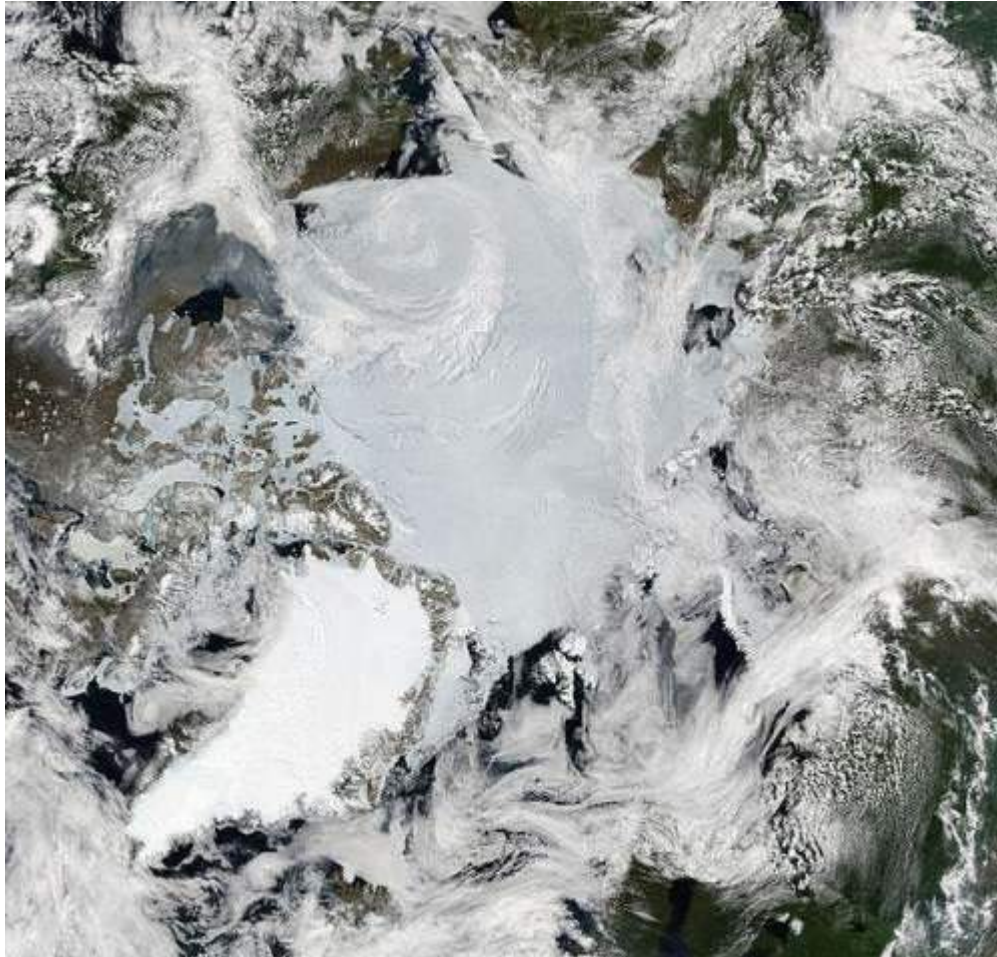


## New study traces the fate of carbon stored in thawing Arctic soils

5 August 2015



Mosaic of images of the Arctic by MODIS. Credit: NASA

As temperatures rise, some of the organic carbon stored in Arctic permafrost meets an unexpected fate—burial at sea. As many as 2.2 million metric tons of organic carbon per year are swept along by a single river system into Arctic Ocean sediment, according to a new study an international team of researchers published today in *Nature*. This process locks away

carbon dioxide (CO<sub>2</sub>) - a greenhouse gas - and helps stabilize the earth's CO<sub>2</sub> levels over time, and it may help scientists better predict how the natural carbon cycle will interplay with the surge of CO<sub>2</sub> emissions due to human activities.

Read more at: <http://phys.org/news/2015-08-fate-carbon-arctic-soils.html#jCp>

## It's the International Year of Soils — can we quit treating this resource like dirt?

[Share on print](#)[Share on email](#)

By [Ron Meador](#) | 28/07/15



[CC/Flickr/Natural Resources Conservation Service Soil Health Campaign](#)

Soil may be one of the four cornerstones of human life on this planet – with sunlight, water and breathable air – but outside certain specialist communities, it gets substantially less attention.

Did you know that 2015 is, by decree of the United Nations General Assembly, the **International Year of Soils**?

<http://www.minnpost.com/earth-journal/2015/07/its-international-year-soils-can-we-quit-treating-resource-dirt>

# 'Sexually deceptive' petals, soil fungi key to saving threatened wild native orchid species

774 ABC Melbourne

By Clare Rawlinson

Updated yesterday at 4:10pm Wed 5 Aug 2015, 4:10pm



**Photo:** The *caladenia fulva* tawny spider orchid, currently listed as federally threatened. ([Supplied](#))

**Map:** [Melbourne 3000](#)

Botanical conservationists in Victoria are relying on a "sexually deceptive" petal in their struggle to regenerate six threatened native orchid species.

The Royal Botanic Gardens Victoria botanists are matching the seeds of threatened orchid species with a nutritious soil fungi, before reintroducing seedlings to the wild.

<http://www.abc.net.au/news/2015-08-05/sexual-deception-the-key-to-saving-threatened-wild-orchids/6674608>

**Nitrogen loss in soils unearthed**



**Thursday, 30 July 2015**

Researchers from The University of Western Australia have challenged the current understanding about which microorganisms carry out important nitrogen transformations in semi-arid agricultural soils.

Understanding which microorganisms are responsible for nitrification is critical to agricultural management of nitrogen.

Nitrogen cycling in soil is a complex network of interacting processes carried out by microorganisms.

**<http://www.news.uwa.edu.au/201507307824/research/nitrogen-loss-soils-unearthed>**

Read more at: <http://phys.org/news/2015-07-nitrogen-loss-soils-unearthed.html#jCp>



## Soils Support Health

Released: 29-Jul-2015 11:05 AM EDT

Source Newsroom: [American Society of Agronomy \(ASA\)](#), [Crop Science Society of America \(CSSA\)](#), [Soil Science Society of America](#)

[\(SSSA\)](#) [more news from this source](#)

### Contact Information

*Available for logged-in reporters only*

Newswise — July 29, 2015 — In celebration of the International Year of Soil 2015 (IYS), the Soil Science Society of America (SSSA) is coordinating a series of activities throughout the year to educate the public about the importance of soil. August's theme is "Soils Support Health." According to August's IYS monthly leader Nick Comerford, "the nutrients that you get from your food come from soil. Food that is grown in fertile soil—full of good elements and minerals—packs more nutrition than food grown in less fertile soil." Comerford is a soil scientist at University of Florida. Here are some facts about soils and human health: 1. Underground, life is full of diversity—there are millions of different microbes living in the soil. 2. This biodiversity helps keep populations of disease-causing bacteria low. 3. The antibacterial drugs Penicillin and <http://www.newswise.com/articles/soils-support-health>

## Soil Is Life

Serviam Girls Academy students learn about soils at inaugural camp at UD



Angelia Seyfferth leads the inaugural Soil Is Life summer camp with 45 students from Serviam Girls Academy.

12:53 p.m., 28 July 2015--The inaugural Soil Is Life summer camp was held July 10 as 45 students from Serviam Girls Academy spent time on the University of Delaware's [College of Agriculture and Natural Resources](#) campus learning from Angelia Seyfferth about the importance of soils.

<http://www.udel.edu/udaily/2016/jul/soil072815.html>

## Scientists solve mystery behind earthworm digestion

4 August 2015



Earthworms in a pile of leaf litter. They drag fallen leaves and other plant material down from the surface and eat them, enriching the soil. Credit: Dr. Manuel Liebeke, Imperial College London

Scientists have discovered how earthworms can digest plant material, such as fallen leaves, that would defeat most other herbivores.

Read more at: <http://phys.org/news/2015-08-scientists-mystery-earthworm-digestion.html#jCp>

## **Estimating sequestration of carbon in soil using default values (model-based soil carbon)**



## Suggested Reading

- [Opportunities for the land sector](#)
- [Opportunities for industry](#)

03 August 2015  
CFIERF

A project using this method stores carbon in soils on agricultural land by introducing specific management actions that increase inputs of carbon to the soil, reduce loss of carbon from the soil, or both.

The model-based soil carbon method estimates changes in soil carbon on agricultural land using default soil carbon enhancement values that were derived from FullCAM modelling and are provided in the CFI Mapping Tool. The method is an alternative to the [sequestering carbon in soils in grazing systems](#) method, which applies to projects in grazing systems where changes in soil carbon stocks are estimated through direct measurement. Together the two methods offer participants the option to select the approach that best suits the circumstances of their project.

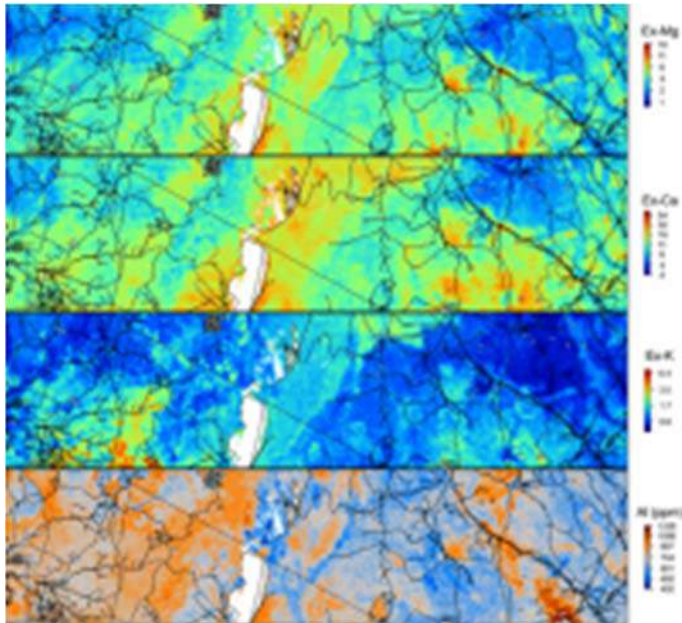
<http://www.cleanenergyregulator.gov.au/ERF/Pages/Choosing%20a%20project%20type/Opportunities%20for%20the%20land%20sector/Vegetation%20and%20sequestration%20methods/Estimating-sequestration-of-carbon-in-soil-using-default-values-model-based-soil-carbon.aspx>

# Detailed soil information for Africa now available

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Predicted exchangeable Mg, Ca and K (in cmol+/kg) and Al concentration (ppm) using random forests RK model (PLOS article)

Zoom in on an African village, and see whether the soil is clayey or sandy, or how much nutrients or organic carbon it contains. This is now possible since ISRIC and partners have launched detailed freely accessible soil property maps for Africa. The maps, that can be explored in Google Earth, contain predictions of more than 20 soil properties at six standard depths at 250 meter resolution. The academic article about the maps appeared in [PLOS ONE](https://doi.org/10.1371/journal.pone.0156100), (25 June). <http://www.isric.org/content/detailed-soil-information-africa-now-available>



## Understanding soil

Soil is the thin outer layer covering the land surface of the earth. It is made up mainly of mineral particles, organic materials, air, water and living organisms, all of which slowly yet constantly interact.

Most plants get their nutrients and water from the soil. Plants in turn are the main source of food for animals and birds. Most living things on land therefore depend on soil for their very existence.

However, soil is more fragile than it appears and is easily damaged, washed or blown away. If we understand soil and manage it properly, we will avoid destroying the basis of our environment.

### How soil forms



#### A Horizon

The surface soil where nutrient, organic matter and biological activity levels are highest

#### B Horizon

Generally has a lighter colour, lower fertility and less biological activity than the A horizon. Texture may be heavier than the A horizon.

[http://joomla.speedweb.com.au/soil2015/images/sampleddata/publications\\_tab/schoolresources/factsheets/01\\_understanding-soil.pdf](http://joomla.speedweb.com.au/soil2015/images/sampleddata/publications_tab/schoolresources/factsheets/01_understanding-soil.pdf)

## Soils need investment to protect crop yields



*Dr Tudor Dawkins, technical director at ProCam*

**YIELDS COULD be hard hit unless strides are made to improve organic matter and correct soil structure, crop producers were told.**

Speaking at ProCam's 'What Makes a Healthy Soil Conference' at the Great Yorkshire Showground in Harrogate, the company's technical director Dr Tudor Dawkins said the weather over the last few years had accelerated damage to the UK's soils and urgent remedial investment was now required.

<http://www.yorkshirepost.co.uk/news/rural/farming/soils-need-investment-to-protect-crop-yields-1-7386133>

## **Septic tanks aren't keeping poo out of rivers and lakes**

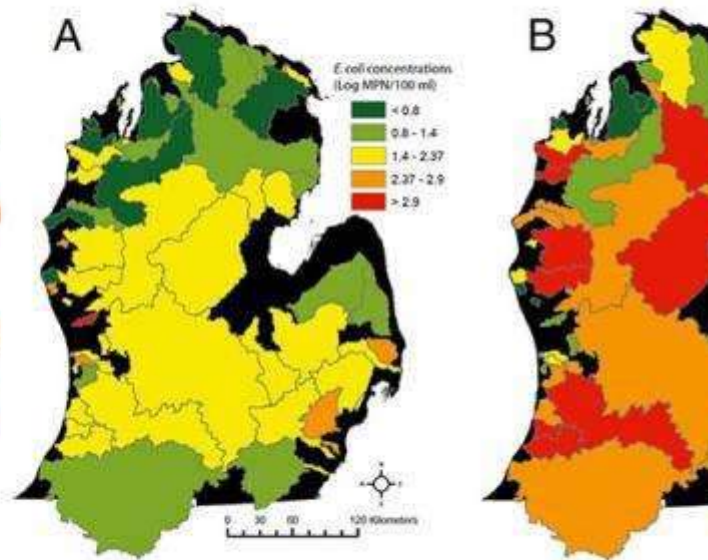
3 August 2015

## ARE SEPTIC TANKS CONTAMINATING MICHIGAN'S WATERWAYS?

Michigan State University water scientists have discovered that septic tanks are contributing to human fecal bacteria contamination in the state's waterways. This research is vital for evaluating water quality and health implications, and the impact of septic systems on watersheds globally. #SpartansWill



Read more at [rose.canr.msu.edu](http://rose.canr.msu.edu)



(A) E.coli (log<sub>10</sub>MPN-100mL<sup>-1</sup>) and (B) B concentrations measured in 64 rivers and (Areas in black were not rep

In the largest watershed study of its kind, MSU researchers samples 64 rivers in Michigan for human fecal bacteria. Credit: MSU

The notion that septic tanks prevent fecal bacteria from seeping into rivers and lakes simply doesn't hold water, says a new Michigan State University study.

Read more at: <http://phys.org/news/2015-08-septic-tanks-poo-rivers-lakes.html#jCp>

## North Korea to fight food insecurity and natural disaster with trees

4 August 2015



Forest ranger and villagers in a tree nursery in DPR Korea are shown. Credit: ICRAF-China

Experts in DPR Korea intend to restore the quality of forest lands, alleviate wide-spread food insecurity and reduce the frequency of natural disasters in the country through an ambitious programme of agroforestry "the use of trees on farms and in the landscape". The DPR Korea is only the second country in Asia to launch such an initiative.

Read more at: <http://phys.org/news/2015-08-north-korea-food-insecurity-natural.html#jCp>

## **Soils Lab showcases pollinator research during meeting of Minnesota honey producers**



Dr. Carrie Eberle, research agronomist, described research on pollinator health, specialty oilseed crops, cover crops, relay cropping, and water quality at the Barnes-Aastad Swan Lake Research Farm during a meeting of the Minnesota Honey Producers Association on Friday, July 17. (Submitted Photo)

MORRIS – Pollinators are important to us because more than 30 percent of our food, especially the tasty items, relies on the activities of bees. You’ve likely heard of the many news articles telling us about the demise of the bee population across the US over the last few years; it continues to get worse. A new federal survey found that beekeepers lost more than 40 percent of their colonies last year. There are many possible explanations that include combinations of declining nutrition, mites, and disease. The honeybees serve as the “canary in the coal mine” helping identify several environmental problems.

<http://www.morrissuntribune.com/farm/agriculture/3806165-soils-lab-showcases-pollinator-research-during-meeting-minnesota-honey>



🔗 **90 seconds to discover**  
*Web ad points to promising*

To most people, soil is far t

But after watching a new, v  
video's producers hope vie  
respect and admiration. Be  
could provide solutions to s  
challenges.

Watch the 90-second ad 🔗 . Share the link and share the hope.

<https://www.youtube.com/watch?v=CkY2Hp-A6pM>.



🔗 **Cycle, re-cycle, repeat: Carbon's soil powers life as we know it**

As global temperatures rise, there's gro  
carbon dioxide (a greenhouse gas) out o  
getting carbon into the soil.

But what form does that carbon take an  
the cycling process work? In the first ep  
***The Science of Soil Health***, Dr. Will B

yet holistic explanation about this living and life-giving process. After you watch this four-  
never think of the soil carbon cycle the same way again.

[https://www.youtube.com/watch?v=3f1NNbi3JsY&list=PL4J8PxoprGa3wFYXFu-BW\\_mMatleIt0&index=23](https://www.youtube.com/watch?v=3f1NNbi3JsY&list=PL4J8PxoprGa3wFYXFu-BW_mMatleIt0&index=23)

## People Cause More Soil Erosion Than All Natural Processes



Soil and rock particles derived from the glacial, riverine, and agricultural erosion of east-central North America enter the Gulf of Mexico as muddy water along the delta of the Mississippi River.

*Credit: Image courtesy of University Of Michigan*

ANN ARBOR, Mich. --- Human activity causes 10 times more erosion of continental surfaces than all natural processes combined, an analysis by a University of Michigan geologist shows.

<http://www.sciencedaily.com/releases/2004/11/041103234736.htm>

## **Healthy soils, healthy world: ARS Scientists share research at Field Day**





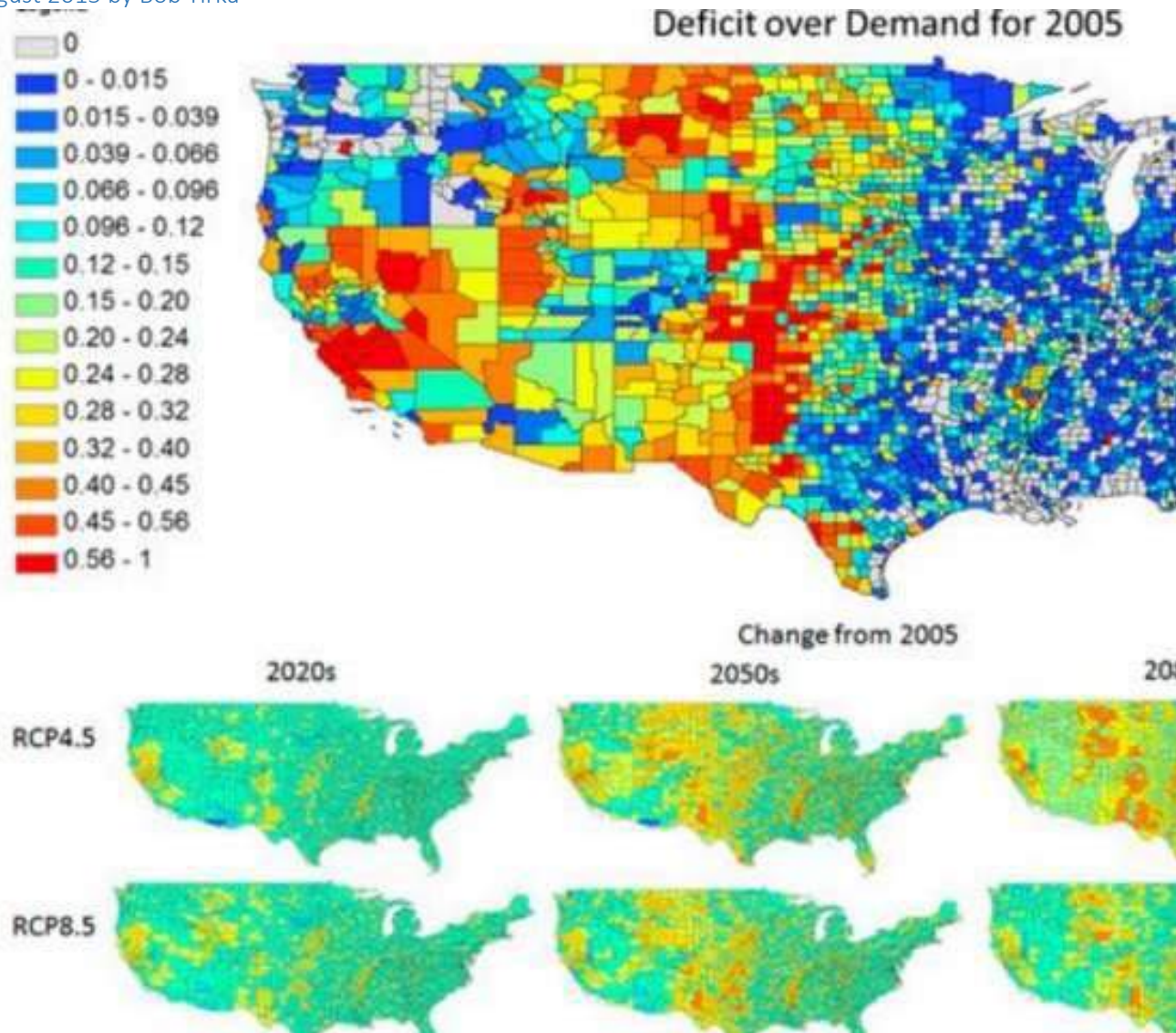
Dr. Jane Johnson (left) and Dr. Sharon Weyers (right) spoke to attendees about soil health during Field Day at the ARS Soils Lab in Morris on Thursday, July 23. In a demonstration, Weyers showed how healthy soil, which is full of biomass and biomaterial, is more structurally sound than unhealthy soil. The container in the center has the healthiest soil, while the others are more prone to erosion from wind and rain. (Kim Ukura/Sun Tribune)

MORRIS — The United Nations Food and Agriculture Organization declared 2015 the International Year of Soils in order to bring attention to the crucial role soils play in agricultural production and water quality.

<http://www.morrisuntribune.com/news/3808728-healthy-soils-healthy-world-ars-scientists-share-research-field-day>

## **Computer simulation shows climate mitigation schemes could result in increased water stress**

4 August 2015 by Bob Yirka



Average total annual water deficit as a fraction of demand (county scale) for the historical period and the deficit difference from historical under RCP4.5 and RCP8.5 in the 2020s, 2050s, and 2080s. Credit: Mohamad I. Hejazi, *PNAS*, doi: 10.1073/pnas.1421675112

(Phys.org)—A combined team of researchers from Pacific Northwest National Laboratory and the University of Maryland has created a computer simulation meant to show the degree of water stress in the U.S. going forward into the future—it shows that under some conditions, water stress may actually increase due to mitigation efforts designed to slow global warming. In their paper published in *Proceedings of the National Academy of Sciences*, the team describes their simulation and why they believe it shows the dangers of not clearly thinking through strategies meant to help reduce greenhouse gas emissions.

Read more at: <http://phys.org/news/2015-08-simulation-climate-mitigation-schemes-result.html#jCp>

# A cataclysmic event of a certain age



The Younger Dryas Boundary locations that provided data for the analysis. Credit: UCSB

At the end of the Pleistocene period, approximately 12,800 years ago—give or take a few centuries—a cosmic impact triggered an abrupt cooling episode that earth scientists refer to as the Younger Dryas.

Read more at: <http://phys.org/news/2015-07-cataclysmic-event-age.html#jCp>

## South Dakota City Council Considers Requiring Soil Tests for New Homes

29 July 2015

Contractors building homes in Rapid City, S.D., could soon be required to test soil conditions at building sites after homeowners complained of severe damage caused by expansive soils.

The Rapid City Council is considering the proposed change to the city's residential building code, which would require a home be designed to withstand destructive soil movement if testing finds conditions are poor, the Rapid City Journal reported. Homebuilders and their chosen soils specialist would largely be left to do the testing and determine foundation requirements.

<http://www.claimsjournal.com/news/midwest/2015/07/29/264811.htm>

## Project shows link between healthy soils and healthy people

Friday, 31 July 2015

Share with others

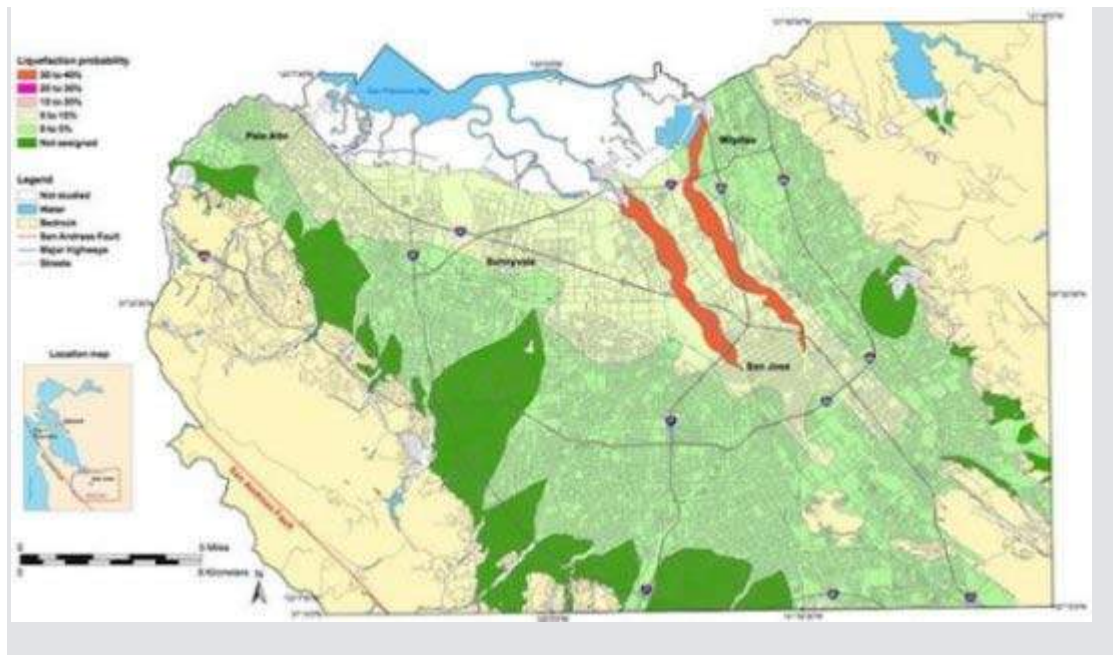
*A unique project is improving nutrition and incomes through better farming practices*

*Manitoba Co-operator editor Laura Rance was on secondment to the Canadian Foodgrains Bank in early 2015 to write about agriculture and development in Africa.*

A little yellow seed is sprouting big changes for farming families here in the Great Rift Valley, within reach of the Hawassa University extension services.

<http://foodgrainsbank.ca/news/project-shows-link-between-healthy-soils-and-healthy-people/>

## New Liquefaction Hazard Maps Of Santa Clara Valley, Northern California



This map shows the likelihood of liquefaction in Northern Santa Clara County during a magnitude 7.8 earthquake on the northernmost segments of the San Andreas Fault. This earthquake is similar to the 1906 San Francisco earthquake. At each location, the map predicts the approximate probability that shallow wet sands will liquefy and cause surface manifestations of liquefaction such as sand boils and ground cracking. Liquefaction is a phenomenon that is caused by earthquake shaking. Wet sand can become liquid-like when strongly shaken. The liquefied sand may flow and the ground may move and crack, causing damage to surface structures and underground utilities. The map depicts the hazard at a regional scale and should not be used for site-specific design and consideration. Subsurface conditions can vary abruptly and borings are required to address the hazard at a given location. The map assumes the historically shallowest water table conditions and does not reflect current ground-water conditions. If the current water table is deeper, the probability of liquefaction is reduced. The map includes the communities of San Jose, Campbell, Cupertino, Los Altos, Los Gatos, Milpitas, Mountain View, Palo Alto, Santa Clara, Saratoga, and Sunnyvale.

*Credit: Image courtesy of Seismological Society of America*

New hazard maps for communities from San Jose to Palo Alto in Northern California delineate the probability of earthquake-induced liquefaction, based on three scenarios: a magnitude 7.8 on the San Andreas Fault comparable to the 1906 event, a magnitude 6.7 on the Hayward Fault comparable to the 1868 event, and a magnitude 6.9 on the Calaveras Calaveras Fault.

#### **Journal Reference:**

1. Holzer et al. **Scenario Liquefaction Hazard Maps of Santa Clara Valley, Northern California.** *Bulletin of the Seismological Society of America*, 2009; 99 (1): 367 DOI: [10.1785/0120080227](https://doi.org/10.1785/0120080227)

<http://www.sciencedaily.com/releases/2009/01/090127094040.htm>

# Lightning reshapes rocks at the atomic level, study finds

5 August 2015 by Katherine Unger Baillie



The Penn-led study suggests that lightning bolts strike rock with a force comparable to meteorite impacts.

At a rock outcropping in southern France, a jagged fracture runs along the granite. The surface in and around the crevice is discolored black, as if wet or covered in algae. But, according to a new paper coauthored by the University of Pennsylvania's Reto Gieré, the real explanation for the rock's unusual features is more dramatic: a powerful bolt of lightning.

Read more at: <http://phys.org/news/2015-08-lightning-reshapes-atomic.html#jCp>

## Queensland shaken by eight earthquakes since Thursday, future tremors impossible to predict: seismologist

By Kate Higgins

Updated Mon at 12:31am Mon 3 Aug 2015, 12:31am



**Photo:** Eight earthquakes have struck off the coast of Fraser Island since Thursday. ([Supplied: Geoscience Australia](#))

Eight earthquakes have been detected in Queensland since Thursday, with Saturday's magnitude-5.7 event alone packing as much force as 15 atomic bombs, a senior seismologist says.

Geoscience Australia senior duty seismologist Dan Jaksa said three of the quakes, which all occurred in an area about 120 kilometres east of Fraser Island, registered magnitude-5 or above.

He said at least one of Saturday's four quakes was felt by residents between Bundaberg and the Gold Coast.

"Magnitude-5 is the strength of an atomic bomb test," Mr Jaksa said.

"[Magnitude-5.7] is about 15 times bigger than a magnitude-5, so that's 15 atomic blasts of energy." <http://www.abc.net.au/news/2015-08-02/queensland-rattled-by-eight-earthquakes-in-three-days/6666250>

## Drought's lasting impact on forests



A stressed forest in the southwestern United States. Credit: Leander Anderegg

In the virtual worlds of climate modeling, forests and other vegetation are assumed to bounce back quickly from extreme drought. But that assumption is far off the mark, according to a new study of drought impacts at forest sites worldwide. Living trees took an average of two to four years to recover and resume normal growth rates after droughts ended, researchers report today in the journal *Science*.

Read more at: <http://phys.org/news/2015-07-drought-impact-forests.html#jCp>

## **Where has all the soil gone? Focusing on soil loss important to researchers**





This concrete post was driven to bedrock in 1924 in the Everglades by University of Florida staff. The soil has subsided more than 6 feet in 90 years. Luckily, the rate of soil loss has been cut in 1/2 due to best management practices.

*Credit: Ramesh Reddy, University of Florida*

You may hear the phrase: "We are losing our soil." Sounds serious...but how do we lose soil? Nick Comerford, a member of the Soil Science Society of America (SSSA) and professor at the University of Florida, provides the answer. <http://www.sciencedaily.com/releases/2014/06/140618163922.htm>

## 'Carbon sink' detected underneath world's deserts



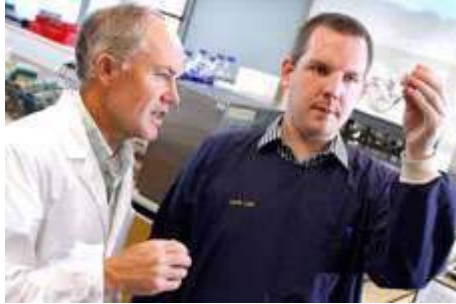
Scientists followed the journey of water through the Tarim Basin from the rivers at the edge of the valley to the desert aquifers under the basin. They found that as water moved through irrigated fields, the water gathered dissolved carbon and moved it deep underground. Credit: Yan Li

The world's deserts may be storing some of the climate-changing carbon dioxide emitted by human activities, a new study suggests. Massive aquifers underneath deserts could hold more carbon than all the plants on land, according to the new research.

Read more at: <http://phys.org/news/2015-07-carbon-world.html#jCp>

## **Volcanic bacteria take minimalist approach to survival**

4 August 2015



Professor Greg Cook and Dr Chris Greening

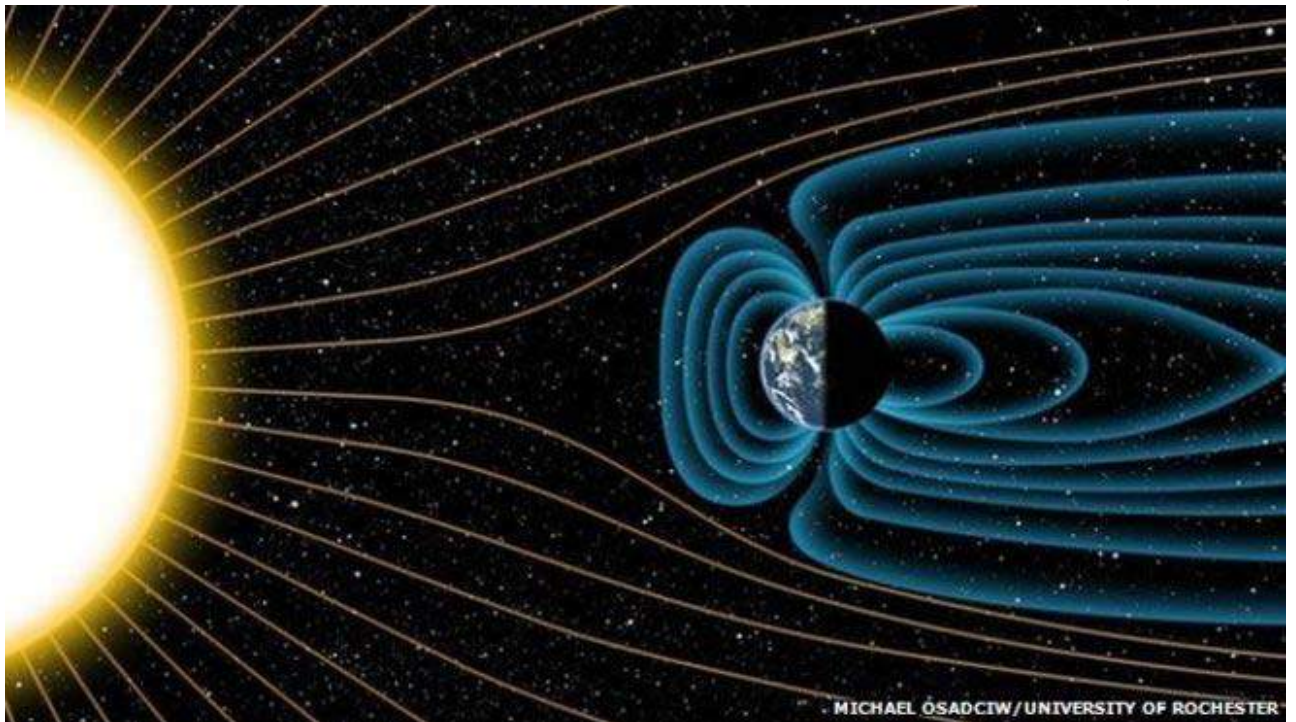
New research by scientists at the University of Otago and GNS Science is helping to solve the puzzle of how bacteria are able to live in nutrient-starved environments. It is well-established that the majority of bacteria in soil ecosystems live in dormant states due to nutrient deprivation, but the metabolic strategies that enable their survival have not yet been shown.

Read more at: <http://phys.org/news/2015-08-volcanic-bacteria-minimalist-approach-survival.html#jCp>

## Earth magnetic shield is older than previously thought

By Yasmin AliScience reporter

- 31 July 2015
- From the section [Science & Environment](#)



The Earth's magnetic field deflects high energy protons from the Sun, as depicted in this artist's impression. Note that the relative sizes of the Earth and Sun, as well as the distances between the two bodies, are not to scale

The Earth's magnetic field, which shields the atmosphere from harmful radiation, is at least four billion years old, according to scientists.

This is 550 million years older than it was previously believed to be.

Scientists at Rochester University in New York analysed crystals found in Western Australia. <http://www.bbc.com/news/science-environment-33721393>

## NASA's Curiosity Rover Inspects Unusual Bedrock



### High-Silica 'Lamoose' Rock

A rock fragment dubbed "Lamoose" is shown in this picture taken by the Mars Hand Lens Imager (MAHLI) on NASA's Curiosity rover. Credit: NASA/JPL-Caltech/MSSS

### Fast Facts:

- Rover examines geological contact zone near 'Marias Pass'
- Silica-rich rocks identified nearby with laser-firing instrument
- Test of rover's drill prepares for next use on Mars rock



### Contact Zone: 'Missoula'

A rock outcrop dubbed "Missoula," near Marias Pass on Mars, is seen in this image mosaic taken by the Mars Hand Lens Imager on NASA's Curiosity rover. Credit: NASA/JPL-Caltech/MSSS

Approaching the third anniversary of its landing on Mars, NASA's Curiosity Mars rover

has found a target unlike anything it has studied before -- bedrock with surprisingly high levels of silica. Silica is a rock-forming compound containing silicon and oxygen, commonly found on Earth as quartz.

This area lies just downhill from a geological contact zone the rover has been studying near "Marias Pass" on lower Mount Sharp.

<http://mars.nasa.gov/msl/news/whatsnew/index.cfm?FuseAction=ShowNews&NewsID=1844>

## **New paper by prominent scientists suggests ocean levels will rise much faster than predicted**



A group of 17 scientists with varied backgrounds, including noted climatologist James Hansen has written a paper describing a scenario where the world's oceans rise much faster than other models have predicted—they have uploaded it to *Atmospheric Chemistry and Physics*—an open access site created to allow for public peer review of researcher ideas.

Read more at: <http://phys.org/news/2015-07-paper-prominent-scientists-ocean-faster.html#jCp>

## **Great Plains agricultural greenhouse gas emissions could be eliminated**

5 August 2015 by Rob Novak



Researchers from the Natural Resource Ecology Lab at Colorado State University and their partners have completed a historical analysis of greenhouse gas emissions from the U.S. Great Plains that demonstrates the potential to completely eliminate agricultural greenhouse gas emissions from the region.

Read more at: <http://phys.org/news/2015-08-great-plains-agricultural-greenhouse-gas.html#jCp>

## River buries permafrost carbon at sea

New study traces the fate of carbon stored in thawing Arctic soils



Northern Canada's Mackenzie River is the largest river flowing into the Arctic Ocean from North America—and the dominant source of biosphere-derived organic carbon in Arctic Ocean sediments, according to a new study.

*Credit: Robert Hilton, Durham University*

As temperatures rise, some of the organic carbon stored in Arctic permafrost meets an unexpected fate--burial at sea. As many as 2.2 million metric tons of organic carbon per year are swept along by a single river system into Arctic Ocean sediment, according to a new study an international team of researchers published today in *Nature*. This process locks away carbon dioxide (CO<sub>2</sub>) -- a greenhouse gas -- and helps stabilize the earth's CO<sub>2</sub> levels over time, and it may help scientists better predict how the natural carbon cycle will interplay with the surge of CO<sub>2</sub> emissions due to human activities.

#### **Journal Reference:**

1. Robert G. Hilton, Valier Galy, Jérôme Gaillardet, Mathieu Dellinger, Charlotte Bryant, Matt O'Regan, Darren R. Gröcke, Helen Coxall, Julien Bouchez, Damien Calmels. **Erosion of organic carbon in the Arctic as a geological carbon dioxide sink.** *Nature*, 2015; 524 (7563): 84 DOI: [10.1038/nature14653](https://doi.org/10.1038/nature14653)

<http://www.sciencedaily.com/releases/2015/08/150805140254.htm>

## **Expanding theory of evolution**

5 August 2015

An Indiana University professor is part of an international team of biologists working to expand Darwin's theory of evolution to encompass factors that influence a species' growth and development beyond genetics—as well as to consider the impact of species on the environment.

Read more at: <http://phys.org/news/2015-08-theory-evolution.html#jCp>

**What is soil? Where does it come from? What is special about soil in Latin America and the Caribbean? What does soil provide to society? What is the impact of climate change on soil?**

The Soil Atlas of Latin America and the Caribbean aims to answer these questions about the origin and functions of soils through the use of existing maps, alternative forms, including photographs and graphics. The atlas also describes the different soils that can be found in the region, and with the use of digital soil mapping techniques. It features the high diversity of soil characteristics. This work is the result of a collaboration between scientists from Latin America, the Caribbean, Europe and North America.

The Soil Atlas of Latin America and the Caribbean shows special attention to the possible negative effects of climate change on soil functions and properties, as well as potential mitigation and adaptive measures, which can be adopted in order to preserve the natural resources.

This publication constitutes an essential reference for the management of productive resources that are non-renewable within a human time frame, and fundamental for life on Earth.

**SOIL ALAS OF LATIN AMERICA AND THE CARIBBEAN**

**SOIL ATLAS OF LATIN AMERICA AND THE CARIBBEAN**

The atlas shows that soil is not only a source of carbon sequestration and an important component of the global carbon cycle, but also a source of water, nutrients and a habitat for many organisms. It is also a source of energy and a source of information about the past and future of the environment.

The atlas also shows that soil is not only a source of carbon sequestration and an important component of the global carbon cycle, but also a source of water, nutrients and a habitat for many organisms. It is also a source of energy and a source of information about the past and future of the environment.

The properties of soils, as well as their relationships to processes, can vary considerably throughout the Latin American and the Caribbean region. While some of the world's most fertile soils are found in the tropics, not all are free from the risk of erosion and the consequent loss of organic matter. In the other hand, soils under tropical forest belong to one of the most acidic soils, which is highly susceptible to erosion and the consequent loss of organic matter. In the other hand, soils under tropical forest belong to one of the most acidic soils, which is highly susceptible to erosion and the consequent loss of organic matter.

The water content in a soil is a key factor in the determination of soil moisture. The amount of water in a soil is determined by the amount of water in the soil.

Plants are dependent on soil for the supply of water, nutrients and as a medium of growing.

This is one of the most important features of many functions that soils provide. Soil also stores water, nutrients and provides a habitat for many organisms. It is also a source of energy and a source of information about the past and future of the environment.

The capacity to store and provide water and nutrients is one of the most important functions of soil. Soil is a fundamental component of our landscape and cultural heritage.

**2015**



**2015**



## UPCOMING EVENTS

Thursday, 30 July 2015

### CELEBRATE SOIL SYMPOSIUM

 **Event date:** 2/09/2015 9:00 AM - 5:00 PM  Export event

The 2015 Soil Symposium will explore current research, extension and on farm practices occurring across Australia into the world of soil. The key topics will include soil chemistry, soil biology and soils physical structure. The program has been developed in partnership with Murray Local Land Services, Australian Institute of Soil Scientists and the North East CMA through funding from the Australian Government National Landcare Programme.

#### Documents to download

 CELEBRATE SOIL SYMPOSIUM Final 1

<http://www.necma.vic.gov.au/Events/ArtMID/461/ArticleID/157/CELEBRATE-SOIL-SYMPOSIUM->

## Eco-Stats '15: Technological advances between Ecology and Statistics

8-10 December 2015  
UNSW, Sydney, Australia

Ecologists and statisticians have much to gain from working together, and this conference is designed to provide precisely such an opportunity. This conference is a follow-up to [the 2013 meeting](#), and has been designed as a collaborative forum for researchers with interests in ecology, statistics, or both. [World leaders from ecology and statistics](#) will be paired up to present their own perspectives on five topical issues, and round-table discussions will workshop opportunities for interdisciplinary collaboration on these topics. The conference will start with an optional "Skills-Building Day", a series

#### Registration now open

Early bird deadline closes  
October 23rd.

#### Submit your poster abstract!

We will have a poster session at the conference, abstract submissions open until  
October 9th.

of computer-based tutorials run across topics spanning the interests of conference speakers. It will also feature a contributed poster evening session where participants can turn the topic of conversation to their own research.

Sessions will be organised around five special topics, with a pair of speakers on each topic:

- Model-based analysis of metagenomics data in ecology (Douglas Yu, Otso Ovaskainen)
- Occupancy modelling with imperfect detection (Darryl Mackenzie, Alan Welsh)
- Analysing counts along stream networks (Bruce Chessman, Jay ver Hoef)
- Capture-recapture using modern technology (Paul Sunnucks, Rachel Fewster)
- Estimating biodiversity turnover (Melodie McGeogh, Cang Hui)

Before the conference kicks off we are offering a two-day short course for ecologists "**Intro to regression modelling on R**", December 6-7 at UNSW. For more advanced analysts, Noel Cressie is offering "**Spatio-Temporal Statistical Modelling**" down the road at Circular Quay, the day before the conference (December 7).

This symposium is hosted at UNSW in Sydney by the **Eco-Stats** research group at the **UNSW School of Mathematics and Statistics** and the **Evolution & Ecology Research Centre**.

<http://www.eco-stats.unsw.edu.au/register.html>

## Enrol in a pre-conference workshop

"Intro to regression modelling on R" for ecologists, December 6-7 at UNSW, [register now](#).

"Spatio-Temporal Statistical Modelling" at Circular Quay, December 7, by Noel Cressie and Andrew Zammit Mangion, NIASRA.

## 2015 Annual Conference

# 70<sup>TH</sup> ANNUAL

· SOIL AND WATER ·  
CONSERVATION SOCIETY  
· CONFERENCE ·



· COMING HOME ·  
· TO CONSERVATION ·

PUTTING SCIENCE INTO PRACTICE

JULY 26 - 29, 2015

· GREENSBORO ·  
NORTH CAROLINA

Coming Home to Conservation: Putting Science into Practice

Final Program

Abstract Book

Sponsors & Exhibitors

Check back for plenary and concurrent session presentation slides!

The 70<sup>th</sup> Annual Soil and Water Conservation Society (SWCS) Conference provided a forum to celebrate past conservation accomplishments as well as share and promote science-based knowledge on critical, current issues facing soil, water, and environmental sustainability.

The conference was held in North Carolina, the home state of Hugh Hammond Bennett, which provided a unique combination of conservation history and southern hospitality. Already an active soil scientist in the years prior to the Dust Bowl, Bennett witnessed first-hand the social and environmental devastation of significant erosion. His nation called on him to help stem the tide of its worst environmental disaster by implementing soil

saving practices in the Great Plains and beyond. Hugh Hammond Bennett later helped found the Soil and Water Conservation Society and led the charge of identifying and applying sound science in pursuit of conserving soil and water resources. With the same mission today, we face even greater natural resource challenges in the midst of climate change and increasing populations. The path paved by Bennett's efforts and example gives us a solid foundation, and we must strive to continually improve the use and preservation of resources as we build a sustainable future.

[http://www.swcs.org/en/conferences/2015\\_annual\\_conference/](http://www.swcs.org/en/conferences/2015_annual_conference/)



**“Soil is an almost magical substance, a living system that transforms the materials it encounters”** *George Monbiot, published in the Guardian*

25th March 2015

