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Latitudinal Ionospheric Scintillation Study in the American Sector

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Demonstrator for Global Navigation Satellite System (GNSS) Research and Application for Polar Environment (DemoGRAPE) is an international project led by the Istituto Nazionale di Geofisica e Vulcanologia (INGV), in partnership with Politecnico di Torino, Istituto Superiore Mario Boella, and with South African National Space Agency (SANSA) and the Brazilian National Institute of Space Physics (INPE), as collaborators. The aim of the project is to improve satellite navigation particularly in Antarctica, where the accuracy is of paramount importance for the surface displacements, and it is strongly affected by atmospheric disturbances. The DemoGRAPE activities started on November 2015 with the system installed at Brazilian Antarctic Station Comandante Ferraz (EACF, 62° 05' 07" S, 58° 23' 29" W) located in the King George Island. To investigate the ionospheric disturbances from high to low latitudes in the American sector we present the GNSS scintillations observed at EACF inside DemoGRAPE activities, which are combined with GNSS observations done at Universidade Mackenzie in São Paulo (23° 32' 56" S, 46° 38' 20" W, inside the South American Magnetic Anomaly - SAMA) and at Cauamê Campus of Universidade Federal de Roraima (02° 49' 12" N, 60° 40' 23" W) during 2016. The goal is to characterize the occurrence of scintillation at high latitudes in association with the fountain effect at low latitudes and inside the SAMA region.