

# The Magnetism Information Consortium (MagIC) Data Repository: Interoperability with GeoCodes, EPOS, and Other Information Systems

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<sup>4</sup>Oregon State University

<sup>5</sup>UC San Diego

November 26, 2022

## Abstract

MagIC ([earthref.org/MagIC](https://earthref.org/MagIC) (<https://www2.earthref.org/MagIC>)) is an organization dedicated to improving research capacity in the Earth and Ocean sciences by maintaining an open community digital data archive for rock and paleomagnetic data with portals that allow scientists and others to access to archive, search, visualize, download, and combine versioned datasets. A recent focus of MagIC has been to make our data more accessible, discoverable, and interoperable to further this goal. In collaboration with the GeoCodes/P418 group, we have continued to add more schema.org metadata fields to our data sets which allows for more detailed and deep automated searches. We are involved with the Earth Science Information Partners (ESIP) schema.org cluster which is working on extending the schema.org schema to the sciences. MagIC has been focusing on geo- science issues such as standards for describing deep time. We are also collaborating with the European Plate Observing System (EPOS)'s Thematic Core Service Multi-scale laboratories (TCS MSL). MagIC is sending its contributions' metadata to TCS MSL via DataCite records for representation in the EPOS system. This collaboration should allow European scientists to use MagIC as an official repository for European rock and paleomagnetic data and help prevent the fragmenting of the global paleomagnetic and rock data into many separate data repositories. By having our data well described by an EarthCube supported standard (schema.org/JSON-LD), we will be able to more easily share data with other EarthCube projects in the future.

# The Magnetism Information Consortium (MagIC) Data Repository: Interoperability with GeoCodes, EPOS, and Other Information Systems

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Nicholas Jarboe(1), Rupert Minnett(2), Catherine Constable(1), Anthony Koppers(2), Lisa Tauxe(1), Lori Jonestrask(1)  
 (1)Scripps Institution of Oceanography (njarboe@ucsd.edu), (2)Oregon State University

**Abstract**

MagIC (Magnetism Information Consortium) is an organization dedicated to improving research capacity in the Earth and Ocean sciences by maintaining an open community digital data archive for rock and paleomagnetic data with portals that allow scientists and others to access to archive, search, visualize, download, and compare versioned datasets. A recent focus of MagIC has been to make our data more accessible, discoverable, and interoperable to further this goal. In collaboration with the GeoCodes/P418 group, we have continued to add more schema.org metadata fields to our data sets which allows for more detailed and deep automated searches. We are involved with the Earth Science Information Partners (ESIP) schema.org header which is working on extending

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**EPOS Multi-Scale Laboratories Collaboration**

MagIC has been working with the European Plate Observing System Multi-Scale Laboratories (EPOS-MSL) project to have data contributions that are made to MagIC be included in the EPOS-MSL portal by an automatic system. This will facilitate MagIC's ongoing goal of being the global data repository for rock, geo, and paleomagnetic data.

Metadata from a MagIC contribution is conveyed to the EPOS-MSL system via DataCite entries. We use standard DataCite fields for most of the metadata required by EPOS-MSL and have added a few custom fields needed to send information such as rock ages and rock types.

Grappone et al. (2019) on the EPOS-MSL staging site:

# / Labs / Geomagnetism Laboratory / Solving the mystery of the ...

Solving the mystery of the 1960 Hawaiian lava flow implications for estimating Earth's magnetic field (Dataset)

Additional info

URL	https://doi.org/10.7554/geochem.1960
Source	2) Oregon State University Geomagnetism Laboratory, School of Oceanic Sciences, University of Liverpool, Liverpool, UK, UK; 1) Scripps Institution of Oceanography, University of California San Diego, San Diego, CA, USA; 2) British Antarctic Survey, High Cross, Madingley Road, Cambridge, UK, UK
Author	Grappone, Andrea; Minnett, Rupert; Constable, Catherine; Koppers, Anthony; Tauxe, Lisa; Jonestrask, Lori
Provided by	MagIC Data Repository
Is associated by	MagIC Data Repository
Lab	Geomagnetism Laboratory
Lab URL	https://doi.org/10.7554/geochem.1960
Provided by	MagIC Data Repository
Is associated by	MagIC Data Repository
Lab	Geomagnetism Laboratory
Lab URL	https://doi.org/10.7554/geochem.1960

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**MagIC Contribution Schema.org Headers**

The MagIC website has a sitemap to the data contributions and each contribution has a schema.org header in JSON-LD that can be used by search systems to index the metadata of the contributions. Schema.org is has not developed a large vocabulary for the geo-sciences so MagIC participates in the Earth Science Information Partners (ESIP) that collaborates on extending schema.org to cover metadata needed to describe geoscience datasets.

Current areas of focus are geologic timescales and measured variables (paleointensity, declination, inclination, etc.). An example of a schema.org/JSON-LD header from a recent contribution to MagIC is below:

```
{
  "@context": "https://schema.org"
}
```

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**MagIC Website and FAIR Principles**

The website for the MagIC data repository, which is part of EarthRef, can be found at: <https://magic.ucsd.edu/>. This fully fledged web app allows for fast searching, uploading, and downloading of datasets.

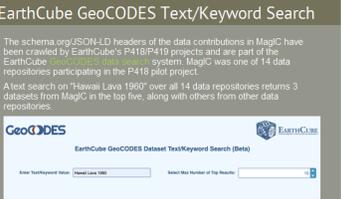


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**EarthCube GeoCodes Text/Keyword Search**

The schema.org/JSON-LD headers of the data contributions in MagIC have been crawled by EarthCube's P418/P419 projects and are part of the EarthCube system. MagIC was one of 14 data repositories participating in the P418 pilot project.

A text search on "Hawaii Lava 1960" over all 14 data repositories returns 3 datasets from MagIC in the top five, along with others from other data repositories.



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(1)Scripps Institution of Oceanography (njarboe@ucsd.edu), (2)Oregon State University



PRESENTED AT:



**2020 EarthCube Annual Meeting Virtual - June 18, 2020**

## ABSTRACT

MagIC ([earthref.org/MagIC](https://www2.earthref.org/MagIC) (<https://www2.earthref.org/MagIC>)) is an organization dedicated to improving research capacity in the Earth and Ocean sciences by maintaining an open community digital data archive for rock and paleomagnetic data with portals that allow scientists and others to access to archive, search, visualize, download, and combine versioned datasets. A recent focus of MagIC has been to make our data more accessible, discoverable, and interoperable to further this goal. In collaboration with the GeoCodes/P418 group, we have continued to add more [schema.org](https://www.schema.org/) metadata fields to our data sets which allows for more detailed and deep automated searches. We are involved with the Earth Science Information Partners (ESIP) [schema.org](https://www.schema.org/) cluster which is working on extending the [schema.org](https://www.schema.org/) schema to the sciences. MagIC has been focusing on geoscience issues such as standards for describing deep time. We are also collaborating with the European Plate Observing System (EPOS)'s Thematic Core Service Multi-scale laboratories (TCS MSL). MagIC is sending its contributions' metadata to TCS MSL via DataCite records for representation in the EPOS system. This collaboration should allow European scientists to use MagIC as an official repository for European rock and paleomagnetic data and help prevent the fragmenting of the global paleomagnetic and rock data into many separate data repositories. By having our data well described by an EarthCube supported standard ([schema.org/JSON-LD](https://www.schema.org/)), we will be able to more easily share data with other EarthCube projects in the future.

# MAGIC WEBSITE AND FAIR PRINCIPLES

The website for the MagIC data repository, which is part of EarthRef, can be found at [earthref.org/MagIC](https://earthref.org/MagIC) (<https://earthref.org/MagIC>). This fully fledged web app allows for fast searching, uploading, and downloading of datasets.

The screenshot shows the MagIC website interface. At the top, there is a navigation bar with links for EarthRef.org, MagIC, GERM, SBN, FeMO, SCC, ERESE, ERDA, References, and Users. There are also links for Log Out and the user profile Nicholas Jarboe - MagIC. The main header features the MagIC logo and the text "Magnetism Information Consortium (MagIC) Promoting information technology infrastructures for the international paleomagnetic, geomagnetic and rock magnetic community." Below this is a secondary navigation bar with links for Home, About, Technology, Grand Challenges, Workshops, and Links, along with a "Report an Issue on GitHub" button and "Help" and "Contact" links.

The main content area is divided into several sections:

- Search Interface:** "Browse, combine, and save datasets." (Icon: Database with magnifying glass)
- Upload Tool:** "Import data into your private workspace." (Icon: Grid with plus sign)
- Private Workspace:** "Manage your contributions to MagIC." (Icon: Document with checkmark)
- Magic Resources:** A row of icons for Data Model, Method Codes, Vocabulary Lists, D.M.P. Tool, PmagPy Software, Paleomag Textbook, Jupyter Notebooks, YouTube Channel, and Help and Upgrade Tool.
- Recent Contributions:** Two entries are shown:
  - Meng et al. (2020) v. 1:** "Expanse of Greater India in the late Cretaceous" by jun meng, dated May 24, 2020. It includes a "Download" button, a "MagIC Contribution Link" (earthref.org/MagIC/16853), an "EarthRef Data DOI" (10.7288/V4/MAGIC/16853), and a "Publication DOI" (10.1016/J.EPSL.2020.116330). A table lists statistics: 1 Location, 2 Sites, 91 Samples, 91 Specimens, 70 Experiments, and 932 Measurements. It also includes a map of India and a paleomagnetic diagram.
  - DOELL & DALRYMPLE (1973) v. 6:** "Potassium-Argon Ages and Paleomagnetism of the Waia..." by Nicholas Jarboe - MagIC, dated May 21, 2020. It includes a "Download" button, a "MagIC Contribution Link" (earthref.org/MagIC/16851), an "EarthRef Data DOI" (10.7288/V4/MAGIC/16851), and a "Publication DOI". A table lists statistics: 1 Location and 99 Sites. It includes a map of Hawaii and a paleomagnetic diagram.
- Magic Workshop 2021:** A section announcing the postponed 2020 workshop on January 20th-22nd, 2021, and the new "Rock and Paleomagnetism through Time and Space" workshop in La Jolla, CA, which will include science talks, hands-on tutorials, and a private workspace for data upload and practice using PmagPy.
- 2020 Magic Workshop Tutorial Videos:** A section with a YouTube icon, stating that in lieu of the postponed workshop, a series of tutorial videos is being hosted.

At the bottom, there is a footer with "Sponsored by NSF. Updated on Jun 10, 2020. Supported by UCSD-SIO and OSU-CEOAS." and a "Having trouble? Email Us" button.

MagIC adheres to Findable, Accessible, Interoperable, and Reusable (FAIR) principles.

**Findable:** Data DOIs minted for each version of a dataset, Google and EarthCube GeoCODES searchable schema.org/JSON-LD header on dataset landing pages, presence at relevant conferences such as AGU, EGU, ESIP, and EarthCube.

**Accessible:** Data available via website or API download. Deep data searches possible where only individual data elements from multiple data contributions can be downloaded in one file. For example, all sites in the database with an age between 1 and 5 Ma.

**Interoperable:** MagIC uses ORCID iDs for authentication and identification. The MagIC file format is compatible with the PmagPy paleomagnetic analysis software. Datasets interpreted with PmagPy can be easily uploaded to MagIC and many datafiles can be downloaded from MagIC and visualized and/or reinterpreted in PmagPy.

**Reusable:** MagIC data conforms to a strict data model for accurate and easy reuse.

# EPOS MULTI-SCALE LABORATORIES COLLABORATION

MagIC has been working with the European Plate Observing System Multi-Scale Laboratories (EPOS-MSL) project to have data contributions that are made to MagIC be included in the EPOS-MSL portal by an automatic system. This will facilitate MagIC's ongoing goal of being the global data repository for rock, geo, and paleomagnetic data.

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Grappone et al. (2019) on the EPOS-MSL staging site:

🏠 / Labs / Geomagnetism Laboratory / Solving the mystery of the ...

**Solving the mystery of the 1960 Hawaiian lava flow: implications for estimating Earth's magnetic field (Dataset)**

Followers  
**0**

🏠 Lab



**Geomagnetism Laboratory**  
University of Liverpool, UK  
Magnetic measurements of natural materials have enormous utility across the Earth-, Archaeological-, Environmental- and biological sciences, but... [read more](#)

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CC BY 4.0

Dataset Subdomains

## Solving the mystery of the 1960 Hawaiian lava flow: implications for estimating Earth's magnetic field (Dataset)

**J Michael Grappone, Andrew J Biggin, Mimi J Hill** (2019). Solving the mystery of the 1960 Hawaiian lava flow: implications for estimating Earth's magnetic field. *Geophysical Journal International* 218 (3): 1796-1806. DOI: [10.1093/GJI/GGZ252](https://doi.org/10.1093/GJI/GGZ252).

-10 Basaltic Lava Igneous Years BP lava flow

### Additional Info

Field	Value
Source	<a href="http://dx.doi.org/10.7288/V4/MAGIC/16834">http://dx.doi.org/10.7288/V4/MAGIC/16834</a>
Author	J Michael Grappone (Geomagnetism Laboratory, School of Environmental Sciences, University of Liverpool, Liverpool L69 7ZE, UK) [ORCID:0000-0001-5004-8561]   Andrew J Biggin (Geomagnetism Laboratory, School of Environmental Sciences, University of Liverpool, Liverpool L69 7ZE, UK)   Mimi J Hill (Geomagnetism Laboratory, School of Environmental Sciences, University of Liverpool, Liverpool L69 7ZE, UK)
Provided by	
Dataset contact	Joseph M Grappone (jmgrappone@gmail.com)
Is documented by	<a href="http://dx.doi.org/10.1093/GJI/GGZ252">http://dx.doi.org/10.1093/GJI/GGZ252</a>
Laboratories	Geomagnetism Laboratory (University of Liverpool, UK)
Provided by	Magnetics Information Consortium (MagIC)
Publication date	2020-04-24
Publisher	Geophysical Journal International
geobox-eLong	-154.82
geobox-nLat	19.51
geobox-sLat	19.48
geobox-wLong	-154.89

About EPOS - Multi-scale laboratories data catalog
Powered by

Grappone et al. (2019) (<https://www2.earthref.org/MagIC/dio/10.1093/GJI/GGZ252>) on MagIC:

# Magnetics Information Consortium (MagIC)

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

Home About Technology Grand Challenges Workshops Links Report an Issue on GitHub Help Contact

Contributions 1 Locations 1 Sites 1 Samples 23 Specimens 105 Experiments 105 Measurements 2,027 Private Workspace

Search MagIC grappone Search Clear Download Results

Filters Clear Filters Summaries 1 Map 1 Recently Contributed First

**Publication Year**  
-infinity to 2020

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

**Age Range**  
0 Ma to infinity Ma

**Paleomagnetic Poles Region**  
Lat -90 to 90 deg  
Lon -360 to 360 deg

**Virtual Geomagnetic Poles Region**  
Lat -90 to 90 deg  
Lon -360 to 360 deg

**Absolute Paleointensity Range**  
0 to infinity  $\mu T$

Author External Database

**Grappone et al. (2019) v. 3** Solving the mystery of the 1960 Hawaiian lava flow: implications for estimating... April 23, 2020 by Joseph Grappone

**MagIC Contribution Link:** earthref.org/MagIC/16834  
**EarthRef Data DOI:** 10.7288/N4/MAGIC/16834  
**Publication DOI:** 10.1093/GJI/GGZ252

1 Location  
1 Site  
23 Samples  
105 Specimens  
105 Experiments  
2 k Measurements

**Geographic:**  
Kilauea East Rift Zone, Outcrop

No Plots Available

**Class:** Igneous  
**Type:** lava flow  
**Lithology:** Basaltic Lava

**Age:** 1960 AD  
**Method Codes:** LT-NO, LT-M-Z, LT-M-I, LT-PMRM-I, LT-PMRM-Z

No Intensity Data  
No Additional Citations

J Michael Grappone, Andrew J Biggin, Mimi J Hill (2019). Solving the mystery of the 1960 Hawaiian lava flow: implications for estimating Earth's magnetic field. *Geophysical Journal International* 218 (3):1796-1806. doi:10.1093/GJI/GGZ252.

Crossref Citation Count: 1

Download	MagIC Contribution Link	EarthRef Data DOI Link	Version	Data Model	Date	Contributor	Description
<a href="#">Download</a>	earthref.org/MagIC/16834	10.7288/N4/MAGIC/16834	3	3.0	April 23, 2020	Joseph Grappone	Added lab name
<a href="#">Download</a>	earthref.org/MagIC/16662	10.7288/N4/MAGIC/16662	2	3.0	June 25, 2019	Joseph Grappone	Added site/location data
<a href="#">Download</a>	earthref.org/MagIC/16586	10.7288/N4/MAGIC/16586	1	3.0	June 13, 2019	Joseph Grappone	

Sponsored by NSF. Updated on Jun 10, 2020.  
Supported by UCSD-SIO and OSU-CEOAS.

Having trouble? Email Us

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## MAGIC CONTRIBUTION SCHEMA.ORG HEADERS

The MagIC website has a sitemap to the data contributions and each contribution has a schema.org header in JSON-LD that can be used by search systems to index the metadata of the contributions. Schema.org is has not developed a large vocabulary for the geo-sciences so MagIC participates in the Earth Science Information Partners (ESIP (<https://www.esipfed.org/>)) cluster (<https://github.com/ESIPFed/science-on-schema.org/>) that collaborates on extending schema.org to cover metadata needed to describe geoscience datasets.

Current areas of focus are geologic timescales and measured variables (paleointensity, declination, inclination, etc.). An example of a schema.org/JSON-LD header from a recent contribution to MagIC is below:

```
{
  "@context": {
    "@vocab": "http://schema.org",
    "geosci-time": "http://schema.geoschemas.org/contexts/temporal#"
  },
  "@type": "Dataset",
  "url": "https://earthref.org/MagIC/16853",
  "identifier": "http://dx.doi.org/10.7288/V4/MAGIC/16853",
  "license": "https://creativecommons.org/licenses/by/4.0/",
  "sdPublisher": "EarthRef.org",
  "sdLicense": "https://creativecommons.org/licenses/by/4.0/",
  "sdDatePublished": "2020-06-10T21:19:12.571Z",
  "version": 1,
  "contributor": "jun meng",
  "dateModified": "2020-05-24T12:51:55.810Z",
  "citation": "https://dx.doi.org/10.1016/J.EPSL.2020.116330",
  "sameAs": [
    "https://earthref.org/MagIC/10.1016/J.EPSL.2020.116330"
  ],
  "name": "<b>Jun Meng, Stuart A. Gilder, Yalin Li, Chengshan Wang, Tao Liu (2020).</b> Expanse of Greater India in the late Cretaceous. <i>Earth and Planetary Science Letters 542:116330. doi:<a href='\"//dx.doi.org/10.1016/J.EPSL.2020.116330\">10.1016/J.EPSL.2020.116330</a>.</i> (Dataset)",
  "description": "Paleomagnetic, rock magnetic, or geomagnetic data found in the MagIC data repository from a paper titled: <b>Jun Meng, Stuart A. Gilder, Yalin Li, Chengshan Wang, Tao Liu (2020).</b> Expanse of Greater India in the late Cretaceous. <i>Earth and Planetary Science Letters 542:116330. doi:<a href='\"//dx.doi.org/10.1016/J.EPSL.2020.116330\">10.1016/J.EPSL.2020.116330</a>.</i>",
  "keywords": [
    "Earth and Planetary Sciences (miscellaneous)",
    "Space and Planetary Science",
    "Geochemistry and Petrology",
    "Geophysics"
  ],
  "datePublished": 2020,
  "spatialCoverage": {
    "@type": "Place",
    "geo": [
      {
        "@type": "GeoCoordinates",
        "latitude": 31.2,
        "longitude": 79.6
      },
      {
        "@type": "GeoCoordinates",
        "latitude": 31.2,
        "longitude": 79.6
      }
    ]
  },
  "temporalCoverage": {
    "@type": "DateTime",
    "startDate": -68998051,
    "endDate": -112998051
  },
  "geosci-time": {
```

```

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"time:inTimePosition": {
  "@type": "time:ProperInterval",
  "time:hasBeginning": {
    "time:hasTRS": {
      "@id": "geosci-time:BeforePresent"
    },
    "time:numericPosition": {
      "@value": 69000000,
      "@type": "xsd:decimal"
    }
  },
  "time:hasEnd": {
    "time:hasTRS": {
      "@id": "geosci-time:BeforePresent"
    },
    "time:numericPosition": {
      "@value": 113000000,
      "@type": "xsd:decimal"
    }
  }
},
},
},
},
},
"variableMeasured": [
  {
    "@type": "PropertyValue",
    "name": "VGP Latitude",
    "description": "Virtual geomagnetic pole, Latitude",
    "minValue": -33.4,
    "maxValue": 27.1,
    "unitText": "Degrees"
  },
  {
    "@type": "PropertyValue",
    "name": "Direction K",
    "description": "Specimen direction in coordinates specified by tilt correction, Fisher's dispersion parameter Kappa",
    "minValue": 32.5,
    "maxValue": 33.6,
    "unitText": "Dimensionless"
  },
  {
    "@type": "PropertyValue",
    "name": "Latitude",
    "description": "Sample geographic location, Latitude",
    "minValue": 31.2,
    "maxValue": 31.2,
    "unitText": "Degrees"
  },
  {
    "@type": "PropertyValue",
    "name": "Inclination",
    "description": "Directions in specimen coordinates, Inclination",
    "minValue": -88.8,
    "maxValue": 86.4,
    "unitText": "Degrees"
  },
  {
    "@type": "PropertyValue",
    "name": "Direction Alpha 95%",
    "description": "Specimen direction in coordinates specified by tilt correction, Fisher circle",
    "minValue": 3,
    "maxValue": 6.2,
    "unitText": "Degrees"
  },
  {

```

```

"@type": "PropertyValue",
"name": "Lab Treatment AC Field",
"description": "Peak field in AC demagnetization experiment",
"minValue": 0,
"maxValue": 0,
"unitText": "T"
},
{
"@type": "PropertyValue",
"name": "Measurement Sequence",
"description": "Order of the measurements",
"minValue": 0,
"maxValue": 19
},
{
"@type": "PropertyValue",
"name": "Magnetic Moment Z",
"description": "Measured magnetic moment, Z",
"minValue": -1.149904813611227e-9,
"maxValue": 3.1007100751342177e-9,
"unitText": "Am^2"
},
{
"@type": "PropertyValue",
"name": "Magnetic Moment Y",
"description": "Measured magnetic moment, Y",
"minValue": -1.6638021888050516e-9,
"maxValue": 8.068822161467943e-10,
"unitText": "Am^2"
},
{
"@type": "PropertyValue",
"name": "Magnetic Moment X",
"description": "Measured magnetic moment, X",
"minValue": -2.926390637943911e-9,
"maxValue": 1.4485872353600732e-9,
"unitText": "Am^2"
},
{
"@type": "PropertyValue",
"name": "Direction N Samples",
"description": "Number of samples included in directional calculations.",
"minValue": 18,
"maxValue": 73
},
{
"@type": "PropertyValue",
"name": "Magnetization Volume",
"description": "Measured intensity of magnetization, Volume normalized",
"minValue": 2.45e-7,
"maxValue": 0.000306,
"unitText": "A/m"
},
{
"@type": "PropertyValue",
"name": "Longitude",
"description": "Sample geographic location, Longitude",
"minValue": 79.6,
"maxValue": 79.6,
"unitText": "Degrees"
},
{
"@type": "PropertyValue",
"name": "Measurement Temperature",
"description": "Temperature",

```

```

    "minValue": 273,
    "maxValue": 273,
    "unitText": "K"
  },
  {
    "@type": "PropertyValue",
    "name": "VGP Longitude",
    "description": "Virtual geomagnetic pole, Longitude",
    "minValue": 5.7,
    "maxValue": 231.2,
    "unitText": "Degrees"
  },
  {
    "@type": "PropertyValue",
    "name": "Declination",
    "description": "Directions in specimen coordinates, Declination",
    "minValue": 0.2,
    "maxValue": 359.2,
    "unitText": "Degrees"
  },
  {
    "@type": "PropertyValue",
    "name": "Direction N Total Samples",
    "description": "Number of samples collected at the site for directional calculations",
    "minValue": 18,
    "maxValue": 73
  },
  {
    "@type": "PropertyValue",
    "name": "Lab Treatment Temperature",
    "description": "Demagnetization temperature",
    "minValue": 293,
    "maxValue": 893,
    "unitText": "K"
  },
  {
    "@type": "PropertyValue",
    "name": "Magnetic Moment",
    "description": "Measured magnetic moment",
    "minValue": 2.688e-12,
    "maxValue": 3.364e-9,
    "unitText": "Am^2"
  },
  {
    "@type": "PropertyValue",
    "name": "Direction Tilt Correction",
    "description": "Percentage tilt correction applied to the data",
    "minValue": 100,
    "maxValue": 100,
    "unitText": "%"
  },
  {
    "@type": "PropertyValue",
    "name": "Age",
    "description": "Age",
    "minValue": 70,
    "maxValue": 107,
    "unitText": "Custom"
  }
]
}

```

# EARTHCUBE GEOCODES TEXT/KEYWORD SEARCH

The schema.org/JSON-LD headers of the data contributions in MagIC have been crawled by EarthCube's P418/P419 projects and are part of the EarthCube GeoCODES data search (<https://earthcube.org/webapps/geocodes/discovery/ui/textSearch.html>) system. MagIC was one of 14 data repositories participating in the P418 pilot project.

A text search on "Hawaii Lava 1960" over all 14 data repositories returns 3 datasets from MagIC in the top five, along with others from other data repositories.




## EarthCube GeoCODES Dataset Text/Keyword Search (Beta)

Enter Text/Keyword Value:

Select Max Number of Top Results:

<input checked="" type="checkbox"/> HydroShare	<input checked="" type="checkbox"/> BCO-DMO	<input checked="" type="checkbox"/> BCO-DMO_Data	<input checked="" type="checkbox"/> CSDCO
<input checked="" type="checkbox"/> CSDCO_Data	<input checked="" type="checkbox"/> LinkedEarth	<input checked="" type="checkbox"/> Neotoma	<input checked="" type="checkbox"/> IEDA
<input checked="" type="checkbox"/> BALTO	<input checked="" type="checkbox"/> MagIC	<input checked="" type="checkbox"/> Open Topography	<input checked="" type="checkbox"/> IRIS
<input checked="" type="checkbox"/> OpenCore	<input checked="" type="checkbox"/> UNAVCO		

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## EarthCube GeoCODES Dataset Text/Keyword Search Results (Beta)

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<https://earthref.org/MagIC/doi/10.1046/J.1365-246X.2000.00164.X>  
 Position: 1  
 Search Score: 0.81000

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<https://earthref.org/MagIC/doi/10.1016/J.PEPI.2004.09.009>  
 Position: 2  
 Search Score: 0.37000

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<https://earthref.org/MagIC/doi/10.1016/J.EPSL.2006.02.032>  
 Position: 3  
 Search Score: 0.36000

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<http://get.iedadata.org/doi/100587>  
 Position: 4  
 Search Score: 0.35000

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<https://earthref.org/MagIC/doi/10.1046/J.1365-246X.2003.01909.X>  
 Position: 5