Cartographic characters

DR.C.LAKSHUMANAN

Department of Remote sensing

Cartographic characters

Carto/grapy

Carte- Map (French)

- **Cartography is generally considered to be the science and a**rt of designing, constructing and producing maps.

- Is closely associated with geography and surveying.

Selected definitions of cartography

- Science that studies geographical maps and the methods and process of their compilation and reproduction.

  -M.Shokalsdy, V.A Kamenetsky.(1930)

- The science of making any map, embracing all phases of work from surveying to map printing.

  -Cartographic office of the U.N Organization(1949)

- Cartography is the art, science and technology of making maps together with their study as scientific documents and works of arts.

  -British cartographic society.

Cartographic characters

- Maps –(types of maps)
- Scales and their function
- Directions and coordinates and their functions
- Geographic coordinates.

Maps

- A map is a two-dimensional representation of the earth.
- Is usually to be a drawing to scale of the whole or a part of the surface of the earth on a plane surface.
- It is a manually or mechanically drawn picture of the earth showing the location and distribution of various natural and cultural phenomena.
- All maps are graphical representations of data and their Spatial relationships.

Types of maps

As each map is unique in its design, content and construction it is a type by itself.

Types by Relief representation is classified as

- ✓Hypsometric Maps
- ✓Planimetric Maps

Hypsometric maps

- Those, which show the relief and the terrain in detail and often at the cost of other details.

- The large scale topographical sheets produced by the survey of India fall in this category.

Planimetric maps

- Its shows more to other details and relief portrayal with inclusion of few spot heights

- Most of the thematic maps representing the cultural features of the landscape fall in this category.

Types of maps by scale

Taking the scale as the criterion, maps classified as

- Small scale maps
- Medium scale maps
- Large scale maps

Small scale maps

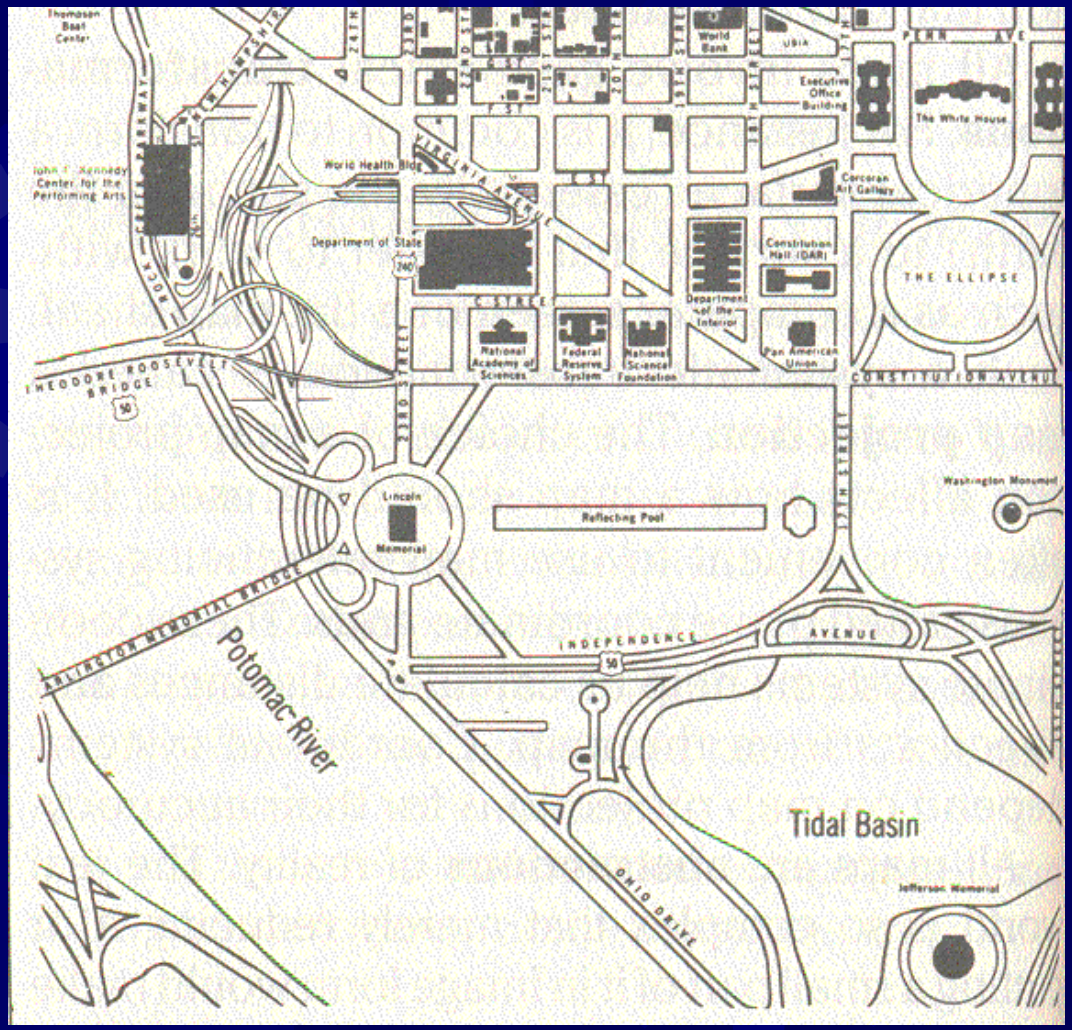
The scale, which shows a large amount of area and enough information to make the map useful in a general way.

Scales below 1:1,000,000

Large Scales Maps

The scale which shows a small area in great detail

Large scale map



Based on types of information

Maps are made to be used for a variety of purposes

Maps are classified into the following types

- General purpose map
- Thematic maps
- Special purpose maps

General purpose map

The multi purpose wall maps, toposheets, and many of the atlas maps

Thematic maps

Map dealing with a single factor such as geology rainfall crops, population etc.

Special purpose maps

- Which are constructed for a group of people having special reading or perceptual problems.
- The maps for the children and neo-literates

Types of maps by military uses

There are certain maps, which are drawn specifically for the use of military personal, From soldier's point of view.

- General maps
- Strategic maps
- Tactical maps
- Photomaps

General maps

- Any map on a scale of 1:1,000,000 or more is considered to be a general map.
- Its depict only the broad topographic features and are usually used by the high command for general planning purposes

Strategic maps

- Maps having scaled ranging from 1:1,000,000 to 1:500,000 are often classified as Strategic maps.
- This maps are used for the general planning of more concentrated military effort

Tactical maps

- Maps with scales of 1:500,000 or less are called tactical maps.
- It serves as a guide to small units like battalions and patrol units.

Photomaps

- Photomap is an air photograph with strategic and tactical data superimposed on it.
- Is may constitute just one photograph or it may be a mosaic composed of several of them

- The scales of the photomaps range from

  1:5,000 to 1:60,000.

Uses of maps

- Location of places
- Education and research
- Planning and development
- Military strategy
- Other uses

Location of places

The most universal use of maps is for locating places and things.

Education and research

Maps are useful and at times indispensable tools for the teachers and the students of all those disciplines.

Planning and development

Planning for a community such as a village

or a city,

Maps are equally useful in regional and national planning.

Military strategy

During the World War II the army map service of the USA alone produced about 40,000 different maps

and distributed a total of over 500 million copies of them.

Other uses

Recent years the uses of maps for propaganda and advertising purposes,

Are also increasingly used by aerospace science.

Scales

Scales is a ratio between the distance on a map and the corresponding distance on the earth.

Scales represents ratio = $\frac{\text{Map distance}}{\text{Ground distance}}$

Scales cont.…

If one unit of map distance is equal to 1000 units of ground distance, the scale of the map is

$$\frac{\text{Map distance}}{\text{Ground distance}} = \frac{1}{1000}$$

1: 1,000 map scales

Representative fraction

Ratios is also known as fractions

Its consequently, the scale ratio of map to earth is a Representative fraction or RF.

$$RF = \frac{\text{Map distance}}{\text{Ground distance}}$$

RF = 1:100,000

Verbal scale

Verbal scale is the number of map units as a fraction of the corresponding earth units.

So instead of saying 1:1,00,000 we can say that one cm on the map represents one km on the ground.

1 cm = 1 km

Graphic scale

The graphic or bar scale is a line symbol, subdivided to show map lengths of earth distance units.

They are more convenient to use if a map is to be reduced or enlarged photographically since the graphic scale notation automatically conforms to the change in scale.

Reduction and enlargement of scales

- The processes of compiling maps cartographers are often required to reduce or enlarge maps.

- Reduction or enlargement involves change in the size.

Directions and coordinates and their functions

- Direction has been defined as an imaginary straight line of the map or ground.

- The two ends of the axis of the earth's rotation are known as north and south poles

Cont…..

- The line that joins these two poles is the zero direction line
- Any line cutting this line at right angles is the east-west line
- North, South East and West art the four main directions.

Azimuths.

All directions are expressed as angles, measured clock wise from north throughout the full range of the directional circle. These angles are called azimuths.

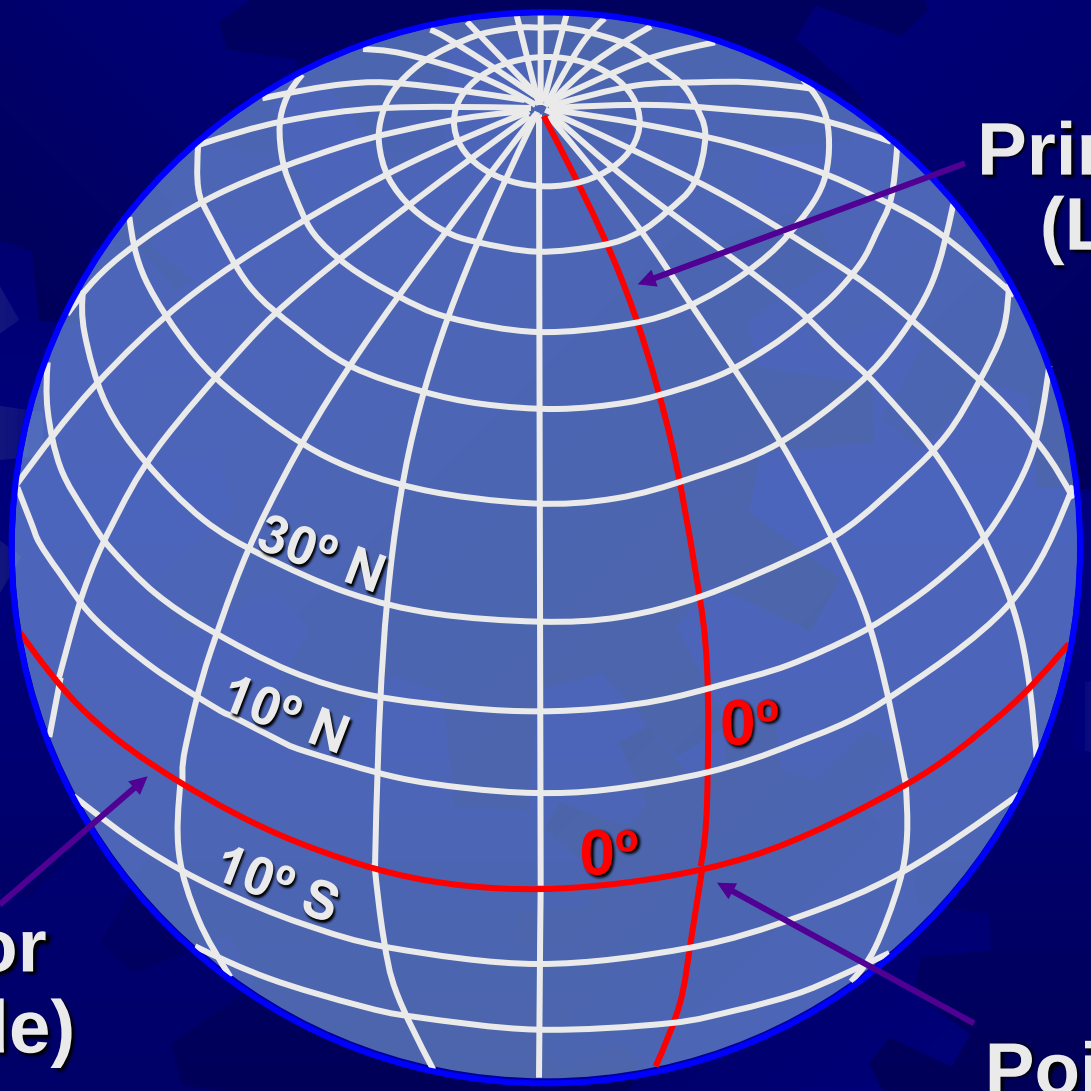
True and Magnetic Norths

- True north is the direction pointing to the North Pole
- Meridians or lines of longitude represent true north.
- Magnetic north is the direction, which points to the magnetic pole

Geographic coordinates

- The geographical coordinates system, employing latitude and longitude
- Geographical coordinates system is primary location reference system for the earth
- It has always been used in cartography and for all basic locational reckoning, such as navigation and surveying.

Latitude & Longitude



Prime Meridian
(Longitude)

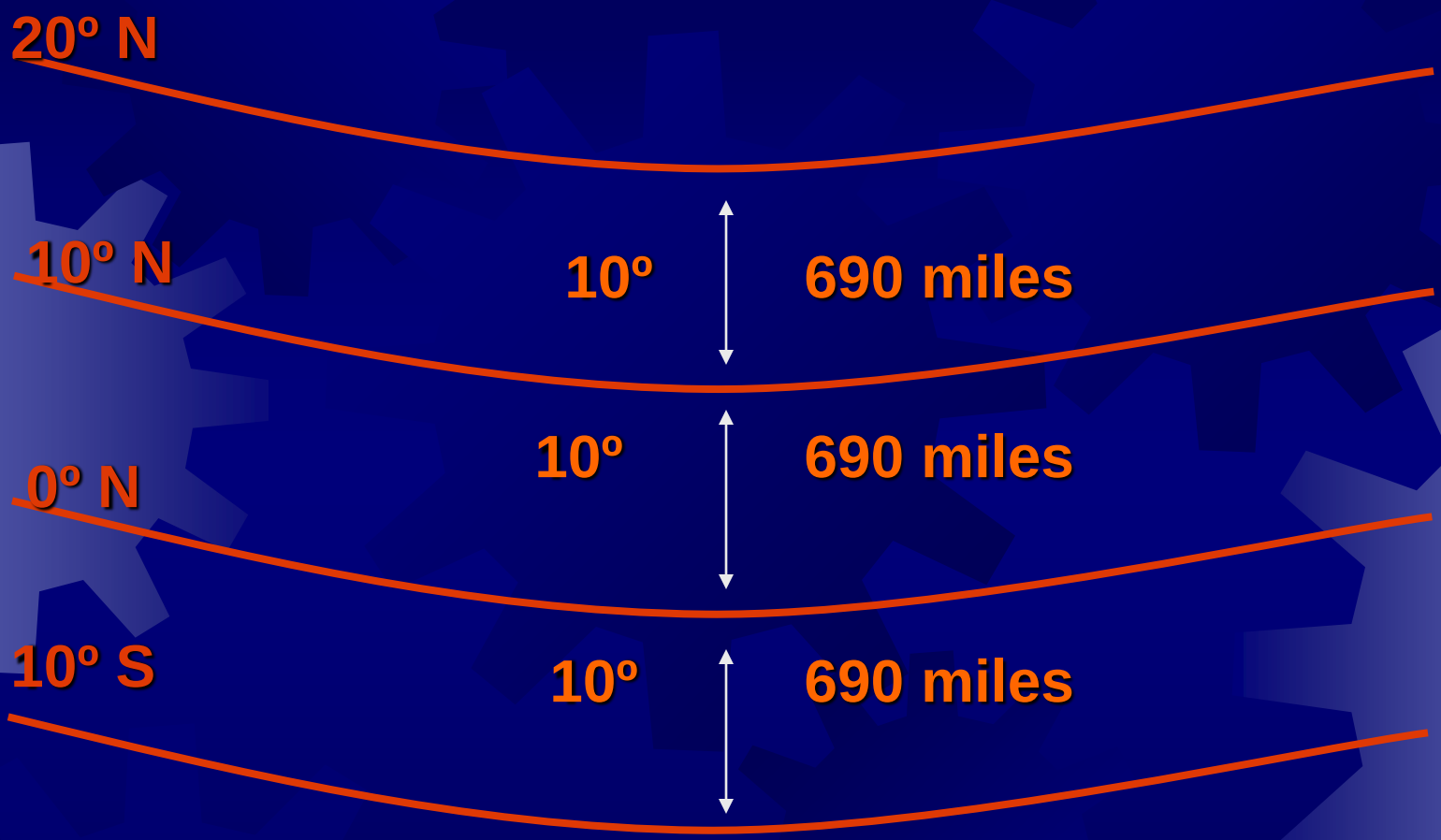
Equator
(Latitude)

Point of Origin

Latitude

- Latitude is comprised of parallels, which are equally spaced circles around the Earth paralleling the equator.
- Parallels are designated by their angle north or south of the equator (10º, 20º, etc) .
- The equator is 0º latitude, and the North and South Poles are at 90º angles from the equator.
- The linear distance between parallel (latitude) lines never changes, regardless of their position on the Earth.

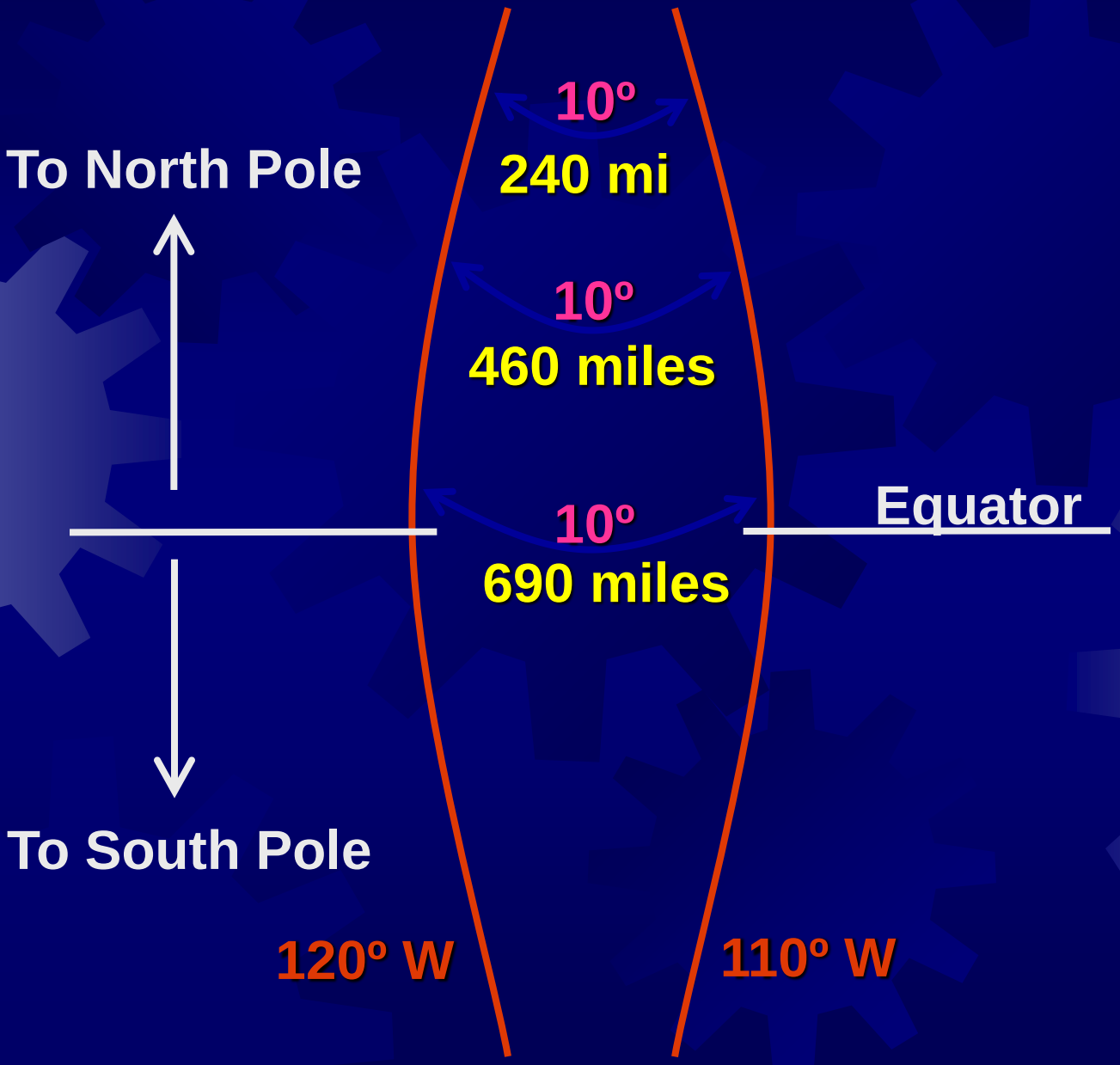
Parallels of Latitude

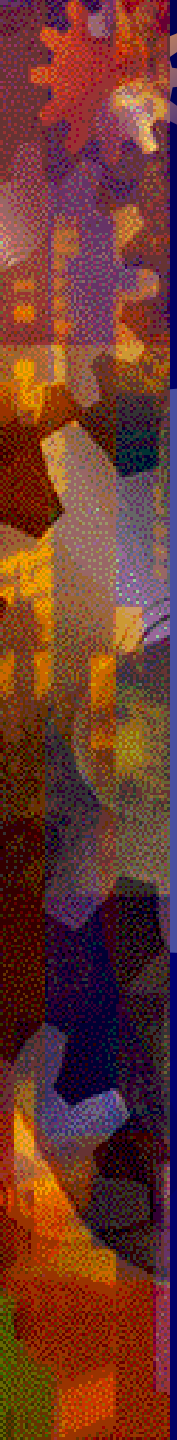


Longitude

- Longitude is comprised of meridians that form one-half of a circle, or plane.
- Meridians are designated by their angle west or east of the prime meridian.
- The Prime Meridian is designated 0º and extends from the North Pole to the South Pole through Greenwich, England.
- Meridians are angled, and so are not equidistant from each other at different points.

Meridians of Longitude





THANK YOU