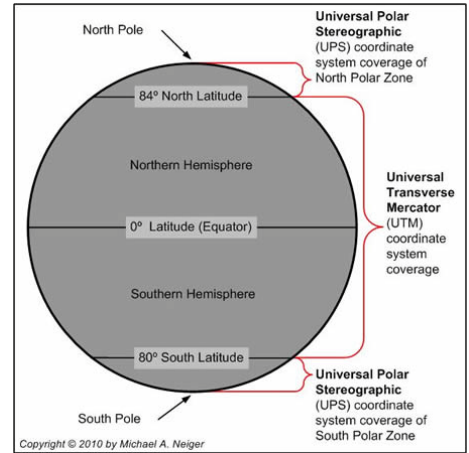


Brief Introduction to the UTM coordinate system

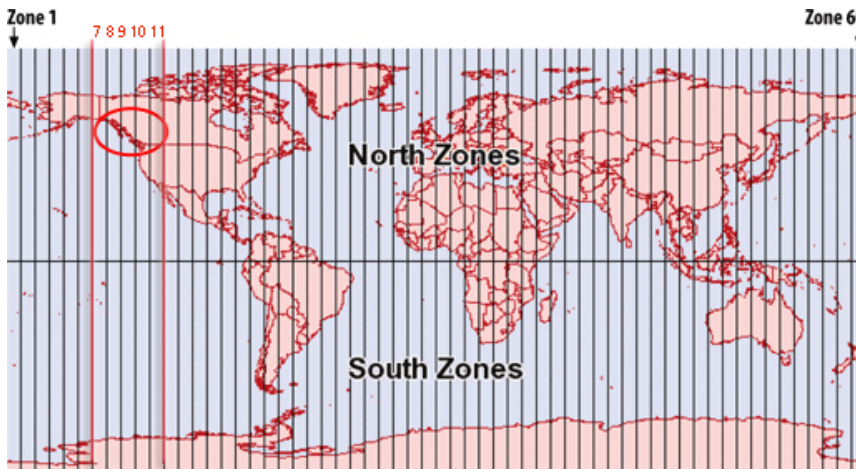
The **Universal Transverse Mercator** coordinate system is an international locational reference system that depicts the Earth's three-dimensional surface in a relatively-accurate, two-dimensional manner.

It relies on the **meter** unit of measure, and allows users to accurately and unambiguously identify geographical locations anywhere on the Earth's surface between the northern limits of North America (84 degrees north latitude) and the southern limits of continent of Antarctica (80 degrees south latitude).

The remaining north and south polar regions are not included in the UTM coordinate system due to extreme projection distortions in the UTM grid.



The UTM zones and grid



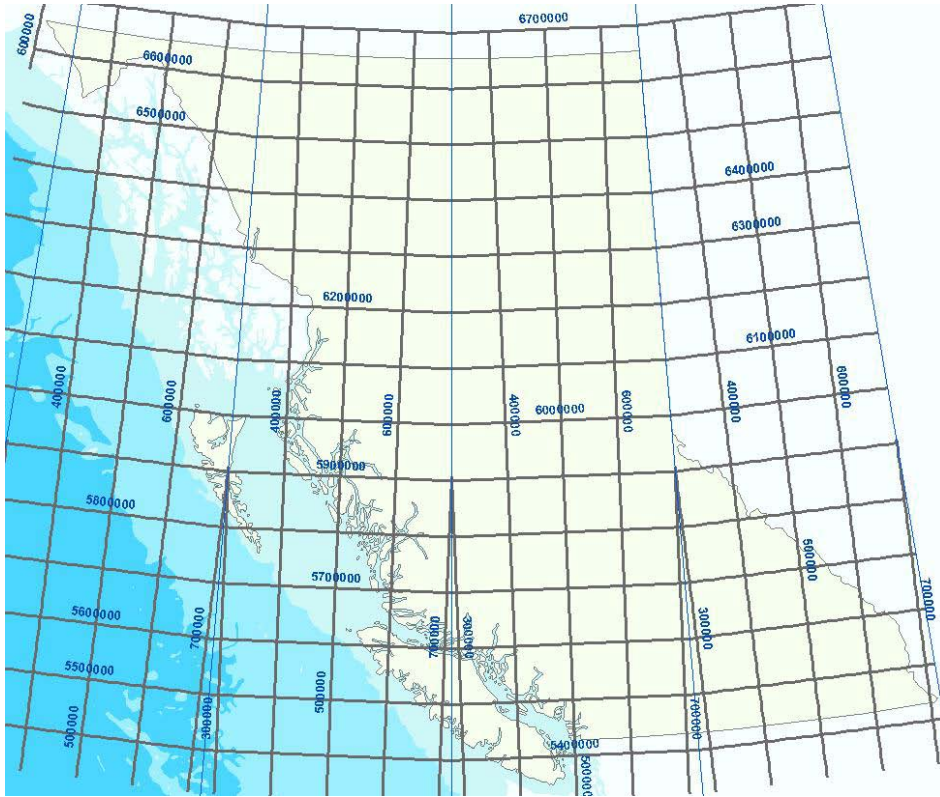
The UTM system depicts the Earth's three-dimensional surface as a flat, two-dimensional plane by dividing its surface into 60 equally-spaced vertical planes known as zones, or world zones. Sequentially-numbered 1 through 60, from west to east, the starting point for the zones (and the common border between Zone 1 and Zone 60) is the 180-degree meridian of longitude, or International Date Line.

British Columbia occupies 5 UTM zones: 7 through 11.

The world-wide grid for the UTM coordinate system consists of parallel-running vertical (*easting*) lines and parallel-running horizontal (*northing*) lines, each of which is spaced exactly 1,000 meters (1 kilometer) apart, to form 1,000-meter squares.



Brief Introduction to the UTM coordinate system



Easting: UTM grid coordinates are always written or conveyed with the easting data string appearing first, before the northing data string. By common convention, easting coordinates output from GPS units are typically followed by the letter "E".

Vertical lines are measured from a separate point for each zone, namely, an imaginary line lying 500,000 metres west of the zone's central meridian. Actually, zones never attain the full width of 1,000,000 metres which such a measurement suggests; in fact, in northern Canada, zone widths shrink to as little as 80,000 metres (40,000 metres

on either side of the central meridian).

In practice, this means that in BC the actual distance between equal zone points is approx. 425km in the South and 350km in the North (see illustration below for the importance of the UTM zone; all 4 points have the same Easting and Northing, but a different zone!)

Northing: In the northern hemisphere, a zone's southern boundary (and point of origin) is the equator, and it assumes the value of zero meters. Horizontal lines are designated by their distance from the equator in metres. Because Canada's southernmost point is about 4,620,000 metres from the equator, all horizontal lines in Canada have a "northing" value above that figure.

Note: While easting coordinates are only six digits in length, convention often adds a leading zero to make them seven digits long so they correspond lengthwise with seven-digit northing coordinates.

