4. COORDINATE TRANSFORMATIONS

Co-ordinate transformations are used to bring spatial data into a common reference system. Most countries have defined their own common reference system. For example, spatial data that are related to the Universal Transverse Mercator projection system may need to be transformed to the Dutch RD system if this system is the reference system in use. This is done by converting the UTM coordinates First into geographical coordinates and then converting these geographical coordinates into coordinates of the Dutch RD system.
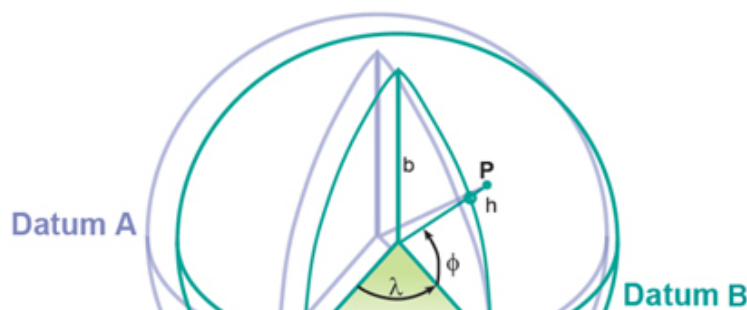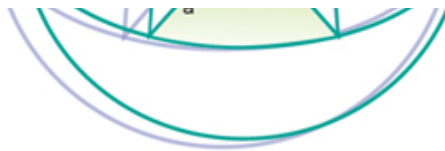
1. **Changing map projection**
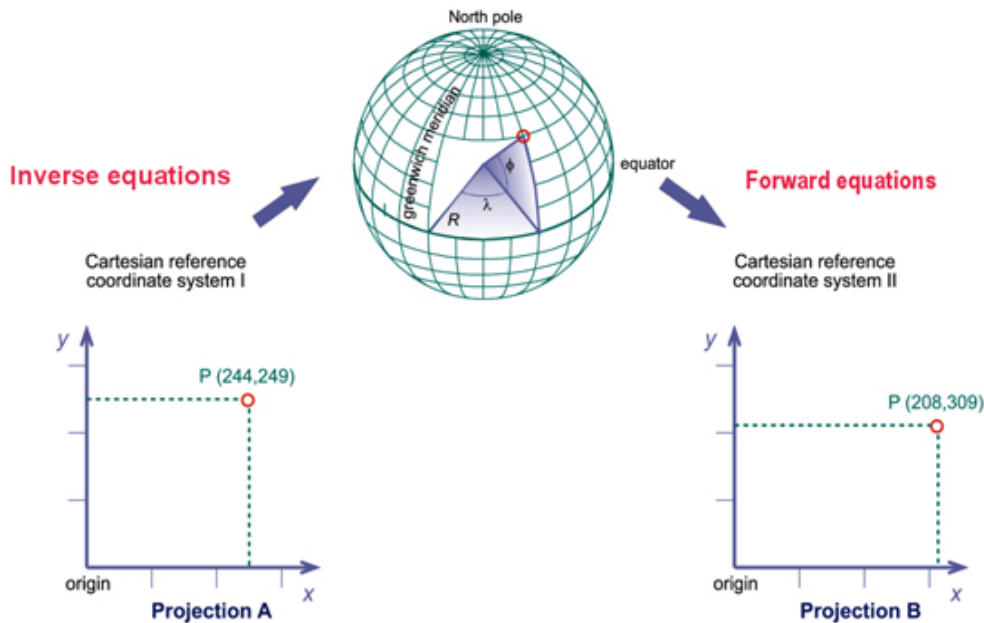
Source: Powerpoint presentation - Knippers, 2010

2. **Datum transformation**
   - via geocentric coordinates
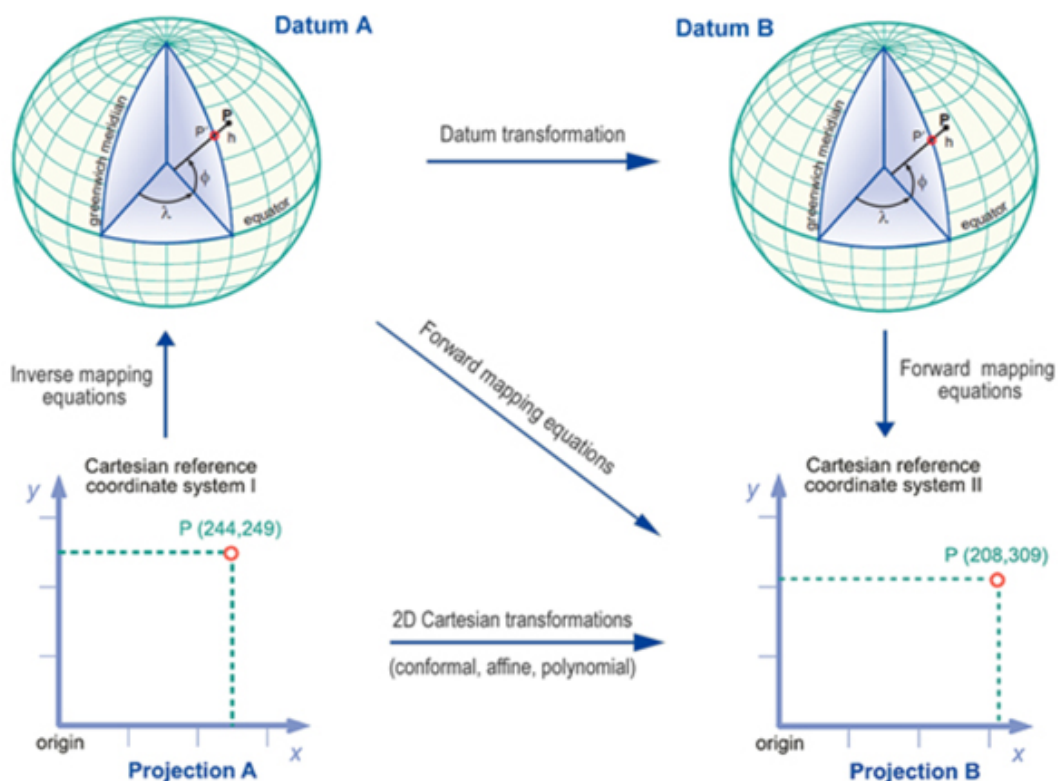   - via geographic coordinates

Source: Powerpoint presentation - Knippers, 2010

3. **Direct transformations**
   - conformal transformation,
   - affine transformation, and
   - polynomial transformation

An overview of coordinate transformations is given below.

Source: Powerpoint presentation - Knippers, 2010

For more information on this subject see:

- Chapter 5 "Coordinate transformation, on website "Geometric aspects of Mapping"
- Knippers, R.A and J. Hendrikse (2001). *Coordinate transformations*. Kartografisch Tijdschrift, KernKatern 2000-3 (URL / pdf).