EPSC Abstracts,
Vol. 4, EPSC2009-191, 2009
European Planetary Science Congress,

Modelling of terrestrial extrasolar planet atmospheres

H. Rauer (1)

(1) DLR, Institute of Planetary Research, Berlin, Germany (heike.rauer@dlr.de, 0049 30 67055340)

Abstract

Whether planets able to harbour life exist outside our solar system is one of the most profound questions today. It can be addressed by characterizing the atmospheres of terrestrial extrasolar planets since spectroscopic absorption features of biomarker molecules can indicate the potential for life as we know it on Earth. Atmospheres of hot extrasolar giant gas planets have already been investigated by UV, optical and IR spectroscopy today. In future, spectroscopy of large, terrestrial planets ("super-Earth"), in particular planets in the habitable zone of their parent star, will be a major goal of investigation. Planning future space satellite observations of super-Earths requires modelling of atmospheres of terrestrial planets in different environments, such as e.g. central star type, orbital distance, as well as different atmospheric compositions. An overview of expected planetary conditions in terms of their habitability for "life as we know it" will be presented for several such model scenarios of terrestrial extrasolar planets.