EPSC Abstracts
Vol. 7 EPSC2012-573 2012
European Planetary Science Congress 2012

Climate modeling of Earth-like extrasolar planets around K and F-type stars

M. Godolt (1), J. L. Grenfell (1), M. Kunze (2), U. Langematz (2), A. B. C. Patzer (1) and H. Rauer (1,2)
(1) Center of Astronomy and Astrophysics, Berlin Institute of Technology, Germany, (2) Institute of Meteorology, Free University Berlin, Germany, (3) Institute of Planetary Research, German Aerospace Center, Berlin, Germany
(godolt@astro.physik.tu-berlin.de)

Abstract

We present 3D atmospheric modeling results of Earth-like extrasolar planets around K- and F-type stars. So far the influence of different host stars upon Earth-like extrasolar planetary atmospheres has been investigated mainly with 1D atmospheric models.
The impact of different stellar spectra and planetary orbital periods upon planetary climate and atmospheric dynamics is analyzed using a state-of-the-art 3D climate model.
We find that the planetary climate strongly changes due to surface interactions. Our findings are compared to those of a 1D climate model to address the applicability of such simplified models.