

We thank to the referee for the careful reading and helpful comments and remarks. Below are our answers to the remarks.

**Referee:**

«This seems like a slight contradiction to me. Maybe I have just misunderstood something? In the second piece of text you say that there are always some GPS satellites that can register the disturbance, but in the first piece of text you say that there are no GPS satellites that register the disturbance. Please clarify».

**Answer:**

In the first piece we discuss the small-scale ionosphere disturbances, i.e. with the scale size lower than overlap between the EISCAT and NYA GPS receiver fields of view. At some moments these ionosphere disturbances can be registered by EISCAT and cannot be registered by the GPS satellites. So for some time intervals we see the growth of the ionosphere plasma density and we can't see the growth of the phase scintillation index.

In the second piece we discuss the large-scale ionosphere disturbances. Large-scale ionosphere disturbances can be registered by the several GPS satellites.

**Referee:**

«I understand what you are saying, but I think your hypothesis will quickly run into problems. Plot the S4 index as a function of elevation, and you will typically see increased values at low elevations. See for example the plot on the following page, which is a time series of S4 for an entire pass of a satellite observed by a scintillation receiver at Ny-Ålesund. The start and end of the time series, which are at the lowest elevation, have the highest values. You will need to explain how this can be consistent with your hypothesis...».

**Answer:**

We agree with the referee that our hypothesis is not obvious and give raise a lot of questions. At the same time, this hypothesis does not affect on results obtained in the paper. So we decide to remove this hypothesis from the paper.