Geophysical Research Abstracts
Vol. 12, EGU2010-11989, 2010
EGU General Assembly 2010

Atmospheric escape of the transiting super-Earth GJ 1214b

Petra Odert (1), Martin Leitzinger (1), Helmut Lammer (2), Yuri N. Kulikov (3), Maxim L. Khodachenko (2), and Arnold Hanslmeier (1)

(1) Institute of Physics, University of Graz, IGAM, Graz, Austria (petra.odert@uni-graz.at), (2) Space Research Institute, Austrian Academy of Sciences, Graz, Austria, (3) Polar Geophysical Institute, Russian Academy of Sciences, Murmansk, Russia

The recently discovered super-Earth GJ 1214b is an interesting and unique object. Its observed mass ($6.55 M_{\oplus}$) and radius ($\sim 2.7 R_{\oplus}$) yield a rather low mean density of 1.87 g cm^{-3}, so the planet is likely to possess a gaseous envelope. Since the object is orbiting at a very close distance of 0.014 AU to its host star, the question arises how atmospheric escape has influenced the evolution of this planet. We present the results of energy-limited escape calculations, including Roche lobe effects, appropriate heating efficiencies, and evolution of the host star's XUV luminosity, to explore possible scenarios of the evolution of this planet.