Climate in the Cenozoic and Quaternary
Characteristics of Earth’s modern climate

- Strong latitudinal gradient in temperature
- Isthmus of Panama, Africa and the Middle East block circum-equatorial currents
- Arctic Ocean and seas surrounding Antarctica allow for circum-polar currents and promote ice caps
- Wet tropics, dry subtropics because of vertical atmospheric circulation patterns
- Global mean annual surface temperature (1901-2000 average) = 13.9 C (57.0F)
Modern annual variation in precipitation
Modern ocean currents (surface)

Circumpolar current
Modern biomes
Global temperature through the Cenozoic

Oxygen isotope proxy for temperature

Global mean annual temperatures at PETM 19.8C (leaf data) to 26.0C (isotope data) (67.6 - 78.8F)

Late Neogene and Quaternary Climate
with Eurasian shrews

- Modern Global Temperature
- Marine Isotope Stages
- δ¹⁸O
- KYA
- MN

Legend:
- Deinsdorfia
- Zelceina
- Dimylosorex
- Sorex

References:
- Nada
Last 500,000 years of global MAT

- **Last Glacial Maximum (LGM)**
  - Holocene
  - Weichselian
  - Würmian
  - Devensian
  - Vistulian
  - Valdai

- **Last interglacial (Eemian)**
  - Holsteinian / Hoxnian
  - Elsterian
  - Mindelian
  - Anglian
  - Okaian
  - Shaitanian

Years:
- 486.0
- 453.5
- 420.9
- 388.4
- 355.9
- 323.3
- 290.8
- 258.3
- 225.7
- 193.2
- 160.7
- 128.1
- 95.6
- 63.1
- 30.5
General Circulation Climate Models