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Mutual Allocation of the Artificial Airglow Patches and Large-Scale Irregularities in the HF-Pumped Ionosphere

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Abstract

©2018. American Geophysical Union. All Rights Reserved. The paper reports first simultaneous observations of artificial emission of 630-nm oxygen red line, along with perturbations of slant total electron content (STEC). They were induced by the high-frequency (HF) ionospheric heating produced by the SURA facility situated near Nijniy Novgorod, Russia. The HF heating affects differently the optical emission and STEC. While the patches of the artificial airglow are close to the area of the reduced STEC, the STEC increases at the periphery of the patches. Thus, the artificial airglow occurs mostly inside the large plasma cavities.

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Keywords

artificial airglow, HF heating, ionosphere, total electron content

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