

Schema.org implementation by the Magnetic Information Consortium (MagIC)

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Anthony Koppers, Lisa Tauxe



MagIC is a Paleomagnetic Database

Secure | <https://www2.earthref.org/MagIC>

EarthRef.org MagIC GERM SBN FeMO SCC ERESE ERDA References Users Logout Nicholas Jarboe

Magnetics Information Consortium (MagIC)

Promoting information technology infrastructures for the international paleomagnetic, geomagnetic and rock magnetic community.

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 **Search Interface**
Browse, combine, and save datasets.

 **Upload Tool**
Import data into your private workspace.

 **Private Workspace**
Manage your contributions to MagIC.

MagIC Resources

 **Data Model**
 **Method Codes**
 **Vocabulary Lists**
 **Upgrade Tool**
 **D.M.P. Tool**
 **PmagPy Software**
 **Paleomag Textbook**
 **Jupyter Notebooks**

Recent Contributions

Bogue et al. (2017) v. 4 Directional change during a Miocene R-N geomagnetic polarity reversal rec... June 11, 2018 by Nicholas Jarboe

 **MagIC Contribution Link:** [earthref.org/MagIC/16465](https://www2.earthref.org/MagIC/16465)
EarthRef Data DOI Link: Queued For Creation

4 Locations
408 Sites
397 Samples
397 Specimens
397 Experiments

 **Geographic:** North America, United States of America, Eastern

Class: Extrusive, Igneous,...
Type: Lava Flow

EGU MagIC at EGU

Visit us at the **EGU General Assembly 2018** where our poster **EGU2018-11767** *MagIC's Migration to a Simplified Data Model and Updated Open Source Technologies Improves Community Engagement, Website Responsiveness, and Development Times* is in **Session EMRP3.5 Geomagnetic field variations in ancient times: new paleo/archeomagnetic data and models to disclose fundamental properties of the Earth's magnetic field at poster **119 Hall X2** and we will be there **Monday, 09 Apr 2018, 17:30-19:00**.**

Project 418

MagIC is working with EarthCube **Project 418** to publish **JSON-LD** contribution metadata. MagIC is providing a rich selection of HTML5 microdata **schema.org** parameters for

A Meteor Frontend Using an Elasticsearch Datastore Allows Fast and Complex Searching

M **Magnetics Information Consortium (MagIC)**
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Contributions 27 Locations 48 Sites 65 Samples 0 Specimens 0 Experiments 0 Measurements 0 **Private Workspace**

Q Search MagIC sedimentary -precambrian **Search** **Clear** **Download Results**

Filters **Clear Filters** **Summaries** 27 **Map** 27 **Most Cited Publication First**

Publication Year
1980 to 2018

Geospatial Boundary
Lat 0 to 90 deg
Lon 140 to 180 deg

Age Range
10 Ma to 100 Ma

Absolute Paleointensity Range
0 to Infinity μT

Author
External Database

Haston & Fuller (1991) v. 2 Paleomagnetic data from the Philippine Sea Plate and their tectonic significance December 20, 2006 by **MagIC Database Team**

MagIC Contribution Link: earthref.org/MagIC/13439
EarthRef Data DOI Link: [10.7288/V4/MAGIC/13439](https://doi.org/10.7288/V4/MAGIC/13439)
Publication DOI Link: [10.1029/90JB02700](https://doi.org/10.1029/90JB02700)

Geologic: Philippine Sea, Aimeliik Formation...
Class: Extrusive, Intrusive, Sedimentary
Age: 0 - 56 Ma

Geographic: Pacific Ocean, U.S.A., Guam Islan...
Lithology: Andesite, Basalt, Dacite, Intrusives,...

Download

Takeuchi et al. (1999) v. 2 Paleomagnetic evidence for block rotations in central Hokkaido-south Sakhalin... December 22, 2006 by **MagIC Database Team**

MagIC Contribution Link: earthref.org/MagIC/13492
EarthRef Data DOI Link: [10.7288/V4/MAGIC/13492](https://doi.org/10.7288/V4/MAGIC/13492)
Publication DOI Link: [10.1016/S0012-821X\(99\)0008](https://doi.org/10.1016/S0012-821X(99)0008)

Geographic: Asia, Russia, Sakhalin, South Sakhalin Cenozoic Sediments, Outcrop
Class: Sedimentary
Age: 16 - 43 Ma

Download

Roberts & Lewin-Harris (2000) v. 2 Marine magnetic anomalies: evidence that tiny wiggles' represent short-... January 18, 2007 by **MagIC Database Team**

About 4200 Datasets With Over 4 Million Measurements

Contributions 4,172 Locations 10,320 Sites 153,294 Samples 44,665 Specimens 51,991 Experiments 61,941 Measurements 4,104,853 Private Workspace

Search MagIC e.g. metamorphic "field intensity" -precambrian Search Clear Download Results

Filters Clear Filters Summaries 4,172 Map 4,153 Recently Contributed First

Publication Year
-Infinity to 2018

Geospatial Boundary
Lat -90 to 90 deg
Lon -360 to 360 deg

Age Range
0 Ma to Infinity Ma

Absolute Paleointensity Range
0 to Infinity μT

Author
External Database
Contributor
Location Type
Geologic Type
Geographic Type

Sprain et al. (2018) v. 1 A field like today's? The strength of the geomagnetic field 1.1 billion years ago March 16, 2018 by Courtney Sprain

MagIC Contribution Link: earthref.org/MagIC/16426 **EarthRef Data DOI Link:** [10.7288/V4/MAGIC/16426](https://doi.org/10.7288/V4/MAGIC/16426) **Publication DOI Link:** [10.1093/gji/ggy074](https://doi.org/10.1093/gji/ggy074)

Geographic: Mamanise_Point, Simpson_Island **Class:** No Geologic Data **Type:** No Age Data

Download

Tsukui & Clyde (2012) v. 5 Fine-tuning the calibration of the early to middle Eocene geomagnetic polarity time scale: Pal... March 9, 2018 by William Clyde

MagIC Contribution Link: earthref.org/MagIC/16422 **EarthRef Data DOI Link:** [10.7288/V4/MAGIC/16422](https://doi.org/10.7288/V4/MAGIC/16422) **Publication DOI Link:** [10.1130/B30545.1](https://doi.org/10.1130/B30545.1)

Geographic: United States of America, Rocky Mountains Laramide Basins, Land Section **Class:** Sedimentary **Type:** Sediment Layer **Lithology:** Tuff

Download

Clyde et al. (2010) v. 4 New Paleomagnetic and Stable-Isotope Results from the Nanxiong Basin, China: Implications for t... March 9, 2018 by William Clyde

MagIC Contribution Link: earthref.org/MagIC/16421 **EarthRef Data DOI Link:** [10.7288/V4/MAGIC/16421](https://doi.org/10.7288/V4/MAGIC/16421) **Publication DOI Link:** [10.1086/649893](https://doi.org/10.1086/649893)

Geographic: China, Nanxiong Basin, Stratigraphic Section **Class:** Sedimentary **Type:** Sediment Layer **Lithology:** Silicate-Mudstone

Download

Individual File Downloads – API in the Future Data Can be Per Contribution or a Composite Search

▼ Tsukui & Clyde (2012) v. 5 Fine-tuning the calibration of the early to middle Eocene geomagnetic polarity

Download

MagIC Contribution Link: earthref.org/MagIC/16422
EarthRef Data DOI Link: [10.7288/V4/MAGIC/16422](https://doi.org/10.7288/V4/MAGIC/16422)
Publication DOI Link: [10.1130/B30545.1](https://doi.org/10.1130/B30545.1)

Method Codes:
No Intensity Data: DE-BFL, DE-RAN, FS-FD, FS-H, FS-LOC-GPS, GM-FOSSIL, LP-DC5, LP-DIR-AF, LP-DIR-T, LP-IRM-3D,...

No Additional Citations

Geographic: United States c America, Rocky Mountains Laramide Basin Land Section



Download	MagIC Contribution Link	Version	Data Model	Date	Contributor
Download	earthref.org/MagIC/16422	5	3.0	March 9, 2018	William Clyde
Download	earthref.org/MagIC/14021	4	3.0	November 17, 2015	William Clyde
Download	earthref.org/MagIC/10909	3	2.5	November 17, 2015	William Clyde

Individual versioned text file downloads



Download Results

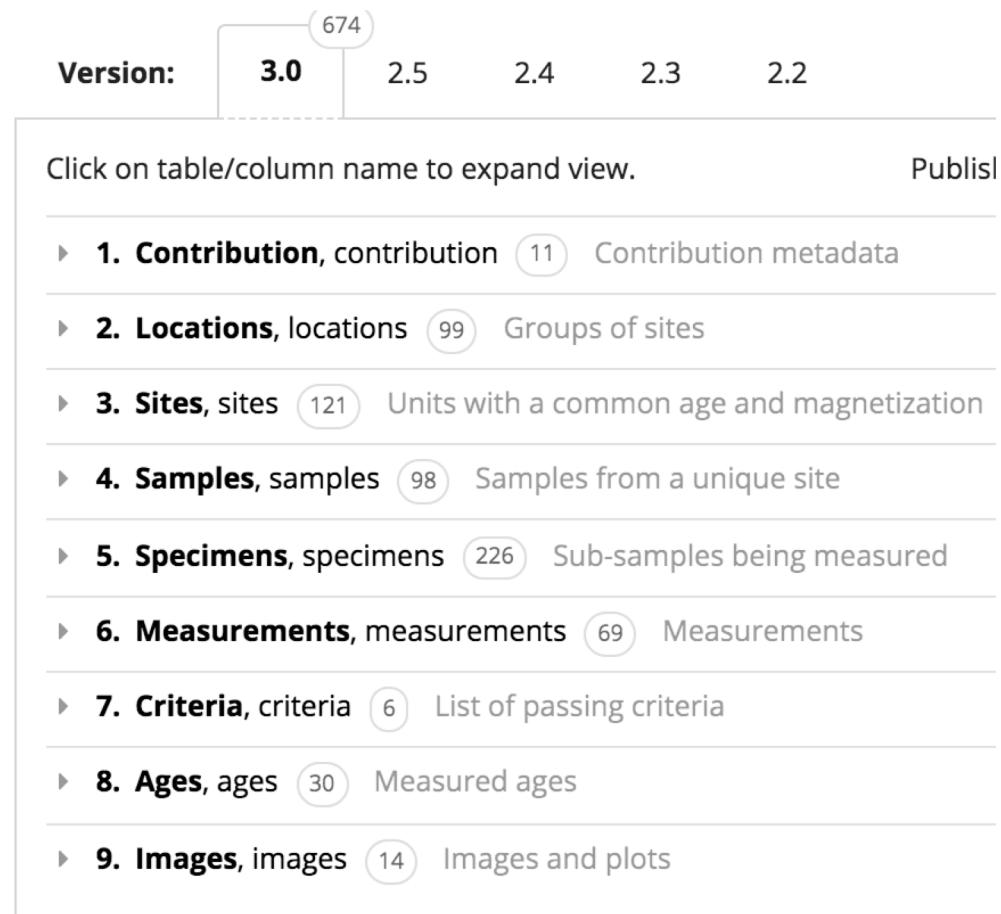
70 Contribution Files

OR

- 84 Location Rows
 1,815 Site Rows
 318 Sample Rows
 1,159 Specimen Rows
 2,200 Measurement Rows
- MagIC Text File
 Excel Spreadsheet

Composite files created by searching

Six Hierarchical Tables with 674 Columns



Everything is Meta-Data?

▼ 2. Locations, locations	(99)	Groups of sites	
<hr/>			
▼ Names Group	5		
▶ 2.1 Location Name, location	String	Name for location, dredge or drill site	Required
▶ 2.2 Site Names, sites	List	Colon-delimited list of the names of sites included in the result	Found In
▶ 2.3 Sample Names, samples	List	Colon-delimited list of the names of samples included in the result	Found In
▶ 2.4 Specimen Names, specimens	List	Colon-delimited list of the names of specimens included in the result	Found In
▶ 2.5 Experiment Names, experiments	List	Colon-delimited list of the names of experiments included in the result	Found In
<hr/>			
▼ Location Group	2		
▶ 2.6 Location Type, location_type	String	Location type	Required Controlled
▶ 2.7 Location Name Alternatives, location_alternatives	List	Colon-delimited list of alternative names and abbreviations	
<hr/>			
▼ Result Group	6		
▶ 2.8 Result Name, result_name	String	Name for result or name assigned to paleomagnetic pole	
▶ 2.9 Result Type, result_type	Flag	Individual (i), average (a), model (m) or stacked (s) data	Governed Controlled
▶ 2.10 Result Quality, result_quality	Flag	Indicating if good (g) or bad (b) data	Governed Controlled
▶ 2.11 Method Codes, method_codes	List	Colon-delimited list of method codes	Governed Controlled
▶ 2.12 Display Order, display_order	Number	Order of the rows for display purposes. If not set at upload will be set to the order in the uploaded fil...	
▶ 2.13 Citation DOIs, citations	List	Colon-delimited list of citation DOIs	Governed Suggested

Closest to Raw Data in the Database – Six columns

Raw Measurement Group 8		
▶ 6.42 Magnetic Moment X, magn_x	Number in Am ²	Measured magnetic moment, X
▶ 6.43 Magnetic Moment X Sigma, magn_x_sigma	Number in Am ²	Standard deviation in measurements, X
▶ 6.44 Magnetic Moment Y, magn_y	Number in Am ²	Measured magnetic moment, Y
▶ 6.45 Magnetic Moment Y Sigma, magn_y_sigma	Number in Am ²	Standard deviation in measurements, Y
▶ 6.46 Magnetic Moment Z, magn_z	Number in Am ²	Measured magnetic moment, Z
▶ 6.47 Magnetic Moment Z Sigma, magn_z_sigma	Number in Am ²	Standard deviation in measurements, Z

MagIC schema.org Header

```
▼<script id="schemaorg" type="application/ld+json" data-react-helmet="true">
  {
    "@context": {
      "@vocab": "http://schema.org"
    },
    "@type": "Dataset",
    "url": "https://earthref.org/MagIC/doi/10.1002/2017GC007049",
    "citation": "https://dx.doi.org/10.1002/2017GC007049",
    "license": "CC-BY-4.0",
    "version": 4,
    "contributor": "Nicholas Jarboe",
    "dateModified": "2018-06-12T03:04:04.416Z",
    "name": "Directional change during a Miocene R-N geomagnetic polarity reversal recorded by mafic lava flows, Sheep Creek Range, north central Nevada, USA",
    "datePublished": 2017,
    "spatialCoverage": {
      "@type": "Place",
      "geo": [
        {
          "@type": "GeoCoordinates",
          "latitude": 40.70923,
          "longitude": -116.82405
        },
        {
          "@type": "GeoCoordinates",
          "latitude": 40.69058,
          "longitude": -116.83675
        },
        {
          "@type": "GeoShape",
          "box": "40.69058 -116.85209 40.72978 -116.82405"
        }
      ]
    }
  }

```

Desired Fields

Time for geologists

Schema.org supports ISO 8601
Can only go back to -9999 years
or about 12000 BP

temporalCoverage

[Text](#), Recommended (only if the dataset has a temporal extent)

The data in the dataset covers a specific time interval. Schema.org uses the ISO 8601 standard to describe time intervals and time points. You can describe dates differently depending upon the dataset interval. Indicate open-ended intervals with two decimal points (...).

Single date

```
"temporalCoverage" : "2008"
```



Time period

```
"temporalCoverage" : "1950-01-01/2013-12-18"
```



Open-ended time period

```
"temporalCoverage" : "2013-12-19/.."
```



Standard Geologic Vocabularies

Who determines the list?



END



END

Desired Fields

Desired Fields

Desired Fields