

Interactive comment on “Electron heating by HF-pumping of high-latitude ionospheric F-region plasma near magnetic zenith” by Thomas B. Leyser et al.

Anonymous Referee #2

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This study examines two intervals where electrons in the high-latitude ionosphere were heated using the EISCAT high-frequency heating facility. Plasma parameters were then measured using the EISCAT incoherent scatter radar. The results were combined with modelling to show that the L-mode wave propagation leads to the plasma properties measured at magnetic zenith, as opposed to O-mode wave propagation as was previously thought.

This manuscript is very well written and concise. I believe that the results are new and of interest to the scientific community and I therefore recommend this paper for publication, subject to some minor modifications (see below).

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Minor comments: 1) L. 151: Instead of "quantitatively", I think you mean "qualitatively". Whilst the colours and patterns in the data look similar, the numbers do not exactly match. 2) Your use of hyphenating O-mode/O mode is inconsistent. Please choose one. 3) Either in the introduction or the experimental setup section: Please reference L- and O-mode and explain the significance of this experiment. Whilst I understand that this paper shows a new result, it does not explain very well why this is a) important and b) useful to know. 4) Figure 6: Please indicate on the plots where the zenith angle is (perhaps add a dashed line). This would help the reader a lot to understand your argument.

Interactive comment on Ann. Geophys. Discuss., <https://doi.org/10.5194/angeo-2019-159>, 2019.

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