STRATOSPHERIC GRAVITY WAVE FLUCTUATIONS AND SPORADIC E AT MID LATITUDES WITH FOCUS ON POSSIBLE EFFECT OF ANDES

A. de la Torre*(1), T. Tsuda (2), K. Hocke (3), and A. Giraldez (4)

(1) Universidad de Buenos Aires, Buenos Aires, Argentina
(2) RASC, Kyoto University, Kyoto, Japan
(3) Communications Research Laboratory, Tokyo, Japan
(4) CONAE, Buenos Aires, Argentina

Longitudinal dependence of stratospheric gravity wave fluctuations and lower ionospheric irregularities (sporadic E) at mid latitudes are studied by means of radio occultation data of the GPS/MET satellite mission. There is a significant difference in the longitudinal dependence of GW fluctuations at middle atmosphere between both hemispheres. In the northern hemisphere, a trace of possible orographic effects around 25 km altitude is only found. On the other hand, in the southern hemisphere the distribution of GW fluctuations at mid latitudes has a strong and sharp maximum over Andes Mountains, due to the orographic forcing at the lower troposphere. This observation is in agreement with previous measurements of spaceborne microwave and infrared limb sounders. Wind and temperature vertical profiles from a radiosounding near Ushuaia (at the southern tip of Andes) exhibiting a large amplitude mountain wave is analyzed in detail, and compared with an occultation event. The GPS/MET experiment indicates enhanced sporadic E in the lower ionosphere over Southern Andes. We assume that these plasma irregularities are generated by enhanced, upward wave flux due to the possible orographic effect of Andes. Recent radio occultation data from SAC-C satellite are considered too.