

Biogeography. Lecture 3

Alexey Shipunov

Minot State University

January 24, 2014



Outline

Physical geography

- Basics of geodesy

- Basics of climatology



Main parts of Earth: horizontal

- ▶ Lake Chad
- ▶ Sea of Marmara
- ▶ Different approaches to oceans
- ▶ Straits and currents
- ▶ Lakes and rivers
- ▶ Mountains and depressions



Physical geography

Basics of geodesy

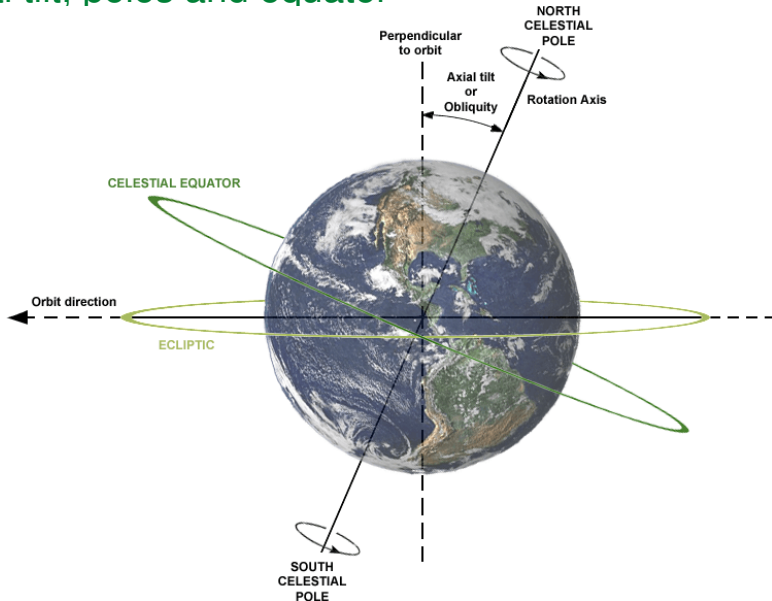


Basics of geodesy

- ▶ Axial tilt
- ▶ Equator
- ▶ Poles (and magnetic poles)
- ▶ Tropics
- ▶ Arctic circles
- ▶ Longitude and latitude, prime meridian and international date line
- ▶ Time zones and UTC
- ▶ Hemispheres



Axial tilt, poles and equator



180° Meridian, Taveuni, Fiji



Physical geography

Basics of climatology

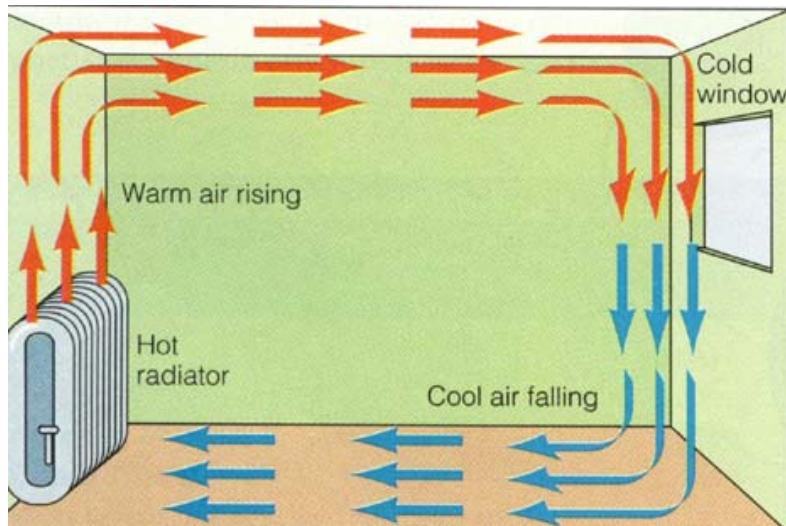


Atmospheric circulation

- ▶ High pressure and low pressure zones, cyclones and anticyclones
- ▶ Circulation cells
- ▶ Trade winds and westerlies
- ▶ Horse latitudes and zone of convergence



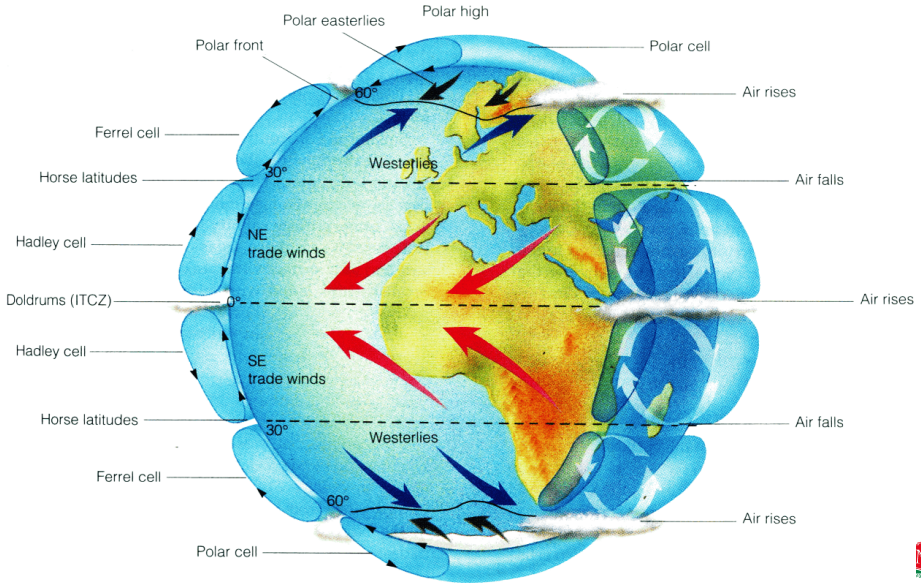
Circulation in a room



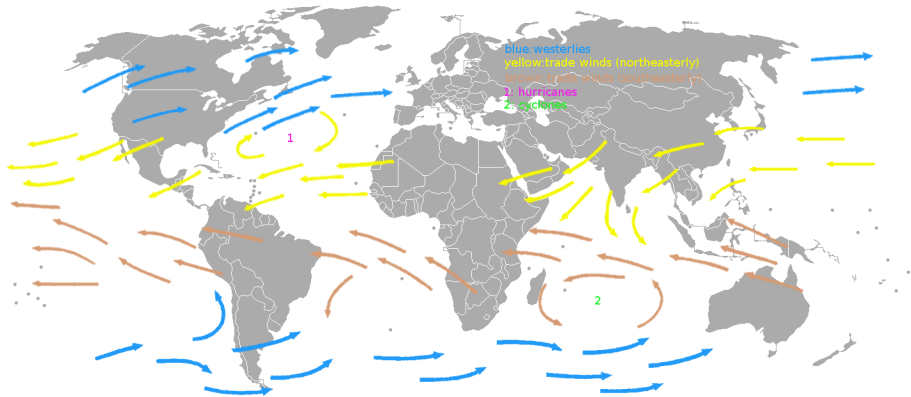
Idealized atmospheric circulation on Earth



Idealized atmospheric circulation on Earth (with labels)



Prevailing winds

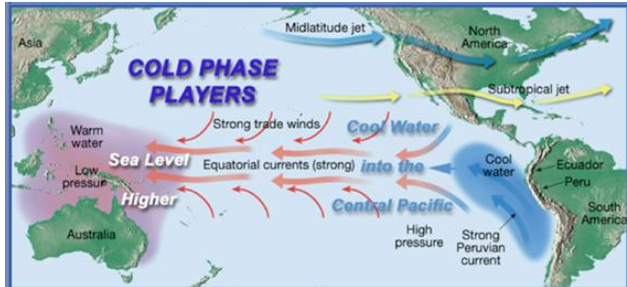


El Niño: climatic oscillation

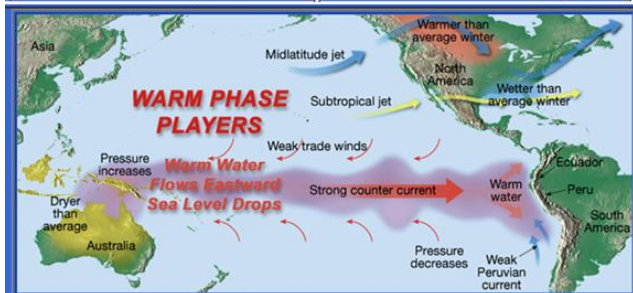
- ▶ Sometimes, western warm currents change atmospheric circulation in East Pacific
- ▶ They will bring wet and warm weather, mostly damaging to the living organisms from western North and South America (adapted to low precipitation)



La Niña *versus* El Niño



Normal
Situation



El Niño
Situation



Seasons and climates

- ▶ Temperature seasons: axial, not orbital effects
- ▶ Tropical wet seasons (monsoons) are related with temperature seasons and circulation



Summary

- For biogeography, the most important geographical sciences are geodesy, climatology and palaeogeography.



For Further Reading



A. Shipunov.

Biogeography [Electronic resource].

2014—onwards.

Mode of access:

http://ashipunov.info/shipunov/school/biol_330



Major circles of latitude.

http://en.wikipedia.org/wiki/Circle_of_latitude



Atmospheric circulation.

http://en.wikipedia.org/wiki/Atmospheric_circulation

