

# Soil health warning not all doom and gloom

ABC Rural

By [Michael Condon](#)

[Print](#) [Email](#) [Facebook](#) [More](#) <sup>7</sup>

Posted 1 Sept 2015, 2:49pm Tue 1 Sep 2015, 2:49pm



**Photo:** 2015 has been declared by the UN as International Year of Soils (ABC TV)

A Sydney academic says a report by international scientists that the world's soils are being degraded is "not all gloom and doom".

A report last month in the journal *Science* warned that the world's soils were being degraded and in the next few decades productivity would fall and food security would be threatened. <http://www.abc.net.au/news/2015-09-01/soil-health-warning-not-all-doom-and-gloom/6740630>

## Research finds soil microbes behave similarly across globe

11 September 2015 by Katie Pratt



Even though ecosystems may be located half a world away from each other, sometimes they really aren't all that different. That's what an international group of grassland scientists, including one from the University of Kentucky College of Agriculture, Food and Environment, have found to be true about soil microbes living in grasslands and their response to fertilizers.

Read more at: <http://phys.org/news/2015-09-soil-microbes-similarly-globe.html#jCp>

## Amazonia: Soil carbon stocks examined

### Summary:

Along with the oceans and forests, soils are one of the planet's main carbon reservoirs. In the 20th century, carbon stocks fell dramatically due to deforestation, intensive farming and the associated poor cultivation practices. Consequently, large amounts of carbon have been emitted into the atmosphere in the form of CO<sub>2</sub> contributing to global warming. Now researchers have published a summary on soil organic carbon stocks changes in Amazonia.



IRD researchers and their partners have just published a summary in the *Global Change Biology* journal on soil organic carbon stocks changes in Amazonia.

*Credit: © IRD / B. Osès*

Along with the oceans and forests, soils are one of the planet's main carbon reservoirs. In the 20th century, carbon stocks fell dramatically due to deforestation, intensive farming and the associated poor cultivation practices. Consequently, large amounts of carbon have been emitted into the atmosphere in the form of CO<sub>2</sub> contributing to global warming. IRD researchers and their partners have just published a summary in the *Global Change Biology* journal on soil organic carbon stocks changes in Amazonia.

---

#### **Journal Reference:**

Kenji Fujisaki, Anne-Sophie Perrin, Thierry Desjardins, Martial Bernoux, Luiz Carlos Balbino, Michel Brossard. **From forest to cropland and pasture systems: a critical review of soil organic carbon stocks changes in Amazonia.** *Global Change Biology*, 2015; 21 (7): 2773 DOI: [10.1111/gcb.12906](https://doi.org/10.1111/gcb.12906)  
<http://www.sciencedaily.com/releases/2015/09/150914114747.htm>

# Global separation of plant transpiration from groundwater and streamflow

- **Jaivime Evaristo**<sup>1</sup>,
- **Scott Jasechko**<sup>2</sup>,
- & **Jeffrey J. McDonnell**<sup>1, 3, 4</sup>.

Current land surface models assume that groundwater, streamflow and plant transpiration are all sourced and mediated by the same well mixed water reservoir—the soil. However, recent work in Oregon<sup>1</sup> and Mexico<sup>2</sup> has shown evidence of ecohydrological separation, whereby different subsurface compartmentalized pools of water supply either plant transpiration fluxes or the combined fluxes of groundwater and streamflow. These findings have not yet been widely tested. Here we use hydrogen and oxygen isotopic data ( $^2\text{H}/^1\text{H}$  ( $\delta^2\text{H}$ ) and  $^{18}\text{O}/^{16}\text{O}$  ( $\delta^{18}\text{O}$ )) from 47 globally distributed sites to show that ecohydrological separation is widespread across different biomes. Precipitation, stream water and groundwater from each site plot approximately along the  $\delta^2\text{H}/\delta^{18}\text{O}$  slope of local precipitation inputs. But soil and plant xylem waters extracted from the 47 sites all plot below the local stream water and groundwater on the meteoric water line, suggesting that plants use soil water that does not itself contribute to groundwater recharge or streamflow. Our results further show that, at 80% of the sites, the precipitation that supplies groundwater recharge and streamflow is different from the water that supplies parts of soil water recharge and plant transpiration. The ubiquity of subsurface water compartmentalization found here, and the segregation of storm types relative to hydrological and ecological fluxes, may be used to improve numerical simulations of runoff generation, stream water transit time and evaporation–transpiration partitioning. Future land surface model parameterizations should be closely examined for how vegetation, groundwater recharge and streamflow are assumed to be coupled. <http://www.nature.com/nature/journal/v525/n7567/full/nature14983.html>



# Weather project lures NASA to Aus

06 Sep, 2015 02:00 AM



*The mission will boost understanding of how Earth's water cycle will respond to climate change.*

NASA scientists will join Monash University Professor Jeffrey Walker and his team to validate new NASA satellite technology in a bid to develop ways to better predict weather events and monitor drought.

VIDEO: SCIENTISTS will converge on Yanco in south west NSW today to conduct the second phase of a soil moisture validation campaign that kicked off in May.

NASA scientists will join Monash University Professor Jeffrey Walker and his team to validate new NASA satellite technology orbiting 685 kilometres above Earth in a bid to develop ways to better predict weather events and monitor drought, which will have huge benefits for the agricultural industry and climate change.

<http://www.farmweekly.com.au/news/agriculture/general/weather/weather-project-lures-nasa-to-aus/2742384.aspx>

## Crop rotation boosts soil microbes, benefits plant growth

3 September 2015



Former UNH postdoctoral student Lisa Tiemann and former UNH undergraduate student Michael Casazza work in Dr. Stuart Grandy's lab on a project to determine how soil structure is responding to agricultural diversity. Credit: Stuart Grandy/UNH.

In the first study of its kind, new research from the University of New Hampshire shows that crop rotations, in isolation from other management factors, can increase the functions performed by soil microbial communities that benefit plant growth. The study was conducted by researchers with the New Hampshire Agricultural Experiment Station.

Read more at: <http://phys.org/news/2015-09-crop-rotation-boosts-soil-microbes.html#jCp>

## How does soil differ across Earth's biomes? Part 1

1 September 2015 · by soilsmatter2011 · in Air and Climate. ·

Ecologists group large geographic regions with similar environments and distinctive plant and animal communities into biomes. The environmental factors influencing biomes include latitude, the general climate and topography of the region, and soil.

Soil is the foundation of every terrestrial ecosystem. Each biome has soils with characteristics unique to it.

### **Forests**

Forests occupy nearly a third of Earth's land surface-they are the most complex and diverse ecological system. The forests we like to hike in are beautiful because of their trees. But, it's the soil that keeps those trees healthy. Soil provides the nutrients for the trees to grow, and the support to hold the trees up...even a giant redwood! If a forest is destroyed in a fire, the soil will bring back life.



Forests occupy nearly a third of Earth's land-they are the most complex and diverse ecological system.

Soils are an integral structural part of your woodland and the larger forest ecosystem. Important forest soil functions include:

- Providing water, nutrients, and physical support for the
- growth of trees and other forest plants
- Allowing an exchange of carbon dioxide, oxygen, and other gasses that affect root growth and soil organisms <https://soilsmatter.wordpress.com/2015/09/01/how-does-soil-differ-across-earths-biomes-part-1/>

# Testing of soil water compartmentalizing indicates it is widespread among many biomes



3 September 2015 by Bob Yirka



Credit: Mick Lissone/public domain

(Phys.org)—A trio of researchers with the University's of Saskatchewan and Calgary, both in Canada has found evidence that backs up a theory that has suggested that soil water is compartmentalized. In their paper published in the journal *Nature*, Jaivime Evaristo, Scott Jasechko and Jeffrey McDonnell describe how they carried out their study and their surprising results.

Read more at: <http://phys.org/news/2015-09-soil-compartmentalizing-widespread-biomes.html#jCp>

## Salinity in irrigation water, soils may cause significant crop loss

4 Sept 2015 [Ron Smith](#)





Salt injury to cotton plants can be devastating, as this 2011 photo shows. Mitigating problems from high salinity levels in soils and irrigation water may require several management techniques, says Texas A&M AgriLife Extension Agricultural Engineer Dana Porter.

*Photo: Randy Boman, Oklahoma State University state Extension cotton leader)*

---

Hold the salt, please. That's easy enough to do with a plate of blackeyed peas or a packet of fried potatoes, but not so much on cropland that's irrigated with high salinity water or during hot, droughty periods with high evapotranspiration rates.

<http://southwestfarmpress.com/cotton/salinity-irrigation-water-soils-may-cause-significant-crop-loss>

## New NASA soil moisture satellite loses one science instrument

3 September 2015



This undated image provided by NASA shows NASA's Soil Moisture Active Passive (SMAP) observatory mission, launched in January to map global soil moisture and detect whether soils are frozen or thawed. NASA said Wednesday, Sept. 2, 2015 that ...[more](#)

A NASA satellite launched just seven months ago has lost the use of one of two science instruments, but the space agency said Wednesday that the mission to map global soil moisture will continue.

Read more at: <http://phys.org/news/2015-09-nasa-soil-moisture-satellite-science.html#jCp>

## Climate Models May Misjudge Soils' Carbon Emissions

Posted on 29 Aug 2015

By Alex Kirby, Climate News Network



*Climate models may have mistaken the role of both fungi and bacteria in decomposition.*  
(Dohduhdah via Wikimedia Commons)

*This Creative Commons-licensed piece first appeared at **Climate News Network**.*

LONDON—Some of the microscopic creatures which live in the soil are able to digest dead plants and trees, turning their contents into gas and minerals.

But researchers say their work show that our understanding of how organic material is decomposed is fundamentally wrong, calling into question some current climate models.

[http://www.truthdig.com/report/item/climate\\_models\\_may\\_misjudge\\_soils\\_carbon\\_emissions\\_20150829](http://www.truthdig.com/report/item/climate_models_may_misjudge_soils_carbon_emissions_20150829)

# The learning curve of Wheatbelt soils

KEN WILSON

06 Sep, 2015 01:00 AM





The proof of the pudding is healthy soil and this clod is a good example of how topsoil can deepen while becoming more fertile with the right agronomic management. The grey area reflects the 'growth' of topsoil as soil matter oxidises and



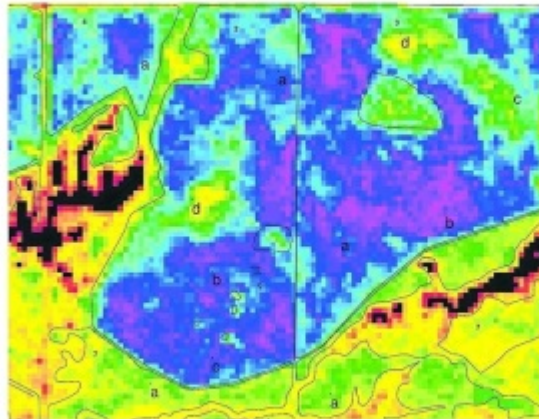
Wongan Hills farmer Brad West (left) and Soil Fertility Management principal Adriaan de Waal inspect a healthy crop of Mace wheat.



Have shovel, will travel ... Soil Fertility Management principal Adriaan de Waal.



August 2009



This biomass image is an indicative sample showing soil type variability across a paddock, and the change in biomass over time after different amelioration treatments.

*Get the full 30cm topsoil profile fixed and you'll overcome 80 per cent of the yield losses*

WA grain growers are on a steep learning curve to combat subsoil acidity and improve soil fertility.

Arguably those two subjects represent the biggest problems - along with soil compaction and nitrogen management - associated with farm profitability.

Yet South African soil scientist Adriaan de Waal says there's evidence that gives hope to increasing crop yield potential and therefore profitability.

<http://www.farmweekly.com.au/news/agriculture/agribusiness/general-news/the-learning-curve-of-wheatbelt-soils/2742004.aspx>

## Work on barren soil may bear fruit

By **Chinese Academy of Sciences** 25 August 2015 | 12:35 pm EDT





Australian and Chinese scientists have made significant progress in determining what causes soil acidification – a discovery that could assist in turning back the clock on degraded croplands.

James Cook University's Associate Professor Paul Nelson (pictured above) said the Chinese Academy of Sciences sought out the Australian researchers because of work they had done in Australia and Papua New Guinea on the relationship between soil pH levels and the management practices that cause acidification. <http://www.agprofessional.com/news/work-barren-soil-may-bear-fruit>

## Study proposes new approach to retaining soil carbon

11 September 2015

For those familiar with the practice of composting, seeing—and smelling—the breakdown of plant and organic material over a long period of time is quite familiar. In a Colorado State University-led study, published in the journal *Nature Geoscience*, a new approach to soil management for carbon sequestration may help combat climate change.

Read more at: <http://phys.org/news/2015-09-approach-retaining-soil-carbon.html#jCp>

## Is it true that some medicines come from the soil?

15 August 2015 · by soilsmatter2011 · in Food, Gardening, Human health, Life in Soil, Things Made from Soil. ·

We're not taking soil pills as medicine! But, it is true that some of our modern medicines have their roots in soils. As explored in a previous Soils Matter post (<https://soilsmatter.wordpress.com/2015/07/14/is-it-true-bacteria-live-in-the-soil-isnt-that-bad/>), soil is full of biodiversity. One gram of soil contains 100



Many medicines have their roots in soils.

<https://soilsmatter.wordpress.com/2015/08/15/is-it-true-that-some-medicines-come-from-the-soil/>

## Stations reverse degradation

13 Sep, 2015 02:00 AM



Improved landscape condition has enabled cattle to be re-introduced onto Wyndham Station. It was formerly only capable of carrying sheep.



Ashley McMurtrie, Gilgunnia Station near Cobar NSW, in the paddock in which regenerative practices were originally trialed - now comprising thriving perennial pastures.



Regrowth on banks installed at Gilgunnia Station to slow and distribute rainfall runoff, reducing erosion and improving infiltration.

*Without the development and success of this model we would have remained financially static*

HOW are farmers restoring and conserving their soils? That's the question that Soils for Life seeks to answer by collating outstanding land management practices from around Australia.

Soils for Life was developed by the former governor-general, Major General the Hon. Michael Jeffery, out of his concern that Australia's productive soils are not being universally well managed.



<http://www.farmweekly.com.au/news/agriculture/livestock/general-news/stations-reverse-degradation/2743105.aspx>

# Of all the soil-y things

Stuart Reitz 6 Sept 2015

It's a good time of year for a celebration or two. Not only has the football season kicked off, but the Food and Agricultural Organization of the United Nations has declared 2015 as the International Year of Soils. [http://www.argusobserver.com/valley\\_life/of-all-the-soil-y-things/article\\_f7825dda-53f4-11e5-9bd5-536a7d15aabe.html](http://www.argusobserver.com/valley_life/of-all-the-soil-y-things/article_f7825dda-53f4-11e5-9bd5-536a7d15aabe.html)

## Soils protect the natural environment

By Soil Science Society of America August 28, 2015 | 12:30 pm EDT



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. September's theme is "Soils Protect the Natural Environment."

<http://www.agprofessional.com/news/soils-protect-natural-environment>



**Soils protect the natural environment**

[https://www.youtube.com/watch?v=hpMG43oFin4&feature=player\\_embedded](https://www.youtube.com/watch?v=hpMG43oFin4&feature=player_embedded)

# Precision ag digs deep

MATTHEW CAWOOD  
12 Sep, 2015 02:00 AM



Michael Eyres of Injekta Field Systems in a soil pit at Deneliquin, NSW.

## RELATED

PRECISION agriculture has produced some astonishing technology for engaging with land and crops, but a lot of seed still lands in soil environments that are hostile to strong plant growth.

Enter “surcometrics”, a term devised by independent consultants Injekta Field Systems. “Surco” is Spanish for furrow; surcometrics is precision ag within the furrow. <http://www.farmweekly.com.au/news/agriculture/cropping/general-news/precision-ag-digs-deep/2742730.aspx>

# Soil area the size of Berlin lost each year due to water erosion in the EU

2 September 2015

A recent assessment carried out by the JRC estimates that water erodes 970 million tonnes of soil every year in the EU. This would mean a one metre-depth loss of soil from an area corresponding to the size of the city of Berlin, or a one centimetre loss from an area twice the size of Belgium. The fact that it takes 100 years to form 1 cm of new soil under natural temperate grasslands gives an idea of the magnitude of the problem of soil loss in the EU.

Read more at: <http://phys.org/news/2015-09-soil-area-size-berlin-lost.html#jCp>

## Fingerprinting erosion

*Solving the mystery of erosion in the south Tobacco Creek watershed*

2 September 2015 - You may have noticed that after a heavy rainstorm, creeks and rivers often turn the color of chocolate milk. That cloudy brown color is caused by sediments—weathered rock material ranging in size from tiny granules of mud to stones. As it courses along, water sweeps up sediments in the well-known process of erosion. Eventually, the sediments find a home, sometimes in a place where it isn't wanted. And, it's not just mud and sand that gets carried to water sources. Contaminants often catch a ride to waterways by clinging to sediments.





*Soil experts David Lobb and Dr. Sheng Li check sediment collection traps. The sediment is collected annually to track the origin and pattern of soil migration. Photo credit Landice Yestrau.*

Soil scientist David Lobb investigates the origin of these nomadic sediments. His work is in the Tobacco Creek Watershed, a collection of streams that flow into the Red River and ultimately dump into Lake Winnipeg, Canada. Lake Winnipeg is the final resting place of three major rivers, making it the second largest watershed in Canada. It feels the effects of activity

<https://www.soils.org/newsroom/releases/2015/0902/691/>

## What does soil health have to do with my health?

1 August 2015·by soilsmatter2011· in Conservation, Farming, Food, Gardening, Human health. ·



The nutrients you get from eating vegetables comes from soil! Credit: Mary Beth Adams

Healthy humans indeed need healthy soils!

1. Healthy soils grow healthy, nutrient-rich foods. The calcium in your broccoli comes directly from soil. Wheat kernels contain protein that the wheat plant made with nitrogen present in soils. If the soil is deficient in any of these nutrients, the crops grown won't be as nutritious as crops grown in healthy soil. If you have a home garden, consider having your soil tested by a local

<https://soilsmatter.wordpress.com/2015/08/01/what-does-soil-health-have-to-do-with-my-health/>

# Agricultural practices unknowingly cause poisoning of lake catchment

14 September 2015 by David Stacey



Agricultural clearing and drains installed by farmers to lower water tables and manage salinity are inadvertently impacting waterways in one of the largest and most botanically significant regions in Australia, according to new research from The University of Western Australia.

Read more at: <http://phys.org/news/2015-09-agricultural-unknowingly-poisoning-lake-catchment.html#jCp>

## Sustainable ag must pay

COLIN BETTLES

25 Aug, 2015 02:00 AM



Soils for Life Chairman and former Governor General, Major-General Michael Jeffery.



About 30 stakeholders attended the high level industry roundtable in Canberra.

*If farmers are being screwed to produce more with less...they'll eventually kill their soils*

AUSTRALIAN farmers must be paid fairly for producing food and fibre that meet increasing consumer expectations on social and ethical outcomes like climate change and the environment.

That was a key point raised at a high level industry roundtable of about 30 stakeholders in Canberra recently where the contents of a new report by the Centre for Policy Development (CPD) were debated.

<http://www.farmweekly.com.au/news/agriculture/agribusiness/general-news/sustainable-ag-must-pay/2740725.aspx>

# Soil sampling – how to read your soil test results

Sean Cummins 3 September 2015



With 90% of Irish soils having sub optimal fertility (pH, Phosphorous (P) or Potassium (K)), Teagasc has recommended September as the ideal month to soil test on Irish farms.

Soil sampling has been highlighted as one of the key steps in addressing this issue, and identifying which nutrient is lacking and where they are required.

Once the test has been completed the next step is interpreting the results. According to Teagasc's Mark Plunkett the pH should be addressed first.

<https://www.agriland.ie/farming-news/soil-sampling-how-to-read-your-soil-test-results/>

## Celebrating soils: Why are they so important for our climate?

---

26 Aug 2015, 16:25  
Professor Pete Smith





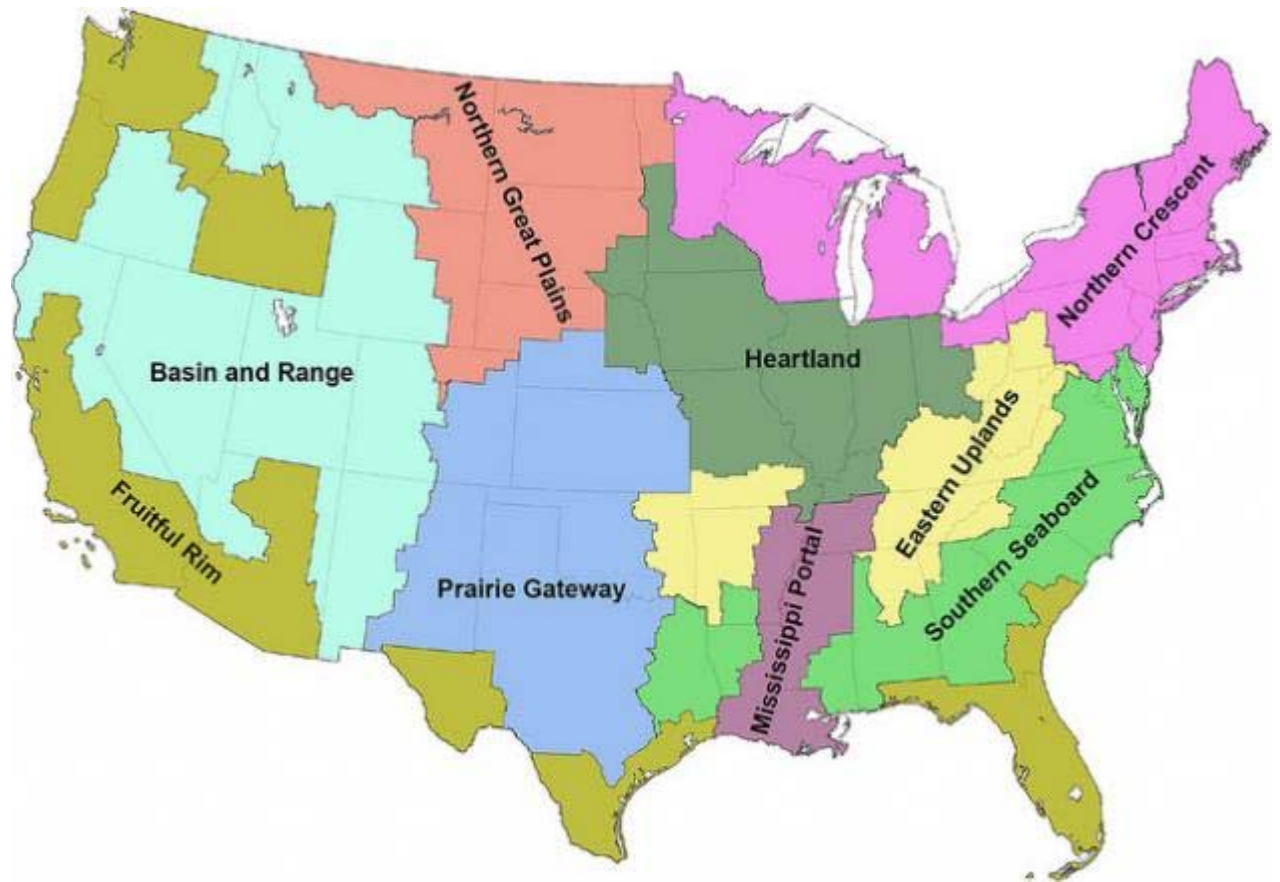
*Irish peat bog. Credit: [Shutterstock](#)*

*A guest post from Prof Pete Smith, Professor of Soils & Global Change at the University of Aberdeen and Coordinating Lead Author of the Agriculture, Forestry and Other Land Use (AFOLU) chapter from Working Group III of the IPCC's Fifth Assessment Report.*

From the 800th anniversary of the Magna Carta to the 60th birthday of the Birds Eye Fish Finger, there are plenty of reasons to mark 2015 as an important year. But you could be forgiven for being unaware that 2015 is also the UN <http://www.carbonbrief.org/blog/2015/08/why-are-soils-so-important-for-our-climate/>

## Study of U.S. farm data shows loss of crop diversity the past 34 years

By Mary Lou Peter, K-State Research & Extension News September 15, 2015 | 12:45 pm EDT



A study by Kansas State University, the U.S. Department of Agriculture and North Dakota State University examined crop diversity data from Farm Resource Regions developed by the USDA Economic Research Service.

U.S. farmers are growing fewer types of crops than they were 34 years ago, which could have implications for how farms fare as changes to the climate evolve, according to a large-scale study by Kansas State University, North Dakota State University and the U.S. Department of Agriculture. Less crop diversity may also be impacting the general ecosystem.

“At the national level, crop diversity declined over the period we analyzed,” said Jonathan Aguilar, K-State water resources engineer and lead researcher on the study. <http://www.agprofessional.com/news/study-us-farm-data-shows-loss-crop-diversity-past-34-years>

<b>Dust activity</b>	no dust recorded at any site across the network
<b>Wind strength</b>	twice as windy as June, average for the month of July
<b>Groundcover</b>	increasing across the board, some isolated bare paddocks
<b>Rainfall</b>	wet in central NSW, dry in the north
<b>Land management</b>	isolated bare paddocks prepared for spring sowing

## Groundcover change

Groundcover has continued to increase across the board in both cropping and grazing environments over the three months between April 2015 and July 2015 (Green colours in Figure 3). Some fire scars are showing up as groundcover reductions (red colours in Figure 3) in the Mallee Catchment Management Authority area, in northern Victoria and in central South Australia. Also visible are groundcover reductions in the lake beds of central South Australia.

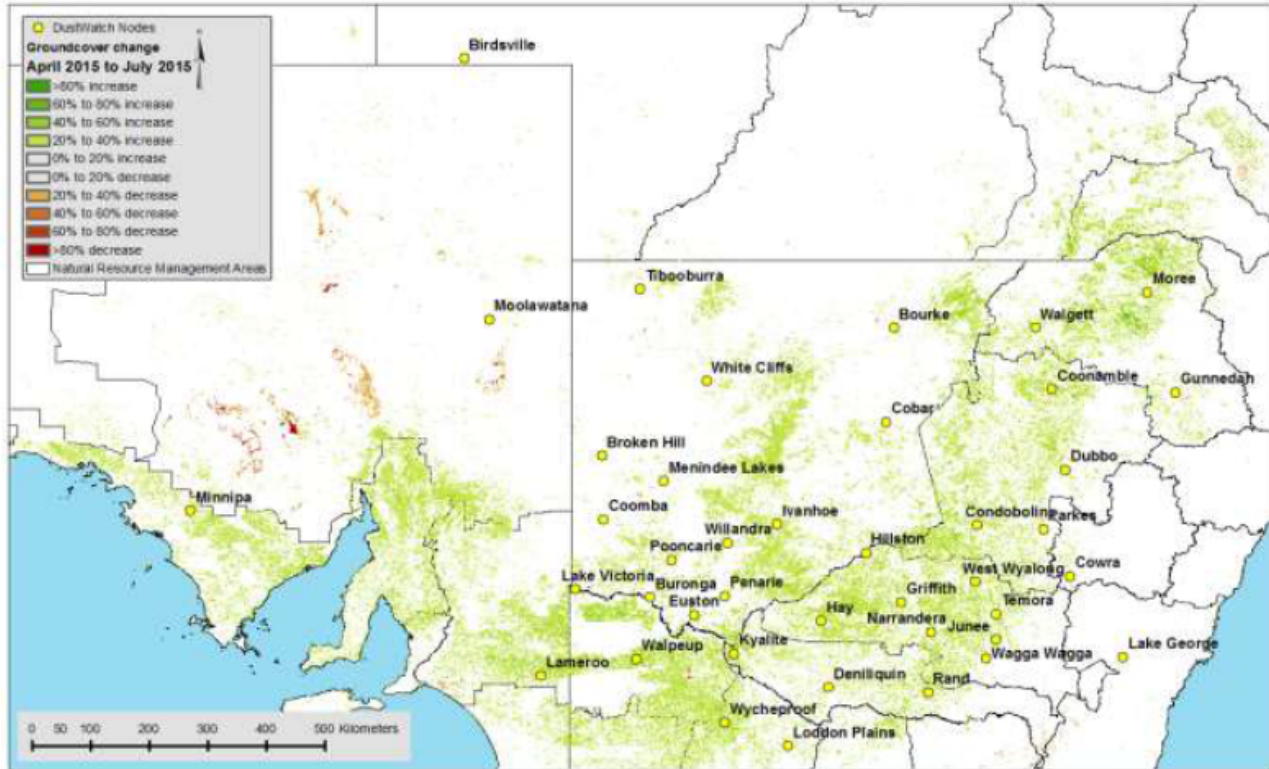


Figure 3: Groundcover change between April 2015 and July 2015 as determined from MODIS data.



<http://www.environment.nsw.gov.au/resources/dustwatch/150564-dustwatch-july15.pdf>

# Earthworms help smallholders increase crop yields

11 September 2015 by Sally Nyakanyanga, Scidev.net



Credit: Petterik Wiggers/Panos

A project in Zimbabwe is promoting the use of earthworms to enable the country's small-scale farmers improve soil fertility and boost crop yields.

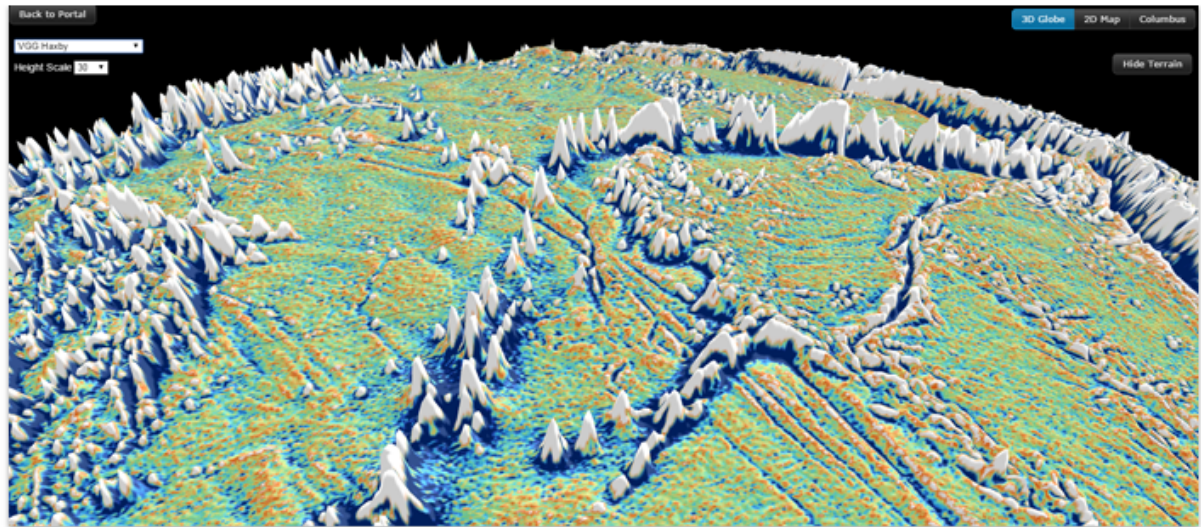
Read more at: <http://phys.org/news/2015-09-earthworms-smallholders-crop-yields.html#jCp>

# Seafloor geology map a world first

The first digital map of the global seafloor, thanks to University of Sydney School of Geosciences, will help scientists better understand how the oceans have responded, and will respond, to environmental change. It also reveals



the deep ocean basins to be much more complex than previously thought.



## Welcome to GPLates Portal

This page is a gateway to a series of web pages for the interactive visualisation of cutting-edge geoscientific datasets, all possible within freely available web browsers. Use the links on the left side of this page to access visualisations of:

- The new version of the **vertical gravity gradient** derived from satellite altimetry
- **Plate tectonic reconstructions of gravity data** created using GPLates
- **Dynamic surface topography maps** based on simulations of mantle convection (*Industry Sponsors Only*)

<http://portal.gplates.org/#WELCOME>

# Earth from beyond the far side of the Moon

Friday, 21 August 2015 EARTH IMAGE with Stuart Gary  
ABC

---



(Source: NASA/DSCOVR/NOAA/USAF)

**Earth Image We see a unique view of the far side of the Moon as it transits in front of Earth.**

The image was captured by NASA's new space weather spacecraft from its perch 1.6 million kilometres away.

The moon's far side, which is not visible from Earth, lacks the large, dark, basaltic plains, called maria, which give the side facing Earth its characteristic 'man in the moon' appearance.

The dark patch on the Moon's upper left is the Mare Moscoviense or Sea of Moscow, while Tsiolkovskiy crater is visible in the lower left.

<http://www.abc.net.au/science/articles/2015/08/21/4296866.htm>

## Quakes away from plate boundaries may be triggered by mantle flow

Thursday, 27 August 2015 Stuart Gary  
ABC





*A new study may help explain what causes intraplate earthquakes such this one in South Australia (Geosciences Australia)*

**Earthquakes occurring away from tectonic plate boundaries can be triggered by the rise and fall of hot material through the Earth's mantle, according to a new study.**

The findings reported in the journal *Nature* are based on surveys of an earthquake-prone region of the western United States called the intermountain seismic belt, and may also help explain intraplate earthquakes in other locations, including Australia.

<http://www.abc.net.au/science/articles/2015/08/27/4300558.htm>

## Cotopaxi Keeps Rumbling as Ecuador Prepares for Eruption



Billowing ash from this week's eruptions of Cotopaxi in Ecuador, taken from near Chilcabamba Eco Lodge. *Lucas Bustamante / Destination Ecuador (Used by Permission)*

Cotopaxi in Ecuador continues to rumble after its first eruption in 70 years earlier this month. Over the last week, the volcano has been emitting almost constant steam-and-ash plumes punctuated by small explosions—all signs that magma is rising into the volcano. The steam-and-ash plumes have mostly been 1-2 kilometers in height and rangers in the National Park surrounding the volcano have reported a few millimeters of fine ash fall. You can check out some pictures of how this ash is impacting the local communities, where farmers have said that their livestock is beginning feel the effects. Ash from Cotopaxi has reached as far as the Pacific Ocean (see below) during this week of unrest. Dozens of earthquakes along with constant harmonic tremor were recorded at Cotopaxi over the last day as well.

<http://www.wired.com/2015/08/cotopaxi-continues-rumble-ecuador-prepares-eruption/>

## World's longest continental volcano chain in Australia

Scientists have discovered world's longest known chain of continental volcanoes, running 2,000 kilometers

**Source:**

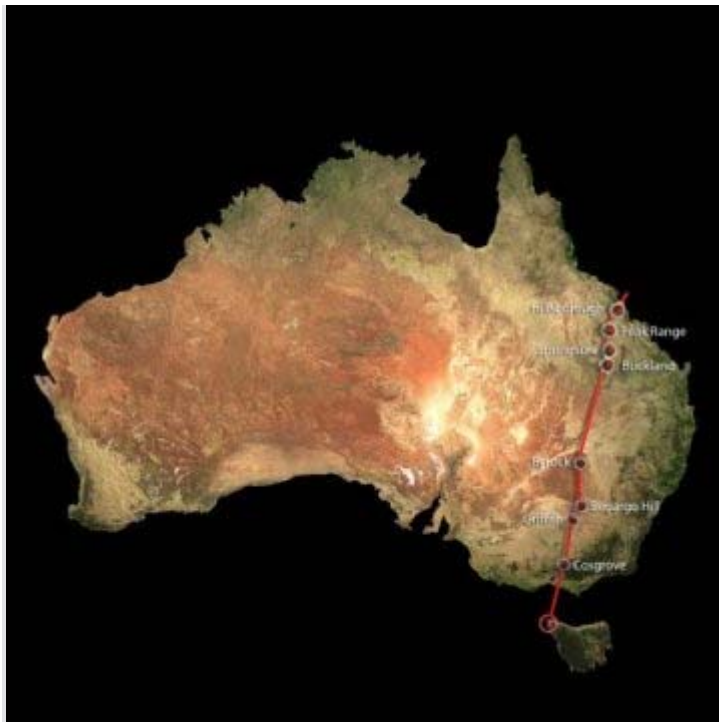
Australian National University

**Summary:**

Scientists have discovered the world's longest known chain of continental volcanoes, running 2,000 kilometers across Australia, from the Whitsundays in North Queensland to near Melbourne in central Victoria. The volcanic chain was



created over the past 33 million years, as Australia moved northwards over a hotspot in Earth's mantle.



The Cosgrove volcano track is shown.

*Credit: Drew Whitehouse, NCI National Facility VizLab*

Scientists have discovered the world's longest known chain of continental volcanoes, running 2,000 kilometres across Australia, from the Whitsundays in North Queensland to near Melbourne in central Victoria.

---

#### **Journal Reference:**

D. R. Davies, N. Rawlinson, G. Iaffaldano, I. H. Campbell. **Lithospheric controls on magma composition along Earth's longest continental hotspot track.** *Nature*, 2015; DOI: [10.1038/nature14903](https://doi.org/10.1038/nature14903)

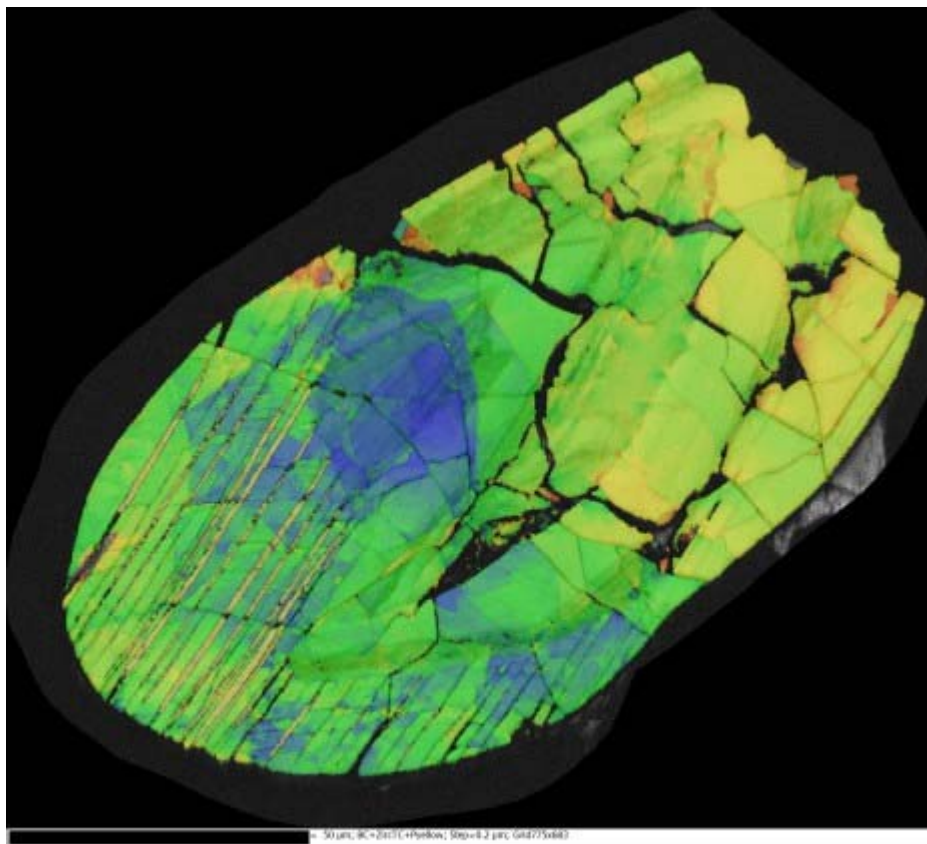
<http://www.sciencedaily.com/releases/2015/09/150914114637.htm>

# Breakthrough mineral discovery points to ancient meteorite impacts

Media release

Tuesday 1 September 2015

A team of Curtin University geoscientists has discovered the earliest known occurrence of reidite, one of Earth's rarest minerals. At 1.2 billion years, the finding is more than double the age of the previous oldest known occurrence at 450 million years.



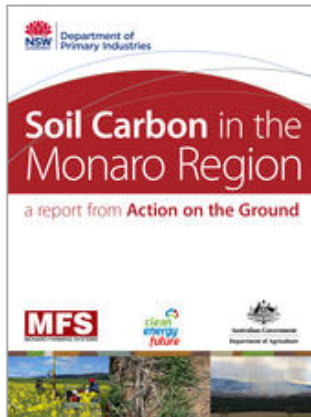
Working with the University of St Andrews, the team, led by Professor Steven Reddy from the Institute for Geoscience Research (TIGeR) at Curtin's Western Australian School of Mines, discovered the reidite in shocked zircon from impact ejecta at Stac Fada in Scotland. He said reidite is important because it is only known to form in nature during meteorite impact events. <http://news.curtin.edu.au/media-releases/breakthrough-mineral-discovery-points-to-ancient-meteorite-impacts/>

# Soil Carbon in the Monaro Region

A report from Action on the Ground

Abigail Jenkins

This book is available for download with iBooks on your Mac or iOS device, and with iTunes on your computer. You can also read with iBooks on your Mac or iOS device.



## Description

Monaro Farming Systems (MFS) is a regional landholder group initiated and developed by the NSW Government. The group was set up, primarily, as a knowledge- and information-based organisation, to help farmers become more profitable and resilient in the long term. In this way it allows peers and researchers to share ideas and improve practice and innovation in farming systems. The group has over 100 individual members across Bombala, Cooma-Monaro and Snowy River Shires. These members manage approximately 80,000ha of land on the Monaro region (over 80,000ha) and are responsible for approximately 40% of the region's agricultural production.

**The Monaro soil carbon project** aimed to demonstrate the impact of farm management practices on soil carbon concentration and stock of carbon in soil over a two year period. Eight different landholders from the Monaro Farming Systems group. The practices of interest included li

<https://itunes.apple.com/au/book/id1035198100>





NSW Branch operating under the  
auspices of  
ASSSI Federal Council

President: Dr. Jane Aiken, [jane\\_aiken@bigpond.com](mailto:jane_aiken@bigpond.com)

Vice President: Dr. Peter Bacon, [woodlots3@bigpond.com](mailto:woodlots3@bigpond.com)

Secretary: Justine Cox, [justine.cox@dpi.nsw.gov.au](mailto:justine.cox@dpi.nsw.gov.au)

General Contact details: [nsw@soilscienceaustralia.org](mailto:nsw@soilscienceaustralia.org)

## Harald Jensen Lecture 2015

The Harald Jensen Lecture is an annual lecture held by the NSW Branch of the Australian Society of Soil Science, as a forum to discuss and reflect upon contemporary and historical soil science issues. It is our great pleasure that Rebecca Lines-Kelly will deliver the 2015 Harald Jensen Lecture.

### 'Sharing the love: Two decades of soils communication'

**Rebecca Lines-Kelly**

Rebecca Lines-Kelly joined NSW DPI in 1992 to make soils exciting. A journalist by training, she knew nothing about her subject, but fell in love with the mysterious fabric beneath our feet. Learning as she went, she inspired landholders and advisers to learn about the wonders and potential of our soils. In this year's Harald Jensen lecture Rebecca reflects on changes she has seen in soils communication over the past 20 years and the insights she has gained.

<b>When?</b>	<b>Friday 18th September 2015</b>
<b>Where?</b>	<b>Lismore, Southern Cross University, Campus Building P158 – (Access Rifle Range Road) (<a href="http://scu.edu.au/about/index.php/23">http://scu.edu.au/about/index.php/23</a>)</b>
<b>Time?</b>	<b>5 pm to 6 pm</b>

**LECTURE and ONLINE WEBINAR @ 5:15 PM**

**11am Wollongbar; 1:30 pm Southern Cross University (Soil Networking Showcase);  
5 pm Harald Jensen Lecture; 7 pm Cocktail style Dinner**

**Out of town? Hear the lecture via WEBINAR - live or at a later date!**

**Cost (Dinner Ticket - Member or Non-Member - \$35.00 (Student or Retired \$20.00)**

**RSVP Monday 14th September – Payment and registration via [Events \(Soil Science Australia\) webpage](#)**

**Contact – Justine Cox | [justine.cox@dpi.nsw.gov.au](mailto:justine.cox@dpi.nsw.gov.au) | P: 02 6626 1197**

**Cheques | Soil Science Australia NSW Branch | Bank transfer (see booking webpage)**

**Student, non-member? Receive a free dinner ticket by joining the Society! RSVP your dinner booking and then finalise your membership application.**

Australian Society of Soil Science Inc

ABN 96 080 783 106

Federal Office:

PO Box 1349 WARRAGUL, Victoria 3820

Ph: +61 3 5622 0804 Fax: +61 3 5622 0806 Email: [office@soilscienceaustralia.org](mailto:office@soilscienceaustralia.org)

Web: <http://www.soilscienceaustralia.com.au/>

# Science for Environment Policy

## Geodiversity information enhances biodiversity conservation

**Geodiversity describes the diversity of the non-biological parts** of the natural world such as rocks, soils, landforms and the processes which shape them over time. New research on how geodiversity information has been used to examine or inform conservation policy has been explored through eight different case studies. The research shows the variety and utility of geodiversity information to support biodiversity protection, both now and in the future.

**Scientists can use geodiversity information to design conservation networks** based on the different physical environments within a region. These networks can reveal the non-biological variation which is necessary to maintain a diversity of species and ecological processes. Conservation networks based on geodiversity can also show changes in species composition caused by climate change.

[http://ec.europa.eu/environment/integration/research/newsalert/pdf/geodiversity\\_information\\_enhances\\_biodiversity\\_conservation\\_424na5\\_en.pdf](http://ec.europa.eu/environment/integration/research/newsalert/pdf/geodiversity_information_enhances_biodiversity_conservation_424na5_en.pdf)

## Book

### Valuing Nature: Protected Areas and Ecosystem Services



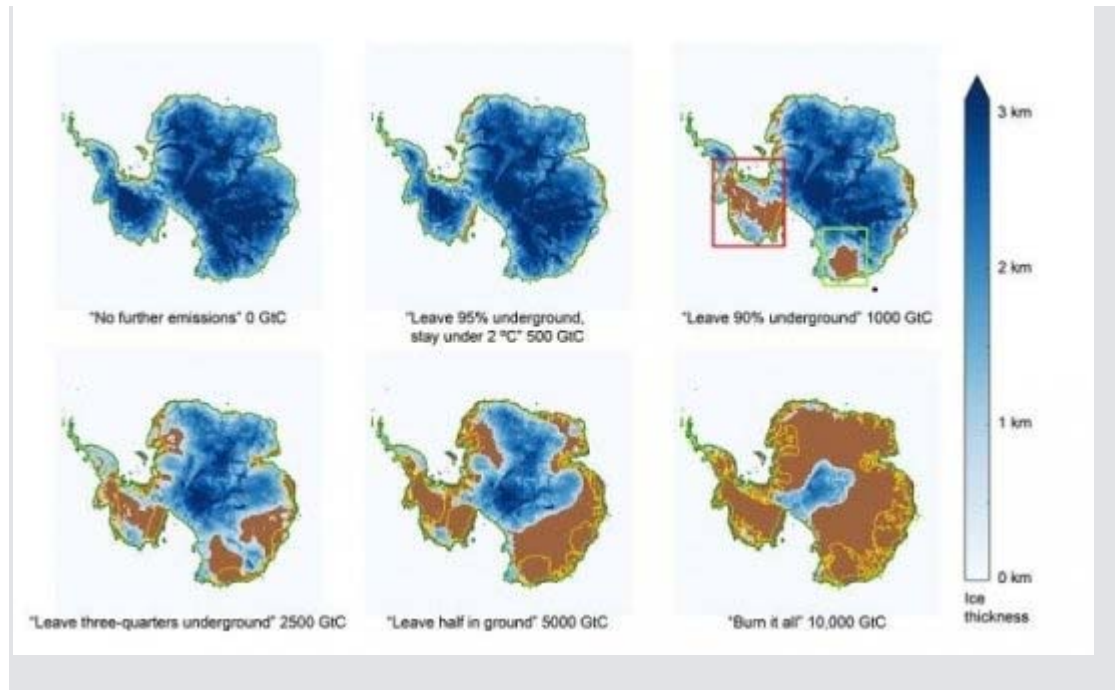
Publisher: Australian Committee for IUCN, ISBN: 978-0-9871654-5-9

**ABSTRACT** This publication brings together the key concepts, case studies and recommendations presented at a symposium entitled Valuing Nature: Protected Areas and Ecosystem Services held in Brisbane, Australia on 21-22 July 2014. The symposium [more]

[http://www.researchgate.net/publication/279950469\\_Valuing\\_Nature\\_Protected\\_Areas\\_and\\_Ecosystem\\_Services](http://www.researchgate.net/publication/279950469_Valuing_Nature_Protected_Areas_and_Ecosystem_Services)

# Burning remaining fossil fuel could cause 60-meter sea level rise

New work demonstrates that the planet's remaining fossil fuel resources would be sufficient to melt nearly all of Antarctica if burned, leading to a 50- or 60-meter (160 to 200 foot) rise in sea level. Because so many major cities are at or near sea level, this would put many highly populated areas where more than a billion people live under water, including New York City and Washington, D.C.



This chart shows how Antarctic ice would be affected by different emissions scenarios. (GtC stands for gigatons of carbon.) It is provided courtesy of Ken Caldeira and Ricarda Winkelmann.

*Credit: Ken Caldeira and Ricarda Winkelmann*

New work from an international team including Carnegie's Ken Caldeira demonstrates that the planet's remaining fossil fuel resources would be sufficient to melt nearly all of Antarctica if burned, leading to a 50- or 60-meter (160 to 200 foot) rise in sea level. Because so many major cities are at or near sea level, this would put many highly populated areas where more than a billion people live under water, including New York City and Washington, DC. It is published in *Science Advances*.

#### Journal Reference:

Ricarda Winkelmann, Anders Levermann, Andy Ridgwell, and Ken Caldeira. **Combustion of available fossil fuel resources sufficient to eliminate the Antarctic Ice Sheet.** *Science Advances*, 2015 DOI: [10.1126/sciadv.1500589](https://doi.org/10.1126/sciadv.1500589)  
<http://www.sciencedaily.com/releases/2015/09/150911164146.htm>



**“I mean, you could claim that *anything's* real if the only basis for believing in it is that nobody's *proved* it doesn't exist!”**

— [J.K. Rowling](#)