

Biogeography. Lecture 3

Alexey Shipunov

Minot State University

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Outline

Basics of physical geography

- Main categories

- Basics of geodesy

- Basics of climatology



Basics of physical geography

Main categories

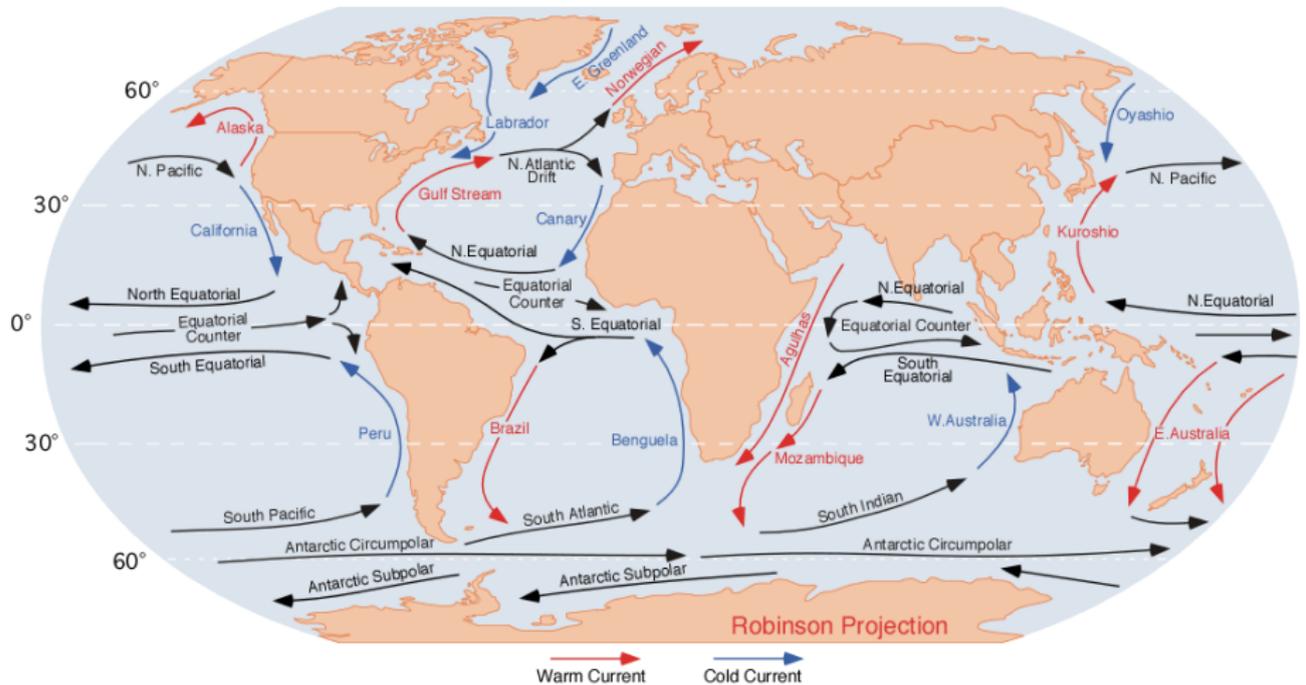


Main parts of Earth: horizontal

- ▶ 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

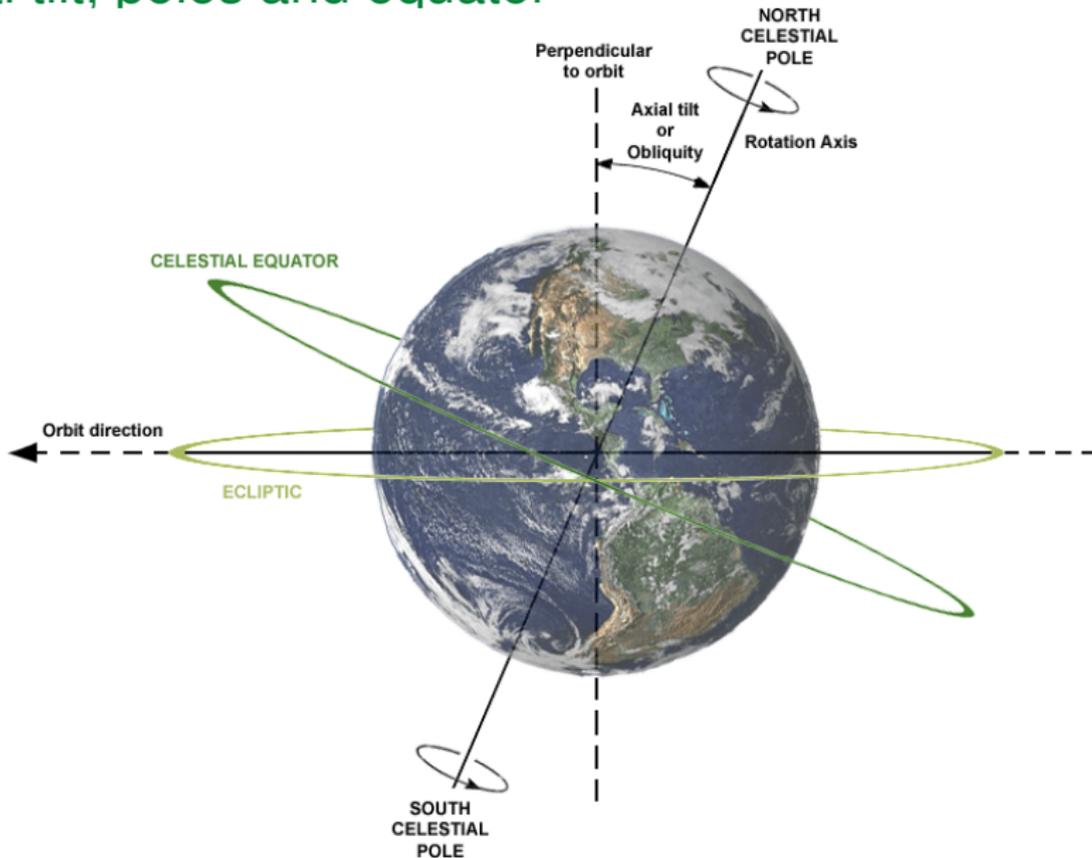


Basics of geodesy

- ▶ 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

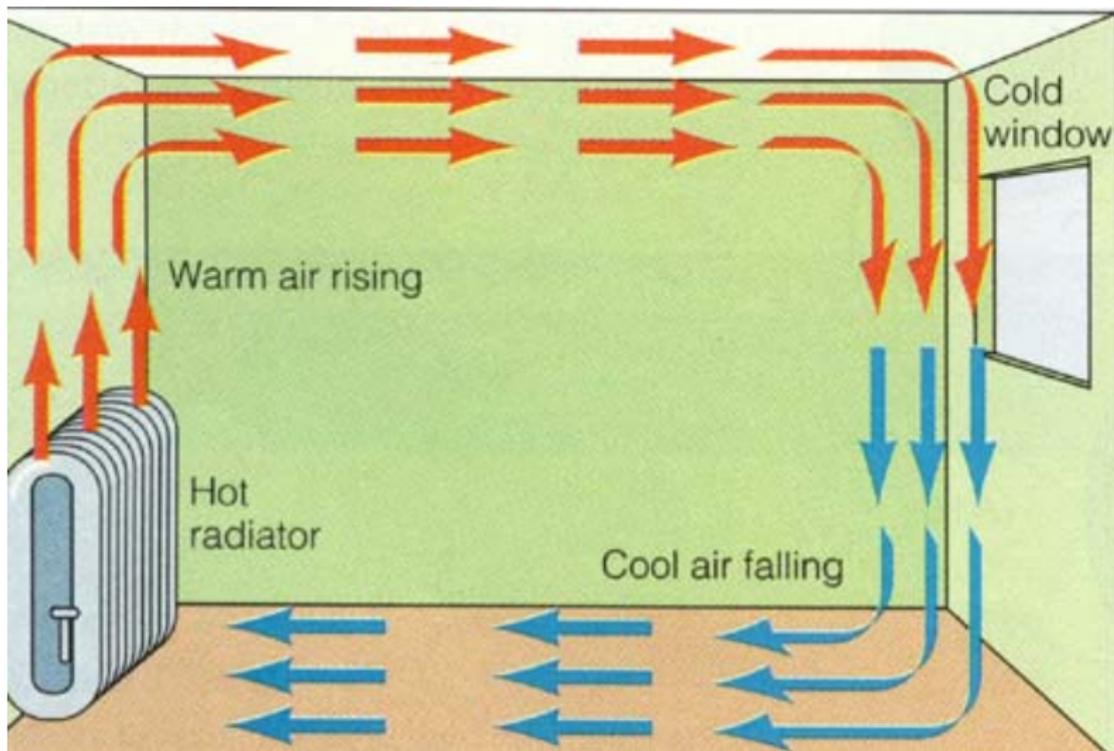


Atmospheric circulation

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



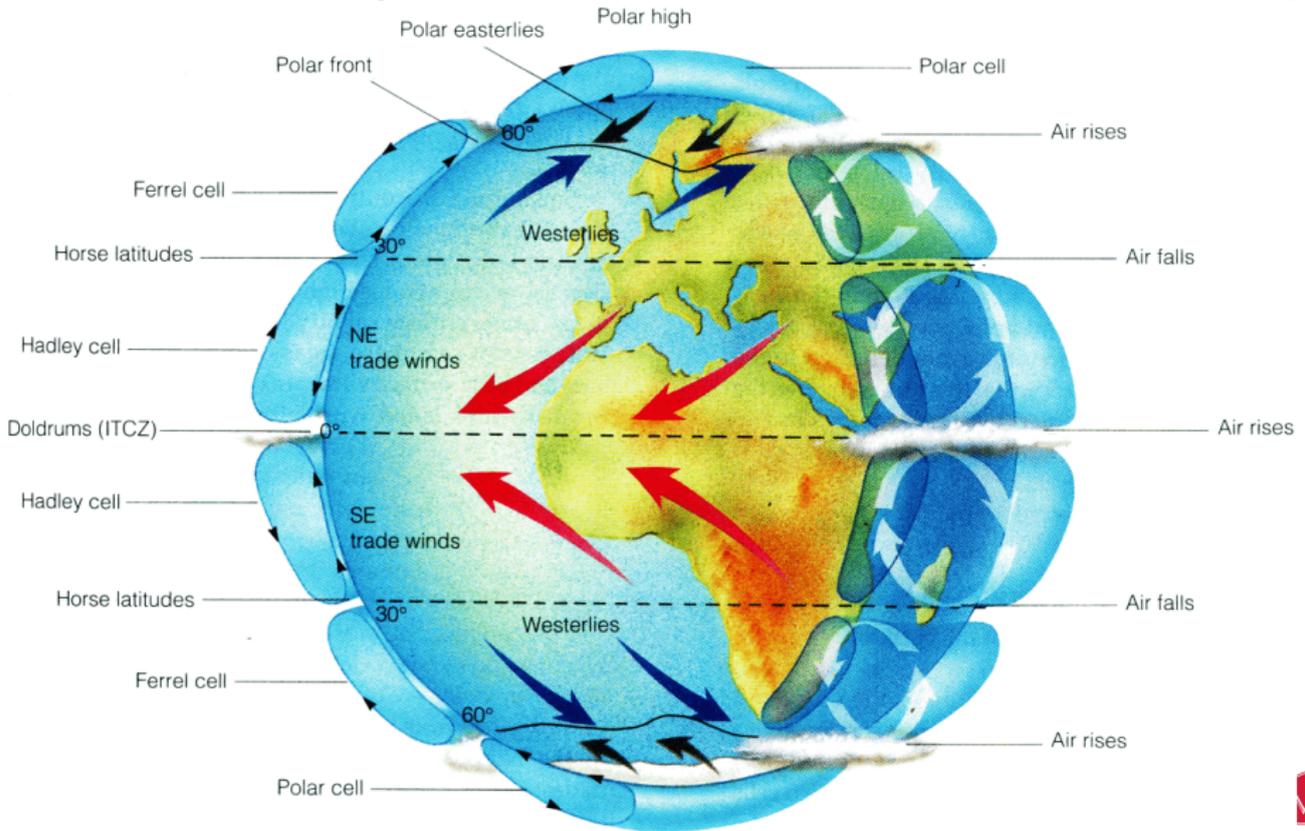
Circulation in a room



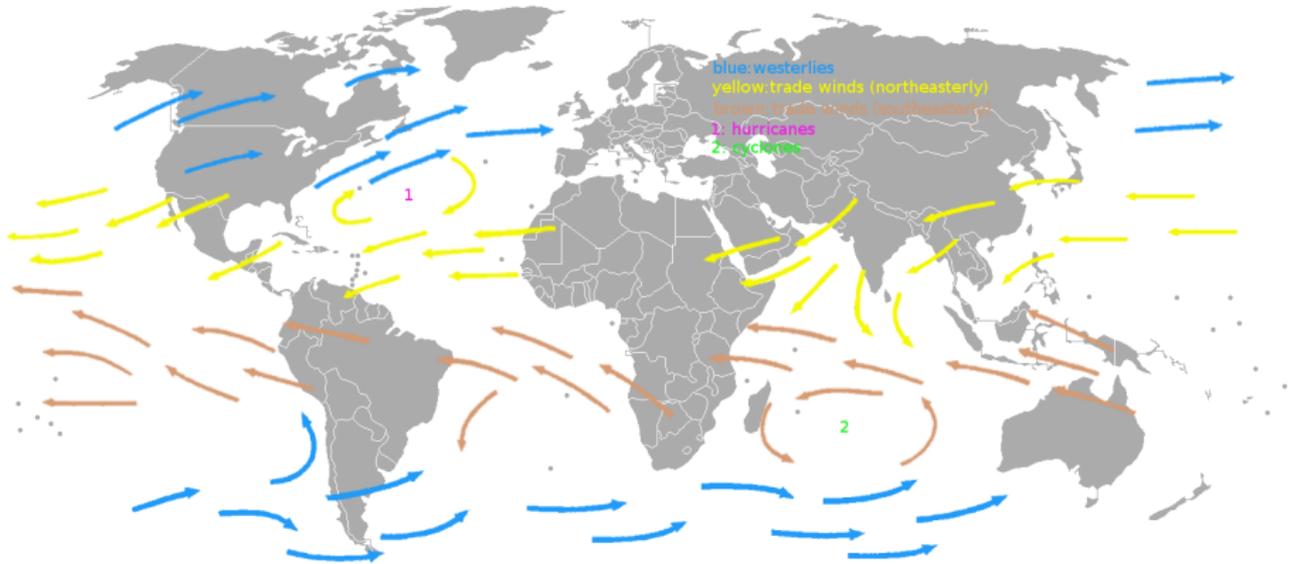
Idealized atmospheric circulation on Earth



Idealized atmospheric circulation on Earth (with labels)



Prevailing winds



El Niño: climatic oscillation

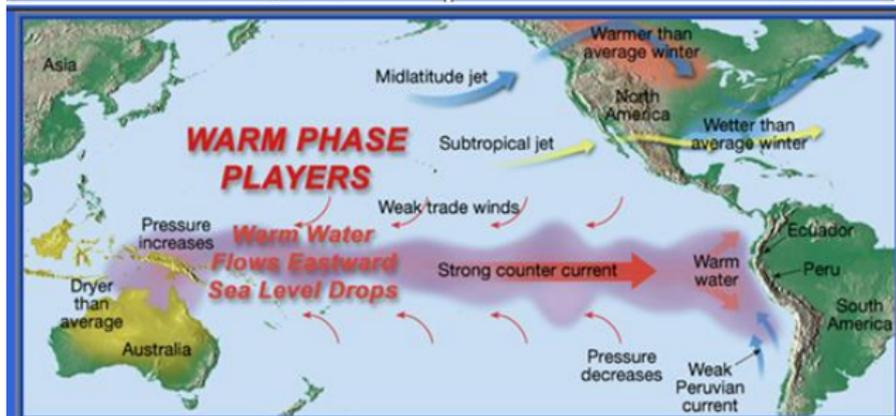
- ▶ Sometimes, western warm currents change atmospheric circulation in East Pacific
- ▶ They will bring wet and warm weather, mostly damaging to the living organisms from western North and South America (adapted to low precipitation)



La Niña versus El Niño



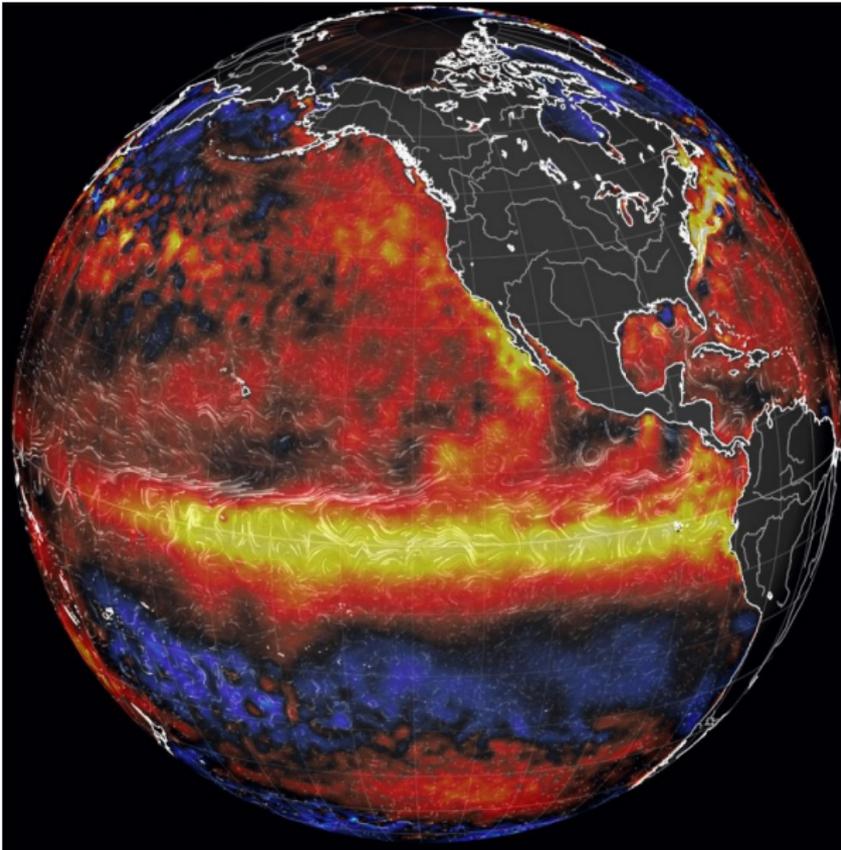
Normal
Situation



El Niño
Situation



El Niño-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:](http://en.wikipedia.org/wiki/Atmospheric_circulation)

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