In Class Exam review 10/10/2013

Sediments: loose mineral grains

Weathering: processes that break up and corrode preexisting solid rocks

a. Physical : frost wedging , jointing
b. Chemical : hydrolosis, oxidation

sedimentary rocks: clastic, biochemical, organic, chemical

- clastic: weathering,erosion, transportation, depostition, lithification

- Sedimentary structures: ripple marks, dunes, cross beds, graded beds, strategic formation
- Sedimentary environments: glacial, mountain streem, desert, river, lake, delta beach, shoolow-marine, deep marine, shallow-water carbonate
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- Metamorphism: one kind of rock transforms into a different kind of rock
- Process: recrystallization, phase change, neocrystalization, pressure solution and plastic deformation
- Causes: heating, pressure, compression, shear, hot water
- Rock types: foliated and non foliated
- Intensity: high graded vs low graded
- Environments: thermal or contact, burial, dynamic, dynamothermal, hydrothermal
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- The rock cycle: progressive transformation of earth materials from one rock type to another, then another, and so on
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- Elastic-rebound theory: stress build-up, elastic deformation, fault slip
- Earthquake cycle: stick- slip behavior, foreshocks, aftershocks
- Seismic waves: body waves (p&s), surface waves (Love and Rayleigh)
- Epicenter location: S-P time, epicenter distance, intersection from 3 stations
- The size of an earthquake: modified mercalli intensity, richter magnitude scale, moment-magnitude scale
- ** p is faster than s***
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- seismic wave propagation: diff velocities in diff rock types, no s waves in a liquid, slow P in a liquid, reflection, refraction
- discoveries: the moho, the core mantle boundary, liquid outer core, solid inner core
- applications; velocity-depth profile, seismic reflection profile
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- faults: normal, reverse, thrust, strike-slip
- earthquake locations: divergent, transform, convergent, contential rifts, collision zones, intraplate
- earthquake damage: ground shaking (4 factors), landslides, liquefaction, fire, tsunamis
- earthquake prediction:
  - long term: seismic zones, recurrence intervals, seismic hazard maps
  - short term: foreshock detection, ground deformation monitoring, other changes (not confirmed)
- earthquake safety rules: drop, cover, hold on
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- deformation: a process by which rocks break or bend
  - brittle vs ductile (temp, oressure, deformation rate, composition)
- strain: stretching, shortening, shearing
- stress: compression, tension, shear stress, pressure
- geologic structure: joints, faults, folds (anticline, syncline, monocline, plunging fold, dome, basin), foliations
- isostasy: an equilibrium condition
  - buoyancy force equals gravitational force
- locations of mountain ranges: convergent boundaries, continental collision zones, continental rift zones
- GPS observation of mountain building
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Questions 10/10/2013

1.when jointing breaks, a large block of rock into smaller pieces, the surface area _____, so chemical weathering happens _____.

- Increases, faster

2. Clastic sedimentary rocks are primarily classifies on the basis of _____.

- grain size

3. Which of the following is not included in the clastic sedimentary process?

- Weathering
- Evaporation
- Deposition
- Compaction
- Cementation

4. the principal compound making up limestone is $CaCO_3$. Which mineral type is dominant in limestone?

- Carbonates

5. which environment would most likely produce sedimentary deposits characterized by very well sorted and very well rounded grains that are nearly pure quartz?

- Beach

6. which of the following is not a metamorphic process?

- Recrystallization
- Phase change
- Neocrystillization
- Pressure solution
- Elastic deformation

7. compared to low graded metamorphic rocks, high grade rocks

- Are produced at greater temp and greater pressures

8. which list properly orders metamorphic rocks from lowest to highest grade?

- Slate, phyllite, schist, gneiss

9. _____ commonly serves as a protolith in the formation of marble.

- limestone