Accessing data from BIHO

using SWARM and CWBQuery

july 2016

About BIHO

- Currently, data from all of our stations **(with the exception of GRWE)** is being telemetered to, and stored on, the BIHO server in room 440
- BIHO IP: 128.138.152.38
- Computer hardware and CU Firewall configurations are maintained by CIRES IT (trouble@cires.colorado.edu).
  - Contact them for login user names etc.
  - Many data access issues have been associated with CU's firewall which they can help with
- CWB and other BIHO data servers are maintained by Dave Ketchum at USGS (ketchum@usgs.gov).

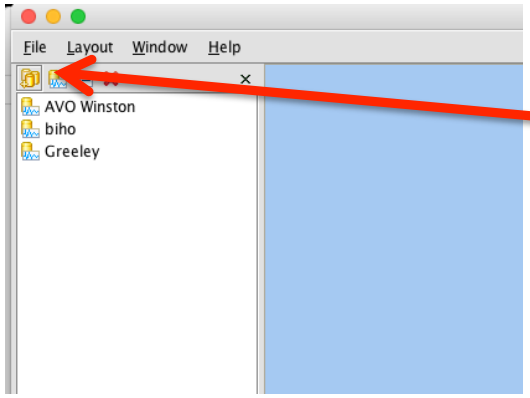
About SWARM

- A fancy helicorder and waveform viewer that makes easy work of navigating through and manipulating waveforms
- Download the latest version here:
  - http://volcanoes.usgs.gov/software/swarm/download.php
  - it's also installed on BIHO
- A manual comes in the package you download and you can also view it here: http://volcanoes.usgs.gov/software/doc/swarm_v2.pdf
- Pros:
  - automatic, real time data updates
  - easy filtering and switching between filters
  - sweet spectra and spectrogram view options
  - easy navigation through time and zoom features
  - easy comparisons between channels and/or stations
  - convenient screen capture features
- Cons:
  - software runs a little clunky sometimes
  - not able to pick arrivals or save filter settings
  - makes really weird .sac files (so don't use it to make .sac files if you want to actually run them in SAC)

BIHO data on SWARM

- If you read a little about SWARM you'll see that it pulls data directly off a server by it's IP address
- If you are using SWARM from your own computer you must either be on campus or use VPN
- BIHO runs a Winston Wave Server (WWS)
  - IP: 128.138.152.38
  - port: 2060
- GRWE can be seen in SWARM but must be accessed from an IRIS or USGS server

BIHO data on SWARM



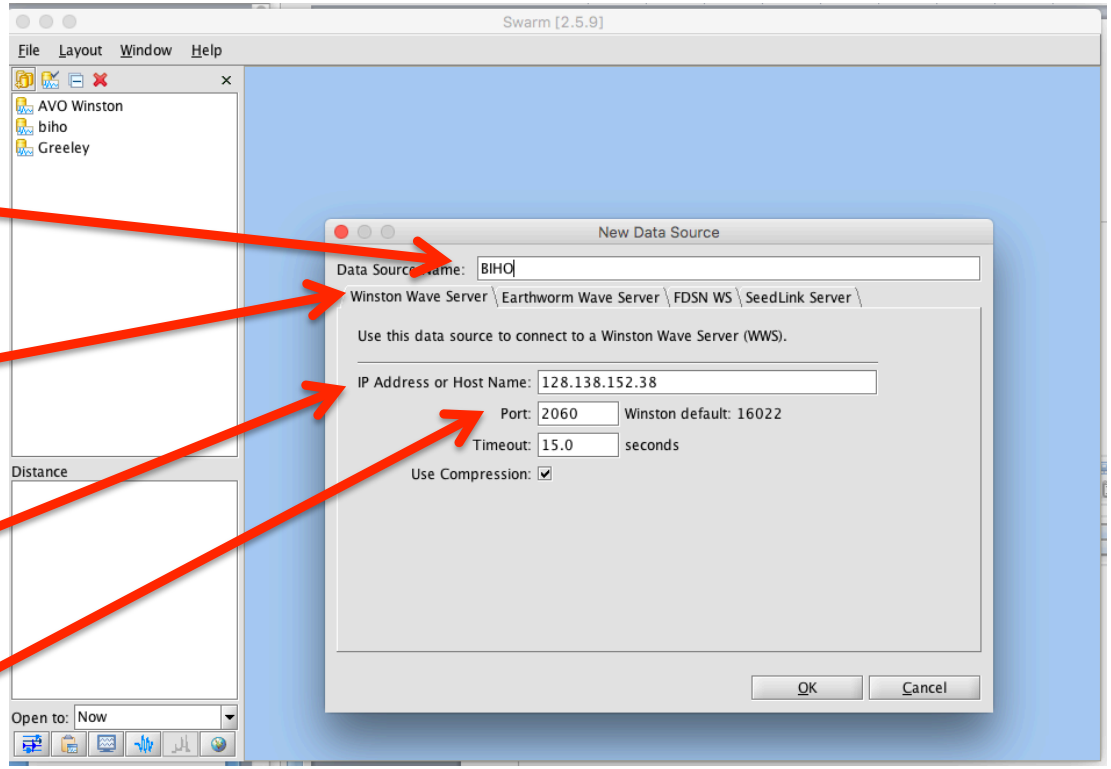
click this icon to add new data source

choose a name

select Winston Wave Server tab

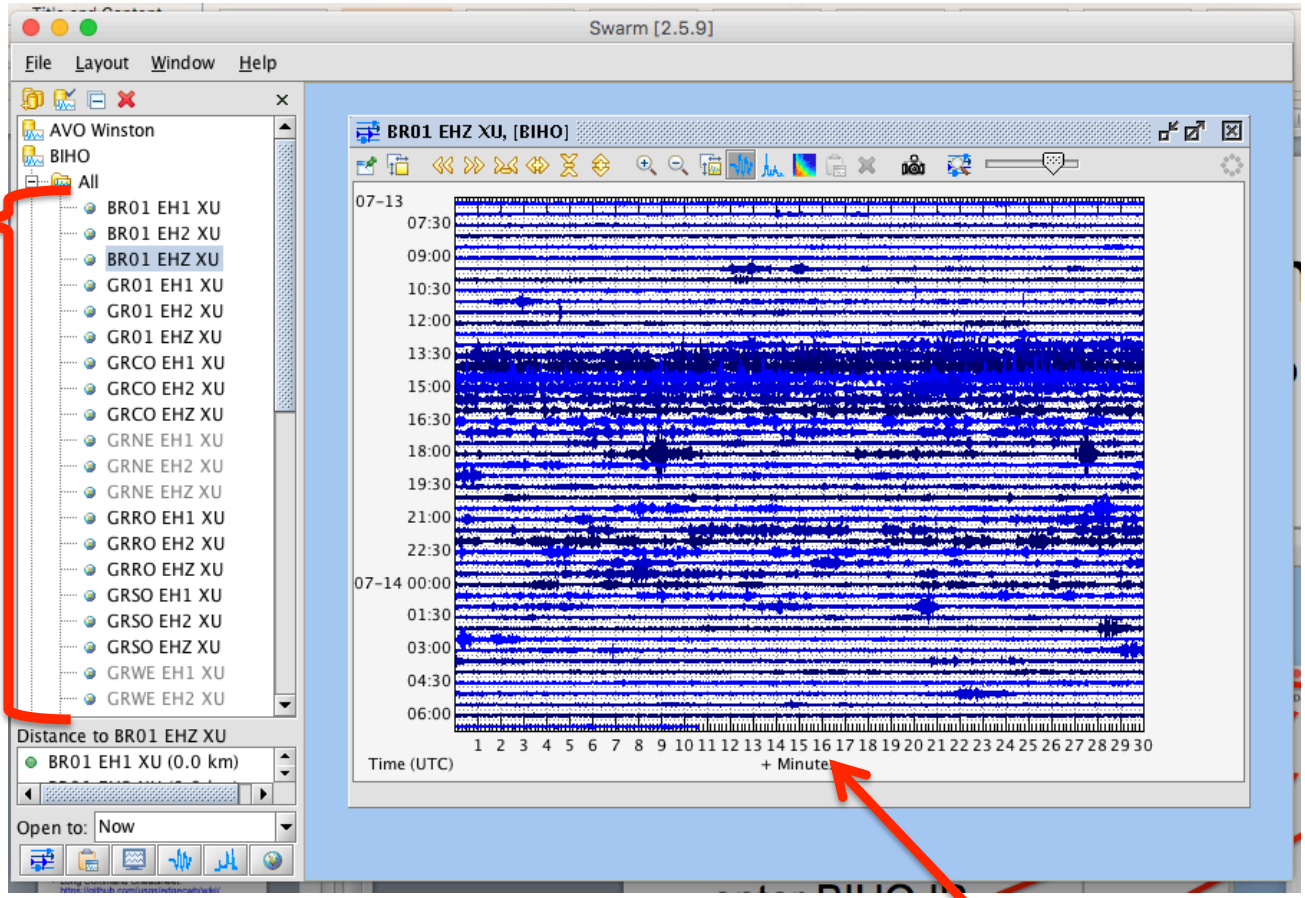
enter BIHO IP

port 2060



BIHO data on SWARM

Ta-da!
our channels.



helicorder

GRWE data on SWARM

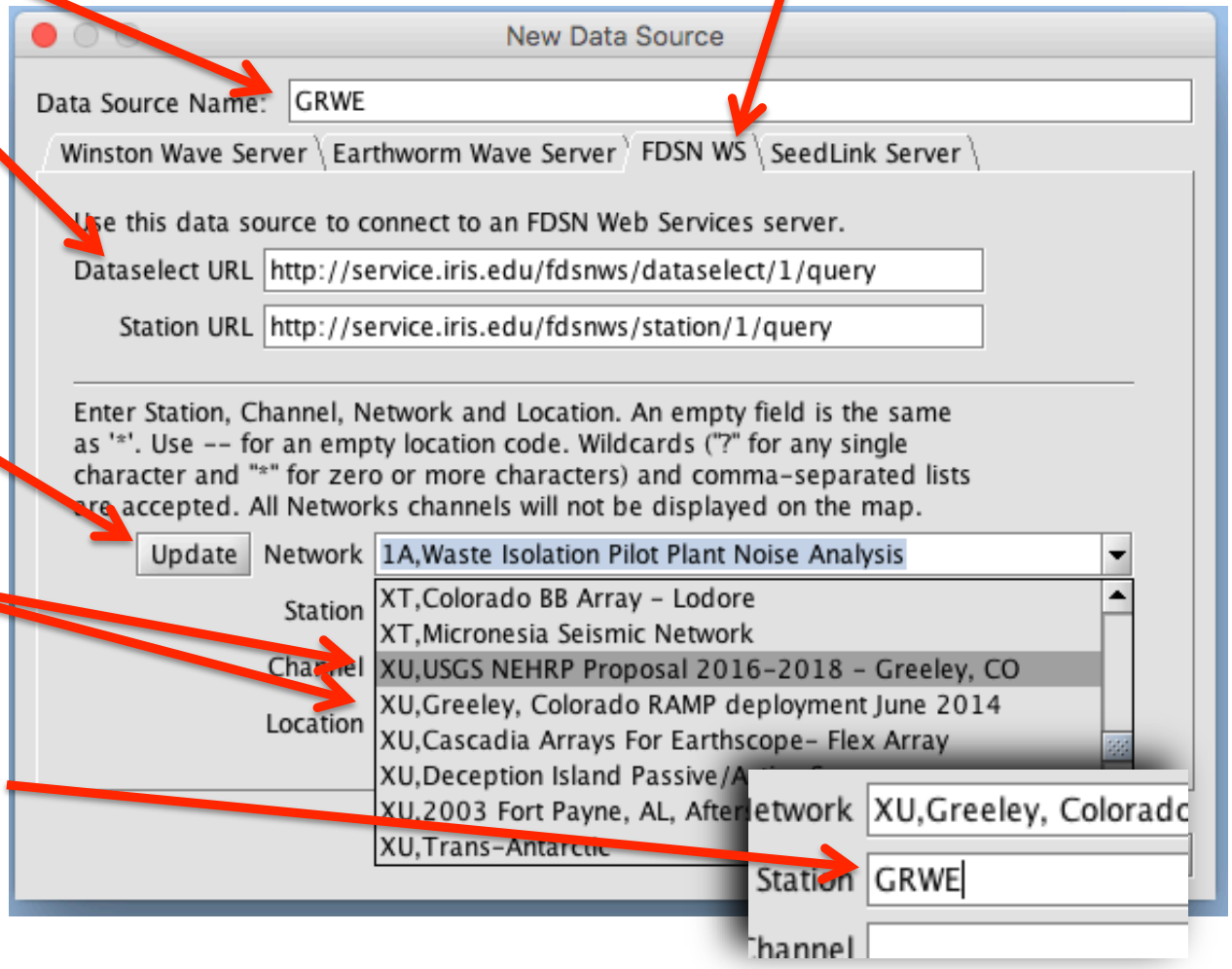
choose a name

Choose FDSN WS tab

enter info for IRIS server (should be default), then click update

pick either of these XU Greeley networks

(optional) GRWE in station field. If you don't enter a station you'll get all our stations from IRIS



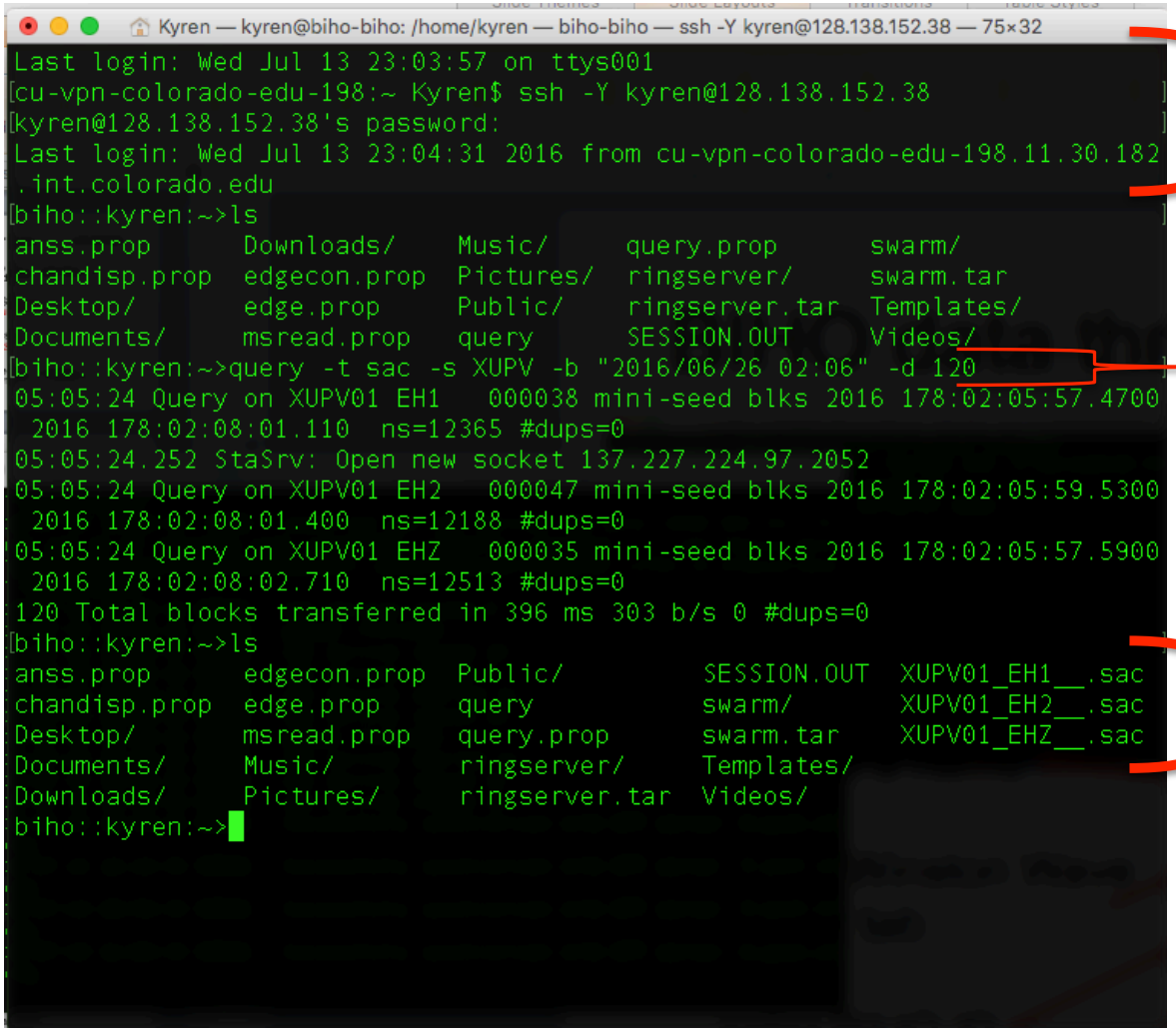
GRWE data on SWARM

- Older versions of SWARM may not have have the “FDSN WS” tab
- GRWE can also be accessed on SWARM through IRIS’s SeedLink server:
  - http://ds.iris.edu/ds/nodes/dmc/services/seedlink/

About CWBQuery

- Quick access to telemetry/latency information on stations
- Retrieves data from BIHO in various formats (such as SAC, miniSEED, etc…)
- Runs on BIHO through command line
  - can use it from other computers by ssh-ing into BIHO
- Command Cheatsheet (short): https://github.com/usgs/edgecwb/wiki/CWBQuery-Cheatsheet
- More complete documentation: https://github.com/usgs/edgecwb/wiki/CWBQuery

BIHO data through CWBQuery

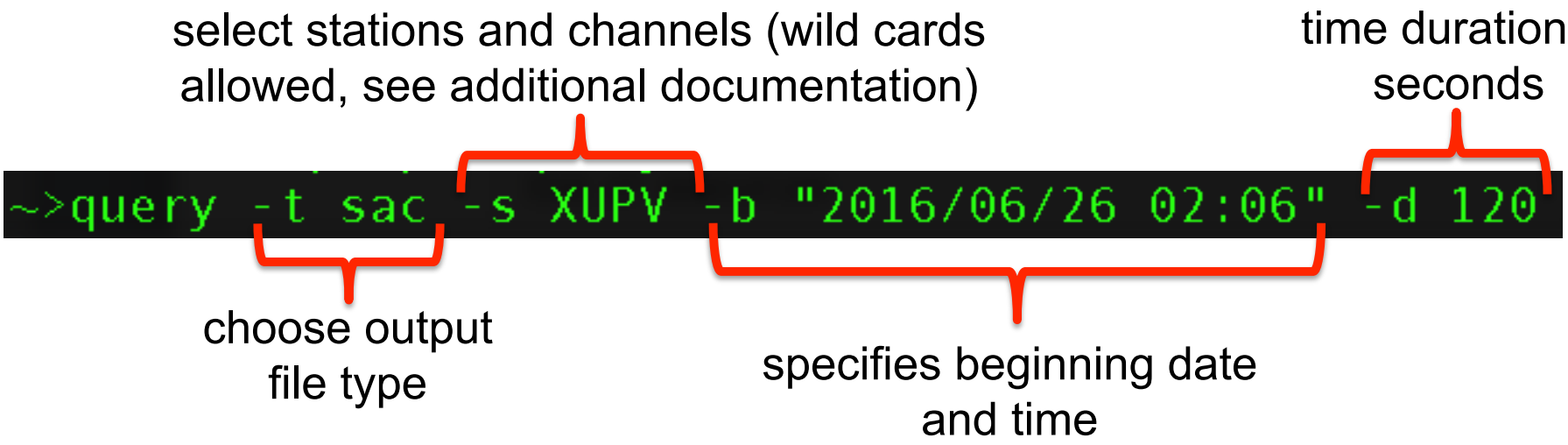


SSH or open terminal window on BIHO

enter query command

Ta-da! SAC files

BIHO data through CWBQuery



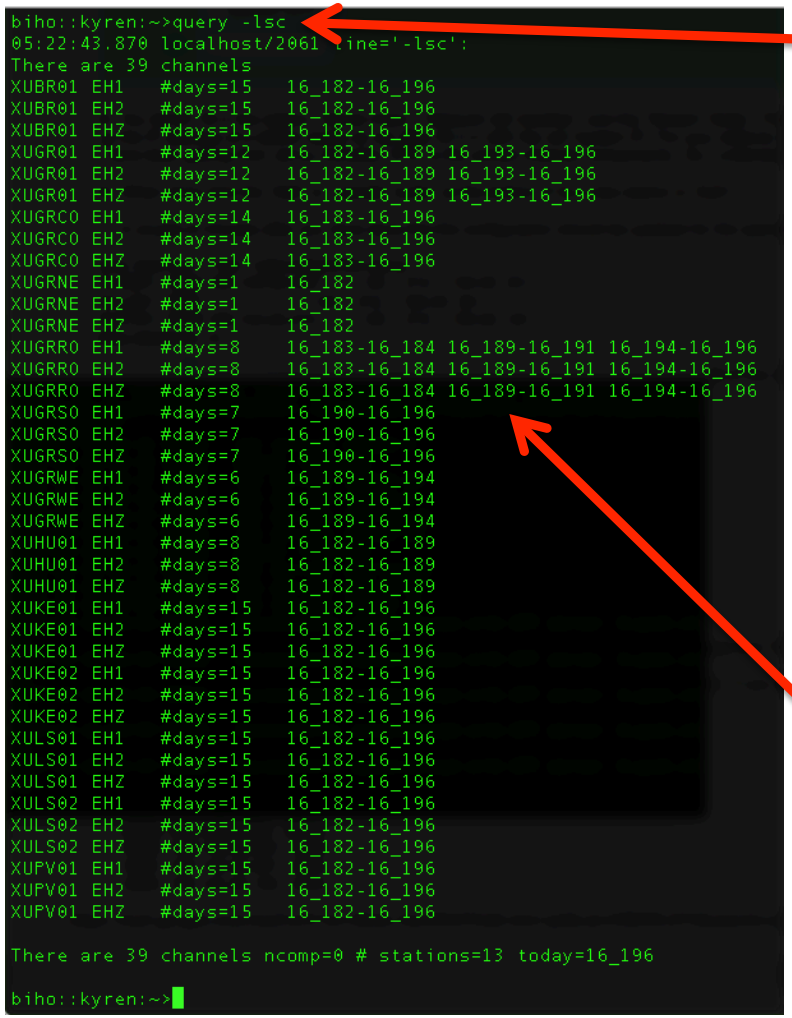
Lots and lots and lots more info!

https://github.com/usgs/edgecwb/wiki/CWBQuery-Cheatsheet
https://github.com/usgs/edgecwb/wiki/CWBQuery

rtpd_biho_training.pdf from Dave Ketchum

just type query into command line

A particularly handy command:



query –lsc

lists every active channel and it's dates of availability for the last 15 days. use –b and –d arguments to specify other start times and durations.

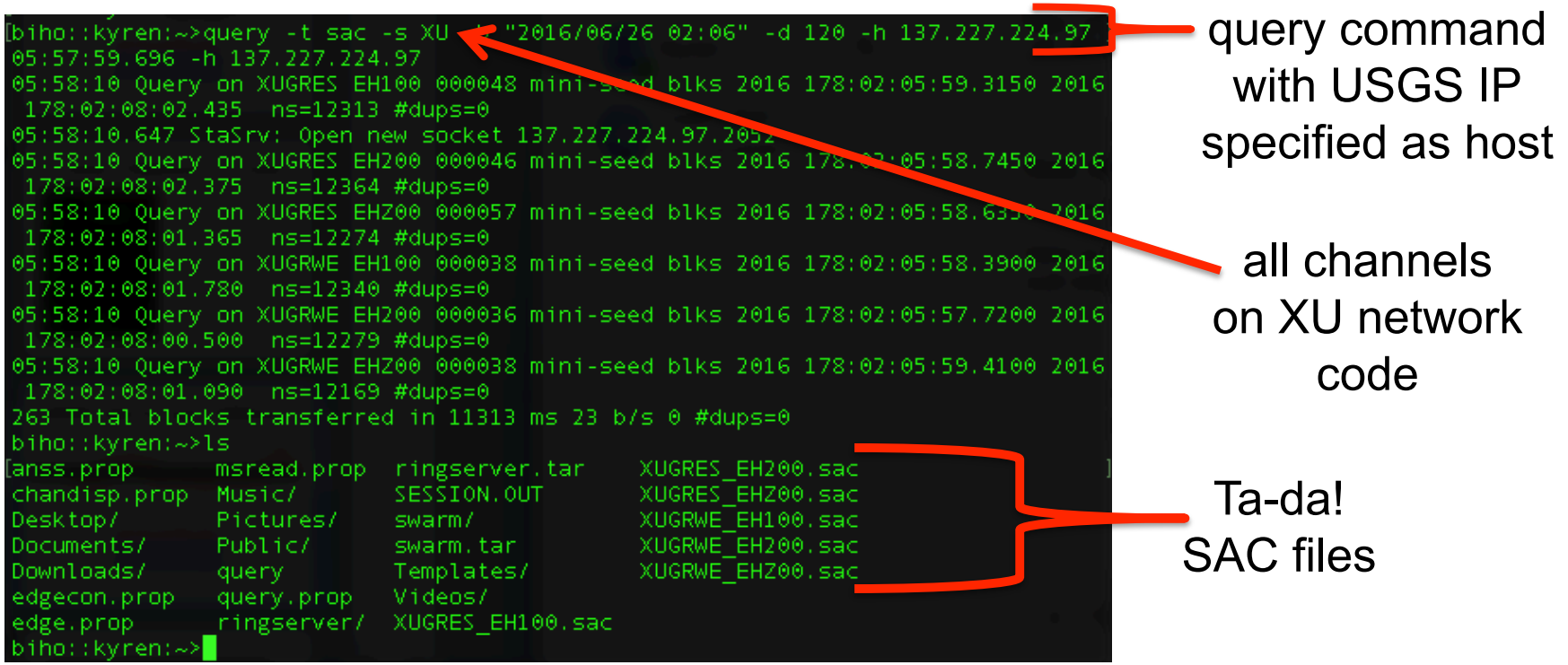
this can be helpful for identifying what data can be retrieved with the query command for a particular time interval

available Julian days (within last 15 days or specified range)

GRWE or GRES data through CWBQuery

GRWE data or old GRES data (GRES available until 2016:182 when station was demobilized) are accessed by pointing the query command to the CWB at the USGS (IP 137.227.224.97)

just add –h 137.227.224.97 to the command arguments



Quick and dirty quake finding…

- Look at helicorders for quake-like things
  - IRIS webpages
  - SWARM helicorder view
- Use SWARM to examine potential quakes
  - play with filters
  - spectrogram mode is nice for finding small signals on noisier channels
  - compare channels and stations with wave clipboard
- If a quake is found: identify date, time (start and duration) and stations
- CWBQuery to pull .sac files from BIHO
- GSAC to pick arrivals and elocate to locate