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Doppler shift of transionospheric HF radio waves

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When HF radio waves travel through a dispersive medium such as the ionosphere, the refractive index varies along the wave path from the transmitter to the satellite receiver. The electron density profile along the path of the radio waves is used as input to a raytracing model to assess the effect of the refractive index on the radio wave. Using the radio receiver instrument (RRI) on the e-POP/Swarm-E satellite, the Doppler shift is used to verify the methodology underlying the model. The measured Doppler shift is observed to be lower than expected for the free space case.

Keyword-1

Doppler shift

Keyword-2

e-pop

Keyword-3

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