

## Radar observations of F-region field-aligned irregularities over Indonesia

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A VHF Doppler radar with a carrier frequency of 30.8 MHz and a peak power of 20 kW has been operated routinely at Kotabang (0.20°S, 100.3°E; dip latitude 10.4°S), Indonesia since February 2006. Five beams were allocated between 54° around geographic south (126°-234°). From the continuous observation from February 2006 to November 2007, we found that FAIs appeared frequently at pre-midnight between March and May and at post-midnight between May and August. The pre-midnight FAIs coincided well with GPS scintillation observed at the same site. Seasonal and local time variations of the pre-midnight FAI occurrence are consistent with those of equatorial plasma bubbles reported in previous studies. These results indicate that the pre-midnight FAIs could be associated with the equatorial plasma bubbles. On the other hand, seasonal and local time variations of the post-midnight FAIs were inconsistent with those of the plasma bubbles. The features of the post-midnight FAIs can be summarized as follows: (1) The post-midnight FAIs are not accompanied by GPS scintillations. (2) Most of the post-midnight FAI regions do not show propagation, but some of them propagate westward. (3) Echo intensity of the post-midnight FAIs was weaker than that of the pre-midnight FAIs. These features are similar to those of the FAI echoes that have been observed at mid-latitude. However, mechanism generating the post-midnight FAIs is still unknown.