

# Coordinate Reference System

Book Reference: Introduction to Geographic Information Systems  
(Kang-Tsung Chang)

Coordinate Reference Systems are of two types,

**Geographic co-ordinate system**

**Projected Co-ordinate System**

**The Geographic coordinate system** is the location reference system for spatial features on earth's surface.

It is defined by latitudes and longitudes. Both latitude and longitude are angular measures.

The unit of measurement is degrees.

It cannot be used for measuring distances.

The prime meridian and the equator serve as the base lines of the

**Geographic coordinate system.**

Longitude measures the angle east or west from the prime meridian

Latitude measures the angle north or south of the equatorial plane.

Most widely used geographic co-ordinate system is **WGS 84**.

In India, most of the maps and data are available in the form of Everest System (**Everest : 1830**)

**Everest 1830** coordinate system is suited for data sets within the Indian Subcontinent.

This system is also likely to continue along with **WGS 84**.

Software programmes to convert **Everest system** to **WGS 84** are available.

**Projected Coordinate System** is also called as **plane coordinate system**.

It composed of Easting and Northing.

Projected coordinate systems are designed for detailed calculations and positioning and are used in large scale mapping.

The unit of measurement is meters.

This coordinate system can be used to measure distances.

Most widely used projected co-ordinate system is UTM.

## **Data Layers**

Usually geographical data is stored in layers in a GIS workspace.  
Each layer has data stored in its attribute table.  
Many layers can represent data of the same geographical location.  
The data may represent different characteristics.  
Each layer is independent of the other layer.  
The layers may or may not be in the same coordinate system