

THE IONOSPHERE OF MARS: SOURCES, VARIABILITY AND COUPLING TO THE SOLAR WIND

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The ionosphere-thermosphere components of the Mars International Reference Atmosphere (MIRA) represent the upper limits of the planet's atmospheric environment. Above approximately 100 km, the ionospheric domain occurs in a relatively limited altitude region, but one that contains a rich blend of photochemical processes and space plasma dynamics. There are two ionospheric layers between 100-150 km, an exosphere that begins near 200 km and an "ionopause" near 350 km that results from the solar wind interaction with ionospheric plasma. The recent discovery of localized magnetic fields (predominately in the southern hemisphere) adds a complexity of ionosphere-magnetosphere-like interactions that needs to be understood. The MIRA Ionospheric Team will be composed of an international group of researchers involved in all aspects of upper atmospheric science at Mars. The proposed effort will involve working with other MIRA groups in the years ahead, and especially with colleagues involved in upcoming satellite missions to Mars.