

Ann. Geophys. Discuss., community comment CC3
<https://doi.org/10.5194/angeo-2021-15-CC3>, 2021
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Reply on CC2

Harold Knight

Community comment on "Validation of SSUSI-derived auroral electron densities: comparisons to EISCAT data" by Stefan Bender et al., Ann. Geophys. Discuss., <https://doi.org/10.5194/angeo-2021-15-CC3>, 2021

Some additional details may be needed to make the proton/ion issue clear. As I just mentioned, there are situations in which proton precipitation is the main source of auroral LBH. Auroral emission models predict different LBH yields for proton and electron aurora. There are also differences in model predictions of ionospheric E region electron densities for electron and proton/ion precipitation. Knight (2021) gives details on these differences. A method that derives E region parameters based on an assumption of electron precipitation would be expected to be inaccurate in situations where proton precipitation is the main source of auroral LBH. Knight (2021), however, surprisingly finds that there is no bias in NmE associated with proton precipitation.