

Thème 1 - Science, climat et société
 L'atmosphère terrestre et la vie

Evolution of the atmosphere

Explain the documents by placing emphasis on the passage in bold characters

Document 1: Evolution of the atmosphere

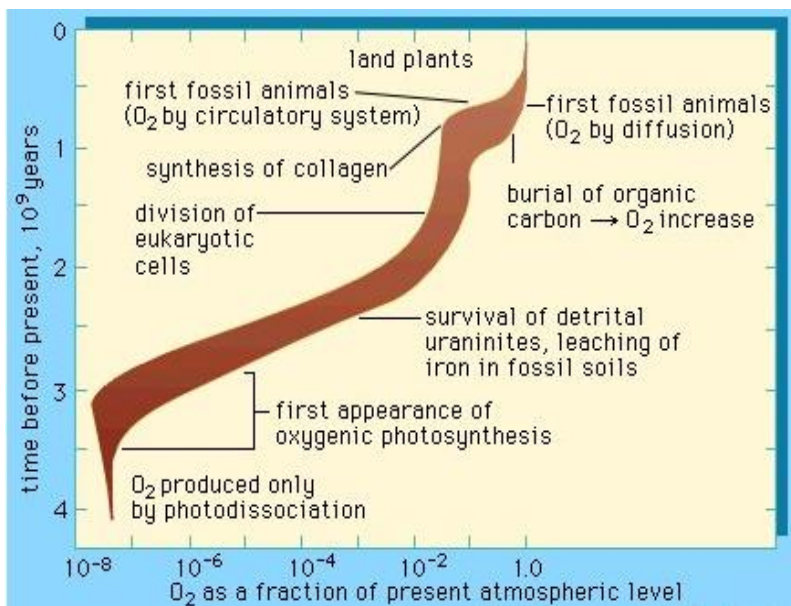
The process by which the current atmosphere arose from earlier conditions is complex; however, evidence related to the evolution of Earth's atmosphere, though indirect, is abundant. Ancient sediments and rocks record past changes in atmospheric composition due to chemical reactions with Earth's crust and, in particular, to biochemical processes associated with life.

Earth's original atmosphere was rich in vapour, and the noble gas neon, but it lacked free oxygen. It is likely **that hundreds of millions of years separated the first biological production of oxygen by unicellular organisms and its eventual accumulation in the atmosphere.**

Interactions with the crust and with living things — the biosphere — can strongly affect the composition of the atmosphere. These interactions, which form the most important sources and sinks for atmospheric constituents, are viewed in terms of biogeochemical cycles, the most prominent and central being that of carbon.

The composition of the atmosphere encodes a great deal of information bearing on its origin.

Document 2: Abundance of oxygene



A "best guess" reconstruction of the abundance of O_2 in Earth's atmosphere as a function of time. The O_2 abundance axis is logarithmic.

Encyclopædia Britannica, Inc.

Adapted from an article written by J.M. Hayes,
Distinguished Professor of Biogeochemistry, Indiana University, Bloomington, USA.

In bold: en caractère gras

Eventual = final

Best guess: estimation la plus probable

Uraninite: a black, grey, or brown mineral which consists mainly of uranium dioxide