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地球生命の寿命は水、ＣＯ２と栄養塩供給で決まる
Life limit of Earth's life as functions of water, CO2 and nutrients

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To understand the ecosystem to drive life continuously from its birth to the present, and its future, the reaction to synthesize life is critical. The three components, water, CO2, and nutrients are combined all to bear life by the help of Sun energy on the surface of the Earth. In the Phanerozoic, this system began to work effectively by the nutrient supply due to emergence of huge TTG mass (continents).

On the contrary, the ecosystem was extremely poor because of minor nutrients in most Precambrian time. Minor amounts of nutrients with sufficient water and CO2 constrained the reaction to produce life in the Archean and basically same in the Proterozoic, although increased considerable amounts later. After the emergence of huge landmass at 600Ma, the ecosystem has suddenly changed, 106 times bigger than before to open the door of Cambrian explosion. Through the Phanerozoic, the Earth has spent most of CO2 which remains now only 400ppm in atmosphere. When we will lose CO2 in atmosphere, the reaction above will stop to change the ecosystem. The oxygen-rich atmosphere will also be changed. Instead, the world of anoxic bacteria will appear again on the surface of the Earth, and the world of metazoan will end.

1.5Ga afterward, the Earth will lose the Ocean on the surface, which will be the time of ending life.