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Speed of environmental change and ocean acidification
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hodaka kawahata[1*]
hodaka kawahata[1*]

[1]Atmosphere and Ocean Research Institute,
[1]Atmosphere and Ocean Research Institute,

Warm tropical ocean is analogy of those in Cretaceous and the Paleocene/Eocene transition. But both showed different features. In the late Albian, the deep sea temperature is estimated at about 15 degree C in the equatorial Pacific and atmospheric CO2 concentrations is suggested to vary between about 2 and 5 times more than that at present atmospheric pCO2. Larger oceanic alkalinity content can also be argued from the perspective of the production of calcifying organisms at the surface. Recently Zondervan et al. (2001) pointed out that an acidification of the ocean slows or prevents growth of calcifying primary producers. So the fact that we see some carbonate preservation during the Albian suggests that the ocean surface was sufficiently basic, despite higher atmospheric pCO2, to allow growth of calcifying producers. In contrast, The P/En is characterized by large excursion in the oxygen and carbon isotope records due to the disintegration of methane hydrate and the most dramatic extinction of 35-50% of cosmopolitan benthic foraminifera in the past 100 m.y.. ODP Leg 199 Site 1220 provides a continuous sedimentary section across the P/E boundary in the carbonate-bearing sediments on 56-57 Ma oceanic crust. The methane is expected to be rapidly oxidized to carbon dioxide. Because of an acidic gas, CO2 will lead to a reduction in deep-sea pH. A pH decrease was very likely responsible for the emergence of agglutinated foraminiferal fauna as calcareous fauna was eliminated by acidification at the P/E transition at Site 1220.

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