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Ann. Geophys. Discuss., author comment AC4
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Reply on RC2

Vladimir B. Belakhovsky et al.

Author comment on "Influence of different types of ionospheric disturbances on GPS signals at polar latitudes" by Vladimir B. Belakhovsky et al., Ann. Geophys. Discuss., https://doi.org/10.5194/angeo-2020-93-AC4, 2021

Reviewer:

«Lines 243-244: "Possibly low values of amplitude scintillations at high latitudes are caused by the low elevation angles of GPS satellites at these regions."

The issue is the opposite! When the elevation is low the S4 could be higher because of the contributions from longer path from the transmitter to the receiver».

Answer:

This is hypothesis. The plasma irregularities producing high-latitudes scintillations mainly formed along the geomagnetic field. At polar latitudes (near Svalbard) the geomagnetic field is close to vertical. So radiowave beam of GPS satellite penetrate through the ionosphere not along geomagnetic field. If we will have satellite with higher inclination angle the amplitude scintillation possibly can be detected. But this hypothesis needs to be tested.