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Effective domain of the Ionospheric Alfven Resonator for filtration of the Pc1 waves

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Ionospheric plasma altitude profiling based on simultaneous EISCAT CP-1 and CP-7 mode measurements allows a more detailed study of the Ionospheric Alfven Resonator (IAR) action important for formation of the pulsation signal on the ground. A single high altitude EISCAT CP-1 and CP-7 mode measurement coincident with a subauroral Pc1 multiband signal recorded in northern Finland on 7 March 2001 enabled us to test an IAR model and to determine its effective altitude range which has to be taken into account in the full-wave numerical modeling. This single case study demonstrates that the effective IAR domain for filtration of the Pc1 signal to the ground can be limited to the height of about 1500 kilometers which is significantly smaller that the one commonly used.