

Indiana State University
Earth Science
ENVI-170

Glaciers Assignment

Due Date: Thursday, August 2nd

Point Value: 75 points

Assignment Description

For this exercise you will explore a heavily glaciated region of the Earth: The Alps! To prepare for this assignment you should have already reviewed the lecture and book chapter on glacial processes and landforms. We have already used Google Earth many times this semester to examine features that have been discussed, but you have not yet created new content with Google Earth. By this point, you should already be a competent Google Earth navigator and you should be accustomed to using the software to change perspective views. In this exercise, your task is to create your own Google Earth tour, using placemarks to identify key features of glaciated landscape and then submit the kmz file with your tour.

Directions for Submitting the Exercise

1. Review Chapter 18 and associated learning components and lectures before beginning this exercise.
2. Make sure that you have downloaded and installed the application: [Google Earth Pro](#)
3. Navigate to the Alps site and find 10 features on the landscape that are discussed in the lecture or the book chapter on glacial processes.
4. Use placemarks to highlight the precise points you've identified, pointing out the key components that allowed you to identify the glacial feature.
5. Organize the tour into a single folder and save the file as a KMZ file.
6. Submit the KMZ file as your report on glaciated landforms in the Alps on Blackboard.

Assessment

This assignment is worth 75 points and must be completed by **Thursday, August 2nd** by the end of the day. Your grade will be determined based on correctly identifying the 10 glacial features – each feature is worth 5 points. Your score for each feature will be determined by whether you correctly identified the feature and highlighted its key components with descriptive details about the feature in the placemark. Make sure that your placemarks are well written and contain helpful, detailed information. Each feature you identify must be unique and you **cannot include more than two of the same type of feature** (do not submit 10 different placemarks with 10 different cirques – you'll only be awarded points for 2 of these features).

Grading Rubric

Each unique correctly identified glacial feature is worth 7.5 points. Correct identification of the feature is worth 5 of the points and 2.5 points for the placemark details, images, viewpoints, and feature description. Additional bonus points may be added if students do an exceptional job with the Google Earth Pro tour (including links, images, and video tours for features, for example).

Required Materials

- Google Earth Pro (installed)
- List of Glacial Landform features (included)

Exercise Directions

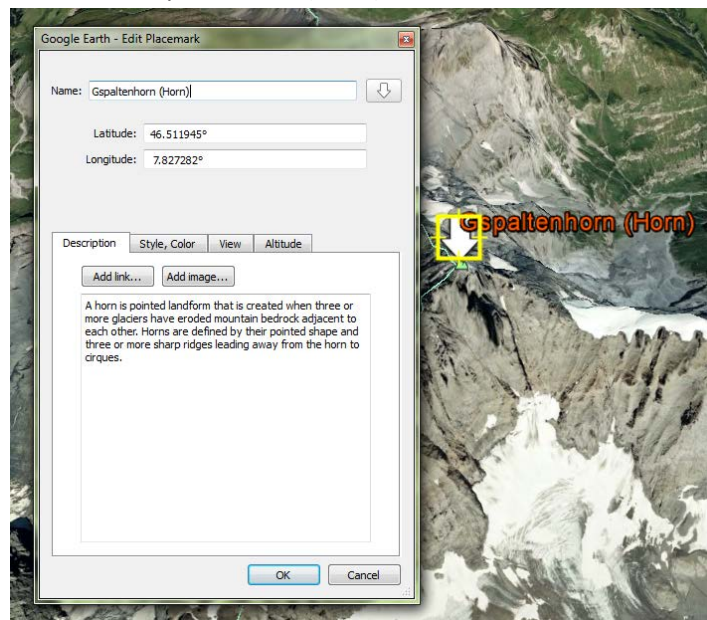
1. **Open Google Earth Pro.**
2. **Navigate to the Alps** by either typing “Alps” into the search bar or using the following coordinates: (46.702497°, 9.489710°)
3. **Create a folder** where you will save your tour information
 - a. From the PLACES menu on the left of the screen, select “My Places”.
 - b. In the top toolbar, select ADD, then FOLDER.
 - c. Type in “Exercise 8 -” and your last name (ex. Exercise 8 - Stone).
 - d. Click OK; you will see the folder appear in the My Places list on the left.
4. **Navigate around the Alps** a bit and look for some glacial features that you’d like to add to your tour. It is a good idea to provide a tour with each of the glacial landforms you are adding so that they are **clearly identifiable**, which may require you to gain better control of Google Earth Pro viewpoints than some of the prior exercises. The following list of viewpoint tools may help:
 - a. To **zoom** in or out: use the vertical +/– scale on the right of your screen by clicking the + or – (or using the slider for fine adjustment).
 - b. To **pan** in different directions: use the arrows around the hand on the top right of your screen or click anywhere and drag while holding the mouse button down.
 - c. To **rotate** your viewpoint: grab the outer ring of the compass circle on the top right of your screen (has an eye in the center) and spin it while holding the mouse button down. To auto-return to North at the top of your screen, click the N in outer ring.
 - d. To **tilt** your viewpoint: use the arrows around the compass circle on the top right of your screen (has an eye in the center).
5. Find good examples of **10 glacial landform features**. I have included a list of potential terms for you below. Make sure each landform you identify is unique and clearly identifiable.

Potential Glacial Landform Features to add to your tour:

- Mountain Glaciers Landforms: mountain ice cap, cirque glacier, valley glacier, piedmont glacier, rock glacier
- Erosional Features: cirque, roche moutonnée, arête, horn, col , u-shaped valley, hanging valley, truncated spur, nunatak
- Depositional Features: drumlin, outwash plain, esker, moraines (lateral, medial, terminal, recessional), kame, outwash fan
- Surface Feature: crevasse, equilibrium line, tarn, proglacial lake, kettle lakes

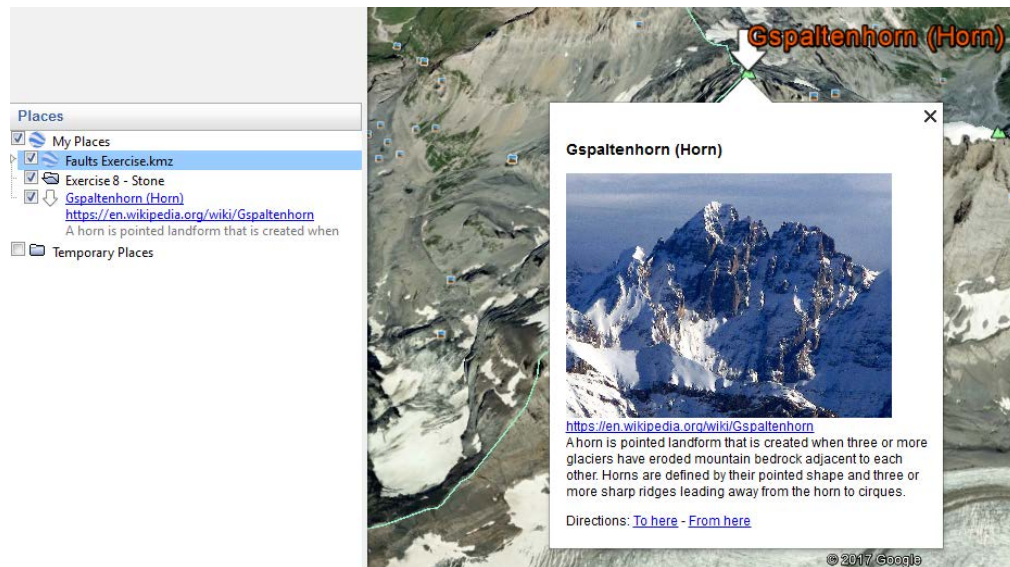
There are other glacial landforms that you could observe while creating your Google Earth Pro glacial tour of the Alps – features like trim lines, supraglacial debris, icefalls, paternoster lakes, etc. Feel free to expand on the given list.

6. Once you have identified the landform you'd like to add to your tour, create a placemark that is pointing to the feature. The following steps will help you create a placemark for your Google Earth Pro tour. Note that your view when you click add placemark is the view people will observe when they click on your placemark.
 - a. Click on the pushpin button in the top tool bar – ADD PLACEMARK". Use your cursor to pinpoint the location of your place mark now.
 - b. In the name box, type in the name of your glacial landform feature. If your location has a name for this feature, include that.
 - c. In the description box, type in some text about the feature that helped you identify the landform. Also use this description space to describe the feature (pretend your parents are taking a Glacial Landform Google Earth tour of the Alps and write it so that they could understand what you are pointing out.
 - d. Change the placemark icon (if you like) more icons available if you like. You can do this by click on the pushpin button to the right of the name box.
 - e. Click OK and your place mark will appear in your folder to the left.
 - f. Here's an example of name box text and how it should appear in Google Earth Pro for a site called Gspaltenhorn (Horn):



- g.
7. As you add more place marks, you can rearrange them in any order by clicking and dragging them up or down in the folder you created. You can edit the information at each location at any time by right clicking on the place mark on your map, edit properties
8. You can add an image and links to further enhance your place mark. Google Earth Pro uses html markup language to display the placemarks – so you can click on add link or add image and then modify the text a bit to spruce it up. In the example below, I added an image and a Wikipedia

link for my placemark. Under the image, I've provided some directions for how to provide an appealing placemark image by searching for images and rescaling them.



9.
 - a. Find an image on the web. Right click on the image, and choose PROPERTIES from the menu. Copy the URL Address of the image. I should look something like this - <http://images.summitpost.org/original/478172.jpg>
 - b. In the text box, click add image and paste the image link into the box. It should provide you with text tags that look like this: `<img src= "">` with the URL of the image between the "" marks.
 - c. To keep the image to a reasonable size, you can simple add "width=300" inside the bracket (ex. ``)
10. Note that not all sites will have a defined geographic name – that is fine. They don't have to. Also note that Google Earth Pro includes other people's images from around the world – you might consider clicking the checkbox for photos to find an image that views your placemark. Images are optional, of course, but they make your Google Earth tour more visually appealing.
11. You can also add a 3D tour to one of your sites by clicking the "record a tour" button and then moving around in Google Earth Pro after starting the recording. You could make some interesting fly-by tours showing off the feature you'd like to highlight. Again, recorded 3D tours are optional, but nicely designed submissions may be eligible for extra credit and recording a 3D tour is really not that difficult.
12. Your tour must include **10 unique features** with placemarks and descriptions and cannot include more than 2 features of the same type. You could, for example, find 2 horns, 2 cirques, etc. but cannot submit more than 2 of any type. Two additional glacial landform features can be added for up to 10 bonus points. Very well made tours that include 3D tours, images, links, and well-positioned viewpoints with well written descriptions with detailed informaiton **will be considered for extra credit and may be used as examples in future versions of this course.**
13. When you are completely finished, to save your file as a kmz: right click on your folder in Google Earth Pro (Exercise 8 – name), choose SAVE AS to save it to your desktop. Submit your KMZ file through the dropbox link (it should save with the same name as your folder name).