Rumblings

...what's new in educational seismology

August 2009

Check-in Time!

We need everyone to complete an annual station check-in designed to help us update our records and enable us to provide any "off-line" stations with timely assistance to get them up and running again.

The survey is linked off the 'What's New' section of the SIS front page. http://www.iris.edu/hq/sis

This survey is especially important if you received your instrument on loan from IRIS. We expect that over time, some instruments might fall out of use. If that is the case, we are happy to get the instrument back to place it in another classroom. If you are no longer in the classroom or your teaching assignment has changed and you are no longer using the instrument with students, please contact sishelp@iris.edu for return instructions.

Back to School Checklist

Tips for cleaning your seismometer:

- Dust the acrylic cover first, then clean with a damp cloth and wipe dry.
- With a damp cloth, clean the seismometer and dry with a lint free cloth.
- Inspect all parts to make sure that nuts and screws are tight.
- Make sure the magnet moves freely and is not touching the coil.
- Carefully wipe the knife edge on the boom arm. If you see nicks on the knife edge, contact us for further instructions.
- Place a small amount of oil (1 drop or so) on the knife edge.

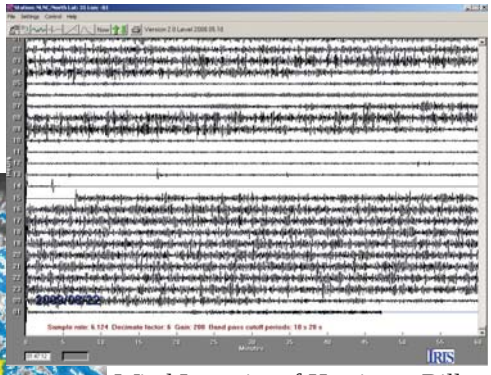
What can we expect to record?

Aa a new group of students begin the year, you may get asked the question, "what can we expect to record with this seismometer?" While that is not a simple question to answer, there is a pattern to the type and quantity of earthquakes that occur around the world every year. The figure below shows the average annual occurrence of earthquakes in the world. Of course, your seismograph will not be able to record all of these events, but determining what size events ARE recorded and how far away these events are is a great inquiry exploration for your students to conduct on an ongoing basis.

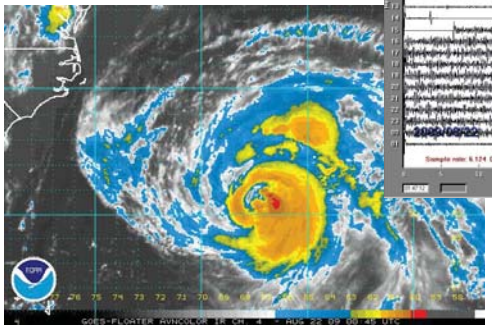
Average Annual Occurrence of Earthquakes

Descriptor	Magnitude	Annual Average
Great	8 and higher	1
Major	7 - 7.9	13
Strong	6 - 6.9	120
Moderate	5 - 5.9	800
	4 - 4.9	6,200
	3 - 3.9	49,000
Micro	2 - 3	1,000 per day
(generally not felt by humans)	1 - 2	8,000 per day

Not everything you record will be an earthquake. In fact the majority of the vibrations that your seismograph records will be from "non-earthquake sources" such as people walking near the seismograph, large trucks passing by the building, and other natural "non-earthquake" vibrations, such as wind. In fact, as we write this piece Hurricane Bill is currently off the US eastern coast generating microseisms. These signals are created by the large ocean waves, built up by the hurricane winds, that are crashing into the coastline. Hurricanes are not the only such storms capable of creating seismic signals recorded by AS1s, other large storms such as winter nor'easter can also create a noticeable signal.



NLNC
Lincolnton, North Carolina
Helicorder for August 21 & 22



Wind Intensity of Hurricane Bill off the coast of North Carolina- August 22, 2009 00:45 GMT

IRIS Seismographs in Schools Program
http://www.iris.edu/hq/sis

IRIS

Rumblings

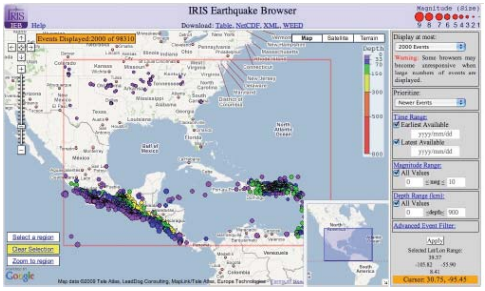
...what's new in educational seismology

page 2

August 2009

New on the Web

The IRIS Earthquake Browser (IEB) (http://www.iris.edu/ieb/) is an interactive map service for viewing Earthquake Epicenters superimposed on a map of the world.



This web-service accesses several earthquake catalogs stored in the IRIS database. In total, the database contains around 2 million unique events dating from the early 1960s until present. Only a small subset of all earthquakes my be shown in any given map view. However, by zooming and panning, the user can quickly discover all of the earthquakes held in the IRIS database for any region of the globe. The user can interrogate the catalogues by controlling a number of different parameters (magnitude, depth, time frame etc), and determining how many matching events are shown.

Please see http://www.iris.edu/hq/resource/explore_rates_of_earthquake_occurance for an idea on classroom applications for this tool. If you create your own, please share them with us!

Need Help?

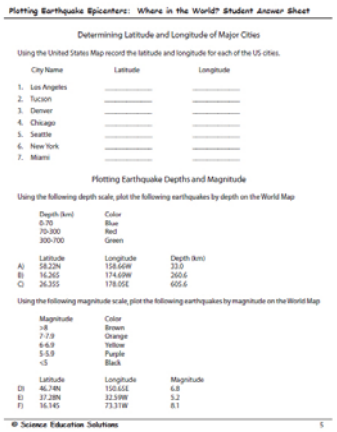
Contact Us! sishelp@iris.edu

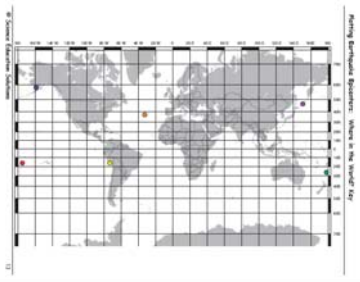
Activity of the Month

Plotting Earthquake Epicenters -
http://www.iris.edu/hq/resources/curriculum

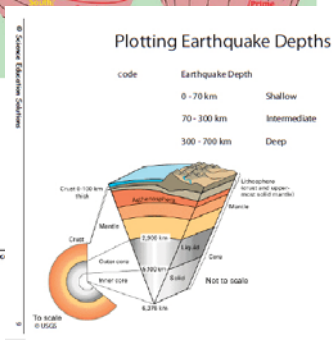
In this activity students will plot worldwide earthquake epicenters to reveal the narrow zones of seismic activity on the Earth and aid in the understanding of plate tectonics. Students will use current reports of seismic events available on the internet to track global seismicity. This activity is designed to stimulate interest in the patterns of earthquakes around the world, and the causes of these patterns. It provides a natural transition to teaching about plate tectonics. The inquiry nature of the activity will promote critical thinking and questioning by the students. This activity is made up of two lessons:

Where in the World? which takes approximately 50 minutes, provide a review of latitude and longitude and use of earthquake magnitude and depth.





What's Shakin? is a long term plotting exercise in which students regularly gather earthquake data throughout the academic year (or semester) and plot on a world wall map.



IRIS Seismographs in Schools Program
http://www.iris.edu/hq/sis

IRIS