GeoScienceWorld

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gswhome.org
geoscienceworld.org

OPENGEOSCI & PUBLIC GEOSCIENCE DATA DISCOVERY

ALIX VANCE

iDigBio Paleo Imaging / 3-D Imaging / CT Scanning Workshop, UTA

April 28-May 2, 2014

Agenda

- Introduction to GeoScienceWorld
- OpenGeoSci

GEOSCIENCEWORLD

- Not for profit organization
- Founded in 2004
- By UT alumnae Sharon Mosher, Robbie Gries, and partners from leading global societies
- Purpose of making geoscience research more useful and accessible, online, to a global user community

MISSION

- Provide online resources for research in the geological and earth sciences
- Operate independently and not for profit supporting the needs of publishers, authors, researchers, and librarians
- Respond effectively to trends in academic publishing and evolving research communities

GeoScienceWorld Journals

- 45+ journals and AGI's GeoRef data
- 120,000 articles in Millennium and Archive Collections (1905–present)
- New and archive articles added continuously
- Free archive access for subscribers
- Upgraded technology in 2014: Drupal, faceted searching and clustering of results, design refresh

GeoScienceWorld

GEOSCIENCEWORLD EBOOK COLLECTIONS

- Launching Spring 2014
- 1,000 titles
- 10 publishers
- Page turning reader
- Mobile access
- Chapter downloads
- Flexible purchase models
- Full integration w/ journals – to come

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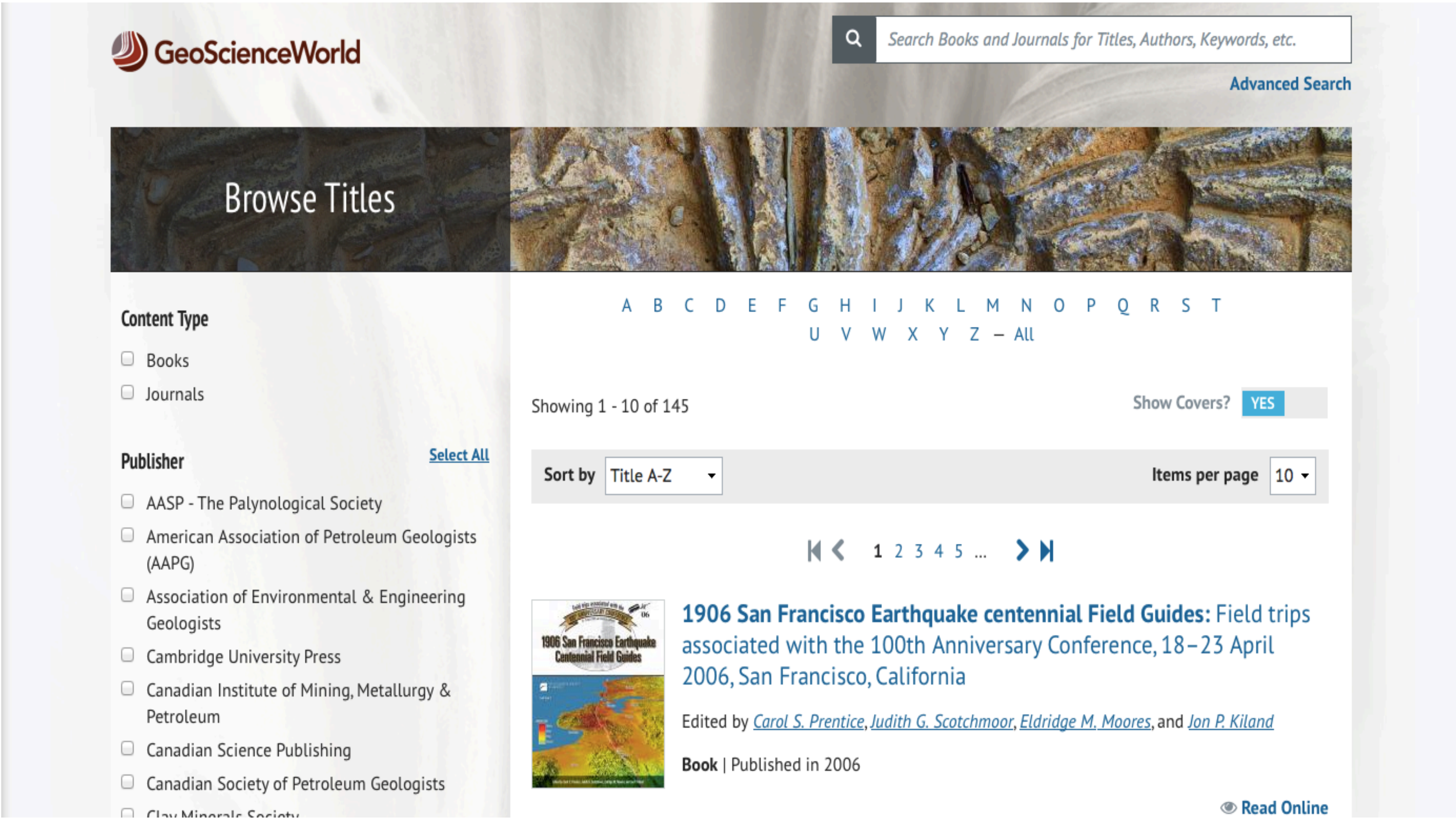
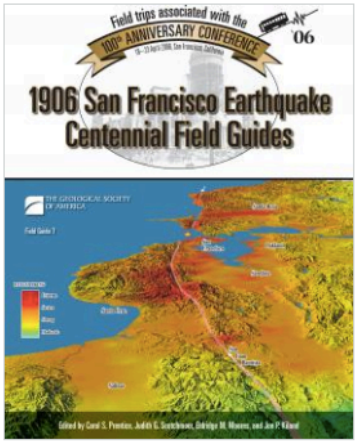


Field Guide Volume 7

1906 San Francisco Earthquake centennial Field Guides:

Field trips associated with the 100th Anniversary Conference, 18–23 April 2006, San Francisco, California

Edited by Carol S. Prentice, Judith G. Scotchmoor, Eldridge M. Moores, and Jon P. Kiland



The twenty field trip guides in this volume represent the work of earthquake professionals from the earth science, engineering, and emergency management communities. The guides were developed to cross the boundaries between these professions, and thus reflect this diversity: trips herein focus on the built environment, the effects of the 1906 earthquake, the San Andreas fault, and other active faults in northern California. Originally developed in conjunction with the 100th Anniversary Earthquake Conference held in San Francisco, California, in April 2006, this book is meant to stand the test of time and prove useful to a wide audience for general interest reading, group trips, or self-guided tours.

Search within this book

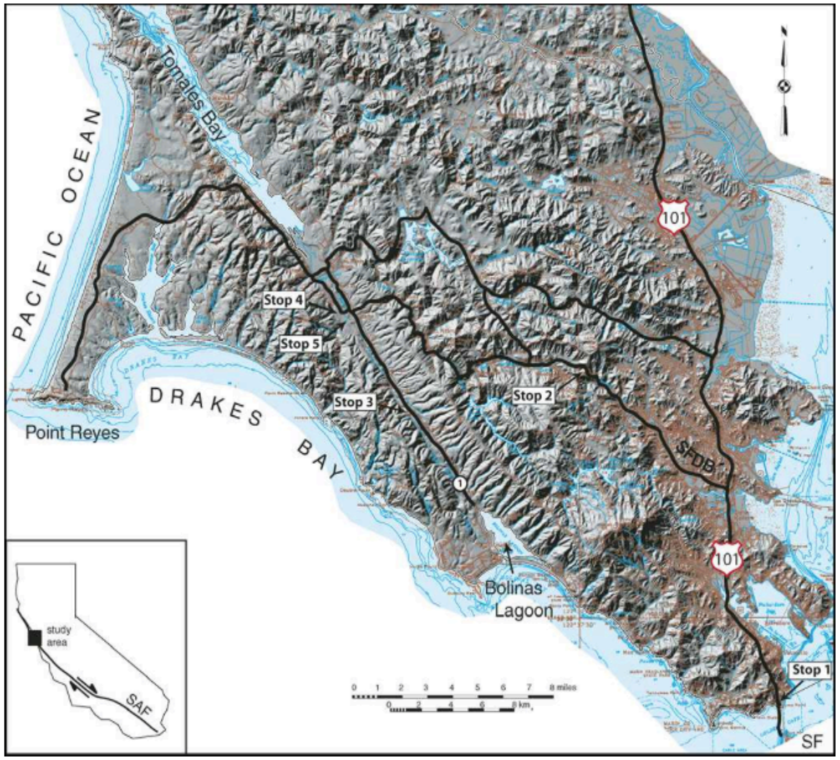


Figure 1. Shaded relief map showing the fieldtrip route and field stops (Map modified from Graham and Pike, 1997). SFDB—Sir Francis Drake Blvd. Inset map: Location of study area in California; SAF—San Andreas fault.

OPENGEOSCI.ORG

- Cyber infrastructure project for public access to data
- Free to use
- Map-based discovery environment
- Public beta platform contains 309,000+ maps, cross sections, charts, tables from GSW journals, years 2000 and forward
- Links back to contextual sources (articles or other)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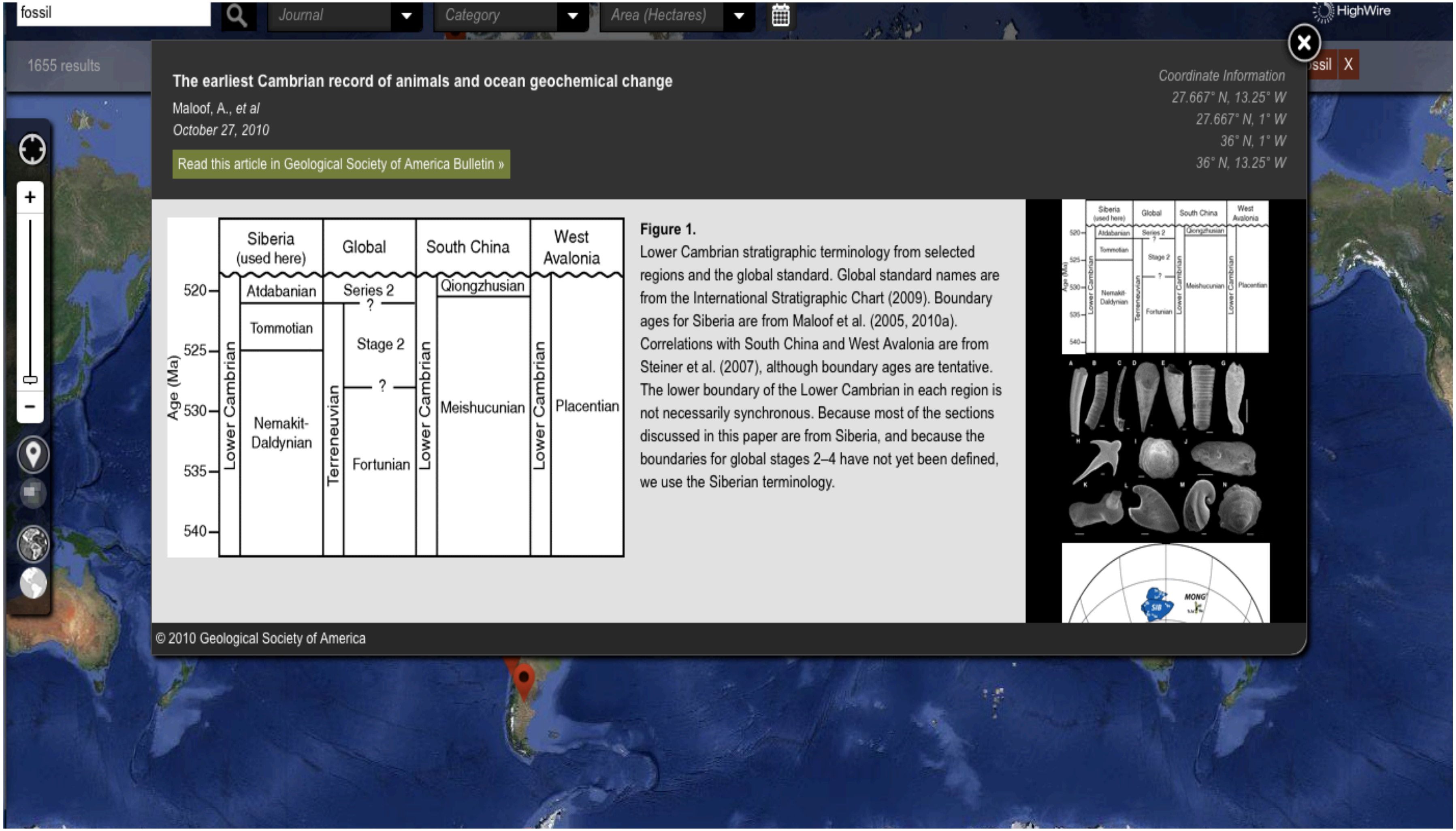

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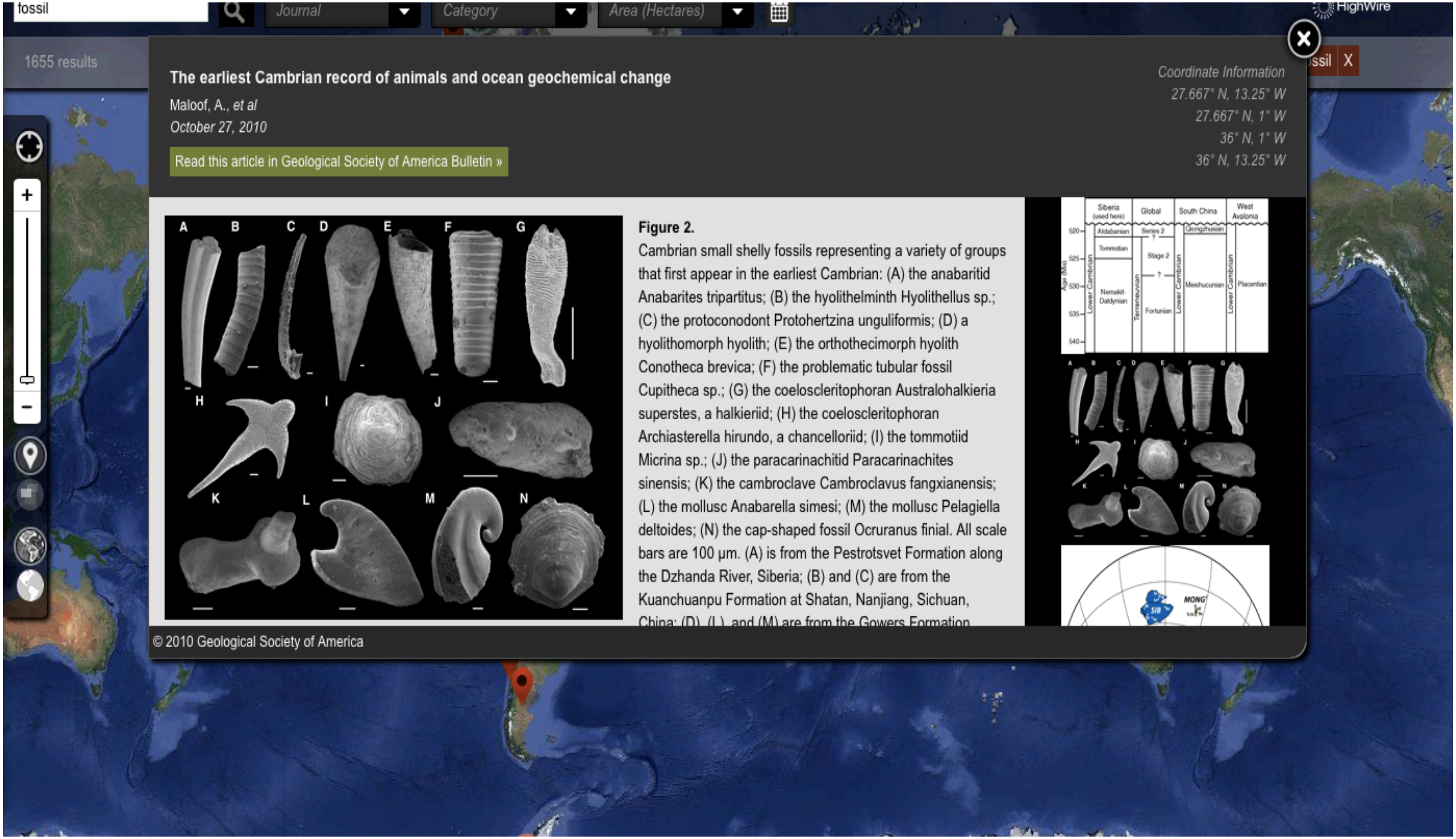

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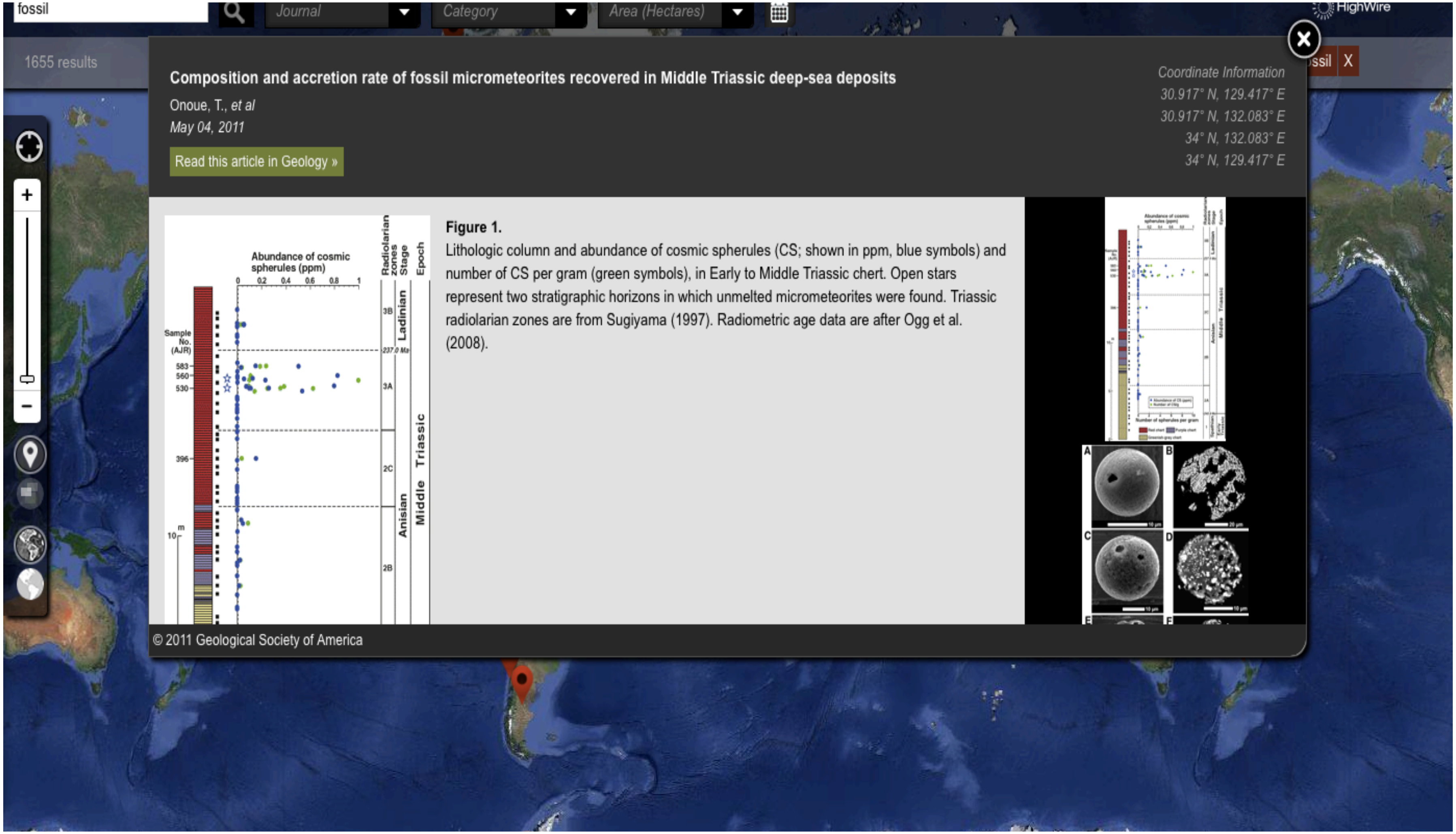

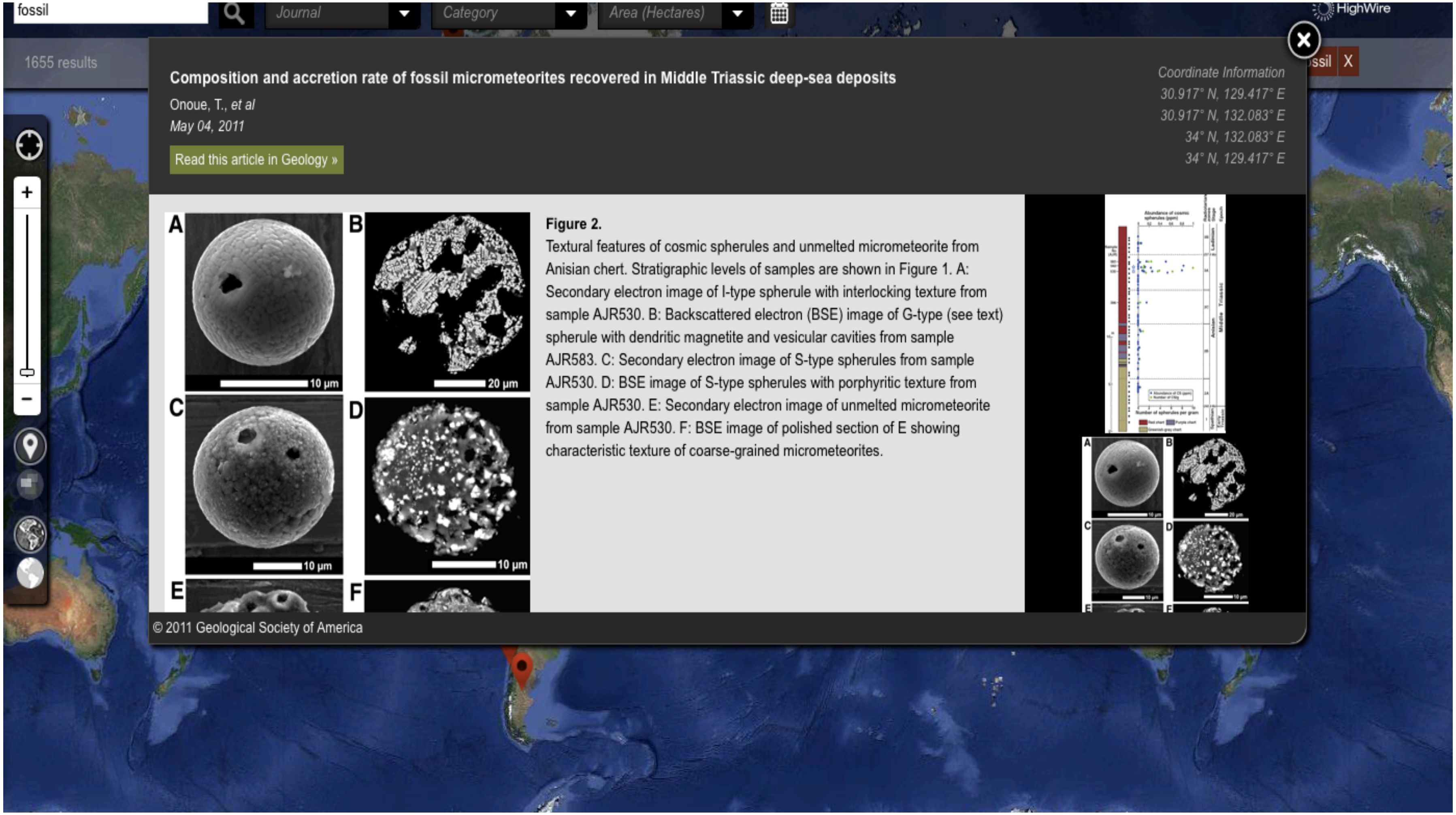
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Composition and accretion rate of fossil micrometeorites recovered in Middle Triassic deep-sea deposits
Onoue, T., et al
May 04, 2011
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Figure 2.
Textural features of cosmic spherules and unmelted micrometeorite from Anisian chert. Stratigraphic levels of samples are shown in Figure 1. A: Secondary electron image of I-type spherule with interlocking texture from sample AJR530. B: Backscattered electron (BSE) image of G-type (see text) spherule with dendritic magnetite and vesicular cavities from sample AJR583. C: Secondary electron image of S-type spherules from sample AJR530. D: BSE image of S-type spherules with porphyritic texture from sample AJR530. E: Secondary electron image of unmelted micrometeorite from sample AJR530. F: BSE image of polished section of E showing characteristic texture of coarse-grained micrometeorites.
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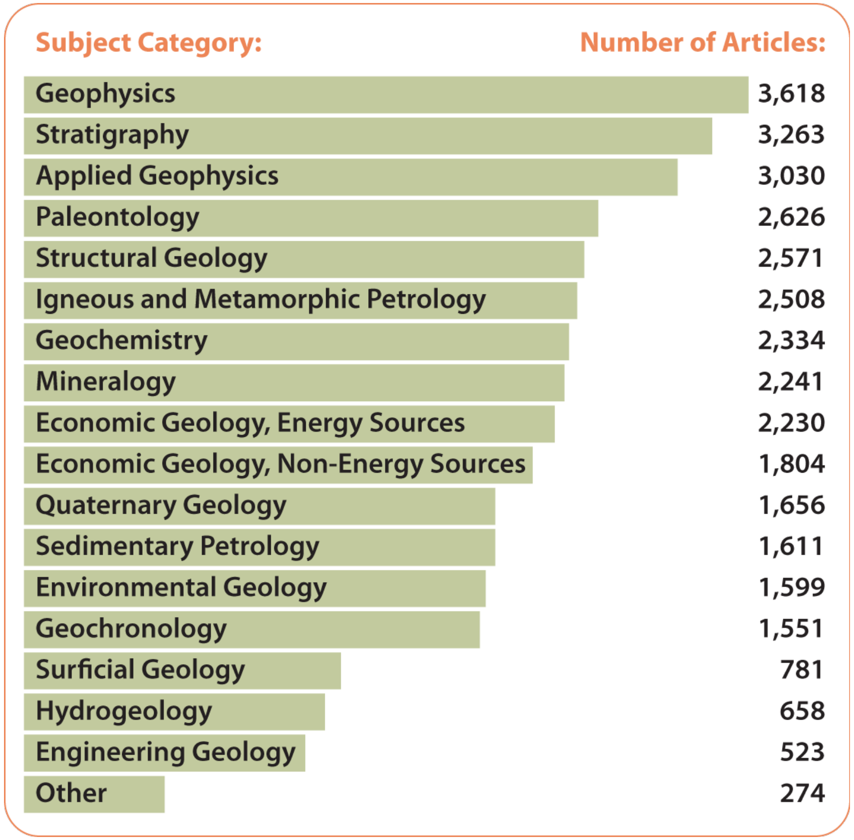
DATA FROM 45 JOURNALS – A START!

- *Geology*
- *Geophysics*
- *AAPG Bulletin*
- *Petroleum Geology*
- *Quarterly Journal of Engineering Geology & Hydrogeology*
- *Canadian Journal of Earth Sciences*
- *Journal of Sedimentary Research*

SUBJECTS ACROSS EARTH SCIENCES



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Search Features

- Map-based searching
- Optimized for tablets
- Filter results geospatially or by journal, subject category, or date
- Find results based on your location
- Utilize layers for political boundaries and terrain

Discovery Features

- Locate figures and maps with pinpoints and shaded coverage areas
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FIELD WORK AND METHODS

Geophysical mapping using multibeam echo sounder, subbottom profiler, and single-channel airgun seismic reflection equipment was carried out during field campaigns in 2008 and 2013. Sediment cores were retrieved with a 2.5-m-long gravity corer in 2008, and the upper 70 m of the sediment sequence in the southernmost part of Lake Vättern was drilled in 2012 (Fig. 1). The results from this drilling operation are not the main focus of this paper, but the recovered sediments provide important information for deciphering tectonic activity in Lake Vättern. See the Appendix for further descriptions of methods.

RESULTS AND INTERPRETATION

Our multibeam mapping outlines a SSW-NNE-trending lake trough forming the deepest part of Lake Vättern, with a maximum mapped water depth of 117 m (Fig. 1). In the southernmost part of this trough, the lake bottom is characterized by clearly visible bathymetric undulations, which we interpret as narrow collapse structures and/or subsidence zones (Fig. 2A). These collapse structures, as much as 100 m wide, range from a few meters to >10 m deep. The same kind of collapse structures are abundant in the deep strait between the island of Visingsö and the town of Gränna (Figs. 1, 2B, and 2C), while along the eastern slope of the drill site area, similar morphological structures in the lake floor give it a staircase appearance (Fig. 2A). Although only ~1 m in depth, we interpret these latter features as the surface expression of small rotational slumps resulting from movement in the underlying bedrock. Mass wasting has occurred along the eastern shore of Visingsö and in the drill-site area. The slope along Visingsö exceeds 20° and has three larger slide scars (S1, S2, and S3 in Figs. 2B and 2C). The southernmost of these, S1, is the largest and involved wasting of sediments over a 1700-m-long extent of the slope.

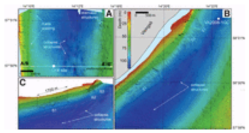

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Figure 2.

Multibeam imagery illustrating two areas of Lake Vättern graben, with collapse structures and slides. A: Mass wasting and collapse structures in southern part of Lake Vättern, near drill site. B: Location of sediment core VA2008-1GC, strategically placed to capture timing of major seismic event. S1–S3 are slide scars. C: Structures similar to those in A, along southeast coast of island of Visingsö (C is a perspective plot). Locations of A and B are shown in Figure 1.

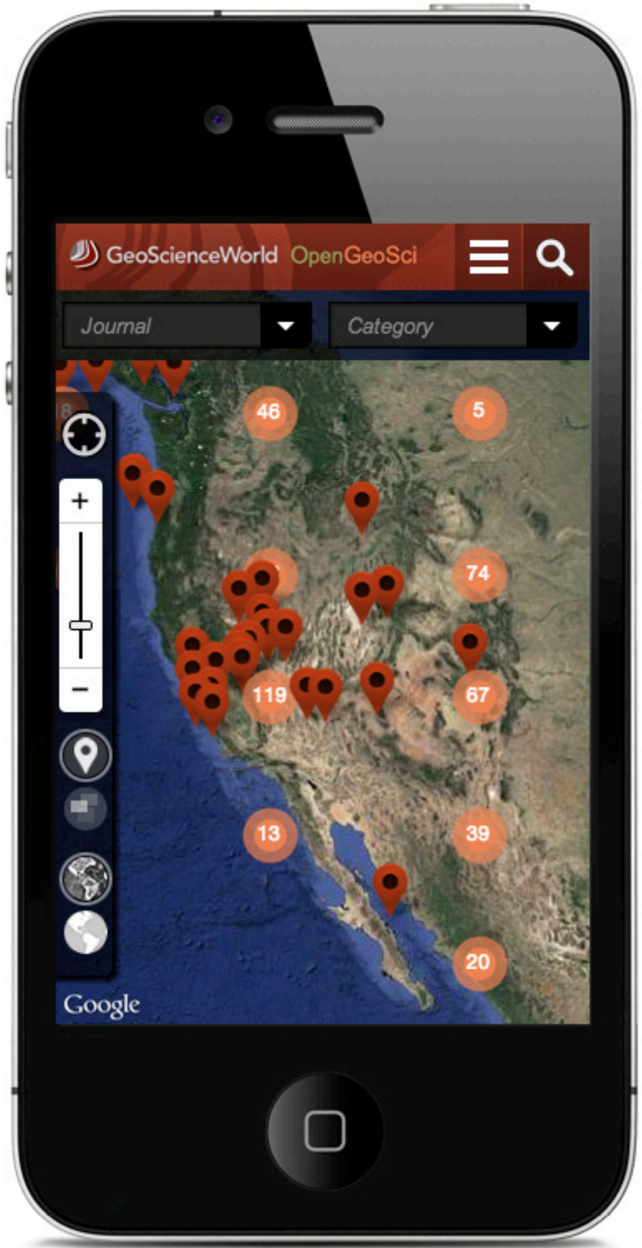
Subbottom profiles collected along with multibeam data provide a dense grid of information of the uppermost ~25–40 m of the sediment stratigraphy. The collapse structures visible in the lake floor are clearly seen in the acoustic stratigraphy (Figs. 3 and 4). In the area of the drill site, the uppermost sediment layers closely follow the collapse structures: the layers are bent downward all the way up to the lake floor. In contrast, in the strait between Visingsö and Gränna, several subbottom profiles show that the largest collapse structure is filled with postkinematic sediments that onlap older deformed sediments (Fig. 4; see the GSA Data Repository[1]). A subbottom profile crossing the deep section of the lake in the northernmost study area, near the island of Jungfrun, also contains clear indications of prominent sediment deformation, including extensional structures (Figs. 4C and 4D). Based on acoustic stratigraphic correlation, we conclude that the movement that formed the structures here was caused by the same tectonic event we mapped in the southern parts of the survey area ~80 km away. The airgun seismic reflection profiles depict the upper sediment-filled part of the graben along the entire study area (Fig. 3A). Previous seismic profiles by Axberg and Wadstein (1980), and the bathymetric map by Norrman (1964), show that this graben continues northward along the lake (Fig. 1). Deep drilling carried out by Asera Mining Ltd. showed that sandstone of the Visingsö series was encountered at 164 m below the lake floor (O. Göting, 2013, personal commun.), which coincides with the reflector outlining the sediment in the graben structure (Fig. 3A). Granite

RESEARCH PROBLEMS ADDRESSED

- Data discovery
- Context
- Relevance
- Tools (to come?)
  - Contribute content
  - Identify and enrich content
  - Access and use data to drive future discoveries
  - Give researchers recognition, a network

NEXT STEPS

- We are actively seeking strategic partners and researcher advisors
- Data content of numerous types and from many sources
- Possibilities for user content upload engine
- Major feature enhancements may require grants, partnerships, or other funding sources
- Currently creating design models (mock ups in next slides)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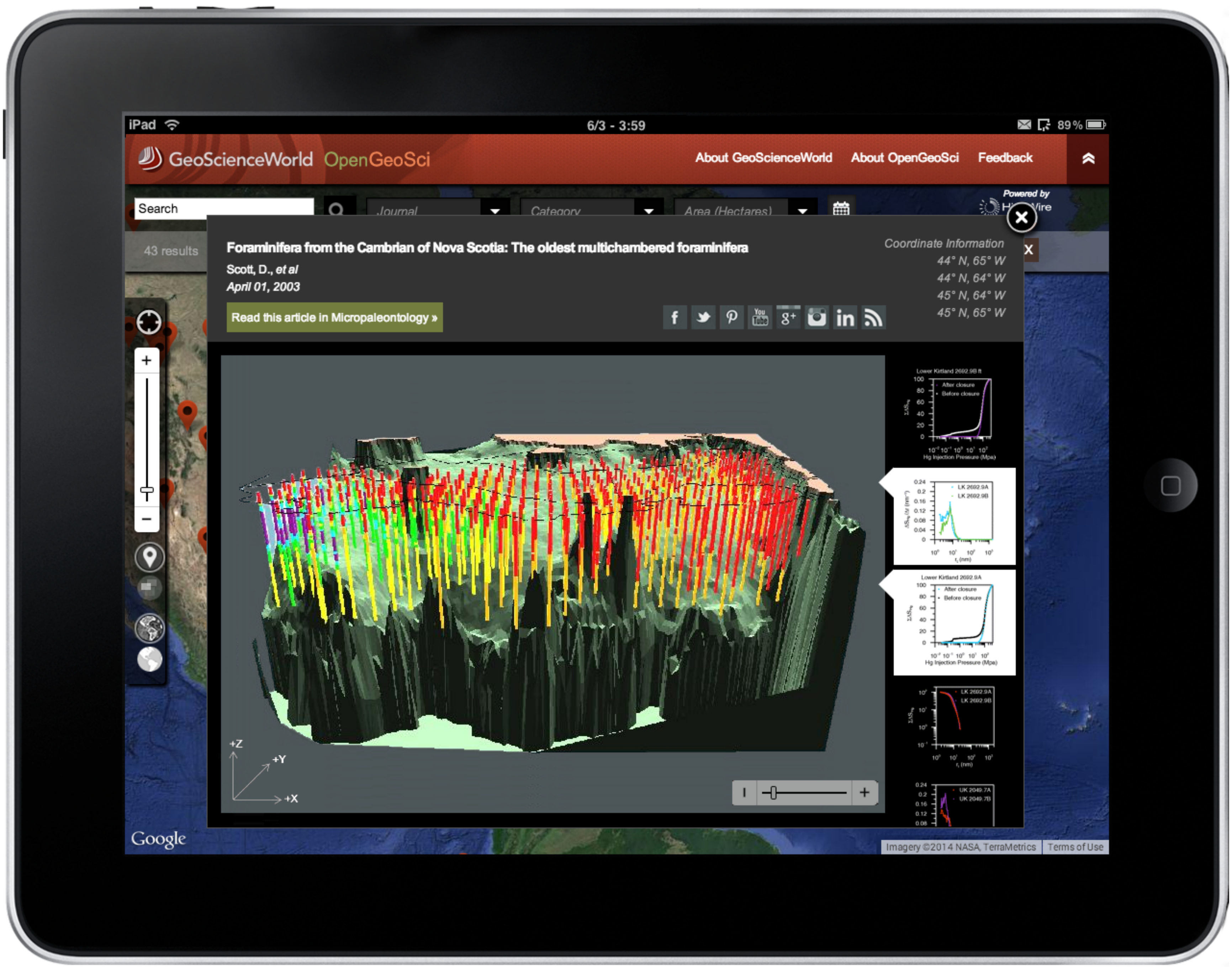

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ONLINE FOR FREE USE AND FEEDBACK

http://opengeosci.org

YouTube demonstration:
http://bit.ly/1ml4qGo

Send feedback and suggestions by email to:
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THANK YOU – QUESTIONS?

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