What is Geography?

- Science that studies spatial relationships between "things"
- Governed by a methodological approach:
  - spatial analysis
Physical Geography is …

the spatial analysis of all physical elements and processes (i.e., systems) that make up the Earth

Systems Theory

- A methodological/philosophical approach
  - System?
  - Process?

See Focus Study 1.1 on the Scientific Method
Intro Physical Geography Topic 1

**Systems Theory**

An Open System

A Closed System
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System Theory

Negative Feedback

Positive Feedback

Mount Pinatubo—Global System Impact

The 1991 Mount Pinatubo eruption affected the Earth-atmosphere system on a global scale. Geographers and other scientists use the latest technology to study how such eruptions affect the atmosphere's dynamic equilibrium. An overview of the impacts is in Chapter 3. (Image by Steve Miller, UBC)

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Models

A = R K L S C P

Geodesy?

Science that deals with measuring the size and shape of Earth

Location, Location, Location
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**Latitude**

![Figure 1.13](image)

**Latitudinal Geographic Zones**

- Arctic: 66.5° N to North Pole
- Subarctic: 50° N to 66.5° N
- Subtropical: 30° N to 35° N
- Tropics: 23.5° N to 23.5° S
- Subtropical: 23.5° S to 30° S
- Moderate: 30° S to 60° S
- Antarctic: 60° S to South Pole

*Figure 1.14: Latitudinal geographic zones. Geographic zones are generalized areas that encompass various regions by latitude. Think of these as transitional into one another over broad areas. Listed cites: 1. Salvador, Brazil; 2. New Orleans, Louisiana; 3. Edinburgh, Scotland; 4. Marseille, Germany; and 5. Seattle, Alaska.*

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**Longitude**

![Figure 1.15](image)

**Meridians of Longitude**

- Greenwich: prime meridian
- 180° W to 180° E

*Figure 1.15: Meridians of longitude.*

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**Map Scale**

- **Representative fraction**: 1:250,000 or 1\(\frac{1}{250,000}\)
- **Graphic scale**:
  
  \[
  \begin{array}{cccccc}
  & 5 & 4 & 3 & 2 & 1 & 0 & 5 & 10 \\
  \hline
  \text{kilometres} & & & & & & & & \\
  \end{array}
  \]

- **Written scale**: One centimetre equals 2.5 kilometres

Indicates the amount of reduction

**The Right Scale**

1:250,000  
1:50,000

**Projecting a Globe on to a Flat Map**

*Figure 1.29: From globe to flat map. Conversion of the globe to a flat map projection requires the use of a mathematical device and the amount of distortion that is acceptable.*

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Types of Projections
Lambert Conic Conformal Projection

Types of Projections
Albers Equal-Area Projection
Types of Projections

Equidistant Cylindrical Projection

CLSS

Township (Canadian)
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UTM Coordinate System

Transverse Mercator Projection
Contour Lines

A special type of isarithmic line; indicate constant value
Remote Sensing

Collection and analysis of information without direct contact

What does a RS system consist of?

Passive vs. active

Advantages?
Geographic Information Systems

A computer systems for managing, analyzing, and displaying spatial information

Map and attribute info

Advantages?
**GNSS**

Satellite based navigation system

What is it made up of?

How does it work?

Sources of error include: