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Small and Medium Scale Gravity Waves Climatology over Ferraz Station

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Gravity waves at distinct spectrum of wavelengths and periods play an important role in communicating, through energy and momentum transportation, between the different atmospheric layers. The main aspects associated to the gravity waves are the general circulations processes in the middle and upper atmosphere and the temperature gradients. Regarding the high gravity wave activity and observations at the Brazilian Ferraz Station (62.1°S, 58.4°W), we have been observed small and medium scale gravity waves from an all-sky airglow imager in the last three years, besides a full winter campaign in 2007 and two consecutive winters in 2010-2011. Even we suffered from a lack of observations in 2008-2009 and 2012-2014, during the observed years it was possible to identify many gravity waves of very distinct morphology, i.e., bands, ripples and mesospheric fronts, and a wide range of horizontal wavelength, period and propagation directions. In the present work we will summarize the gravity waves observations at Ferraz Station since 2007 up to 2016, focus firstly in the morphology of the small scale waves, its parameters and propagation directions. Latter on, it will be presented the methodology used to extract the medium-scale gravity wave parameters and the observed and intrinsic wave parameters. At last, will be presented the current status of the observations at Ferraz Station and future plans to maintaining these observations and restore or expand other type of observations.