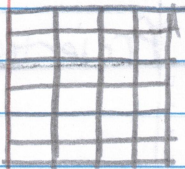


Projections & Applications

Map Projections

Graticule - Latitude and longitude coordinates specify positions in a more-or-less spherical grid called the graticule.

Plane Coordinates like the eastings and northings in the Universal Transverse Mercator (UTM) and State Plane Coordinates (SPC) systems denote positions in flattened grids.



georeferenced plane coordinates are referred to as projected...

geographic coordinates are called unprojected...

Map Projections - The mathematical equations used to transform latitude and longitude coordinates to plane coordinates.

UTM Coordinate System

Northing - runs parallel to and north of the equator

Easting runs perpendicular to and east of the equator

Why are multiple coordinate system grids shown on the map?

Why aren't geographic coordinates sufficient?

1. Describe the characteristics of the UTM coordinate system, including its basis in the Transverse Mercator map projection.

2. Plot UTM coordinates on a map

The UTM Grid and Transverse Mercator Projection

- ✓ 1. latitude and longitude
- ✓ 2. if we use Geographic Information Systems Software, we need to be able to accurately compare datasets that may be based on different projections and datums.
- ✓ 3. A line on a map along which there is no scale distortion
- ✓ 4. A line 4515 meters north of the equator
- ✓ 5. A, C, D South Zone, 600,000 meters E, 9,000,000 meters N
- ✗ 6. North Zone, 600,000 meters E, -1,000,000 meters N
- ✓ 7. 1970000 feet
- ✓ 8. Map is based on NAD 27
- ✗ 9. 1 meter in 1,000 1 meter in 10,000
- ✗ 10. Lambert Conformal Conic None of the above
- ✗ 11. Origins ^{are} positioned near the center of the system ^{with an origin at}
- ✗ 12. C, D A, C, (D)
- ✓ 13. Mercator
- ✓ 14. Robinson
- ✓ 15. Cylindrical