

# Discovering Plate Boundaries

## Teacher's Notes

1. I or colleagues have used this exercise with students at a variety of ages and knowledge levels. These include Geology Major Freshmen, non-science-majors in a science distribution geoscience class, and middle school earth science teachers. I believe it would work for middle school earth science students, and, at a very high level of expectation, for upper level geoscience majors. It is appropriate to such a wide range of level of student because it is based on observation only. The sophistication of the observations by the students will of course vary, but even very young students should see the basic features of the plate boundaries in each map. For younger students I tend to drop the Satellite Geodesy specialty. It is the hardest to explain and the exercise works fine with four specialties.

2. I have used this exercise for classes as small as five students and as large as 50. It works for different size classes because you do not need to have students assigned to each plate. My approach is to assign the first five students to Plate 1 and each of the Scientific Specialties, A to E. Each additional group of five students adds one plate. I do this by handing out slips of paper as the students come into the room. They are in the order A1, B1, C1, D1, E1, A2, B2, and etc. For classes larger than 50, I would do the exercise in units of 50 students, each with their own set of maps and separate class presentations.

3. I use a single set of the five color maps to do this exercise with a class. For small classes I have used the 11x17 in. versions of the maps, and the students gather around a table to talk about them. For the larger classes I have 36x48 in. versions of the maps that I post on the classroom walls for the students to gather around.

4. I give each student two copies of the plate boundary map. I make additional copies available in the room. I put out colored pencils in quantity that each plate group can have one each of about 6 colors.

5. I circulate among the groups while they are meeting. If they seem stuck or have not seen important issues, I ask leading questions. Often the group will get off on using plate tectonic terminology (sometimes accurately, more often not) or on assigning mechanisms to what they are observing. Often this is avoidance behavior for really looking at and describing the data. I try to push them to stick to observation and description at this point. If they really see the data, then understanding the processes and the correct terminology will come easily.

6. I have done this exercise over three 50 minute class periods. My colleagues have divided a three hour lab into the three periods. Both approaches have worked. I doubt that it can be shortened much. I usually have students wanting me to leave the maps up after class or to make them available between classes.

