Welcome to GG101 DYNAMIC EARTH





From *romance languages* to *geology* ?!

Australia, Costa Rica, France, Galapagos, Guam, Italy, Japan, Mexico, New Zealand, Papua New Guinea, Saipan, U.S., Vietnam…





Baby girl due April 5 !









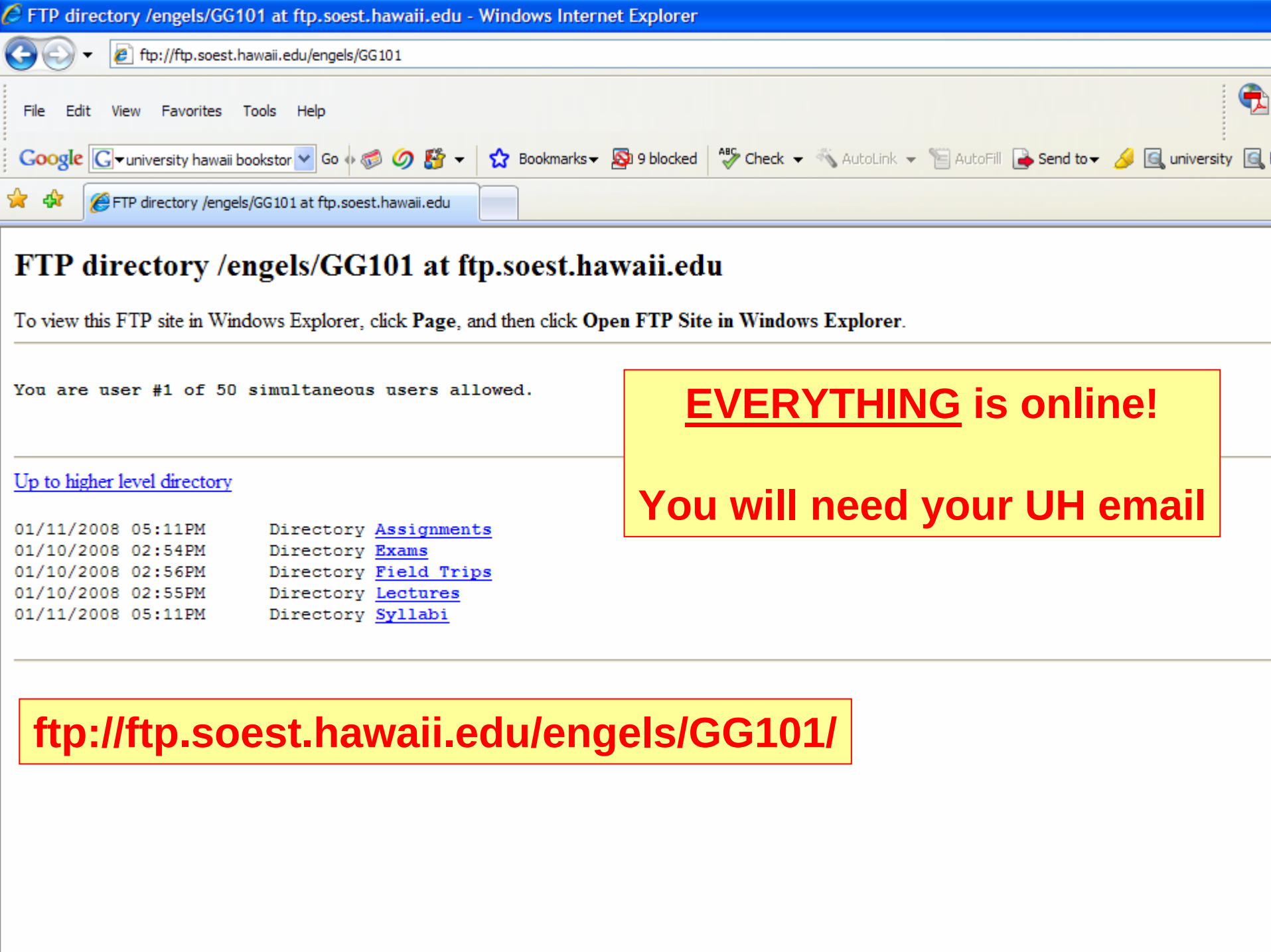
Textbook options (GG101): *"Understanding Earth, 5e", Grotzinger, Jordan, Press, Siever*

UH Bookstore new:	**($110)+**
Amazon.com:	**$83-$94+**
ebooks.bfwpub.com/earth/php (E-book subscription)	**$69**

Save dollars and trees!

Lab workbook options (GG101L): *"Laboratory Manual for Physical Geology, 6e", Jones*

UH Bookstore new:	**$82+**
UH Bookstore used:	**$63+**
Geology Office (POST 701)	**$40**


FTP directory /engels/GG101 at ftp.soest.hawaii.edu - Windows Internet Explorer
ftp://ftp.soest.hawaii.edu/engels/GG101
File Edit View Favorites Tools Help
Google university hawaii bookstor Go Bookmarks 9 blocked Check AutoLink AutoFill Send to university
FTP directory /engels/GG101 at ftp.soest.hawaii.edu
FTP directory /engels/GG101 at ftp.soest.hawaii.edu
To view this FTP site in Windows Explorer, click Page, and then click Open FTP Site in Windows Explorer.
You are user #1 of 50 simultaneous users allowed.
EVERYTHING is online!
You will need your UH email
Up to higher level directory
01/11/2008 05:11PM Directory Assignments
01/10/2008 02:54PM Directory Exams
01/10/2008 02:56PM Directory Field Trips
01/10/2008 02:55PM Directory Lectures
01/11/2008 05:11PM Directory Syllabi
ftp://ftp.soest.hawaii.edu/engels/GG101/

SCHEDULE

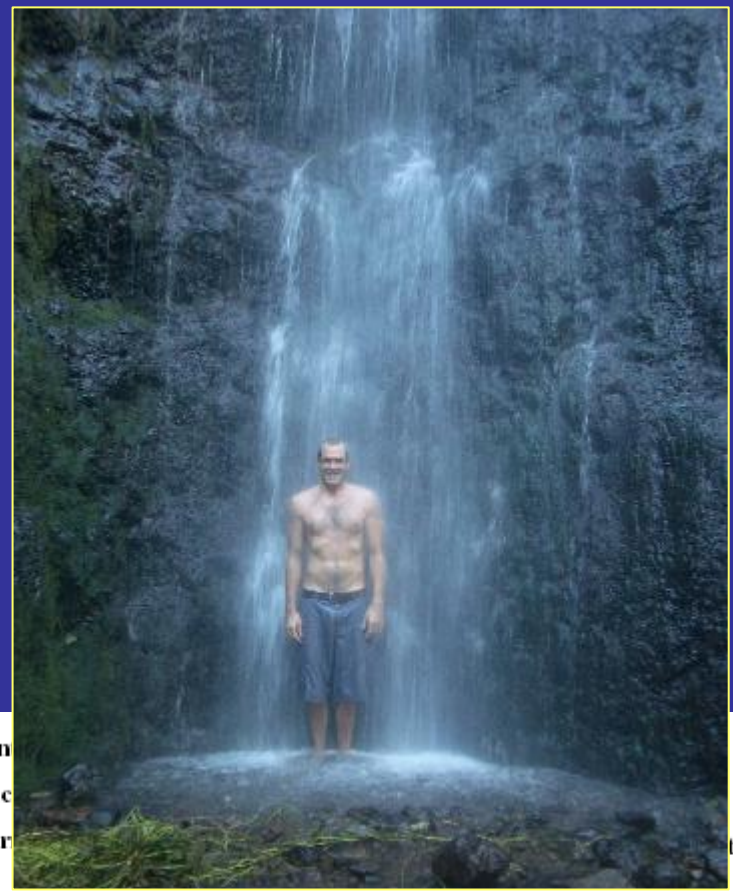
Week	Topic
1	Intro, Plate tectonics
2	Minerals
3	Igneous rocks
Jan. 31	*SE O'ahu Field Trip*
4	Volcanoes
5	…catch up…
Feb. 12	Exam I
6	Weathering, Sedimentary rocks
7	Metamorphic rocks
Feb. 28	*North Shore Field Trip*
8	Geologic time
9	Relative & radiometric dating
10	…catch up…
Mar. 19	Exam II
Mar. 23-27	*SPRING BREAK! (Jenny out on maternity leave!)*
11	Faults, Earthquakes
12	Surface water
13	Groundwater
Apr. 17	*Waihe'e Tunnel Field Trip*
14	Glaciers
15	Global warming
16	…catch up…
May 12	Final Exams

Grading:	#	% final grade
Exams (I, II, Final)	3	60%
In-class activities/homework	11 (10)	25%
Field Trip (one required)	1	10%
iClicker participation	daily	5%
Optional extra credit activities	*1*	*up to 5%*

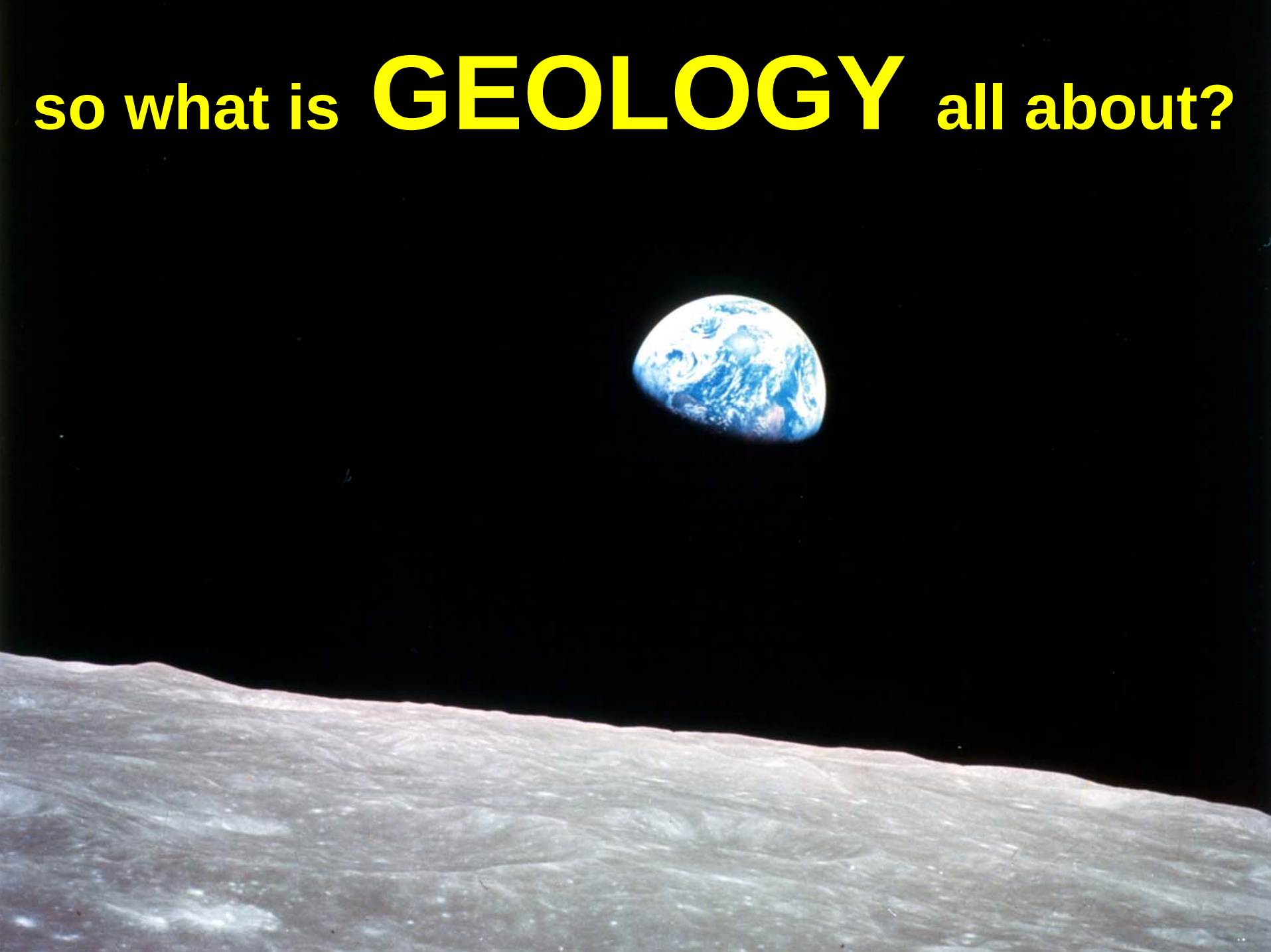
Field trips….e.g. Waihe'e Tunnel, April 17







so what is GEOLOGY all about?



GEOLOGY



Geo – “Earth” **Logos – “discourse”**

Scientific study of Earth and other planets

“Earth Rise” December 24, 1968, from Apollo 8 spacecraft

Hawaiian Geology

?

Where does lava in Hawaii come from?



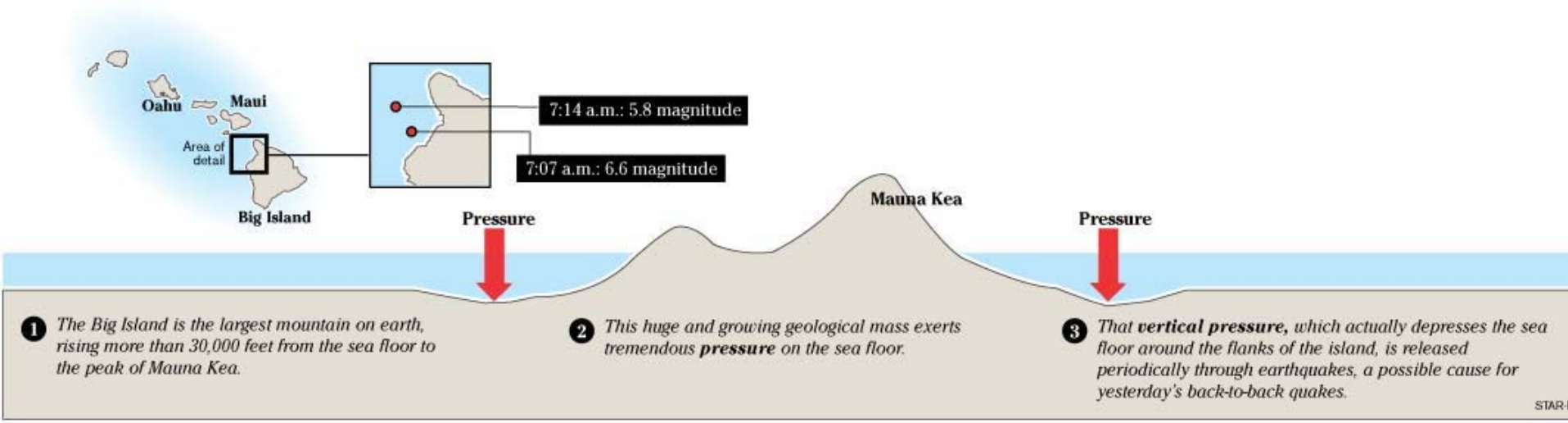


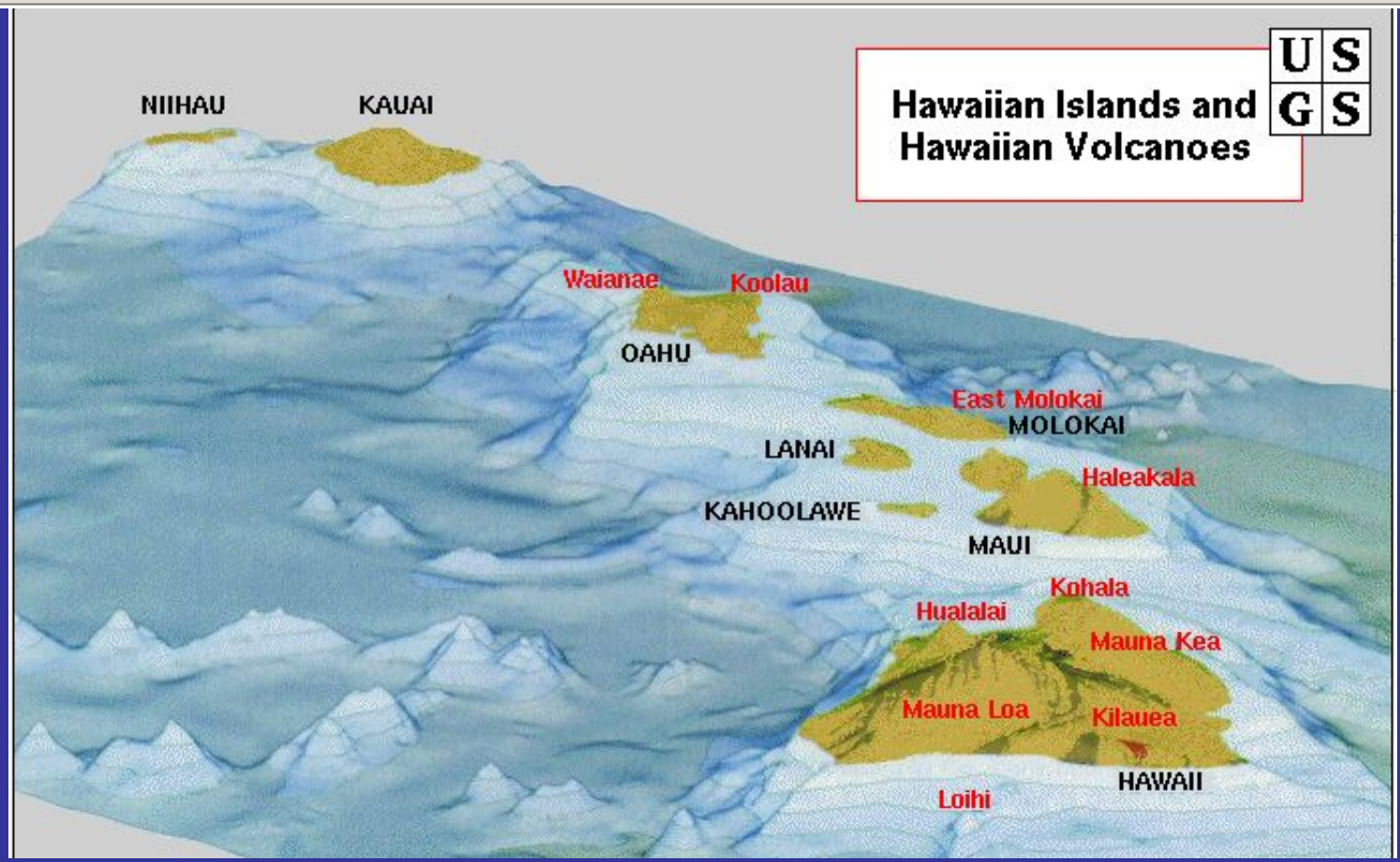


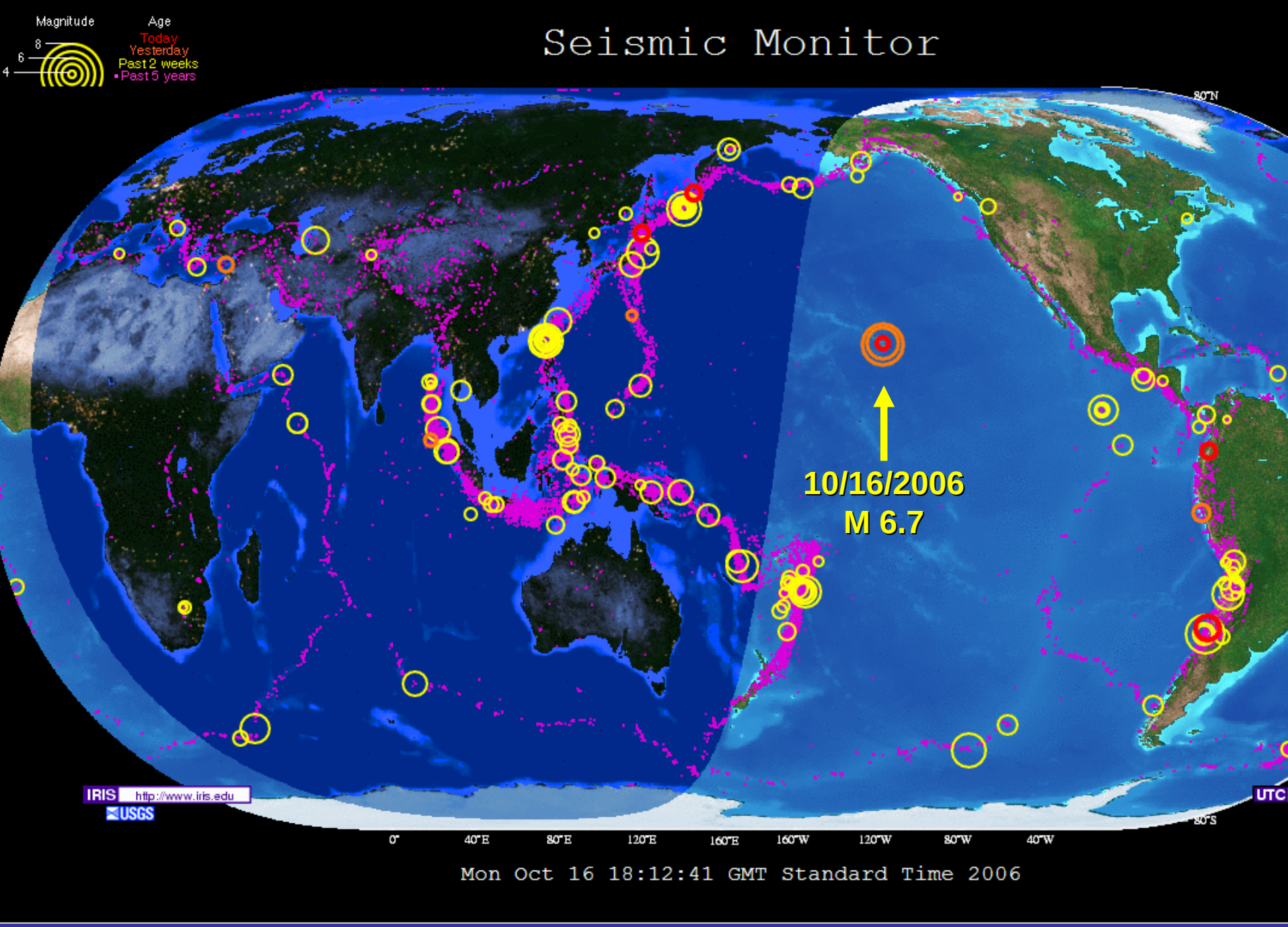
aianaha
Pu'u 'O'ō
Shield 1
Shield 4
Shield 6
Lava tube
Royal Gardens
subdivision
Waikupanaha
Pacific Ocean
August 21, 2008
TEB vent and rootless shields
Flow field on July 17
Flow field on Aug 21
0 0.5 1 2 Miles
0 0.5 1 2 Kilometers
N

May 1990 - Lava overflows Kalapana




Oahu
Maui
Area of detail
Big Island
7:14 a.m.: 5.8 magnitude
7:07 a.m.: 6.6 magnitude
Pressure
Mauna Kea
Pressure
1 The Big Island is the largest mountain on earth, rising more than 30,000 feet from the sea floor to the peak of Mauna Kea.
2 This huge and growing geological mass exerts tremendous pressure on the sea floor.
3 That vertical pressure, which actually depresses the sea floor around the flanks of the island, is released periodically through earthquakes, a possible cause for yesterday's back-to-back quakes.


Hawaiian Islands and Hawaiian Volcanoes
USGS
NIIHAU
KAUAI
Waianae
Koolau
OAHU
East Molokai
MOLOKAI
LANAI
Haleakala
KAHOOLAWE
MAUI
Kohala
Hualalai
Mauna Kea
Mauna Loa
Kilauea
HAWAII
Loihi


Magnitude
8
6
4
Age
Today
Yesterday
Past 2 weeks
Past 5 years
Seismic Monitor
10/16/2006
M 6.7
IRIS
http://www.iris.edu
USGS
UTC
80°N
80°S
0°
40°E
80°E
120°E
160°E
160°W
120°W
80°W
40°W
Mon Oct 16 18:12:41 GMT Standard Time 2006







Structural Damage

Infrastructure Impacts









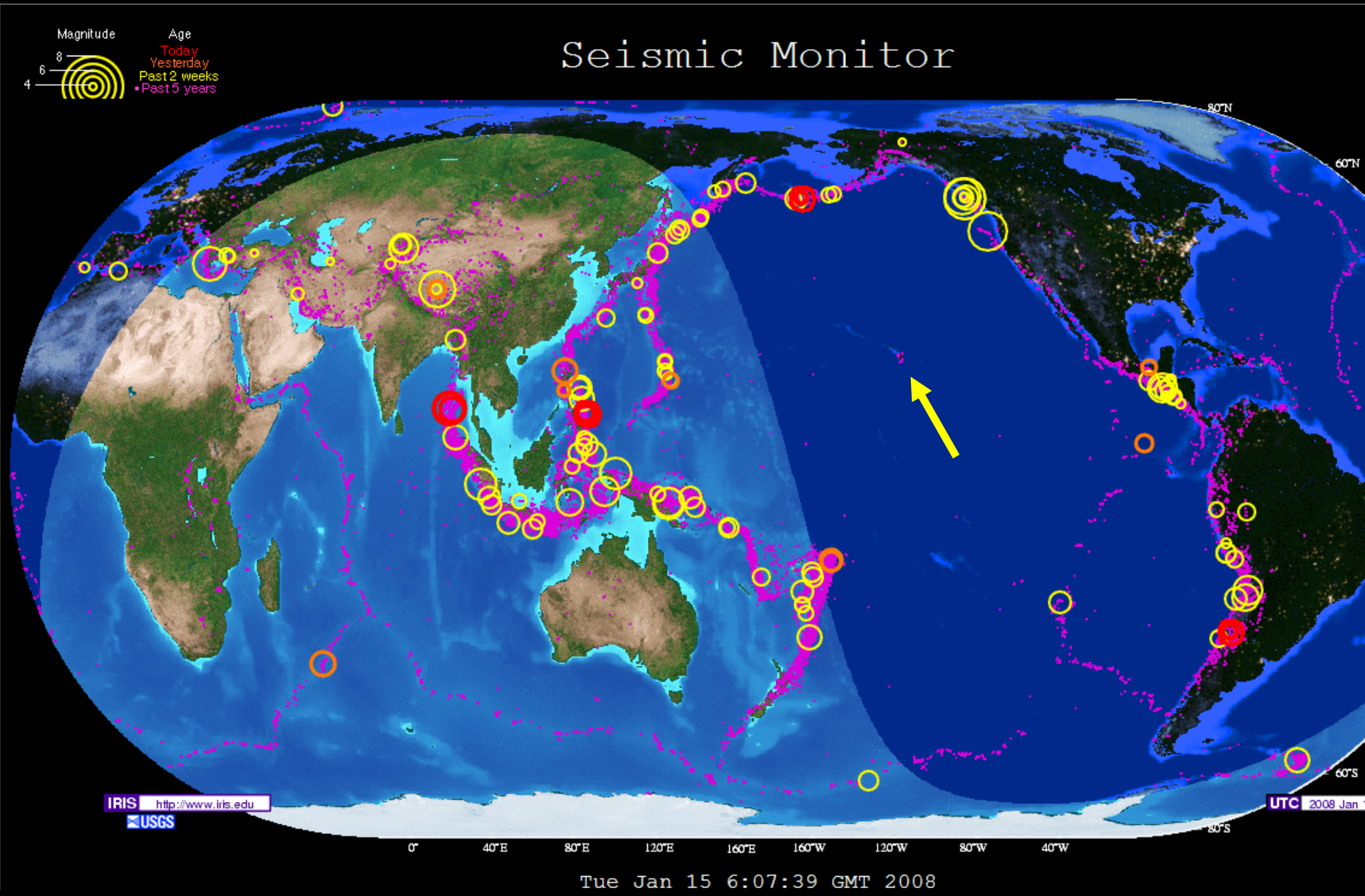






Food Distribution

Where is Hawaii? Where are the earthquakes?

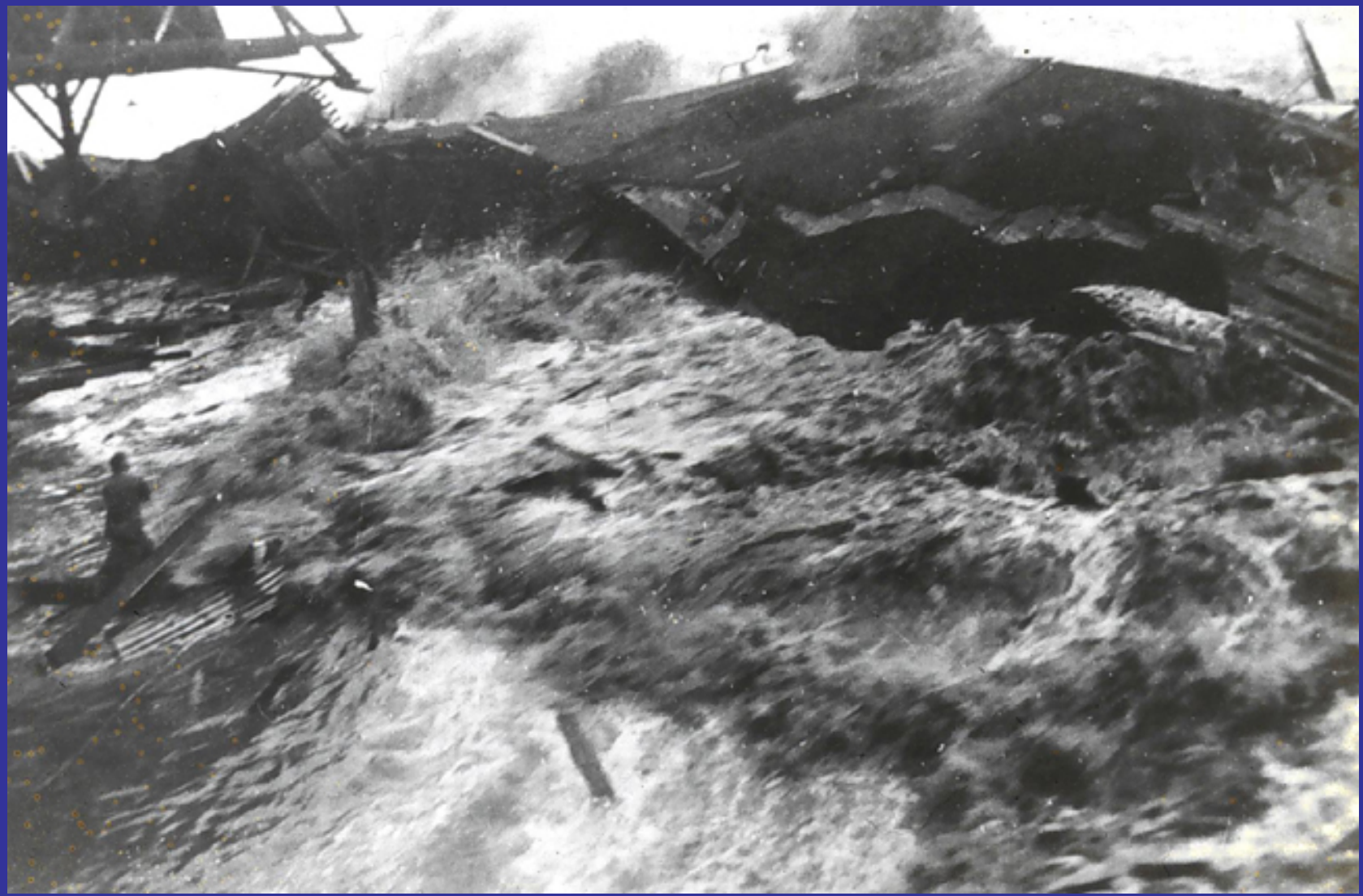




Hilo Tsunami, 1946 - triggered by Alaskan quake - 170 dead



Hilo Tsunami, 1960 - triggered by Chile quake - 61 dead
200 dead in Japan



1837, 1841, 1868, 1869, 1877, 1883, 1906, 1918, 1923, 1933, 1946, 1957, 1960
Locally-generated damaging tsunami in 1868, 1872, and 1975

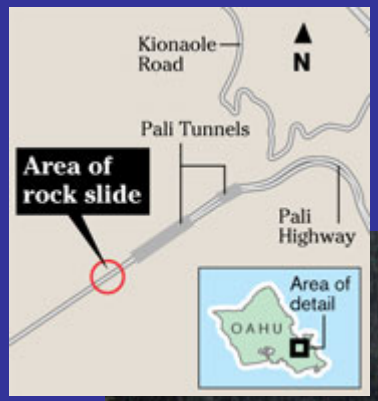






MASS WASTING HAZARDS

November 1, 2006
Pali Landslide





So what does a geologist DO anyway?

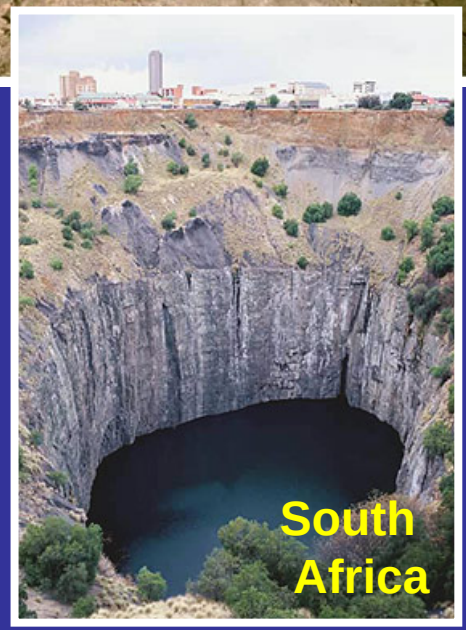
1. Natural hazards mitigation
2. Resource identification/extraction
3. Environmental clean-up
4. Research/Education

MINING











PETROLEUM





HYDROELECTRIC ENERGY









GEOTHERMAL ENERGY

So what does a geologist DO anyway?

1. Natural hazards mitigation
2. Resource identification/extraction
3. Environmental clean-up
4. Research/Education







OIL SPILLS

LANDFILLS



NUCLEAR WASTE



So what does a geologist DO anyway?

1. Natural hazards mitigation
2. Resource identification/extraction
3. Environmental clean-up
4. Research/Education

RESEARCH/EDUCATION

INTEGRATED OCEAN DRILLING PROGRAM
JOI ALLIANCE

INTERNATIONAL – Integrated Ocean Drilling Program

USGS
science for a changing world

FEDERAL – U.S. Geological Survey

STATE – Department of Land and Natural Resources



AGU

PROFESSIONAL – American Geophysical Union

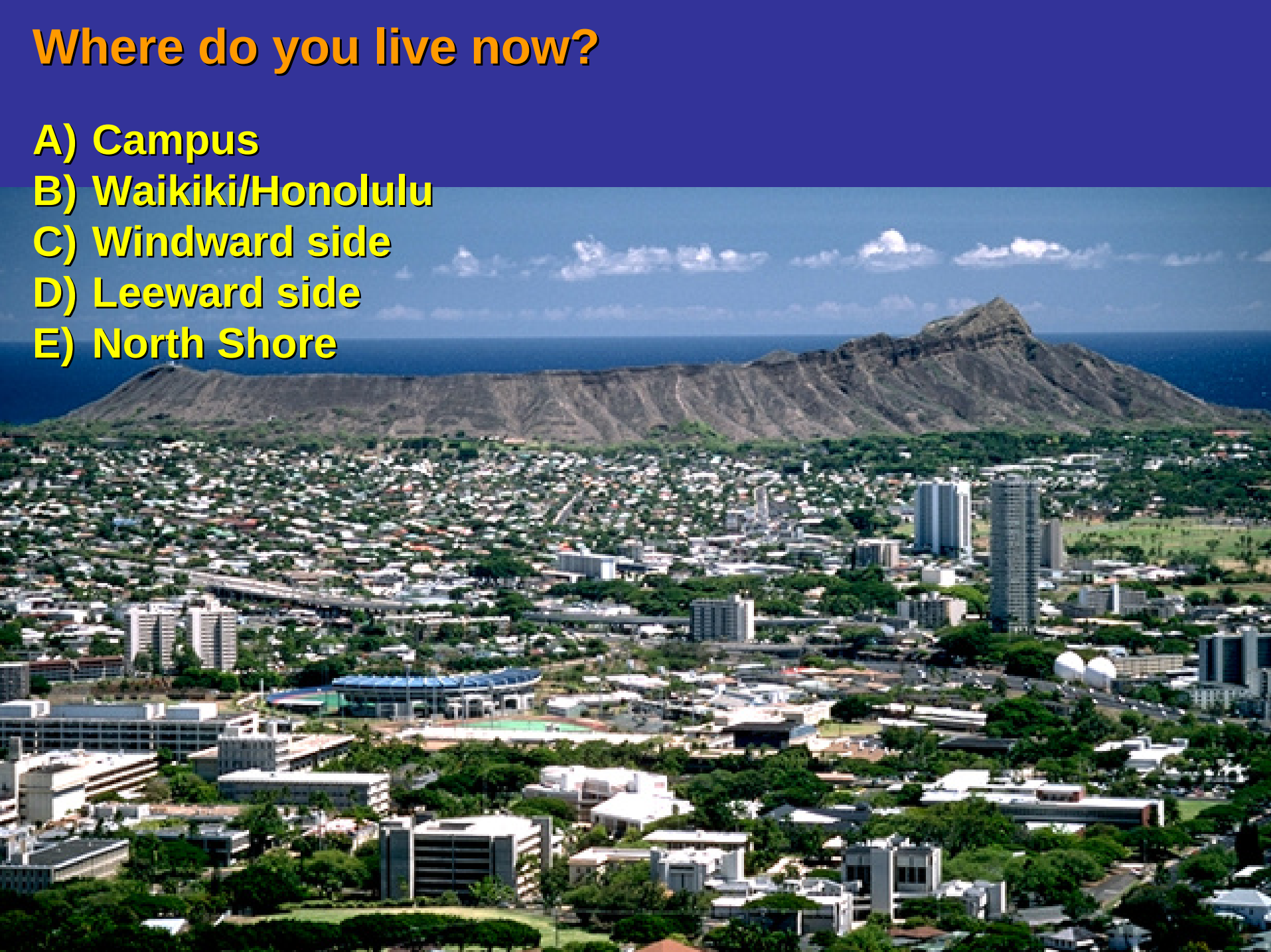
UNIVERSITY OF HAWAI'I AT MĀNOA
School of Ocean and Earth Science and Technology
Department of GEOLOGY & GEOPHYSICS

ACADEMIC – University of Hawaii Geology and Geophysics


Where are you from?
A) Oahu
B) Outer Islands
C) Mainland
D) Asia
E) Other International

Where do you live now?

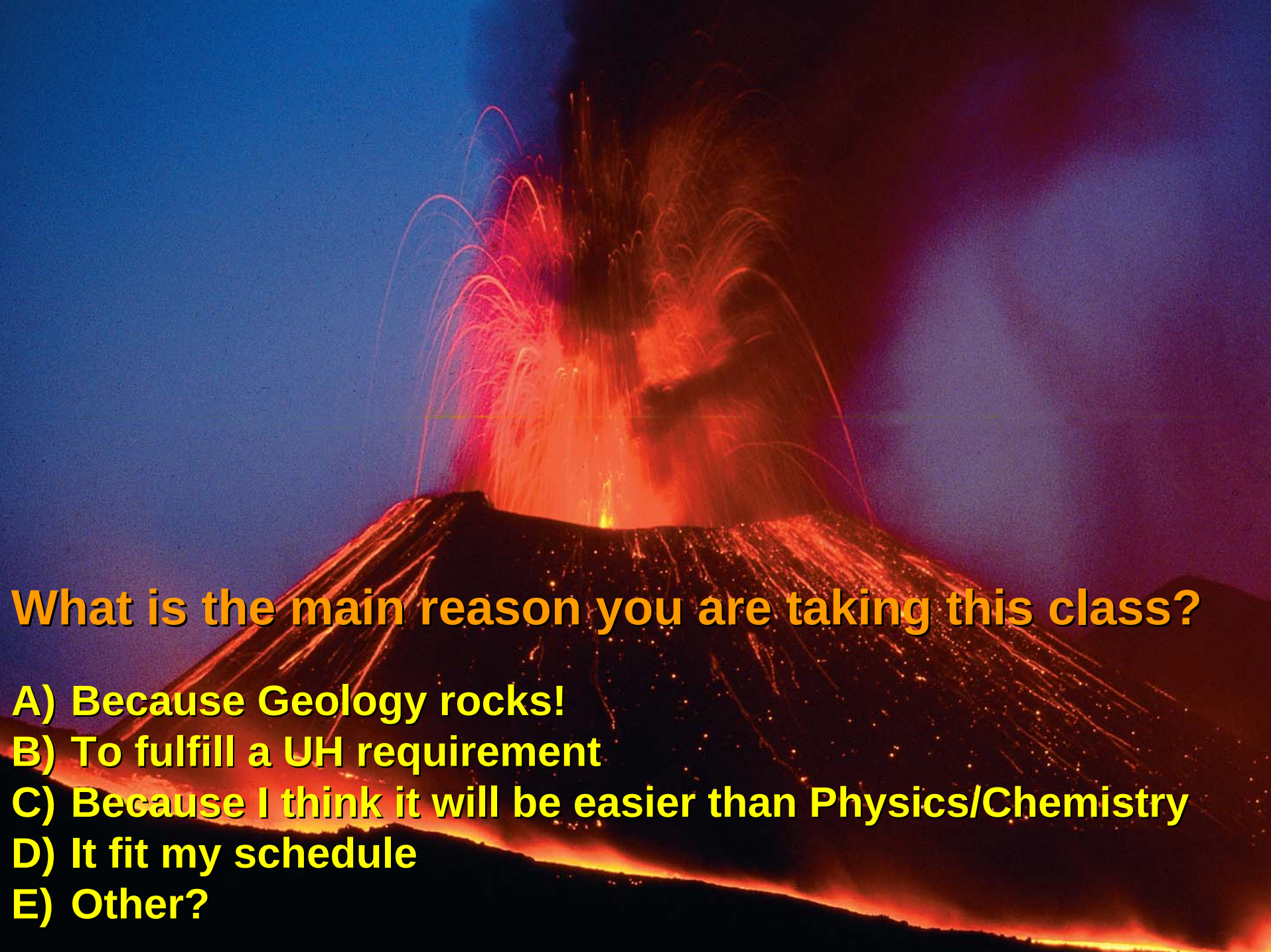
A) Campus
B) Waikiki/Honolulu
C) Windward side
D) Leeward side
E) North Shore



What year in school are you?

A) Freshperson, B) Sophomore
C) Junior, D) Senior (++)
E) Grad student





What is the main reason you are taking this class?

A) Because Geology rocks!
B) To fulfill a UH requirement
C) Because I think it will be easier than Physics/Chemistry
D) It fit my schedule
E) Other?

How do you spend your time…?











Activity #1