

Introduction to Geology

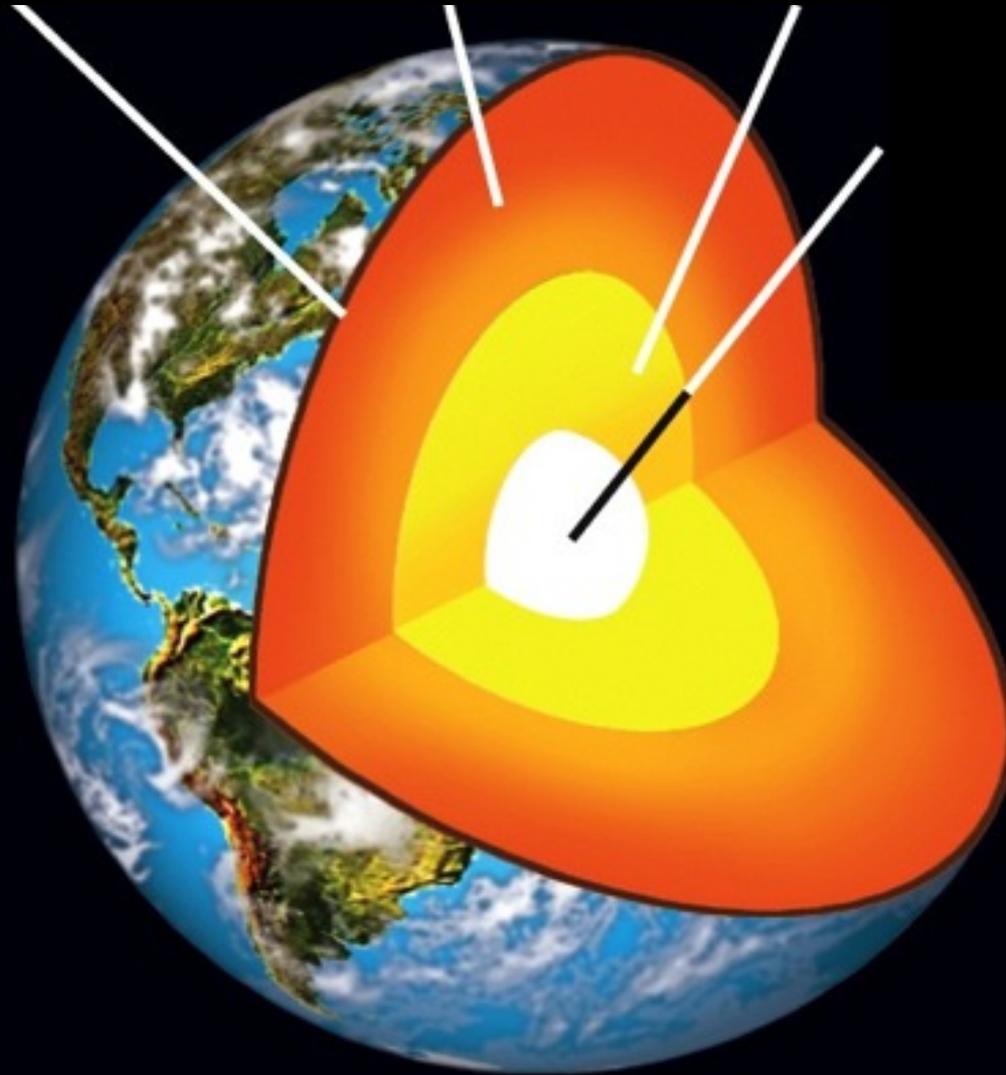
12.001 – 5 September 2012

How old is Earth, and how did it form?



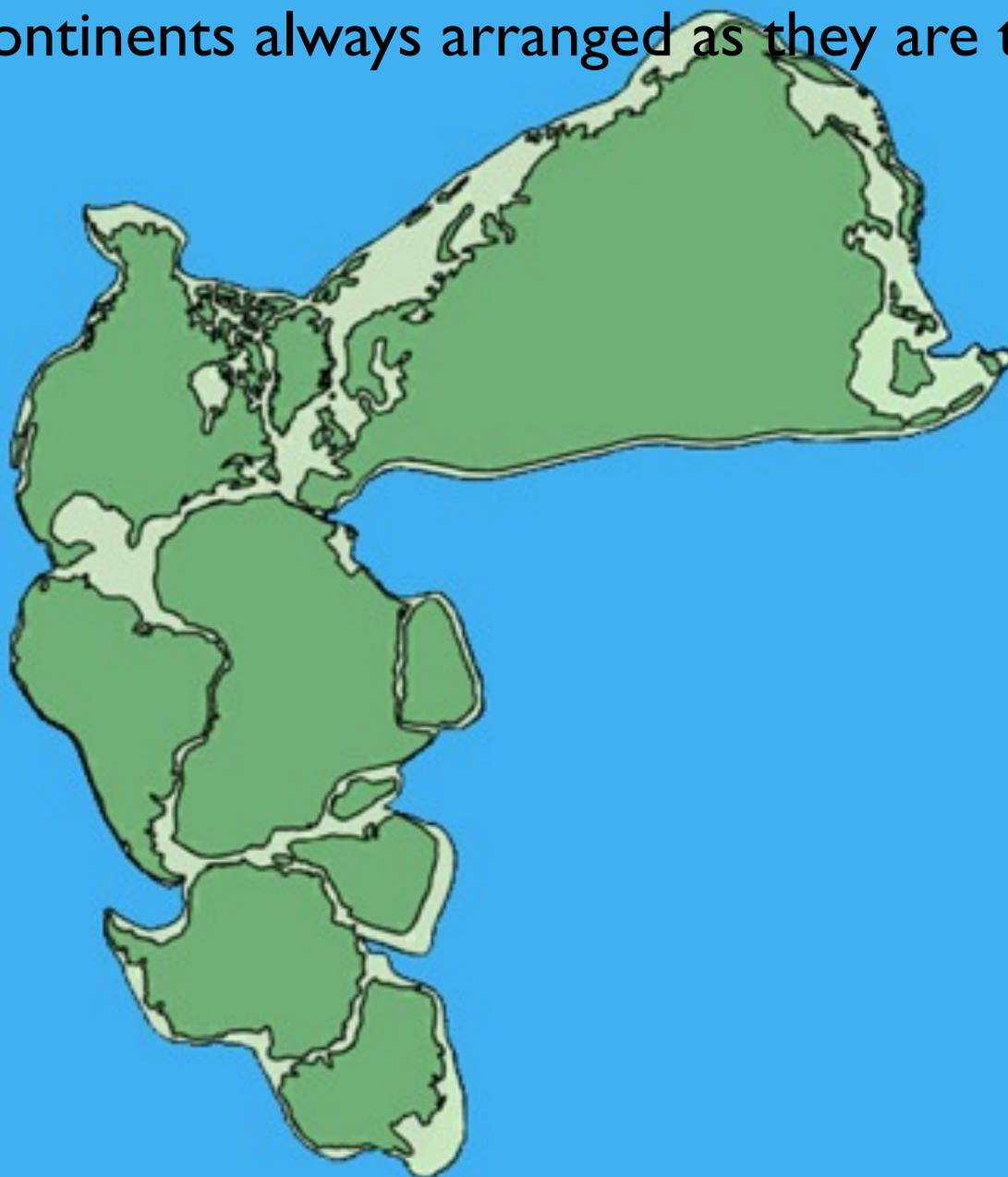
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What's on the inside, and how do we know?



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Were the continents always arranged as they are today?



Tanya Atwater, UCSB

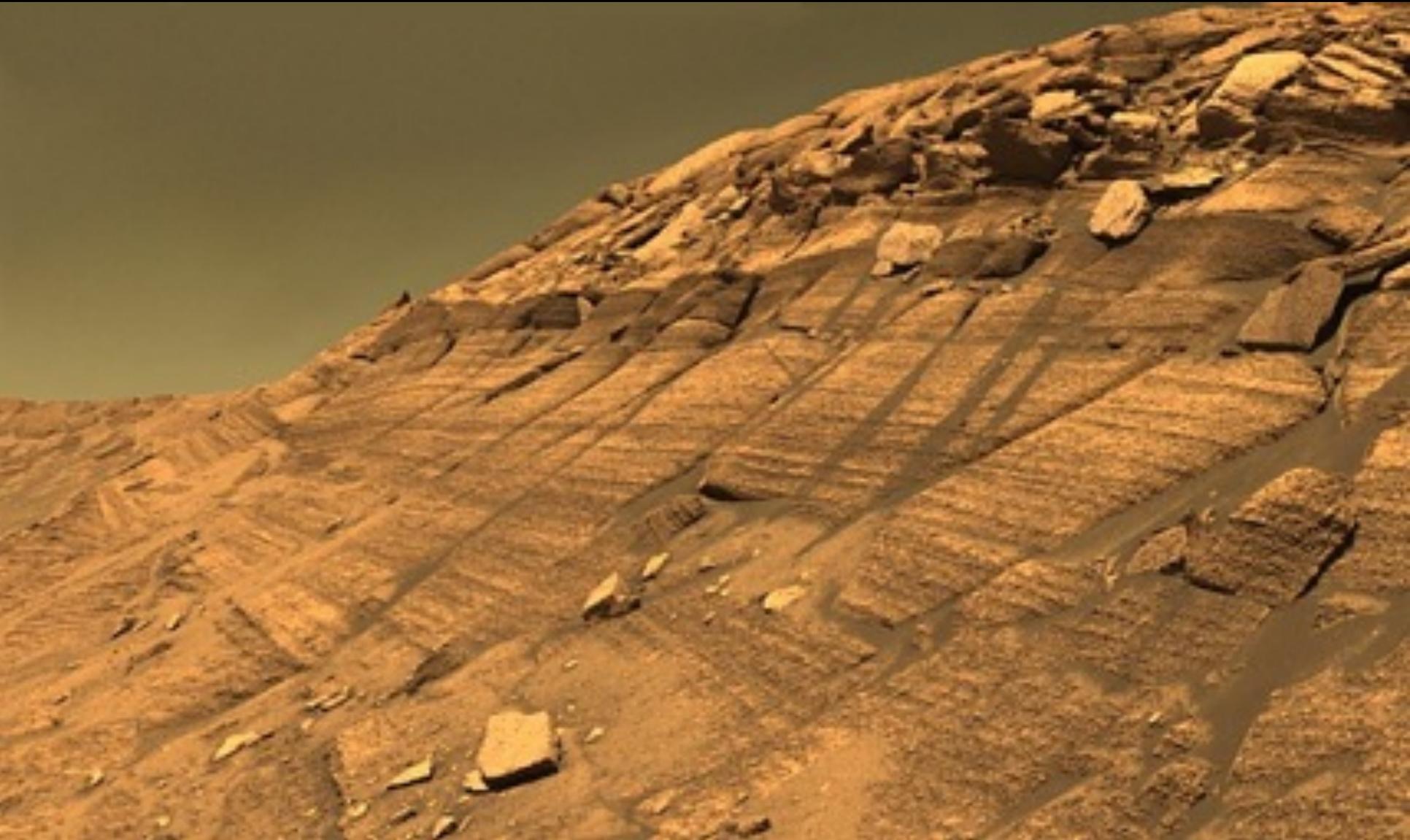
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How do mountains form and erode away?



Valle de Ordesa, Spanish Pyrenees

How do we do geology on other planets?



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NASA/JPL/Cornell

Course Schedule (subject to change)

Day	Date	Lecture Topic	Lab/Quiz Topic	Instructor	Reading	Due Dates
1	W 5 Sep	Overview	Earthquake predictions	P	Ch. 1	
2	F 7	Origin and age of the Earth	Exercise: Composition of the mantle	P	Ch. 9 & 14	
3	M 10	Intro to Minerals	Lab 1: Mineral ID	J	Ch. 3	EQ Predictions
4	W 12	Igneous Rocks	Lab 1: Mineral ID	J		
5	F 14		Lab 2: Rock ID	J	Ch. 4	
6	M 17	Sedimentary Rocks	Lab 2: Rock ID	P	Ch. 5	
7	W 19	Metamorphic Rocks	Lab 2: Rock ID	[BM]	Ch. 6	Lab 1
	F 21	Student Holiday				
8	M 24	Rock Structure and Deformation	Lab 2: Unknown Rock ID	J	Ch. 7	
9	W 26	Quiz 1 (1 hr): Rocks & Minerals	Independent exercise: Rock Structures	J		
10	F 28	<i>No class – field trip departure 2pm</i>				Rock Structures
Fri-Sun	28-30	Field Trip to Upstate New York: Assembly and Breakup of Supercontinents				
11	M 1 Oct		Field Trip Report	J/P		
12	W 3	Geologic Time: Relative vs. Absolute Dating	Lab 3: Geochronology	J	Ch. 8	Lab 2
13	F 5	Volcanoes	Lab 3: Geochronology	J	Ch. 12	
	M 8	Columbus Day Holiday				
14	W 10	Plate Tectonics I	Lab 4: Plate Tectonics	P	Ch. 2	Field Trip Rep.
15	F 12	Plate Tectonics II	Lab 4: Plate Tectonics	P	Ch. 10 & 14	Lab 3
16	M 15	Plate Tectonics III	Lab 4: Plate Tectonics	P		
17	W 17	Continental Crust Formation		J	Ch. 10	
18	F 19	Oceanic Crust Formation		J	Ch. 4	Lab 4
19	M 22	Earthquakes	Lab 5: Earthquakes	P	Ch. 13 & 14	
20	W 24	Quiz 2: Rock Deformation → Tectonics				
21	F 26		Lab 5: Earthquakes	P		
22	M 29	Field Techniques	Exercise: Stereonets	J	D&R reading	
23	W 31	Topography		P		
24	F 2 Nov	Geologic Mapping Introduction	Exercise: Reading Geological Maps	J		Lab 5

Day	Date	Lecture Topic	Lab/Quiz Topic	Instructor	Reading	Due Dates
25	M	5	Lab 6: Geologic Mapping	J		
26	W	7	Lab 6: Geologic Mapping	J		
27	F	9	Lab 6: Geologic Mapping	J		
	M	12	Veterans Day Holiday			
28	W	14	Rivers	P	Ch. 18	
29	F	16	Lab 7: Rivers	P		Lab 6
30	M	19	Quiz 3: Crust → Mapping			
31	W	21	Landslides and Debris Flows	P	Ch. 16	
	F	23	Thanksgiving Holiday			
32	M	26	Glaciers	P	Ch. 21	Lab 7
33	W	28	Climate through geologic time	P	Ch. 22	
34	F	30	Earth History & Geobiology	J	Ch. 11	
35	M	3	Dec	EAPS Lab Tours		
36	W	5		Quiz 4: Surface Processes & Earth History		
37	F	7	<i>No class – Fall AGU meeting</i>			
38	M	10	Earth Science & Society	P	Ch. 23	
39	W	12	Wrap-Up	J/P		

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