

## **Growth rate variations of FeMn crusts - O<sub>2</sub> concentrations in the deep Pacific over the last 30 ka**

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Several recent studies and hypotheses propose oceanic O<sub>2</sub> concentration variations linked to climate. These possibly lead to anoxic conditions in the Pacific Deep Water during the Last Glacial Maximum (LGM). The growth rate of ferromanganese crusts strongly depends on the dissolved O<sub>2</sub> concentration in bottom waters. The previously investigated Equatorial Pacific FeMn crust VA13-2 (146° W, 9° 25' S, 4830 m) was re-analysed for its growth, resolving the LGM for the first time. This only corresponds to the first 300 ± 10 μm as the growth rate is merely 10.30 ± 0.88 mm/Ma. Using a spatial and depth resolution of 12.6 mm<sup>2</sup> and 5-20 μm depth intervals four profiles were studied, to measure the <sup>230</sup>Th/Mn ratio for each layer. The temporal growth rate development was obtained by using <sup>230</sup>Th-excess dating combined with a <sup>230</sup>Th constant flux model. The achieved time resolution is 500 a. A significant slowdown of the growth during the LGM is visible in all four profiles. Hence, a noticeable O<sub>2</sub> depletion in the Pacific Deep Water is apparent during the LGM. A complete stop of growth, however, signifying anoxic conditions, can be excluded on the achieved resolution.