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PLASMA BLOB OBSERVED BY GROUND-BASED OPTICAL AND RADIO TECHNIQUES IN THE F-REGION – A CASE STUDY ON 27-28 AUGUST 1987

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An interesting case of plasma blob event was observed on August 27-28, 1987, over Cachoeira Paulista (22.7S, 45.0W; dip lat. 14.8oS, magnetic declination 17.5W (the dip lat. and mag. decl. were calculated using IGRF-11 for the year 1985 for an altitude of 300 km)) showing a localized plasma density enhanced by a factor of, approximately, 2 higher than the background level. On this night, during the blob occurrence, geomagnetic activity was in the end of recovery phase with Dst index around -26 nT. An OI 630 nm all-sky imager was used to map the spatial extension and temporal location of the plasma blob, which showed, typically, east-west and north-south extensions of 260-280 km and 290-310km, respectively. The F-region parameters were obtained from a Digisonde 256, providing valuable information on the ionospheric behavior during the event. In addition, this event indicates that the plasma bubble is not a prerequisite condition for the appearance of blobs. In this paper, important features from this localized electron density enhancement, in the low latitude region, is presented and discussed.