

Maya and Climate

Climate and the Collapse of Maya Civilization

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1 Maya

1.1 Periods

- Preclassic: 2000 BC¹ – 250 AD²
- Classic: 250 – 900 AD
- Postclassic Period: 900 – 1511 AD

1.2 Collapse

Between classic and postclassic period, in 3 phases

- 760 to 810 AD
- to 860 AD
- to 910 AD

2 Climate

In the inter tropic convection (ITC)

3 Geology / Hydrology

The Yucatán Peninsula consists of limestone rocks and mountains → caves (as in the Jura mountains)

¹Before Christ

²Anno Domini, Latin for "in the year of the lord"

4 Methods

- gypsum (CaSO_4) deposition in lake chichancanab (fallout of CaSO_4 if saturation is reached)
- oxygen isotopes ($\delta^{18}\text{O}$) in sediments from lake chichancanab (enrichment of ^{18}O during droughts, because ^{16}O evaporates easier)
- titanium content in sediments from the carriaco basin (less titanium $\rightarrow$ less precipitation)

5 Results

5500 BC	–	500 BC	relative wet
475 BC	–	250 BC	drought period (before the rise of Maya civiliation)
250 BC	–	150 BC	wet
150 BC	–	250 AD	drier period
250 AD	–	600 AD	good climate conditions
600 AD			begin of a long dry period
760 AD	–	850 AD	begin of the TCD ³ , worst drought since the last 7000 years
800 AD			zenith of the drought and collapse of the civilization
910 AD	–	990 AD	second drought period
1060 AD	–	1100 AD	third drought period

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³Terminal Classic Drought