November 16, 2015

Unit 35

Geomorphology; Processes that shape Landforms: landforms, weathering, erosion, mass movement, action of running water, glaciers, wind, coastal waves and currents, sediment deposition. Gravity, Slopes, and Relief; relief. Erosion and Tectonics; measuring erosion and deposition; Regional landscapes.

Unit 36

Weathering. Chemical and mechanical, artificial structures and natural materials, formation of soils. Mechanical Weathering; frost action [blockfields, talus scree], salt crystal growth in arid and coastal areas, exfoliation in granitic rocks, thermal expansion and contraction. Chemical Weathering and importance of water; spheroidal weathering in granite, processes such as Carbonation ($CO_2 + H_2O \rightarrow H_2CO_3$ Carbonic acid) of calcium carbonate, hydrolosis and silicate mineral weathering (separation of H_2O into hydroxide ions and then reaction with Mg Oxides to yield Mg ions and silicic acid (H_4SO_4); oxidation (reaction of iron minerals with O_2 to produce iron oxides, products of weathering such as clay minerals. Biological Weathering; acidity of soil water as a product of respiration, burrowing organisms, physical and chemical effects of weathering. Geography of weathering.

Unit 37

Mass Movements; hazards from mass movements, their importance in shaping landscapes, angle of repose and slope failure, force of gravity and importance of friction, frictional strength, geometry of materials, cohesion, angle of repose in different materials. Forms of mass movement; differentiation by water amounts and speed, Creep (not really a "failure" and solifluction (freeze and thaw, slow wave-like movements on slopes), Slides – examples such as (rotational) slumps, rockslides, Flows such as slow earthflows vs. debris flows, Falls. Human alteration on mass movement processes.