

Hi All

Greetings and welcome to the first Daily Soils Digest of 2015, the International Year of Soils.

Many CoP members would know Ric Morse, ex NSW Soil Conservationist and Catchment Areas Investigations Officer in the 1980s. Ric has been honoured with an Australia medal in this years Australia Day awards for his significant service to environmental management through erosion and sediment control practices, and to professional associations.

Regards

Brian

# Soils could keep contaminants in wastewater from reaching groundwater, streams

By Jeff Mulhollem  
22 January 2015



Corn Irrigation at Penn State's "Living Filter"  
Image: Emily Woodward/Penn State

UNIVERSITY PARK, Pa. -- With endocrine-disrupting compounds affecting fish populations in rivers as close as Pennsylvania's Susquehanna and as far away as Israel's Jordan, a new research study shows that soils can filter out and break down at least some of these emerging contaminants. The results suggest that water pollution can be diminished by spraying treated wastewater on land rather than discharging it directly into streams, according to researchers in Penn State's College of Agricultural Sciences

<http://news.psu.edu/story/341785/2015/01/22/research/soils-could-keep-contaminants-wastewater-reaching-groundwater>

# Soil scientists working on a global awareness program during International Year of Soils

ABC Rural By Sally Dakis

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Updated 1 Jan 2015, 3:36pm



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

**The UN is using 2015, the International Year of Soils, to generate awareness of the profound importance of soil for human life.**

MAP: Hobart 7000



Soil scientist at the University of Tasmania Dr Richard Doyle says while the Year of Soils is a global initiative, Australian consumers and scientists can play a role.

Richard Doyle believes there's been an under investment in soil science, and he's calling on the private sector to help.

<http://www.abc.net.au/news/2015-01-01/international-year-soils/5996118>

## International Year of Soils

UD's Vargas part of United Nations publication on benefits of soil carbon



A team of researchers, including UD's Rodrigo Vargas, has written on the benefits of soil carbon for a United Nations publication.

2:04 p.m., 20 Jan. 2015--The University of Delaware's Rodrigo Vargas is part of an international team of researchers who have identified advances on the benefits of soil carbon in an effort to address serious environmental challenges affecting millions of people around the globe.

Their findings were released on World Soil Day last month in Volume 71 of the United Nations' Scientific Committee for Problems of the Environment (SCOPE) series titled "Soil Carbon: Science, Management and Policy for Multiple Benefits," which was published by the intergovernmental scientific research organization CABI.

<http://www.udel.edu/udaily/2015/jan/soil-carbon-012015.html>

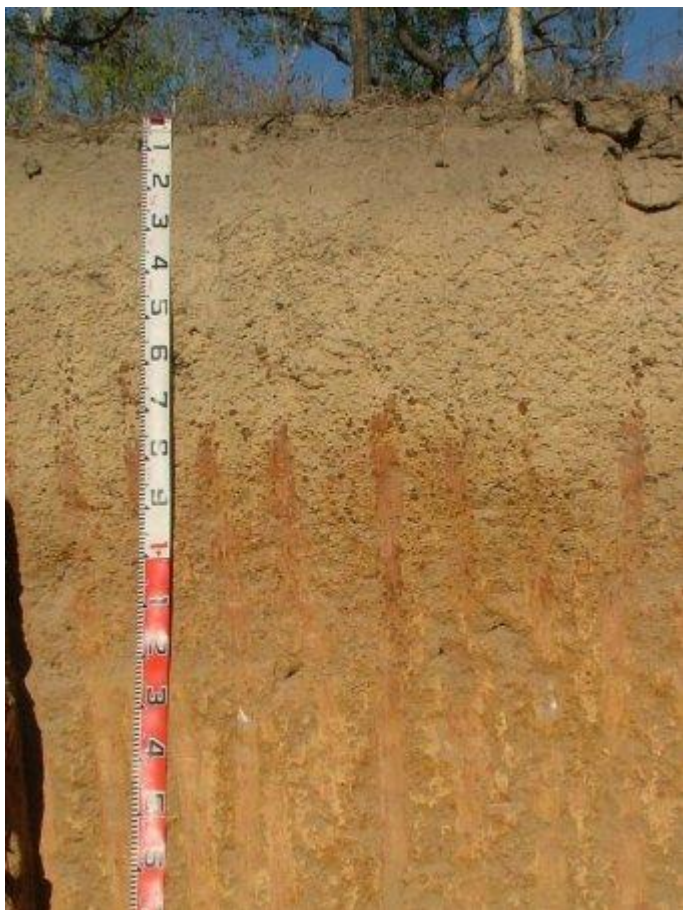
## "Soils aren't sexy" but they are an important part of developing agriculture in the Northern Territory

NT Country Hour

Daniel Fitzgerald

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Updated Thu at 11:27am Thu 22 Jan 2015, 11:27am



**Photo:** A soil profile from the Katherine region.

While those who study soil admit that that "soils aren't sexy", they do acknowledge they are very significant.

2015 is the United Nations International Year of Soils and despite not being all that sexy, researchers say soil is incredibly important not just to agriculture, but to the environment.

In the Northern Territory, the management of soil is crucial to the development and positioning of new agricultural opportunities. <http://www.abc.net.au/news/2015-01-21/international-year-of-soils-nt/6027018>

## **Sagebrush ecosystem recovery hobbled by loss of soil complexity at development sites**

7 hours ago



Homogenized bare soil surrounds a wellhead on a typical natural gas well pad that has been prepared for interim reclamation. Credit: Tamera Minnick.

In big sagebrush country, re-establishing the ecosystem's namesake shrub may jump-start the recovery process more successfully after oil and gas development than sowing grass-dominated reclamation seed mixes typically used to quickly re-vegetate bare soil on well pads, report two Colorado scientists in the January 2015 issue of *Ecological Applications*, released today.

Read more at: <http://phys.org/news/2015-01-sagebrush-ecosystem-recovery-hobbled-loss.html#jCp>

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## The secret of black soil

Every day millions of people around the world literally flush away what could be one of the most valuable resources when it comes to growing food. Environmentalists like Dennis Raetzel are trying to change that.



At a vegetable garden tucked away behind an old metal factory building in an industrial area in eastern Berlin, Dennis Raetzel tends to his plants. He walks along the 40 raised beds made of old wooden crates.

"These are called 'tomatillos' - they're green tomatoes from Mexico. We also have corn and pumpkins," he says. <http://www.dw.de/the-secret-of-black-soil/a-18199797>

## Salt tolerance gene in soybean found

The researchers, at the University of Adelaide in Australia and the Institute of Crop Sciences in the Chinese Academy of Agricultural Sciences in Beijing, have identified a specific gene in soybean that has great potential for soybean crop improvement.

"Soybean is the fifth largest crop in the world in terms of both crop area planted and amount harvested," says the project's lead, University of Adelaide researcher Associate Professor Matthew Gilliham. "But many commercial crops are sensitive to soil salinity and this can cause major losses to crop yields.

### Journal Reference:

1. Rongxia Guan, Yue Qu, Yong Guo, Lili Yu, Ying Liu, Jinghan Jiang, Jiangang Chen, Yulong Ren, Guangyu Liu, Lei Tian, Longguo Jin, Zhangxiong Liu, Huilong Hong, Ruzhen Chang, Matthew Gilliham, Lijuan Qiu. **Salinity tolerance in soybean is modulated by natural variation inGmSALT3**. *The Plant Journal*, 2014; 80 (6): 937 DOI: [10.1111/tbj.12695](http://dx.doi.org/10.1111/tbj.12695)

<http://www.sciencedaily.com/releases/2015/01/150109100949.htm>

Event

### Launch of the Wageningen Soil Network

The launch of the Wageningen Soil Network will take place on Monday afternoon 26 January at the Wageningen Campus.

Organised by	ISRIC, NIOO-KNAW, Alterra Wageningen UR, het Centre for Soil Ecology, Wageningen University (departementen Environmental Sciences, Plant Sciences), Praktijkonderzoek Plant & Omgeving (PPO) en Plant Research International (PRI) Wageningen UR
Date	Mon 26 January 2015
Time	16:00

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S (Simon) de Ridder  
[Contact form](#) + Show more (2)



Application

You are cordially invited to be present. In relation to the catering application is required.

International Year of Soils 2015

<http://www.wageningenur.nl/en/activity/Launch-of-the-Wageningen-Soil-Network.htm>

## Vegetation can help prevent soil erosion due to wind

Dust from soil erosion due to wind can affect human health, traffic, and, on a larger scale, climate. Investigators compared different models that quantify how the wind energy spreads over an

herbaceous surface using data from the Sahel region of Africa, where estimates of dust emissions remain uncertain. They found that the modeling tools give results in reasonable agreement, indicating that vegetation can decrease the amount of dust emitted from soil erosion by 6% to 26% in mass compared with bare soil.

#### Journal Reference:

1. C. Pierre, G. Bergametti, B. Marticorena, L. Kergoat, E. Mougin, P. Hiernaux. **Comparing drag partition schemes over a herbaceous Sahelian rangeland.** *Journal of Geophysical Research: Earth Surface*, 2014; 119 (10): 2291 DOI: [10.1002/2014JF003177](https://doi.org/10.1002/2014JF003177)

<http://www.sciencedaily.com/releases/2015/01/150120142706.htm>

# UM researcher helps NASA get the dirt on soil moisture

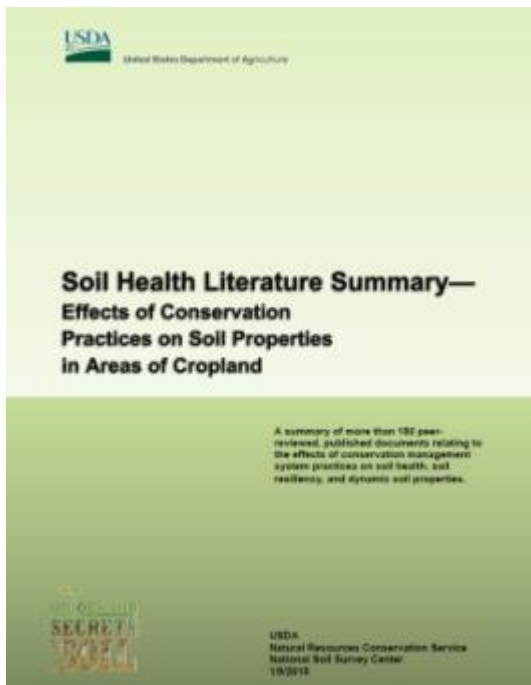
15 Jan 2015



SMAP's liftoff will look very similar to the liftoff of an earlier NASA Delta II Mission from Vandenberg AFB, in Jun. 2011. The Delta II vehicle pictured is the same type and configuration that will be used for SMAP and will be launched from the same pad (Space Launch Complex 2W) at Vandenberg AFB. Credit: NASA

During the early-morning hours on Tuesday, Jan. 29, NASA will launch a satellite that will peer into the topmost layer of Earth's soils to measure the hidden waters that influence our ecosystems weather and climate.

Read more at: <http://phys.org/news/2015-01-um-nasa-dirt-soil-moisture.html#iCp>



<http://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/soils/health/mgmt/?cid=stelprdb1257753>

## Agriculture: State-of-the-art soil

A charcoal-rich product called biochar could boost agricultural yields and control pollution. Scientists are putting the trendy substance to the test.



Jeff Hutchens/Getty

Biochar — a soil additive made by heating biological material — is catching attention as a means to improve crop growth and clean up contaminated water.

For more than 150 years, the Brooklyn Navy Yard constructed vessels that helped to stop the slave trade from Africa, lay the first undersea telegraph cable and end the Second World War. Now, this sprawling industrial facility in New York City is filled with artists, architects, producers of artisanal moonshine and people growing organic vegetables. On a drizzly day in autumn, Ben Flanner tends a sea of red and green lettuce on a 6,000-square-metre rooftop farm. <http://www.nature.com/news/agriculture-state-of-the-art-soil-1.16699>

## Could carbon farming save our soils?



Sustainable agricultural practices add essential carbon to soil's organic matter, which could be key to reviving soil quality.

By: [Tom Oder](#)

Tue, 13 Jan 2015 at 10:22 AM



Declining soil health could mean problems ahead as the world's population grows. (Photo: [U.S. Department of Agriculture](#)/flickr)

The world's soils are in jeopardy. Some scientists think agricultural soils are in such serious decline that the ability of the planet's farmers to [feed future generations](#) is seriously compromised.

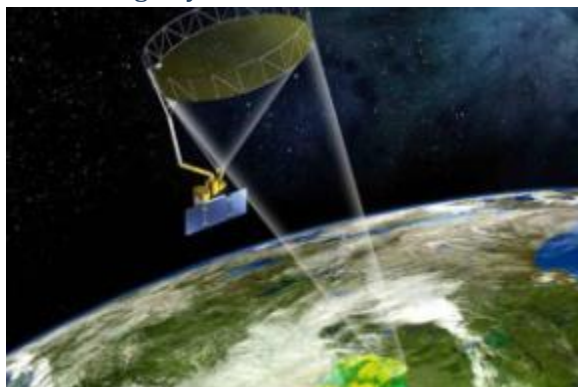
The United Nations is so concerned about the issue of soil health that after two years of intensive work, the General Assembly declared Dec. 5 to be World Soil Day and 2015 the International Year of Soils.

The goal of both events is to enhance awareness of the important roles soils play in human life, especially as populations increase and [global demand for food](#), fuel and fiber rise.

Read more: <http://www.mnn.com/your-home/organic-farming-gardening/stories/could-carbon-farming-save-our-soils#ixzz3PzuCH200>

## Scientist discusses three-year mission to study how soil, water, and carbon interact

10 hours ago by David L. Chandler



Artist's rendering of the SMAP instrument. Credit: NASA

Dara Entekhabi, an MIT professor of civil and environmental engineering and of earth, atmospheric and planetary sciences, is the science team leader of NASA's [Soil Moisture Active Passive \(SMAP\) satellite](#), scheduled to be launched from Vandenberg Air Force Base in California on Jan. 29. The satellite will provide measurements of the moisture in the top 2 inches of the soil, everywhere on Earth, over the course of its planned three-year mission, as well as specifying whether that water is liquid or frozen. Entekhabi discussed what he hopes this mission will be able to accomplish.

Read more at: <http://phys.org/news/2015-01-scientist-discusses-three-year-mission-soil.html#jCp>

## Simple soil mixture reverses toxic stormwater effects

A simple column of common soil can reverse the toxic effects of urban runoff that otherwise quickly kills young coho salmon and their insect prey, according to new research. The affordable and remarkably effective treatment offers new promise for controlling toxic pollutants that collect on paved surfaces and wash off as stormwater into rivers, streams and the ocean.

The affordable and remarkably effective treatment offers new promise for controlling toxic pollutants that collect on paved surfaces and wash off as stormwater into rivers, streams and the ocean. Polluted stormwater has been identified as a risk factor for many threatened and endangered salmon and steelhead and has caused die-offs of coho salmon in the Pacific Northwest.

### Journal Reference:

1. J.K. McIntyre, J.W. Davis, C. Hinman, K.H. Macneale, B.F. Anulacion, N.L. Scholz, J.D. Stark. **Soil bioretention protects juvenile salmon and their prey from the toxic impacts of urban stormwater runoff.** *Chemosphere*, 2015; DOI: [10.1016/j.chemosphere.2014.12.052](https://doi.org/10.1016/j.chemosphere.2014.12.052)

<http://www.sciencedaily.com/releases/2015/01/150120185956.htm>

## THIS WEEK IN YOUR GARDEN: 2015: the International Year of

Soilsgoogletag.display('ad160x600\_above');By Ginger Mynatt

Special to the Herald Democrat When I received the annual calendar that my step-daughter sends me from NRCS, I was surprised and pleased to learn that the United Nations General Assembly declared the year 2015, the International Year of Soils. NRCS/USDA, the Soil Science Society of America, Global Soil Partnership and many organizations from all over the world are participating to make us aware of how important soils are to our survival. The calendar focuses on twelve ways soils support our society. I have combined these into a shorter list to remind us that soils • sustain life through agriculture, forests, prairies, gardens and wetlands that are nurseries for marine life, as well as urban and rooftop gardens. • clean and capture water—they filter many unwanted chemicals from getting into our aquifers and reservoirs and thus preserve our natural environments. • support buildings—not just as a foundation but clay becomes bricks and rocks become building material. • support recreation—parks, hiking, camping, mountain climbing, fishing. - See more at: <http://heralddemocrat.com/living/lifestyle/week-your-garden-2015-international-year-soils#sthash.mnkUvVnL.dpuf>



<https://www.youtube.com/watch?v=403sT9CGRI0>

# New Zealand dairy industry's production predicted to fall as farmers face dry conditions and lowest milk prices in a decade

ABC Rural

By [Alex Blucher](#)

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Updated 39 minutes ago Tue 27 Jan 2015, 3:44pm



**Photo:** Dairy cows outside Christchurch in New Zealand graze on green grass, before the dry conditions hit.

New Zealand's dairy farmers are facing their most challenging conditions in over a decade.

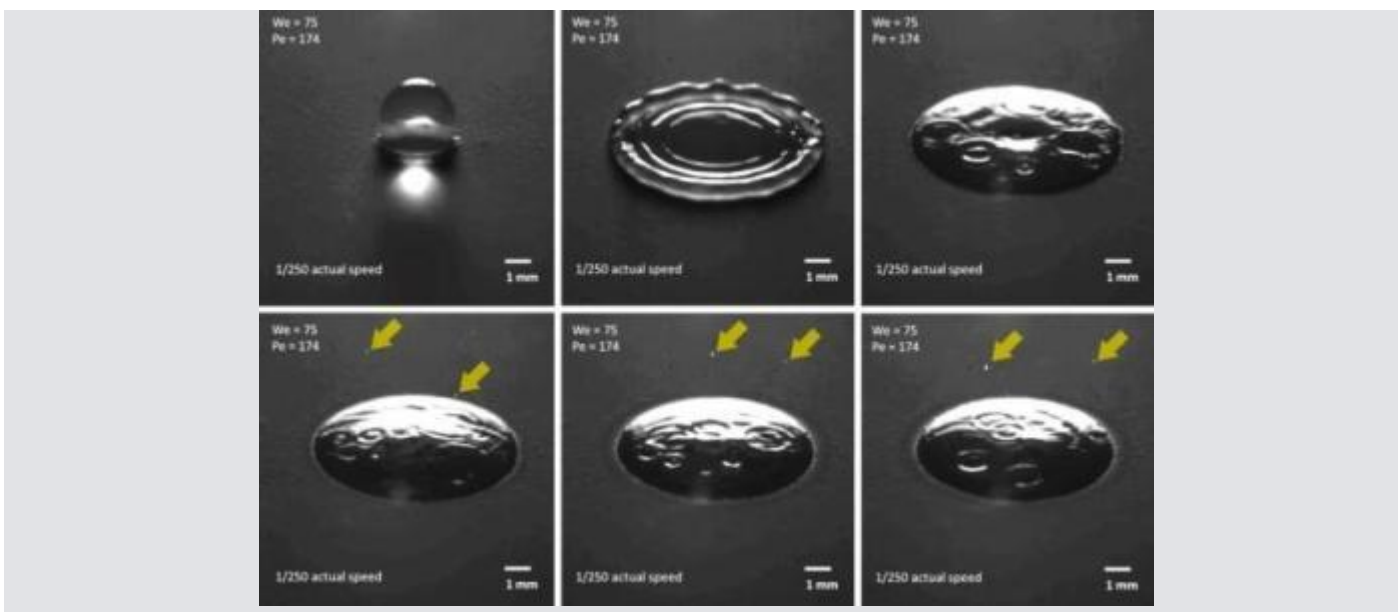
A lack of rain is leading to irrigation restrictions and, with milk prices dropping by a third, many farmers are choosing not to buy in supplementary feed.

Federated Farmers of New Zealand's dairy industry group chairman, Andrew Hoggard, said the country was teetering on the edge of a drought.

**Audio:** [New Zealand dairy industry's milk production predicted to fall as farmers face dry conditions and low milk prices\(ABC Rural\)](#)

"Drought hasn't officially been declared anywhere in New Zealand yet, but it is pretty bloody dry across most of the country really. <http://www.abc.net.au/news/2015-01-27/new-zealand-milk-production-drops-drought/6048694>

## Rainfall can release aerosols, study finds



Aerosol generation after drop impingement on porous media is a three-step process, consisting of bubble formation, bubble growth, and bubble bursting.

Credit: Youngsoo Joung

Ever notice an earthy smell in the air after a light rain? Now scientists at MIT believe they may have identified the mechanism that releases this aroma, as well as other aerosols, into the environment. Using high-speed cameras, the researchers observed that when a raindrop hits a porous surface, it traps tiny air bubbles at the point of contact. As in a glass of champagne, the bubbles then shoot upward, ultimately bursting from the drop in a fizz of aerosols.

**Journal Reference:**

1. Young Soo Joung & Cullen R. Buie. **Aerosol generation by raindrop impact on soil.** *Nature Communications*, January 2015 DOI: [10.1038/ncomms7083](https://doi.org/10.1038/ncomms7083)

<http://www.sciencedaily.com/releases/2015/01/150114115557.htm>

## Soil Science Society of America wants you to know that 'Soils Support Urban Life'

Posted: Thursday, 22 January 2015 12:00 am

The Soil Science Society of America is coordinating a series of activities throughout 2015 International Year of Soil to educate the public about the importance of soil. February's theme is "Soils Support Urban Life."

In the US, over 80 percent of the population lives in cities or suburbs. While the downtown areas of cities are covered with asphalt and concrete, there are still lawns, trees, gardens and parks. Under all of this "city space," even under the concrete, is soil. Soil a complex mixture of minerals, water, air and organic matter that performs many critical functions. [http://www.hpi.com/general/article\\_58dd3bc6-6d4d-51b7-a30d-e7464b1f058c.html](http://www.hpi.com/general/article_58dd3bc6-6d4d-51b7-a30d-e7464b1f058c.html)

# Mystic Mantra: Sacred soil

Francis Gonsalves | January 16, 2015, 02:01 am IST

 Like  5  Share  0  Tweet  32  Share  



2015 is UN's International Year of Soils (Photo courtesy: visualphotos.com)

My January 1 article *Light up 2015* — heralding UN's International Year of Light — dovetails with this one since 2015 is UN's International Year of Soils, too. Launching this landmark, José Graziano da Silva, director-general of UN's Food and Agriculture Organisation said, "The multiple roles of soils often go unnoticed. Soils don't have a voice, and few people speak out for them. They are our silent allies in food production." So, let's speak out for soils, which are fertile with sacred significance.

<http://www.deccanchronicle.com/150116/commentary-op-ed/article/mystic-mantra-sacred-soil>



<https://www.youtube.com/watch?v=7iyxocIhfuo>

## 2015: International Year of Soils

Posted on January 16, 2015 | Updated on 17 January 2015 11:10



2015  
International  
Year of Soils

**The 68th UN General Assembly has declared 2015 the International Year of Soils (IYS).**

The Food and Agriculture Organization of the United Nations has been nominated to implement the IYS 2015, within the framework of the Global Soil Partnership and in collaboration with Governments and the secretariat of the United Nations Convention to Combat Desertification.

The IYS 2015 aims to increase awareness and understanding of the importance of soil for food security and essential ecosystem functions. <http://www.aig.org.au/2015-international-year-of-soils/>

## **Composting that heals the African soils**

Fernando Naves Sousa, Dec 30, 2014, TWN

The Natural Path



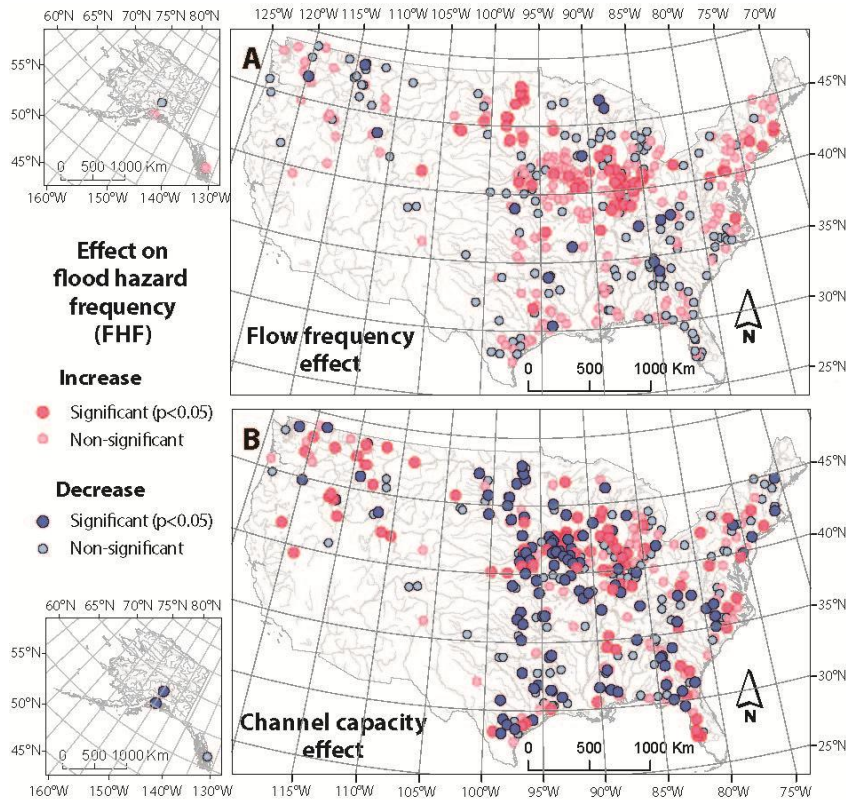
**Farmers in Africa are waking up to the benefits of organic composting, that helps increase their yield and also reduce their chemical dependence, writes Fernando Naves Sousa.**

Moussa Konate has a secret. His fields of sorghum, millet and cotton are verdant and productive. Some neighbours are puzzled: they find it hard to believe he does not apply mineral fertilisers and other agro-chemicals.

<http://www.deccanherald.com/content/450466/composting-heals-african-soils.html>

## **Both water flow and channel capacity are necessary for accurate flood hazard risk**

22 Jan 2015 by Julie Cohen



Red represents increases and blue decreases in flood hazard frequency. Deeper colors indicate sites with statistically significant trends. Credit: UCSB

Millions of Americans live in flood-prone areas. In 2012 alone, the cost of direct flood damage hit nearly half a billion dollars. However, because the factors contributing to flood risk are not fully understood, river basin management—and even the calculation of flood insurance premiums—may be misguided.

Read more at: <http://phys.org/news/2015-01-channel-capacity-accurate-hazard.html#iCp>

# AGL suspends operations at Gloucester coal seam gas project after discovery of potentially toxic chemicals

Updated about 11 hours ago

**Gas company AGL has suspended operations at its Gloucester coal seam gas (CSG) project north of Newcastle, after the discovery of potentially toxic chemicals in flowback water.**

AGL announced on Tuesday afternoon it was voluntarily suspending the controversial coal seam gas pilot program in Gloucester.

Late in 2014 the company performed test fracking operations on four pilot wells at Waukivory, just outside the Gloucester township.

The company said the chemical BTEX was found



PHOTO: AGL's coal seam gas fracking operation near Gloucester. (ABC News Liz Farquhar)

<http://www.abc.net.au/news/2015-01-27/agl-suspends-operations-at-gloucester/6049922>

## British lawmakers demand freeze on fracking

26 Jan 2015





The site where energy company IGas has permission to carry out exploratory drilling for shale gas at Barton Moss in Manchester on January 13, 2014

A committee of British lawmakers demanded a national moratorium on fracking due to environmental concerns on Monday, ahead of a crucial vote intended to boost the shale gas industry

Read more at: <http://phys.org/news/2015-01-british-lawmakers-demand-fracking.html#jCp>



Navigation menu with the following items: Home (upward arrow), Programs (dropdown arrow), Guide, Subjects, Features, RNTV, Podcasts, Transcripts, About, and a search bar labeled 'Search RN' with a magnifying glass icon.

## Earthbeat

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# Soil Decontamination

Friday 10 May 1996 12:00AM

Many of Australia's contaminated sites contain both heavy metals and organic pollutants. Presently there's no effective way of dealing with these sites. Until the Basel Convention we used to ship soil overseas for treatment. Dr Low is developing innovative clean up method called "surfactant enhanced electro-kinesis", which passes a low voltage current through soil that's been injected with a biodegradable surfactant. The process is cheap and environmentally sensitive and can remove both organic and inorganic pollutants simultaneously. Dur 6'08"



Earthbeat is an archived program which is no longer broadcast

Presented by **Alexandra de Blas**

### IN THIS PROGRAM

Friday 10 May 1996

<http://www.abc.net.au/radionational/programs/earthbeat/soil-decontamination/3648892>



## High Water

Broadcast: 25/08/2014 9:51:50 AM  
Reporter: Chris Clark

Print Email Share 11



PIP COURTNEY, PRESENTER: We head to Victoria's Hattah Lakes, part of the floodplains of Australia's longest and arguably greatest river, the Murray.

There are few issues more important to Australian agriculture, or more divisive, than how to manage the Murray-Darling's water resources,



<http://www.abc.net.au/landline/content/2014/s4073140.htm>

# 2014 was hottest in modern history, US scientists find

AM By North America correspondent [Ben Knight](#) and wires

Updated 17 Jan 2015, 3:24pm

**Record-breaking temperatures scorched the planet last year, making 2014 the hottest in more than a century and raising new concerns about global warming, US government scientists say.**

The data from America's space agency NASA shows that not only was 2014 the warmest year recorded since 1880, 10 of the hottest years on record have happened since 1998.

Researchers say the trend is being driven by human emissions of greenhouse gases, particularly the burning of fossil fuels.



PHOTO: Scientists have warned of grave consequences this century if global temperatures keep rising as anticipated. (User submitted: Ching-Ling Lim)

<http://www.abc.net.au/news/2015-01-17/2014-was-hottest-in-modern-history-say-us-scientists/6022714>

## Stark figures but no surprises in updated climate change predictions from CSIRO, Bureau of Meteorology

ABC Rural By [Anna Vidot](#)

[Print](#) [Email](#) [Facebook](#) [Tweet](#) [More](#) 13

Updated yesterday at 5:47pm

**The CSIRO and Bureau of Meteorology say updated climate change predictions confirm what they've been saying for years.**

The agencies' **updated figures** show Australia is on track for increasingly extreme weather as the climate is affected by greenhouse gas emissions.

Researchers say climate science and modelling has become more sophisticated and detailed since the agencies released their last joint climate change projection study in 2007.

Senior CSIRO research scientist Kevin Hennessy said the data brought together for the 2015 update provided no surprises.

"These new projections are consistent with what we said back in 2007." he said.



PHOTO: Paddocks in drought near Dubbo, NSW. The CSIRO and Bureau of Meteorology's updated climate change projections point to warmer and drier average conditions across southern Australian agricultural regions into the future. (Alex Blucher)

MAP: [Parliament House 2600](#)

<http://www.abc.net.au/news/2015-01-27/climate-change-update-predicts-extreme-weather/6049238>

# Climate shift in the Pacific may accelerate global warming



Climate experts are watching to see if a shift in a Pacific temperature gradient signals a period of accelerated warming is about to begin. *Photo: Brianne Makin*

With 2014 likely to be declared the world's hottest year on record, the last thing the planet needs is a climate shift to turbo-charge the global warming already under way.

While it's an early call, a measure of surface temperature differences in the Pacific shifted to a positive reading in the five months to November, according to the US National Oceanic and Atmospheric Administration – the longest such run in almost 12 years.

<http://www.smh.com.au/environment/climate-change/climate-shift-in-the-pacific-may-accelerate-global-warming-20141229-12f6dp.html>

## Former South Australian politician appointed new chair of Murray-Darling Basin Authority

ABC Rural By [Caroline Winter](#) and [David Cloughton](#)

[Print](#) [Email](#) [Facebook](#) [Tweet](#) 24 [More](#)

Updated Fri at 9:44am

**A former federal politician and South Australian irrigator has been named the new chair of the Murray-Darling Basin Authority.**

Neil Andrew will replace outgoing chair Craig Knowles, who is set to complete his four year term at the end of this month.

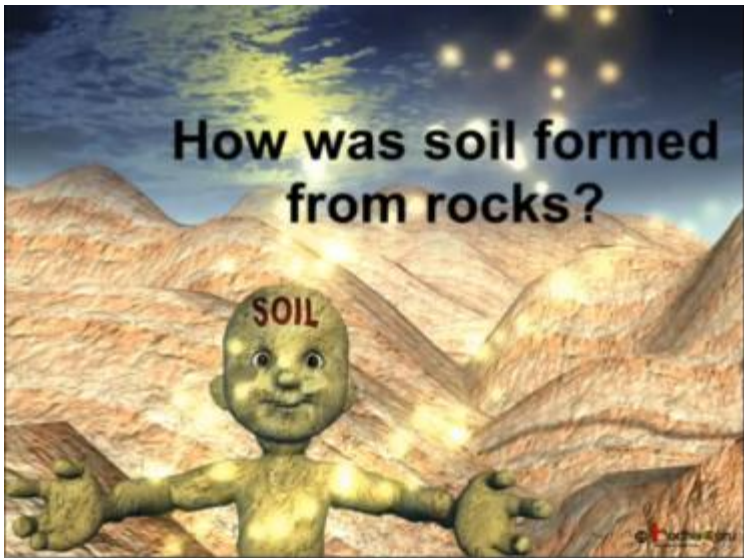
Mr Andrew was the Liberal member for Wakefield for 20 years. He retired prior to the 2004 election.

He said the new role would be a challenge ahead, but he was ready to take it on.



PHOTO: Neil Andrew, a former MP and horticulturalist, is

<http://www.abc.net.au/news/2015-01-22/neil-andrew-mdba-chair/6034068>



<https://www.youtube.com/watch?v=Fx8r3o2gsLk>

**"Adopt the pace of nature: her secret is patience." *Ralph Waldo Emerson***