Welcome to GG101 DYNAMIC EARTH



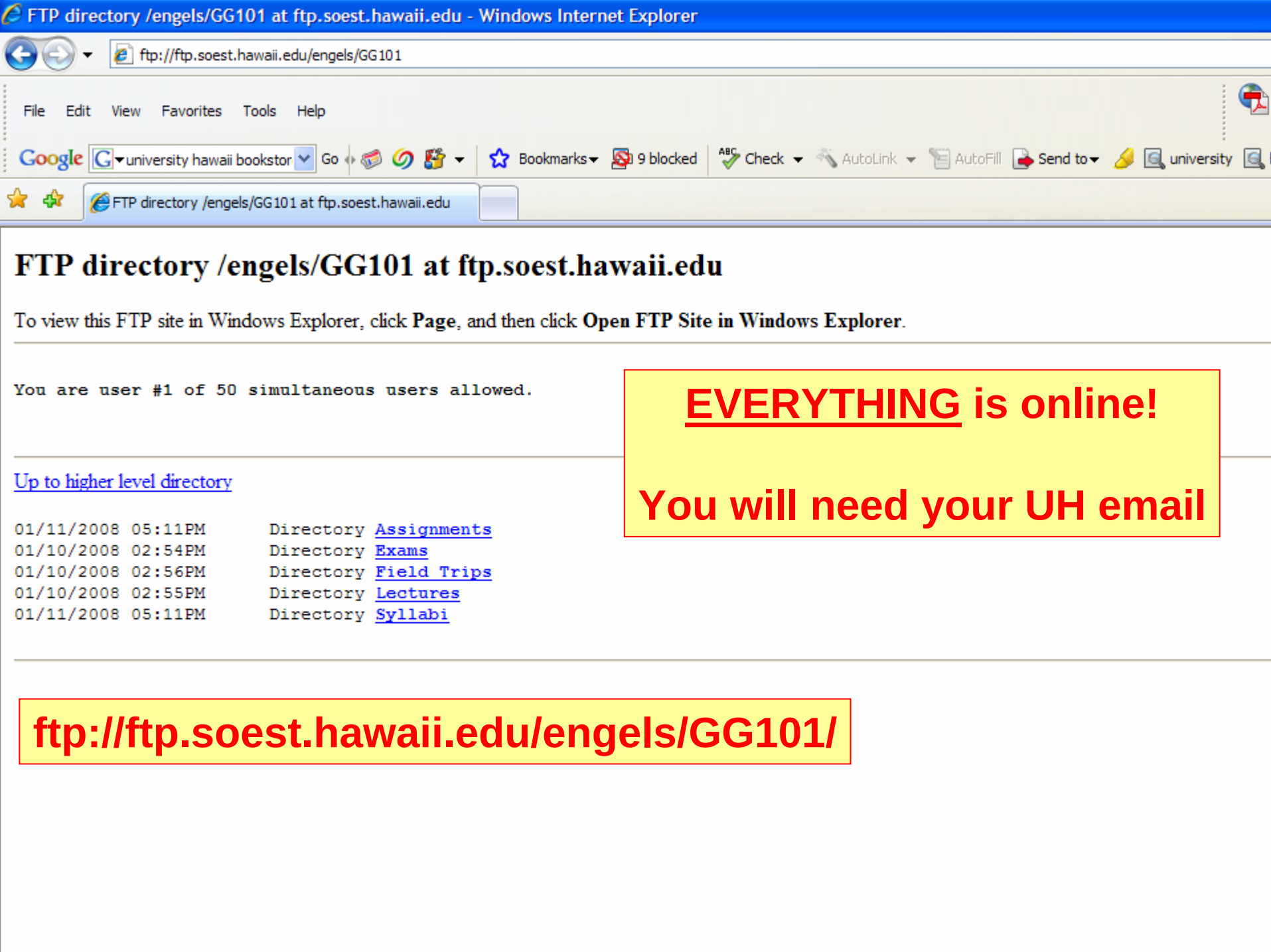
Textbook options (GG101): *"Understanding Earth, 5e", Grotzinger, Jordan, Press, Siever*

UH Bookstore new:	**($110)**
Amazon.com:	**$83-$94**
ebooks.bfwpub.com/earth/php (E-book subscription)	**$65**

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
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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	Origin of solar system, Early Earth
2	Plate tectonics
3	Minerals
4	Igneous rocks
5	Volcanoes
Sep. 25	**Exam I**
6	Weathering, Sedimentary rocks
7	Metamorphic rocks
8	Geologic time
Oct. 17-19	***BIG ISLAND FIELD TRIP!***
9	Relative & radiometric dating
10	Folds and faults, mountain building
Oct. 30	**Exam II**
11	Earthquakes
12	Surface water
13	Groundwater
Nov. 21	***Waihe'e Tunnel Field Trip***
14	Glaciers
15	Global warming
16	Review
Dec. 18	**Final Exam**

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	*1-3*	*up to 5%*

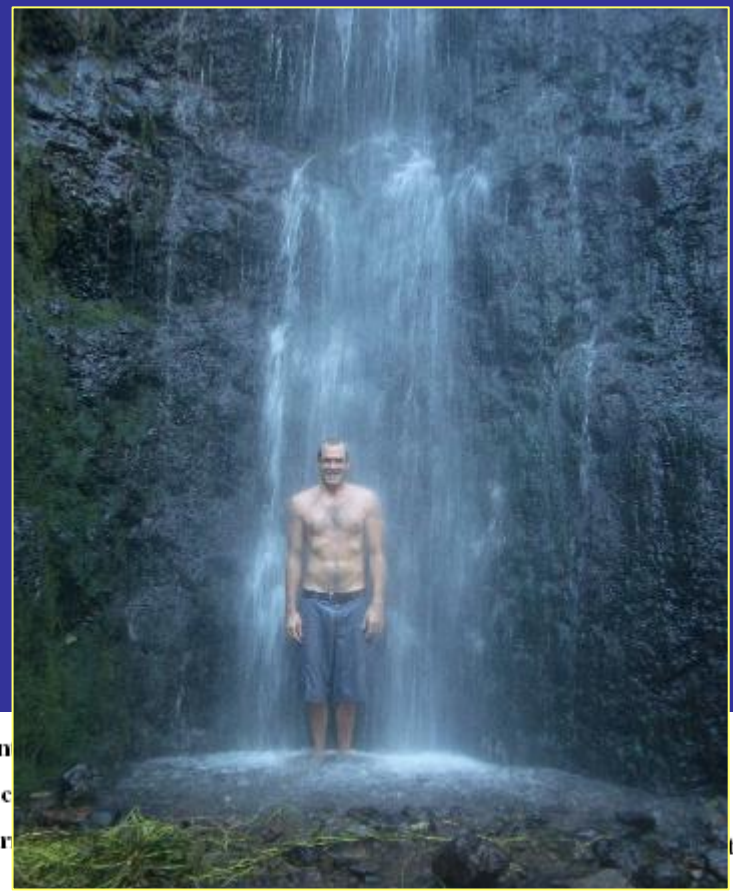
Field trips: (1) Big Island Field Trip Oct. 17-19



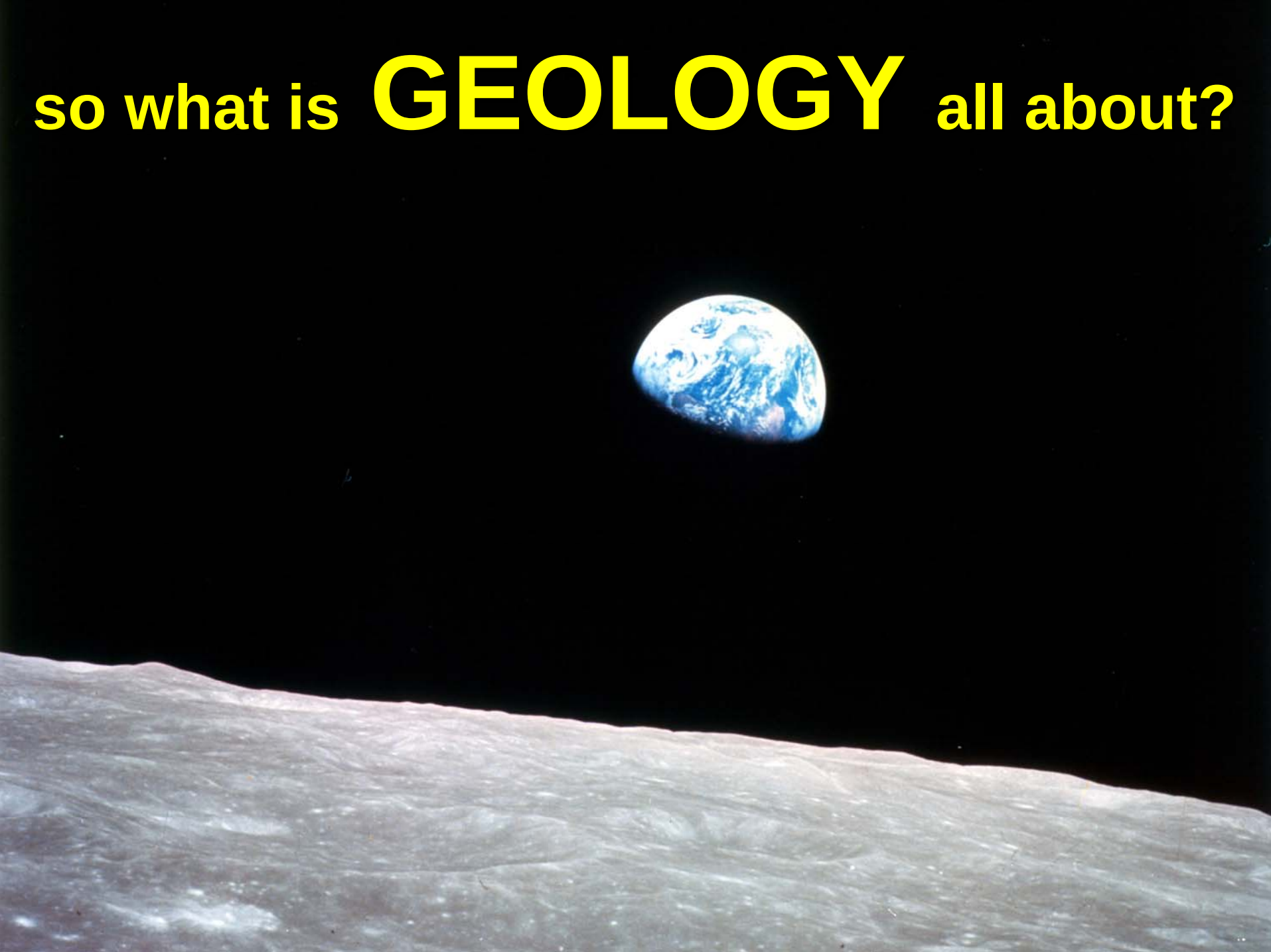
Field trips: (2) Waihe'e Tunnel Field Trip Nov. 21







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?



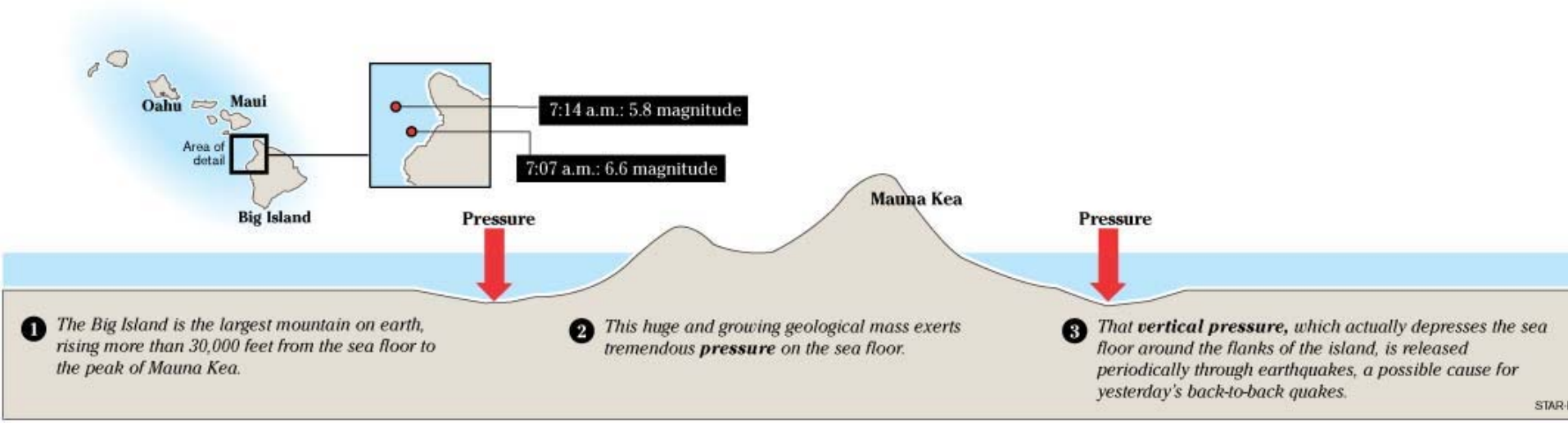


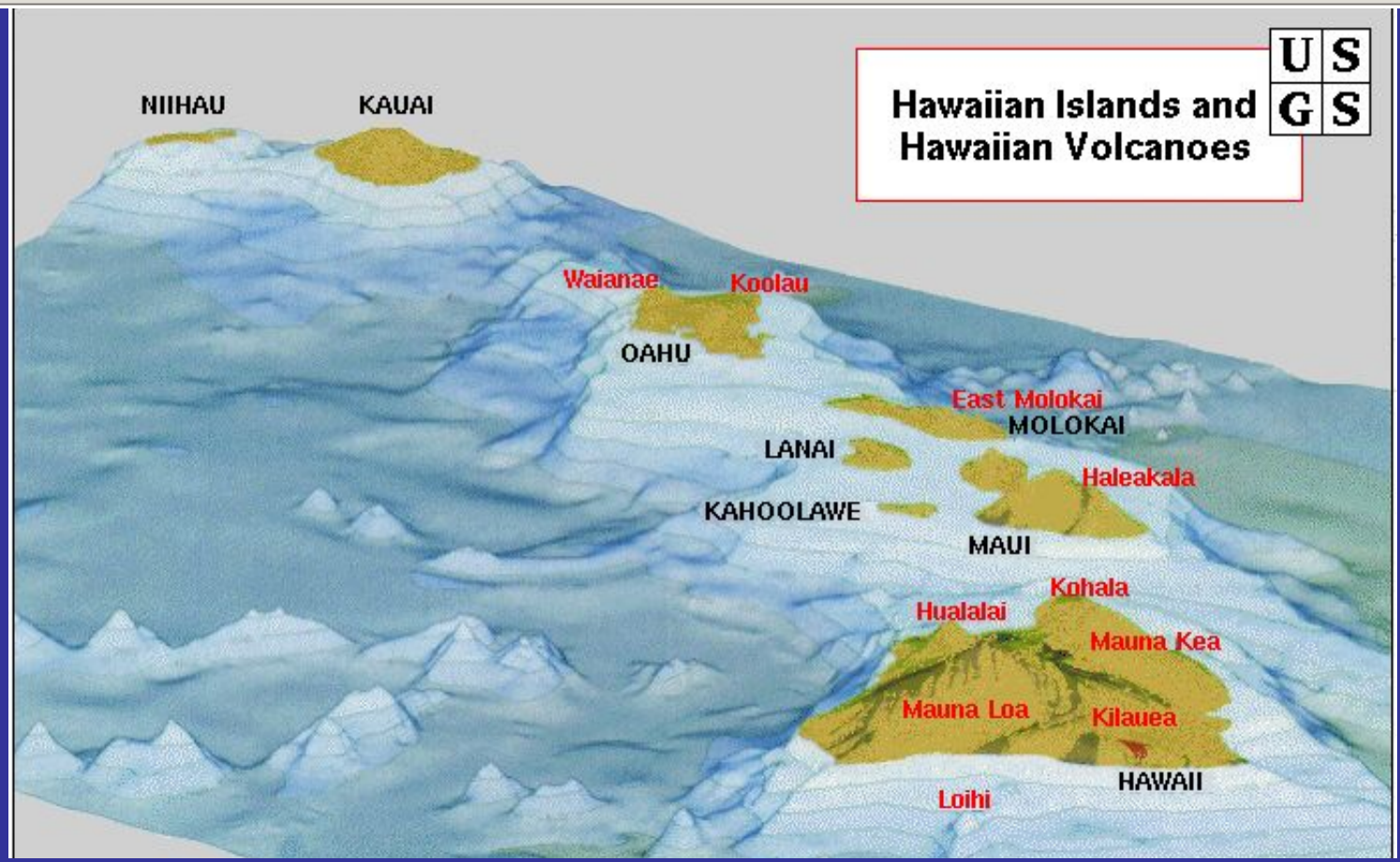


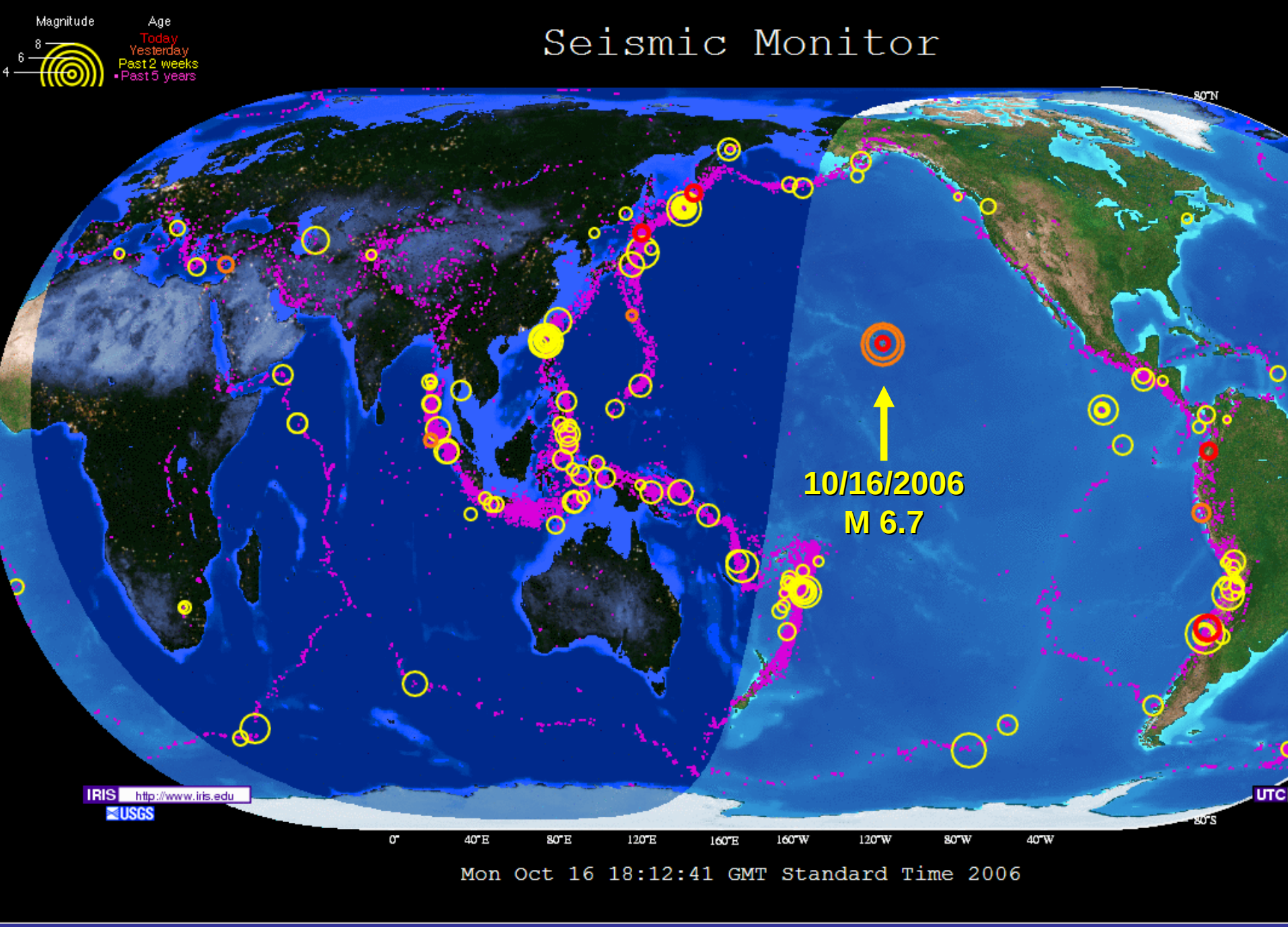
aianaha
Pu'u 'O'ō
Shield 1
Shield 4
Shield 6
Lava tube
Royal Gardens
subdivision
Waikupanaha
Pacific Ocean
August 21, 2008
TEB vent and rootless shields
Flow field on July 17
Flow field on Aug 21
0 0.5 1 2 Miles
0 0.5 1 2 Kilometers
N

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









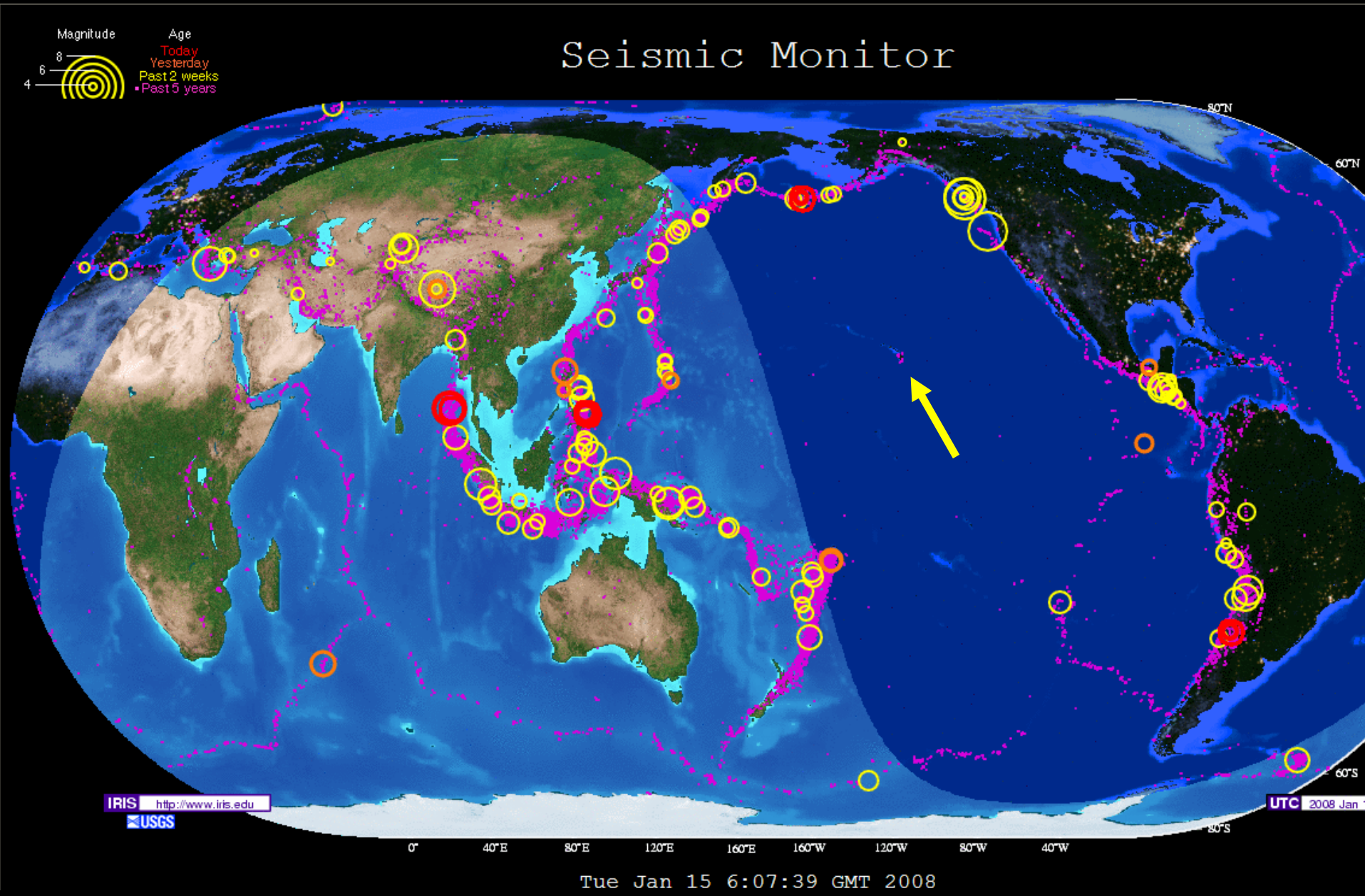






Food Distribution

Where is Hawaii? Where are the earthquakes?

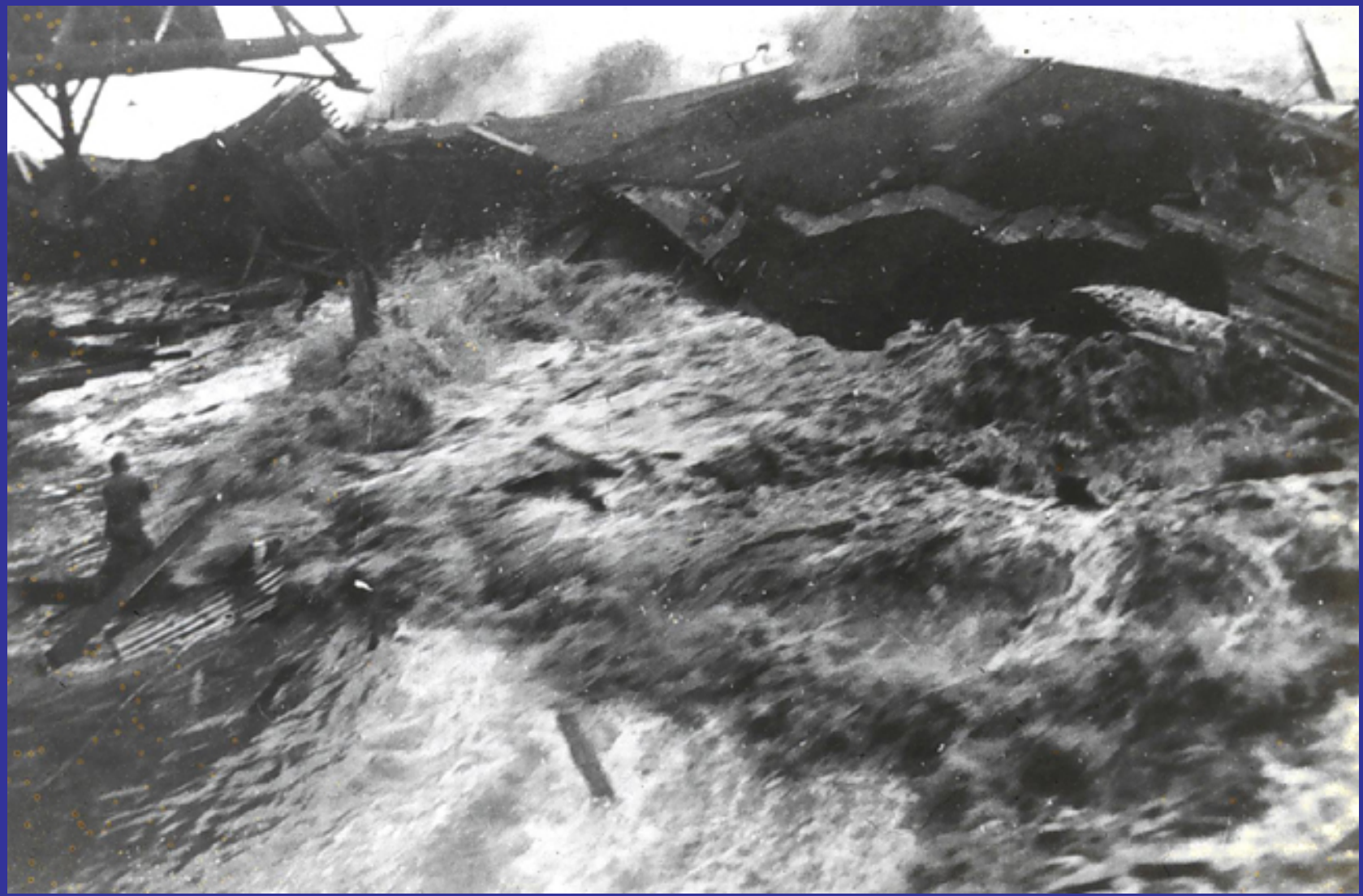




Hilo Tsunami, 1946 - triggered by Alaskan quake - 170 dead



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

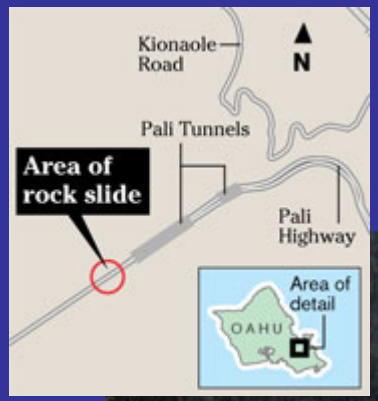






MASS WASTING HAZARDS

November 1, 2006
Pali Landslide





So what does a geologist DO anyway?

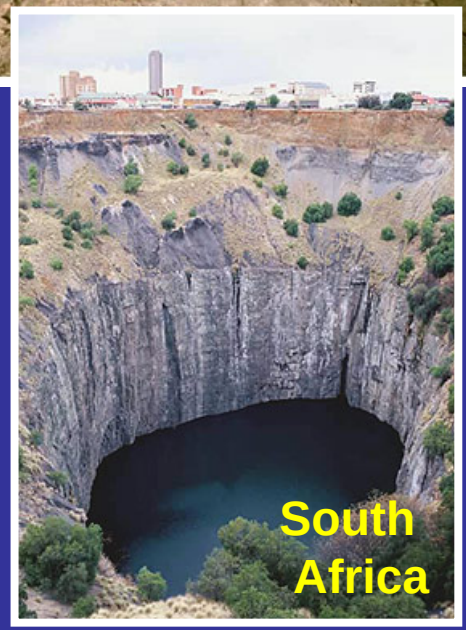
1. Natural hazards mitigation
2. Resource identification/extraction
3. Environmental clean-up
4. Research/Education

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



From *romance languages* to geology ?!

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


Mary


Barkley


Goofy


With Doug at Denali

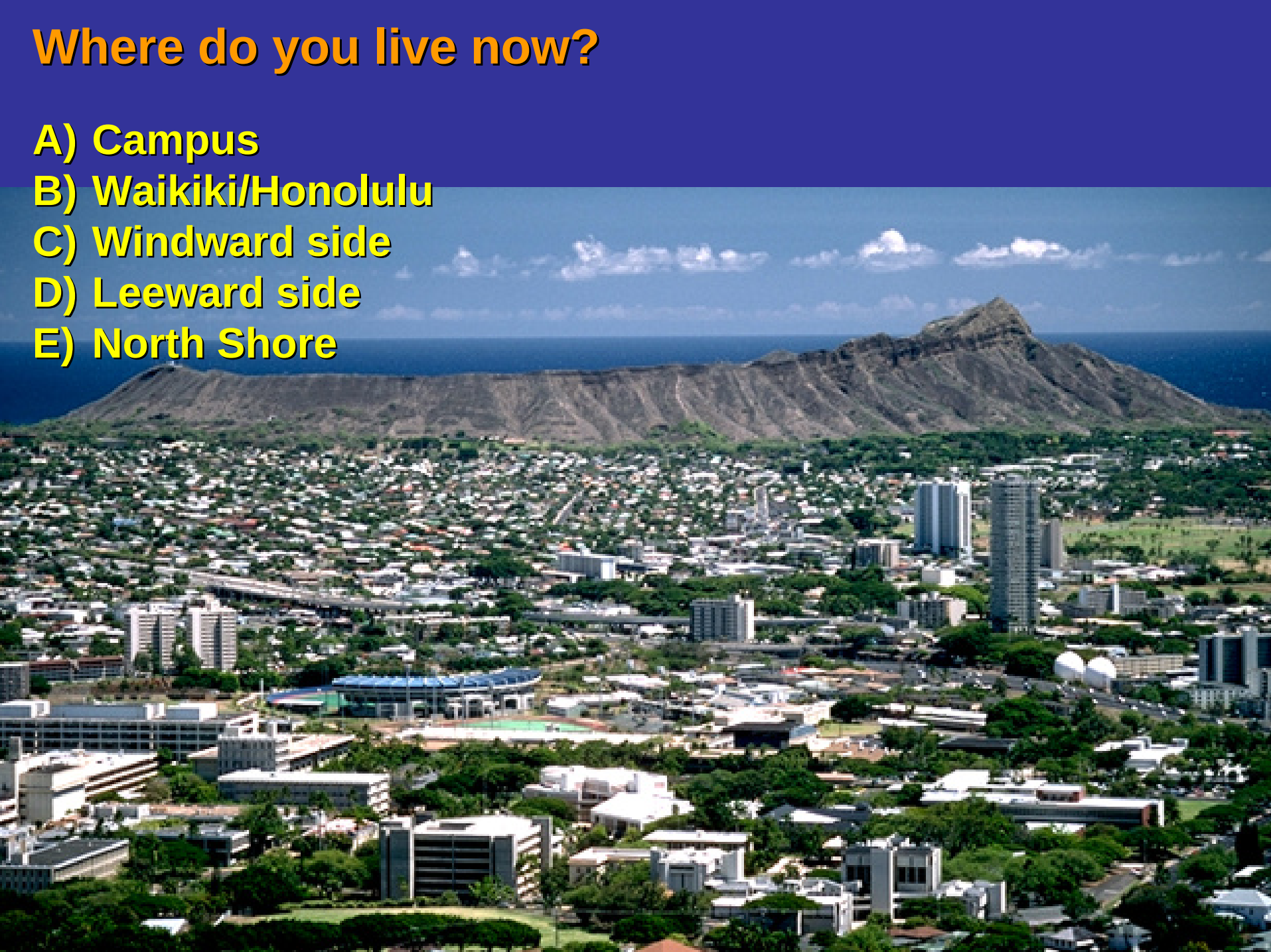



How I spend my time…


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

Where do you live now?

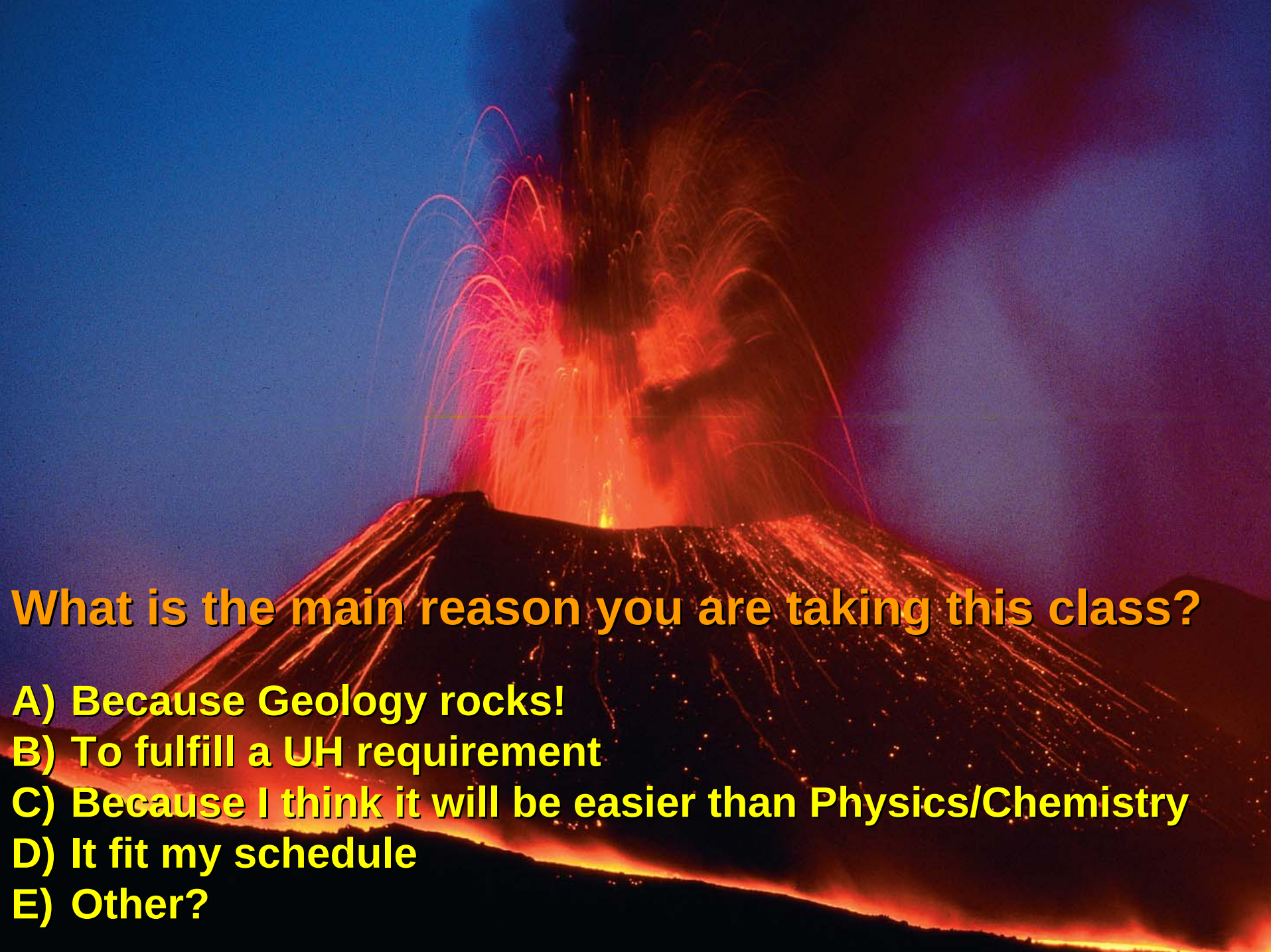
A) Campus
B) Waikiki/Honolulu
C) Windward side
D) Leeward side
E) North Shore



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