**Exact matching.**

**I. location information per map**

**USGS-60-CA-modoclavabed-e1886-s1884.jpg -> metadata about**

42-41° (latitude)

-122 - -121° (longitude)

41.00000,-122.00000; 42.00000,-122.00000; 42.00000,-121.00000; 41.00000,-121.00000; 41.00000,-122.00000

Header.

1. Get node URI + coordinate information as much as possible from the phrase by sparql query (node types, partial and insensitive matching)

2. filtering with location information of map.

**II. site: linkedgeodata, black mountain**

**III. site: the Prof. relation, way**

<https://www.openstreetmap.org/relation/4517638>

https://wiki.openstreetmap.org/wiki/Beginners\_Guide\_1.3

https://www.openstreetmap.org/relation/4517638

https://wiki.openstreetmap.org/wiki/Beginners\_Guide\_1.3

https://query.wikidata.org/

1. node type1 (Only matching with **sws.geonames.org**)

- semantic web: nodeURI owl:sameAS geonameURI

- geonames predicates: gn:name, gn:countryCode, wgs85\_pos:lat, wgs84\_pos:long, wgs84\_pos:alt

- example: http://linkedgeodata.org/triplify/node358762079

2. node type2 (matching with **sws.geonames.org and DBpedia**)

- semantic web: nodeURI owl:sameAS geonameURI; owl:sameAS DBpediaURI

- dbpedia predicates (various): dbo:elevation, dbp:latD, dbp:longD, dbp:regionCode, rdf:type

- example: http://linkedgeodata.org/triplify/node358779655

3. node type3 (linkedgeodata has some information)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Prefix lgdr:<http://linkedgeodata.org/triplify/>  Prefix lgdo:<http://linkedgeodata.org/ontology/>  Prefix geom: <http://geovocab.org/geometry#>  Prefix ogc: <http://www.opengis.net/ont/geosparql#>  Prefix owl: <http://www.w3.org/2002/07/owl#>  PREFIX gn:<http://www.geonames.org/ontology#>  Select \* { <http://linkedgeodata.org/triplify/node356498837> ?p ?o .  }   |  |  | | --- | --- | | **p** | **o** | | <http://www.w3.org/1999/02/22-rdf-syntax-ns#type> | <http://geovocab.org/spatial#Feature> | | <http://www.w3.org/1999/02/22-rdf-syntax-ns#type> | <http://linkedgeodata.org/ontology/Amenity> | | <http://www.w3.org/1999/02/22-rdf-syntax-ns#type> | <http://linkedgeodata.org/meta/Node> | | <http://www.w3.org/1999/02/22-rdf-syntax-ns#type> | <http://linkedgeodata.org/ontology/School> | | <http://purl.org/dc/terms/modified> | 2009-03-07T01:00:10 | | <http://www.w3.org/2000/01/rdf-schema#label> | "**Antelope Creek School**" | | [**http://www.w3.org/2002/07/owl#sameAs**](http://www.w3.org/2002/07/owl#sameAs) | [**http://sws.geonames.org/5817240/**](http://sws.geonames.org/5817240/) | | <http://purl.org/dc/terms/contributor> | <http://linkedgeodata.org/triplify/user4732> | | <http://linkedgeodata.org/ontology/changeset> | "747176"^^<http://www.w3.org/2001/XMLSchema#int> | | <http://linkedgeodata.org/ontology/version> | "1"^^<http://www.w3.org/2001/XMLSchema#int> | | <http://geovocab.org/geometry#geometry> | <http://linkedgeodata.org/geometry/node356498837> | | <http://www.w3.org/2003/01/geo/wgs84_pos#lat> | 42.1994 | | <http://www.w3.org/2003/01/geo/wgs84_pos#long> | -105.68 | | <http://linkedgeodata.org/ontology/ele> | 2242.0 | | <http://linkedgeodata.org/ontology/gadmSameAs> | <http://gadm.geovocab.org/services/withinRegion?lat=42.199413&long=-105.67972#point> | | <http://linkedgeodata.org/ontology/gnis%3Acounty_id> | "001" | | <http://linkedgeodata.org/ontology/gnis%3Acreated> | "06/05/1979" | | <http://linkedgeodata.org/ontology/gnis%3Afeature_id> | "1584863" | | <http://linkedgeodata.org/ontology/gnis%3Astate_id> | "56" | |

4. Way (not matching with **sws.geonames.org**)

<http://linkedgeodata.org/triplify/way134459324>

Select \* {?s ?p ?o.

FILTER regex (?s, "/way")}LIMIT 100

Select \* {<http://linkedgeodata.org/triplify/way134459324> ?p ?o.

}LIMIT 100

<http://linkedgeodata.org/triplify/way37353338>

|  |  |
| --- | --- |
| **p** | **o** |
| <http://www.w3.org/1999/02/22-rdf-syntax-ns#type> | <http://geovocab.org/spatial#Feature> |
| <http://www.w3.org/1999/02/22-rdf-syntax-ns#type> | <http://linkedgeodata.org/meta/Way> |
| <http://www.w3.org/1999/02/22-rdf-syntax-ns#type> | <http://linkedgeodata.org/ontology/AerialwayThing> |
| <http://www.w3.org/1999/02/22-rdf-syntax-ns#type> | <http://linkedgeodata.org/ontology/ChairLift> |
| <http://purl.org/dc/terms/modified> | 2011-02-27T20:38:09 |
| <http://www.w3.org/2000/01/rdf-schema#label> | "Black Mountain Express" |
| <http://purl.org/dc/terms/contributor> | <http://linkedgeodata.org/ontology/user113624> |
| <http://linkedgeodata.org/ontology/changeset> | "7414641"^^<http://www.w3.org/2001/XMLSchema#int> |
| <http://linkedgeodata.org/ontology/version> | "2"^^<http://www.w3.org/2001/XMLSchema#int> |
| [**http://geovocab.org/geometry#geometry**](http://geovocab.org/geometry#geometry) | [**http://linkedgeodata.org/geometry/way37353338**](http://linkedgeodata.org/geometry/way37353338) |
| <http://linkedgeodata.org/ontology/aerialway%3Aoccupancy> | "4" |

[**http://linkedgeodata.org/geometry/way37353338**](http://linkedgeodata.org/geometry/way37353338)

|  |  |
| --- | --- |
| <http://www.opengis.net/ont/geosparql#asWKT> | "LINESTRING(-105.8706644 39.6339759,-105.8722922 39.6415782)"^^<http://www.openlinksw.com/schemas/virtrdf#Geometry> |

**Example of node type 1**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Prefix lgdr:<http://linkedgeodata.org/triplify/>  Prefix lgdo:<http://linkedgeodata.org/ontology/>  Prefix geom: <http://geovocab.org/geometry#>  Prefix ogc: <http://www.opengis.net/ont/geosparql#>  Prefix owl: <http://www.w3.org/2002/07/owl#>  PREFIX gn:<http://www.geonames.org/ontology#>  Select \* { <http://linkedgeodata.org/triplify/node358762079> ?p ?o .  }   |  |  | | --- | --- | | **p** | **o** | | <http://www.w3.org/2002/07/owl#sameAs> | <http://sws.geonames.org/5559917/> | | <http://www.w3.org/2002/07/owl#sameAs> | <http://sws.geonames.org/5559921/> | | <http://www.w3.org/2002/07/owl#sameAs> | <http://sws.geonames.org/5559954/> |   #  Select \* {  ?s owl:sameAs **?geo .**  **?geo** **gn:name** “Black Mountain”.  } |

**sws.geonames.org RDF example**

|  |
| --- |
| <?xml version="1.0" encoding="UTF-8" standalone="no"?>  <rdf:RDF xmlns:cc="http://creativecommons.org/ns#" xmlns:dcterms="http://purl.org/dc/terms/" xmlns:foaf="http://xmlns.com/foaf/0.1/" xmlns:gn="http://www.geonames.org/ontology#" xmlns:owl="http://www.w3.org/2002/07/owl#" xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:rdfs="http://www.w3.org/2000/01/rdf-schema#" xmlns:wgs84\_pos="http://www.w3.org/2003/01/geo/wgs84\_pos#">  <gn:Feature rdf:about="https://sws.geonames.org/5559917/">  <rdfs:isDefinedBy rdf:resource="https://sws.geonames.org/5559917/about.rdf"/>  <**gn:name**>Black Mountain</gn:name>  <gn:featureClass rdf:resource="https://www.geonames.org/ontology#T"/>  <gn:featureCode rdf:resource="https://www.geonames.org/ontology#T.MT"/>  <**gn:countryCode>US**</gn:countryCode>  <**wgs84\_pos:lat>40.59295</wgs84\_pos:lat>**  <**wgs84\_pos:long>-120.72912</wgs84\_pos:long**>  <**wgs84\_pos:alt>1919</wgs84\_pos:alt>**  <gn:parentFeature rdf:resource="https://sws.geonames.org/5566544/"/>  <gn:parentCountry rdf:resource="https://sws.geonames.org/6252001/"/>  <gn:parentADM1 rdf:resource="https://sws.geonames.org/5332921/"/>  <gn:parentADM2 rdf:resource="https://sws.geonames.org/5566544/"/>  <gn:nearbyFeatures rdf:resource="https://sws.geonames.org/5559917/nearby.rdf"/>  <gn:locationMap rdf:resource="https://www.geonames.org/5559917/black-mountain.html"/>  </gn:Feature>  <foaf:Document rdf:about="https://sws.geonames.org/5559917/about.rdf">  <foaf:primaryTopic rdf:resource="https://sws.geonames.org/5559917/"/>  <cc:license rdf:resource="https://creativecommons.org/licenses/by/4.0/"/>  <cc:attributionURL rdf:resource="https://www.geonames.org"/>  <cc:attributionName rdf:datatype="https://www.w3.org/2001/XMLSchema#string">GeoNames</cc:attributionName>  <dcterms:created rdf:datatype="https://www.w3.org/2001/XMLSchema#date">2006-01-15</dcterms:created>  </foaf:Document>  </rdf:RDF> |

**Example of node type 2**

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| --- | --- | --- | --- | --- | --- | --- |
| Prefix lgdr:<http://linkedgeodata.org/triplify/>  Prefix lgdo:<http://linkedgeodata.org/ontology/>  Prefix geom: <http://geovocab.org/geometry#>  Prefix ogc: <http://www.opengis.net/ont/geosparql#>  Prefix owl: <http://www.w3.org/2002/07/owl#>  PREFIX gn:<http://www.geonames.org/ontology#>  Select \* { <http://linkedgeodata.org/triplify/node358779655> ?p ?o .  }   |  |  | | --- | --- | | **p** | **o** | | <http://www.w3.org/2002/07/owl#sameAs> | <http://dbpedia.org/resource/Amboy_Crater> | | <http://www.w3.org/2002/07/owl#sameAs> | <http://sws.geonames.org/5323669/> | |