

Finding Data Available at IRIS Data Services

IRIS Data Services provides the scientific community with ready access to **seismic data** through a suite of REST-like web services. The **availability** service provides a view on our seismic data catalog in an easily digestible form and provides a powerful set of tools to filter and sort the information into a useful presentation.

Main page: <https://service.iris.edu/fdsnws/availability/1>

Getting Time Extents of Data

To see an overall summary of the total time extent of data in the archive, from the earliest time, to the latest time, use the 'extent' action in your REST call. This example looks at a station in Eskdalemuir, Scotland.

<https://service.iris.edu/fdsnws/availability/1/extent?net=IM&sta=EKB&loc=—&cha=BHZ&nodata=404&format=text>

The main operative terms here are:

- **extent** = show just the earliest times and latest times, selectively also filtering for sample rate changes and overlaps
- **net,sta,loc,cha** = the network, station, location, channel identifiers of the data channel that we wish to access. This channel does not have a location code, so we signify this with two dashes: 'loc=—'
- **nodata** = indicate the http code to be returned when no data is found (default is 204, which returns nothing to the client)
- **format** = set the format of data we want returned. Text is a good option to be compact and easy to read.

The output looks like the following:

```
#Network Station Location Channel Quality SampleRate Earliest Latest Updated TimeSpans
Restriction
IM EKB -- BHZ M 39.55 2016-02-23T16:00:05.899000Z 2016-02-23T16:00:07.795334Z 2020-02-
03T22:06:23Z 1 OPEN
IM EKB -- BHZ M 39.7 2016-02-25T03:33:09.350000Z 2016-02-25T03:33:09.979723Z 2017-01-
01T01:15:26Z 1 OPEN
IM EKB -- BHZ M 39.87 2016-02-24T13:06:15.775000Z 2016-02-24T13:06:19.988695Z 2017-01-
01T01:15:23Z 1 OPEN
IM EKB -- BHZ M 40.0 2014-03-17T00:00:00.000000Z 2017-04-18T10:04:59.975000Z 2020-02-
03T22:06:37Z 1296 OPEN
```

This can be interpreted to read:

- **Network, Station, Location, Channel** – this identifies the specific sensor waveform (broadband)
- **Quality** = a code letter that indicates the level of quality assurance in this data ('M' = merged)
- **SampleRate** = indicates the calculated samples per second provided by this data (~40 Hz with variances)
- **Earliest, Latest** = the minimum and maximum times where this reading applies
- **Updated, TimeSpans** = time of last update, number of contiguous time spans
- **Restriction** = indicates restricted access status (OPEN, PARTIAL, RESTRICTED)



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(Cont'd)

Getting Precise Availability of Data

For a more detailed view of data available, you will use the 'query' action in your call:

https://service.iris.edu/fdsnws/availability/1/query?net=IM&sta=EKB&loc=___&cha=BHZ&nodata=404&format=text

The output looks like the following:

```
#Network Station Location Channel Quality SampleRate Earliest Latest
IM EKB -- BHZ M 40.0 2014-03-17T00:00:00.000000Z 2014-03-18T00:14:55.175000Z
IM EKB -- BHZ M 40.0 2014-03-18T00:15:00.000000Z 2014-03-18T00:15:59.975000Z
IM EKB -- BHZ M 40.0 2014-03-18T00:16:30.000000Z 2014-03-18T00:26:18.625000Z
IM EKB -- BHZ M 40.0 2014-03-18T00:29:00.000000Z 2014-03-18T00:29:49.725000Z
....etc....
IM EKB -- BHZ M 40.0 2014-12-23T23:30:00.000000Z 2014-12-24T20:14:39.975000Z
IM EKB -- BHZ M 40.0 2014-12-24T20:14:50.000000Z 2014-12-24T20:44:39.975000Z
IM EKB -- BHZ M 40.0 2014-12-24T20:44:50.000000Z 2014-12-24T20:53:26.100000Z
IM EKB -- BHZ M 40.0 2014-12-24T20:55:10.000000Z 2014-12-24T20:59:49.975000Z
IM EKB -- BHZ M 40.0 2014-12-24T21:00:00.000000Z 2014-12-26T20:08:09.975000Z
IM EKB -- BHZ M 40.0 2014-12-26T20:09:00.000000Z 2014-12-26T20:10:57.975000Z
IM EKB -- BHZ M 40.0 2014-12-26T20:11:10.000000Z 2014-12-26T20:59:19.975000Z
IM EKB -- BHZ M 40.0 2014-12-26T20:59:30.000000Z 2014-12-26T20:59:57.525000Z
```

For very long availability lists, you can confine your query to a specific time span:

https://service.iris.edu/fdsnws/availability/1/query?net=IM&sta=EKB&loc=___&cha=BHZ&nodata=404&format=text&start=2015-03-01&end=2015-03-10

```
#Network Station Location Channel Quality SampleRate Earliest Latest
IM EKB -- BHZ M 40.0 2015-03-01T00:00:00.000000Z 2015-03-02T11:37:19.975000Z
IM EKB -- BHZ M 40.0 2015-03-02T11:38:20.000000Z 2015-03-05T23:59:59.975000Z
IM EKB -- BHZ M 40.0 2015-03-06T00:14:30.000000Z 2015-03-06T16:40:31.150000Z
IM EKB -- BHZ M 40.0 2015-03-06T16:40:40.000000Z 2015-03-06T16:44:45.950000Z
IM EKB -- BHZ M 40.0 2015-03-06T16:45:00.000000Z 2015-03-08T00:48:45.000000Z
IM EKB -- BHZ M 40.0 2015-03-08T00:48:50.000000Z 2015-03-08T01:00:49.975000Z
IM EKB -- BHZ M 40.0 2015-03-08T01:01:00.000000Z 2015-03-08T01:13:59.975000Z
IM EKB -- BHZ M 40.0 2015-03-08T01:15:00.000000Z 2015-03-08T07:46:15.350000Z
IM EKB -- BHZ M 40.0 2015-03-08T07:46:20.000000Z 2015-03-10T00:00:00.000000Z
```

Conclusion

Please visit <https://service.iris.edu> to learn more about the web services we offer for open access to data. For a more detailed look on this topic, please visit our IRIS Data Services Newsletter article: <http://ds.iris.edu/ds/newsletter/vol99/no1/529/finding-data-available-at-iris-data-services/>



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