

### spheres of the earth

<b>Hydrosphere</b>	made up of water	rivers, lakes, streams, oceans, groundwaler, polar ice caps, glaciers, water vapor, clouds, and precipitation
<b>Biosphere</b>	made up of all living organisms	plants, animals, bacteria, fungi
<b>Geosphere</b>	<i>ground</i> composed of all rocks and minerals	mountains, continents, ocean floor, sad, bedrocks and <i>earth's interior layers</i>
<b>Atmosphere</b>	body of gas that envelops earth	carbon dioxide and gaseous elements

### Layers of earth

<b>Crust</b>	outermost and thinnest layer of Earth there are two types: continental (less dense) and oceanic (dense)	
	<input type="checkbox"/> <b>litosphere</b> : crust and upper mantle <input type="checkbox"/> <b>asthenosphere</b> : below the lithosphere is the asthenosphere layer, a much hotter and malleable portion of the upper mantle.	
<b>Mantle</b>	<b>M</b> iddle layer, the crust is thicker and denser because of aluminum and magnesium	
<b>Core</b>	<b>C</b> enter of the earth	
	<b>outer core</b> : liquid (melted) nickel and iron because of high temperature	

### Layers of earth (cont)

**inner core**: higher temperature and is in solid form because of the atomic pressure

### Geological Processes

**Hydrometeorological Hazard** A process or phenomenon of atmospheric, hydrological or oceanographic nature

Typhoon  
Thunderstorm  
Flood  
Storm Surge  
El Niño  
La Niña  
Rainfall-induced landslide  
Tornado

**Typhoon** (pacific and Indian Ocean, Hurricane for Atlantic Ocean).  
Are intense circulating winds with heavy rain over tropical waters and land

tropical cyclones (bagyo)  
wind systems circulating around a low-pressure area (warm water)

Tropical depression speed up to 61 kph

**Eye of the storm**  
A region of most calm weather at the center of strong tropical cyclone

**Monsoon**  
seasonal wind patter  
amihan: cloudless skies and cold mornings

habagat: brings heavy rain

**Flood**  
hazard brought by heavy rains where theres a progressive rise in water level

### Geological Processes (cont)

**Tornado** is a narrow, violently rotating column of air

**Thunderstorms** characterized by strong winds, heavy rains, lighting and thunder  
- formed when wam air mass if forced to move upeward by cold air mass

**Storm Surge** - rise of normal sea level cause by winds that are directed toward the shore

not a Tsunami

**El Nino** It refers to the large-scale warming of the ocean and atmosphere across the central and east-central Equatorial Pacific.

**La Nina** begins in the eastern part of the Pacific Ocean, much similar to the location of El Nino. The sea surface temperatures during this period become lower by 3-5 degree Celsius. Cyclones formed during this time shift westward going to the direction of china.

### Thunderstorm Hazards

1. heavy rainfall that can lead to flooding.
2. lightning that can electrocute humans and livestock and damage electrical facilities.
3. air turbulence which can displace or disorient a flying aircraft.
4. fire that can burn building and vegetation.

### Flood Hazards

1. disruption of commercial and industrial operations leading to loss of income
2. stand-still traffic causing paralysis in network transportation and communication
3. displacement of affected homes and families
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5. waterborne diseases such as leptospirosis and typhoid fever.

### Geological Processes

**exogenic process** occurring on the surface of the earth, responsible for transforming rocks

**weathering** breaking down of rocks

**\*physical/mechanical weathering** can be done mechanically or chemically, there's no change in chemical composition

**chemical weathering** the breakdown of rocks by chemical mechanisms

- **Hydration:** minerals dissolving when coming into contact with water

**Carbonization:** reaction between rocks and carbonic acid

**Oxidation:** causes rock to become fragile

### Geological Processes (cont)

**Differential Weathering** - landscape shaping

Examples: Fall, slides, flow

**Erosion** The components of soil pile up and are physically removed from their place.

☆ **Agents:** the materials are transported to different locations through **moving water, wind, gravity, and animals**

**endogenic process** takes place within the earth responsible for the changes of the surface of the earth

**internal heat** source of energy of endogenic processes

**Geological Processes** physical processes which create and modify landforms on the surface of the Earth

**Mass Wasting** the downslope movement of rocks & soil under the influence of gravity

### Marine and Coastal Processes and Hazards

**Atmospheric factors affecting coastal erosion** Climate change and gravity

**Human factors** Pollution, and sand and gravel extraction which can increase the strength of the waves

### Marine and Coastal Processes and Hazards (cont)

**Coast** part of the land near the sea  
contains some of the world's sensitive and threatened ecosystems

**Coastal Processes** waves, tides, sea level, change, crustal movement  
- they could pose threat to life but shape the physical environment, providing habitat such as turtle or seabird nesting beaches, reefs, and mangrove forests or seagrass beds.

### Coastal Hazards

**Coastal Erosion:** displacement of land along the coastline

**Submersion:** movement of coastal sediments from the visible portion of a beach to the submerged nearshore region of the coast

**Saltwater Intrusion:** Is the movement of saltwater to freshwater

### endogenic

**Endogenic Processes** caused by radioactive decay from the Earth's core and the redistribution of materials in the Earth's interior

effect is formation of landforms

### endogenic (cont)

**tensional stress:** occurs when a rock is pulled causing it to be stretched in a divergent boundary

**shearing stress:** occurs when the forces that push the rocks and faults in opposite directions

**compressional:** occurs when a rock is *squeezed* until it folds or breaks in convergent boundary

Folding/folds: wavelike plastic deformation that result to compressional stresses

Anticlines (upward-ping): forms mountains & hills

Synclines (downward-ping): forms valleys and trenches

Monocline: gradual bending

### Types of Stress

Normal Fault: faulting where the hanging wall goes down

Reverse Fault: faulting where the hanging wall goes up

Strike-Slip Fault: faulting caused by a shearing force

foot wall is longer, hanging wall is shorter

Convergent Plate Boundary: where 2 plates move towards each other and destroys the crust

Divergent Plate Boundary: where 2 plates move away from each other and usually occurs on ocean ridges

### Types of Stress (cont)

Transform Plate Boundary: where plates slide horizontally past one another which produces zigzag plate margins & shallow earthquakes

### 3 Types of Rocks

Sedimentary rocks: are formed from layers of sand, silt, dead plants, and animal skeletons.

Igneous rocks: are formed from melted rock deep inside the Earth.

Metamorphic rocks: formed from other rocks that are changed by heat and pressure underground.

### Terms

Sea floor spreading: seafloor slowly spreads & moves sideways away from the mid ocean ridge

Convection Current: hot magma is forced upward to the lithosphere. As it reaches its destination, the lithosphere moves horizontally carrying the plates with it. As it cools, the magma becomes denser and sinks in the mantle, overlying the crust with it.

the concept where hot air rises, cool air sinks

