Radar observations of mid-latitude FAIs in the SEEK-2 campaign

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In the ionospheric E-region, it was found that distinctive quasi-periodic(QP) echoes which had striated structure and appeared by intervals of several minitus. However, the physical process of the QP echoes are not clear even now.

To understand the physical processes of QP echos,SEEK(Sporadic E Experiment over Kyushu) campaign was conducted in August 1996. Following the success of the SEEK campaign,a second rocket campaign, SEEK-2, was conducted in summer 2002 to better understand the physical processes responsible for the QP echoes in the nighttime mid-latitude E region.Two ionospheric backscatter radar were installed on the island of Tanegashima to measure the properties of field-aligned irregularities and to provide the launch timing for the two SEEK-2 rockets.One radar, the Lower Thermosphere Profiler Radar (LTPR, 31.57 MHz) was installed in Minamitane town (30.37N, 130.97E) and the other, a Frequency Agile Radar (FAR, 24.515 MHz) was installed in

Nishino-omote city (30.75N, 131.03E).

Strong QP echoes were observed with both the radars when the two sounding rockets were launched into the ionosphere, with 15 minutes

interval, at 23:24 and 23:39 JST on August 3, 2002.A spatial domain interferometer was composed by using the LTPR's six receiving channels revealed that echoes appeared eastern edge of the radar field-of-view and moved westward.They distributed between 95 to 120 km in altitude.The interferometer technique revealed that the echoes with apparent

height of up to 140km really distributed in the eastern side lobe of radar beam.

In the presentation, we will discuss neutral wind derived from meteor echoes in connection with the drift of FAI echoes and time lags between FAI echo occurrences with the LTPR and the FAR.