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### UN agency calls for urgent action to protect global soil from depletion, degradation



Terracing lands helps to reduce soil erosion and run-off, thereby improving farmers' chances of higher yields. Photo: FAO/Thomas Hug

24 July 2014 – The United Nations Food and Agriculture Organization (FAO) is calling for urgent action to improve the health of the world's limited soil resources to ensure that future generations have enough supplies of food, water and energy.

"Soil is the basis for food, feed, fuel and fibre production," Maria Helena Semedo, FAO Deputy Director-General, said in a news release issued today.

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<http://www.un.org/apps/news/story.asp?NewsID=48342>

## Urgent action needed to improve soil resources

KARACHI: Urgent action is required to improve the health of the world's limited soil resources and stop land degradation, so as to ensure that future generations have enough supplies of food, water, energy and raw materials, government representatives and experts meeting at Food and Agriculture Organization (FAO) of the United Nations. According to a report issued from Rome, the Global Soil Partnership has endorsed a series of action plans at its plenary assembly in Rome today to safeguard soil resources which provide the basis for global agricultural production. Recommendations include the implementation of strong regulations and corresponding investments by governments for the sustainable management of soils in ways that contribute to the eradication of hunger, food insecurity and poverty.

PPI  
July 28, 2014  
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<http://www.dailytimes.com.pk/business/28-Jul-2014/urgent-action-needed-to-improve-soil-resources>

## Soil health check reveals some adverse change

Tas Country Hour By Rosemary Grant



Updated 23 Jul 2014

**A five yearly check of Tasmanian soil health indicates there may be issues with more intensive farming.**

A broad analysis of the results from the Soil Condition Evaluation and Monitoring Project (SCEAM) shows a decline in some of the indicators of soil health.

Project leader, Chris Grose from the Department of Primary Industry, Parks, Water and Environment says it raises some 'red flags'.

"Many of these indicators appear to have changes in the wrong direction," he said.

"I don't want to talking categorically at this stage about 'this is a real trend that's happening; all our soils are getting worse'.

"But the fact that so many of the soils are sowing a trend in the wrong direction suggests it is something we do need to be aware of and keep an eye on."



PHOTO: Intensive agriculture is expanding from these ferrosols in north west Tasmania to more fragile soils (Rose Grant)

MAP: Prospect 7250



AUDIO: Soil monitoring project leader, Chris Grose (ABC Rural)

<http://www.abc.net.au/news/2014-07-23/soil-sceam/5616572>

# Mediterranean Environmental Research Group (GRAM)

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The **Mediterranean Environmental Research Group**, (GRAM) from the University of Barcelona has over 20 years of working experience in the field of the effects of forest fires on soil properties. In 1998 the doctoral thesis entitled “Fire effects on soil properties, the role of fire intensity” carried out by Xavier Úbeda emphasized the importance of fire intensity impacts on soil physico-chemical properties and the consequent implications, as the increase of runoff and erosion in post-fire environments. From this thesis some papers were published in national and international journals. This work was funded by two European research projects related to forest fires, as the “Post fire soil and vegetation dynamics in natural and afforested areas in Southern Europe: The role of fire intensity.” The most important results were the reaffirmation of the importance of fire intensity impacts on soil properties, the increase of erosion and the implications on vegetation recuperation.



Plot located in a urban-forest interface area (see [www.ub.edu/gram](http://www.ub.edu/gram)).

<http://gsoil.wordpress.com/2014/07/04/mediterranean-environmental-research-group-gram/>



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## Listen to What Your Soils Say This Season

JULY 21, 2014  
By: Rhonda Brooks, Farm Journal Seeds & Production Editor



Soils have a lot to tell you. How well you listen could mean the difference between producing a low-yielding corn crop this season or growing one for the record books.

Stop, look and listen aren't just good safety precautions to use when you cross the road. They are also valuable tools that can help you get a better handle on what's going on in the soils that make up your farm's cornfields, says Ken Ferrie, Farm Journal Field Agronomist.

[http://www.agweb.com/article/listen to what your soils say this season NAA Rhonda Brooks/](http://www.agweb.com/article/listen%20to%20what%20your%20soils%20say%20this%20season%20NAA%20Rhonda%20Brooks/)

## New Indian government takes promising steps on agriculture, water and climate

Jul 24, 2014 by Romit Sen And Kamal Vatta



Cabinet Secretariat of India. Credit: Wikipedia

Riding high on a populist mandate but facing growing concerns of a slowdown in the economy and a rising fiscal deficit, last week Finance Minister Arun Jaitley presented the new Indian government's first annual budget, attempting a delicate balancing act that reforms populist subsidies while providing additional income to the common man through increased tax exemptions. <http://phys.org/news/2014-07-indian-agriculture-climate.html>



## Saying 'change is in the air,' Ban urges new UN body to galvanize global sustainability agenda



Secretary-General attends Closing Ceremony of the United Nations Environment Assembly. UN Photo/Eskinder Debebe

27 June 2014 – With the close of the Millennium Development Goal era just months away, and work already beginning on a successor agenda to reign in poverty and put the planet on a sustainable course before it is too late, **Secretary-General Ban Ki-moon** said today the "timing could not be better" for the launch of a strong UN body tackling all issues relating to the environment.

12

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<http://www.un.org/apps/news/story.asp?NewsID=48154>

# 'Fossilized' Martian soil hints at signs of life

July 22, 2014 6:28pm

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Here's more possible evidence that there was, and may still be, life on Mars.

Recent images from the "Curiosity" rover that roamed the Martian landscape show Earth-like soil profiles comparable to those in Antarctic Dry Valleys and Chile's Atacama Desert, Oregon geologist Gregory Retallack said.

<http://www.gmanetwork.com/news/story/371475/scitech/science/fossilized-martian-soil-hints-at-signs-of-life>



# Clemson scientists: Kudzu can release soil carbon, accelerate global warming

Last updated: July 22, 2014 7:36AM - 77 Views



Clemson research shows that invasive plants such as Japanese knotweed, can accelerate the greenhouse effect by releasing carbon stored in soil into the atmosphere.

CLEMSON — Clemson University scientists are shedding new light on how invasion by exotic plant species affects the ability of soil to store greenhouse gases. The research could have far-reaching implications for how we manage agricultural land and native ecosystems.

In a paper published in the scientific journal *New Phytologist*, plant ecologist Nishanth Tharayil and graduate student Mioko Tamura show that invasive plants can accelerate the greenhouse effect by releasing carbon stored in soil into the atmosphere.

[http://www.powersvillepost.com/news/home\\_top-news/5179221/Clemson-scientists:-Kudzu-can-release-soil-carbon-accelerate-global-warming](http://www.powersvillepost.com/news/home_top-news/5179221/Clemson-scientists:-Kudzu-can-release-soil-carbon-accelerate-global-warming)

## Biomarkers of the deep

Jul 25, 2014 by Aaron L. Gronstal



A view of the “Peña de Hierro” lake. It is a small lake left after mining activities. Pyrite stockwork outcrops (light gray) can be seen in the walls. MARTE drillings were performed on top of the hill, passed through the 90 m to the phreatic

Tucked away in the southwest corner of Spain is a unique geological site that has fascinated astrobiologists for decades. The Iberian Pyrite Belt (IPB) in Spain's Río Tinto area is the largest known deposit of sulfide on Earth, and for decades it has been a field-site for scientists studying chemolithotrophic microbes.

Read more at: <http://phys.org/news/2014-07-biomarkers-deep.html#iCp>

Jul  
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2014

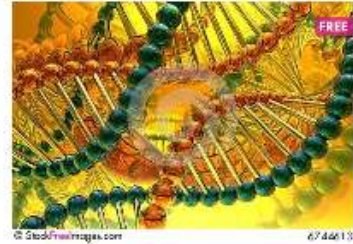
## Science enlists nature and collaboration to 'neutralise' acidic soils

Africa, Asia, Comparative genomics in cereals, Genomics, Latin America, Maize, Rice, Sorghum

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*Crop researchers including plant breeders across five continents are collaborating on several GCP projects to develop local varieties of sorghum, maize and rice, which can withstand phosphorus deficiency and aluminium toxicity – two of the most widespread constraints leading to poor crop productivity in acidic soils. These soils account for nearly half the world's arable soils, with the problem particularly pronounced in the tropics, where few smallholder farmers can afford the costly farm inputs to mitigate the problems. Fortunately, science has a solution, working with nature and the plants' own defences, and capitalising on cereal 'family history' from 65 million years ago. Read on in this riveting story related by scientists, that will carry you from USA to Africa and Asia with a critical stopover in Brazil and back again, so ....*



DNA spiral

<http://blog.generationcp.org/2014/07/23/science-enlists-nature-and-collaboration-to-neutralise-acidic-soils/>

## New Global Geologic Map of Mars

Understanding the Past to Enable Future Exploration

### Contact Information:

U.S. Department of the Interior, U.S. Geological Survey  
Office of Communications and Publishing  
12201 Sunrise Valley Dr, MS 119  
Reston, VA 20192

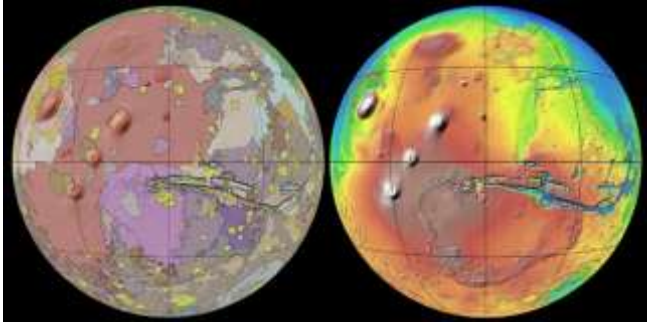
[James A. Skinner, Jr.](#) 

Phone: 928-556-7043

[Jennifer LaVista](#)

Phone: 303-202-4764





This new global geologic map of Mars depicts the most thorough representation of the "Red Planet's" surface. This map provides a framework for continued scientific investigation of Mars as the long-range target for human space exploration. ([High resolution image](#))

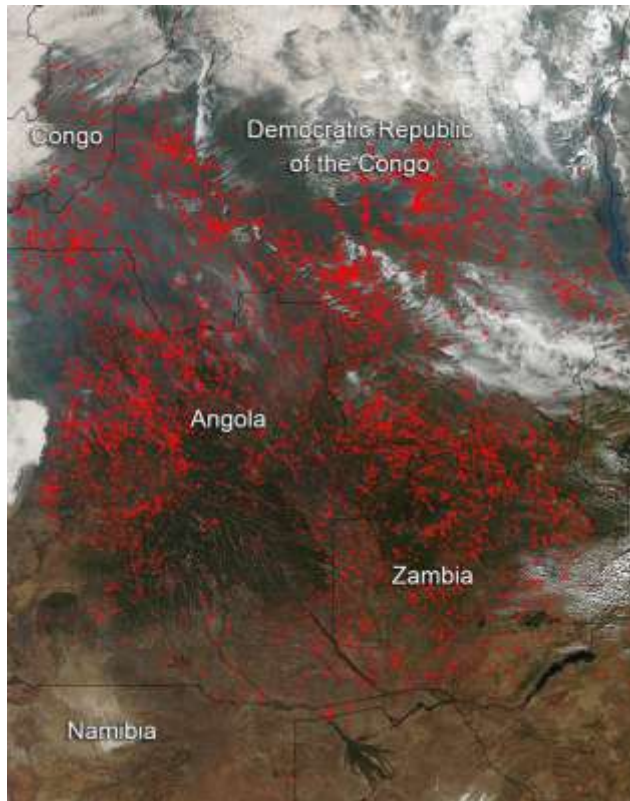
A new global geologic map of Mars –the most thorough representation of the "Red Planet's" surface – has been published by the U.S. Geological Survey. This map provides a framework for continued scientific investigation of Mars as the long-range target for human space exploration.

The new map brings together observations and scientific findings from four orbiting spacecraft that have been acquiring data for more than 16 years. The result is an updated understanding of the geologic history of the surface of Mars – the solar system's most

<http://www.bbc.com/news/technology-28462351>

## **Fires in Central Africa During July 2014**

**24 July 2014**



This natural-color satellite image was collected by the Moderate Resolution Imaging Spectroradiometer (MODIS) aboard the Aqua satellite on July 16, 2014. Actively burning areas, detected by MODIS's thermal bands, are outlined in red. Credit:

Hundreds of fires covered central Africa in mid-July 2014, as the annual fire season continues across the region. Multiple red hotspots, which indicate areas of increased temperatures, are heavily sprinkled across the Congo (northwest), Angola (south), the Democratic Republic of the Congo (northeast), and Zambia (southeast). Thick gray smoke rises from some of the hotspots, and in some areas, especially in the Democratic Republic of the Congo, strong winds drive the smoke to the south.

Read more at: <http://phys.org/news/2014-07-central-africa-july.html#jCp>

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(MODIS) aboard the Aqua satellite on July 16, 2014. Actively burning areas, detected by MODIS's thermal bands, are outlined in red. Credit: ...[more](#)

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<http://phys.org/news/2014-07-central-africa-july.html>

## Using CU-Structural Soil to Grow Trees Surrounded by Pavement

by Dr. Nina Bassuk

Soils under pavement need to be compacted to meet load-bearing requirements so that sidewalks and other pavement won't subside and fail. Soils are often compacted to 95% peak (Proctor or modified Proctor) density before pavements are laid. When trees are planted into these soils, root growth is severely reduced or eliminated beyond the tree-planting hole. When root growth is restricted, tree growth suffers as water, nutrients, and oxygen are limited.

The need for a load-bearing soil under pavement gave rise to the development of CU-Structural Soil, a blended soil that can be compacted to 100% peak density to bear the load of a pavement while allowing tree roots to grow through it.





The crushed gravel and soil that are blended into CU-Structural Soil bear the load of pavement while still allowing large pore spaces for tree root growth.

<http://www.ecolandscaping.org/01/soil/using-cu-structural-soil-to-grow-trees-surrounded-by-pavement/>

## Google Scholar metrics for soil science journals

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☆☆☆☆☆ ⓘ Rate This

The 2014 version of Google Scholar Metrics has been just published. The ranking is arranged according to each journal's [h5-index and h-median metrics](#).

The 2014 edition is based on citations of all articles indexed in Google Scholar until mid-June 2014 and covers articles published between 2009-2013, both inclusive.

The ranking also includes lists for publications in different languages, although browsing in some languages may be limited.

### Interesting links

- [Main publications](#).
- [Life Sciences & Earth Sciences](#).
- [Soil Sciences](#).

# Dangers of desert dust: New diagnostic tool for valley fever

*Date:*

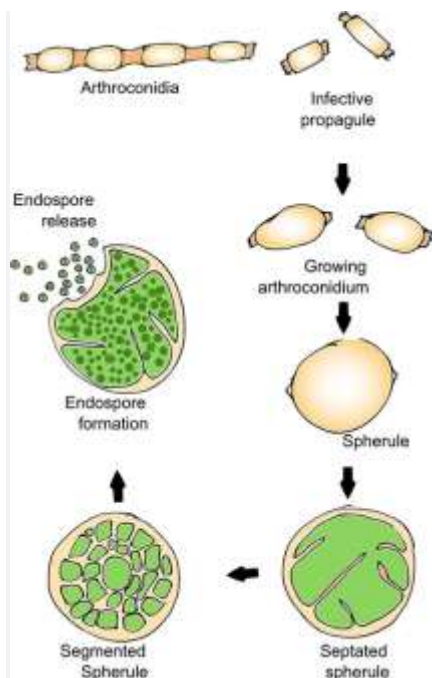
July 22, 2014

*Source:*

Arizona State University

*Summary:*

Valley fever has been the focus of new research that describes a promising strategy known as immunosignaturing, which can provide clinicians with an accurate identification of valley fever, a potentially serious affliction that is often misdiagnosed. Valley fever is a fungal respiratory infection. It can be acquired when microscopic spores of the soil-dwelling fungus are inhaled. Two forms of the fungus exist, *Coccidioides immitis* and *Coccidioides posadasii*. They are endemic to regions of Arizona, New Mexico, California, Nevada, Utah, Texas and northern Mexico.



Graphic shows the lifecycle of coccidioides, the fungal pathogen responsible for Valley fever.

*Credit: Image courtesy of Arizona State University*

On July 5, 2011, a massive wall of dust, ("haboob," in Arabic), blanketed Phoenix, Arizona, creating an awesome spectacle, (or stubborn nuisance, depending on your perspective). Dust storms are a common occurrence in the arid desert environments of the American Southwest.

But windborne dust can be a serious health risk, lofting spores of a sometimes-lethal fungus known as *Coccidioides*. The resulting ailment, known as coccidioidomycosis

or Valley fever, has been perplexing researchers since it was first described in 1892. It is currently on an alarming ascent in the United States.

"The incidence of this disease is seemingly low due to non-sensitive diagnostic assays," Navalkar says. As Johnston further notes, "immunosignatures could easily change those false assumptions if made available in the clinical setting."

Navalkar is a researcher in Biodesign's Center for Innovations in Medicine, under the direction of Stephen Albert Johnston, who is also a co-author of the new study.

The group's findings appear in the current issue of the journal *ASM Clinical and Vaccine Immunology*.

### Journal Reference:

1. K. A. Navalkar, S. A. Johnston, N. Woodbury, J. Galgiani, D. M. Magee, Z. Chicacz, P. Stafford. **"Application of Immunosignatures to diagnosis of Valley Fever"**. *Clinical and Vaccine Immunology*, 2014; DOI: [10.1128/CVI.00228-14](https://doi.org/10.1128/CVI.00228-14)

<http://www.sciencedaily.com/releases/2014/07/140722111834.htm>



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### New UN food safety standards include cap on levels of lead in infant formula

A mother in Mindanao, Philippines, feeds her baby with high-protein paste during a feeding programme for survivors of tropical storm Washi. Photo: IRIN/Jason Gutierrez

17 July 2014 – The United Nations body responsible for setting food safety standards this week adopted guidelines to protect consumers worldwide, including setting out maximum levels of lead in infant formula and arsenic in rice.

In a briefing note to the media, the UN Food and Agriculture Organization (FAO) and the World Health Organization (WHO) said today that no more than 0.01 mg per kg of lead should be permitted in infant formula and no more than 0.2 mg per kg of arsenic should be permitted in rice.

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<http://www.un.org/apps/news/story.asp?NewsID=48288>



# 'Saltwater' from fracking spill much different from ocean water

25 July 2014 by Lisa Song, InsideClimate News

In early July, a million gallons of salty drilling waste spilled from a pipeline onto a steep hillside in western North Dakota's Fort Berthold Reservation. The waste - a byproduct of oil and gas production - has now reached a tributary of Lake Sakakawea, which provides drinking water to the reservation.

Read more at: <http://phys.org/news/2014-07-saltwater-fracking-ocean.html#jCp>

## Earth's pull melts layer around Moon's core

Stuart Gary  
ABC

Monday, 28 July 2014

The power of Earth's gravity heats up a layer around the Moon's core keeping it liquid, suggests a new model of the lunar interior.

The findings, reported in the journal *Nature Geoscience*, have implications for our understanding of how the Moon evolved over time.

"This research lets us see a little bit deeper inside the Moon and gives us a better idea of what's going on there," says one of the study's authors, Dr Sander Goossens from NASA's Goddard Space Flight Centre, and the University of Maryland.

Goossens and colleagues developed their new model of the Moon's interior, to explain anomalies in the moon's orbit and its gravitational readings.

"Something solid rotates slightly differently to something with liquids inside it, and those observations were giving us clues about the interior of the Moon," says Goossens.

Previous seismic data had hinted at a liquid region around the Moon's core, but the data hasn't always been clear, and



Gravitational tidal heating from the Earth acts on the lower mantle of the moon (NASA/Apollo 8)

<http://www.abc.net.au/science/articles/2014/07/28/4053888.htm>

## World famous rocks stolen from Portrush

Fri, 11 Jul 2014

9 Comments



An image of the damaged rocks on the north coast. © UTV

**Sixteen pieces of rock have been stolen from a world renowned Co Antrim nature reserve.**

It is believed the stolen rocks contained hugely significant examples of ammonite fossils, a now extinct group related to squids.

Some geologists regard the rocks at Portrush as the single most important geological locality in the world.

<http://m.u.tv/News/World-famous-rocks-stolen-from-Portrush/468d08a8-50ab-41dd-a8e0-4e626af312bd>

30 June, 2014 11:37AM AEST

## New volcanoes spotted in south west Victoria

By Georgia Westgarth

Up to 20 new volcanoes may have been discovered across south west Victoria.



The discoveries were made by Monash University lead researcher, Julie Boyce, who was searching the Peshurst region via Google maps.

"Geologists know that area quite well, so it's very exciting when we find new volcanoes," she said.

Three new volcanoes have already been sighted and published in a report, however the extra 20 are yet to be examined further.

"One of the three volcanoes has a crater about one kilometre across, which is quite large, however it's very low profile and that's why it probably wasn't seen before."

Ms Boyce says the twenty new discoveries are scattered across the active volcanic region from south east

### Related Photos



The extinct volcano Mount Elephant in south-west Victoria. (ABC Radio National)

<http://www.abc.net.au/local/stories/2014/06/27/4034647.htm>

# Global warming amplifier: Rising water vapor in upper troposphere to intensify climate change

**Date:**

28 July 2014

**Source:**

University of Miami Rosenstiel School of Marine & Atmospheric Science

**Summary:**

A new study from scientists at the University of Miami Rosenstiel School of Marine and Atmospheric Science and colleagues confirms rising levels of water vapor in the upper troposphere -- a key amplifier of global warming -- will intensify climate change impacts over the next decades. The new study is the first to show that increased water vapor concentrations in the atmosphere are a direct result of human activities.



A new study from scientists at the University of Miami Rosenstiel School of Marine and Atmospheric Science and colleagues confirms rising levels of water vapor in the upper troposphere -- a key amplifier of global warming -- will intensify climate change impacts over the next decades. The new study is the first to show that increased water vapor concentrations in the atmosphere are a direct result of human activities.

"The study is the first to confirm that human activities have increased water vapor in the upper troposphere," said Brian Soden, professor of atmospheric sciences at the UM Rosenstiel School and co-author of the study.

### Journal Reference:

1. Eui-Seok Chung, Brian Soden, B. J. Sohn, and Lei Shi. **Upper-tropospheric moistening in response to anthropogenic warming**. *Proceedings of the National Academy of Sciences*, 2014; DOI: [10.1073/pnas.1409659111](https://doi.org/10.1073/pnas.1409659111)

<http://www.sciencedaily.com/releases/2014/07/140728153933.htm>

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NATURE GEOSCIENCE | LETTER 🔗 ✉ 🖨

## Regional rainfall decline in Australia attributed to anthropogenic greenhouse gases and ozone levels

Thomas L. Delworth & Fanrong Zeng

[Affiliations](#) | [Contributions](#) | [Corresponding author](#)

*Nature Geoscience* (2014) | doi:10.1038/ngeo2201  
Received 04 April 2014 | Accepted 10 June 2014 | Published online 13 July 2014 | Corrected online 17 July 2014

[Citation](#) [Reprints](#) [Rights & permissions](#) [Article metrics](#)

Precipitation in austral autumn and winter has declined over parts of southern and especially southwestern Australia in the past few decades<sup>1, 2, 3, 4</sup>. According to observations and climate models, at least part of this decline is associated with changes in large-scale atmospheric circulation<sup>1, 2, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14</sup>, including a poleward movement of the westerly winds and increasing atmospheric surface pressure over parts of southern Australia. Here we use a high-resolution global climate model to analyse the causes of this rainfall decline. In our simulations,

<http://www.nature.com/ngeo/journal/vaop/ncurrent/full/ngeo2201.html>

## Climate change and the soil: Climate warming losses of soil carbon from tropical forests

Jul 23, 2014

The planet's soil releases about 60 billion tons of carbon into the atmosphere each year, which is far more than that released by burning fossil fuels. This happens through a process called soil respiration. This enormous release of carbon is balanced by carbon coming into the soil system from falling leaves and other plant matter, as well as by the underground activities of plant roots

<http://phys.org/news/2014-07-climate-soil-net-losses-carbon.html>

## Underground amphibians evolved unique ear

25 July 2014



Caecilians have developed an oversized organ in their ears to help them sense underground vibrations, say scientists.

Read more at: <http://phys.org/news/2014-07-underground-amphibians-evolved-unique-ear.html#jCp>

# Soil colors – what more could you want?

☆☆☆☆☆ Rate This

Nuno Simões  
University of Algarve, Portugal  
E-mail: nuno\_simoes58@hotmail.com

We can easily see that soil color varies from one site to another, with depth, with topographic position and composition. Even color may be light brown in one side of the road and dark brown in the other. Whether for scientific purposes, or just curious, you study the colorimetric interesting variations.

## Why does soil color change?

The soil color varies due to the characteristics of substances that form it. These variations can be caused by several factors, as, for example, soil humidity (the wetter the soil is, the darker it gets), soluble salts, sand and carbonates (light colors), iron oxides (red colors), organic matter (dark colors), etc.



Nuno Simões (before combing). Meet Nuno at [EGU2014-SSS2.7](#).

<http://gsoil.wordpress.com/2014/04/15/soil-colors-what-more-could-you-want/>

**This is the time for the soil scientists to act and address issues of global significance because you have the capacity, knowledge and motivation to do so. -- Rattan Lal**