

# 12.221 Field Geophysics

## Instructors

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## Aims of IAP 2008

- Field camp location near Vidal, California.  
Approximate location  
latitude 34.06 N, Longitude 245.46 E  
(-114.54 W)
- Two main objectives
  - Development of sub-surface structure model  
based on gravity and seismic measurements
  - Relative motions of GPS monuments in the region

## Class Conduct

- Course is pass/fail grading
- Grade will be based on field camp participation and the final project/Oral presentation.
- Group will generate a final report from camp and each member of the class will be responsible for specific parts of the report (details to be decided after return from camp).
- Working as a team is acceptable but contributions of each member in the final report should be clearly specified.

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## Items needed for camp

- **Valid picture ID (Drivers License or passport)**
- Tent, Sleeping bag (35 deg nighttime temperatures), ground sheet
- Sturdy boots
- Sturdy water bottle
- Hat for sun protection
- Flashlight (extra batteries)
- Sun block, skin moisturizer
- Field notebook, pens, calculator
- Clothing for 7days (layering). Daytime temperatures will be in 60-70.
- Laptop computer and/or camera and/or GPS hand held receiver (optional)
- See Web page for complete list

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## Flight Itinerary

**Depart** Logan Airport: US Airways US 0845

Depart 6:45 AM, Thursday Jan 10, Boston to Las Vegas

Arrive Las Vegas 10:11 am, pick up equipment, drive directly to field camp. Travel time to camp will be about 3.5 hours.

**Meet in parking lot between Biology and Stata buildings at 4:45 am Thursday morning.**

**Return:** US Airways US 0882,

1:15 PM Thursday Jan 17, Las Vegas to Boston

Arrive Boston 9:01 pm.

Wednesday Jan 16; 1-night Clarion Inn, Las Vegas, 325 East Flamingo Road (702-732-9100)

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## Class schedule this week

- Mod: 10:00 am-noon 54-322 Introduction to Seismology
- Tues: 10:00 am-noon 54-322 Introduction to Gravity
- Wed: 10:00 am-noon 54-313 Introduction to GPS
- Thur: Depart for field camp, return following Thursday (1/17).
- Meet 10:00 am-noon Thur Jan 22-Thur Jan 24 following camp. Room 54-313. Final oral presentations on Friday Jan 25.

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# Topics to be covered

- Seismic measurements for subsurface structure (today's lecture)
- Gravity measurements for inferring sub-surface characteristics. Modeling of gravity by analytical/numerical integration. More details starting on Tuesday's class.
- Applications of the global positioning system: We will use
  - “Kinematic” GPS to do ~10 mm positioning of a moving antenna (gravity)
  - “Static” GPS to do sub-mm positioning (tectonics)