



Example of a USGS Map Legend

This diagram shows only that portion of the map legend pertaining to datum, coordinate system, and north reference. U.S. Geological Survey topographic maps are drawn with information gathered by surveys, ground observations, and aerial photography.

The datum currently used for most USGS 7 1/2 minute maps is NAD27 (see graphic above), although some new maps are being drawn using datum NAD83. Grid ticks in the lower left and right corners of the map (not shown on all maps) presents the NAD83 projection (as shown in the example). The legend may also describe the datum shift in meters from NAD27 to NAD83 (see graphic).

Latitude and longitude forms the basis for the map. That's why this type of map is referred to as "7 1/2 minute quadrangle," because it's printed using a 7.5 minute lat/long grid. Universal Transverse Mercator (UTM), another coordinate system, is represented on USGS quadrangle maps by 1,000 meter ticks (blue on older maps), or a fine black grid (on newer maps). The UTM zone for the map is shown in the legend (see middle text box in the graphic). (More about UTM later.)

True north, compass and magnetic declination information is presented at the bottom of the legend. True north is represented by the vertical line with the star at the top. Magnetic north is shown by "MN." Declination is shown in degrees and mils (there are 6400 mils in a circle, just as there are 360 degrees in a circle). In the graphic, grid north is 0° 28' (also 8 mils). Magnetic north is shown as 18 1/2° (329 mils).

All rectangular grids are afflicted to some extent with direction distortion. **Grid North** (represented by "GN" in the compass and declination graphic) is shown as east or west of true north by x number of degrees. Grid north is the direction that a north-south grid line points on a rectangular coordinate system. Grid north refers to the declination angle (relative to true north) of a vertical grid line in a rectangular coordinate system. The grid declination varies in relation to the grid's point of origin. In the case of the UTM coordinate system, grid declination is always zero along the central meridian of each UTM zone. To the east of the Central Meridian, grid declination will be east (the vertical grid lines point east of true north). To the west of the meridian, grid declination will be west (the vertical grid lines point west of true north). A point to note, in the UTM coordinate system grid north can never deviate more than 3° from true north on any map (refer to UTM section).