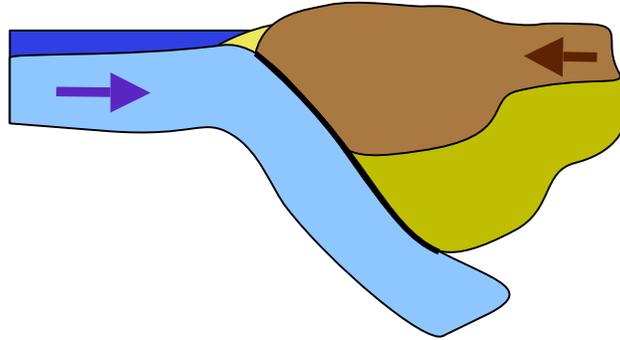


GG672 Seminar in Tectonics, Spring 2009

Subduction Geodynamics



Instructors: Clint Conrad and Greg Moore

Meeting Time: Tuesday 1:30 to 4:30 pm

A seminar-style, literature-based, discussion of the geodynamics of subduction.

Format: Each week we will read 1 to 2 assigned papers about specific aspects of subduction. Discussion will be based on these papers, and will be aimed toward gaining a thorough understanding of the current state of understanding (or lack of understanding) about the subduction topic of the week.

Weekly Readings: Papers will be assigned each week, and everyone should be prepared to discuss them in class. Everyone should come to class prepared with several questions and thoughts about the paper. Each week, students will prepare a brief summary of the discussion for distribution to all.

Proposal Assignment: As we will be operating at the current edge of knowledge for each topic, we will constantly be discussing ways to gain greater understanding. Each student will prepare a 5-10 page “proposal” for a research project that will address a current major question regarding subduction. Each proposal should introduce a subduction-related question, propose research that will lead to greater understanding of the problem, and mention the broader implications of the proposed research.

Grading: Grades will be formed based on a combination of participation (50%, includes attendance, preparation, asking questions, weekly summaries, etc.), and the research proposal (50%).

Preliminary Schedule:

Topic 0	Jan. 6 (Tu)	Organizational Meeting
Topic 1	Jan. 13 (Tu)	Introduction to Arc Systems
Topic 2	Jan. 15 (Th)	The Seaward Edge
Topic 3	Jan. 29 (Th)	Seismogenic Zone: Shallow Aseismic Slip
Topic 4	Feb. 10 (Tu)	Seismogenic Zone: Great Earthquakes
Topic 5	Feb. 24 (Tu)	Seismogenic Zone: Seismic Tremor and Slow Slip
Topic 6	Mar. 3 (Tu)	The Slab: Thermal and Mechanical Structure
Topic 7	Mar. 17 (Tu)	The Slab: Bending and Deformation
Topic 8 (SB)	Mar. 24 (Tu)	Subduction Factory: Andesite & Formation of Continental Crust
Topic 9 (SB)	Mar. 27 (Fr)	Subduction Factory: Geochemistry & Metamorphism
Topic 10	Apr. 2 (Th)	Subduction Factory: Petrology & Mineral Physics
Topic 11	Apr. 7 (Tu)	Geodynamics: Water and Volatile Transport
Topic 12	Apr. 9 (Th)	Geodynamics: Back-Arc Tectonics
Topic 13	Apr. 14 (Tu)	Global Tectonics: Subduction and Earth History
Topic 14	Apr. 23 (Th)	Global Tectonics: Mantle Tomography and Seismic Anisotropy
Topic 15	Apr. 28 (Tu)	Global Tectonics: Mantle Flow and Plate–Driving Forces
Topic 16	May 5 (Tu)	Geodynamics: Slab Rollback & Trench Motion