

Biogeography. Lecture 3

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Outline

Basics of physical geography

- Main categories

- Basics of geodesy

- Basics of climatology



Basics of physical geography

Main categories

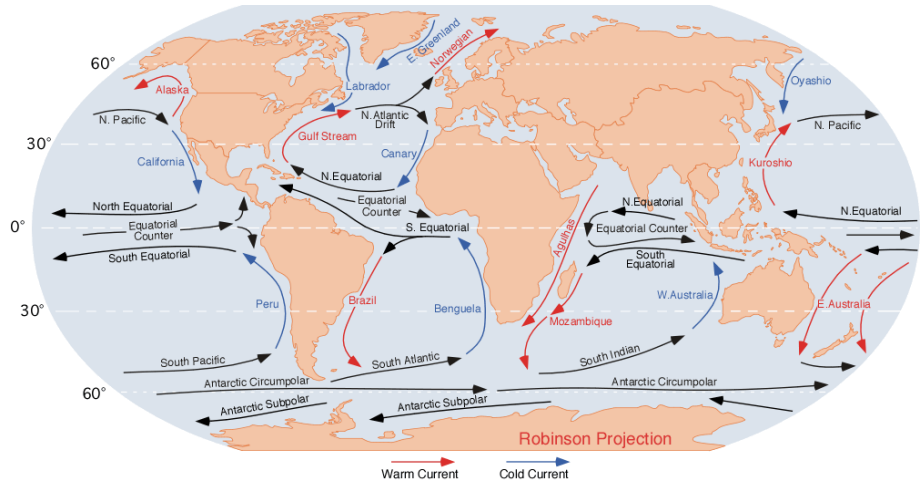


Main parts of Earth: horizontal

- ▶ Continents and islands: Greenland criterion, Panama isthmus, isthmus of Suez, Europe-Asia border (Sea of Marmara – Black Sea – North Caucasus – Caspian Sea – River Ural – Ural mountains); Madagascar, Indonesian archipelago
- ▶ Oceans and seas: Arctic ocean criterion, different approaches, Tethys traces (Mediterranean, Marmara, Black, Caspian and Aral seas)
- ▶ Lakes and rivers: Great Lakes, Great African lakes, Baikal, Lake Eyre, Lake Chad
- ▶ Mountains and depressions: Himalayan ridge, Andes and Cordilleras, European ridges, Puerto Rico depression, Mariana trench
- ▶ Straits and currents: Gibraltar, Torres and Magellan straits; Gulf stream, Labrador and North Pacific current, equatorial currents, Antarctic circumpolar current



Ocean currents



Basics of physical geography

Basics of geodesy

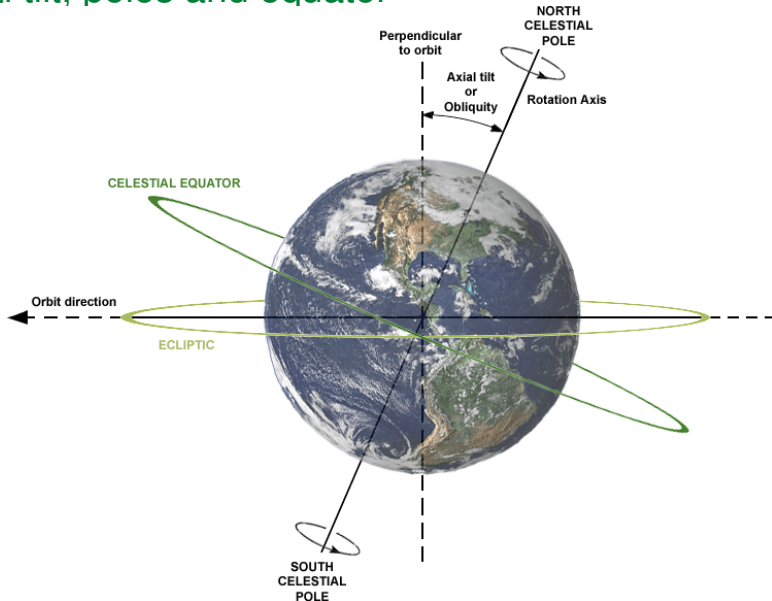


Basics of geodesy

- ▶ 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



Basics of physical geography

Basics of climatology

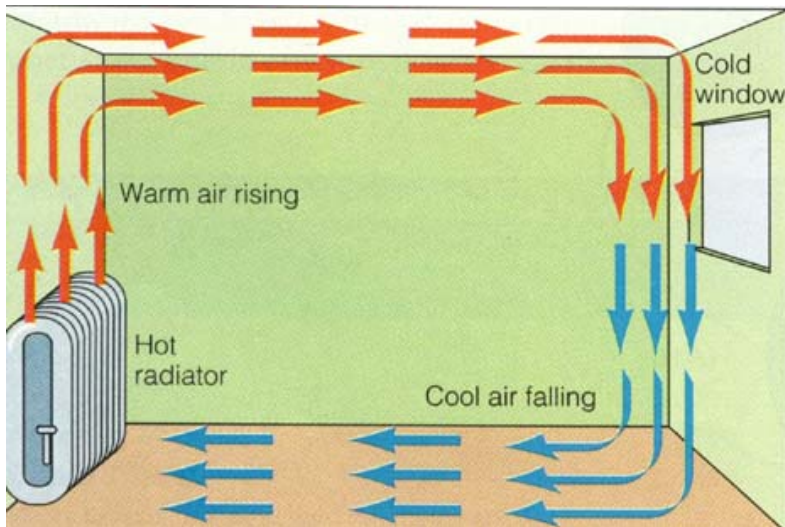


Atmospheric circulation

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



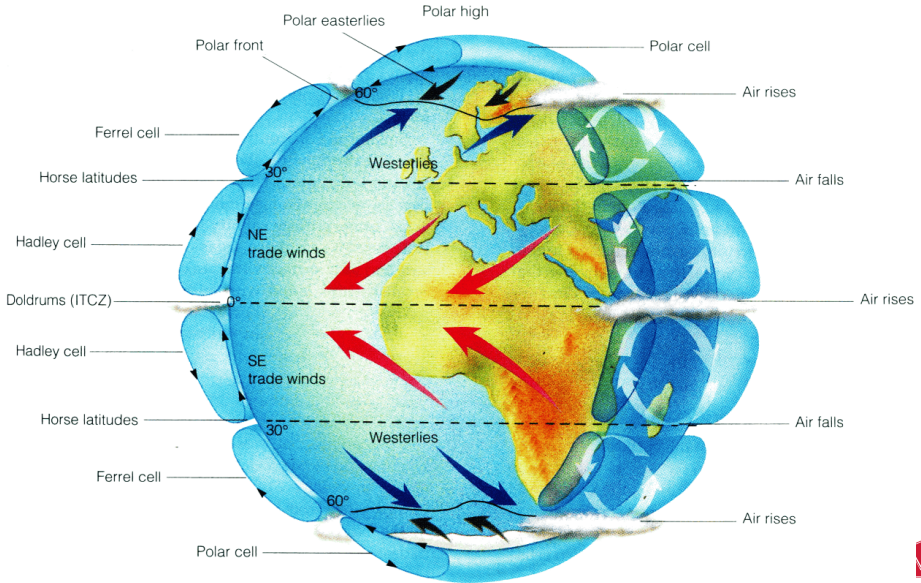
Circulation in a room



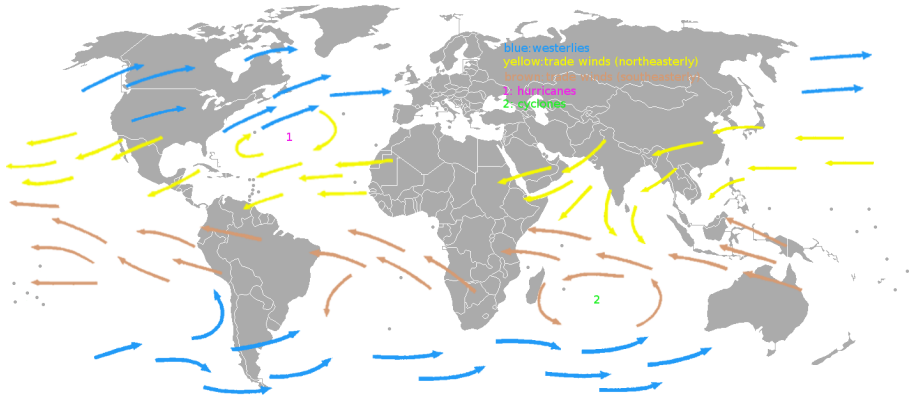
Idealized atmospheric circulation on Earth



Idealized atmospheric circulation on Earth (with labels)



Prevailing winds



El Niño: climatic oscillation

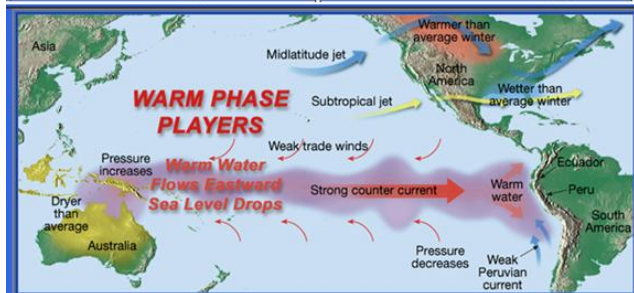
- ▶ Sometimes, western warm currents change atmospheric circulation in East Pacific
- ▶ They will bring wet and warm weather, mostly damaging to the living organisms from western North and South America (adapted to low precipitation)



La Niña *versus* El Niño



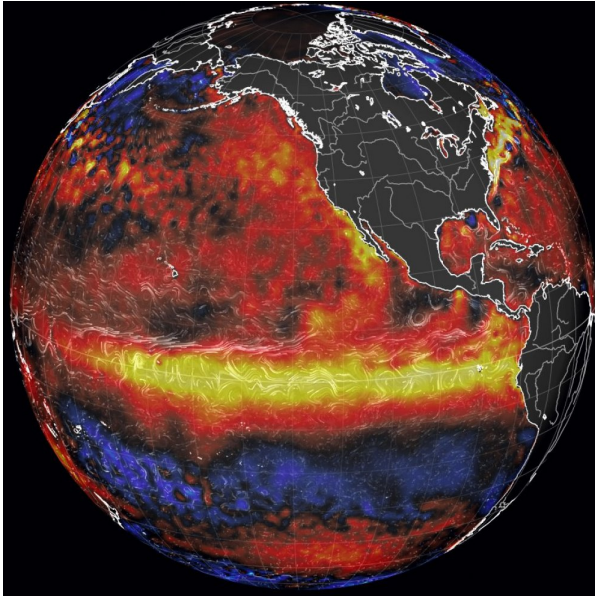
Normal
Situation



El Niño
Situation



El Ninjo-2016



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

