

Changes in a scientific concept: what is a planet?

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Abstract

The need for an explicit and exact definition of a planet has arise out of the growing rate of discovery of Trans-Neptunian Objects (TNOs) with physical and orbital properties comparable with those of Pluto, the smallest planet of the solar system. On July 29, 2005, the IAU Circular 8577 has announced the discovery of a TNO, named 2003UB313, bigger than Pluto; its discoverers have asserted that 2003UB313 must be regarded as the tenth planet of the solar system. Lacking of a definition of a planet, the International Astronomical Union has been unable to decide whether 2003UB313 should be classified as a planet, and no official name has been given to 2003UB313. Eventually, astronomers gathered at the 26th General Assembly of International Astronomical Union agreed on a definition of a planet, and Pluto was demoted from the role of planet. This situation is very interesting for the philosopher of science who can be an eyewitness of a real process of explication of a scientific concept. In this paper I examine various proposals for defining the concept of a planet and put them into a philosophical context. The principal philosophical results is that planet, as defined by the new official definition, is not a natural kind.

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