GEOL 104 Dinosaurs: A Natural History Final Exam Review

Review previous exams

Dinosaur Paleoecology

Fauna, paleofauna, biogeography, paleobiogeography, cosmopolitan vs. provincial, Laurasia vs. Gondwana Food webs, energy pyramids

How paleoecology is assessed: methods, evidence

Patterns of dinosaurian history: Late Triassic ("when dinosaurs shared the Earth"); Early Jurassic (diversification); Middle & Late Jurassic ("Golden age"); Early Cretaceous ("rise of the low browsers"); mid-Cretaceous warm peak. Many worlds of the Late Cretaceous: provincialism (distinction between Asiamerica, Europe, Gondwana, etc.)

Other Organisms of the Mesozoic

Pterosauria: basic adaptations, especially for flight and for physiology

"Rhamphorhynchoidea" vs. Pterodactyloidea. Terrestrial locomotion; feeding

Mesozoic marine reptiles: why would an amniote return to the sea? What problems would they face; what sort of adaptations would they need?

Know the basic adaptations (especially feeding, locomotion, and reproduction) and be able to identify: Mesosaurs; ichthyosaurs; placodonts; plesiosaurs; mosasaurs; marine crocodiles; sea turtles; hesperornithids Mesozoic mammals: Origins; diversity; major adaptations; major groups: monotremes, multituberculates,

therians (eutherians (placentals and our ancestors) plus metatherians (marsupials plus their ancestors))

Mesozoic plants: Photosynthesis (6 CO₂ + 6 H₂O + sunlight \rightarrow C₆H₁₂O₆ + 6 O₂). Basic adaptations. Difference between spore plant, gymnosperm, and angiosperm reproduction. Angiosperm origins in Cretaceous: what are the co-evolutionary partners and function of flowers and fruit?

The K/Pg Extinction

Be familiar with the following groups and their fate relative to the K/Pg Extinction:

- Marine life: Coccolithophorids; foraminiferans; ammonoids; belemnoids; rudists; inoceramids, the various marine reptiles
- Terrestrial life: Plants, insects, amphibians, turtles, tuataras, lizards (incl. snakes), crocodilians (incl. various nonaquatic types), champsosaurs, pterosaurs, the various mammals

Definitions:	Extincti	on N	Mass extinction	Maastrichtian	Campanian
	"Tertiar	y" P	Paleogene	K/Pg extinction	
Hypotheses of extinction:		What evidence exists for different causal agents of extinction?			
		How might each have caused the event?			
		Why some old extinction models don't work			
Good evidence for:		Volcanism: esp. Deccan Traps (India)			
		Asteroid impact: Iridium layer at Gubbio, Italy; Shocked quartz, melt glass, tsunami			
deposits, ejecta	a deposits, e	etc.; Crater at Chicxu	ulub (Yucatán)	-	
		Maastrichtian Regr	ression		
What is the env	vironmental	l impact of each of the	hose agents? The	e effects and timing	of each? What does the
magnetost	ratigraphic	record say about the	e timing of Decc	an Traps and the Chi	cxulub Impact?
Phases of destr	uction fron	n the Chicxulub imp	act: Phase I Sho	ckwave & Tsunami;	Phase II "Easy-Bake Oven";
Phase III I	mpact Win	ter; Phase IV Green	house Summer		
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Changes in dinosaur populations (especially in western North America) before and at K/Pg boundary Pattern of fates at K/Pg in marine and continental environments Recovery from the K/Pg extinctions