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Possibility of interference caused by solar radio bursts

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It is known that strong radio wave with wide frequency range is emitted associated with solar flares. It is called solar radio bursts. There are several reports that strong solar radio bursts affected reception of radio wave from GPS satellites. GPS satellites use radio wave of 1.57542 GHz (L1) and 1.2276 GHz (L2) for positioning and it is necessary for positioning to receive signals from more than four satellites. It is difficult to eliminate the effect of solar radio bursts by directivity of antenna.

We examined how strong solar radio burst affects positioning of GPS. We analyzed how frequently the solar radio bursts which affect GPS positioning occurs using past approximately twenty-five years data from the Nobeyama Solar Radio Observatory of the National Astronomical Observatory.

Keywords: solar radio burst, interference, space weather