HAARP INDUCED IONOSPHERIC DUCTS

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It is well known that strong electron heating by a powerful HF-facility can lead to the formation of electron and ion density perturbations that stretch along the magnetic field line. Those density perturbations can serve as ducts for ELF waves, both of natural and artificial origin. This paper presents observations of the plasma density perturbations caused by the HF-heating of the ionosphere by HAARP facility. The low orbit satellite DEMETER was used as a diagnostic tool to measure the electron and ion temperature and density along the satellite orbit overflying close to the magnetic zenith of the HF-heater. Those observations will be then checked against the theoretical model of duct formation due to HF-heating of the ionosphere. The model is based on the modified SAMI2 code, and is validated by comparison with well documented experiments.