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Atmospheric Chemistry and Physics Discussions



# *Interactive comment on* "Solar 27-day signatures in standard phase height measurements above central Europe" *by* Christian von Savigny et al.

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## Reply to comment by Jan Lastovicka

Reviewer comment: You observed remarkably larger amplitude of the 27-day variation in the phase reflection heights near 80 km at solar minimum than at solar maximum. You do not have explanation for this finding. Let me inform you that the remarkably larger amplitude of the 27-day variation in the lower ionosphere was also found in the radio wave absorption in the lower ionosphere by Pancheva et al. (1991). Main conclusions nfrom this paper: The 27-day fluctuations in the lower ionosphere are of direct solar origin only if the Lyman-alpha flux exhibits a very well expressed solar rotation variation. The absorption fluctuations are largest in winter near solar activity



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minimum, in fair coincidence with the maxima of corresponding fluctuations in zonal and particularly meridional winds. This indicates a dynamical forcing (maybe of solar origin).

Reference: D. Pancheva, R. Schminder, J. Lastovicka (1991): 27-day fluctuations in the ionospheric D-region. J. Atmos. Terr. Phys., 53 (11/12), 1145-1150, https://doi.org/10.1016/0021-9169(91)90064-E.

Best regards, Jan Lastovicka

***Reply: Many thanks for this information. We now cite the paper by Pancheva et al. (1991) and added the following statements to the discussion section:***

***"In this context it is also important to mention that Pancheva et al. (1991) investigated quasi 27-day fluctuations in ground-based measurements of radio wave absorption in the lower ionosphere. They found indications for several aspects that are in good qualitative agreement with the results presented here. The reported absorption fluctuations are largest during winter near solar minimum, suggesting a dynamical forcing, which may be of solar origin, as the authors suggest."***

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