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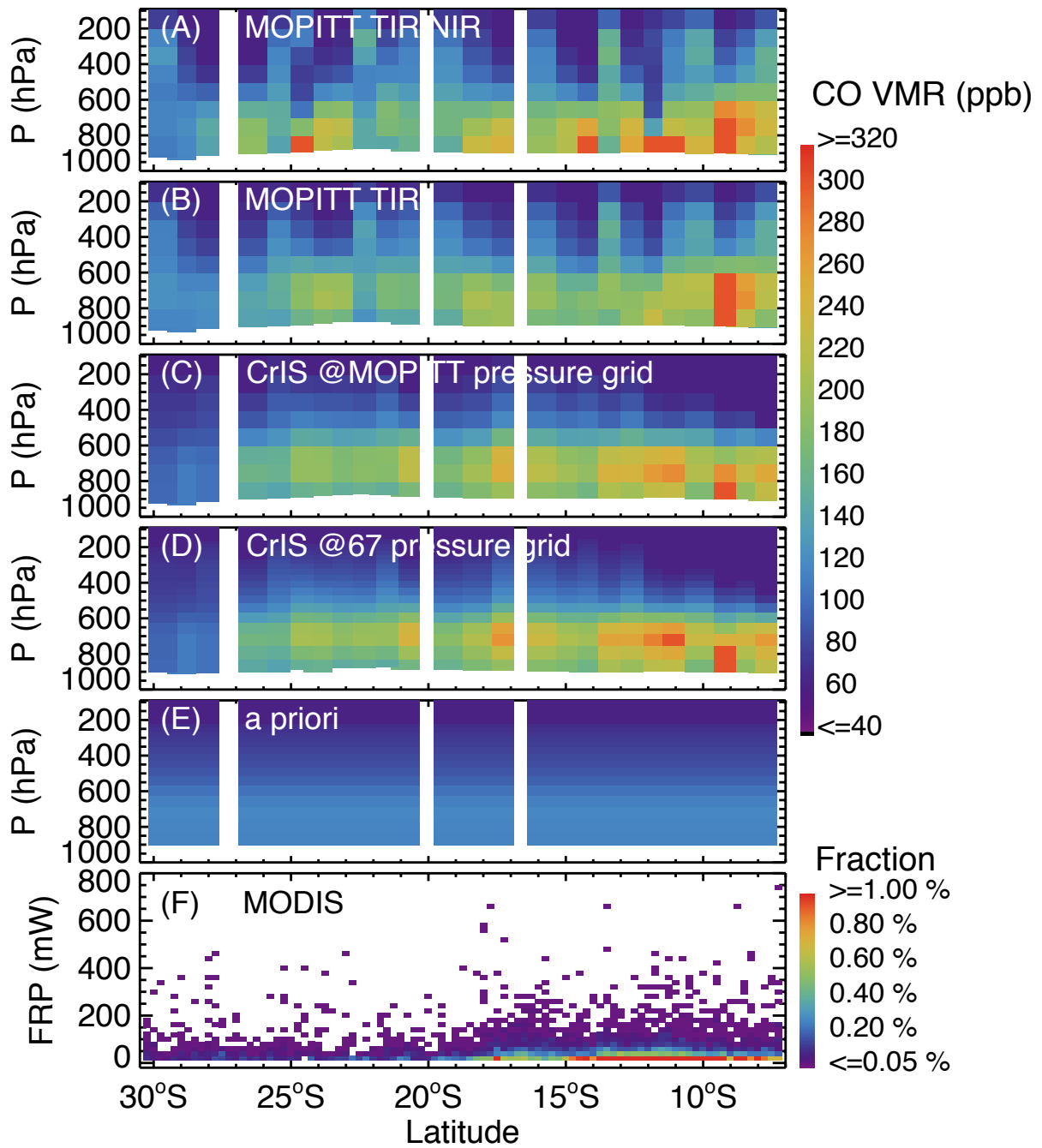
Supplement of

High-resolution tropospheric carbon monoxide profiles retrieved from CrIS and TROPOMI

Dejian Fu et al.

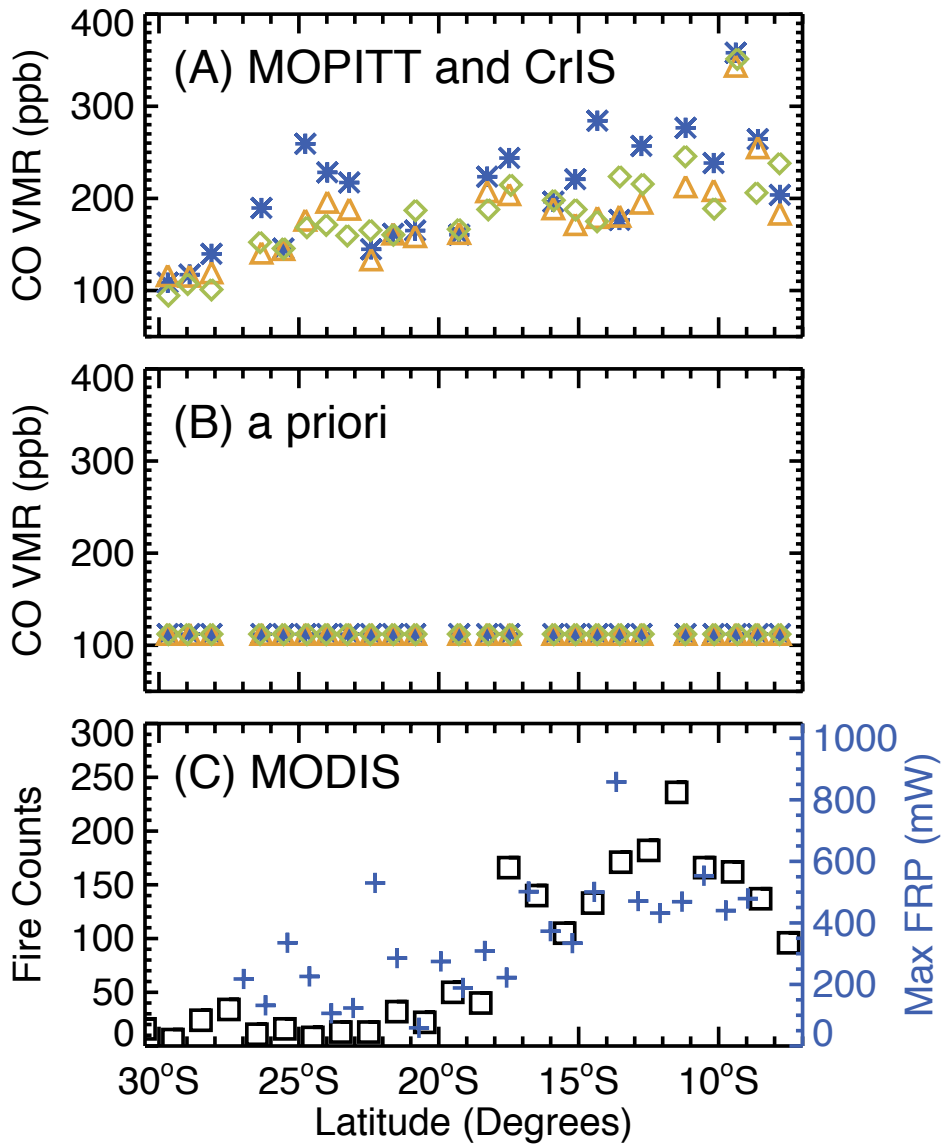
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2 **Supplemental Material Figure 1.** Tropospheric carbon monoxide (CO) volume mixing ratio
3 (parts-per-billion) profiles measured by Terra MOPITT (version 6.0) on August 27th, Suomi-
4 NPP CrIS on August 28th 2013, and fire radiative power (milliwatts) measured by Aqua
5 MODIS. A common a priori profile was used in the Terra MOPITT and Suomi-NPP CrIS
6 retrievals. (Panel A) MOPITT multiple spectral CO fields; (Panel B) MOPITT thermal
7 infrared CO fields; (Panel C) CrIS thermal infrared CO fields in the 10-pressure grid
8 identical to the one used in the MOPITT version 6 operational retrieval algorithm; (Panel D)
9 CrIS thermal infrared CO fields in the 67-pressure grid identical to the one used in the TES
10 version 5 operational retrieval algorithm. (Panel E) a priori profiles used in the retrievals;
11 (Panel F) Fire radiative power measured by Aqua MODIS over Africa for August 28th, 2013.

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2 **Supplemental Material Figure 2.** Carbon monoxide (CO) volume mixing ratio (parts-per-
 3 billion) from surface to 700 hPa, fire counts and maximum fire radiative power (milliwatts)
 4 measured by Aqua MODIS over Africa for August 28th, 2013. A common a priori profile was
 5 used in the MOPITT and CrIS retrievals. (Panel A) MOPITT joint TIR/NIR (blue stars),
 6 MOPITT TIR CO (green triangles), and CrIS TIR CO from MUSES algorithm (golden
 7 diamonds); (Panel B) a priori CO vmr used in retrievals shown in Panel A. (Panel C) Fire
 8 counts (black squares) and maximum fire radiative power (blue plus) among the Aqua
 9 MODIS measurements whose data quality confidences are greater than 70%.

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1 **Supplemental Material Table 1.** The differences of carbon monoxide volume mixing ratio
 2 in the lower troposphere (surface to 3km (~700 hPa)) between CrIS and MOPITT
 3 measurements shown in the supplemental material figure 2A.

Data Product	Mean		RMS	
	ppb	%	ppb	%
CrIS –MOPITT TIR	2.8	1.6 [^]	24.9	13.9 [^]
CrIS –MOPITT Joint TIR/NIR	-23.6	-9.7 [^]	37.6	16.8 [^]

4 [^]It is $100 \times (\text{CrIS} - \text{MOPITT}) / \text{MOPITT}$.

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