

The Venus Ionosphere as seen by the Akatsuki Radio Science Experiment

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The radio science experiment on the Japanese Venus orbiter Akatsuki is sounding the ionosphere of Venus in the one-way radio link mode at X-band (8.4 GHz). The radio link is stabilized by an on-board Ultrastable Oscillator (USO). Because of the geometry of the Earth/Venus/Akatsuki constellation, Earth occultations occur in seasons. Akatsuki will have finished its third season at the time of this conference. The locations of the occultation ingress and egress positions during a season are confined in a band within the mid-latitudes on both hemispheres. Ingress and egress local times are at night to early morning and afternoon to early night, respectively. This work will present the ionospheric electron density profiles from the first seasons of Akatsuki radio sounding and will compare those directly with VEX-VeRa ionospheric electron density profiles at similar locations, local times and solar zenith angles but from different phases of the solar cycle.