The Gaia hypothesis, a product of the lively imagination of British atmospheric chemist James E. Lovelock and the international space program, states that the atmospheric temperature and reactive chemical composition of the biota, that is the estimated 30 million species of flora, fauna and microbiota depend ultimately on solar and geothermal energy. The Gaia hypothesis, generative of new ideas that lead to experiments, observations and calculations, is unequivocally science. We people, newly arrived Homo sapiens, are dispensable components of our Gaian Earth.

During the last 3500 million years the Earth’s atmosphere and surface have deviated from those of Mars and Venus, its neighboring planets. The excursion of the Earth away from a solar system inner-planetary-norm, is best understood as the planetary response to the evolution of life. Gaia science, made palatable to academics by calling it “Earth System Science” is an exciting new integrative research initiative of Astrobiology.