Supplement of Weather Clim. Dynam., 4, 1045–1069, 2023
https://doi.org/10.5194/wcd-4-1045-2023-supplement

Supplement of

Variations in boundary layer stability across Antarctica: a comparison between coastal and interior sites

Mckenzie J. Dice et al.

Correspondence to: Mckenzie J. Dice (mckenzie.dice@colorado.edu)

Supplemental Figures

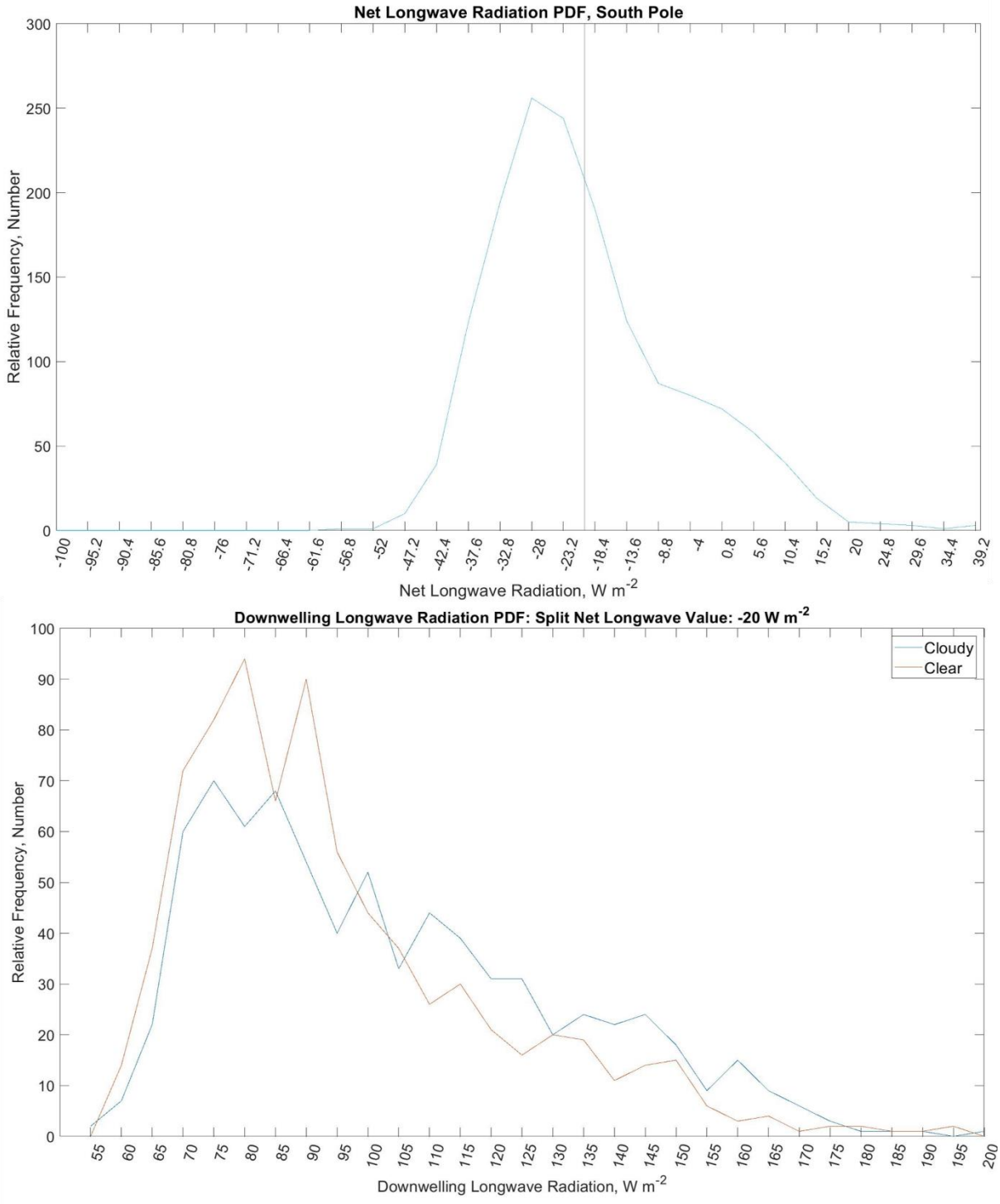

Figure S1: PDFs of net longwave radiation (top) and downwelling longwave radiation for clear (orange) and cloudy (blue) states (bottom) at South Pole. In the top panel the vertical black line marks the value of net longwave radiation that corresponds to the minimum overlap ratio used to define clear and cloudy states.

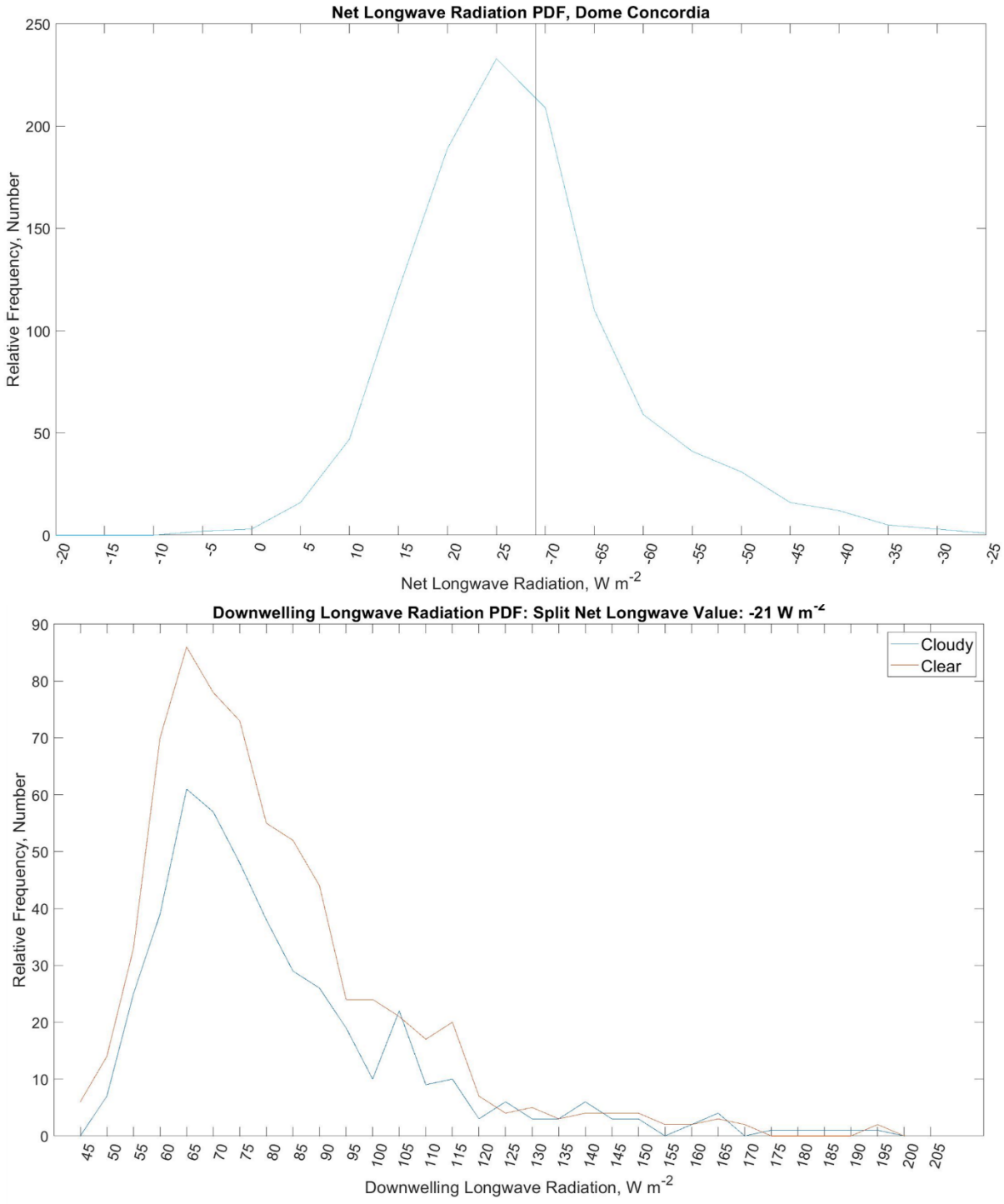

Figure S2: PDFs of net longwave radiation (top) and downwelling longwave radiation for clear (orange) and cloudy (blue) states (bottom) Dome C. In the top panel the vertical black line marks the value of net longwave radiation that corresponds to the minimum overlap ratio used to define clear and cloudy states.

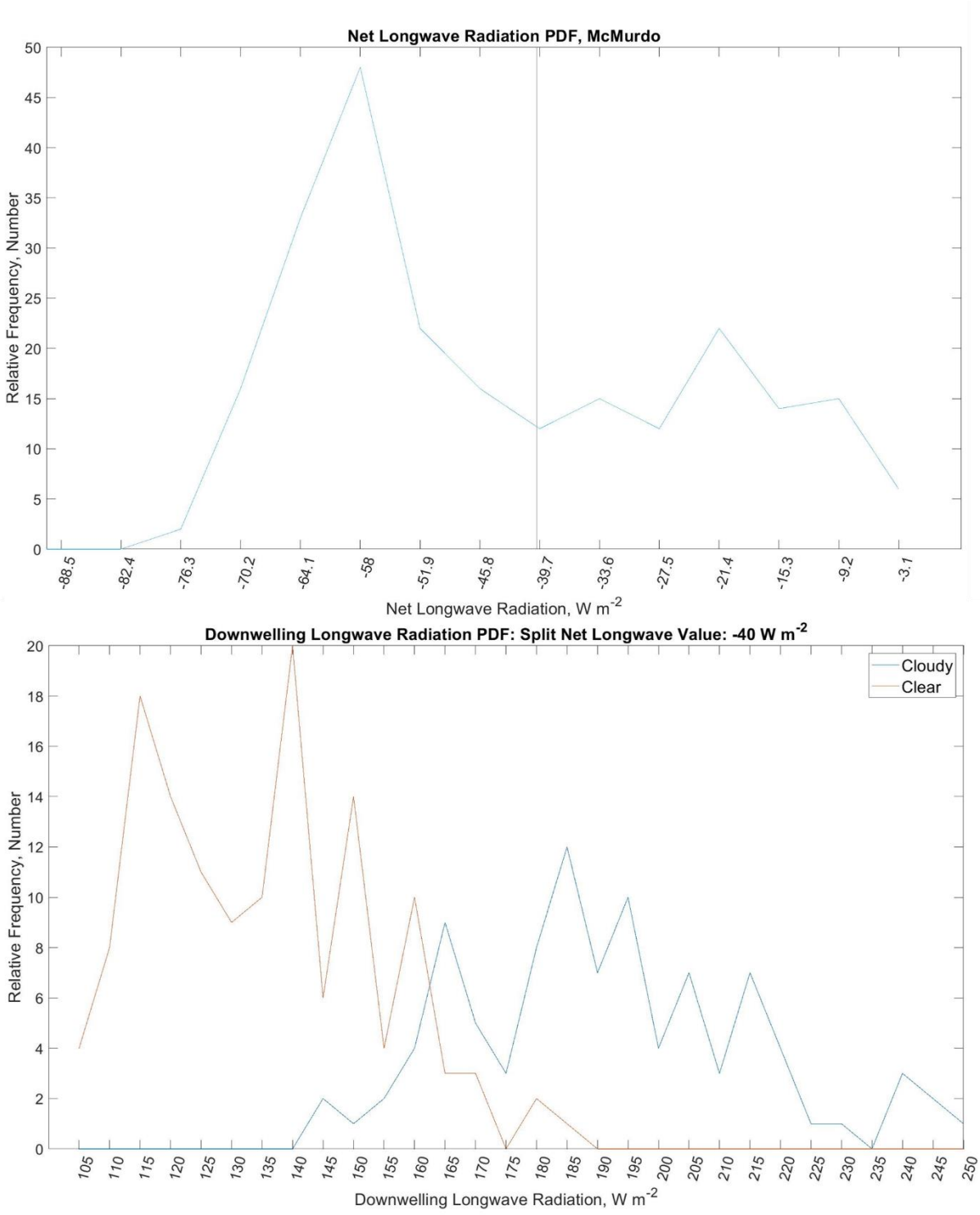

Figure S3: PDFs of net longwave radiation (top) and downwelling longwave radiation for clear (orange) and cloudy (blue) states (bottom) at McMurdo. In the top panel the vertical black line marks the value of net longwave radiation that corresponds to the minimum overlap ratio used to define clear and cloudy states.

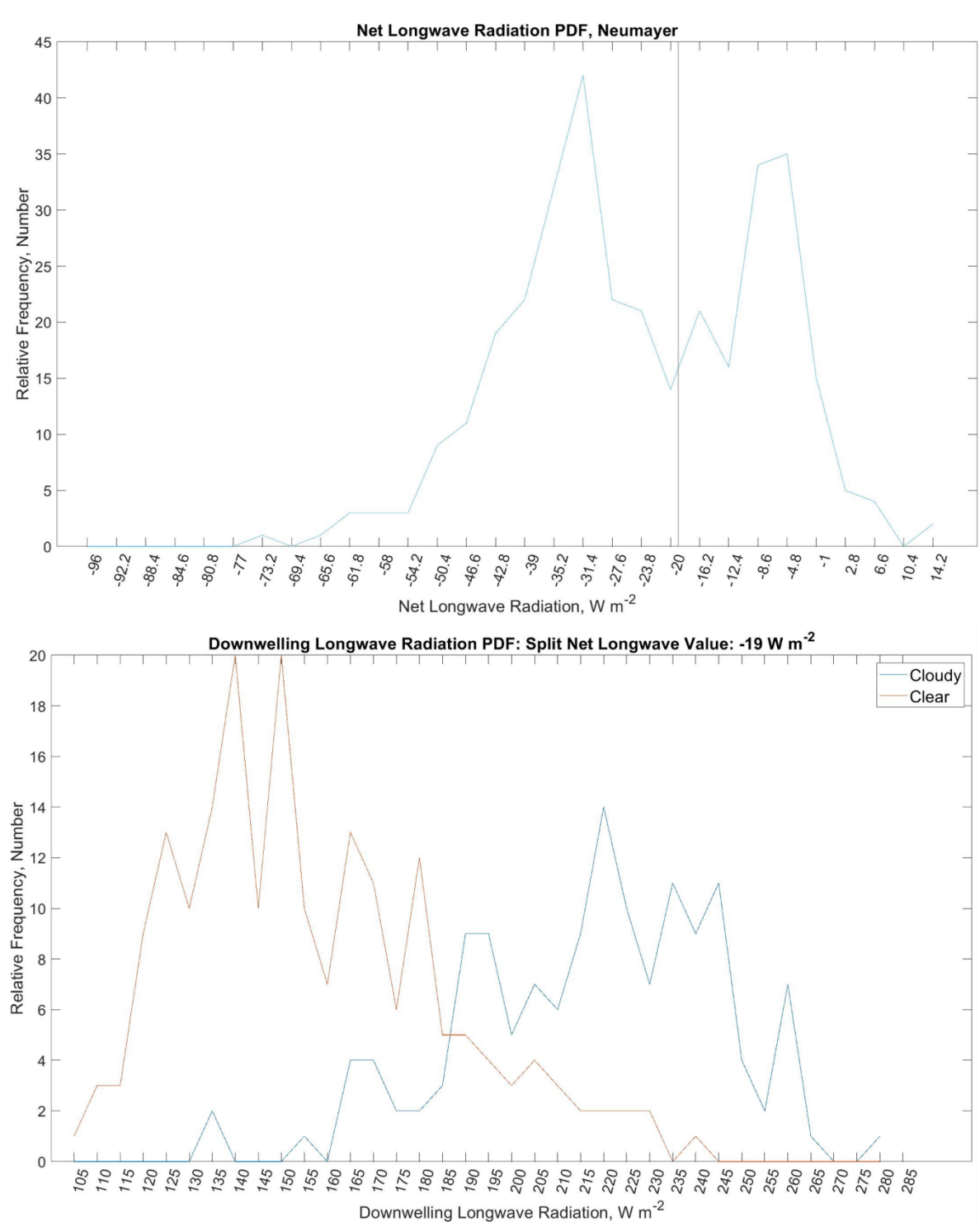

Figure S4: PDFs of net longwave radiation (top) and downwelling longwave radiation for clear (orange) and cloudy (blue) states (bottom) at Neumayer. In the top panel the vertical black line marks the value of net longwave radiation that corresponds to the minimum overlap ratio used to define clear and cloudy states.

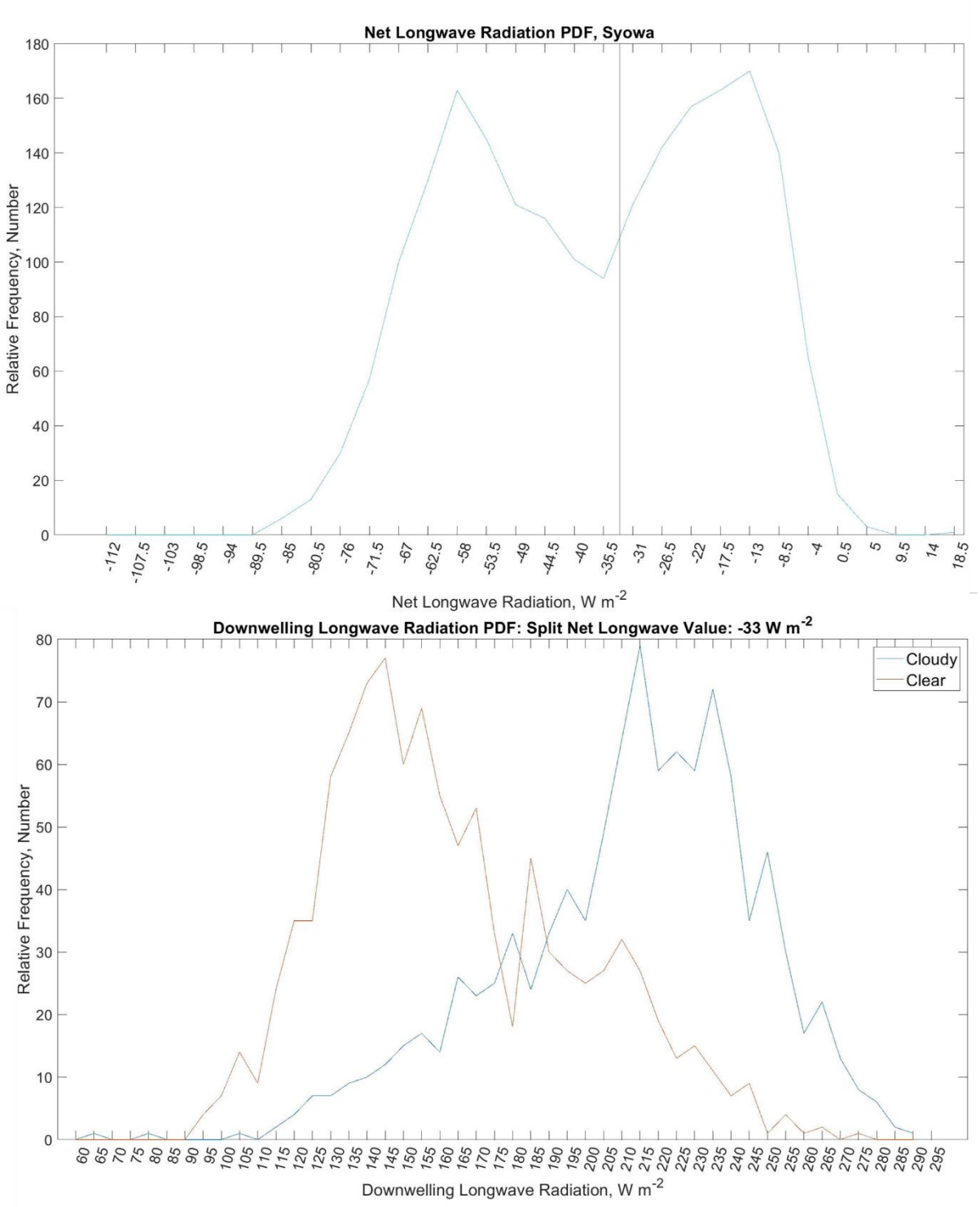

Figure S5: PDFs of net longwave radiation (top) and downwelling longwave radiation for clear (orange) and cloudy (blue) states (bottom) at Syowa. In the top panel the vertical black line marks the value of net longwave radiation that corresponds to the minimum overlap ratio used to define clear and cloudy states.

Table S1: Frequency of stability regimes WS and weaker, MS and stronger, and SS and stronger, annually and seasonally for each site, for the near-surface stability regimes (left) and for the strongest stability below 500 m (right).

Near-Surface Stability Regimes				Strongest Stability Present Below 500 m			
Site	**WS and Weaker**	**MS and Stronger**	**SS and Stronger**	**Site**	**WS and Weaker**	**MS and Stronger**	**SS and Stronger**
Annual							
South Pole	27.2%	72.7%	51%	South Pole	3.3%	96.7%	85.2%
Dome C	13.5%	86.5%	73.6%	Dome C	3.2%	96.5%	82.4%
McMurdo	72.4%	27.5%	10.6%	McMurdo	23.3%	76.6%	36.4%
Neumayer	61.3%	38.9%	18.3%	Neumayer	27.5%	72.4%	33.3%
Syowa	68.2%	19.7%	6.8%	Syowa	43.6%	56.5%	11.4%
Summer							
South Pole	63.2%	36.9%	10.3%	South Pole	13.3%	86.7%	43.9%
Dome C	61.4%	38.6%	7.5%	Dome C	17.7%	81.9%	20%
McMurdo	92.1%	7.8%	0.5%	McMurdo	42.1%	57.9%	13.6%
Neumayer	80.1%	19.9%	5.9%	Neumayer	49.4%	50.6%	14.9%
Syowa	82.9%	17.1%	1.8%	Syowa	59.6%	40.4%	4.3%
Fall							
South Pole	13%	86.9%	67.6%	South Pole	0.2%	99.7%	98.3%
Dome C	4.7%	95.4%	83.8%	Dome C	0.1%	98.9%	93.5%
McMurdo	76.1%	23.9%	10.6%	McMurdo	25%	75%	37.2%
Neumayer	55.7%	44.6%	21.2%	Neumayer	19.9%	81%	37.1%
Syowa	75.2%	24.8%	4.4%	Syowa	50%	46.1%	7.7%
Winter							
South Pole	14.1%	85.8%	68.8%	South Pole	0.1%	99.8%	99.6%
Dome C	0.8%	99.5%	96.9%	Dome C	0.1%	100%	99.2%
McMurdo	53.6%	46.4%	18.9%	McMurdo	8.5%	91.6%	53.3%
Neumayer	40%	60.2%	33.4%	Neumayer	10.7%	89.4%	54.3%
Syowa	53.6%	46.4%	12.3%	Syowa	27.8%	72.1%	18.2%
Spring							
South Pole	22.3%	77.7%	53.4%	South Pole	0.5%	99.7%	94.5%
Dome C	5.4%	95.3%	79.6%	Dome C	0.2%	100%	92.4%
McMurdo	71.8%	28.2%	11.1%	McMurdo	20.5%	79.5%	38.7%
Neumayer	67.2%	32.9%	13.6%	Neumayer	26.3%	72.2%	27.9%
Syowa	69.2%	30.8%	6.1%	Syowa	46.2%	53.7%	11.2%