

## GEOBIOLOGY OF CRITICAL INTERVALS (GOCI = "GO SEE"): PROPOSAL FOR AN NSF INITIATIVE

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The Paleontological Society has set in motion an effort to launch an NSF initiative for paleontology. In mid-March, a committee will meet in Washington, D.C. to organize material for a proposal. For response from the community, an outline or early draft produced after this meeting will be reviewed in a poster format at NAPC VI and also in a Monday evening (June 10) session along with the meetings for friends of various taxa.

A preliminary gathering at the New Orleans GSA meeting generated the GOCI topic. The following description comes from a proposal for funding of the March meeting; it may be modified somewhat as the proposal shapes up:

GOCI will be designed to tap the rich geologic record of life and environments on earth. Nature is, in effect, a vast laboratory that has conducted unique experiments from which we can extract valuable lessons for anticipating the biotic consequences of future environmental changes. By studying the geologic record of these experiments, we can probe the stability of ecosystems -- the sensitivity of organic communities to environmental change and the patterns of change that result from various kinds of perturbation.

GOCI, then, will focus on geological intervals that offer special opportunities for elucidating the history of our planet's ecosystems. Such intervals include ones characterized by heavy extinction, marked evolutionary diversification of life, or extensive biogeographic migrations. GOCI should include studies that examine the relationship of such biotic changes to environmental shifts. Some of the most important of these shifts have moved ecosystems across major thresholds -- thresholds in climatic patterns, for example, or in the thermohaline structure of the ocean. Of special interest, along with periods of biotic and environmental transition, are the distributions of environments and life during unusual intervals, such as episodes of exceptional warmth at high latitudes or episodes of widespread marine anoxia. Geologic intervals represented by uniquely well-preserved biotas or well-displayed records of ecosystems also deserve emphasis, offering special windows into earth history.

Critical intervals span a variety of time scales: some encompass several million years, while others amount to brief "moments" of earth history. Similarly, some critical intervals display their salient features on a global scale, whereas others relate to regional or local phenomena.