.html

Get to Know: Trey Sargent



Trey on a trip to an away game during football season



Trey on the Great Wall of China

Hi everyone! I'm Trey Sargent, a newcomer to the Oklahoma Wind Power Initiative [located in the same office as SPaRCE]. I am a senior Interdisciplinary Perspectives on the Environment major. My responsibilities include processing the data that is sent in from our tall tower sites across the state, as well as keeping track of state legislation related to renewable energy, specifically wind power.

I was born and raised in Denton, TX, but love to travel. My favorite places I have visited are Beijing, Calgary, and the Redwood National Park in California.

When I'm not busy with school or work I enjoy cycling, reading, and cooking. I also really enjoy photography and backpacking. For the past

four years I have played my trumpet in The Pride of Oklahoma Marching Band during the fall and The Sooner Showmen Basketball Band in the spring. In the summers I am the Program Director at Worth Ranch, a Boy Scout camp, in Palo Pinto, TX. I enjoy teaching the



Trey teaching at camp

SPaRCE would like to thank those of you who have made this program possible: NOAA Office of Global Programs, NOAA PI-GCOS and especially Howard Diamond. Thank you!