# A localized ionospheric current vortex associated with the equatorial counter electrojet in the evening sector

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It is well known that typical Sq current system consists of a counter clockwise (CCW) vortex centered at low latitude in the northern hemisphere and a clockwise (CW) vortex in the southern hemisphere. Shinohara and Kitamura [1995] have reported that westward equatorial electrojet (counter electrojet) is often observed in the early morning near the dip equator. They showed that the counter electrojet is accompanied by an additional CCW ionospheric current vortex centered at 5-20 degree in the early morning in the southern hemisphere.

We analyze the counter electrojet observed at Ancon (Mlat = 3.1 degree, Mlon = 354.7 degree), Peru, in the 1400-1800 LT sector on December 11-15, 2000. The counter electrojet in the evening sector appeared stably in the period from December 13 to 15, in which the geomagnetic and solar wind conditions were relatively quiet. The ionospheric current system in this period is investigated by using the magnetic field data from the CPMN stations. In the South American region, we found a small-scale CCW vortex in the southern hemisphere associated with the counter electrojet. The center of the vortex was located at Mlat = 5-20 degree around 1500-1600 LT. On the other hand, the counter electrojet as well as the vortex in the evening sector was not found at the stations distributed along the 210 degree magnetic meridian. Therefore, it is concluded that the counter electrojet and additional vortex in the evening sector are localized phenomena to the South American region.