Adjusting Compass Magnetic Declination

Magnetic north varies from true north everywhere in the world, and the amount of variation varies depending on location. For sighting a simple navigation bearing with a compass, declination correction is not needed. However, if a map is used in conjunction with a compass for navigation, magnetic declination must be adjusted so that the compass will point to true north. All U.S. Geological Survey topographic maps are oriented to true north, but magnetic variance is provided next to the map legend (see diagram).

To compensate for magnetic declination, use the following easy rule:

- If the **magnetic north** (**MN**) line on the map's magnetic declination diagram is **to the right** (*easterly declination*) of the true north line (vertical line with star at the top), ***add*** **declination and compass reading together**. (See Figure 1.)
- If the magnetic north line is **to the left** of the true north line (*westerly declination*), ***subtract*** **declination from compass reading**. (See Figure 2.)

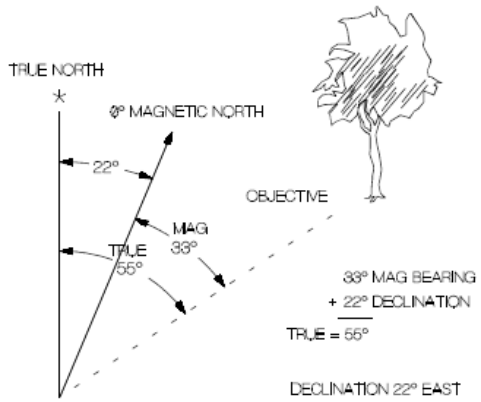

Figure 1.

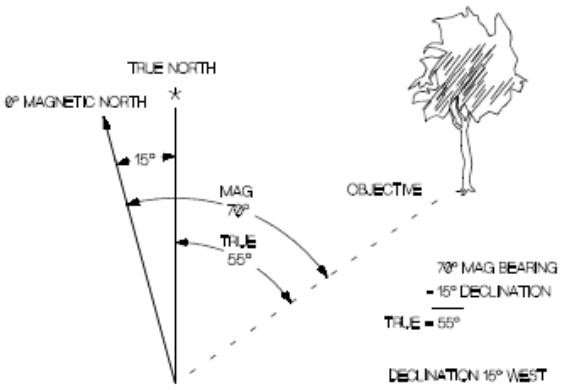

Figure 2.

Example: The unadjusted compass gives a bearing of 33 degrees to the tree. The map shows an *easterly declination* for magnetic north of 22 degrees (use Figure 1). To adjust compass magnetic north to the map, add the map declination to the compass reading to derive an adjusted bearing of 55 degrees from true north (33 + 22 = 55). For westerly declination, subtract the map's magnetic declination from the compass magnetic north reading to the target (Figure 2).