



Sherlocking Prelims



Geography Concepts



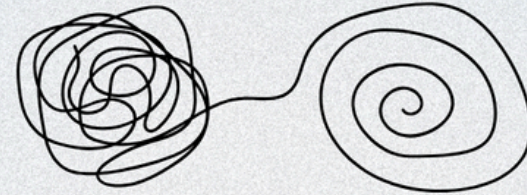
Unlock IAS Presents

Sherlocking Prelims Modules



- PYQs-centered module(s) (2011 onwards for GS, 2018 onwards for CSAT)
- Individual Modules available for - History, Geography, Environment, Science & Tech, Polity, Heuristics, CSAT
- Regular live doubt sessions for all modules.

Done with basics but not able to clear Prelims/apply the knowledge?



The Sherlocking Prelims Module(s) will help you **rewire your approach** - teaching you to **leverage common sense** and foundational knowledge



AIR 14 (2023) on 'Sherlocking'

“ I was unable to clear my first Prelims attempt in CSE 2022. A major change in strategy took place after I came across Neil sir's 2022 Prelims Sherlocking video on YouTube the next year and it taught me how to properly analyze PYQ's the right way and identify themes, patterns and Heuristics. ”



AIR 230 (2023) on 'Sherlocking'

Ricky Lohkar Pradhan
@neilcantbirdwahtch thanks a lot for the Sherlocking course. I really could not have cleared prelims if not for Sherlocking. 11:03 AM



Neil
(Founder, Unlock IAS)
HCS (2021, Rank 93)

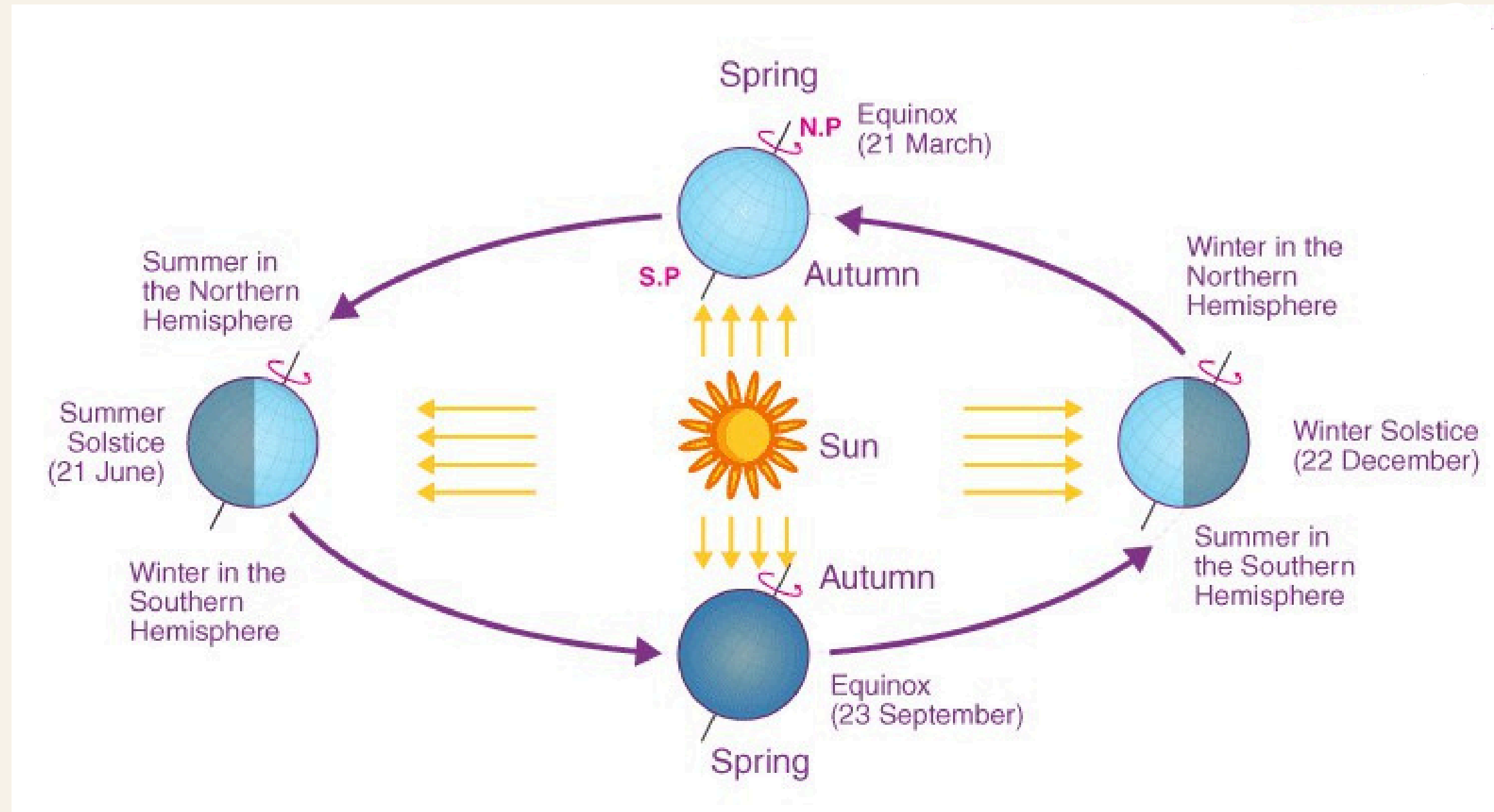
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FREE!

Interested? Contact @helpdeskupsc on Telegram for all module-related queries.

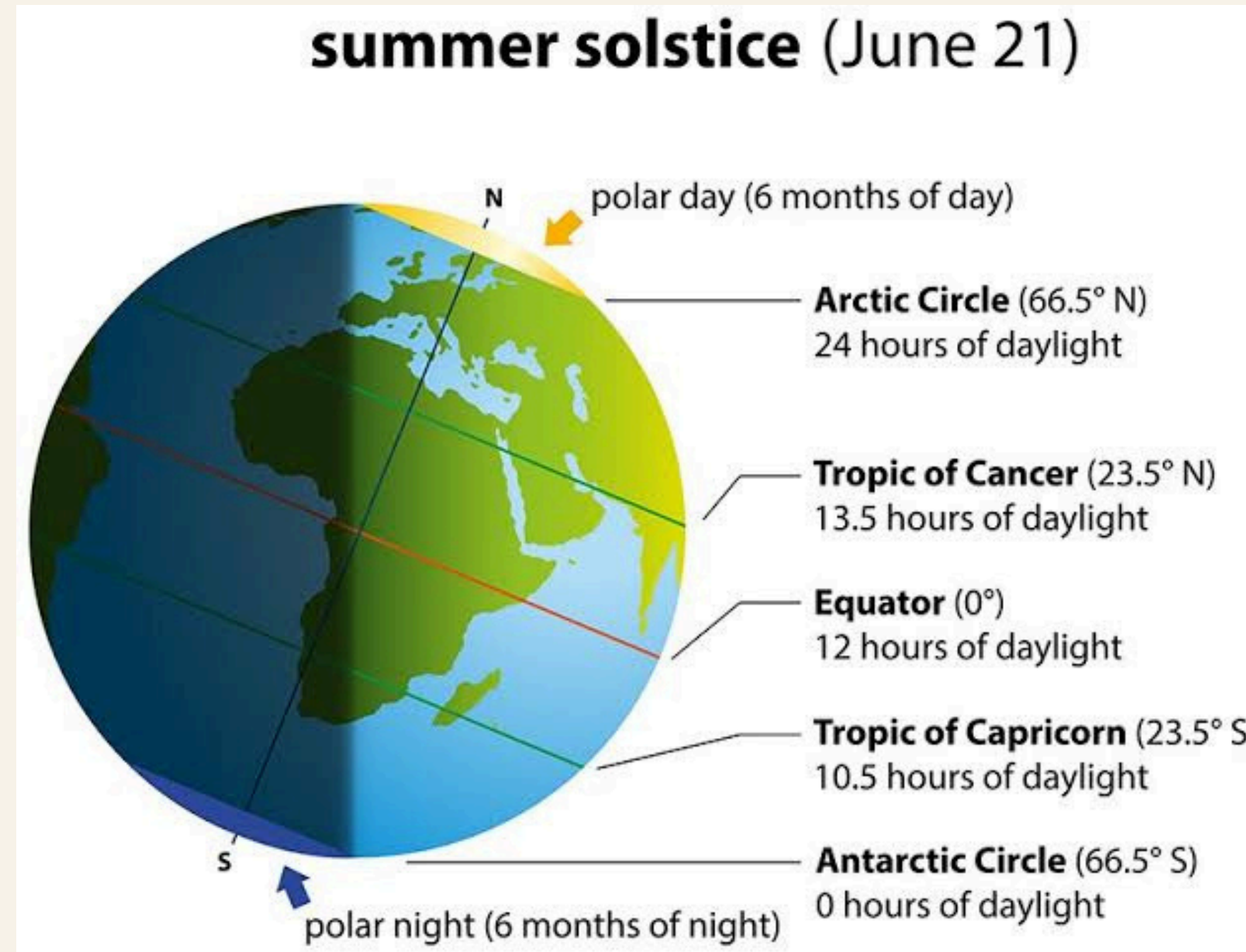


Solstices & Equinoxes



Solstices (June 21 & Dec 22): Longest/shortest day due to maximum/minimum tilt.

Equinoxes (March 21 & Sept 23): Equal day & night as the Sun is directly over the equator.



Poles (66.5° N/S): Experience six months of daylight and six months of darkness due to Earth's axial tilt.

Equatorial Regions (0° Latitude): Receive almost equal daylight year-round due to minimal variation in solar angle.



Seismic Waves

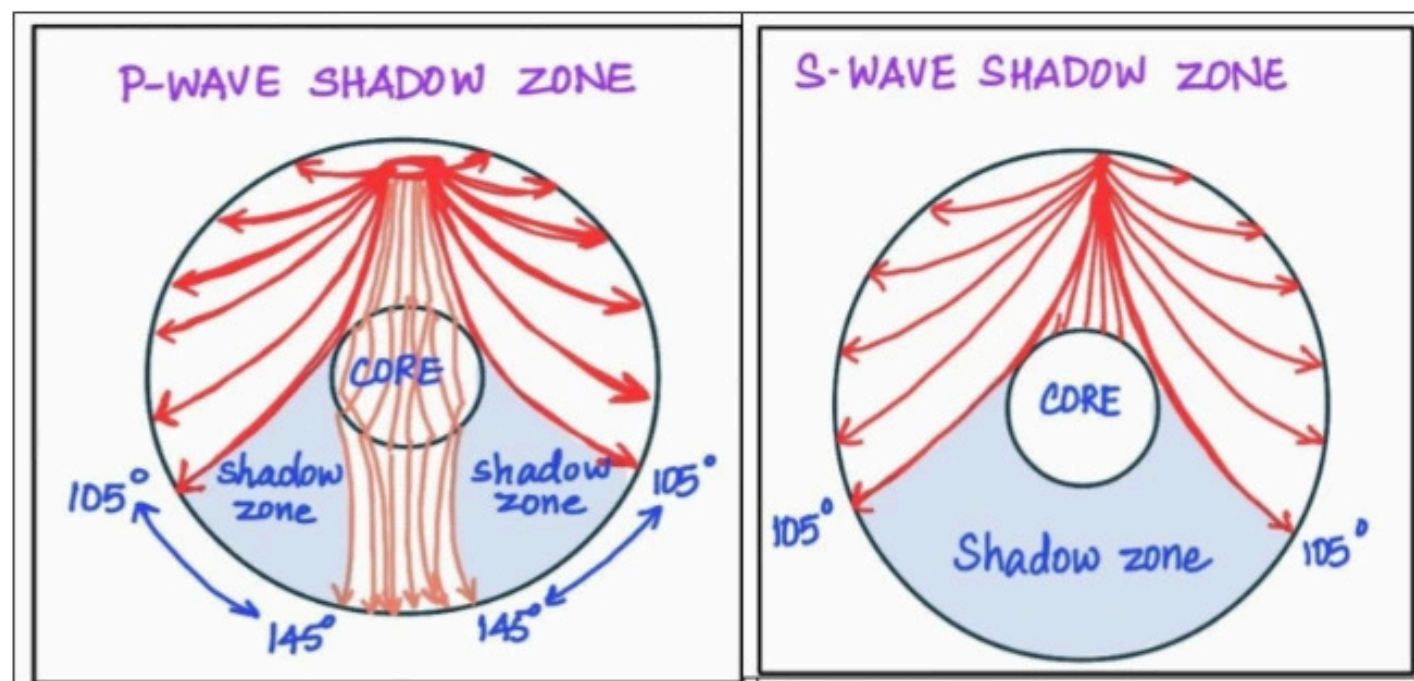


Figure . : P-Wave and S-Wave Shadow Zone

P-waves

- First to arrive at surface- Primary waves
- Vibrate parallel to the direction of propagation of wave
- Less destructive
- These can travel through all mediums- Solid, liquid, gas.
- These are compressional waves.

S-waves

- Arrive at surface with some time lag- Secondary waves
- Vibrate perpendicular to the direction of propagation of wave
- More destructive
- These can travel only through solids.
- Causes displacement of rocks and collapse of structure



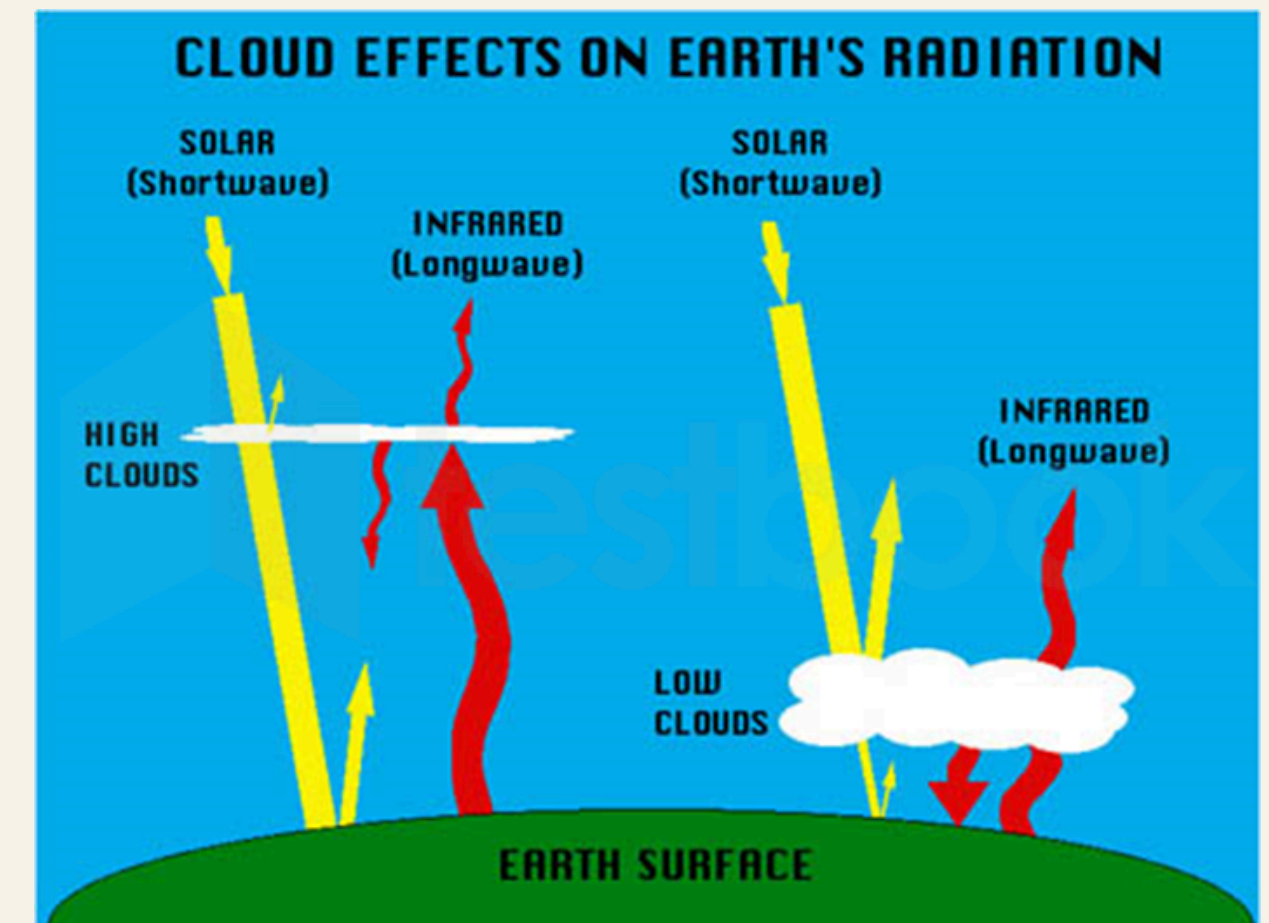
Clouds Effect on Earth's Radiation

Shortwave Radiation (Solar Energy): Enters Earth's atmosphere; part is absorbed, and part is reflected by clouds.

Longwave Radiation (Infrared Heat): Earth's surface emits heat, which clouds can trap (warming effect) or reflect back (cooling effect).

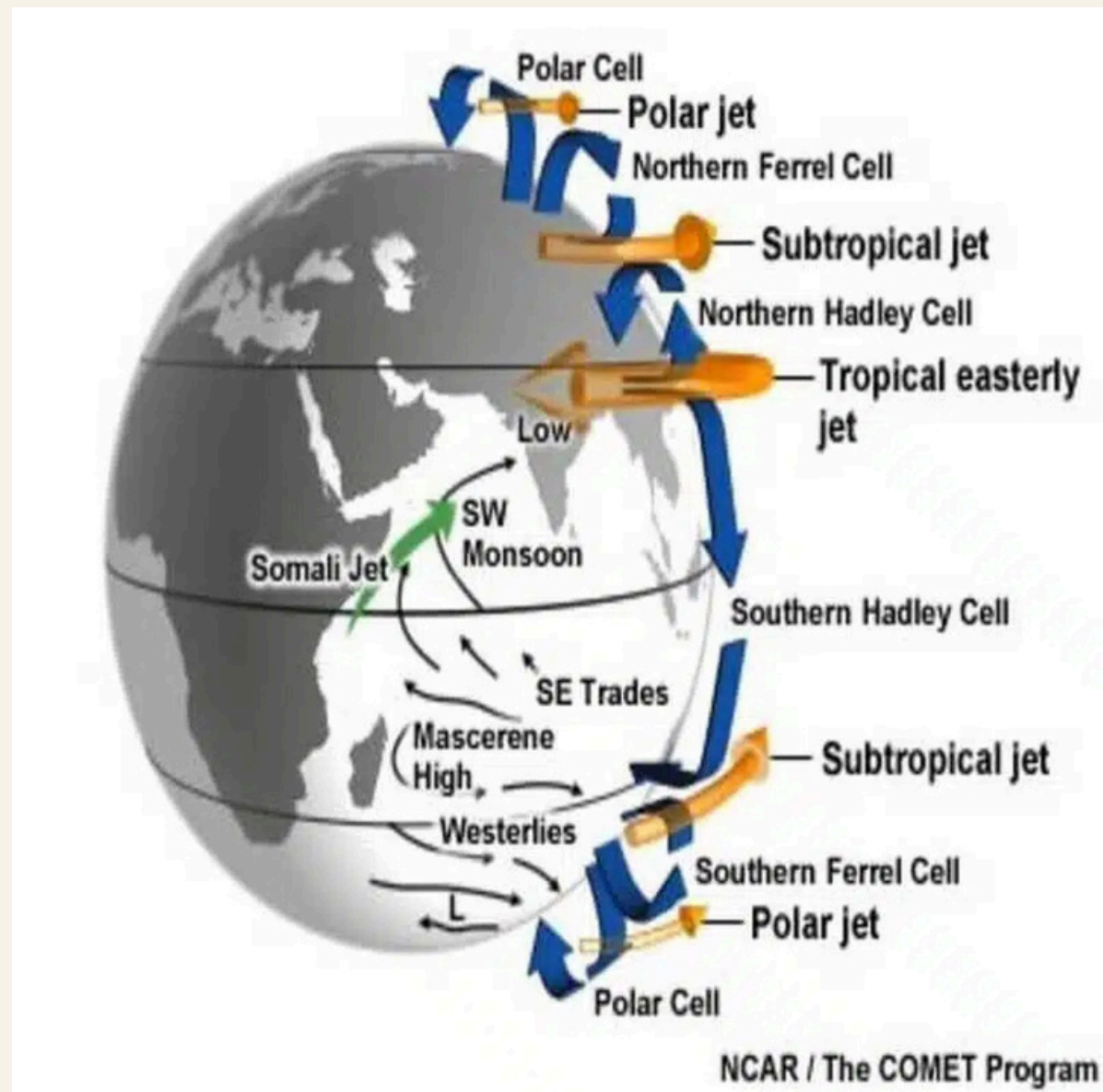
High Clouds (Cirrus): Trap heat, increasing greenhouse effect.

Low Clouds (Stratus, Cumulus): Reflect sunlight, cooling the surface.





Atmospheric Circulation



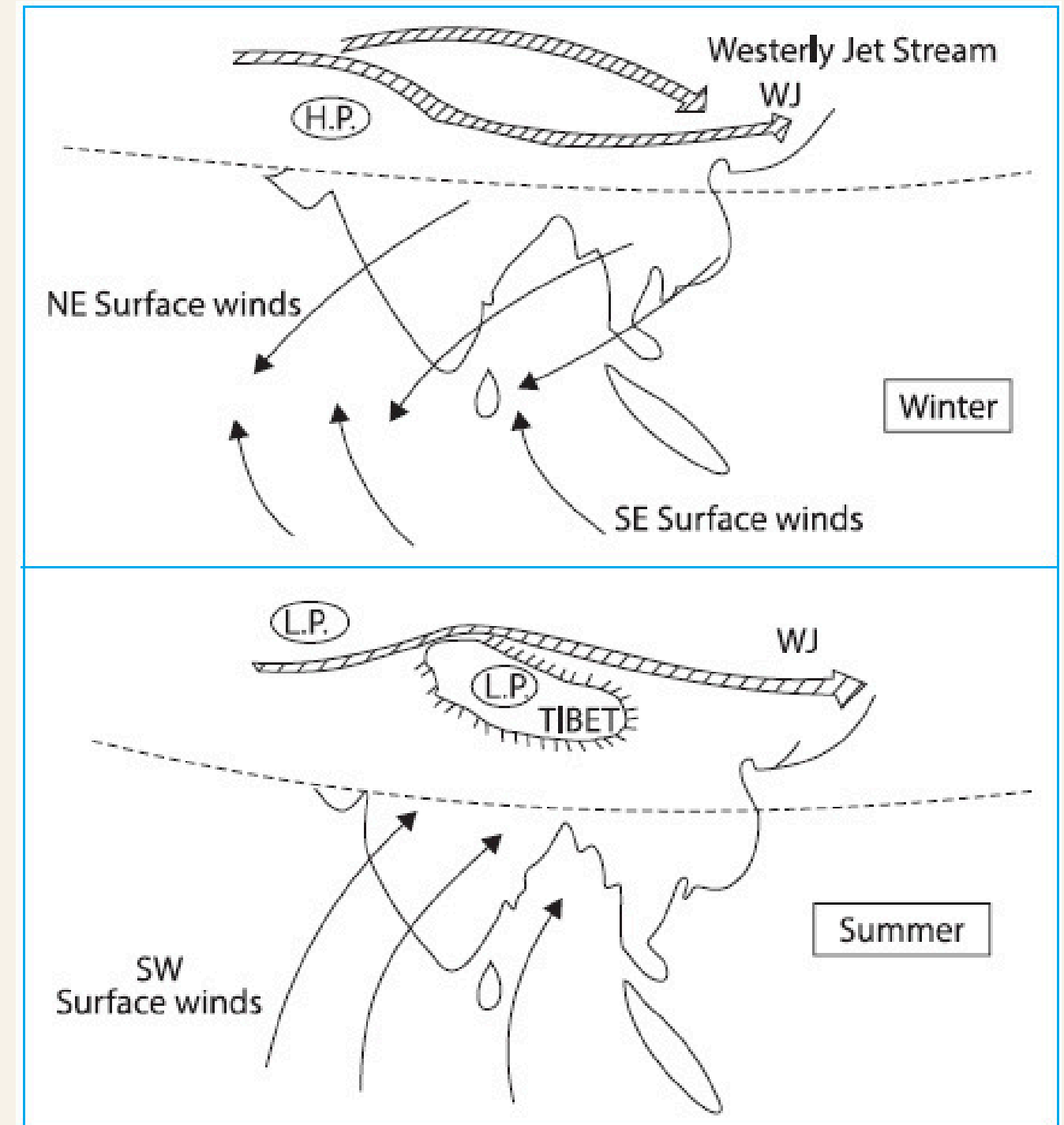
- Three major circulation cells—Hadley, Ferrel, and Polar cells—regulate global wind patterns.
- Polar Jet, Subtropical Jet, and Tropical Easterly Jet influence weather patterns, cyclones, and monsoons.
- Somali Jet strengthens southwest monsoons, aiding India's rainfall.
- Wind circulation affects El Niño and La Niña events.



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Jet Streams

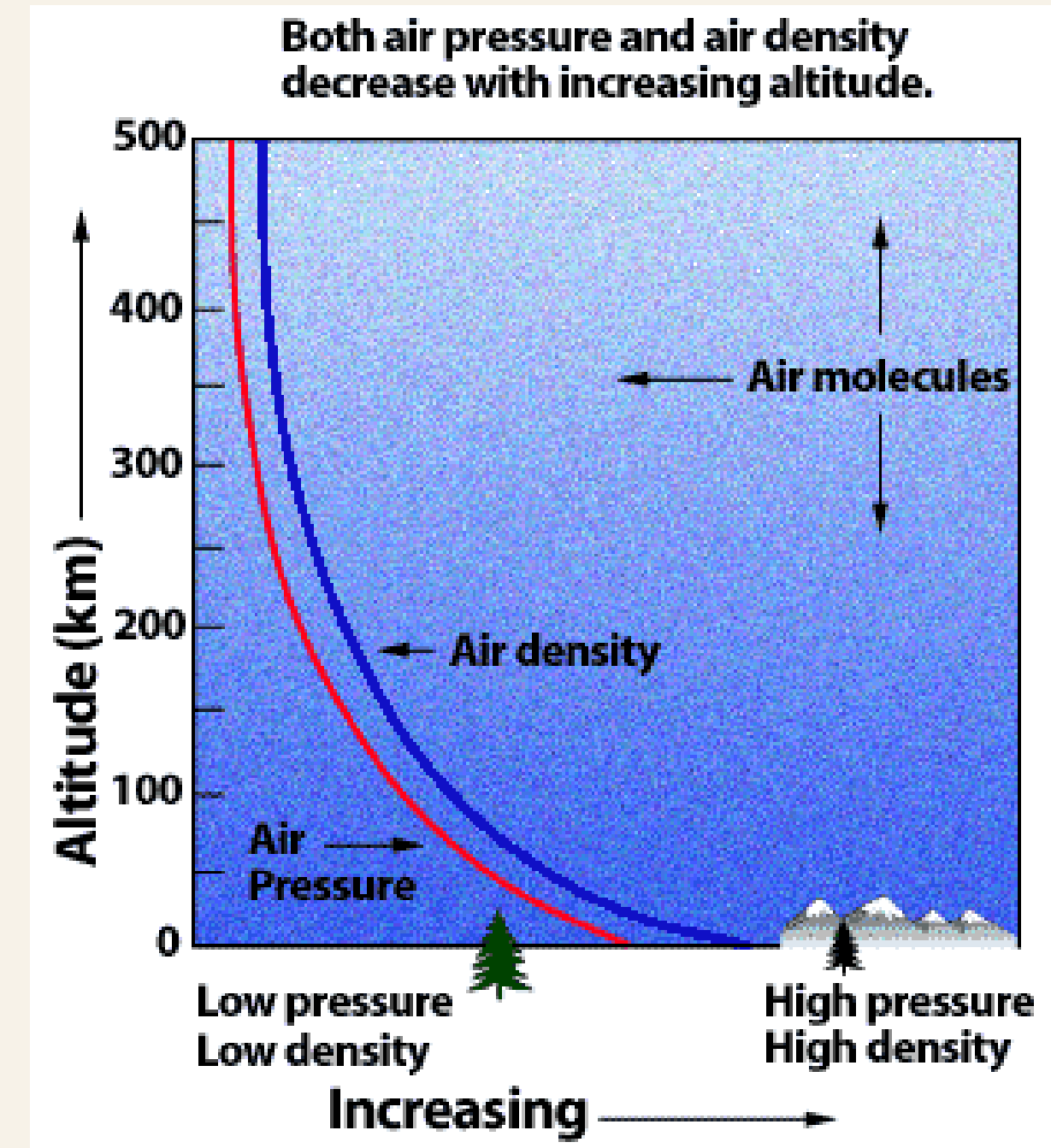
- Tropical Easterly Jet (TEJ) strengthens the southwest monsoon by intensifying low-pressure systems, while its weakening leads to monsoon failure and drought.
- Subtropical Westerly Jet (SWJ) dominates winters, bringing Western Disturbances (WDs) essential for rabi crops in North India. southward shift of Subtropical Westerly Jet (SWJ) delays monsoon onset, affecting agriculture.





Altitude, Pressure and Density

- **Altitude vs. Pressure & Density:** Air pressure and density drop with altitude due to weaker gravity.
- **High vs. Low Altitudes:** Low altitudes have dense, high-pressure air; high altitudes have thin, low-pressure air.





Temperate Cyclone

- **Temperate Cyclone Structure:** Forms at mid-latitudes where warm and cold air masses meet, creating distinct warm and cold fronts.

- **Cold Front Impact:** Steep boundary lifts warm air rapidly, causing heavy showers and cumulonimbus clouds.

- **Warm Front Impact:** Gradual lifting of warm air over cold air results in stratus clouds and light to moderate rain.

- **Cyclone Movement:** Moves west to east, steered by westerlies, influencing weather patterns in temperate regions.

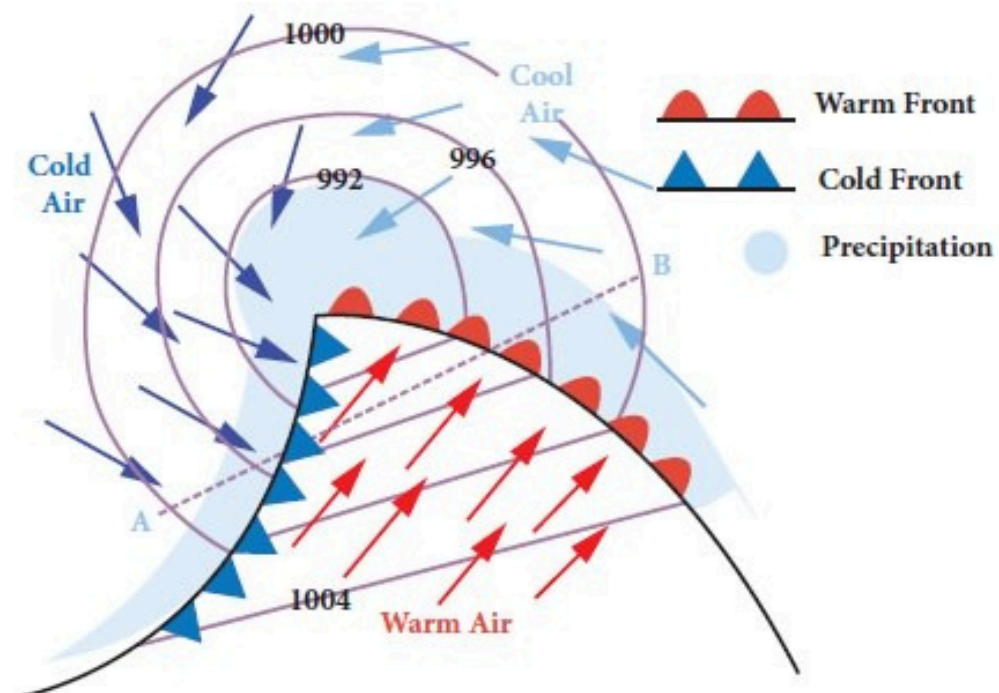
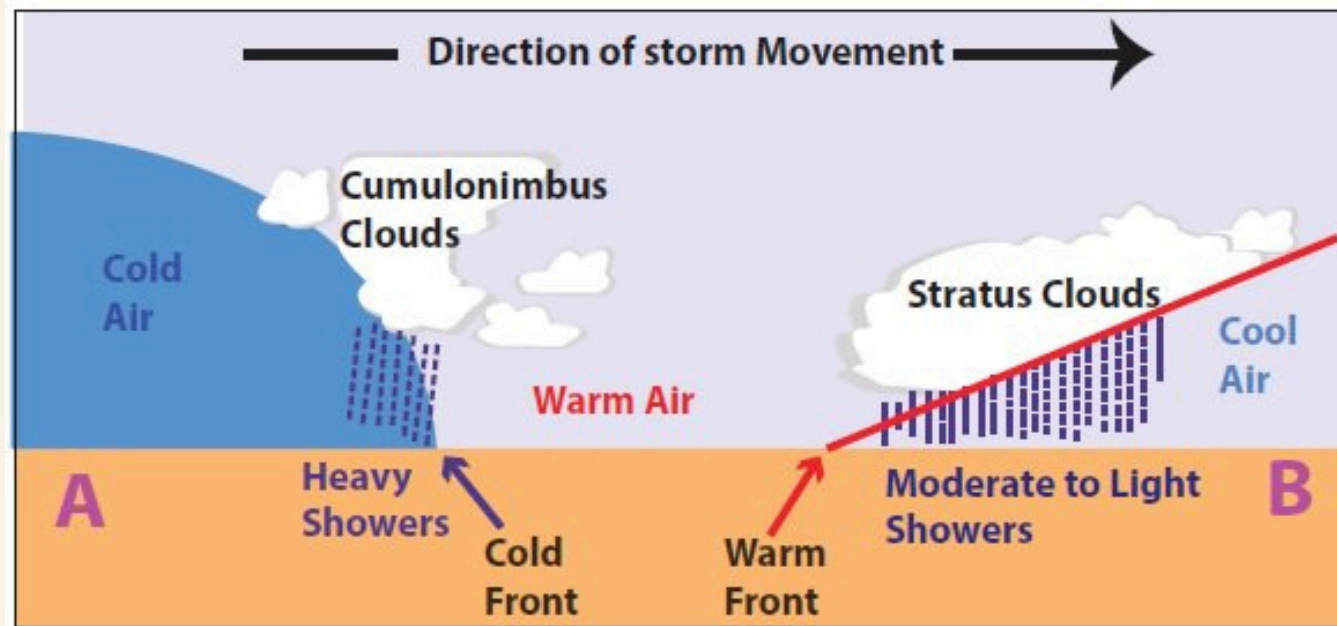
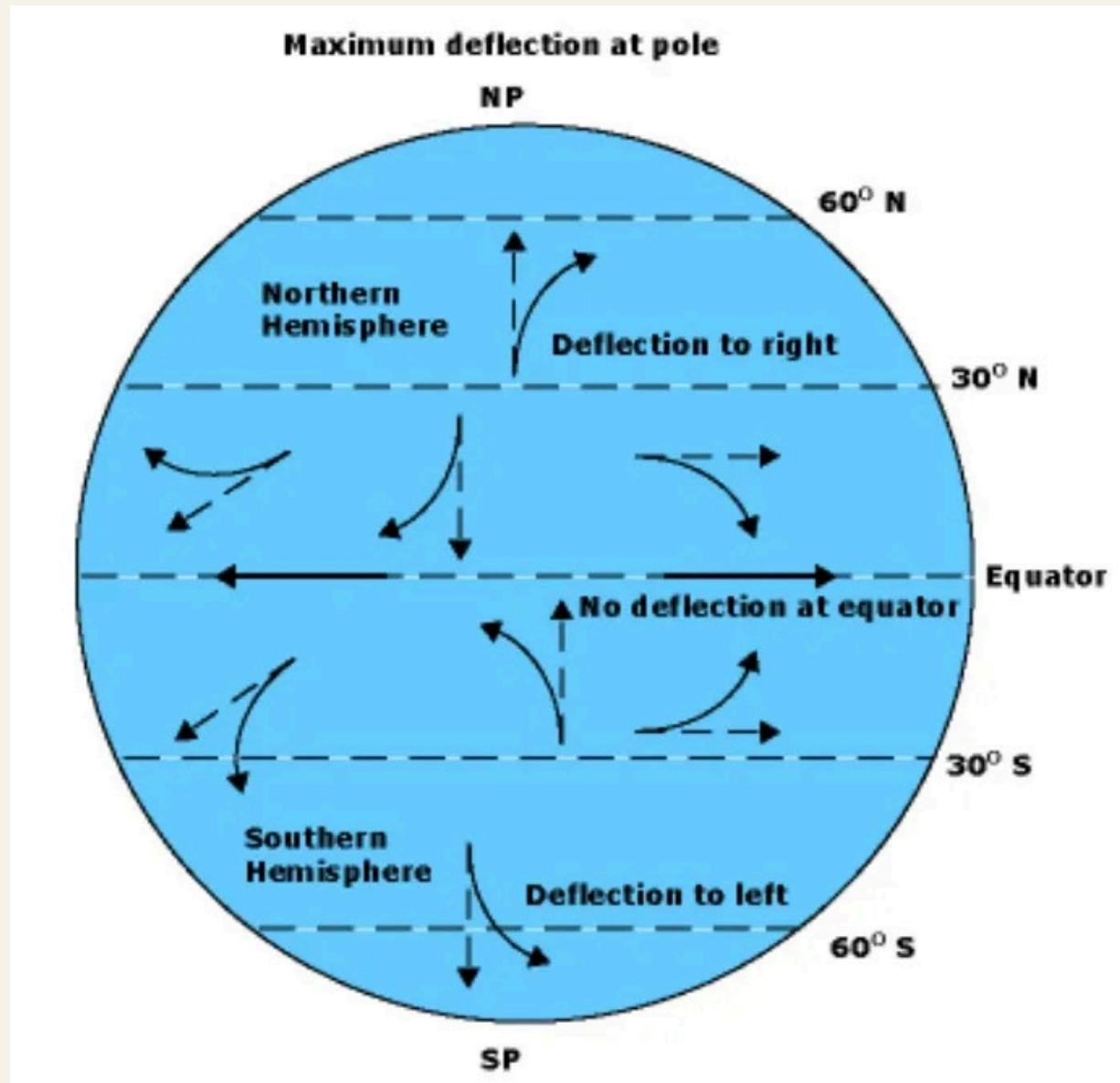


Figure 6.37 Sector structure of Temperate cyclone



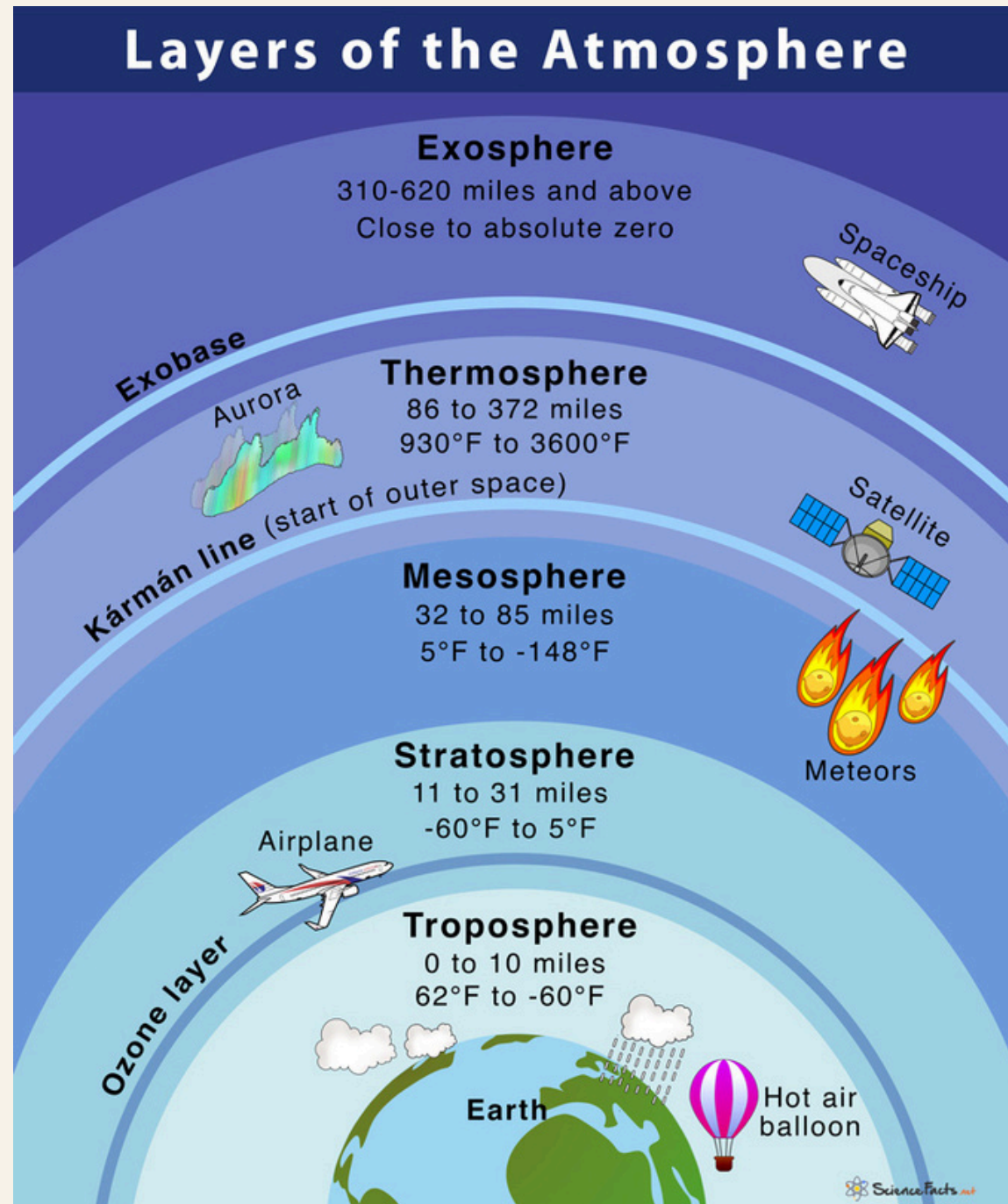
Coriolis Force



- **Coriolis Effect:** Earth's rotation causes moving air and water to deflect –right in the Northern Hemisphere and left in the Southern Hemisphere.
- **Deflection Variation:** Maximum at poles, absent at the equator, influencing wind and ocean currents.



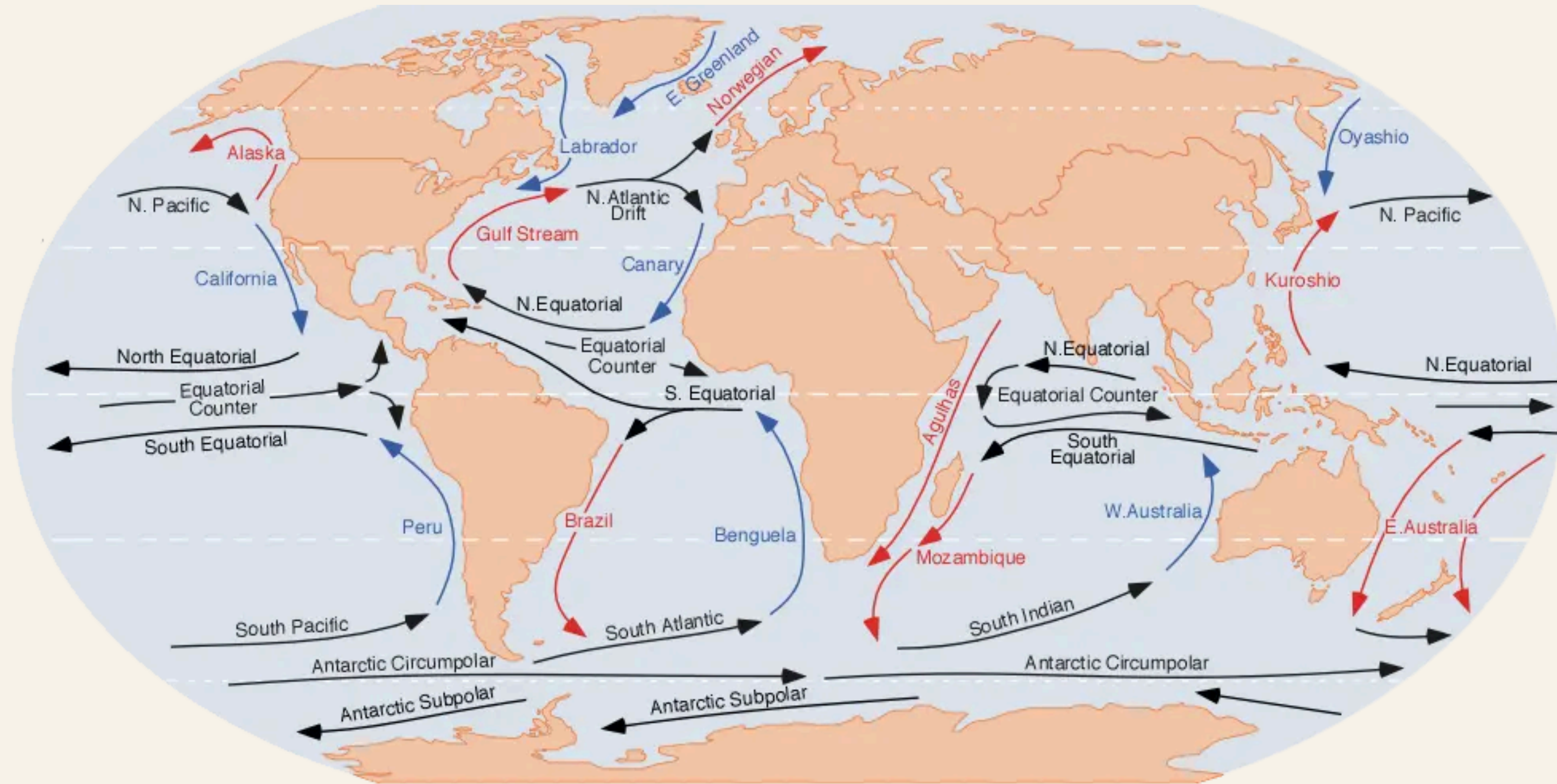
Layers of the Atmosphere



- **Troposphere (0-16 km):** Weather occurs here; temperature decreases with altitude. Contains most atmospheric mass.
- **Stratosphere (17-50 km):** Houses the ozone layer, absorbing UV radiation. Temperature increases with altitude.
- **Mesosphere (51-85 km):** Coldest layer; burns up meteors due to friction.
- **Thermosphere (86-600 km):** High temperature due to solar radiation absorption; hosts auroras and satellites.
- **Exosphere (600+ km):** Outermost layer; merges into space with very few air molecules.

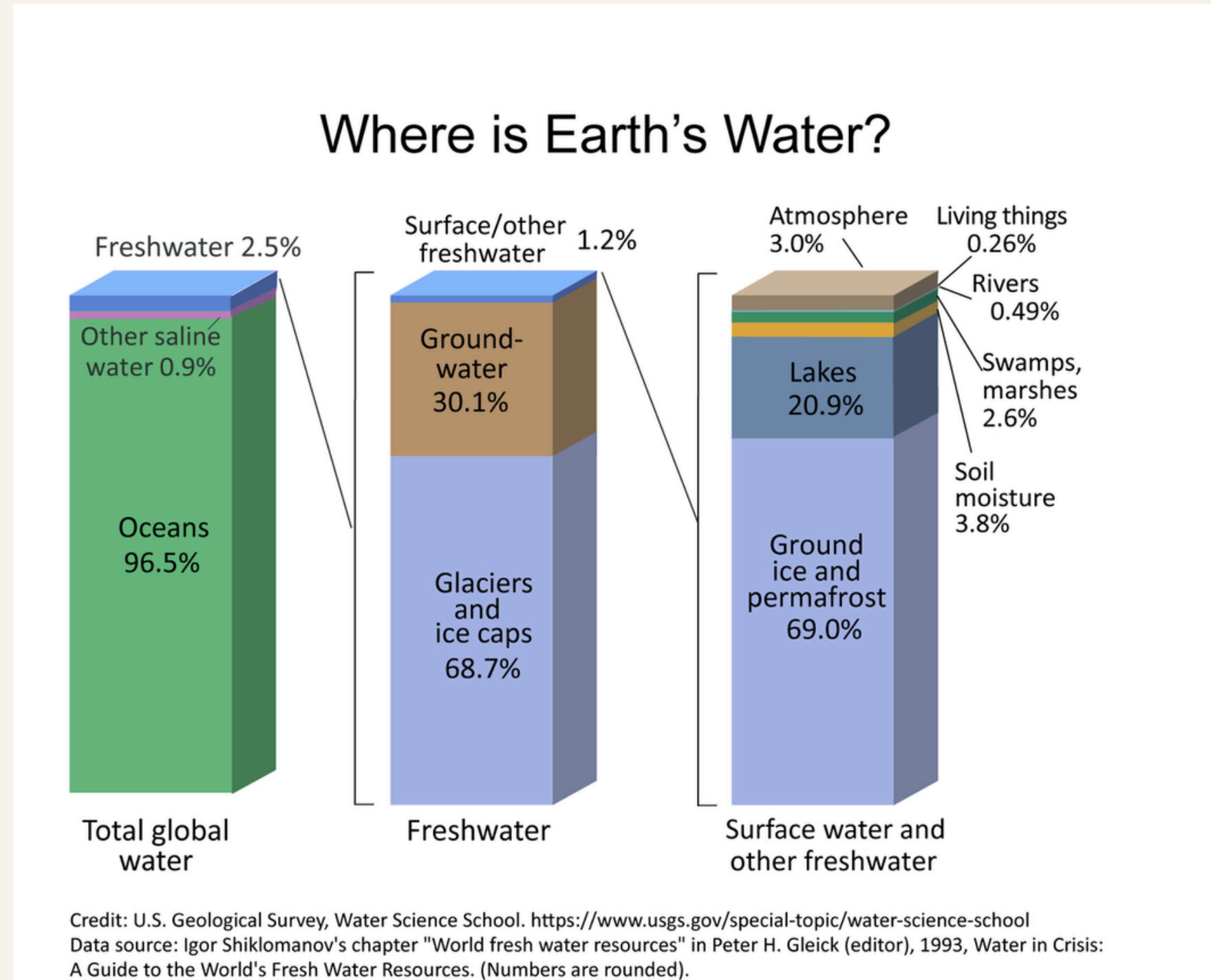


Ocean Currents





World's Freshwater Resources





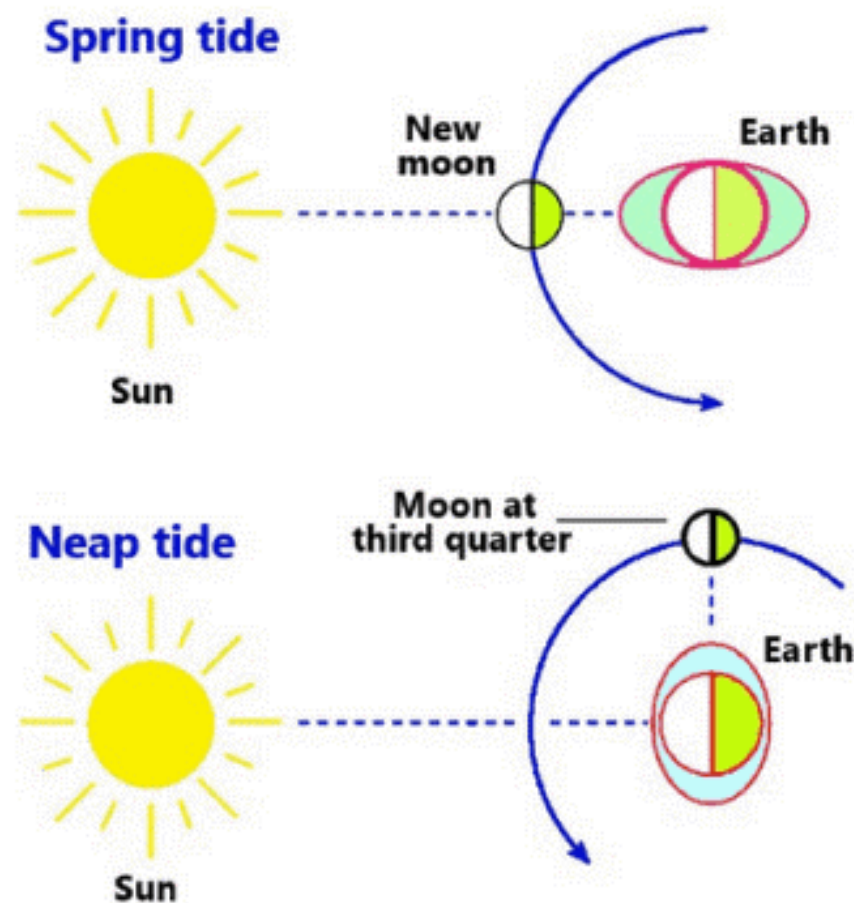
Tides

1. **Spring Tide: Strong tides during New & Full Moon due to Sun-Moon-Earth alignment.**

2. **Neap Tide: Weaker tides during First & Third Quarter Moon as Sun and Moon pull at right angles.**

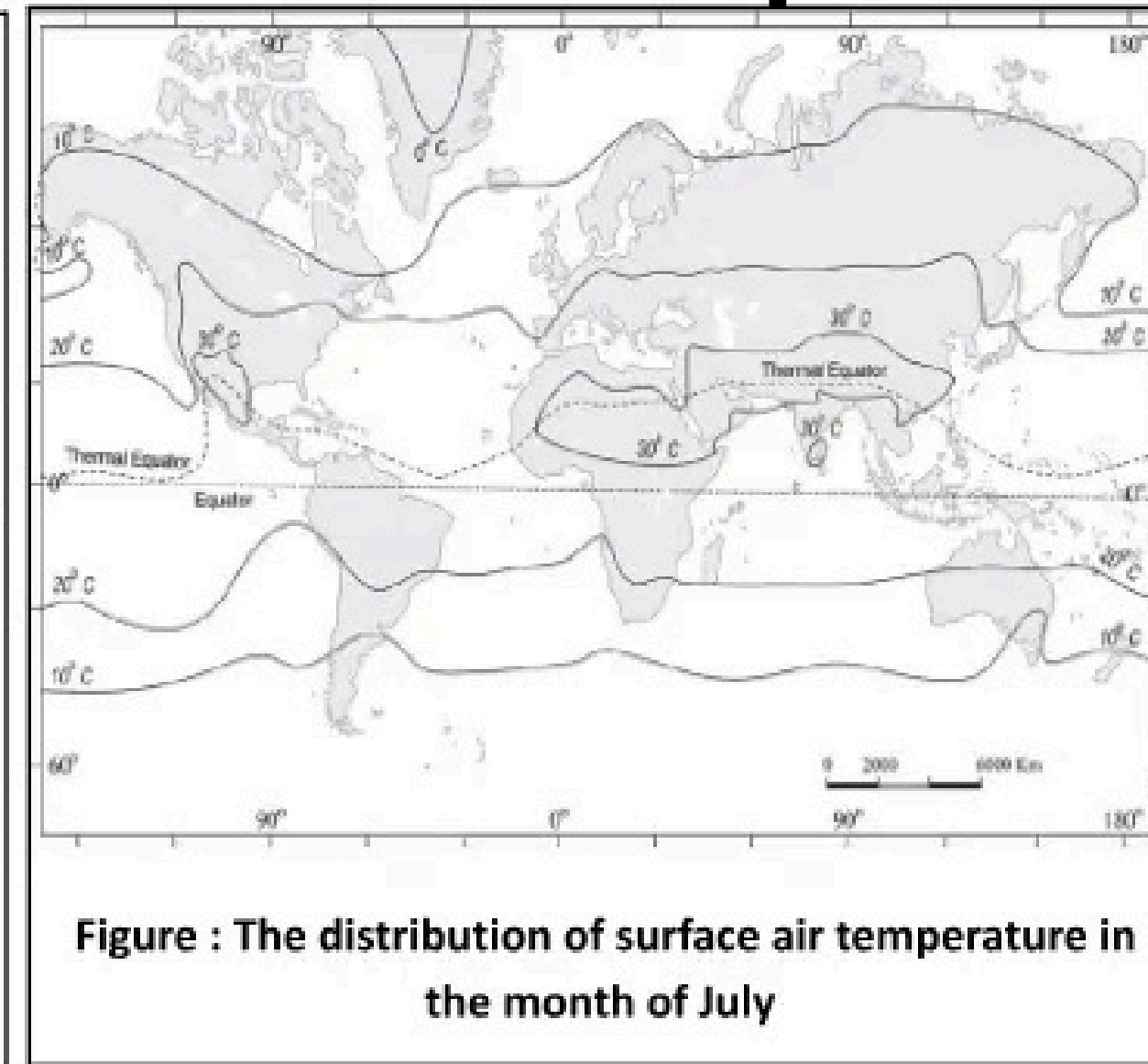
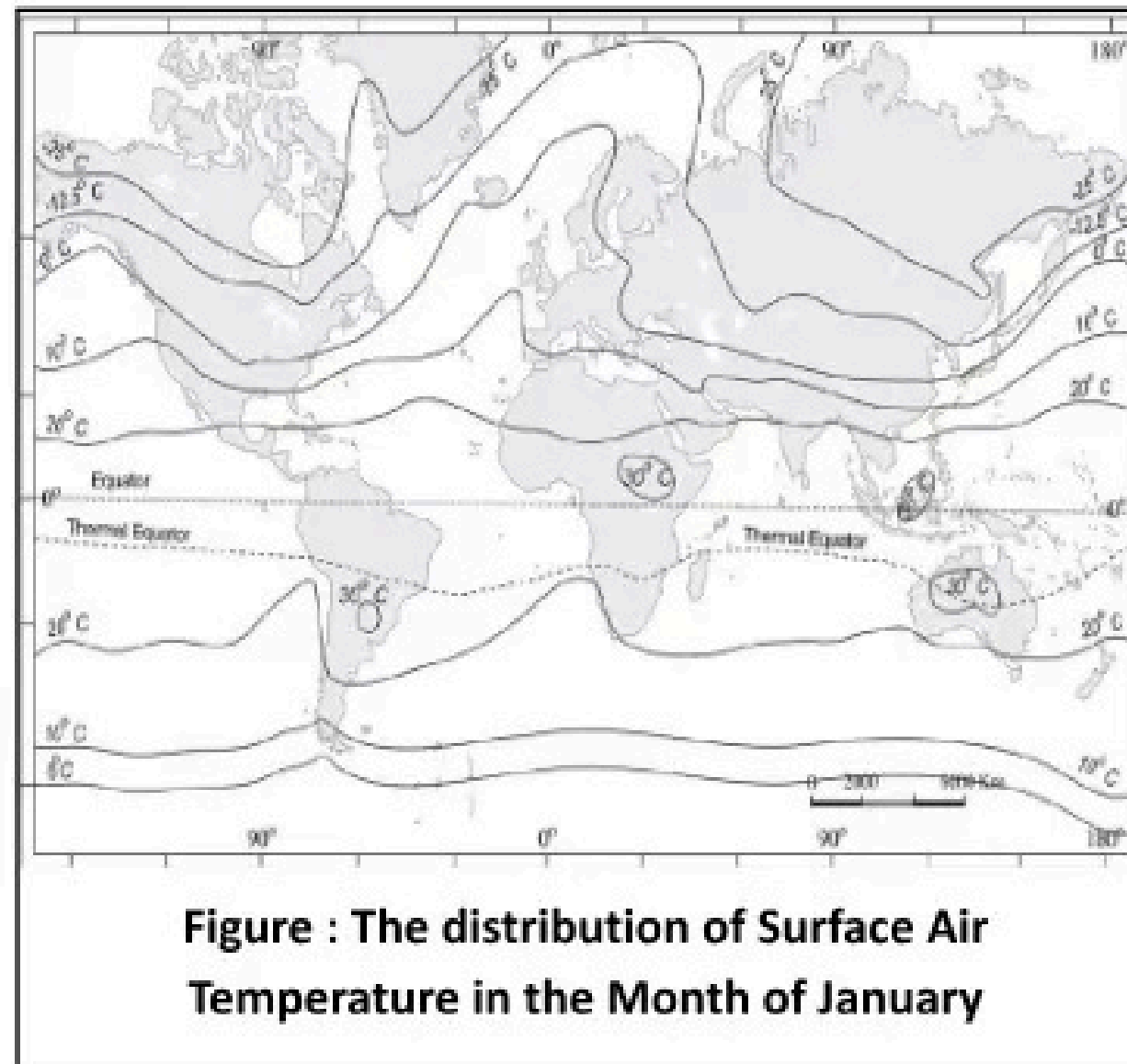
3. **Tidal Bulges: Form due to gravitational pull, affecting coasts, marine life, and navigation.**

4. **Tidal Cycle: Occurs every 12 hours 25 minutes, influencing fishing and energy generation.**





Distribution of Surface Air Temperature



1. Thermal Equator Shift: Moves north in July, south in January due to land-ocean heating differences.
2. Land vs. Ocean Effect: Land heats/cools faster, causing hot summers, mild winters near oceans.
3. Hemispheric Contrast: January - Colder North, July - Warmer North due to axial tilt.
4. Isotherm Shift: Bends poleward in summer, equatorward in winter, showing seasonal changes.
5. Extreme Zones: Siberia - Harsh winters, Deserts - Peak heat in July.



For Module related

Queries, Contact



@helpdeskupsc