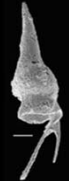
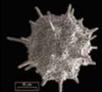
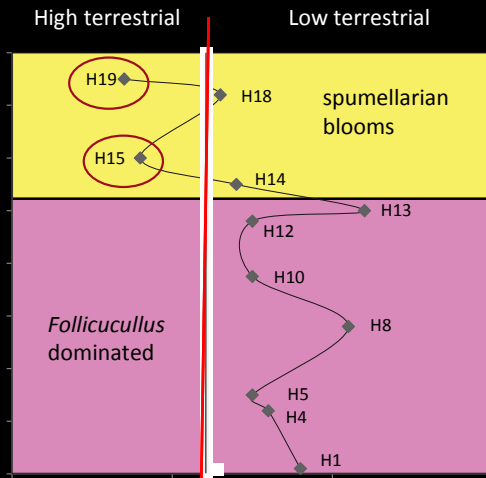
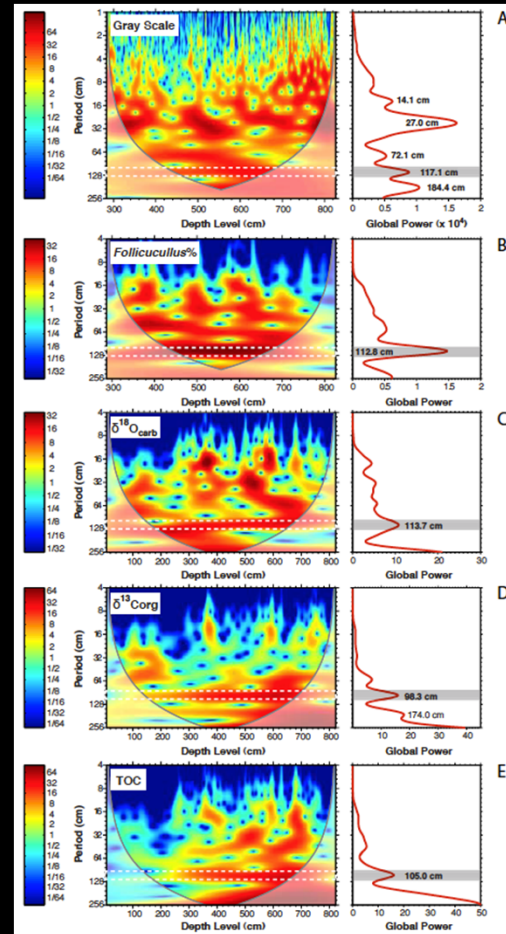


Use of Geochemical Proxies to Evaluate Paleosalinity and Carbon Flux in the Bell Canyon Formation, Guadalupe Mountains West Texas

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Examination of specific organic compounds called biomarkers work as fingerprints for the source of organic matter in ancient rocks. The above plot shows changes in the Permian Bell Canyon Formation, deposited in the Delaware basin of west Texas. Biomarkers indicate that this ancient ocean basin was periodically fertilized by land derived nutrients creating massive blooms of a type of fossil zooplankton called spumellarians.



Monsoonal weather patterns in west Texas dating back to the middle Permian period (260 million yrs. ago), have left their mark in the rock record.

Analysis of radiolarians, rock color and geochemical data using wavelet power spectra shows regular frequencies of reoccurrence that are caused by cycles in Earth's orbital movements and affect the distribution of solar energy. These fluctuations represent wet/dry monsoonal cycles when west Texas was near the equator.