## Climatological storm-induced disturbance wind results

The following figures summarize climatological storm time wind effects at mid and low latitudes, and have been excerpted from the papers given in the reference list below. Although climatological results are not ideal for studying individual storms, they should give an idea of what kind of wind values are possible. IDL code for evaluating the model shown in the first figure is contained in the file dwm04beta.pro; please contact me if you have any questions on using this model.

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## References

**Height, latitude, and storm time dependence of daytime winds:**

Emmert, J. T., B. G. Fejer, G. G. Shepherd, and B. H. Solheim, Altitude dependence of mid and low latitude daytime thermospheric disturbance winds measured by WINDII, *J. Geophys. Res.*, *107*(A12), 1483, doi:10.1029/2002JA009646, 2002.

**Local time and latitude dependence of F region winds:**

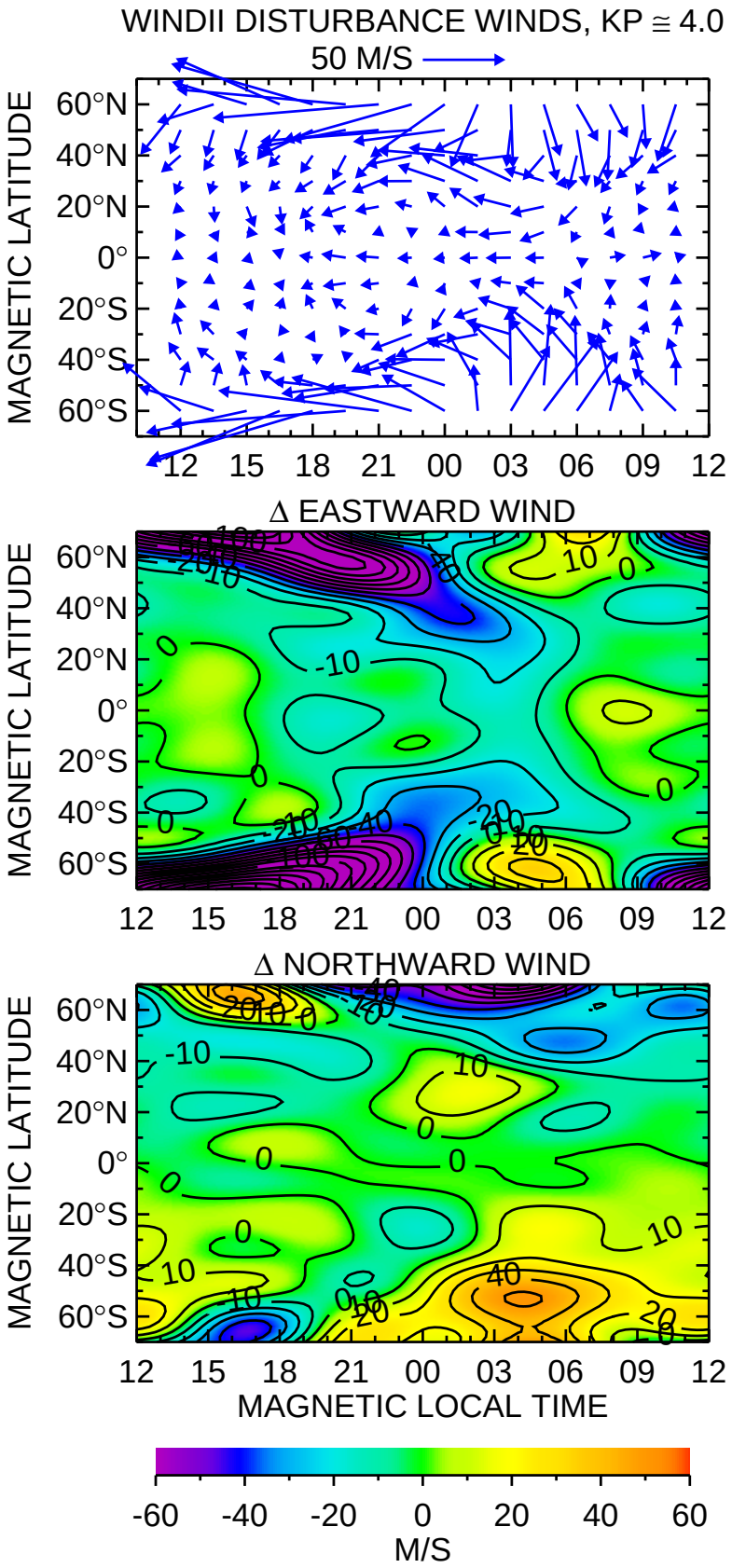
Emmert, J. T., B. G. Fejer, G. G. Shepherd, and B. H. Solheim, Average nighttime *F* region disturbance neutral winds measured by UARS WINDII: Initial results, *Geophys. Res. Lett.*, *31*, L22807, doi:10.1029/2004GL021611, 2004.

**Quiet-time Millstone Hill nighttime winds:**

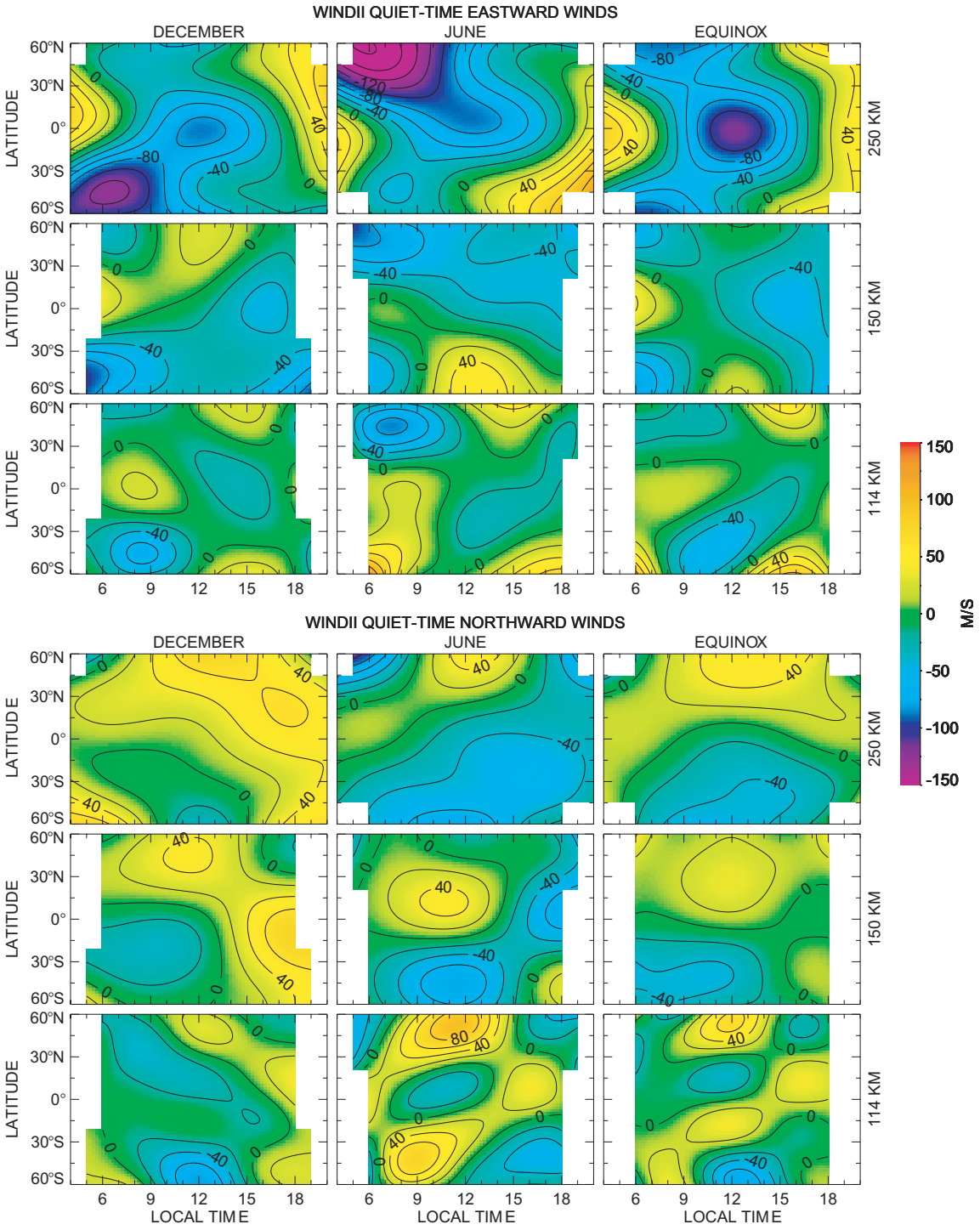
Emmert, J. T., B. G. Fejer, and D. P., Climatology and latitudinal gradients of quiet time thermospheric neutral winds over Millstone Hill from Fabry-Perot interferometer measurements, *J. Geophys. Res.*, *108*(A5), 1196, doi:10.1029/2002JA009765, 2003.

**Disturbed Millstone Hill nighttime winds:**

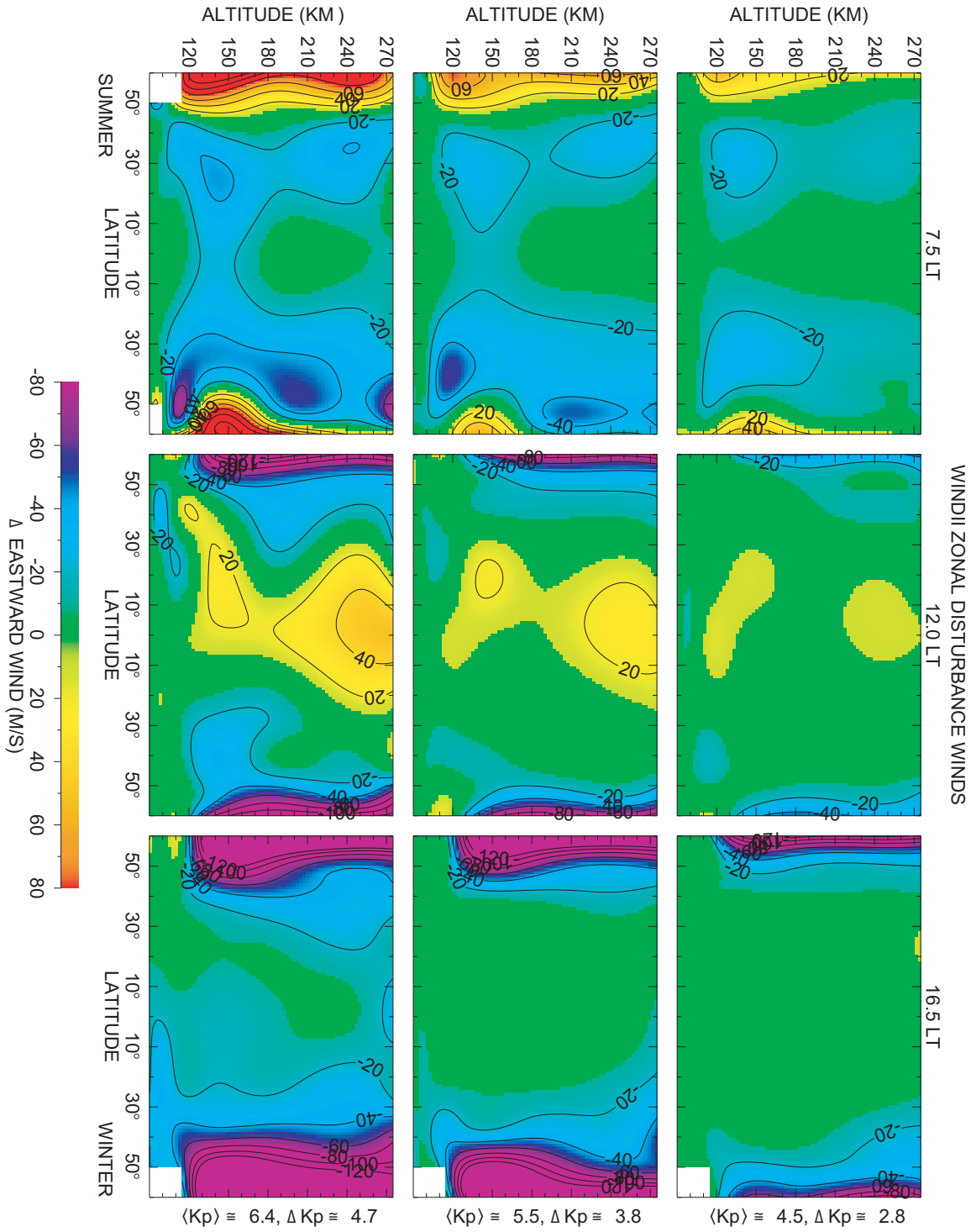
Fejer, B. G., J. T. Emmert, and D. P. Sipler, Climatology and storm-time dependence of nighttime thermospheric neutral winds over Millstone Hill, *J. Geophys. Res.*, *107*(A5), 10.1029/2001JA000300, 2002.



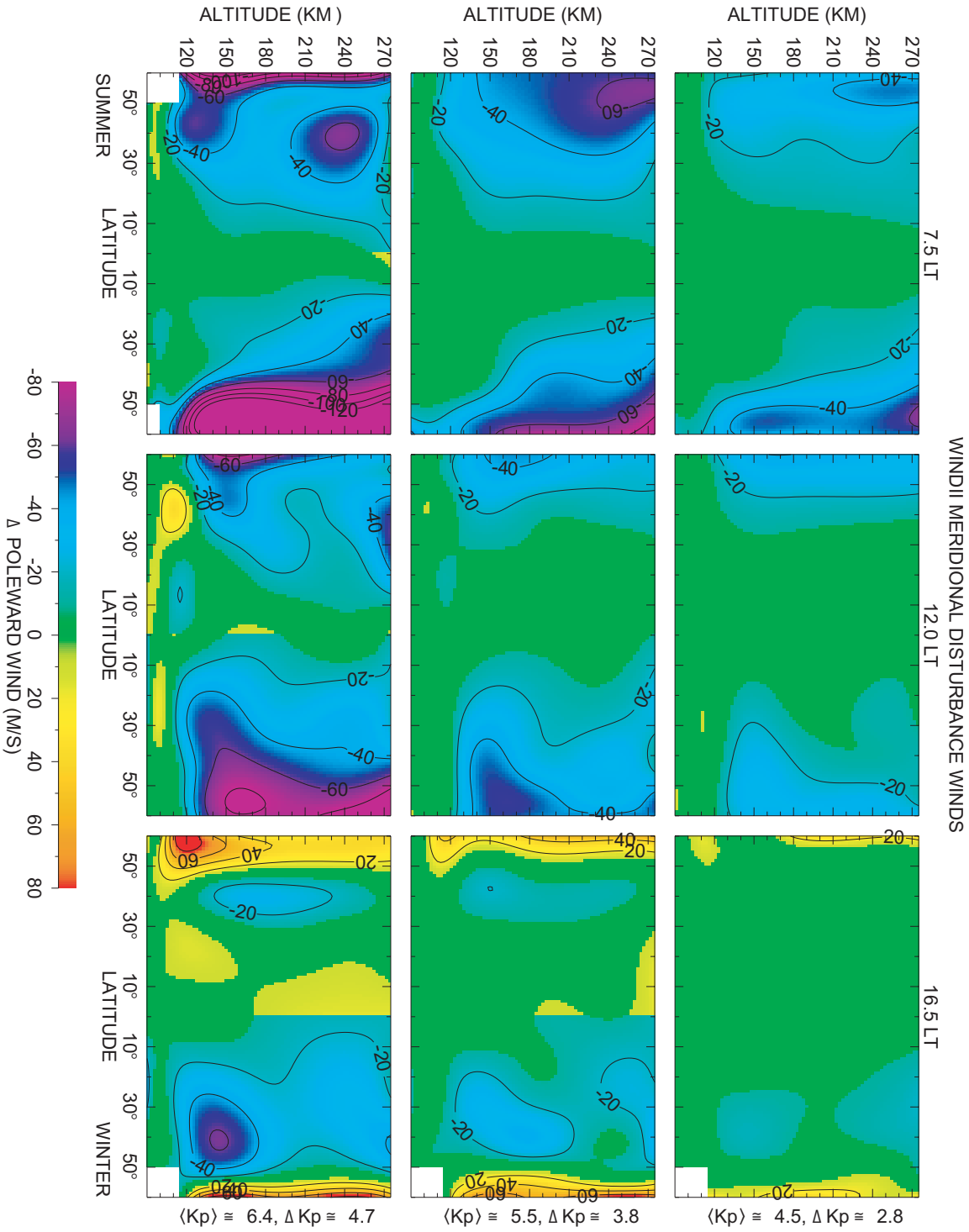

Average disturbance (storm minus quiet) winds measured by UARS WINDII at a height of 250 km. The results correspond to an average Kp of about 4.0. From *Emmert et al.* [2004].



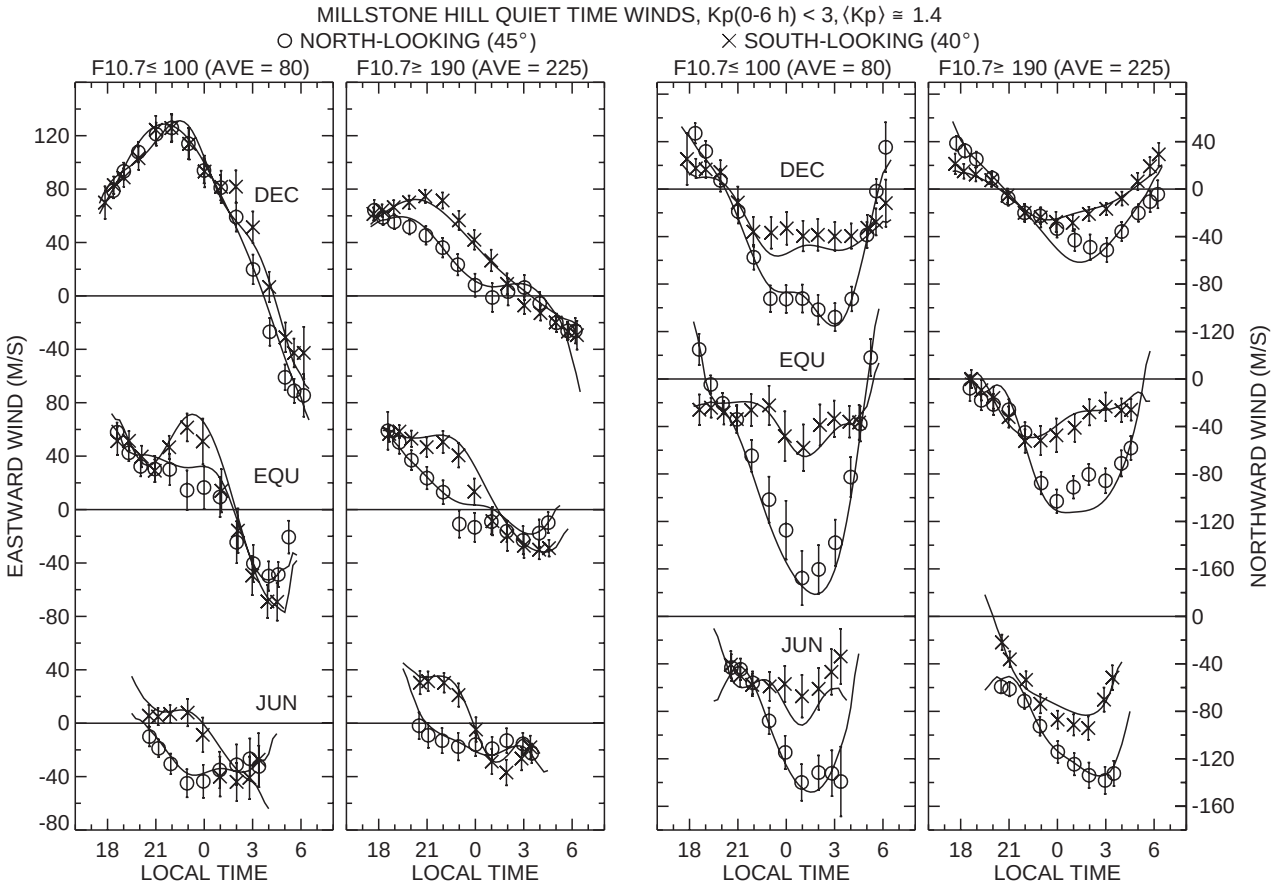

Quiet-time ($Kp < 3$, average $Kp \cong 1.7$) average wind patterns derived from WINDII measurements, as a function of local time and geographic latitude. The contour interval is 20 m/s. From *Emmert et al.* [2002].



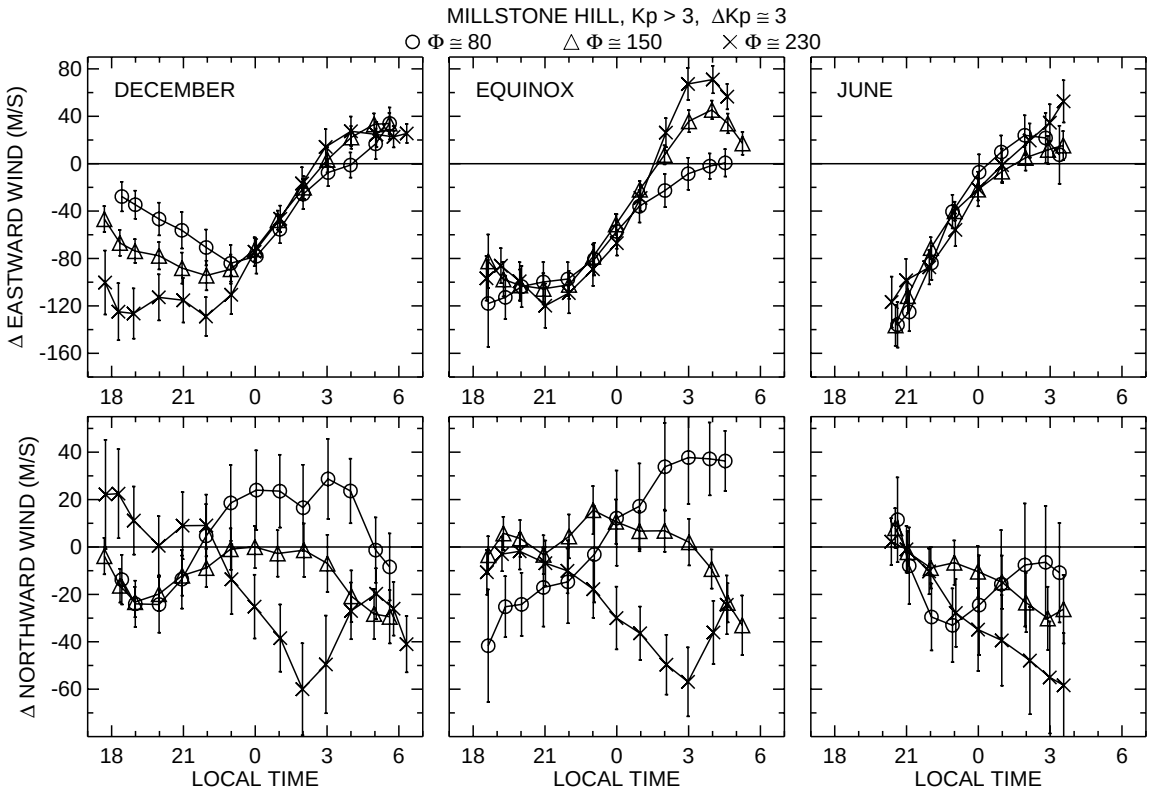

WINDII average zonal disturbance winds, as a function of geomagnetic latitude and height for three local time sectors, and a different level of activity is shown in each row. Summer conditions are shown on the left half of each panel, and winter conditions are shown on the right. The contour interval is 20 m/s. From *Emmert et al*. [2002].




WINDII average meridional disturbance winds (positive poleward), as a function of geomagnetic latitude and height for three local time sectors, and a different level of activity is shown in each row. Summer conditions are shown on the left half of each panel, and winter conditions are shown on the right. The contour interval is 20 m/s. From *Emmert et al*. [2002].




Average quiet time winds over Millstone Hill (43N, 72W). as a function of local time. The symbols show average winds in 2-hour local time bins at 1-hour intervals. Results are shown for the north looking (circles) and south looking (crosses) cases and for two solar flux bins (F10.7 < 100, F10.7 > 190) and three seasonal bins (November–February; March, April, September, and October; May–August). The error bars indicate the estimated error of the mean. From *Emmert et al.* [2003].




Average nighttime disturbance wind patterns over Millstone Hill for low, moderate, and high solar activity conditions; the error bars denote the standard errors of the means. From *Fejer et al.*, [2002].