

## A numerical simulation of a negative solar wind impulse

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Response of the magnetosphere-ionosphere system to the negative impulse of the solar wind dynamic pressure (the negative SI) are studied again with foci of periodic variations of the ionospheric convection and appearance of the overshielding potential. When the negative impulse impinges on the magnetopause, the Region 1 (R1)-type field-aligned current (FAC) and R2-type FAC appears alternatively in the lower-latitudes ( $\sim 70$  deg) of the dayside ionosphere ( $\sim 10$ hLT and 14hLT). These current systems shift nightward and poleward. This alternative appearance of FACs invokes positive and negative ionospheric potential patterns switching alternatively. In addition, the R2-type FAC induced by the negative SI and that by the positive SI tend to yield the shielding electric potential in the ionosphere. This shielding potential has short duration than that for the northward turn of the interplanetary magnetic field does. The duration is longer for the negative SI than for the positive SI.

Keywords: negative SI, numerical simulation, magnetosphere-ionosphere compound system, convection oscillation