

Early Evolution of Earth: Chronology of Events (posted on web)

- **4.6 – 4.5 Ga – Accretion of earth from solar nebula**
- **4.5 - 4.2 Ga – Heating of protoearth from isotopic decay, gravitational collapse, and meteorite bombardment (amplified by super greenhouse effect) causing melting, differentiation of mantle and core, and outgassing.**
- **4.2 - 4.0 Ga – First crustal rocks formed. Differentiation of oceanic and continental crust begins through recycling. Continued degassing. Large meteorite impacts periodically removing protoatmosphere.**
- **3.9 Ga – Decline in meteorite bombardment as loose nebular debris is captured by Sun and planets. First stable continental crust forms.**
- **3.8 - 3.5 Ga – Buildup of crustal material into protocontinents. Accretion of continents via microplate tectonics. Water condensing and accumulating above basaltic crust, causing sedimentation and potentially life.**
- **3.0 Ga - Beginning of oxygenation of atmosphere due to photochemical dissociation and photosynthesis (BIF).**
- **2.4 - 2.2 Ga – Free oxygen buildup in atmosphere and oxidation of earth surface.**