# Idaho Technology Authority (ITA)

# ENTERPRISE STANDARDS – S4000 – INFORMATION AND DATA

## Category: S4XXX –Active Faults Layer Standard

##

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**I.** **DEFINITION**

 See ITA Guideline [G105](https://ita.idaho.gov/psg/g105.pdf) (ITA Glossary of Terms) for definitions.

**II.** **RATIONALE**

A statewide Active Fault layer and data standard, which is part of the Hazards data theme is a critical source of information for resource land management, community and economic development needs, infrastructure maintenance, research and analysis, business development, public safety, and more. This standard provides the active fault data for centralized access and stewardship information. When implemented, it will enable access to geometry and attribute information about active faults in Idaho. It will increase interoperability between automated geographic information systems and enable sharing and efficient transfer of information for aggregation. Further, it will encourage partnerships between government, the private sector, and the public in order to avoid duplication of effort and ensure effective management of information resources. It will help improve active fault data quality as errors are identified and resolved.

**III.** **APPROVED STANDARD(S)**

See Attachment

**IV.** **APPROVED PRODUCTS(S)**

Any GIS Software, either desktop or online, capable of ingesting and displaying Open Geospatial Consortium (OGC) Web Map Standard (WMS) services.

**V.** **JUSTIFICATION**

A statewide Active Fault dataset is a critical source of information as stated under ‘II Rationale’ in this standard. A data exchange standard support the use of the Active Fault to facility a predictable format, improve collaboration and encourage of this dataset.

**VI.** **TECHNICAL AND IMPLEMENTATION CONSIDERATIONS**

Any GIS Software, either desktop or online, capable of ingesting and displaying Open Geospatial Consortium (OGC) Web Map Standard (WMS) services.

**VII.** **EMERGING TRENDS AND ARCHITECTURAL DIRECTIONS**

Data will be shared in accordance with Enterprise Standard [S4250](https://ita.idaho.gov/psg/s4250.pdf) – Enterprise

Geographic Information System (GIS) Data Sharing Standards.

**VIII.** **PROCEDURE REFERENCE**

The format, content and development of this standard adhere to Policy [P5030](https://ita.idaho.gov/psg/p5030.pdf) for Framework Standards, [S4250](https://ita.idaho.gov/psg/s4250.pdf) for Data Sharing Standards and [S4220](https://ita.idaho.gov/psg/s4220.pdf) for Geospatial Metadata.

**IX. REVIEW CYCLE**

Review will occur at least annually.

**X. CONTACT INFORMATION**

For more information, contact the ITA Staff at (208) 605-4064.

**REVISION HISTORY**

XX/XX/202X – Standard Presented to the IGC-EC

 

 STATE OF IDAHO

 **Idaho Active Faults Data Standard**

Part of the Hazards Theme

Version 1

Effective Month Day, 2023

Developed by the Hazards Technical Working Group

Contact

ITA Staff

Office of Information Technology Services

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1. **Introduction to the Active Fault Data Exchange Standard**

A statewide Active Fault is a critical source of information for resource land management, community and economic development needs, infrastructure maintenance, research and analysis, business development, public safety, and more. This standard provides the active fault data for centralized access and stewardship information. Those groups use will benefit from this data because This standard applies to the Active Fault element of The Idaho Map (TIM). When implemented, it will enable access to geometry and attribute information about active faults in Idaho. It will increase interoperability between automated geographic information systems and enable sharing and efficient transfer of information for aggregation. Further, it will encourage partnerships between government, the private sector, and the public in order to avoid duplication of effort and ensure effective management of information resources. It will help improve active fault data quality as errors are identified and resolved. As can be seen from the above examples, many private sector and local, state, and federal government agencies have business needs for Active Fault data.

An Active Fault Standard is intended to facilitate integration and sharing of up-to-date Active Fault data and enhance the dissemination and use of Active Fault information. This standard does not instruct on how Active Fault databases are designed for internal use.

This standard was developed by the HazardsTechnical Working Group, a subgroup of the Idaho Geospatial Council – Executive Committee (IGC-EC). This standard will be reviewed on a regular basis and updated as needed.

* 1. **Mission and Goals of the Standard**

The Active Fault Standard supports a statewide dataset that is consistent with applicable state and national standards. It establishes the minimum attributes and geospatial database schema for the Active Fault Framework. The Standard will communicate with and may have similar attributes to other Idaho Framework data standards. It encourages all Idaho-based agencies with geospatial Active Fault data to contribute to Active Fault Framework.

The Active Fault Framework will be appropriately shared and beneficial to all. The fields in the Active Fault Data Exchange Standard will be general enough to incorporate basic information without requiring major changes in internal data models. This standard allows for expansion to a more complex data structure and schema.

* 1. **Relationship to Existing Standards**

This Active Fault Exchange Standard relates to existing standards as follows:

* No other standards apply.
	1. **Description of the Standard**

This standard describes the vision and geospatial data structure of a Active Fault Framework in the state of Idaho. This standard is devised to be:

* Simple, easy to understand, and logical
* Uniformly applicable, whenever possible
* Flexible and capable of accommodating future expansions
* Dynamic in terms of continuous review
	1. **Applicability and Intended Uses**

This standard applies to the Active Fault element of the Hazards theme of The Idaho Map (TIM).

When implemented this standard will enable access and exchange of the data. A predictable standard will support data collaboration, improve data collaboration, help identify and report errors and allow agencies to incorporate this data into their own data products..

This standard does not consider data sharing agreements, contracts, transactions, privacy concerns, or any other issues relating to the acquisition and dissemination of Active Fault data.

* 1. **Standard Development Process**

The Hazards Technical Working Group is a voluntary group of private, city, county, tribal, state, and federal representatives. In 2023, the Active Fault Lead began developing the standard for the Active Fault Framework using the standard development automation tools developed by the IGC-EC to generate the first draft of the Standard. This standard was then reviewed and edited by the members of the HazardsTechnical Working Group.

After initial development the draft standard document was shared with the Idaho Geospatial Council Executive Committee (IGC-EC) and the Idaho Geospatial Council (IGC) in accordance with the review and approval process described in ITA Policy [P5030](https://ita.idaho.gov/psg/p5030.pdf) Framework Standards Development.

The standard was presented to the IGC-EC in <<insert month and year>> and approved by the IGC-EC in <<insert month and year>>.

* 1. **Maintenance of the Standard**

This standard will be revised as needed and in accordance with the ITA Framework Standards Development Policy ([P5030](https://ita.idaho.gov/psg/p5030.pdf)).

1. **Body of the Standard**
	1. **Scope and Content**

The scope of the Active Fault Data Exchange Standard is to describe a statewide layer which identifies the physical locations and attributes of Active Faults in Idaho.

* 1. **Need**

Active Faults are a key dataset needed for resource land management, community and economic development needs, infrastructure maintenance, research and analysis, business development, public safety, and more. This standard provides the active fault data for centralized access and stewardship information. This standard provides the foundation to aggregate Active Fault data for centralized access and stewardship information.

Active Fault data is needed because The Active Fault Standard supports a statewide dataset that is consistent with applicable state and national standards. It establishes the minimum attributes and geospatial database schema for the Active Fault Framework. The standard will communicate with and may have similar attributes to other Idaho Framework data standards. It encourages all Idaho-based agencies with geospatial active fault data to contribute to the Active Fault Framework.

* 1. **Participation in the Standard Development**

The development of the Active Fault Data Exchange Standard adheres to the ITA Framework Standards Development Policy ([P5030](https://ita.idaho.gov/psg/p5030.pdf)). The Hazards Standard Team tasked with developing this standard invite input and comments from private, county, state, and federal organizations. As the standard is reviewed in accordance with Policy [P5030](https://ita.idaho.gov/psg/p5030.pdf) requirements, there will be opportunity for broad participation and input by stakeholders in the development of this standard. The process will be equally broad for input on updates and enhancements to the standard. As with all Idaho Framework standards, public review, and comments on the Active Fault Data Exchange Standard is encouraged.

* 1. **Integration with Other Standards**

The Active Fault Data Exchange Standard follows the same format as other Idaho geospatial framework data standards. The Active Fault standard may contain some of the same attributes as other framework standards and may adopt the field name, definition, and domain from the other standards to promote consistency.

* 1. **Technical and Operation Context**
		1. **Data Environment**

The data environment is a digital vector line with a specific, standardized set of attributes pertinent to the Active Fault Framework. Active Fault data shared under this standard must be in a format supporting vector lines.

* + 1. **Reference Systems**

The Active Fault Framework will be published in the Idaho Transverse Mercator NAD83 (IDTM83) coordinate system, which is the State of Idaho’s single-zone coordinate system. Data is not required to be submitted in the IDTM83 coordinate system but must have a defined coordinate system clearly described in the metadata.

* + 1. **Global Positioning Systems (GPS)**

Some data provided might contain geometry from GPS methods, and the provided metadata should describe this, if applicable. Some data provided might contain geometry from GPS methods, and the provided metadata should describe this, if applicable.

* + 1. **Interdependence of Themes**

Active Faults has geometry data may be coincident with other framework data, such as Shake Map data layer(s). Attributes found in the Active Fault layer are related to the attributes found in Shake Map data layer(s). At this time, there is no enforcement of coincidence or topology relationships between Active Faults Framework and other Framework elements.

* + 1. **Encoding**

When data is imported into and exported from the Active Fault Framework, encoding will take place to convert data formats and attributes.

* + 1. **Resolution**

No specific requirements for resolution are specified in this standard. Resolution will be documented in the metadata. Resolution will be documented in the metadata.

* + 1. **Accuracy**

No specific requirements for accuracy are specified in this standard. Accuracy will be

documented in the metadata.

* + 1. **Edge Matching**

No edge matching is required between jurisdictions, or between this and other framework layers

* + 1. **Unique Identifier**

The unique identifier is ID\_NUM, which is a concatenation of the fault\_id and OBJECTID from the U.S. Geologic Survey Active Fault data.

* + 1. **Attributes**

Attributes for public and intergovernmental distribution are described in Section 3 of this standard.

* + 1. **Stewardship**

Perpetual maintenance and other aspects of lifecycle management are essential to the Active Fault Framework. Details of stewards, their roles and responsibilities, and processes are set forth, or are being planned to set forth in an Active Fault Framework Stewardship Plan and related documents.

* + 1. **Records Management and Archiving**

Details of records management and archiving for Active Fault Framework should be set forth in an Active Fault Framework Stewardship Plan and related documents.

* + 1. **Metadata**

The Active Fault Framework metadata will describe the methods used to update and aggregate the individual Active Fault data contributions, processes or crosswalks performed, definition of attributes, and other required information. This metadata will conform to the metadata standards as set out in ITA Standard [S4220](https://ita.idaho.gov/psg/s4220.pdf) Geospatial Metadata.

1. **Data Characteristics**
	1. **Minimum Graphic Data Elements**

The geometry of the features in the Active Fault Framework is vector line.

* 1. **Optional Graphic Data Elements**

Not applicable.

* 1. **Standard Attribute Schema**

| **Field Name** | **Data Type** | **Length**  | **Description** | **Examples** |
| --- | --- | --- | --- | --- |
| fault\_name | Text | 100 | Name of the fault | Beaverhead fault |
| section\_name | Text | 100 | Name of the section in a fault | Lemhi section |
| ID\_NUM | Text | 100 | Concatenation of the fault\_id and OBJECTID | 603-430 |
| fault\_id | Text | 10 | Numerical identification of the fault | 603 |
| section\_id | Text | 1 | Coded identification of the section name | a |
| Location | Text | 100 | State where fault primarily resides | Idaho |
| linetype | Text | 50 | Confidence of fault mapping | Inferred, Well Constrained |
| age | Text | 50 | Age of last fault movement | late Quaternary, undifferentiated Quaternary |
| dip\_direct | Text | 50 | Angle of the fault with respect to the surface | W |
| slip\_rate | Text | 100 | Average distance traveled | Less than 0.2 mm/yr |
| slip\_sense | Text | 50 | Relative motion of the rock on each side of the fault concerning the other side | Normal |
| scale | Text | 50 | Scale at which the fault is mapped | 1:250,000 |
| class | Text | 50 | Fault class category as defined by Crone and Wheeler (2000) | A |
| certainty | Text | 200 |  | Good, Poor |
| strike | Text | 50 | Average strike of fault or fault section | N8˚E |
| fault\_leng | Text |  | Length of fault in kilometers | 55 |
| cooperator | Text | 200 | Cooperating agency | U.S. Geological Survey |
| earthquake | Text | 200 | Earthquake associated with the fault | Borah Peak earthquake |
| review\_dat | Date |  | Date of review | 11/9/2010 |
| fault\_url | Text | 254 | URL of the associated archived fault report | https://earthquake.usgs.gov/cfusion/qfault/show\_report\_AB\_archive.cfm?fault\_id=601&section\_id=b |
| symbology | Text | 100 | Value composed of line type and age for display purposes in web application | historic Well Constrained |
| ref\_id | Text | 50 | Reference ID for linking associated citations with the faults | 601b |

* 1. **Data Quality**

Data quality considerations for Active Faults include:

 a) All Active Faults should have Active Fault IDs.

b)

**Appendix A: References**

Idaho Technology Authority (ITA). *Information and Data Policy P5000, Category: P5030 Framework Standards Development Policy.* [https://ita.idaho.gov/psg/P5030.pdf](https://ita.idaho.gov/psg/p5030.pdf)

Idaho Technology Authority (ITA). *Enterprise Standards S4000 Geographic Information Systems (GIS) Data, Category: S4220 Geospatial Metadata.* [https://ita.idaho.gov/psg/S4220.pdf](https://ita.idaho.gov/psg/s4220.pdf)

U.S. Geological Survey and Idaho Geological Survey, Quaternary fault and fold database for the United States. <https://www.usgs.gov/natural-hazards/earthquake-hazards/faults>

# Appendix B: Glossary

See ITA Guideline [G105](https://nam01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fita.idaho.gov%2Fpsg%2Fg105.pdf&data=01%7C01%7Cpbond%40cityofboise.org%7C2ca8b62d08b14c86824608d6d25b20ad%7Cda3e15835c884f8ea832bd79cbd319cb%7C0&sdata=Nsvlb1tLNvY1YuorWK8VNvl5P4gRou8Pk0AkKq6iNp8%3D&reserved=0) (ITA Glossary of Terms) for definitions.

| **Active Fault Nomination** |
| --- |
| **Framework Data Theme:** Hazards |
| **Framework Dataset:** Active Fault |
| **Proposed Framework Dataset Name:** Active Fault |
| **Link to Publication Dataset of Proposed Framework Dataset:** https://usgs.maps.arcgis.com/apps/webappviewer/index.html?id=5a6038b3a1684561a9b0aadf88412fcf |
| **Link to Metadata of Proposed Framework Dataset:** https://earthquake.usgs.gov/arcgis/rest/services/haz/Qfaults/MapServer/8/metadata |
| **Authoritative Source(s) Description:** A broad research initiative to locate and document major faults with state, regional, and national contributions. Subsequent research provided some supporting database. These past contributions and new contributions from State geological surveys and the U.S. Geological Survey comprise the Quaternary fault and fold data for the United States.. |
| **Link to Data Exchange Standard:** <Will be added when standard is approved>  |
| **Trusted Source Description:**  |
| **Please attach copies of the agreements between Authoritative Source(s) and Trusted Source.**  |
| **Minimum Scale of Dataset:** No specific requirements for resolution are specified in this standard. Resolution will be documented in the metadata. |
| **Please describe the proposed maintenance schedule for the dataset:** This standard will be revised as needed and in accordance with the ITA Framework Standards Development Policy (P5030). |
| **If this dataset is not a statewide coverage, please describe the methodology for developing or incorporating other data to make a statewide coverage:**  |