



FAO soil and land legacy maps



FAO Land and Water Division (NRL) has made an effort to make Soil Legacy data and information available for their users. In that regard, FAO has just finished uploading **1228 soil and land legacy maps** (mainly soil maps and also land use, geological and land cover legacy maps). FAO will continue working in this activity and will include Soil Profile Legacy data soon.

The maps are available for the following

countries: Afghanistan, Algeria, Angola, Argentina, Bangladesh, Benin, Bolivia, Burundi, Botswana, Brazil, British Guiana, Burkina Faso, Cambodia, Cameroon, Central Africa Republic, Chad, Chile, China, Colombia, Comoros, Congo, Ivory Coast, Costa Rica, Cuba, Dominican Republic, Ecuador, Egypt, El Salvador, Ethiopia, French Guiana, Gabon, Gambia, Guatemala, Honduras, India, Indonesia, Iran, Israel, Jamaica, Japan, Korea, Lebanon, Malaysia, Mauritius, Mexico, Mozambique, Namibia, Nicaragua, Niger, Nigeria, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Rwanda, Senegal, Sierra Leone, South Africa, Sri Lanka, Sudan, Swaziland, Syria, Taiwan, Tanzania, Thailand, Togo, Tunisia, Uganda, Uruguay, Venezuela, Vietnam, Zambia, Zimbabwe.

<http://www.fao.org/soils-portal/soil-survey/soil-maps-and-databases/fao-soil-legacy-maps/en/>

Soil Legacy Reports



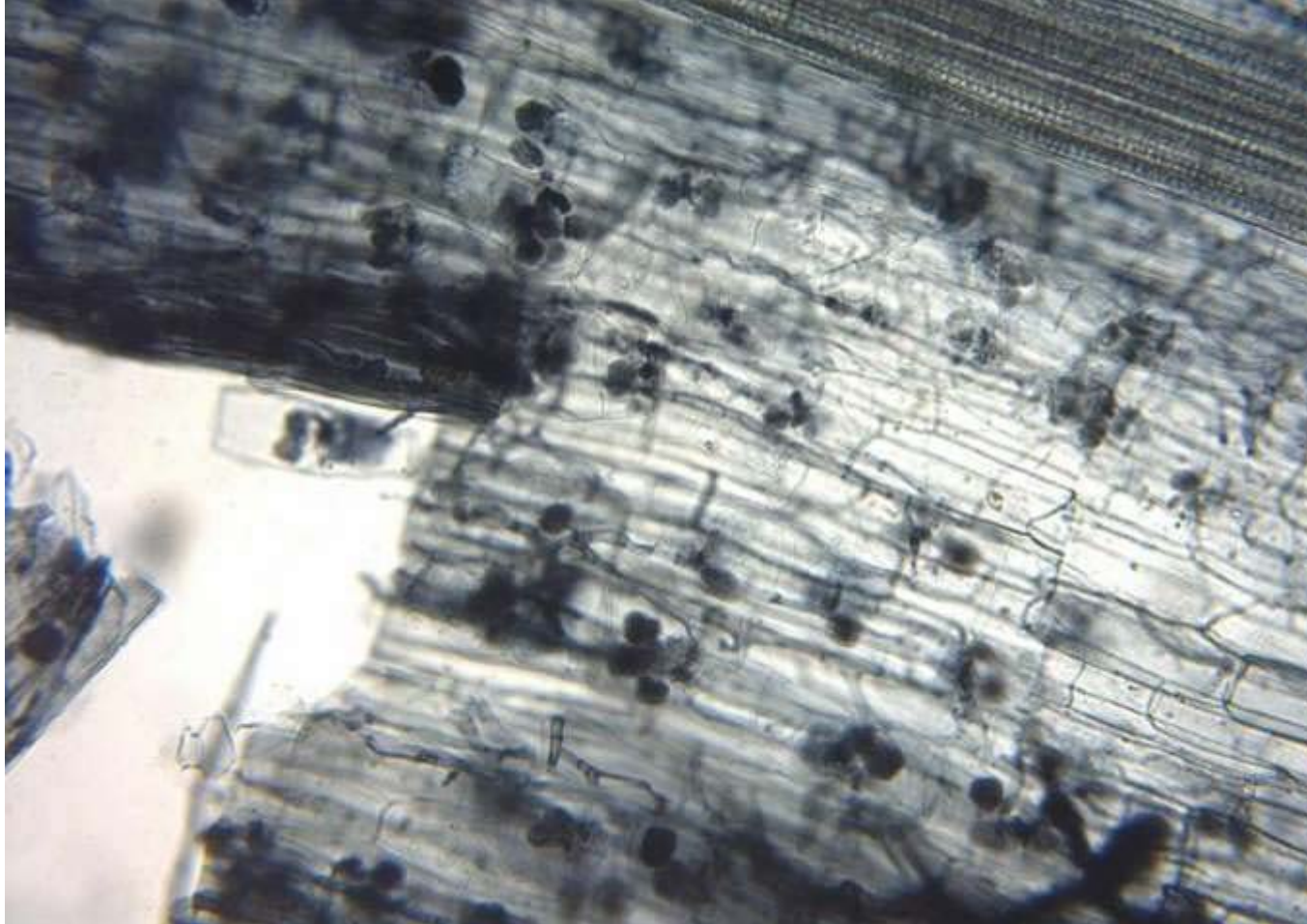
Since the early 1950's FAO has been committed to give technical assistance to member countries in soil matters. Hundreds of soil survey field projects have been carried out over the years and a considerable number of soil survey reports have been prepared and published as grey literature.

This information has been scanned and is made available here together with links to other institutes and organizations who have similar collections.

<http://www.fao.org/soils-portal/soil-survey/soil-maps-and-databases/soil-legacy-reports/en/>

Soil-dwelling fungi study shows extent of worldwide distribution

28 August 2015 by Bob Yirka



Arbuscular mycorrhiza seen under microscope. Flax root cortical cells containing paired arbuscules. Credit: Public Domain

(Phys.org)—An international team of researchers has conducted a worldwide census of fungi that live in plant roots and in so doing has found them to be surprisingly broadly spread. In their paper published in the journal *Science*, the team describes their far-flung study, what they found and offer theories on a mystery that was also uncovered.

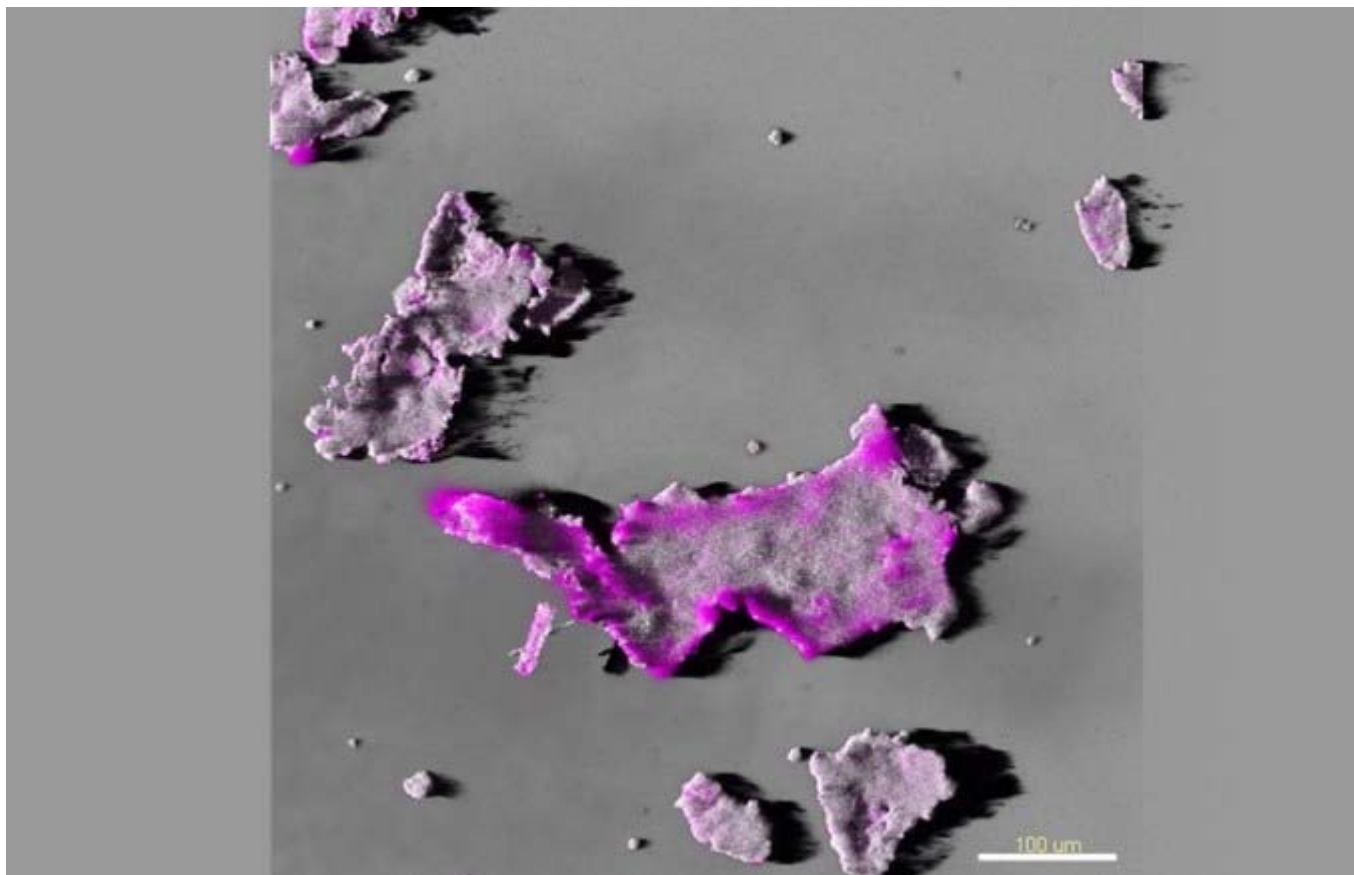
Read more at: <http://phys.org/news/2015-08-soil-dwelling-fungi-extent-worldwide.html#iCp>

Fire and soil microorganisms: where should we focus on?

Gema Bárcenas-Moreno

University of Seville, Sevilla, Spain

Currently, the complexity of soil microbial ecology on soil systems is a hot topic in the environmental sciences, since the scientific community has achieved a deep knowledge of the relevance of microorganisms in soil processes. After several decades of study of the effects of wildfires on soils, one of the main conclusions is that soil microbial populations are very sensitive to fire, which allows us to use them as a tool to assess the impact of fire on ecosystems.



Polysaccharides distribution due to microbial colonization in a soil microaggregate. Credit: Imatgeo/María Hernández-Soriano. Click the image for more information. <https://gsoil.wordpress.com/2015/05/06/fire-and-soil-microorganisms-where-should-we-focus-on/#more-2310>

Community of soil bacteria saves wild tobacco plants from root rot

25 August 2015



Tobacco plants that died of root rot. The disease, which is probably caused by fungal pathogens, attacked the plants in their field plot in the Lytle Preserve, Utah, USA: plants wilted and died within only a few days. Treating infected ...[more](#)

Root bacteria are known to form symbiotic relationships with plants by improving the plants' supply of nutrients. Yet as scientists at the Max Planck Institute for Chemical Ecology in Jena, Germany, found recently, the bacteria actually play a much more profound role. During field experiments in Utah, in the western USA, researchers discovered that the right mixture of soil microbiota directly influences the survival of *Nicotiana attenuata*, a species of wild tobacco. Plants that had been unable to establish a protective alliance with the vitally important soil bacteria were susceptible to an infectious wilt disease that could kill them overnight. The pathogens that caused the disease had built up and spread because the researchers had been continuously growing this native plant in the same field. Moreover, a sterile medium had been used for germination before the plants had been planted out on the field, a procedure which prevented the plants from recruiting symbiotic bacteria early on, as they normally would do when germinating in nature. The results of the study emphasize the importance of crop rotation to prevent the buildup of soil borne diseases and reveal the complex ecology of plants, especially with respect to the multitude of beneficial and harmful microorganisms that interact with them.

Read more at: <http://phys.org/news/2015-08-soil-bacteria-wild-tobacco-root.html#jCp>

Miners lose edge as NSW government balances profits against damage before approvals

Date

31 August 2015 - 10:53AM



[Peter Hannam](#)



The NSW government has put mining back to a level planning field. *Photo: Glenn Hunt*

The Baird government has amended its mining policy process to give equal billing to a project's economic, environmental and social impacts when determining approval in a move likely to anger the mining industry.

Read more: <http://www.smh.com.au/environment/miners-lose-edge-as-nsw-government-balances-profits-against-damage-before-approvals-20150831-gjbd28.html#ixzz3kMoDmM6g>

Restoring Appalachian Soils to Restore the Forests

Posted by [Mary Beth Adams, Northern Research Station, U.S. Forest Service](#), on 19 August 2015 at 3:00 PM



An American chestnut seedling being planted on the Wayne National Forest in Ohio. Photo credit: Jared M. Dort, US Forest Service

The land of forest-covered hills, mountain music and coal has a lesson for restoration: healthy forests require healthy soils.

The forests of Appalachia, a region that extends from southern New York to Georgia, are considered to be among the most diverse temperate deciduous forests in the world, with as many as 30 different tree species growing together. Coal has played an important role in the development of Appalachian culture, but mining for coal has also created a need for restoration in extensive areas of the 13 states that make up the Appalachian region.

- See more at: <http://blogs.usda.gov/2015/08/19/restoring-appalachian-soils-to-restore-the-forests/#sthash.EWjzGaLt.dpuf>

Bury weed problems with an occasional plough

26 August 2015 by Cristy Burne



Though ploughing has long been associated with water loss and topsoil destruction, Dr Renton says occasional mouldboard ploughing can be used to bury herbicide-resistant weed seeds, effectively removing them from the gene pool. Credit: UGA College of Ag & Environmental Sciences - OCCS

Tossing topsoil around in Australia's often arid farming environment is not best practice, but modelling suggests an occasional turning of the soil can delay the rise of herbicide-resistant weeds.

Read more at: <http://phys.org/news/2015-08-weed-problems-occasional-plough.html#jCp>

Humus depletion induced by climate change?

27 August 2015



If the input of organic matter stagnates, soil will lose some of its humus in the long term. Credit: Fotolia

The yields of many important crops in Europe have been stagnating since the 1990s. As a result, the input of organic matter into the soil - the crucial source for humus formation - is decreasing. Scientists from the Technical University Munich (TUM) suspect that the humus stocks of arable soils are declining due to the influence of climate change. Humus, however, is a key factor for soil functionality, which is why this development poses a threat to agricultural production - and, moreover, in a worldwide context.

Read more at: <http://phys.org/news/2015-08-humus-depletion-climate.html#jCp>

Answer to earthworm's ability to digest poisons unearthed by scientists

All plants contain toxins which continue to work after leaf fall, so how worms are able to stomach dead grass and leaf litter has long been a mystery



Earthworms drag fallen leaves and other plant material from the soil, digest them and excrete the rich mix of loam and living things called topsoil.

Photograph: Dr. Manuel Liebeke, Max Planck Institute

<http://www.theguardian.com/science/2015/aug/04/earthworms-ability-digest-poisons-unearthed-molecules-drilodefensins>

AusCover Good Practice Guidelines

A technical handbook supporting calibration and validation activities of remotely sensed data products



Version 1.1
August 2015

www.auscover.org.au

http://www.auscover.org.au/sites/default/files/AusCoverGoodPracticeGuidelines_2015_2.pdf



PEDOLOGUE

• Spring/Summer (2nd 2015 issue) 2015

Newsletter of:
Mid-Atlantic Association of Professional Soil Scientists
Edited by Del Fanning
DelvinDel@aol.com or dsf@umd.edu

Editor's Comments:

I'm finally getting out another issue of *Pedologie*. It started out to be the Spring 2015 issue, but it's now mid July, so I'm calling it Spring/Summer 2015. I start with a picture of me promoting our University of Maryland soil monoliths on Maryland Day, Saturday, April 25, 2015. Ed Landa, my office mate was a great helper and took my picture in front of the selected group of monoliths that we hauled from cases where they are usually displayed in the basement of H. J. Patterson Hall to where we displayed them in the Animal Sciences Building. In the picture I'm holding a green frog carved for me by Roslyn Orr some years ago from glauconitic clay like that in the monolith of the Colemantown soil from Burlington County, NJ, displayed behind the frog that I made with help of students as part of a NE regional project in 1975, when we then called the soil Marlton. On MD Day we had a bucket of the green clay from the soil and we gave away some small samples for hand manipulation to some highly appreciative folks that came by including a high school student training for state Environthon Contest from Carroll County. To the right of the green soil we displayed the monolith of an anth on the Beltsville soil from the old University Hopkins Farm (now a shopping center) made by student Calvin High and a fellow student in mid-1970's. The next soil to the right, second from left, is monolith of an oyster shell kitchen-midden soil from Kent County, MD made by student Rob Fields who went on to do soil consulting in VA, and finally the one on extreme right is from the Kenilworth landfill in DC, made by student Mary Patterson before she became Wagner and Art Hathcock and Bob Bracey during the time of the soil survey of Washington, DC, in mid 1970's. The A horizon of that soil was put on as sewage sludge, now more politely called bio-solids. We used to joke that it might contain the poop from federal politicians at the time, maybe



when Nixon was president. We did find some great stuff in the garbage of the pit. A Washington Post Sports Page from 1968 told of Frank Howard of Washington Senators hitting his 44th home run that year. There is a story that goes with each of our monoliths, unfortunately only a few of them are written down.

In June I did some more promoting, this time for the 8th International Acid Sulfate Soils Conference with a poster that Martin Rabenhorst put together for us and co-authors at the American Society of Mining and Reclamation meeting in Lexington, K

Marty took another version of the poster that he presented during the same week at the National Soil Survey Conference in Duluth, MN. My poster now hangs on a bulletin board in the basement hall of the old wing of H.J. Patterson Hall. I'm inserting more comments after the article on 1916 soil collection.

<http://static1.squarespace.com/static/53cab412e4b09085a6633398/t/55b16e96e4b0a7f88e9e65e9/1437691542544/PEDOLOGUESpring%3BSummer2015.1.pdf>

Print Email Facebook Twitter More Comments

Fact check: Is the proposed Shenhua Watermark coal mine located in the middle of Australia's best agricultural land?

Updated Thu at 11:34am

The conditional approval of the Shenhua Watermark coal mine on the Liverpool Plains in northern New South Wales has raised concerns about the future of agriculture in the area.

Environment Minister Greg Hunt gave the mine **conditional approval** in July, nearly seven years after the NSW Government gave Shenhua a \$300 million **licence** to explore the area's potential coal resources.

The NSW Government will have to grant Shenhua **a lease** to build and operate the mine before the project can go ahead.

Shenhua, a Chinese company, **plans** to extract up



PHOTO: Agriculture Minister Barnaby Joyce says the proposed Shenhua Watermark mine on the Liverpool Plains will be "in the middle of Australia's best agricultural land". (AAP: Alan Porritt)

MAP: Gunnedah 2380

<http://www.abc.net.au/news/2015-08-26/barnaby-joyce-liverpool-plains-shenhua-watermark/6722716>

Earth's mineralogy unique in the cosmos

26 August 2015



The mineral hazenite, named after Robert Hazen, which is only found in one locality, Mono Lake, Calif. Like hazenite, 22 percent of known minerals are found in just one locality. Credit: Hexiong Yang

New research from a team led by Carnegie's Robert Hazen predicts that Earth has more than 1,500 undiscovered minerals and that the exact mineral diversity of our planet is unique and could not be duplicated anywhere in the cosmos.

<http://phys.org/news/2015-08-earth-mineralogy-unique-cosmos.html>

New Report Says Deforestation Trends Point To Increasing Losses, Recommends New Rules

by [Katie Valentine](#)  Aug 24, 2015 1:23pm



CREDIT: AP Photo/Andre Penner, File

In this 15 Sept 2009 file photo, a deforested area is seen near Novo Progresso in Brazil's northern state of Para.

By 2050, an area of forests the size of India is set to be wiped off the planet if humans continue on their current path of deforestation, according to a new report. That's bad news for the creatures that depend on these forest ecosystems for survival, but it's also bad news for the climate, as the loss of these forests will release more than 100 gigatons of carbon dioxide into the atmosphere.

<http://thinkprogress.org/climate/2015/08/24/3694560/deforestation-india-sized-chunk/>

Wheat country soils acidifying

A Yakima Herald-Republic reader sent me **this story** from Crosscut, a Seattle-based online publication, about acidification of Washington's wheat country in the Palouse.

Decades of feeding nitrogen fertilizers to wheat may be taking its toll on the soil, dropping the pH levels too low. Wheat is one of Washington's most lucrative agricultural crops, roughly tied for second with milk behind apples.

http://www.yakimaherald.com/blogs/crop_lines/wheat-country-soils-acidifying/article_a665a1a8-4762-11e5-b113-ff4656ecd45e.html

The rise of the soil carbon cowboys

Peter Byck

Wednesday, August 19, 2015 - 2:00am



Soil Carbon Cowboys, ©2015, Peter Byck, ESEF

Carbon farming is one example to an approach of carbon reduction that goes way beyond the bounds of alternative energy.

Ranching is a rare occupation. Rarer still are the ranchers pioneering new ways to graze cattle, transforming their ranches and farms into vibrant ecosystems, producing black ink for their bank accounts and giving their incredibly robust animals a great life (with the exception of one bad day).

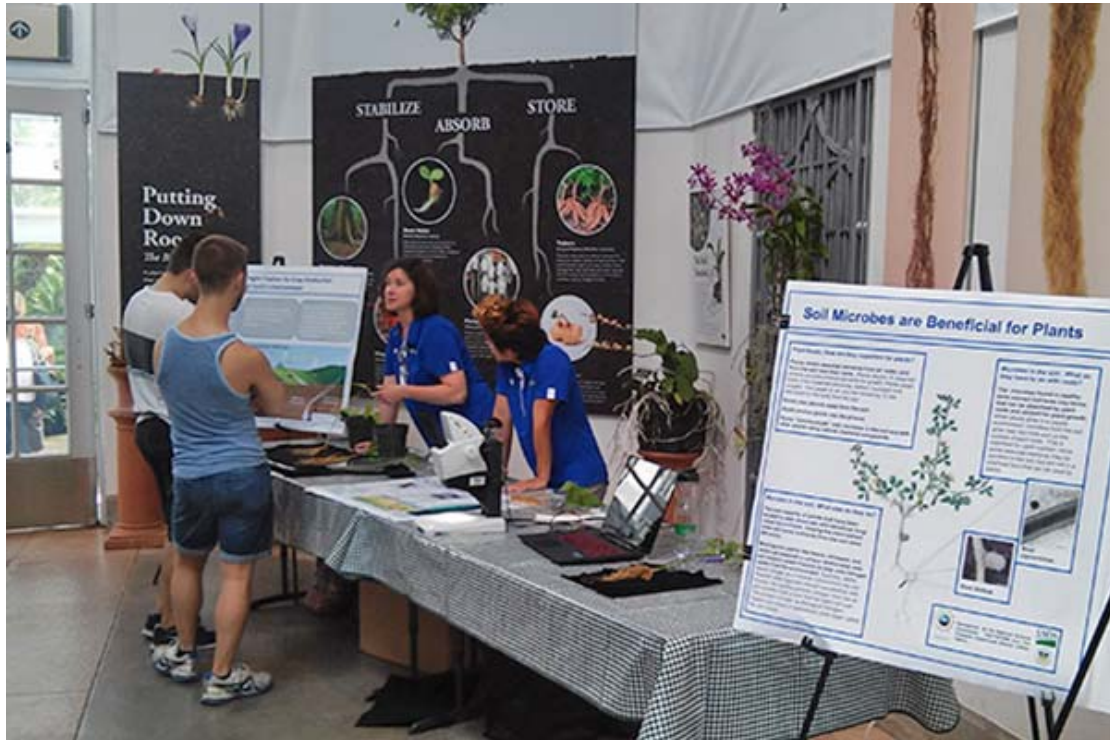
These new grazing methods have many names — mob grazing, managed intensive grazing, holistic management. Our group of scientists and ranchers call it Adaptive Multi-Paddock (AMP) Grazing.

<http://www.greenbiz.com/article/rise-soil-carbon-cowboys>

UD representatives educate United States Botanic Garden visitors about the importance of healthy soils and soil microbes.

'Secret Life of Roots'

UD professor, students educate public about roots and soil at US Botanic Garden

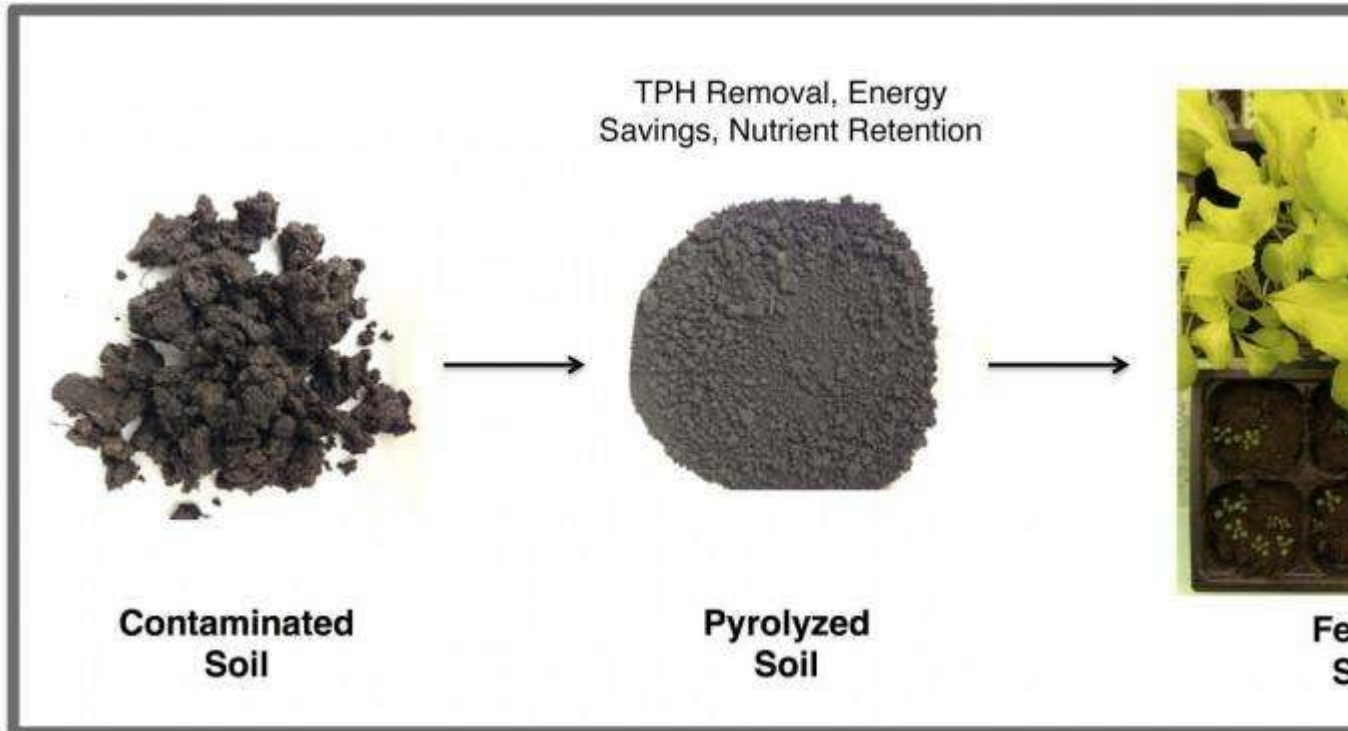


12 Aug. 2015--Representatives from the University of Delaware spent a recent Saturday at the United States Botanic Garden in Washington, D.C., educating visitors about the important roles that healthy soils and soil microbes play in ensuring robust plants during a “Roots Festival” held in conjunction with the garden’s exhibit “Exposed: The Secret Life of Roots.”

<http://www.udel.edu/udaily/2016/aug/roots-healthy-soil-081215.html>

Scientists turn oily soil into fertile ground

20 August 2015



Rice University pyrolyzed oil-contaminated soil to reduce total petroleum hydrocarbons below federal standards, while leaving beneficial carbons in the soil. The lab grew lettuce in samples of reclaimed soil to test its viability. Credit: Julia Vidonish/Rice University

Rice University scientists are cleaning soil contaminated by oil spills in a way that saves energy and reclaims the soil's fertility.

Read more at: <http://phys.org/news/2015-08-scientists-oily-soil-fertile-ground.html#jCp>

FAO: Saving soil

Saturday, 22 August 2015, 10:18 am

Press Release: [FAO](#)

Saving soil – International conference calls for greater action to stop the degradation of soils so vital to food security and a stable environment

21/08/2015, Cha Am, Thailand– Scientists from around the world today called for greater action on the protection of soils – a complex mix of minerals, organic matter, gases, liquids, and the other organisms vital for our survival.

Researchers, government officials, UN agencies and resource partners from four continents met for four days in the Thai seaside resort of Cha Am to consider ways to improve the sustainable uses of soil in harmony with food security. Her Royal

Highness Princess Maha Chakri Sirindhorn of Thailand presided over the main opening session.

<http://www.scoop.co.nz/stories/WO1508/S00070/fao-saving-soil.htm>

90% of Irish soils are nutrient deficient – Here's why

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Sean Cummins 17 August 2015 0 Comment



Some 90% of Irish soils are short in one or more of the main [soil](#) nutrients, Mark Plunkett of Teagasc told a recent farm walk.

The majority of these farms are either lacking lime, phosphorous (P) or potassium (K) or a combination of the three which is evident from analysed soil tests.

He also told those on the recent Germinal Seeds farm walk that under Irish conditions lime is underutilised, and this is important as it is key for soil mobility and unlocking tied up nutrients, especially P. <http://www.agriland.ie/farming-news/90-of-irish-soils-are-nutrient-deficient-heres-why/>

Soil Doco to Prompt Discussion

Thursday, 13 August 2015, 2:26 pm

Press Release: [Hawkes Bay Regional Council](#)

12 August 2015

Soil Doco to Prompt Discussion

As 2015 is the International Year of Soils, a movie and discussion event has been organised by Hawke's Bay Regional Council to increase awareness of soil issues in the community.

The HBRC Land Management team will screen the documentary ‘Symphony of the Soil’ at MTG Cinema Gold on Tuesday 25 August, 6 pm to 8 pm.

The screening will be followed by pizza and a discussion about some of the issues raised in the documentary and how these relate to Hawke’s Bay. Entry is by gold coin donation or koha.

<http://www.scoop.co.nz/stories/AK1508/S00265/soil-doco-to-prompt-discussion.htm>

Firefly protein enables visualization of roots in soil

19 August 2015



A composite image of a growing experimental mustard plant, *Arabidopsis thaliana*, along with a luminescence-based image of the root system of the same plant. Credit: Rubén Réllan-Álvarez.

Plants form a vast network of below-ground roots that search soil for needed resources. The structure and function of this root network can be highly adapted to particular environments such as desert soils where plants like Mesquite develop tap roots capable of digging 50 meters deep to capture precious water resources.

Excavation of root systems reveals these kinds of adaptations but is laborious, time consuming, and does not provide information on how growing roots behave.

Read more at: <http://phys.org/news/2015-08-firefly-protein-enables-visualization-roots.html#jCp>

A quiet crisis': The rise of acidic soil in Washington



by Sylvia Kantor



A farm in the Palouse region, which includes parts of Eastern Washington. Credit: [Flickr user Hip Shooter](#)

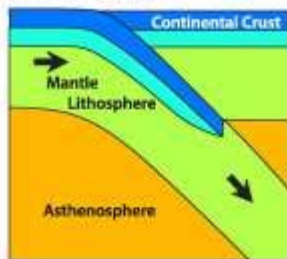
Gary Wegner first noticed the problem in 1991, when a field on his family's farm west of Spokane produced one-fourth the usual amount of wheat. His father and grandfather attributed the problem to farming on shallow soils, but Wegner decided to dig deeper. Lab tests revealed a surprising result: the soil had become acidic.

<http://crosscut.com/2015/08/a-quiet-crisis-the-rise-of-acidic-soil-in-washington/>

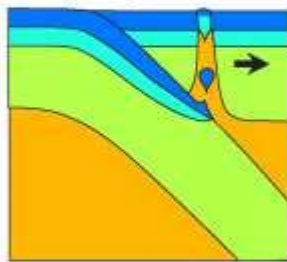
The downs and ups of mountain building

20 August 2015

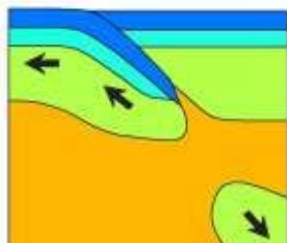
Continental crust is pushed deep
crust to depth



Viscous crustal diapirs rise
into opening rift



Eduction of crust and mantle
lithosphere



In the D'Entrecasteaux Islands off Papua New Guinea, the rocks are giving rise to new ideas about the ways in which mountain chains form. A new scientific model inspired by data from the islands shows how the seemingly opposite processes of tectonic compression and extension can take place in the same region. It also shows how sections of earth's crust that have been pushed deep under the surface can reverse course and rise in what in the geological time scale would be an instant. The model has implications for the understanding of how many mountain belts form.

Read more at: <http://phys.org/news/2015-08-downs-ups-mountain.html#jCp>

Future climate models greatly affected by fungi and bacteria



When a plant dies, its leaves and branches fall to the ground. Decomposition of soil organic matter is then mainly carried out by fungi and bacteria, which convert dead plant materials into carbon dioxide and mineral nutrients.

Credit: Johannes Rousk

Researchers from Lund University, Sweden, and USA have shown that our understanding of how organic material is decomposed by fungi and bacteria is fundamentally wrong. This means that climate models that include microorganisms to estimate future climate change must be reconsidered.

Journal Reference:

1. Johannes Rousk, Serita D. Frey. **Revisiting the hypothesis that fungal-to-bacterial dominance characterizes turnover of soil organic matter and nutrients.** *Ecological Monographs*, 2015; 85 (3): 457 DOI: [10.1890/14-1796.1](https://doi.org/10.1890/14-1796.1)

<http://www.sciencedaily.com/releases/2015/08/150828081444.htm>

Greenland ice sheet's winds driving tundra soil erosion, study finds

12 August 2015



Ruth Heindel, a Ph.D. student in Dartmouth's Department of Earth Sciences, and her colleagues found that winds blowing off the Greenland Ice Sheet are eroding soil and vegetation in the surrounding tundra. Credit: Ruth Heindel

Strong winds blowing off the Greenland Ice Sheet are eroding soil and vegetation in the surrounding tundra, making it less productive for caribou and other grazing animals, carbon storage and nutrient cycling, a Dartmouth College study finds.

Read more at: <http://phys.org/news/2015-08-greenland-ice-sheet-tundra-soil.html#jCp>

Rise of the citizen scientist

From the oceans to the soil, technology is changing the part that amateurs can play in research. But this greater involvement raises concerns that must be addressed.

18 August 2015



PDF



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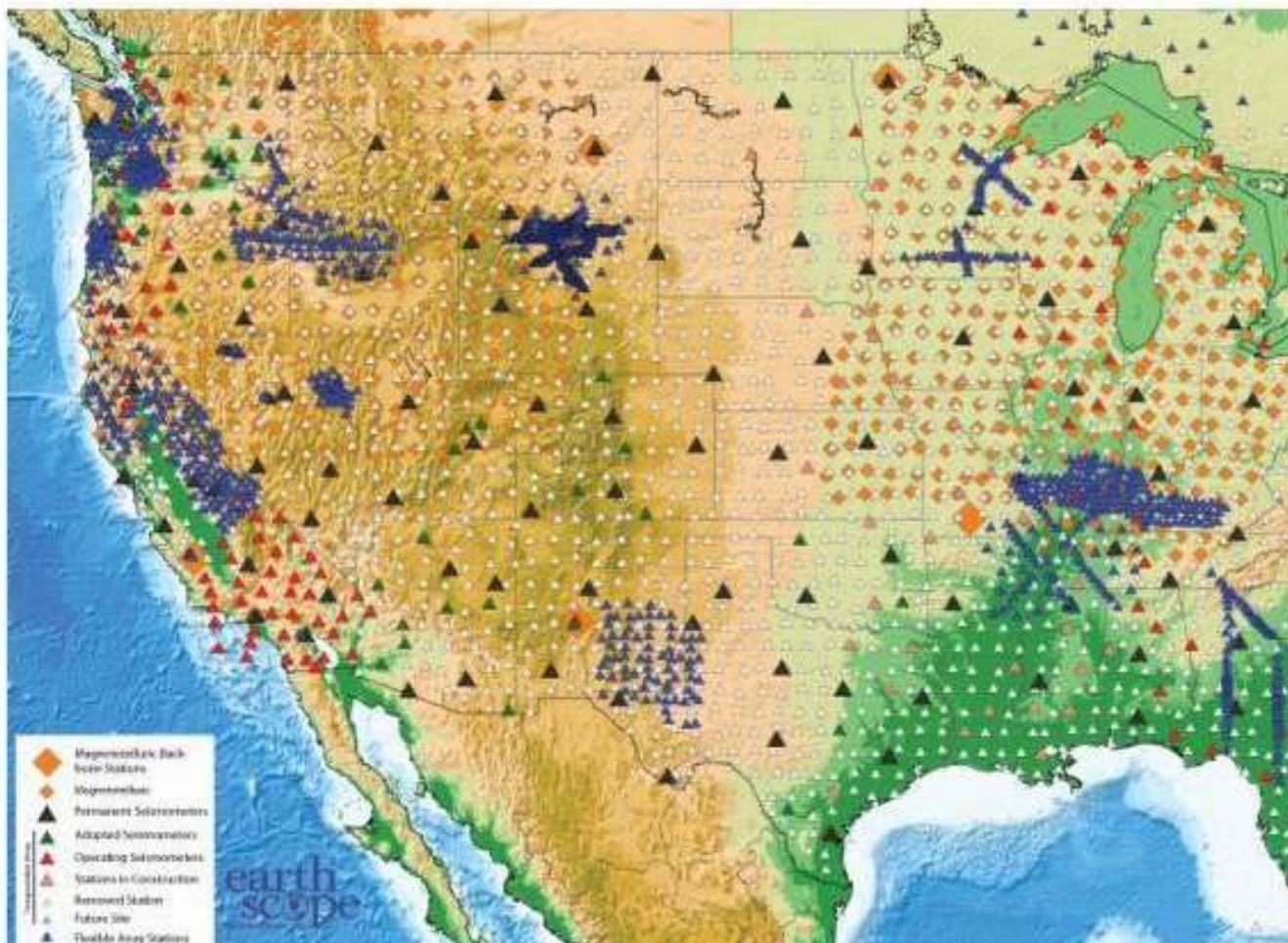
Science is not just for scientists these days. Going on a scuba-diving holiday this summer? Share the temperature data from your dive computer with researchers eager to plug holes in sparse records for inshore areas. Nervous about possible pollution from a nearby fracking project? Ease your concerns by helping to collect and analyse air samples as part of a monitoring project. Stuck at home as the rain pours down? Log on to the Internet and spend a couple of hours folding proteins and RNA to help university scientists work out how biology does it.

http://www.nature.com/news/rise-of-the-citizen-scientist-1.18192?WT.mc_id=FBK_NATURE_1508_FHEDITORIALCITIZENSCI_POR_TFOLIO

Rolling in the deep: Mantle flow stress best indicator of US intermountain seismicity

26 August 2015 by Mary-Ann Muffoletto

USArray Status as of June 2015



A June 2015 map of the USArray component of the National Science Foundation-funded Earthscope project. Earthscope is a continental-scale seismic observatory designed to support integrated studies of continental lithosphere and deep Earth ...[more](#)

Much of what we understand about earthquakes is based on plate tectonics. But for residents of Utah's seismically restless Wasatch Front, a 120-mile-long metropolitan region anchored by Salt Lake City and bounded by the steep Wasatch Mountains and Great Salt Lake, such theory has fundamental limitations.

Read more at: <http://phys.org/news/2015-08-deep-mantle-stress-indicator-intermountain.html#jCp>

Humans may be harmed by endocrine disrupting chemicals released during natural gas mining

More than 15 million Americans live within one mile of unconventional oil and gas (UOG) operations that combine directional drilling and hydraulic fracturing, or "fracking" to release natural gas from underground rock. Scientific studies still are inconclusive on the potential long-term effects on human development. Now, Susan C. Nagel and Christopher D. Kassotis, researchers with the University of Missouri, and national colleagues have conducted a review of research on health effects associated with UOG operations and concluded these activities have potential for environmental release of a complex mixture of endocrine disrupting chemicals (EDCs) that could potentially harm human development and reproduction.

Journal Reference:

1. Christopher D. Kassotis, Donald E. Tillitt, Chung-Ho Lin, Jane A. Mcelroy, and Susan C. Nagel. **Endocrine-Disrupting Chemicals and Oil and Natural Gas Operations: Potential Environmental Contamination and Recommendations to Assess Complex Environmental Mixtures.** *Environmental Health Perspectives*, 2015 DOI: [10.1289/ehp.1409535](https://doi.org/10.1289/ehp.1409535)

<http://www.sciencedaily.com/releases/2015/08/150827154421.htm>

Historic 2013 Colorado Front Range storm accomplished up to 1,000 years of erosion



This image shows a landslide in Colorado's Front Range.

Credit: Suzanne Anderson / INSTAAR

The historic September 2013 storm that triggered widespread flooding across Colorado's Front Range eroded the equivalent of hundreds, or even as much as 1,000 years worth of accumulated sediment from the foothills west of Boulder, researchers at the University of Colorado Boulder have discovered.

<http://www.sciencedaily.com/releases/2015/08/150827083428.htm>

From sewage sludge to syngas and biochar—new perspectives for small municipalities

28 August 2015

Dr. Olivier Lepez, coordinator of PYROCHAR, explains how the project team has developed an energy- and cost-efficient process to thermo-chemically convert municipal sewage sludge into useful biochar and synthetic gas.

Read more at: <http://phys.org/news/2015-08-sewage-sludge-syngas-biocharnew-perspectives.html#jCp>

Everything relates back to soil



ARAH TEGTMEIER, left, and Chelsea Berning take samples of the Blanchard River to test the water quality. The students, who are both now in veterinarian school, were biology/pre-vet majors at the University of Findlay last year when this picture was taken. Soil helps filter, treat and clean up water. (Photo by Randy Roberts)

By SARA ARTHURS

What affects flooding, drinking water quality, and even humans' ability to eat, clothe themselves and seek shelter? The soil beneath our feet greatly influences overall quality of life, yet many people don't realize this.

"From a purely selfish point of view, our lives depend on soil," said Bob Antibus, professor of biology at Bluffton University.

<http://thecourier.com/family-news/2015/08/14/everything-relates-back-to-soil/>

World's biggest coal port joins fossil fuel divestment push

Newcastle is the seventh council in Australia to announce it will shun fossil fuels, [reports the Sydney Morning Herald](#)



Coal stockpiled at the coal port of Newcastle in Australia's New South Wales state. The city has announced it will pull money out of fossil fuel industries
Photograph: Greg Wood/AFP/Getty Images
Amanda Saunders for Sydney Morning Herald, part of the Climate Publishers Network

Newcastle city council in Australia has voted to exit holdings in the big four banks if they continue to fund fossil fuel projects. About 80% of the Australian city of Newcastle council's \$270m investment portfolio is held in the big four banks, mostly through term deposits. Those investments are spread evenly across the big four.
<http://www.theguardian.com/environment/2015/aug/28/worlds-biggest-coal-port-joins-fossil-fuel-divestment-push>

Intensity of desert storms may affect ocean phytoplankton

27 August 2015 by Jennifer Chu



A 2012 satellite image shows a dust storm blowing over the Sea of Japan out to the North Pacific. Credit: NASA

Each spring, powerful dust storms in the deserts of Mongolia and northern China send thick clouds of particles into the atmosphere. Eastward winds sweep these particles as far as the Pacific, where dust ultimately settles in the open ocean. This desert dust contains, among other minerals, iron—an essential nutrient for hundreds of species of phytoplankton that make up the ocean's food base.

<http://phys.org/news/2015-08-intensity-storms-affect-ocean-phytoplankton.html>

Hurricane's tiny earthquakes could help forecasters

Data on Sandy show temblors emanate from eye of storm

By

[Thomas Sumner](#)

25 August 2015



SEISMIC STORM Hurricane Sandy (visualized above) triggered tiny tremors under its eye as it stormed up the U.S. East Coast in 2012. These tiny quakes could help meteorologists closely monitor the behavior of raging hurricanes, researchers propose.

As Sandy raged, the ground trembled.

Rumbles picked up by seismometers during Hurricane Sandy's trip up the U.S. East Coast in 2012 originated from the storm's eye, seismologists report in a paper to be published in the *Journal of Geophysical Research Letters: Solid Earth*. Listening for these rumbles could help meteorologists remotely monitor air pressure changes inside hurricanes and better predict sudden increases in storm intensity, the researchers propose. <https://www.sciencenews.org/article/hurricane%E2%80%99s-tiny-earthquakes-could-help-forecasters>

Deep trenches in Pacific are younger than we thought

Posted by [Keith Randall-Texas A&M](#) on August 28, 2015

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Parts of the deep trenches in the Pacific Ocean are much “younger”—by as much as 50 million years—than previously believed. Scientists say the findings could change current thinking about how such deep-ocean trenches form.

Using the research ship JOIDES Resolution, researchers examined core samples extracted from a subduction zone south of Japan. The samples were taken from water about 4,800 feet deep in the Pacific floor.



Scientists used the research ship JOIDES Resolution to take core samples from a subduction zone south of Japan. (Credit: Texas A&M)

<http://www.futurity.org/pacific-trenches-subduction-zone-992582/>

Methanotrophs: Could bacteria help protect our environment?



Cold seeps, the sites on the ocean floor where the bubbles of the methane gas rise up, are a home for a varied communities of bacteria, bivalves and other associated life forms.

Credit: Photo: NOAA-OER/BOEM/USGS

New insight into methanotrophs, bacteria that can oxidise methane, may help us develop an array of biotechnological applications that exploit methane and protect our environment from this potent greenhouse gas.

Publishing in *Nature*, scientists led by Newcastle University have provided new understanding of how methanotrophs are able to use large quantities of copper for methane oxidation.

Journal Reference:

1. Nicolas Vita, Semeli Platsaki, Arnaud Baslé, Stephen J. Allen, Neil G. Paterson, Andrew T. Crombie, J. Colin Murrell, Kevin J. Waldron, Christopher Dennison. **A four-helix bundle stores copper for methane oxidation.** *Nature*, 2015; DOI: [10.1038/nature14854](https://doi.org/10.1038/nature14854)

<http://www.sciencedaily.com/releases/2015/08/150826135724.htm>

Large amount of gold and silver found in reservoirs under volcanoes in New Zealand

24 August 2015 by Bob Yirka



Mount Ngauruhoe is the tallest peak of the Tongariro complex in the North Island of New Zealand. Credit: Photo by Don Swanson, 1984 (U.S. Geological Survey). via Wikipedia.

A small team of researchers with members from institutions in the U.S. and New Zealand has found that there are large deposits of gold and silver in at least six reservoirs beneath several volcanoes in New Zealand. In their paper published in the journal *Geothermics*, the team describes their investigation into geothermal systems in the V-shaped Taupo Volcanic Zone on New Zealand's North Island and just how much of the precious metal they believe is hiding down there.

Read more at: <http://phys.org/news/2015-08-large-amount-gold-silver-reservoirs.html#jCp>

Soils protect the natural environment

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."

Here are some facts about soils protecting the natural environment:

- **Healthy Forests:** 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.
- **Great Plains:** Prairie soils are rich, soft and deep. They form under

http://www.sciencedaily.com/news/earth_climate/

Volcanic activity convicted in Permian extinction

Precise timing confirms cause of planet's largest mass die-off

By

[Thomas Sumner](#)

28 August 2015



MURDEROUS MAGMA Gases coughed up by the Siberian Traps volcanic eruptions could have triggered the Permian extinction around 252 million years ago,

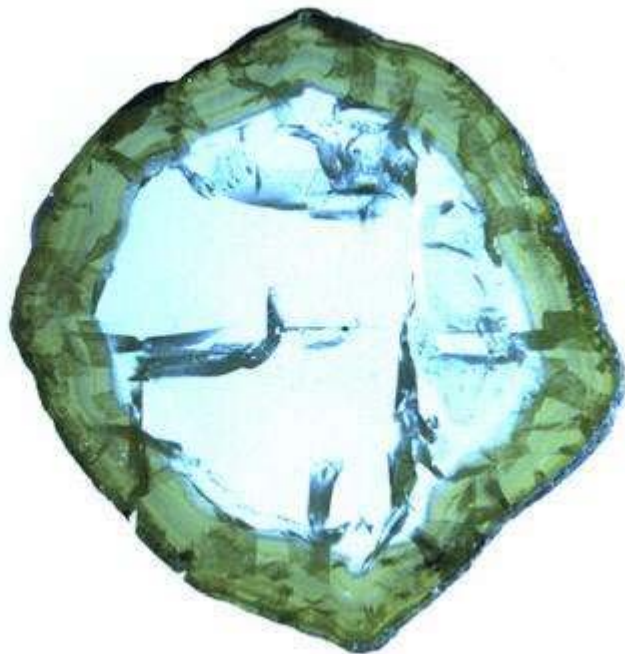
new research demonstrates. Researchers measured the age of the eruptions by analyzing crystals embedded in ancient lavas (shown).

The biggest catastrophe in the history of life on Earth resulted from one of the most titanic volcanic outpourings on record, new research concludes.

<https://www.sciencenews.org/article/volcanic-activity-convicted-permian-extinction>

Research shows seawater involved in making diamonds beneath the Northwest Territories

20 August 2015 by Kristy Condon



Fluid-rich diamonds formed 200 km beneath Earth's surface offer clues to how diamonds are made—and possibly how they can be found, according to new U of A research.

Some of the rich diamond deposits in the Northwest Territories may have been formed as a result of ancient seawater streaming into the deep roots of the continent, transported by plate tectonics, suggests new research from an international team of scientists in Canada, the U.S. and the U.K. The discovery further highlights the role played by plate tectonics in "recycling" surface materials into deep parts of the earth, building on the groundbreaking discovery by a University of Alberta team last year of vast quantities of water trapped more than 500 kilometres underground.

<http://phys.org/news/2015-08-seawater-involved-diamonds-beneath-northwest.html>

Scientists warn leaders of dangers of thawing permafrost

As President Obama and high-level representatives of other nations converge in Anchorage, Alaska on August 30-31 for the Conference on Global Leadership in the Arctic: Cooperation, Innovation, Engagement and Resilience (GLACIER), hosted by the U.S. Department of State, top U.S. climate scientists urge policymakers to address the critical problem of the thawing permafrost in the Arctic region.

<http://www.sciencedaily.com/releases/2015/08/150827154413.htm>

Qatar hails veggie growing trial success

25 August 2015



A successful two-year trial of the Zulal Oasis hydroponics project, saw tomatoes grown in greenhouses without soil and using recycled irrigation water, by Hassad Food on farmland west of the capital, Doha

Desert nation Qatar will use "cutting-edge technology" to grow up to 70 percent of its own vegetables by 2023—a four-fold increase, officials from Doha's biggest agricultural group said Tuesday.

Read more at: <http://phys.org/news/2015-08-qatar-hails-veggie-trial-success.html#jCp>

**We cannot hope to either understand or to manage
the carbon in the atmosphere unless we understand
and manage the trees and the soil too.**

— Freeman Dyson