

Notes for: What are Real World Map Coordinates?

Slide 2

Coordinate systems enable you to specify where something is. You may think that a map is the best way for specifying where something is - but how do you specify where something is on a map?

Slide 4

The characteristics of each projection make them useful for some applications and not useful for others.

Conformal projections preserve shape of smallish features, by maintaining the ratio of x to y , and a straight line on a map has a constant direction (which is required for navigation).

Equal Area projections ensure that areas on projected maps have the correct ratios. (So countries like Greenland are not depicted to be as large as Africa.)

Slide 5

UTM coordinates are based on each zone, but are slightly complicated.

For the easting, the origin of each zone is at the centre of the zone, so to avoid dealing with negative numbers, 500,000 (meters) is added to every coordinate.

Northings are measured from the equator so to avoid negative values in the southern hemisphere, 10,000,000 is added to each coordinate.

Slide 6

MGA coordinates are based on the Geodetic Datum of Australia (GDA) and AMG are based on the Australian Geodetic Datum (AGD).

AGD had been used since 1966. By the late 1980s scientists had much better information about the true shape of the earth (a squashed sphere) so this improved data was incorporated in the new datum.

The change meant that all locations changed their coordinates (latitude and longitude or UTM).

This is important if you use contours from 1:4000 orthophoto maps. They were printed in the 1980s, and use the old datum.