Ka-band and X-band Propagation Through the Solar Corona

D. Morabito, S. Shambayati, S. Butman, D. Fort and S. Finley
Jet Propulsion Laboratory
California Institute of Technology

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The Mars Global Surveyor spacecraft's Ka-band and X-band signals were tracked by the NASA Deep Space Network's facilities in Goldstone, California during the May 1998 solar conjunction period of Mars. The observed solar corona effects included increased thermal noise, spectral broadening, scintillation, and reduction of received signal-to-noise ratio. These observations will be presented and compared with similar results from other solar conjunctions. The Mars Global Surveyor 1998 solar conjunction was the first in which Ka-band and X-band signals were simultaneously tracked through the solar corona.