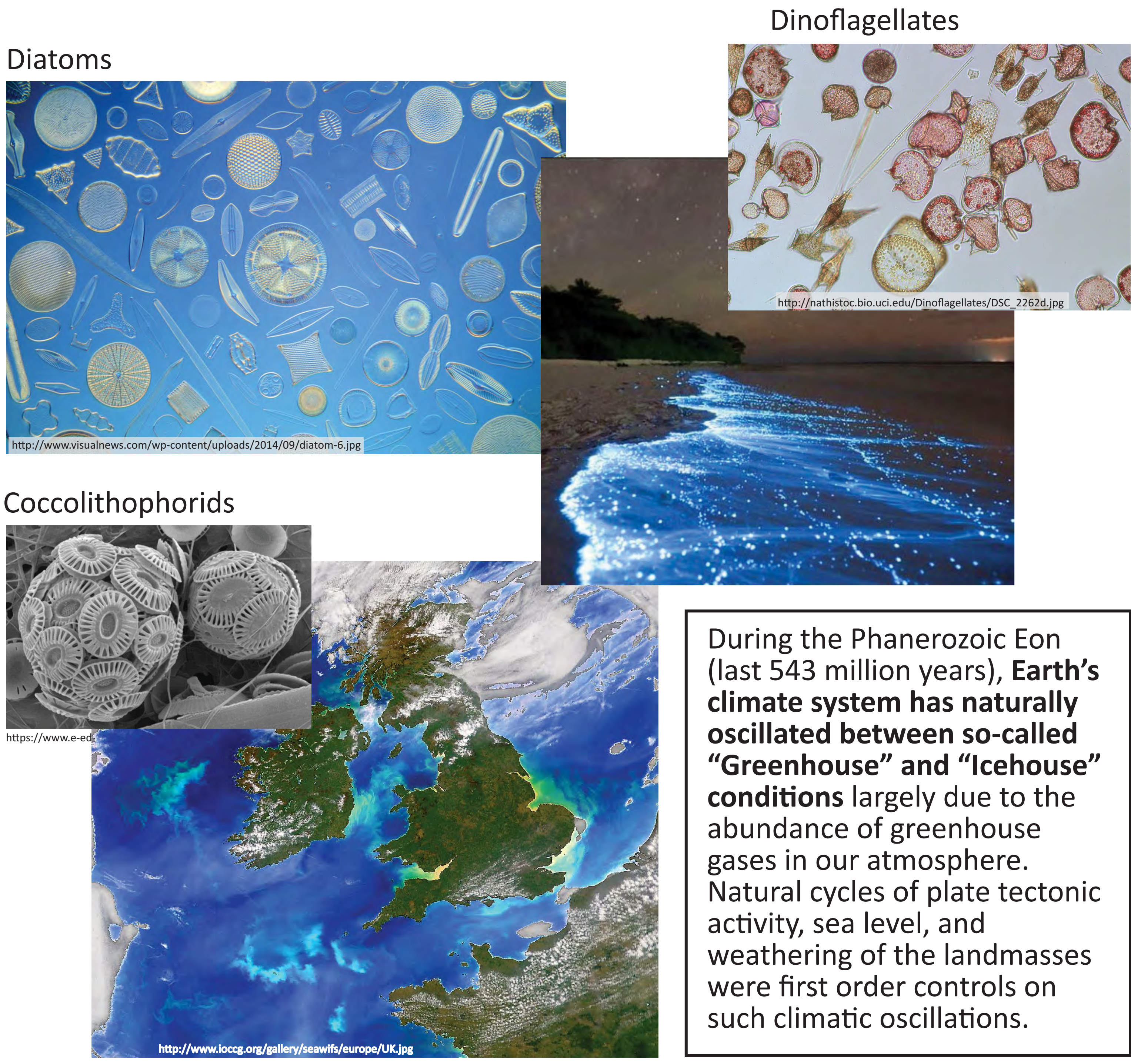
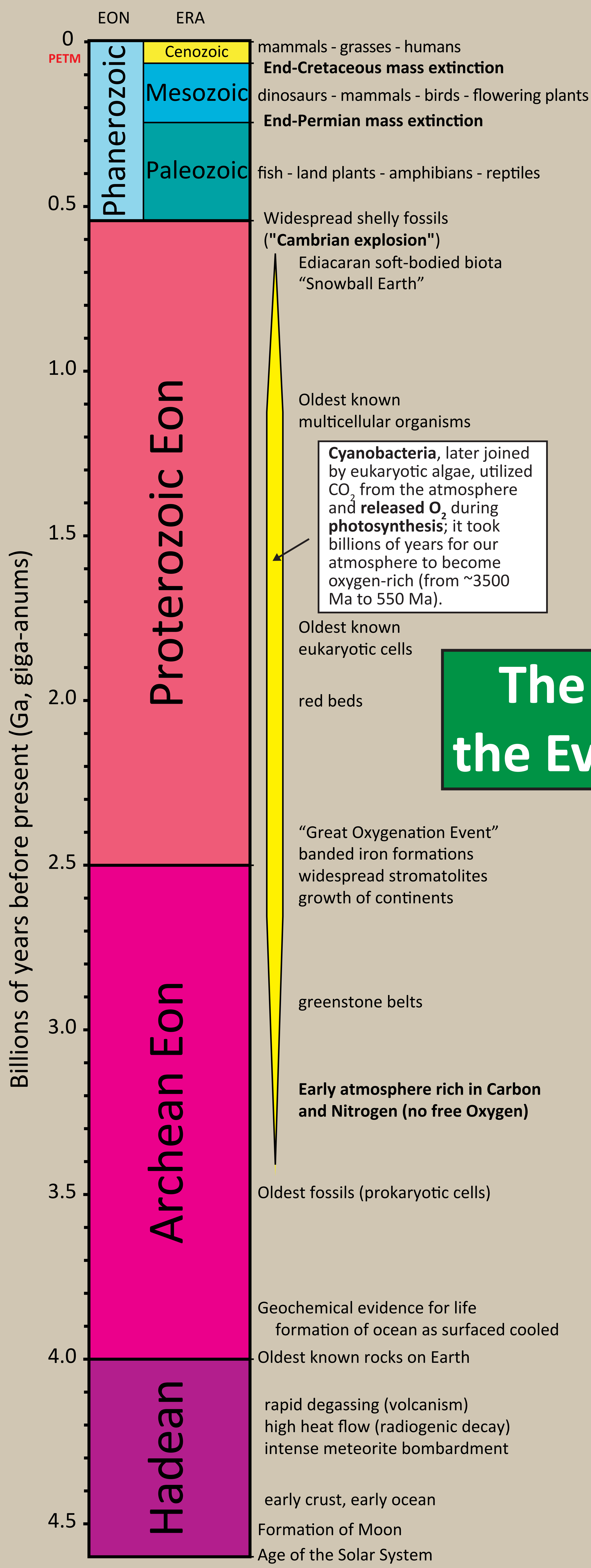
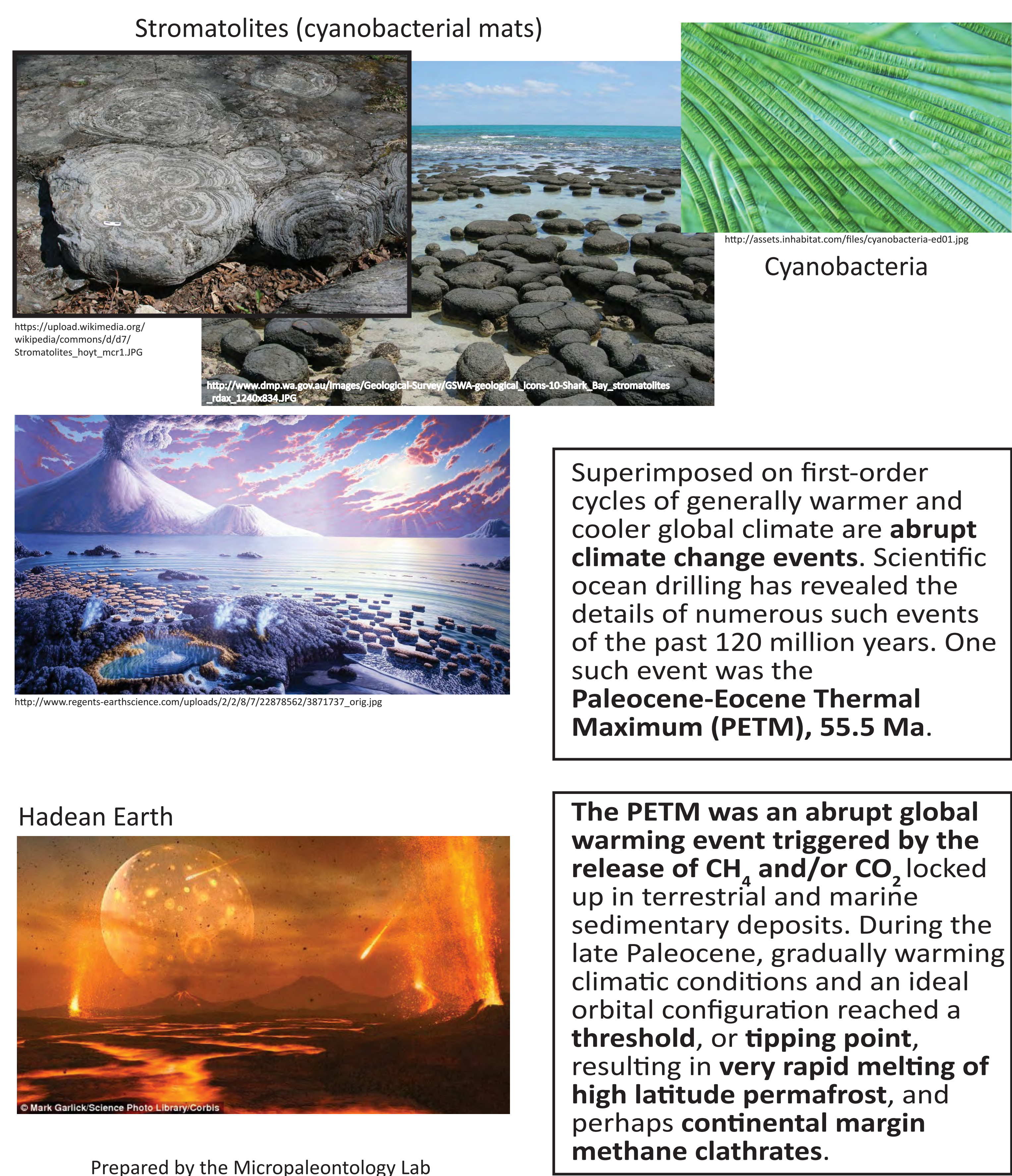


Key Events in Earth History

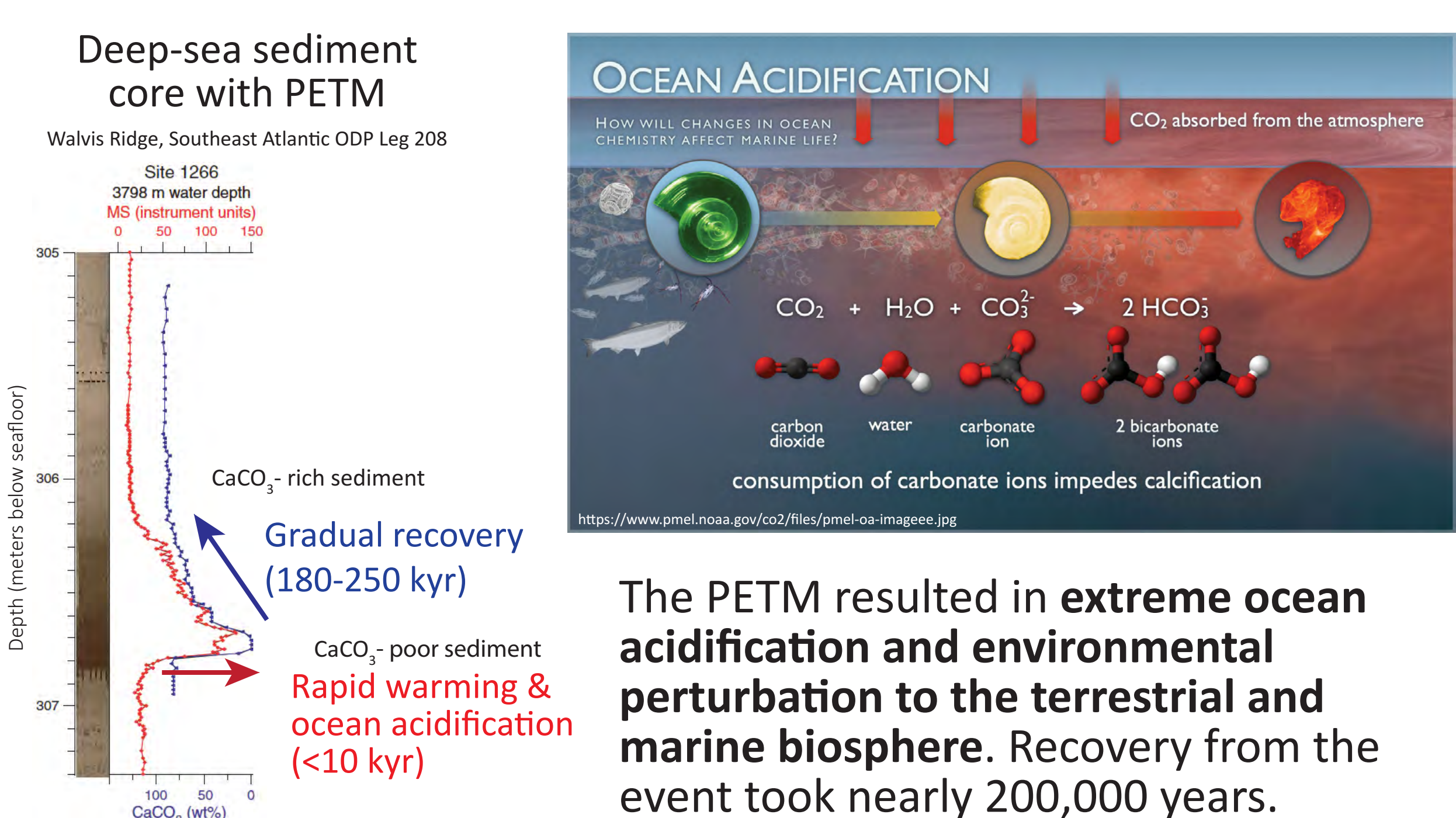
For the past 200 million years, **coccolithophorids, dinoflagellates, and diatoms** have been the dominant phytoplankton in the world ocean. These **autotrophs** fix **inorganic carbon** (CO₂) to create **organic carbon** (carbohydrates, proteins, lipids) through the process of photosynthesis. Under the right conditions, this organic matter will accumulate in sediments where it can be later modified to form **petroleum** and **natural gas**. Burning of such **fossil fuels** is the major contributor to **global warming today**.



The Global Carbon Cycle and the Evolution of Life and Climate



Example of Rapid Climate Change (55.5 Ma): Paleocene-Eocene Thermal Maximum (PETM)



The PETM holds valuable clues to the nature of tipping points and the impact of abrupt global warming on our planet. The **high latitudes and deep sea warmed by 6°C in <10,000 years**; that's 0.6°C in 1000 years or 0.06°C in 100 years. Last century, global average temperatures rose ~0.6°C, which is an **order of magnitude more rapid than the PETM**.

Rapid Climate Change Today

