

Figure S1. Local time-height distributions of EsOR with equatorial regions in different seasons and latitudes of 2014. It represents the southern hemisphere to northern hemisphere from bottom to top; and represents spring (March-May), summer (June-August), autumn (September-November), and winter (December-February), respectively, from left to right. The grey dotted lines represent the traces of Es within 10°S~10°N.

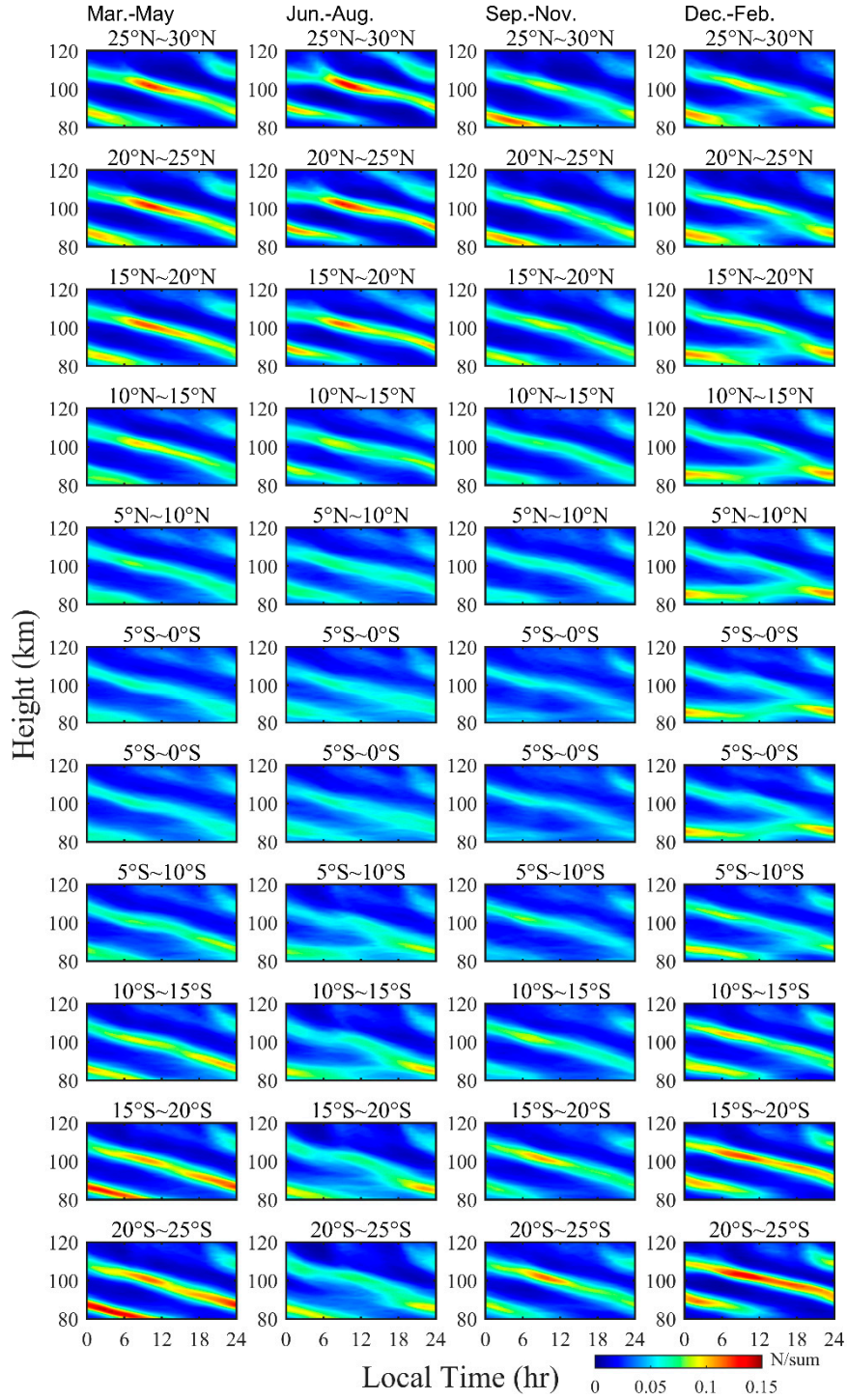


Figure S2. Local time-height distributions of the occurrence rate of IVN with equatorial regions in different seasons and latitudes of 2014. It represents the southern hemisphere to northern hemisphere from bottom to top; and represents spring (March-May), summer (June-August), autumn (September-November), and winter (December-February), respectively, from left to right.

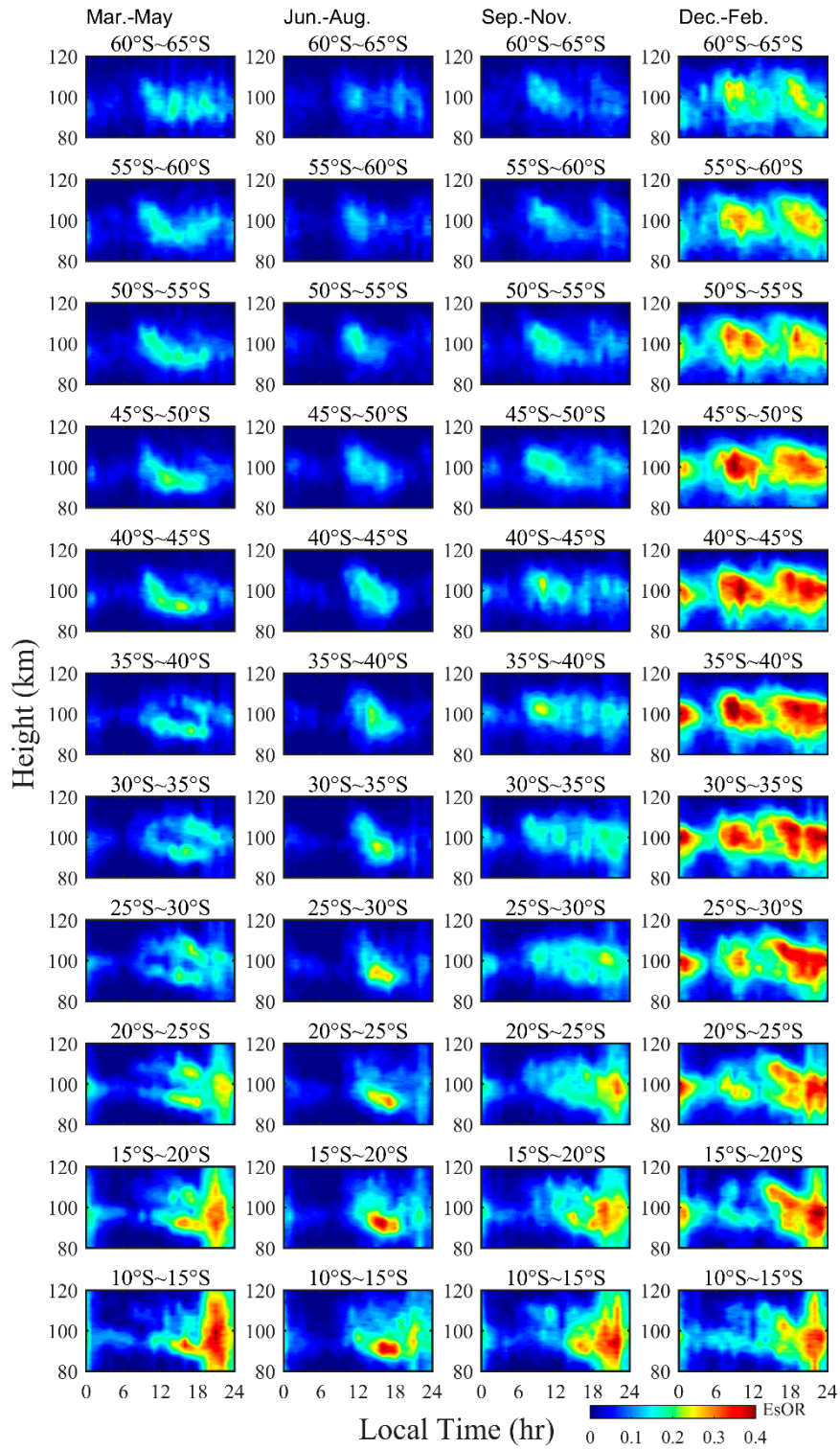


Figure S3. Local time-height distributions of EsOR of the southern hemisphere in different seasons and latitudes of 2014. It represents the low latitude to high latitude from bottom to top; and represents March-May, June-August, September-November, and December-February, respectively, from left to right.

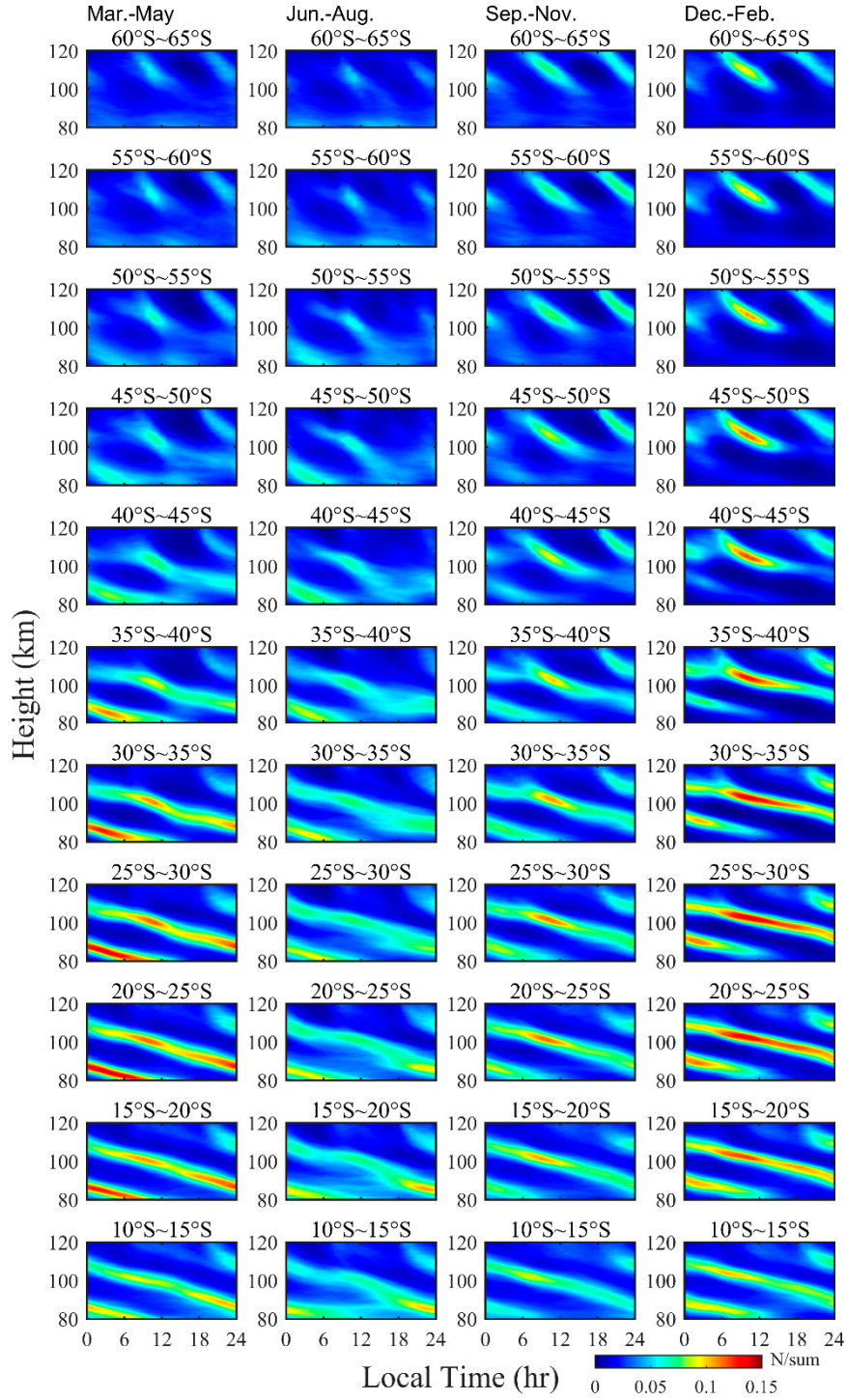


Figure S4. Local time-height distributions of the occurrence rate of IVN of the southern hemisphere in different seasons and latitudes of 2014. It represents the low latitude to high latitude from bottom to top; and represents March-May, June-August, September-November, and December-February, respectively, from left to right.