

## GEOREF

<b>Subject Coverage</b>	<ul style="list-style-type: none"> <li>• Alloys</li> <li>• Archaeology</li> <li>• Crystallography</li> <li>• Earth Science</li> <li>• Energy</li> <li>• Engineering</li> <li>• Environmental Science</li> <li>• Extraterrestrial Geology</li> <li>• Fuels</li> <li>• Geosciences</li> <li>• Glass</li> <li>• Hydrology</li> </ul>	<ul style="list-style-type: none"> <li>• Maps</li> <li>• Materials Science</li> <li>• Mineralogy</li> <li>• Oceanography</li> <li>• Paleontology</li> <li>• Petroleum</li> <li>• Petrology</li> <li>• Polar Research</li> <li>• Pollution Control</li> <li>• Seismology</li> <li>• Stratigraphy</li> <li>• Volcanology</li> </ul>															
<b>File Type</b>	Bibliographic																
<b>Features</b>	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Thesaurus</td> <td colspan="2">Controlled Term (/CT)</td> </tr> <tr> <td><a href="#">Alerts (SDIs)</a></td> <td colspan="2">Twice a month</td> </tr> <tr> <td>CAS Registry Number® Identifiers</td> <td style="text-align: center;"><input type="checkbox"/></td> <td>Page Images <input type="checkbox"/></td> </tr> <tr> <td><a href="#">Keep &amp; Share</a></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>SLART <input checked="" type="checkbox"/></td> </tr> <tr> <td>Learning Database</td> <td style="text-align: center;"><input type="checkbox"/></td> <td>Structures <input type="checkbox"/></td> </tr> </table>		Thesaurus	Controlled Term (/CT)		<a href="#">Alerts (SDIs)</a>	Twice a month		CAS Registry Number® Identifiers	<input type="checkbox"/>	Page Images <input type="checkbox"/>	<a href="#">Keep &amp; Share</a>	<input checked="" type="checkbox"/>	SLART <input checked="" type="checkbox"/>	Learning Database	<input type="checkbox"/>	Structures <input type="checkbox"/>
Thesaurus	Controlled Term (/CT)																
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Learning Database	<input type="checkbox"/>	Structures <input type="checkbox"/>															
<b>Record Content</b>	<ul style="list-style-type: none"> <li>• Bibliographic Information</li> <li>• Abstracts (25 % of the records)</li> <li>• Indexing Terms</li> <li>• Geographic map coordinates are also available for about 70 % of records</li> </ul>																
<b>File Size</b>	<ul style="list-style-type: none"> <li>• More than 4.2 million citations (09/2020)</li> </ul>																
<b>Coverage</b>	1669-present (North America) 1933-present (Worldwide)																
<b>Updates</b>	Twice a month with new and revised records																
<b>Language</b>	English																
<b>Database Producer</b>	American Geosciences Institute 4220 King Street Alexandria, VA 22302-1502 USA Phone: (703) 379-2480, Ext. 230 Email: <a href="mailto:ml@agiweb.org">ml@agiweb.org</a> Copyright Holder																

**Database  
Supplier**

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76012 Karlsruhe  
Germany  
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Fax: +49-7247-808-259  
Email: [helpdesk@fiz-karlsruhe.de](mailto:helpdesk@fiz-karlsruhe.de)

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**Sources**

- Over 5000 Journals
  - Conference Proceedings
  - Dissertations
  - Maps
  - Government Documents
  - Monographs
  - Books
- 

**User Aids**

- GeoRef Thesaurus (available from the producer and online)
  - Online Helps (HELP DIRECTORY lists all help messages available)
  - STNGUIDE
- 

**Cluster**

- ALLBIB
- AUTHORS
- CONSTRUCTION
- CORPSOURCE
- ENGINEERING
- ENVIRONMENT
- FUELS
- GEOSCIENCE
- PETROLEUM
- PHYSICS

STN Database Cluster information:

<http://www.stn-international.com/en/customersupport/customer-support#cluster+%7C+subjects+%7C+features>

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## General Search Fields

Fields that allow simultaneous left and right left truncation are indicated by an asterisk (\*).

Search Field Name	Search Code	Search Examples	Display Codes
Basic Index* (contains single words from the title (TI), abstract (AB), controlled term (CT), classification code (CC), and research program (PRO) fields)	None (or /BI)	S CALIFORNIA S MARINE SEDIMENT# S CRYSTAL (L) FRAMEWORK S AQUEOUS (S) SUSPENSIONS S ?MARINE?	AB, CC, CT, PRO, TI
Abstract*	/AB	S ?SYNCHRONOUS/AB	AB
Accession Number	/AN	S 1998:654/AN	AN
Author	/AU	S MACAR P?/AU S SMITH, DAVID E/AU	AU
Availability	/AV	S US DEPARTMENT OF ENERGY/AV	AV
Bibliographic Level (code and text)	/BL	S ANALYTIC/BL S SE/BL	BL
Classification Code (1) (code and text)	/CC	S SEISMOLOGY/CC S 13/CC	CC
Controlled Term (2)	/CT	S METEOR CRATERS/CT S SYENITES/CT S PRECAMBRIAN+RT/CT	CT
Controlled Word	/CW	S METEOR/CW	CT
Corporate Source (1)	/CS	S WASH? LEE/CS	CS
Country of Publication (ISO code and text)	/CY	S US/CY;S DOMINICAN REPUBLIC/CY	CY
Document Number (GeoRef Accession Number)	/DN	S 1979-00021/DN	DN
Document Type (code and text)	/DT (or /TC)	S BOOK/DT S MA/DT S L1 NOT AB/DT	DT
Entry Date (3)	/ED	S ED>=SEP 2011	ED
E-mail Address (1)	/EML	S UNI TUEBINGEN/EML	CS, EML
Field Availability	/FA	S MAPC/FA	FA
Digital Object Identifier	/FTDOI	S 10-1007/FTDOI S 00024-005-0022X/FTDOI	FTDOI, SO
International Standard (Document) Number (contains ISBN, ISSN, and CODEN)	/ISN	S 0022-1503/ISN S JOEEDU/ISN S 90-5410-659-X/ISN	ISN, SO
Journal Title	/JT	S GEODYNAMICS SERIES/JT	JT, SO
Language (ISO code and text)	/LA	S EN/LA AND SEA ICE/CT	LA
Meeting Date (3)	/MD	S 19920100<MD<19920300 S MAY 1-31, 1997/MD	MD, SO
Meeting Location (1)	/ML	S HAWAII/ML	ML, SO
Meeting Title (1)	/MT	S INTERNAT? VOLCANO?/MT	MT, SO
Meeting Year (3)	/MY	S 1997/MY AND WATER/MT	MY, SO
Note	/NTE	S PROJECT/NTE	NTE
Number of Report	/NR	S BIA-80/NR	NR, SO
Publication Date (3)	/PD	S 19980200-19980300/PD	PD, SO
Publication Year (3)	/PY	S 1997/PY	PD, PY, SO
Publisher (1)	/PB	S SPRINGER NEW YORK/PB	PB, SO
Research Program (1)	/PRO	S GEOL? SURVEY/PRO S IGCP/PRO	PRO
Reference Count (3)	/REC (/RE.CNT)	S REC>15	REC, SO

## General Search Fields (cont'd)

Search Field Name	Search Code	Search Examples	Display Codes
Source (contains journal title, collation information (volume, issue, pagination), publisher, publication date, meeting information, monographic and collective information, holding library, URL, DOI, CODEN, ISSN, and ISBN)	/SO	S PET ENG?/SO S (JOURNAL OF ANATOMY AND 142)/SO S CAMBRIDGE UNIV? PRESS/SO S GAAPBC/SO S A08/SO S RCANSINDEX.HTML/SO	SO
Title*	/TI	S GEOPRESSURE/TI	TI
Uniform Resource Locator (1)	/URL	S HTTP://WWW.SCIENCEMAG?/URL	SO, URL
Update Date (3)	/UP	S L1 AND UP>19990600	ED
Word Count, Title (3)	/WC.T	S WC.T<10	WC.T

(1) Implied (S) proximity is available in this field.

(2) A thesaurus is available in this field.

(3) Numeric search field that may be searched using numeric operators or ranges.

## Map Coordinate Fields (1)

Search Field Name	Search Code	Search Examples	Display Codes
Bottom Boundary (2)	/BB	S 400000/BB	MAPC
East Longitude (2)	/ELON	S 980000-1100000/ELON	MAPC
Left Boundary (2)	/LB	S LB=160000	MAPC
North Latitude (2)	/NLAT	S 100000=NLAT	MAPC
Right Boundary (2)	/RB	S RB=1800000	MAPC
South Latitude (2)	/SLAT	S 300000<SLAT<900000	MAPC
Top Boundary (2)	/TB	S 630000-690000/TB	MAPC
West Longitude (2)	/WLON	S 1040200-1080000/WLON	MAPC

(1) Use the (P) operator to insure all values searched are in the same set of coordinates.

(2) Numeric search field that may be searched using numeric operators or ranges.

## Controlled Term (/CT) Thesaurus

There is a thesaurus of geographic place names, systematic terms for rocks, fossils, minerals, etc., and non-systematic terms for geologic features, processes, properties, and materials available in the Controlled Term (/CT) field. Relationship Codes can be used with either the SEARCH or EXPAND command unless specified otherwise.

Code	Content	Examples
ALL	All associated terms (BT, SELF, NOTE, INDX, MAPC, UF, USE, NT, RT)	E APOLLO PROGRAM+ALL/CT
AUTO (1)	Automatic relationship (SELF, NT)	S U S VIRGIN ISLANDS+AUTO/CT
BT	Broader Terms (BT, SELF)	E ANDRADITE+BT/CT
HIE	Broader and Narrower Terms (BT, SELF, NT)	E CENTRAL AFRICA+HIE/CT
INDX (2)	Indexer Note (SELF, INDX)	E GEOCHRONOLOGY+INDX/CT
KT	Keyword Terms (multiword phrases containing the specified Keyword Term) (SELF, KT)	S EROSION+KT/CT
MAPC (2)	Map Coordinates associated with term (SELF, MAPC)	E LOWER SAXONY GERMANY+MAPC/CT
NOTE (2)	Notes associated with terms (SELF, NOTE, INDX)	E MASTODON+NOTE/CT

**Controlled Term (/CT) Thesaurus (cont'd)**

Code	Content	Examples
NT PFT	Narrower Terms (SELF, NT) Preferred or Forbidden Terms (SELF, NOTE, USE, UF)	S MARS+NT/CT S SUBMARINE CONE+PFT/CT
RT STD	Related Terms (see also terms) (SELF, RT) Broader, Narrower, and Related Terms (BT, SELF, NT, RT)	S QUARTZ+RT/CT E UPPER SILURIAN+STD/CT
UF USE	Used For Terms (Preferred Terms) (SELF, UF) Use Terms (Forbidden Terms) (SELF, USE)	S GEYSERS+UF/CT S WATER CYCLE+USE/CT

(1) Automatic relationship code (ARC) is SET OFF by default. When SET REL is ON, the result of EXPAND or SEARCH without any relationship code is the same as described for AUTO.

(2) This Relationship Code can only be used with EXPAND.

**DISPLAY and PRINT Formats**

Any combination of formats can be used to display or print answers. Multiple codes must be separated by spaces or commas, e.g., D L1 1-5 TI AU. The fields are displayed in the order requested.

Hit-term highlighting is available in all fields except MAPC. Highlighting must be ON during SEARCH to use the HIT, KWIC, and OCC formats.

Format	Content	Examples
AB	Abstract	D AB L4 1-5
AN	Accession Number	D L2 AN 3
AU	Author	D 1-3 AU L8
AV	Availability	D AV
BL	Bibliographic Level	D BL
CC	Classification Code	D CC 1-5
CS	Corporate Source	D CS 3,7
CT	Controlled Term	D TI CT NTE 8
CY	Country of Publication	D CY
DN	Document Number (GeoRef Accession Number)	D DN
DT (TC)	Document Type	D 1-10 DT
ED (UP)	Entry Date	D ED
EML (1)	E-mail Address	D EML
FTDOI (1)	Digital Object Identifier	D FTDOI
ISN (1)	International Standard (Document) Number	D 1 5 ISN
JT (1)	Journal Title	D JT
LA	Language	D 2-8 11 LA
MAPC	Map Coordinates	D MAPC 3-6
MD (1)	Meeting Date	D MT MD
ML (1)	Meeting Location	D ML
MT (1)	Meeting Title	D MT ML
MY (1)	Meeting Year	D MY
NR	Number of Report	D NR
NTE	Note	D NTE 1 3-4
PB (1)	Publisher	D PB
PD (1)	Publication Date	D PD
PRO	Research Program	D PRO
PY (1)	Publication Year	D PY
REC (RE.CNT) (1)	Reference Count	D REC
SL	Summary Language	DIS SL L4 6
SO	Source (includes NR)	D SO CS 1-3
TI	Title	D TI AU 1-3
URL (1)	Uniform Resource Locator	D URL
WC.T (1)	Word Count, Title	D WC.T

**DISPLAY and PRINT Formats (cont'd)**

Format	Content	Examples
ABS ALL	AB AN, DN, TI, AU, CS, NR, SO, NTE, CY, DT, BL, LA, AV, ED, SL, AB, PRO, CC, CT, MAPC	D 1-15 ABS D ALL
BIB	AN, DN, TI, AU, CS, NR, SO, NTE, CY, DT, BL, LA, AV, ED, SL (BIB is the default)	D L2 3 BIB;D
DALL	ALL, delimited for post-processing	D DALL
IALL	ALL, indented with text labels	D IALL
IBIB	BIB, indented with text labels	D IBIB
IIND	IND, indented with text labels	D IIND
IND	PRO, CC, CT, MAPC	DIS IND 4 7
SCAN	CT, TI (random access without accession number)	D SCAN
TRIAL (TRI, SAM, SAMPLE, FREE)	AN, TI, CC, CT, MAPC	D 1- TRIAL
HIT KWIC OCC	Fields containing hit terms Hit terms with 20 words on either side (KeyWord-In-Context) Number of occurrences of hit terms and fields in which they occur	D HIT BIB 9 D KWIC D OCC

(1) Custom display only.

**SELECT, ANALYZE, and SORT Fields**

The SELECT command is used to create E-numbers containing terms taken from the specified field in an answer set.

The ANALYZE command is used to create an L-number containing terms taken from the specified field in an answer set.

The SORT command is used to rearrange the search results in either alphabetic or numeric order of the specified field(s).

Field Name	Field Code	ANALYZE/ SELECT (1)	SORT
Abstract	AB	Y	Y
Accession Number	AN	Y	Y
Author	AU	Y	Y
Availability	AV	Y	Y
Bibliographic Level	BL	Y	Y
Citation	CIT	Y (2,3)	N
Classification Code	CC	Y	Y
CODEN	CODEN	N	Y
Controlled Term	CT	Y	Y
Corporate Source	CS	Y	Y
Country of Publication	CY	Y	Y
Document Number (GeoRef Accession Number)	DN	Y	Y
Document Type	DT (TC)	Y	Y
E-mail Address	EML	Y	Y
Entry Date	ED	Y	Y
Field Availability	FA	Y	Y
Digital Object Identifier	FTDOI	N	Y
International Standard Book Number	ISBN	N	Y
International Standard (Document) Number	ISN	Y (4)	Y
International Standard Serial Number	ISSN	N	Y
Journal Title	JT	Y	Y
Language	LA	Y	Y
Meeting Date	MD	Y	Y
Meeting Location	ML	Y	Y

**SELECT, ANALYZE, and SORT Fields (cont'd)**

Field Name	Field Code	ANALYZE/ SELECT (1)	SORT
Meeting Title	MT	Y	Y
Meeting Year	MY	Y	Y
Number of Report	NR	Y	Y
Note	NTE	Y	Y
Occurrence Count of Hit Terms	OCC	N	Y
Publisher	PB	Y	Y
Publication Date	PD	Y	Y
Publication Year	PY	Y	Y
Research Program	PRO	Y	Y
Reference Count	REC (RE.CNT)	Y	Y
Source	SO	Y (5)	N
Summary Language	SL	Y	Y
Title	TI	Y (default)	Y
Uniform Resource Locator	URL	Y	Y
Update Date	UP	Y	Y
Word Count, Title	WC.T	Y	Y

- (1) HIT may be used to restrict terms extracted to terms that match the search expression used to create the answer set, e.g., SEL HIT AU.
- (2) Extracts first author, publication year, volume, and first page with a truncation symbol appended and with /RE appended to the terms created by SELECT.
- (3) SELECT HIT and ANALYZE HIT are not valid with this field.
- (4) Selects or analyzes CODEN, ISBN, ISSN with /ISN appended to the terms created by SELECT.
- (5) Selects or analyzes CODEN, ISBN, ISSN with /SO appended to the terms created by SELECT.

**Sample Records****DISPLAY BIB**

AN 2009:91183 GEOREF  
 DN 2010-002790  
 TI New Moho map for onshore Southern Norway  
 AU Stratford, Wanda; Thybo, Hans; Faleide, Jan Inge; Olesen, Odleiv;  
 Tryggvason, Ari  
 CS University of Copenhagen, Department of Geography and Geology,  
 Copenhagen, Denmark; University of Oslo, Norway; Geological Survey of  
 Norway, Norway; Uppsala University, Sweden  
 EMAIL: Ws@geo.ku.dk  
 SO Geophysical Journal International (Sep 2009), Volume 178, Number 3, pp.  
 1755-1765, 74 refs., illus. incl. 1 table, sketch maps  
 ISSN 0956-540X E-ISSN: 1365-246X  
 DOI: 10.1111/j.1365-246X.2009.04240.x  
 Published by: Wiley-Blackwell on behalf of The Royal Astronomical  
 Society, the Deutsche Geophysikalische Gesellschaft and the European  
 Geophysical Society  
 URL (Source): <http://www.blackwellpublishing.com/journal.asp?ref=0956-540X>  
 DT Serial  
 BL Analytic  
 LA English  
 ED Entered STN: 4 Dec 2009  
 Last updated on STN: 2 Aug 2011

## GEOREF

## DISPLAY ALL

AN 2011:53988 GEOREF  
 DN 2011-064961  
 TI Long-period, long-duration seismic events during hydraulic fracture stimulation of a shale gas reservoir  
 AU Das, Indrajit; Zoback, Mark D.  
 CS Stanford University, Stanford, CA, United States of America  
 EMAIL: idas@stanford.edu  
 SO Leading Edge (Tulsa, OK) (Jul 2011), Volume 30, Number 7, pp. 778-786, 8 refs., illus.  
 ISSN 1070-485X  
 DOI: 10.1190/1.3609093  
 Published by: Society of Exploration Geophysicists, Tulsa, OK, United States of America  
 URL (Source): <http://www.segdl.org/tle/>  
 CY United States of America  
 DT Serial  
 BL Analytic  
 LA English  
 ED Entered STN: 5 Aug 2011  
 Last updated on STN: 12 Aug 2011  
 AB We report here a series of long-period and long-duration (LPLD) seismic events observed during hydraulic fracturing in a shale gas reservoir. These unusual events, 10-100 s in duration, are observed most clearly in the frequency band of 10-80 Hz and are remarkably similar in appearance to tectonic tremor sequences first observed in subduction zones. These complex but coherent wave trains have finite moveouts obtained from cross-correlation. The moveout direction of the events confirms that they originate in the reservoir from the area where the fracturing is going on. Clear P- and S-wave arrivals cannot be resolved within the LPLD episodes but, in some cases, small micro-earthquakes occur in the sequences. Whether these micro-earthquakes are causal or coincidental is not known. It has also been observed that in three contiguous frac-stages, all LPLD events appear to come from two distinct places along one of two hypothetical fracture planes. Interestingly, the stages which have the largest number of LPLD events also have the highest observed pumping pressures during fracturing, the highest density of natural fractures, and the greatest number of micro-earthquakes. One possible explanation of these LPLD events is that the high pore fluid pressure during hydraulic fracturing stimulates slow slip on pre-existing fault planes. In the absence of elevated pressure, slip would not be expected on these planes as they are poorly oriented to the stress field. Slip on these fault planes may be occurring because the fluid pressure is close to the magnitude of the least principal stress. We observe a few events between pumping cycles perhaps indicating that, once triggered, these planes continue to slip due to the high transient pressure within the fault planes after pumping has stopped.  
 CC 29 (Economic geology, geology of energy sources); 20 (Applied geophysics)  
 CT Barnett Shale; body waves; Carboniferous; clastic rocks; crosscorrelation; earthquakes; elastic waves; faults; fractures; geophysical methods; hydraulic fracturing; long-period waves; microseisms; Mississippian; models; moveout; natural gas; oil wells; P-waves; Paleozoic; petroleum; pore pressure; reservoir rocks; S-waves; sedimentary rocks; seismic methods; seismic waves; seismicity; seismograms; shale; spectra; statistical analysis; stress; Texas; United States; velocity; waveforms  
 MAPC NLAT 254500; NLAT 363000; WLON 0933000; WLON 1063000



**DISPLAY IBIB**

ACCESSION NUMBER: 2011:45798 GEOREF  
DOCUMENT NUMBER: 2011-056313  
TITLE: Operation Superior; geochemical and mineralogical (KIM, gold grains and MMSIM) results from the 1999 multimedia survey, southern Knee Lake greenstone belt  
AUTHOR(S): Fedikow, M. A. F.; Nielsen, E.  
SOURCE: Manitoba mining and minerals convention 2000; program (2000), pp. 41  
Editor(s): Wyshynski, M.  
Conference: Manitoba mining and minerals convention 2000, Winnipeg, MB, Canada, 16 Nov 2000 - 18 Nov 2000  
COUNTRY OF PUBLICATION: Canada  
DOCUMENT TYPE: Report; Conference; Abstract  
BIBLIOGRAPHIC LEVEL: Analytic  
LANGUAGE: English  
AVAILABILITY: Manitoba Industry, Trade and Mines, Winnipeg, MB, Canada  
ENTRY DATE: Entered STN: 30 Jun 2011  
Last updated on STN: 12 Aug 2011

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**In North America**

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Fax: +49-7247-808-259  
Email: helpdesk@fiz-karlsruhe.de  
Internet: www.stn-international.de

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International Chemical Information)  
STN Japan  
Nakai Building  
6-25-4 Honkomagome, Bunkyo-ku  
Tokyo 113-0021, Japan  
Phone: +81-3-5978-3601 (Technical Service)  
+81-3-5978-3621 (Customer Service)  
+81-3-5978-3600  
Email: support@jaici.or.jp (Technical Service)  
customer@jaici.or.jp (Customer Service)  
Internet: www.jaici.or.jp