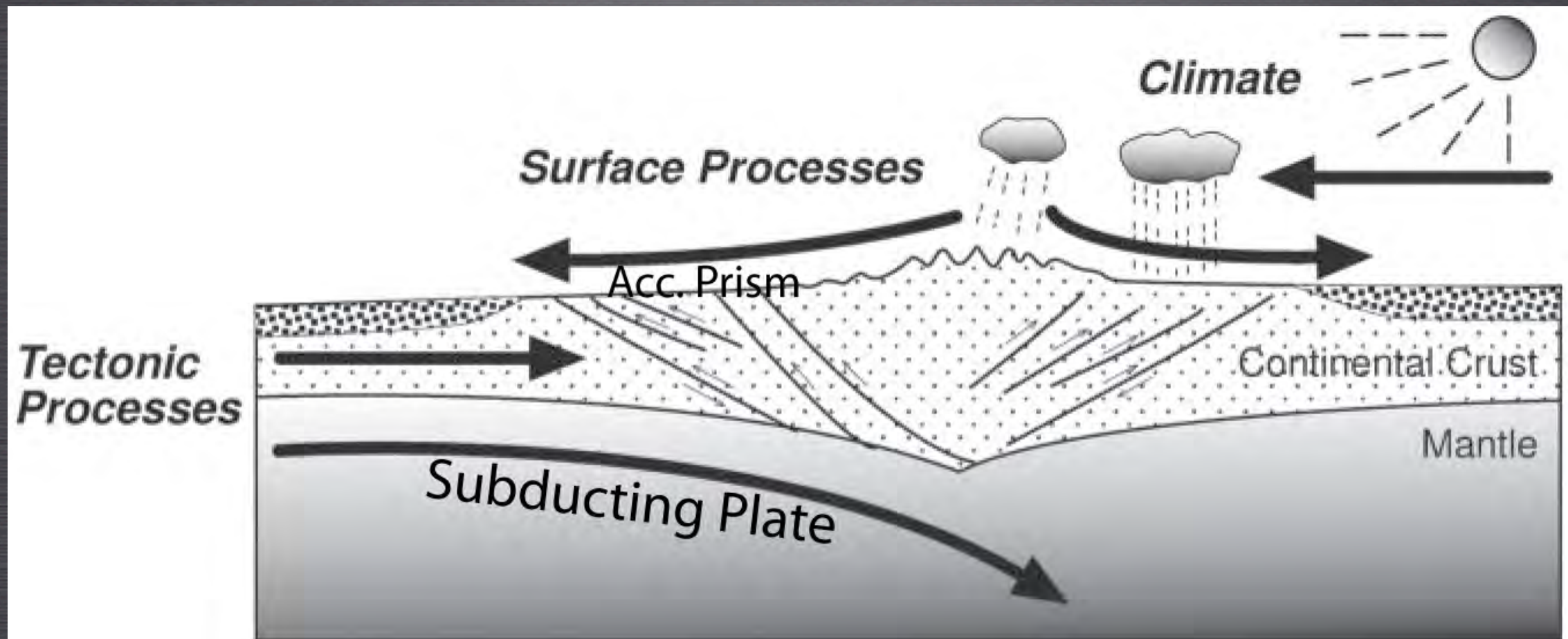


Feedbacks and Perturbations- Hothouse to Icehouse Climate

- How do landscapes and biota respond to step-wise climate shifts?
- Climate shifts should lead to changes in erosion rates in orogens
- Have the surface processes that transfer sediment from orogens to marine basins responded to such climatic transitions? If so, what is the consequence on subduction zone processes?

Zachos et al., 2001, Science

Climate and Surface Processes



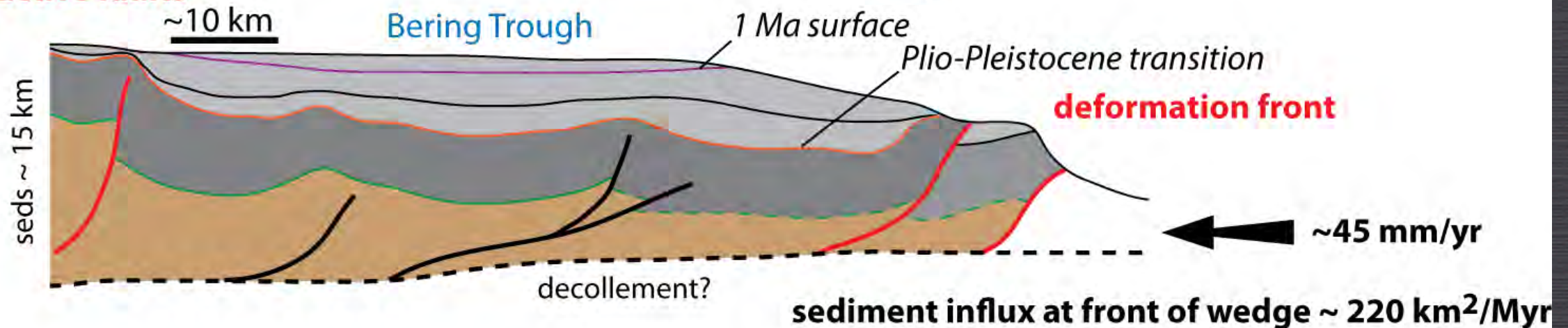
After Roe et al. (2007)

- Climate forcing can produce first-order changes in surface processes (Molnar and England, 1990; Montgomery et al., 2001; Zhang et al., 2001)
- Perturbing mass fluxes into/out of steady-state orogens will have a predictable and testable response in patterns of tectonic deformation (Whipple, 2009; Simpson, 2010; Thompkin and Roe, 2007)
- Convergent margin strata should be an ideal recorder of surface processes because of extensive accommodation space created by the down-going slab

EFFECT OF SURFACE PROCESSES ON CONVERGENT MARGINS-ALASKAN EXAMPLE

sediment influx from glacial erosion $\sim 190 \text{ km}^2/\text{Myr}$ since 1Ma

landward
active faults



sediment influx from adjacent source $\sim 48 \text{ km}^2/\text{Myr}$



Simpson, *Geology* 2010

IODP WORKSHOPS

- FUNDED THROUGH MEMBER PROGRAMS-CONSORTIUM FOR OCEAN LEADERSHIP IN U.S.; ADDITIONAL FUNDING SOURCES OFTEN NECESSARY FOR LARGE GROUPS
- WORKSHOPS ARE MEANT TO PROMOTE THE DEVELOPMENT OF NEW IDEAS TO STUDY THE EARTH'S PROCESSES AND HISTORY VIA SCIENTIFIC OCEAN DRILLING
- THE PRIMARY GOAL IS TO IDENTIFY PROMISING NEW SCIENTIFIC OBJECTIVES AND RESEARCH OPPORTUNITIES
- WORKSHOPS ARE NOT INTENDED AS PROPOSAL WRITING FORUMS BUT RATHER FOR DESIGN OF POTENTIAL PROPOSAL(S)
- THEME FOR WORKSHOPS FOR GEOPRISMS SCD SITES COULD BE RELATED TO ANY OF THE SHORT TOPICS DISCUSSED TONIGHT (GEOGRAPHIC/THEMATIC)

IODP WORKSHOPS

- ✦ WORKSHOPS SHOULD HAVE A STEERING COMMITTEE, DESCRIPTION OF SCIENTIFIC SPECIALTIES, AND PLANS TO ACTIVELY INVOLVE EARLY-CAREER SCIENTISTS
- ✦ COL TYPICALLY FUNDS WORKSHOPS AT ~\$15-40K, DEPENDING UPON AVAILABILITY OF FUNDS
- ✦ DEADLINES ARE APRIL 1 AND OCTOBER 1, WILL GET RESPONSE 4-5 MONTHS LATER