Coral Reefs off Tahiti

Tahiti Sea Level - IODP Expedition 310

October-November 2005: fossil coral reefs off the coast of Tahiti have been drilled and cored by the drillship ***DP Hunter***, in water depths ranging from 46.65 to 117.54 m.

DP Hunter
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42 days
37 holes
1100 m drilled
632 m recovered (57%)
Water depth: 46 - 117 m

Dynamic positioning
Length: 104 m
Breadth: 20.9 m
Derrick height: 26 m
40 berths (24 scientists)

Top
115.6 m below sea level
31.9 m below seafloor

116.6 m below sea level
32.9 m below seafloor

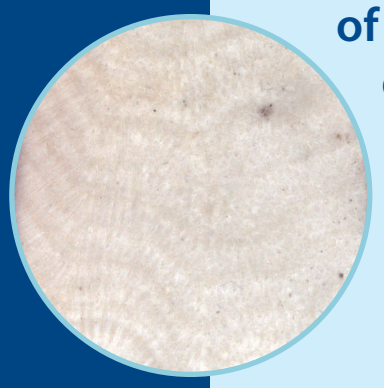
Microbialites, gastropods and coralline algae

Corals *Porites* in growth position

Microbialites

Corals

This core shows 14,400 year-old massive colonies of the coral genus ***Porites***, which lived at depths ranging from 5 to 15 m. After their death, the coral colonies have been encrusted by **coralline algae** associated with worm tubes and **laminated microbial structures**, and then partly covered by sediments composed of fragments of green algae and molluscs. The section was cored at 115.6 m below modern sea level, indicating therefore that sea-level rise since the last ice age was more than 100 m.



Coral reefs live only in shallow tropical waters due to their strict ecological requirements regarding especially light conditions and temperature and they are sensitive recorders of past sea-level and environmental changes. High-resolution records of past global changes (especially temperature and salinity changes) are stored in the geochemical and physical parameters of coral skeletons during their growth (centimetric grooved pairs of light and dark bands). **Sea-level changes over the last hundreds thousands of years can be reconstructed as coral reefs can be accurately dated by mass spectrometry (U-series methods).**

References: Camoin GF, IryuY, McInroy DB et al 2007. Proc. IODP, 310 - doi:10.2204/iodp.proc.310.2007

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