

Global warming as another major controversy in the history of earth science

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The appearance of plate tectonics in the late 1960s provides a typical example of a scientific revolution in terms of paradigm concept by T. Kuhn (1962). We point out similarity and dissimilarity between the turmoil by the appearance of plate tectonics and the current controversy on global warming.

The most striking similarity is recognized in having confrontation between two groups of scientists. Meteorologists have traditionally explained the Earth's surface temperature and its change within the framework of our own solar system, whereas astrophysicists recently proposed that the Earth's weather is essentially controlled by cosmic rays from galaxies. As to the case of plate tectonics, there was a remarkable confrontation between traditional geologists (fixists) and geophysicists (mobilists).

As the asteroid impact was identified as a cause of the end-Mesozoic mass extinction, earth scientists have obtained much broader perspective to understand processes in Earth's biosphere than before. This worked as another major paradigm in earth science in the 20th century as well as plate tectonics. The intimate control of the Earth's climate by galaxy may be accepted by scientific community (except traditional meteorologists) possibly with lesser confrontation than expected.

From the viewpoint of the involvement of ordinary people in the world, the current issue of global warming may be compared with some past examples, such as that on biological evolution initiated by C. Darwin, or that on the moving Earth declared by G. Galileo. The major difference may lie in the tremendously large impact of mass media in the current controversy on global warming.

We need to seek and establish a possible healthy relationship between scientific community and mass media in the 21st century, as we will soon reach a critical condition between the world population and food supply in the next 12 years (Crisis 2020).