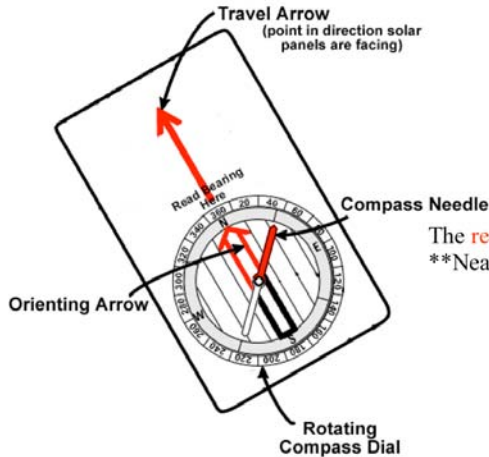


# Using a compass to find your 'true' solar bearing

True north and magnetic north are not the same. This matters when finding 'true' south for solar installations. When obtaining a 'true' compass direction, the difference between true and magnetic north is obtained using an offset called 'declination'.

Oregon's declination (compass offset) is 'east' 17 degrees (in 2007). As shown in the table below, east declination is added to the compass bearing to obtain a 'true' bearing. You can get current declination numbers online from the National Geophysical Data Center.



The red part of the compass needle always points to magnetic north.  
 \*\*Nearby metal objects can interfere with accurate readings.

## Why do we need to know 'true' solar south?

When designing solar energy systems we usually want the collectors or panels to point close to 'true' south (180°) - sometimes called 'solar' south - to maximize system production.

**Azimuth** and **bearing** are terms used to denote **direction**. The direction you are facing (your bearing) is normally measured in degrees from north (zero). For example, if you were facing 'true' south your bearing or azimuth angle would be 180°.

Declination	To obtain 'true' bearing
East	magnetic bearing + declination = true bearing
West	magnetic bearing - declination = true bearing

Finding your 'true' solar array bearing: (illustrated below)

- Step 1: Holding your compass level, point the 'travel' arrow in the direction the panels are facing.
- Step 2: Rotate the compass dial to align the orienting arrow and compass needle ensuring the red parts align.
- Step 3: Read the degree bearing nearest travel arrow.
- Step 4: Calculate the solar array direction (azimuth) by adding the local declination.

