

PERSONAL FIELD TRIP ACTIVITIES

You will hand in two reports covering 8 of these activities. The first report is due on or before Thursday 2/2 and should describe at least 4 activities - more if you wish. The second report is due on or before 3/3 and should describe any additional activities you have done, but no more than 4. You are limited to a total of 8 activities. If your first report contains less than 4 activities you will not be able to reach the limit of 8 activities. Each activity is worth 5 points, so the maximum possible is 40 points if you do 8 activities and I accept all of them for full credit. Read the following description carefully and follow the directions when you make your reports.

1. Your report should be computer printed. The activities contained in a report should all be stapled together into one document with the different activities like different chapters in a book. Each activity should start on a new page, and one page will usually be enough.
2. Begin with the name of the activity, such as Sea Stack, and give the location and the date when you did the activity.
3. After the name of the activity, you should have a picture (digital, conventional, or a drawing made by you at the site). You may include several pictures if you wish. If you make a drawing it needs to be a good drawing clearly showing the structure involved.
4. The picture should be followed by a brief written description of your personal experience - a few sentences will be sufficient. Maybe you had fun - maybe you didn't because it was raining. Maybe you had trouble finding a suitable site - maybe you didn't.
5. You need to provide an adequate technical explanation such as how such objects form. You must give at least one reference where you learned more about the activity so that you were able to write the technical explanation. Your reference will probably be a web page, but could also be a book other than our text. You may list our text as an additional reference if you give the chapter and pages, but not as the only reference. You will probably be doing many of these activities before I describe them in lecture. If so, you will want to look ahead in the text (use the index) and read a little about them and also do a search online to better understand what you will be seeing or doing when you go on your personal field trips. You may want to do some additional reading in the text or online after your field trips before you write your report.

I strongly encourage you to write your report soon after you take your personal field trip rather than wait until the night before the deadline. If your printer fails or you forget to write it up or forget to turn it in, I will not be forgiving. Get it done early.

I have listed four different locations and 16 different activities for you to consider. A single trip to Montana de Oro could theoretically accomplish all 8 activities, but probably fewer because a high tide may make it difficult to see a sea cave or a wave cut platform. Your trips to see these coastal features will work out better at or near low tide, but don't worry about that too much - just go when you can. If you want to, you can check the

tide using the links I have provided. You can almost certainly accomplish the limit of 8 different activities with only two trips out of town, and several of the activities can be done in SLO. If you don't have a car and are having trouble finding a way to get to the coast you could let me know and I can probably help you by asking the class without mentioning your name. Also, it is possible to get to Pismo Beach and Shell Beach on a bus.

Location 1: Montana de Oro State Park near Los Osos. If you Google this park you will find some information online, or try the following links.

http://www.parks.ca.gov/?page_id=592

http://www.slostateparks.com/montana_de_oro/default.asp

http://en.wikipedia.org/wiki/Montaña_de_Oro_State_Park

If you drive all the way to the end of the road you may be able to hike on the relatively Point Buchon trail on PG&E land. The park itself is open 24 hours. The PG&E trail is open from 8-4 every day but Tuesday and Wednesday. You must check sign in at the gate house at the start of the trail and you must be back to sign out before 3:45 pm. The coastal features along this trail are spectacular.

<http://pge.modwest.com/pgereservations/trailschild.php?pid=2>

sea stack: There are several along the Bluff Trail and along the PG&E trail.

sea arch: There are many along the Bluff Trail and along the PG&E trail.

sea cave: There are several along the Bluff Trail and there is one at the only beach access on the PG&E trail near the beginning of that trail - don't break your neck getting down to the caves and don't get caught by a wave - exploring at low tide will work best.

wave cut platforms: There are some along the Bluff Trail, but easier to see just north of Spooner's Cove Beach or south of Hazard Canyon.

marine terraces: The Bluff Trail and the PG&E trail are on a large flat plane which is a marine terrace. From the south end of the Bluff Trail or near the beginning of the PG&E trail you can look north and see parts of older marine terraces higher up on the hills behind the current marine terrace.

sand dunes: Take the Hazard Canyon trail - the dunes are to the northwest.

sand spit: You can see and photograph the sand spit from a high viewpoint at several pullouts along the road just inside the park - the spit mostly closes off Morro Bay from the ocean and reaches almost to Morro Rock.

tilted sedimentary rock layers: Such layers are exposed at many places along the

Bluff Trail and along the PG&E trail just above the wave cut platforms.

sand samples from two beaches with significantly different types of sand: The beach to the north of Hazard Canyon has fairly fine sand at the base of the dunes and the beach at Spooner's Cove has fairly coarse sand. You must read the information on this web page about why different beaches have different types of sand, and you must evaluate the two beaches exactly as outlined in that supplemental information.

sink hole: There is a spectacular sink hole near the beginning of the PG&E trail where a deep sea cave has collapsed.

Location 2: Shell Beach and Pismo Beach

sea stack: There are several along the Shell Beach coast and at Dinosaur Caves Park.

sea arch: There are several along the Shell Beach coast and at Dinosaur Caves Park, and there is one at the north end of Pismo Beach.

sea cave: There are several along the Shell Beach coast and at Dinosaur Caves Park.

sand samples from two beaches with significantly different types of sand: The beaches in the little coves along the Shell Beach coast have fairly coarse sand, and Pismo Beach has fairly fine sand - you must read the information on this web page about why different beaches have different types of sand and evaluate the two beaches exactly as outlined in that supplemental information.

surf beat and wave period: The surf beat is the time period between "sets". Surfers call a series of larger waves a 'set'. A set consists of a few larger wave (typically 4 or 5) and will be followed by smaller waves (again typically 4 or 5, and then a set of larger waves again. Sometimes there are sets and sometimes there aren't. If there are sets I want you to measure the period between the sets with your watch. The period is the time from the largest waves in one set to the largest waves in the next set and is typically from 2 to 4 minutes, but can be somewhat shorter or longer. If you can go to a location where there are surfers it may be easier to notice the sets of larger waves because that is when the surfers will be trying to catch a wave. If you can't clearly detect sets of larger waves at regular intervals you won't be able to measure the surf beat period. Do not try to do this activity if the sets are not easy to see. If there are good clearly recognizable sets, measure the surf beat period. Also measure the wave period, which is the period from when one wave breaks to when the next wave breaks.

The wave period is simply the period of time between one breaking wave and the next breaking wave - it is best to measure this several times with your watch and take an average.

longshore current: You need a pier to do part of this, and Pismo is probably the best location and is the only location for which I will accept this activity. You will need two

pieces of scrap wood large enough to see after you throw them into the water - this will work only if there is not much wind because you need to see what the current in the water does to the wood, not what the wind does - you will want to do this near the pier - walk out onto the pier and throw one piece into the water out beyond where the waves are breaking and throw the second piece into the water in the surf zone where the waves are breaking and rushing up onto the beach - hopefully the wood in the surf zone near the beach will move along the beach because of the longshore current and the wood farther out beyond the surf zone will not move along the beach very much - if the wood in the surf zone gets stuck on the beach just throw it back into the surf zone and continue to watch it. Try to determine the angle at which the waves are striking the beach and show that angle in a drawing with at least the direction 'north' indicated. If the waves are not striking the beach at an angle there will be no longshore drift. I will show a video in class early in the quarter which shows this experiment being done with colored dye instead of pieces of wood.

Location 3: Avila Beach

wave period and surf beat: (described previously)

pillow lava: There is pillow lava just north of the Harford Pier and low tide would be the best time to see this because you will be able to walk to it - at high tide you will only be able to look at it from the pier. You should use the pillow lava links I have provided on this web page to see what to look for and where to look - some students who did not take time to look at the links drove all the way to Harford Pier and couldn't find the pillow lava.

Location 4: Pirate's Cove Parking Area and Beach (I want to warn you that Pirate's Cove is a nude beach, so if this is of concern to you please don't go there.)

sea arch: There is a big sea arch high above the water near the parking area, but I have forgotten exactly where - I think there are several more at the north end of the beach, but I haven't been there since I was young.

sea cave: I think there may be several at the north end of the beach, but I don't remember for sure.

Location 5: San Luis Obispo

Measure the latitude by using a protractor with a string and weight to measure the angle the North Star (Polaris) makes with the horizon. I will be happy to tell you how to make this device if you come to my office. You will need to know how to find the North Star, and I can also tell you how to do that. You must tell me in detail what equipment you used and how you did this. Make a drawing showing how you make the measurement. Include a photograph of the apparatus you used. If you have a digital camera take a picture toward the north star with the north star in the center. Prop your

camera and set it for a fairly long exposure, such as 10 seconds if you can and use the timer to take the picture just as you would if you had set the camera to take a picture of several people including yourself.

Measure the longitude by using your watch set to Greenwich time (you don't really need to change your watch from PDT, but you do need to be sure it is set accurately. You just need to know how many hours different Greenwich time is. You will measure Greenwich time at local noon, which is when the sun casts the shortest shadow from a vertical post. I think hanging a weight from a short rope would be an easy way to make 'vertical post'. You need to tell me in detail what equipment you used and how you did this. Make a drawing or two also to illustrate what you did. Include a photograph of the apparatus you used taken at local noon showing the shadow cast by your apparatus.

The Morros are ancient volcanoes. They are often called 'The Seven Sisters', or 'The Nine Sisters' since there are actually nine of them. You must photograph or draw at least two of them, and perhaps hike up Cerro San Luis or Bishop Peak. You can find interesting information about them online - I think searching for 'The Nine Sisters' may work best. You need to provide a clear description about how The Morros formed, when they formed, and what is left of them now to receive full credit.