

U.S. Geological Survey - Earthquake Hazards Program

# API Documentation - Earthquake Catalog

This is an implementation of the [FDSN Event Web Service Specification](#), and allows custom searches for earthquake information using a variety of parameters.



Please note that automated applications should use [Real-time GeoJSON Feeds](#) for displaying earthquake information whenever possible, as they will have the best performance and availability for that type of information.

## URL

[https://earthquake.usgs.gov/fdsnws/event/1/\[METHOD\]\[?PARAMETERS\]](https://earthquake.usgs.gov/fdsnws/event/1/[METHOD][?PARAMETERS])

## Methods

### **application.json**

request known enumerated parameter values for the interface.

- <https://earthquake.usgs.gov/fdsnws/event/1/application.json>

### **application.wadl**

request WADL for the interface.

- <https://earthquake.usgs.gov/fdsnws/event/1/application.wadl>

### **catalogs**

request available catalogs.

- <https://earthquake.usgs.gov/fdsnws/event/1/catalogs>

### **contributors**

request available contributors

- <https://earthquake.usgs.gov/fdsnws/event/1/contributors>

## count

to perform a count on a data request. Count uses the same [parameters](#) as the query method, and is available in these [formats](#): plain text (default), geojson, and xml.

- <https://earthquake.usgs.gov/fdsnws/event/1/count?format=geojson>
- <https://earthquake.usgs.gov/fdsnws/event/1/count?starttime=2014-01-01&endtime=2014-01-02>

## query

to submit a data request. See the [parameters](#) section for supported url parameters.

- <https://earthquake.usgs.gov/fdsnws/event/1/query?format=geojson&starttime=2014-01-01&endtime=2014-01-02>
- <https://earthquake.usgs.gov/fdsnws/event/1/query?format=xml&starttime=2014-01-01&endtime=2014-01-02&minmagnitude=5>

## version

request full service version number

- <https://earthquake.usgs.gov/fdsnws/event/1/version>

# Query method Parameters

These parameters should be submitted as key=value pairs using the HTTP GET method and may not be specified more than once; if a parameter is submitted multiple times the result is undefined.

## Formats

If no format is specified *quakeml* will be returned by default.

parameter	type	default	description
			<p>Specify the output format.</p> <div><code>format=csv</code></div> <p>Response format is <a href="#">CSV</a>. Mime-type is “text/csv”.</p>

format	String	quakeml	<p><a href="#">format=geojson</a> Response format is <a href="#">GeoJSON</a>. Mime-type is “application/json”.</p> <p><a href="#">format=kml</a> Response format is <a href="#">KML</a>. Mime-type is “vnd.google-earth.kml+xml”.</p> <p><a href="#">format=quakeml</a> Alias for "xml" format.</p> <p><a href="#">format=text</a> Response format is plain text. Mime-type is “text/plain”.</p> <p><a href="#">format=xml</a> The xml format is dependent upon the request <i>method</i> used.</p>
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## format=geojson

When `format=geojson` is defined there are additional parameters that can be specified that control how the geojson output is generated. The additional web service parameters are:

- [callback](#)
- [jsonerror](#)

## format=kml

When `format=kml` is defined there are additional parameters that can be specified that control how the KML output is generated. The additional web service parameters are:

- [kmlanimated](#)
- [kmlcolorby](#)

## format=text

This format is only available for the `count`, `query`, and `version` methods.

## format=xml

The xml format is dependent upon the request `method` used.

- `method=query`  
Response format is [Quakeml 1.2](#). Mime-type is "application/xml".
- `method=count`

Response format is xml. Mime-type is “application/xml”.

## Time

All times use ISO8601 Date/Time format. Unless a timezone is specified, UTC is assumed. Examples:

- *2020-05-08*, Implicit UTC timezone, and time at start of the day (00:00:00)
- *2020-05-08T19:28:16*, Implicit UTC timezone.
- *2020-05-08T19:28:16+00:00*, Explicit timezone.

parameter	type	default	description
<code>endtime</code>	String	present time	Limit to events on or before the specified end time. NOTE: All times use ISO8601 Date/Time format. Unless a timezone is specified, UTC is assumed.
<code>starttime</code>	String	NOW - 30 days	Limit to events on or after the specified start time. NOTE: All times use ISO8601 Date/Time format. Unless a timezone is specified, UTC is assumed.
<code>updatedafter</code>	String	null	Limit to events updated after the specified time. NOTE: All times use ISO8601 Date/Time format. Unless a timezone is specified, UTC is assumed.

## Location

Requests that use both rectangle and circle will return the intersection, which may be empty, use with caution.

## Rectangle

Requests may use any combination of these parameters.

parameter	type	default	description
<code>minlatitude</code>	Decimal [-90,90] degrees	-90	Limit to events with a latitude larger than the specified minimum. NOTE: min values must be less than max values.
	Decimal		Limit to events with a longitude larger than the specified

<code>minlongitude</code>	[-360,360] degrees	-180	minimum. NOTE: rectangles may cross the date line by using a minlongitude < -180 or maxlongitude > 180. NOTE: min values must be less than max values.
<code>maxlatitude</code>	Decimal [-90,90] degrees	90	Limit to events with a latitude smaller than the specified maximum. NOTE: min values must be less than max values.
<code>maxlongitude</code>	Decimal [-360,360] degrees	180	Limit to events with a longitude smaller than the specified maximum. NOTE: rectangles may cross the date line by using a minlongitude < -180 or maxlongitude > 180. NOTE: min values must be less than max values.

Circle

Requests must include all of latitude, longitude, and maxradius to perform a circle search.

parameter	type	default	description
<code>latitude</code>	Decimal [-90,90] degrees	null	Specify the latitude to be used for a radius search.
<code>longitude</code>	Decimal [-180,180] degrees	null	Specify the longitude to be used for a radius search.
<code>maxradius</code>	Decimal [0, 180] degrees	180	Limit to events within the specified maximum number of degrees from the geographic point defined by the latitude and longitude parameters. NOTE: This option is mutually exclusive with <a href="#">maxradiuskm</a> and specifying both will result in an error.
<code>maxradiuskm</code>	Decimal [0, 20001.6] km	20001.6	Limit to events within the specified maximum number of kilometers from the geographic point defined by the latitude and longitude parameters. NOTE: This option is mutually exclusive with <a href="#">maxradius</a> and specifying both will result in an error.

Other

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parameter	type	default	description
<code>catalog</code>	String	null	Limit to events from a specified catalog. Use the <a href="#">Catalogs Method</a> to find available catalogs. NOTE: when catalog and contributor are omitted, the most preferred information from any catalog or contributor for the event is returned.
<code>contributor</code>	String	null	Limit to events contributed by a specified contributor. Use the <a href="#">Contributors Method</a> to find available contributors. NOTE: when catalog and contributor are omitted, the most preferred information from any catalog or contributor for the event is returned.
<code>eventid</code>	String	null	Select a specific event by ID; event identifiers are data center specific. NOTE: Selecting a specific event implies includeallorigins, includeallmagnitudes, and, additionally, associated moment tensor and focal-mechanisms are included.
<code>includeallmagnitudes</code>	Boolean	false	Specify if all magnitudes for the event should be included, default is data center dependent but is suggested to be the preferred magnitude only. NOTE: because magnitudes and origins are strongly associated, this parameter is interchangeable with includeallmagnitudes
<code>includeallorigins</code>	Boolean	false	Specify if all origins for the event should be included, default is data center dependent but is suggested to be the preferred origin only. NOTE: because magnitudes and origins are strongly associated, this parameter is interchangeable with includeallmagnitudes
<code>includearrivals</code>	Boolean	false	Specify if phase arrivals should be included. NOTE: NOT CURRENTLY IMPLEMENTED
<code>includedeleted</code>	Boolean	false	Specify if deleted products and events should be included.  Deleted events otherwise return the HTTP status <code>409 Conflict</code> .

			NOTE: Only supported by the <code>csv</code> and <code>geojson</code> formats, which include <code>status</code> .
<code>includesuperseded</code>	Boolean	false	Specify if superseded products should be included. This also includes all deleted products, and is mutually exclusive to the <a href="#">includeddeleted</a> parameter. NOTE: Only works when specifying <a href="#">eventid</a> parameter.
<code>limit</code>	Integer [1,20000]	null	Limit the results to the specified number of events. NOTE: The service limits queries to 20000, and any that exceed this limit will generate a HTTP response code “400 Bad Request”.
<code>maxdepth</code>	Decimal [-100, 1000] km	1000	Limit to events with depth less than the specified maximum.
<code>maxmagnitude</code>	Decimal	null	Limit to events with a magnitude smaller than the specified maximum.
<code>mindepth</code>	Decimal [-100, 1000] km	-100	Limit to events with depth more than the specified minimum.
<code>minmagnitude</code>	Decimal	null	Limit to events with a magnitude larger than the specified minimum.
<code>offset</code>	Integer[1,∞]	1	Return results starting at the event count specified, starting at 1.
<code>orderby</code>	String	time	Order the results. The allowed values are:  <code>orderby=time</code> order by origin descending time <code>orderby=time-asc</code> order by origin ascending time <code>orderby=magnitude</code> order by descending magnitude <code>orderby=magnitude-asc</code>

			order by ascending magnitude
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## Extensions

parameter	type	default	description
<code>alertlevel</code>	String	null	<p>Limit to events with a specific PAGER alert level. The allowed values are:</p> <p><code>alertlevel=green</code> Limit to events with PAGER alert level "green".</p> <p><code>alertlevel=yellow</code> Limit to events with PAGER alert level "yellow".</p> <p><code>alertlevel=orange</code> Limit to events with PAGER alert level "orange".</p> <p><code>alertlevel=red</code> Limit to events with PAGER alert level "red".</p>
<code>callback</code>	String	null	<p>Convert GeoJSON output to a JSONP response using this callback. Mime-type is "text/javascript".</p> <p>Callback values are restricted to the characters  <code>[A-Za-z0-9\._]+</code></p> <p>NOTE: Must be used with format=geojson</p>
<code>eventtype</code>	String	null	<p>Limit to events of a specific type. NOTE: "earthquake" will filter non-earthquake events.</p>
<code>jsonerror</code>	Boolean	false	<p>Request JSON(P) formatted output even on API error results.</p> <p>NOTE: Must be used with format=geojson</p>
<code>kmlanimated</code>	Boolean	false	<p>Whether to include timestamp in generated kml, for google earth animation support. NOTE: Must be used with format=kml</p>
			<p>How earthquakes are colored. Accepted values are:</p> <p><code>kmlcolorby=age</code></p>



<code>kmlcolorby</code>	String	age	<p>Color events in KML by age.</p> <p><code>kmlcolorby=depth</code></p> <p>Color events in KML by depth.</p> <p>NOTE: Must be used with format=kml</p>
<code>maxcdi</code>	Decimal [0,12]	null	Maximum value for Maximum Community Determined Intensity reported by DYFI.
<code>maxgap</code>	Decimal [0,360] degrees	null	Limit to events with no more than this azimuthal gap.
<code>maxmmi</code>	Decimal [0,12]	null	Maximum value for Maximum Modified Mercalli Intensity reported by ShakeMap.
<code>maxsig</code>	Integer	null	Limit to events with no more than this significance.
<code>mincdi</code>	Decimal	null	Minimum value for Maximum Community Determined Intensity reported by DYFI.
<code>minfelt</code>	Integer[1,∞]	null	Limit to events with this many DYFI responses.
<code>mingap</code>	Decimal[0,360] degrees	null	Limit to events with no less than this azimuthal gap.
<code>minsig</code>	Integer	null	Limit to events with no less than this significance.
<code>nodata</code>	Integer (204 404)	204	Define the error code that will be returned when no data is found.
<code>producttype</code>	String	null	<p>Limit to events that have this type of product associated.</p> <p>Example producttypes:</p> <ul style="list-style-type: none"> <li>• moment-tensor</li> <li>• focal-mechanism</li> <li>• shakemap</li> <li>• losspager</li> <li>• dyfi</li> </ul>

<code>productcode</code>	String	null	<p>Return the event that is associated with the productcode. The event will be returned even if the productcode is not the preferred code for the event. Example productcodes:</p> <ul style="list-style-type: none"><li>• nn00458749</li><li>• at00ndf1fr</li></ul>
<code>reviewstatus</code>	String	all	<p>Limit to events with a specific review status. The different review statuses are:</p> <p><code>reviewstatus=automatic</code> Limit to events with review status "automatic".</p> <p><code>reviewstatus=reviewed</code> Limit to events with review status "reviewed".</p>