

## **Distinguishing ionosphere effect observed by turn-on and turn-off of the Tromsø HF heating facility**

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Bistatic scatter measurements of HF diagnostic signals were carried out on the London - Tromsø - St.Petersburg and Pori - Tromsø - St.Petersburg paths in course of the Tromsø ionospheric modification experiments. An interesting feature of HF pumping experiments is exhibited by the appearance of burst-like tracks on the Doppler sonograms. These burst-like tracks are closely related to the point in time at which the Tromsø heater was turned on and off. The burst-like Doppler track observed in hertz frequency range. As possible explanation of the burst-like Doppler tracks in hertz frequency range, related to the turn on and off of Tromsø HF heater, the excitation of the parametric decay instability (PDI) at the upper hybrid frequency was suggested. Recall, that in course of experiments the heater frequency  $f_H$  exceeded the peak ionospheric plasma frequencies  $f_0$ , but was comparable to the maximum upper hybrid frequency  $f_{UH}$ . Non-linear interaction processes at the upper hybrid frequency under the non-stationary electric field of the HF pump wave (effects of turn on and off) may lead to the generation of the solitary wave and self-focusing the HF pump wave. The diagnostic HF signals scattered from this structure should exhibit the appearance of the burst-like track coincided in time with the HF heater turn on or off. The estimate of the solitary wave gives the values frequency of the order of 3-10 Hz and wave number  $\sim(0.2-1.0)\cdot 10^{-6} \text{ m}^{-1}$ .