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(I) The impact of ionospheric plasma turbulence on communication, position, navigation, and timing systems

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The ionosphere, an ionized part of the Earth's atmosphere, affects radio waves passing through it. The ionosphere and structures in them can cause disruptions in communication, position, navigation, and timing (CPNT) systems that rely on radio signals. These effects are scale dependent and driven by plasma turbulence (irregularities) in the ionosphere. The impact of ionospheric plasma turbulence on CPNT systems is significant and ranges from correctable/manageable errors to catastrophic failure of CPNT systems. For most applications, these effects can be broadly categorized into deterministic and stochastic. This talk will outline the impact of plasma turbulence on CPNT systems and methods to mitigate some of these detrimental effects on these critical systems. The talk will also discuss the use of these impacted signals in fundamental research on plasma turbulence and ionospheric irregularities.

Keyword-1

Plasma turbulence

Keyword-2

Ionosphere

Keyword-3

CPNT systems

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