

## Phase scintillation observation of solar wind using spacecraft signals

# Takeshi Imamura[1], Katsuyuki Noguchi[2], Koh-ichiro Oyama[2], Munetoshi Tokumaru[3]

[1] The Institute of Space and Astronautical Science, [2] ISAS, [3] STE Lab., Nagoya Univ.

Radio wave phase scintillation was observed using the Nozomi spacecraft during its solar conjunction in 2000-2001. The minimum solar offset distance was 12 solar radii. The X-band (8.4GHz) signal was downconverted to 20kHz and sampled by 80kHz A/D. The fluctuations of phase and amplitude are obtained offline. The phase fluctuation observed in the X-band downlink signal is attributed mostly to the effect of plasma turbulence on the S-band (2.3GHz) uplink signal. The phase scintillation spectra, which cover the fluctuation frequencies of 0.001-100Hz, enable us to infer the generation and energy cascade processes of plasma turbulence.

Radio wave phase scintillation was observed using the Nozomi spacecraft during its solar conjunction in 2000-2001. The minimum solar offset distance was 12 solar radii. The X-band (8.4GHz) signal was downconverted to 20kHz and sampled by 80kHz A/D. The fluctuations of phase and amplitude are obtained offline. The phase fluctuation observed in the X-band downlink signal is attributed mostly to the effect of plasma turbulence on the S-band (2.3GHz) uplink signal. The phase scintillation spectra, which cover the fluctuation frequencies of 0.001-100Hz, enable us to infer the generation and energy cascade processes of plasma turbulence.