

11.2.2 Extract seismic data to a file by event from an event list

You can retrieve seismic data from a Taurus using information from an event list. The event list may be a file that you upload to the Taurus—for example, a list of events from 3rd-party Internet sites—or information for a single event that you enter into a form.

The Taurus calculates arrival times for various phases that are applicable to the event selected. (Supported phases include P, S, Pn, Sn, PKiKP, SKiKS, PcP, ScS, PKP, SKS, Pdff, and Sdiff.) Travel time tables are used to calculate the estimated time it takes a seismic wave to travel distance from a seismic event (earthquake) to a specified location. This is used to determine what data to download for a known teleseismic event. The travel time tables used in Taurus/Apollo are calculated using the Tau algorithm, using the TauP Java Package (<http://www.seis.sc.edu>). TauP outputs files for any velocity model the user wants. Taurus/Apollo uses the IASPEI91 Default Model, which is commonly used for teleseismic events.

1. On an external browser over an IP connection, choose Data Retrieval from the menu.
2. Choose Time Series By Event, then click Next. Available channels are listed with the data time ranges.
3. Click to select one or more channels, then click Next. This opens a page with options to either upload an event list or enter information for an event manually into a form.
4. To upload an event list (Figure 11-1):
 - a) Choose the type of event list file to upload (click the radio button).
 - b) Download the event list from the linked site and save it to your file system. Each link opens the relevant site search page in a new window. Options include:
 - IRIS Search - ASCII – The link opens <http://www.iris.edu/quakes/event-srch.htm>. Do a search, then save using the ASCII Version link. Upload the ASCII version to Taurus.
 - NEIC Epic Search - Compressed – The link opens <http://neic.usgs.gov/neis/epic/>. Choose a search type (Global, Rectangular, or Circular), then choose option “2. Compressed File Format” for the output file type. Save then upload the search to the Taurus as `.html`.
 - NEIC Finger – The link opens <http://neic.usgs.gov/neis/finger/quake.asc>. Save the document `quake.asc` and upload it to the Taurus.
 - c) Browse for the saved file and then click Upload to upload it to the Taurus.

Figure 11-1 Download an event list file then Upload it to the Taurus

Data Retrieval ▾

Upload an event list file:

Choose the file format: (use the links to get a file)

IRIS Search - ASCII
 NEIC - EPIC Search - Compressed
 NEIC Finger

Choose the file to upload:

Manually Enter an Event:

Label	Time (yyyy-MM-dd HH:mm:ss)	Location/Depth(km) (lat, lon, depth)
<input type="radio"/> <input type="text"/>	<input type="text"/>	<input type="text"/>

- d) Click Next to open the event list.
- e) Choose an event of interest from the list, then click Next (Figure 11-2).

Figure 11-2 Choose an event from an uploaded list

Data Retrieval ▾

Label	Time	Location/Depth	Magnitude
<input type="radio"/> Event 1	2005-09-24 00:58:35	6.598S, 105.842E 10km	
<input type="radio"/> Event 2	2005-09-24 01:04:16	11.935N, 39.988E 10km	
<input type="radio"/> Event 3	2005-09-24 01:06:26	58.305N, 143.003W 57km	2.7
<input type="radio"/> Event 4	2005-09-24 01:14:03	18.156N, 96.833W 70km	
<input type="radio"/> Event 5	2005-09-24 01:37:19	40.436N, 37.354E 10km	
<input checked="" type="radio"/> Event 6	2005-09-24 02:37:37	51.622N, 16.061E 5km	3.4
<input type="radio"/> Event 7	2005-09-24 03:01:57	12.678N, 40.629E 10km	
<input type="radio"/> Event 8	2005-09-24 03:09:31	12.385N, 40.425E 10km	
<input type="radio"/> Event 9	2005-09-24 03:25:25	12.746N, 40.430E 10km	
<input type="radio"/> Event 10	2005-09-24 03:38:22	12.644N, 40.597E 10km	
<input type="radio"/> Event 11	2005-09-24 03:45:13	12.862N, 40.762E 10km	
<input type="radio"/> Event 12	2005-09-24 03:57:15	12.597N, 40.375E 10km	
<input type="radio"/> Event 13	2005-09-24 04:07:56	12.642N, 40.472E 10km	
<input type="radio"/> Event 14	2005-09-24 04:11:53	12.680N, 40.436E 10km	
<input type="radio"/> Event 15	2005-09-24 04:14:29	18.254N, 61.866W 25km	4.3

Manually Enter an Event:

Label	Time (yyyy-MM-dd HH:mm:ss)	Location/Depth(km) (lat, lon, depth)
<input type="radio"/> <input type="text"/>	<input type="text"/>	<input type="text"/>

5. To enter event information into the form:
 - a) Type the event information in the text fields:
 - Label – A name for the event, as an ASCII string of any length.

- Time – Event time as an ASCII string of the format *yyyy-MM-dd HH:mm:ss*
 - Location/Depth(km) – The location of the event as a comma-separated list of the latitude, longitude, depth.
- b) Click the radio button to select the event once you have filled in the event form fields, then click Next.
6. Select time by phase and related options (Figure 11-3):
- Pre Event Time – Number of seconds of data to download preceding the calculated start time.
 - Start Phase – Available phases that you may choose to set a start time automatically. Phase options are loaded according to what would be available for an event at that location relative to the Taurus location at the time the data were recorded.
 - Post Event Time – Number of seconds of data to download following the calculated end time.
 - End Phase – Available phases that you may choose to set an end time automatically. Phase options are loaded according to what would be available for an event at that location relative to the Taurus location at the time the data were recorded.

Figure 11-3 Options to select time by phase for Taurus to search for the event

Data Retrieval ▾

Choose the start and end times to download

Pre Event Time sec

Start Phase

Post Event Time sec

End Phase

Arrival times for calculated using IASPEI_91 Travel Time Tables, with the Tau algorithm.

Selected Events	
Event 6 2005-09	SKIKS 16.061E 5km 3.4M
	ScS

Current Choices

7. Click Next to search the Taurus data for the event.
- ▶ If there are no data for the selected event, you may choose to search for another event using the currently uploaded list. Under Current Choices, click the Change Event link to reopen the list.
8. If there are data for the event, you can extract it to a file of any of 3 formats:
- MiniSEED – The extracted file uses a 512 byte Data Record Length.
 - The current version cannot download more than 488MB of data in MiniSEED format. Use multiple downloads for quantities of data that exceed 488MB.
 - Seisan – Extracted files have been tested with Seisan 8.0.
 - The current version cannot download more than 488MB of data in Seisan format. Use multiple downloads for quantities of data that exceed 488MB.

- Seisan downloads use a conversion tool that you install on your PC from the Taurus on the initial download, then it is transparent for subsequent downloads.
 - ASCII – The data are in Nanometrics Y-File format. (See the Nanometrics Data Formats Reference Guide, document number 14602, for a description of Y-File format.)
9. Review the settings you have chosen and either download using these settings or change the settings:
- ▶ Click Download to save the data to a file using the current settings.
 - ▶ To change the settings, click the link to return to the appropriate settings page, change the settings, then click Next to proceed through the settings pages to the Download page. For time series by event data, settings pages and the corresponding links include:
 - Change Data Type – Choose a data type to download.
 - Change Channel – Choose one or more time-series channels.
 - Change Time – Choose a different start date, time, and duration. (The initial time is set automatically on the Change Time By Phase page.) You can see available times under Show Available Times.
 - Change Time By Phase – Choose a start time and duration automatically using the available phase data uploaded with the event.
 - Change Format – Choose ASCII, Seisan, or MiniSEED format for the downloaded data.
 - Change Station Info – Edit station information that will be used in the downloaded data file headers. You can change Network Name, Station Name, and Channel Names.
 - Change Event – Choose a different event from the event list. (The page may take a minute to load if there is a large list of events.)
 - ▶ Use Clear All Choices if you want to deselect all of the current settings delimiting the data, and return to the Data Retrieval page. This will also delete the currently uploaded event file and event list.