Panel 4: CENOZOIC – Age of Mammals (66 Ma to now)

**LIFE**

Evolutionary relationships based on DNA

- **Platyrhini; Catarrhini** (New-World monkeys; Old-World monkeys and apes)
- **Catarrhini** (Old-World monkeys and apes)

**Primates**

**Land-mammal maximum weight**

**Bioevents**

In contrast to the DNA-based time tree above, fossil evidence places most of the mammal divergence in the Paleocene and Eocene, shortly after the KPg impact and extinction at 66 Ma.

**Appearance of open, grass-dominated habitats**

**Geological events**

Cenozoic temperatures peaked in the Eocene, then declined to glacial levels today, and a major geological mystery is why this decline took place. Geological events may be responsible, including the rise of regions like Tibet and the Andes to very high elevation, and continental movements that allowed ocean circulation to isolate Antarctica, keeping warm water away, and leading to the formation of its ice sheets. Unfortunately none of these events can presently be dated with the precision necessary to test this idea. The deformations within mountain belts can be dated, but dating the uplift of the mountains is more difficult. Opening or closing of oceanic passages should be reflected in the deep-sea sediments, but this is complicated in practice. The reason for the ice age is still unsolved.

**Deformation of the Himalayas and Tibet continues to present time**

Antarctic glaciation

Drying up

Catastrophic refilling

Mediterranean Sea

**EARTH**

Temperature

- **Early Eocene** climatic optimum
- **Mid-Miocene** climatic optimum
- **Mio-Pliocene cooling**
- **Ice Age**

**Polity**

- **India-Asia collision initiates the growth of the Himalayas**
- **65 Ma**
- **50 Ma**

**Panel 5**

- **Humans and extinct relatives**
- **Panel 6**

**Data from Smith et al., 2010, Science, v. 330, p. 1216**

**Hedges and Kumar, 2009, The Timetree of Life**

- **Hominidae**
- **Homininae**
- **Hominini**

**Genus Homo**

- **S. America**
- **W. Eurasia**
- **N. America**

**Humans and extinct relatives**

** Humans and extinct relatives**

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