10. Geographic Coordinate System

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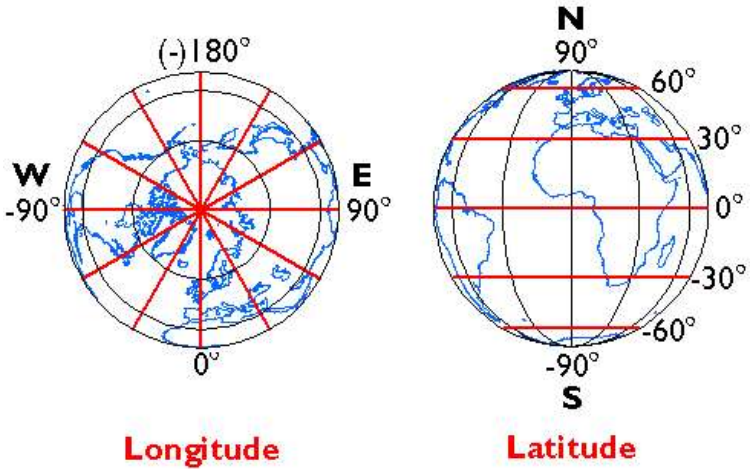

Figure 2.11.1 The geographic coordinate system.

Credit: David DiBiase

Longitude specifies positions east and west as the angle between the **prime meridian** and a second **meridian** that intersects the point of interest. Longitude ranges from +180 (or 180° E) to -180° (or 180° W). 180° East and West longitude together form the International Date Line.

Latitude specifies positions north and south in terms of the angle subtended at the center of the Earth between two imaginary lines, one that intersects the **equator** and another that intersects the point of interest. Latitude ranges from +90° (or 90° N) at the North pole to -90° (or 90° S) at the South pole. A line of latitude is also known as a **parallel**.

At higher latitudes, the length of parallels decreases to zero at 90° North and South. Lines of longitude are not parallel but converge toward the poles. Thus, while a degree of longitude at the equator is equal to a distance of about 111 kilometers, that distance decreases to zero at the poles.

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‹ 9. Coordinate Systems up 11. Geographic Coordinate Formats ›

Navigation

- login

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