InterRidge Global Database of Active Submarine Hydrothermal Vent Fields (the "InterRidge Vents Database") Version 3.1 Documentation

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Summary: for webpage "About the Database"

What's new in Version 3

In Version 3 the InterRidge Vents Database has joined the semantic web of Linked Data. We migrated the database to Drupal 7, still an open source content management system and now with Resource Description Framework (RDF) web services in its core. We implemented additional contributed modules for query over the web using the SPARQL standard. Most database content and taxonomy terms are currently mapped to default RDF namespaces, with three important exceptions: we mapped the "vent field" content type to (1) an rdf:type for hydrothermal vents in a semantic knowledge base (http://yago-knowledge.org/resource/) and (2) to an rdf:type for geographical features from the Open Geospatial Consortium (http://www.opengis.net/rdf#), and (3) we mapped the latitude and longitude positions of the vent fields to a semantic vocabulary for the WGS84 geodetic reference datum (http://www.w3.org/2003/01/geo/wgs84_pos#). Another new feature in Version 3 is live Google mapping of vent field positions.

Note: Versions 3.0 (not secure, Drupal 7.18) and 3.1 (secure, Drupal 7.21) were hosted at WHOI prior to transfer to InterRidge China and have the same vent field listings as Versions 2.2/2.3.

Details: for documentation PDF

For an introduction to the database, please see Ver. 2.0 documentation PDF.

Why Linked Data?

The upgrade to Drupal 7 was important to maintain the InterRidge Vents Database as the authoritative online resource of vent field locations, for 3 main reasons:

1) Drupal 7 has more features for Linked Data (http://linkeddata.org/). By semantically enabling the database, other repositories (e.g., IODP, BCO-DMO) can link to content within the InterRidge Vents Database. Not only will the InterRidge database receive more "hits" - this will enable the vent fields to be linked to other data collected at/near the same locations (*see "Use Cases" below*).

2) Drupal 6 likely will not be supported when the next version, Drupal 8, comes out next year. The life cycle of each version of Drupal is about 3-4 years.

3) Some actions that require programming skills in Drupal 6 are performed via the user interface in Drupal 7. This may be helpful depending on the level of programming skills for the new InterRidge Coordinator.

Linked Data effectively allows the InterRidge Vents Database to be part of a larger, world-wide, federated, “virtual” database made up of many multiple autonomous databases (http://en.wikipedia.org/wiki/Federated_database_system). Linked Data is "a term used to describe a recommended best practice for exposing, sharing, and connecting pieces of data, information, and knowledge on the Semantic Web using URIs and RDF" (http://en.wikipedia.org/wiki/Linked_data). The Semantic Web refers to international standard data formats on the World Wide Web (http://en.wikipedia.org/wiki/Semantic_Web). URIs are uniform resource identifiers (http://en.wikipedia.org/wiki/Uniform_resource_identifier), and RDF is the Resource Description Framework (http://en.wikipedia.org/wiki/Resource_Description_Framework). SPARQL (pronounced "sparkle") is a World Wide Web Consortium (W3C) standard query language for RDF, that is, it is able to retrieve and manipulate data stored in RDF format (http://en.wikipedia.org/wiki/SPARQL). In the vents database, the URIs are comprised of the site namespace, which should be persistent (currently: http://irvents-new3.whoi.edu/; will be changed in Ver. 3.2 to: http://vents-data.interridge.org/) and the node ID (nid) for each vent field (i.e., the node ID for each vent field is effectively the unique identifier for that vent field) or unique name of the vent field using path alias, e.g., Mariner is http://irvents-new3.whoi.edu/node/1001 and http://irvents-new3.whoi.edu/ventfield/mariner.

Example "Use Case" : Geophysicist (possible with Ver. 3)

> Let's say a geophysicist would like to obtain a list of or map vent fields in proximity to IODP holes. Previously, what you would do is:
>
> Download the list of all vent field lat/lon positions; download list of all IODP hole positions; write script to determine which positions in the vent field list are within a certain distance of the positions in the IODP hole list. This would require access to two different online resources and programming skills.
>
> Today, with the InterRidge Vents Database semantically enabled (the IODP database is already, e.g. http://www.youtube.com/watch?v=GUC2Sxm1Sv8):

A single SPARQL query (http://www.w3.org/TR/rdf-sparql-query/) can be performed to extract this same list of vent fields within a certain distance of IODP holes. (This is executed like other URL-based calls: you can use the browser, or from the command line, wget or curl.)

Similar example "Use Case": Oceanographer (documented in EGU 2013 talk presented by Bob Arko, database manager for R2R; http://meetingorganizer.copernicus.org/EGU2013/EGU2013-9564-1.pdf)

Similar to the above Use Case for IODP – here the oceanographer wanted to obtain a list of vent fields within a certain distance of all R2R cruise tracks.

Database structure

In terms of database design, the InterRidge Vents Database is authoritative for the concept "vent field" and the instances (the ~600 vent fields in the database). At present as best I know, there is no published OWL ontology (http://en.wikipedia.org/wiki/Web_Ontology_Language) that includes this concept. The "vent fields" are effectively records, or rows, in a relational database table (http://en.wikipedia.org/wiki/Row_%28database%29), and the csv export in Ver. 3.1 exports all fields (attributes, i.e., columns in table) in content type "vent field" with the exception of Geofield lat/lon (which are duplicated from the decimal entries for lat/lon) and the RDF URL link.

RDF mapping implemented in Vers. 3.0/3.1:

(1) content type "vent field" to:

(A)namespace http://yago-knowledge.org/resource/

rdf:type yago:HydrothermalVents (as referenced in dbpedia http://live.dbpedia.org/page/Hydrothermal_vent)

The information in Yago is extracted from Wikipedia (e.g., categories, redirects, infoboxes, WordNet (e.g., synsets. hyponymy) and GeoNames. For more information: http://www.mpi-inf.mpg.de/yago-naga/yago/

(B) namespace (http://www.opengis.net/rdf#)

rdf:type ogc:Feature for geographical features from the Open Geospatial Consortium

Note: the dbpedia page refers to rdf:type gml:_Feature, but this appears to be out-dated. It appears that the community is moving towards using ogc:Feature, and this is what Bob Arko chose for the R2R cruise database. This is also compatible with GeoSPARQL. Note ogc:Feature does not specify geometry. The option exists in the future to define a "vent field" geometry as a polygon.

(2) Within content type, fields for lat/lon decimal positions to:

namespace http://www.w3.org/2003/01/geo/wgs84_pos#

(For more info: https://github.com/structureddynamics/Ontologies-Open-Semantic-Framework/blob/master/wgs84/wgs84.owl)

At present, the only geographical positions given in this database are point positions. Bob Arko recommends publishing both geo:Point,lat,long and ogc:Feature,asWKT side by side for now. Note that I only used geo:lat,long and ogc:Feature in Ver. 3.0.

Live Google mapping implemented in Ver. 3.0/3.1: Copied lat/lon decimal positions into Geofield field within each Vent Field node to plot on live Google Map. Added a View to display all Geofield entries.

Drupal modules enabled in Ver. 3.1

1) Contributed modules installed/enabled for RDF/SPARQL

RDF > RDF UI (user interface to specify RDF mappings), RDFx (the RDF extensions module), SPARQL API, SPARQL Endpoint

Display Suite > D.S., D.S. Extras, D.S. Format, D.S. UI (using RDF Link Field module below; was necessary for direct access to RDF endpoint because *.rdf would not work with node aliases/PathAuto)

Features > Features, 3 IRvents specific features, RDF Link Field (custom module from Adam Shepherd to use with Display Suite so that a clickable link to RDF endpoint *.rdf could be displayed per vent field node)

- Note the Features module itself was important for clean migration to 7.21, and see notes below for “irvents-content-type-plus-taxonomy-feature”

Other > CORS Cross-origin resource sharing, Entity API (required by RDFx), RESTful web services is enabled (and permissions are granted) so that any user can access the rdf content for each node by typing “.rdf” extension at the end of the URL node path (e.g., Adventure Caldera: http://irvents-new3.whoi.edu/node/610.rdf)

2) Contributed modules installed/enabled for live Google mapping

Fields > Geofield

Other > Geofield Map, geoPHP

3) Contributed modules installed/enabled for csv export

Views > Views, Views data export (note this is what I use to export vent fields to csv, and this

requires that the database is MySQL), Views UI

Chaos tool suite > Chaos tools (i.e., CTools, required by Views and Display Suite)

4) Other installed/enabled modules

Core > Block, Contextual links, Field, Field SQL storage, Field UI, File, Filter, Help, Image (NEW! I enabled this and added a field to content type “vent field” but have not used this yet), List, Menu, Node, Number, Options, Path, RDF, Search, Syslog, System, Taxonomy, Text, Toolbar, Update manager, User

- Note I did not enable Comment (was not used in Ver. 2) or Statistics (but this may be useful in the future to log access statistics; alternatively use Google Analytics module)

Other > Geocoder (note I could not actually get Geocoder to work to copy the lat/lon decimal entries into the lat/lon Geofield entries... but this may be useful in the future.), Pathauto, Token (required by Pathauto)

Copy of "About the Database" page on 14 May 2013:

About the Database

Purpose of the database

The purpose of the InterRidge Global Database of Active Submarine Hydrothermal Vent Fields, hereafter referred to as the "InterRidge Vents Database," is to provide a comprehensive list of active and inferred active (unconfirmed) submarine hydrothermal vent fields for use in academic research and education. As stated by the InterRidge Working Group (WG) on Global Distribution of Hydrothermal Activity (InterRidge News 9.1, April 2000): "The idea of this data-base is that it should become the international standard for all known sites of submarine hydrothermal activity which can be updated simply by submitting an electronic message to the InterRidge Office."

Database contents

Each Vent Field contains the following attributes ("columns" in the exported CSV file). If there is no value reported for an attribute, then it is not currently specified in the database.

Name of vent field

The Name ID uniquely identifies a vent field. We distinguish vent field (assemblage of vent sites) from vent site (e.g., Tica vent at EPR, 9 50'N vent field).

Name alias(es) for vent field

Other Names used in the literature for the same vent field.

Feature ID in MGDS

The Name ID is associated with controlled vocabularies for Feature_ID VentField in MGDS (http://www.marine-geo.org/tools/web_services.php).

Name(s) of individual vent sites

Names of individual vent sites contained within the vent field. Aliases for vent site names are given in parentheses with an equals sign, such as "Solwara 4e (= Fenway)." These may be associated with controlled vocabularies for Feature_ID Vent in MGDS.

Activity

Hydrothermal activity is categorized as: confirmed active, inferred active, or inactive. We consider the activity confirmed when indicated by visual observations at the sea floor (i.e., ground-truthing) that may or may not also include temperature measurements.

Maximum Temperature

Maximum Temperature Category

Maximum temperature (deg. C) is provided for active vent fields; the "cell" is blank if inferred active and "NotApplicable" if inactive. For those active vent fields in which a maximum temperature is NotProvided, a category is assigned as High if chimneys and/or black smokers were observed or Low if only diffuse venting was observed. Again, the "cell" is blank if inferred active

and “NotApplicable” if inactive.

Latitude

Longitude

Positions are provided in decimal degrees to four decimal places. Negative values for latitude are degrees S, and negative values for longitude are degrees W.

Location on map

The position for each vent field is displayed individually in a Google map (using Geofield module).

Ocean

The 8 ocean categories conform with the InterRidge Cruise Database: Arctic, Indian, Mediterranean, N. Atlantic, N. Pacific, S. Atlantic, S. Pacific, Southern. Following the standards of the International Hydrographic Organization, the Arctic Ocean includes the mid-ocean ridge north of Iceland, and the Southern Ocean is defined as south of latitude 60 S.

Region

Region generally indicates the regional setting of the vent field along the world plate boundaries. Exceptions include vent fields at intra-plate volcanoes and coastal faults. The Region tends to form part of the hierarchical vocabulary for each vent field Name Feature_ID VentField in MGDS.

National Jurisdiction

National Jurisdiction was determined by querying the VLIZ Maritime Boundaries Geodatabase (http://www.marineregions.org/eezsearch.php) using the latitude and longitude for each vent field.

Maximum or Single Reported Depth

Minimum Depth

Depth (m below sea level) is given for hydrothermal activity and/or deposits. Either a range (deepest-shallowest) or single reported depth is provided.

Tectonic Setting Category

Each vent field was assigned to 1 of 5 tectonic setting categories: arc volcano, back-arc spreading center, intra-plate volcano, mid-ocean ridge, or other.

Full Spreading Rate

For each vent field categorized as mid-ocean ridge or back-arc spreading center, the full spreading rate velocity (mm/a) was derived from Bird (2003), accessed via GeoMapApp.

Host Rock

Host rock is from a spreadsheet provided by S. Petersen in 2009, otherwise categorized as basalt-hosted, sediment-hosted, ultramafic-hosted, or NotProvided. Host rock is not comprehensively vetted for all vent fields.

Deposit Type

Deposit type is listed from Version 1 or from a spreadsheet provided by M. Hannington in 2009, otherwise NotProvided. Abbreviations include: polymetallic massive sulfide deposits (PMS), low-temperature hydrothermal vents and associated mineral deposits (LTH), near-field metalliferous sediments (NFS), distal metalliferous sediments (DIS), and vein and breccia deposits (VSD). Deposit type is not comprehensively vetted for all vent fields.

Notes on Vent Field description

Notes describing the vent field are generally quoted directly from the literature. However, some of the site descriptions remain from Version 1 and may be similar to the “Description” in the ISA Database. This “column” in the database also contains notes relevant to other “columns,” for example, providing more information on the regional or tectonic setting.

Notes relevant to biology

Notes on biology are generally quoted directly from the literature. However, some of these notes remain from Version 1.

Year and how discovered

For the year and means by which discovered, visual confirmation at the sea floor is listed first, unless otherwise noted. Other information related to the discovery is listed in chronological order.

References for discovery

Other citations

References in brackets "[ ]" were not consulted in full by the InterRidge Coordinator in 2009 (Beaulieu).

RDF link

A direct link is provided to the *.rdf depiction of each vent field "node" in the Drupal database.

An abbreviated history of the database

The original motivation for the database came from the WG on Global Distribution of Hydrothermal Activity, active from 1997-2002. Version 1 of the database was largely derived from M. Hannington's compilation of the worldwide distribution of seafloor polymetallic sulfide deposits produced for the Geological Survey of Canada in 1994 with a supplement for shallow hydrothermal systems in 1999. Version 1 was posted online by the InterRidge Japan office (2000-2003) and transferred to the Germany office (2004-2006). In parallel, during the decade 2000-2009, M. Hannington updated and enhanced the database for seafloor hydrothermal deposits, published in 2002 for the Central Data Repository of the International Seabed Authority (hereafter referred to as the "ISA Database"). The ISA Database was revised in 2004 and in 2009. Also in parallel, E. Baker maintained a list of locations at which hydrothermal plumes were detected in systematic, water-column surveys for hydrothermal activity, and S. Petersen maintained another list that included vent field maximum temperature and host rock.

Version 2

For the revision to Version 2, S. Beaulieu merged 4 spreadsheets of global vent fields: 1) the Version 1 spreadsheet (212 listings), 2) a spreadsheet from E. Baker and available at NOAA Vents Program website (version 19 Aug. 2009), 3) a spreadsheet from M. Hannington (version 11 Aug. 2009, in preparation for revision of ISA Database), and 4) a spreadsheet from S. Petersen (version 30 Sep. 2009), in particular for vent field maximum temperature and host rock. After the merger of the 4 spreadsheets (which resulted in 462 listings), an additional 92 vent fields were added from the primary literature and from cruise reports and press releases for the most recent discoveries through the end of 2009.

The Version 2 database was posted online in an open source Drupal 6 Content Management System. Taxonomy terms with controlled vocabulary were introduced for Activity, Tectonic Setting, Region, Ocean, National Jurisdiction, and Maximum Temperature Category. Each unique Vent Field Name ID was matched to a hierarchical vocabulary Feature ID for the same vent field in the Marine Geoscience Data System (MGDS).

Version 2.0 had more than double the number of vent field listings (554 in the 5 March 2010 release) vs. Version 1 (212). Version 2.0 was intended to be comprehensive for active and inferred active (unconfirmed) submarine hydrothermal vent fields discovered through the end of 2009 (but see additions to Ver. 2.1 below). The full list of vent fields could be exported as a comma-separated-value (CSV) file. *(Note: During the update to Ver. 2.1, we realized that the CSV*

output for Ver. 2.0 was only including the first name alias and the first vent site listed for each vent field.)
Version 2.0 was migrated from WHOI to NOCS server in Aug. 2010. In March 2011 we discovered that the initial upload of the database had not uploaded minimum depth 0. We updated this for the following vent fields (and some of the vent fields edited in Version 2.1, listed below): Deception Island; Kos; Kraternaya Bight; Luise Harbor; Matupi Harbor; Methana; Montserrat Volcano; Punta Santa Barbara; Santorini. We revised the Name IDs for Bataan, Chamorro volcano, Clark volcano, Fukujin volcano, Rumble V volcano, Nikko volcano, NW Eifuku, and TOTO Caldera in addition to edits made for several Kermadec arc and Mariana arc volcanoes listed in Ver. 2.1 below.
Version 2.0 was used in the following publications:
Aldhous, P. (2011) Deep sea gold rush: Mining hydrothermal vents. New Scientist 2819, June 2011.
Hannington, M., J. Jamieson, T. Monecke, S. Petersen, and S. Beaulieu (2011) The abundance of seafloor massive sulfide deposits. Geology 39: 1155-1158, doi:10.1130/G32468.1.
Van Dover, C.L. (2011) Tighten regulations on deep-sea mining. Nature 470: 31-33.

Version 2.1
Upload of Version 2.1 was completed on 8 November 2011. Version 2.1 was comprehensive through the end of 2009 for active submarine hydrothermal vent fields (plus 4 added and 1 removed through end 2009 in Ver. 2.2, see below). 84 of the vent fields in Version 2.0 were edited with additional information. 35 vent fields were added to the database (14 of these were discovered in 2010 or 2011). One vent field was deleted from the database since it turned out to be equivalent to an existing listing. Thus, the total number of listings in Version 2.1 was 588 (34 more than Version 2.0). 532 of these listings were confirmed or inferred active. 56 of these listings were inactive (please note: the database is not comprehensive for inactive vent fields).
Changes to taxonomy: Activity changed from “Active” to “Active, confirmed” and from “Unconfirmed” to “Active, inferred”.
Additions to taxonomy: Added 2 regions: Andaman Basin; Costa Rica fore arc.
Removal from taxonomy: Removed 1 region: Aleutian Arc, eastern.
Edited 84 vent fields (13 N Ridge Site; 94SO2; Ashadze 4; Bahia Concepcion; Banua Wuhu; Bayonnaise Knoll; Brothers volcano; Brown Bear; Capo Miseno; Capo Palinuro; central Manus Basin; CLSC, A3; Dodo Field; East Diamante; EPR, 9 50'N; EPR, 10 08’N; EPR, 10 44.6’N; EPR, 11 24’N; EPR, 26.5S; Esmeralda Bank; ESR, E9; “ET”; Europa; FRSC, South Central; Gemini-Oscostar Volcanic Complex; Giggenbach; Grover; Healy; Hot Beach; Kagamil Island; Kana Keoki; Kasuga 2; Komba-ridge; Kueishan Island; Kueishan Island, offshore; Logatchev-3; Loki's Castle; Marsili; Mata Tolu; Maug Caldera; Methana; Milos; Minami-Hiyoshi; Moytirra; Naung; Nagahama Bay; NELCO; Nifonea Ridge; Nishinoshima; Nisiros; Palinuro; Piccard; Pika; Raven; Rumble III; Santorini; Semyenov; Snail; Solitaire Field; Solwara 11; Solwara 13; Solwara 16; Solwara 17; Solwara 18; Solwara 19; Soria Moria; Stanton Seamount; Starfish Seamount; Steinaholl; Sulawesi Island; Sumisu Caldera; SuSu Knolls; Tahi Moana 2; Tahi Moana 7; Temakons; Teotihuacan; TELVE; Troll Wall; Vienna Woods, Hydrothermal Field 4; Vulcano; West Mata; White Church; White Point; Yonaguni Knoll IV).
Added 35 vent fields (Adventure Caldera; Akuseki-jima; Baily's Beads; Bubbylon; Central Andaman Trough, rift valley; Central Andaman Trough, seamount crater; Central Cleft, off-axis; Chile Triple Junction; Chile Triple Junction, 10 km north; CIR, northern; Consag Basin; EPR, 10

02'N; Ischia Island; Jaco Scarp; Jade Emperor Mountain; Kawio Barat; Kemp Caldera; Kodakara-jima; Krakatau; Kulo Lasi; Mata Fa; Mata Fitu; Mata Nima; Mata Ono; Mata Taha; Mata Ua; near Jade Emperor Mountain, on-axis; Pulau Weh; Rainbow Bay; St. Petersburg; Secca del Capo; Sisifo; Tai Chi; Wagner Basin; Walsh).
Removed 1 vent field from Ver. 2.0: SPOT-5 was incorporated into Yonaguni Knoll IV.
Version 2.1 was used in the following:
02/12, Ocean Sciences Meeting, Salt Lake City, UT: Beaulieu, S.E., Baker, E.T., and German, C.R. "On the global distribution of hydrothermal vent fields: One decade later" Abstract A0495.
12/12, AGU Fall Meeting, San Francisco, CA: Beaulieu, S.E., Baker, E.T., and German, C.R. "On the global distribution of hydrothermal vent fields: One decade later" OS22B-01.
Beaulieu, S.E., E.T. Baker, and C.R. German (2013, manuscript in prep.)
UNEP GRID Arendal's Green Economy in a Blue World. Minerals (http://geoiq.grida.no/maps/970)

Version 2.2
Version 2.2 was served at the NOCS (UK) through January 2013 then transferred to and hosted at the InterRidge China office through April 2013. Ver. 2.2 consisted of edits from 25 January - 15 October 2012. This site will remain live through the end of 2013 at interridge.org/irvents, to allow for links from the 2011 kml release.
7 new vent fields were added (AAR KR1; AAR KR2; Carlsberg Ridge, 63 40'E; Carlsberg Ridge, 63 50'E; MAR, 4 02'S; Stockwork; Von Damm) and 1 was removed (Raven was incorporated into MEF), thus bringing the total to 594 listed vent fields.
Vent fields edited with additional information include: Beebe; Enarete; High Rise; Kos; Main Endeavour Field (MEF); Milos; Mothra; Nereus Deep; Salty Dawg; Sasquatch; Whale Island.
Added references to: Axial ASHES; Dodo; Guaymas (Southern Trough Ridge); High Rise; Iheya North; Main Endeavour Field; Milos; Mothra; Salty Dawg; Sasquatch; Solitaire.

Version 2.3
Ver 2.3 was hosted on a WHOI server in December 2012 for development to Version 3. We removed all references that were uploaded for the Biblio module but not used in Ver 2.0. The Biblio module was not installed on the UK server and thus was not active in Ver 2.1 and 2.2. We updated the taxonomy for MGDS Feature ID, removing all Feature ID's that were suggested in Ver. 2.0 but not in the MGDS vocabulary accessed 21 Dec. 2012. We assigned each vent field to existing MGDS Feature IDs at the lowest possible level in the hierarchy (e.g., most N EPR vent fields were assigned simply to Feature ID EPR). We changed region taxonomy Tadjoura Rift to Aden Ridge.
No vent fields were added or removed, and the following vent fields were edited: AAR KR1; AAR KR2; Bataan; Eyjafjordur; Leyte; Volcano O.

What's new in Version 3
In Version 3 the InterRidge Vents Database has joined the semantic web of Linked Data. We migrated the database to Drupal 7, still an open source content management system and now with Resource Description Framework (RDF) web services in its core. We implemented additional contributed modules for query over the web using the SPARQL standard. Most database content and taxonomy terms are currently mapped to default RDF namespaces, with three important exceptions: we mapped the "vent field" content type to (1) an rdf:type for hydrothermal vents in a

semantic knowledge base (http://yago-knowledge.org/resource/) and (2) to an rdf:type for geographical features from the Open Geospatial Consortium (http://www.opengis.net/rdf#), and (3) we mapped the latitude and longitude positions of the vent fields to a semantic vocabulary for the WGS84 geodetic reference datum (http://www.w3.org/2003/01/geo/wgs84_pos#). Another new feature in Version 3 is live Google mapping of vent field positions.

Version 3.0

Ver 3.0 was hosted on a WHOI server (December 2012 - April 2013) for development prior to transfer to InterRidge China office. Version 3.0 has the same vent field listings as Versions 2.2/2.3. Version 3.0 was used in the following:

Arko, R., C. Chandler, K. Stocks, S. Smith, P. Clark, A. Shepherd, C. Moore, and S. Beaulieu (2013) Rolling Deck to Repository (R2R): Collaborative Development of Linked Data for Oceanographic Research. EGU General Assembly, abstract #EGU2013-9564.

Version 3.1

Version 3.1 is the present, secure Drupal 7.21 hosted on WHOI server (April-May 2013) prior to transfer to InterRidge China. Version 3.1 has the same vent field listings as Versions 2.2/2.3/3.0. Upgrades in Ver. 3.1 include the use of Display Suite module, for clickable RDF link within each Vent Field node, and new path aliases: "/ventfield/".

Acknowledgements

The InterRidge Vents Database is supported by the InterRidge program for international cooperation in ridge-crest studies (http://www.interridge.org). For the revision to Version 2.0, we greatly appreciate access to global lists of vent fields from E. Baker, M. Hannington, and S. Petersen. V. Ferrini helped match vocabulary to the MGDS Feature IDs. A. Maffei and J. Dusenberry aided the upload into Drupal 6. D. Perry and M. Suominen aided the transfer to NOCS. For the revision to Version 2.1, we also thank E. Baker, P. Dando, and C. De Ronde. For revisions to Ver. 2.3, 3.0, and 3.1, S. Beaulieu was supported by NSF award #1202977 and a WHOI Technical Staff Award. We thank A. Maffei and A. Shepherd for the migration to Drupal 7.

Download version documentation

For more information, please consult the Version 2 and Version 3 documentation (PDFs attached below) or contact the InterRidge Coordinator.