



GeoSpace

Earth and space science

GEOSPACE

GeoSpace is a blog on Earth and space science, managed by AGU's Public Information staff. The blog features posts by AGU writers and guest contributors on all sorts of relevant science topics, but with a focus on new research and geo and space sciences-related stories that are currently in the news.



SUBSCRIBE VIA EMAIL

Enter your email address to subscribe to this blog and receive notifications of new posts by email.

Join 44 other subscribers

Subscribe

Ideas and opinions expressed on this site are those of the authors and commenters alone. They do not necessarily represent the views of the American Geophysical Union.

OTHER AGU BLOGS



[MOUNTAIN BELTWAY >>](#)



[GEORNEYS >>](#)



[THE TREMBLING EARTH >>](#)



[DAN'S WILD WILD SCIENCE JOURNAL >>](#)



[MAGMA CUM LAUDE >>](#)

[Home](#) - [2015 Fall Meeting](#) - Preserved trees that grew 12,000 years ago improve radiocarbon dating calibrations

17 DECEMBER 2015

Preserved trees that grew 12,000 years ago improve radiocarbon dating calibrations

Posted by [lhwang](#)



by **Emily Benson**

Scientists use radiocarbon dating to determine the age of everything from bone and teeth to seeds and straw. The accuracy and precision of those dates depends on careful calibration. New data from logs unearthed in a small floodplain in New York's Lake Ontario lowlands will allow scientists to refine the calibrations for a 1,200 year period that occurred about 12,000 years ago, according to [Carol Griggs](#), a dendrochronologist at Cornell University in Ithaca, New York.

The record represents "a new independent radiocarbon series for this time period," Griggs said at the 2015 American Geophysical Union Fall Meeting in San Francisco.

Atmospheric carbon contains a very small percentage of a radioactive form of carbon, called carbon-14 or radiocarbon. Plants and animals incorporate some of that radiocarbon into their bodies. Because it decays at a predictable rate, scientists can estimate the age of once-living tissue by measuring how much radiocarbon it still contains – the longer it's been since the plant or creature was alive, the less radiocarbon remains.

The amount of radiocarbon in the atmosphere fluctuates, however, and scientists must account for that variability when using radiocarbon dating. Tree rings contain an annual record of atmospheric radiocarbon, allowing researchers to convert radiocarbon dates to calendar dates if there is a record of living trees or preserved logs as old as the samples they wish to date.

In a new study presented at the meeting, Griggs and her colleagues gathered samples from about 140 logs they uncovered on a farm near Fulton, New York, about half of which turned out to be big enough to analyze. The logs, mainly spruce and larch, were buried about 2.5 to 3 meters (8 to 10 feet) below the surface of a modern-day floodplain.

"It looks like the streambed was just gradually filled in and became a bog," Griggs said. The trees were not worn smooth, as they might have been if they had washed downstream, indicating they were well preserved and likely grew close to where they were found.

"You still see the root systems, you still see the branches," Griggs said.



Scientists excavated 12,000-year-old logs from a floodplain in New York to improve radiocarbon dating calibrations.

Credit: Carol Griggs.

QUICK LINKS

Latest Popular Posts Recent Comments

- Chemical changes in groundwater precede earthquakes in Iceland, study finds
- Large asteroid hit would make the

The trees were alive about 11,200 to 12,400 years ago, at the end of the Younger Dryas event and into the early Holocene era, Griggs said.



Tree rings contain an annual record of atmospheric radiocarbon, allowing scientists to calibrate radiocarbon dates and convert them into calendar dates.

Credit: Sheila Miguez, via Flickr, creative commons license.

It's uncommon to find tree rings that old, said Jennie Zhu, a graduate student at West Virginia University who was not involved in the study. "If you can annually date back to that period, that's awesome," she said.

The trees are also unique geographically.

They were collected "in a place where the radiocarbon dating is most questionable," Griggs said. Previous records of tree ring radiocarbon data from that time period are limited to a single series from central Europe, and two series from the Southern Hemisphere. The data from New York will help scientists understand differences between the Northern and Southern Hemispheres in atmospheric-oceanic radiocarbon exchange, Griggs said.

– **Emily Benson is a science communication graduate student at UC Santa Cruz, you can follow her on twitter at [@erbenson1](#) or via her website <http://erbenson.com>**

world burn, go dark

- Ancient solar storms may explain how Mars morphed into a cold, barren desert
- Visualizing Data Science
- Hydrothermal Hunt: Mapping Earth's Ocean Seafloor

CATEGORIES

Categories

Select Category

ARCHIVES

Archives

Select Month

BLOGROLL

- 4.5 Billion Years of Wonder
- Accidental Remediation
- Active Margin
- All of My Faults Are Stress-Related
- Andrew's Geology Blog
- Archaeometry
- Arizona Geology
- Berkeley's Seismo Blog
- Clastic Detritus
- Cosmic Log
- Crikey Creek
- Digital Elevation
- Dinochick Blogs
- Dot Earth
- Earth and Mind
- Eruptions
- Geology in Motion
- Geotripper
- Glacial Till
- GoodSchist
- Highly Allochthonous
- History of geology
- Looking for Detachment
- Lounge of the Lab Lemming
- Maitri's VatulBlog
- Olelog
- Only in it for the gold
- Our Shaking Earth
- Pars3C
- Pathological Geomorphology
- Real Climate
- Research at a snail's pace
- Ron Schott's Geology Blog
- Skeptical Science
- The Accretionary Wedge
- The Dynamic Earth
- The Reef Tank
- The Volcanism Blog
- WaterWired
- What On Earth
- Women in Planetary Science

Posted in: [2015 Fall Meeting](#), [Uncategorized](#)

[No Comments/Trackbacks »](#)

[← PREVIOUS POST](#)

[NEXT POST →](#)



Leave a Reply

You must be [logged in](#) to post a comment.

WHO'S ONLINE