



Study of the Martian atmosphere by the radio science experiment MaRS during the occultation seasons of Mars Express

M. Pätzold (1), B. Häusler (2), G.L. Tyler (3), S.W. Asmar (4), D.P. Hinson (3), R. Schaa (1), S.A. Tellmann (1)

(1) Institut für Geophysik und Meteorologie, Universität zu Köln, Cologne, Germany
(paetzold@geo.uni-koeln.de)

(2) Institut für Raumfahrttechnik, Universität der Bundeswehr, München, Neubiberg, Germany

(4) Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA, USA

(3) Dep. Of Electrical Engineering, Stanford University, Stanford, CA, USA

The prime objective of the radio science experiment MaRS on Mars Express is the sounding of the Martian atmosphere and ionosphere during the Earth occultation seasons in order to derive vertical profiles of density, temperature and pressure in the altitude range from the surface to about 50 km and to derive electron density profiles of the ionosphere in the altitude range from 80 km to over 400 km as a function of latitude, longitude, local time and planetary season. More than 100 vertical profiles of the neutral atmosphere during the first occultation season covering the northern mid-latitudes to the southern low latitudes and 28 during the second occultation season covering southern mid latitudes to high polar latitudes have been obtained. Results and examples will be presented, also in comparison with general circulation models.