

This document provides supplementary material to the paper “Profile information on CO from SCIAMACHY observations using cloud slicing and comparison with model simulations” by C. Liu et al (Liu et al., 2014). Simple figure numbers refer to Liu et al., 2014, while Figures of the Supplement are labelled by prefix “S”.

A) Additional profile comparisons

Figures S1 and S2 provides vertical profiles for CO PVCDs (S1) and relative differences (S2) for the regions defined in Fig. 8 which are not included in Figs. 9 and 10.

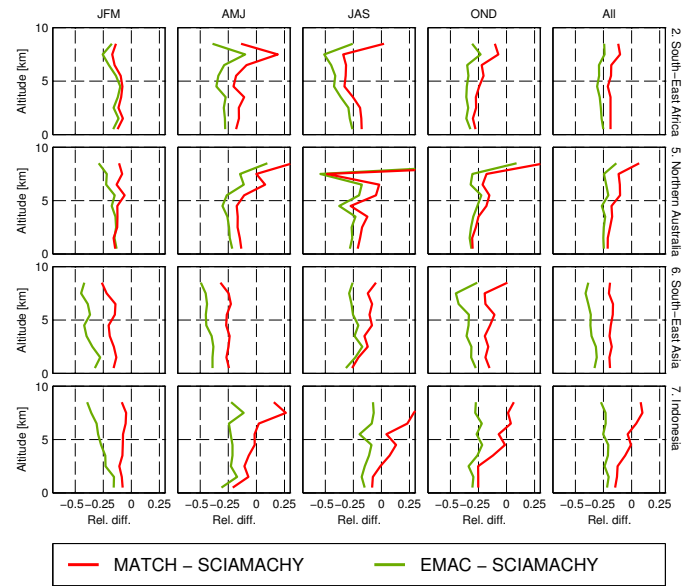
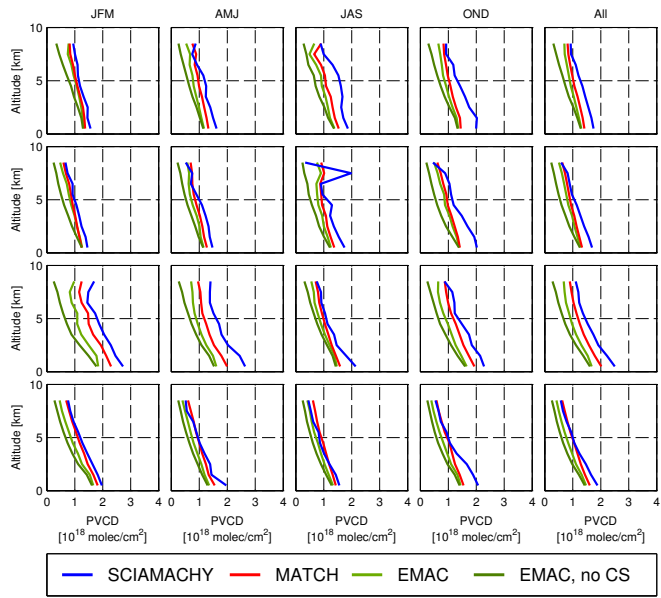


Fig. S1. Comparison of seasonally and annually averaged profiles of CO PVCDs from SCIAMACHY observations and model simulations for selected regions. See text and caption of Fig. 8 in Liu et al., 2014, for details.

Fig. S2. Relative differences ($\frac{\text{model}-\text{SCIAMACHY}}{\text{SCIAMACHY}}$) for selected regions. See text and caption of Fig. 9 in Liu et al., 2014, for details.

B) Zonal and meridional cross sections

Fig. S3 provides zonal and meridional cross sections (compare with Figs. 11-13 in Liu et al., 2014). For each season, first a map of the cloud free total CO column is shown, followed by zonal/meridional sections for 20° latitude/longitude bands, respectively. For each latitude (longitude) band, the respective map of the cloud free total column is given on top (at left) for orientation. The other three panels depict, from top to bottom (left to right), SCIAMACHY measurements, EMAC model results, and MATCH model results. Note that the colour scale is different for satellite observations and models (SCIAMACHY: red numbers on top of colour bar; models: black numbers below colour bar).

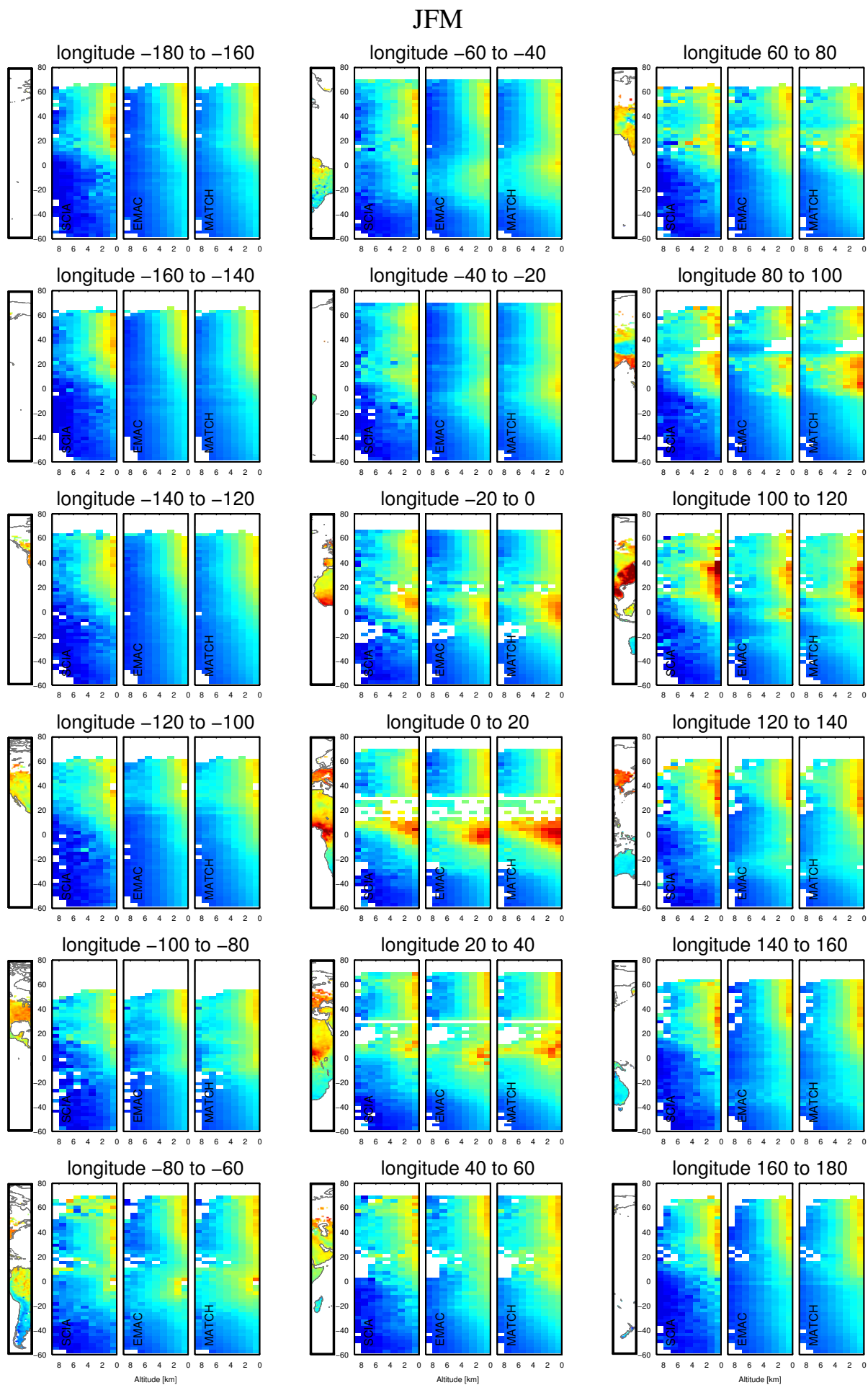


Fig. S3 (cont). Meridional cross sections of profiles of CO PVCs for January to March 2003-2005.

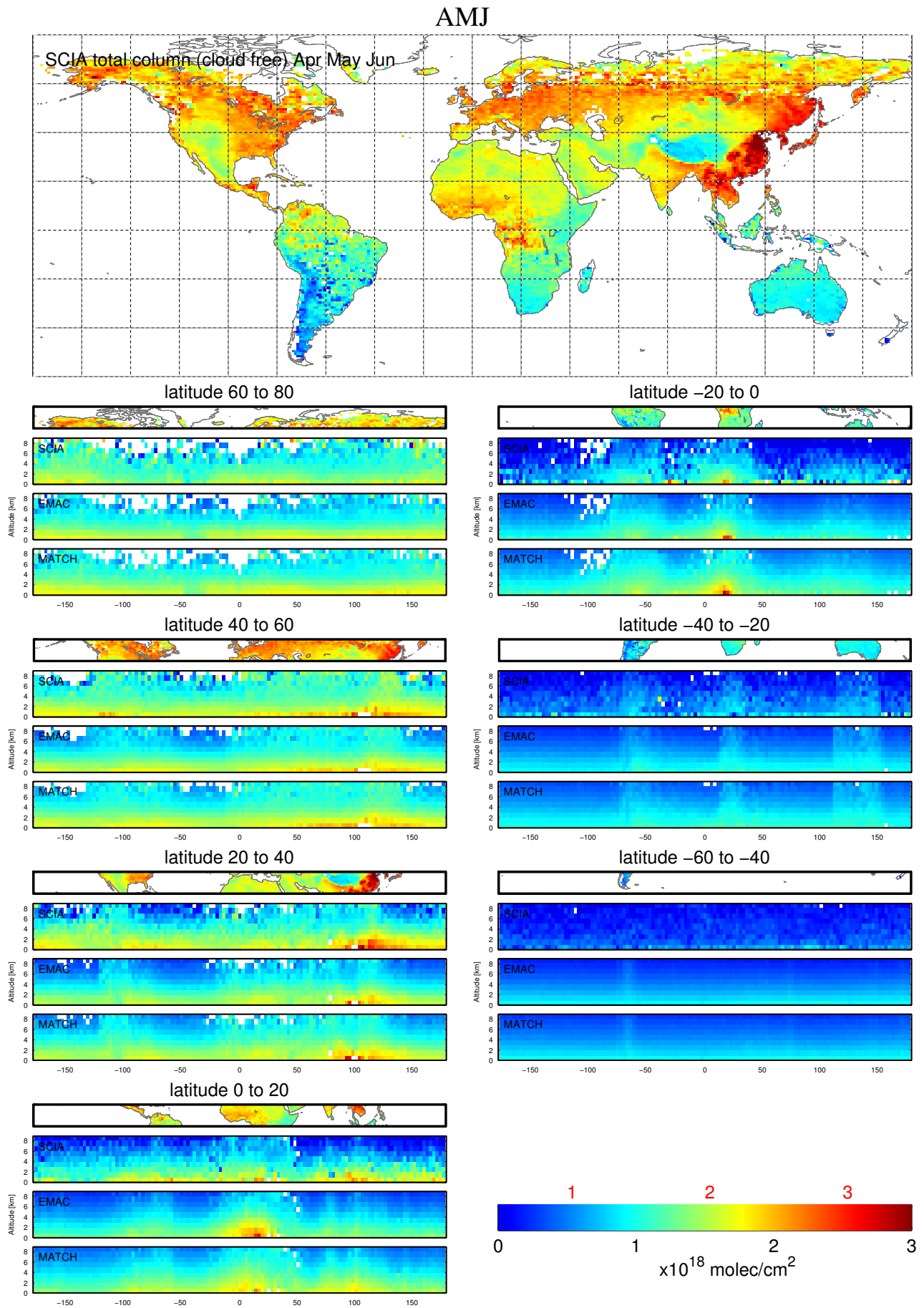


Fig. S3. (cont). Total CO VCD (cloud free) (top) and zonal cross sections of profiles of CO PVCDs for April to June 2003-2005.

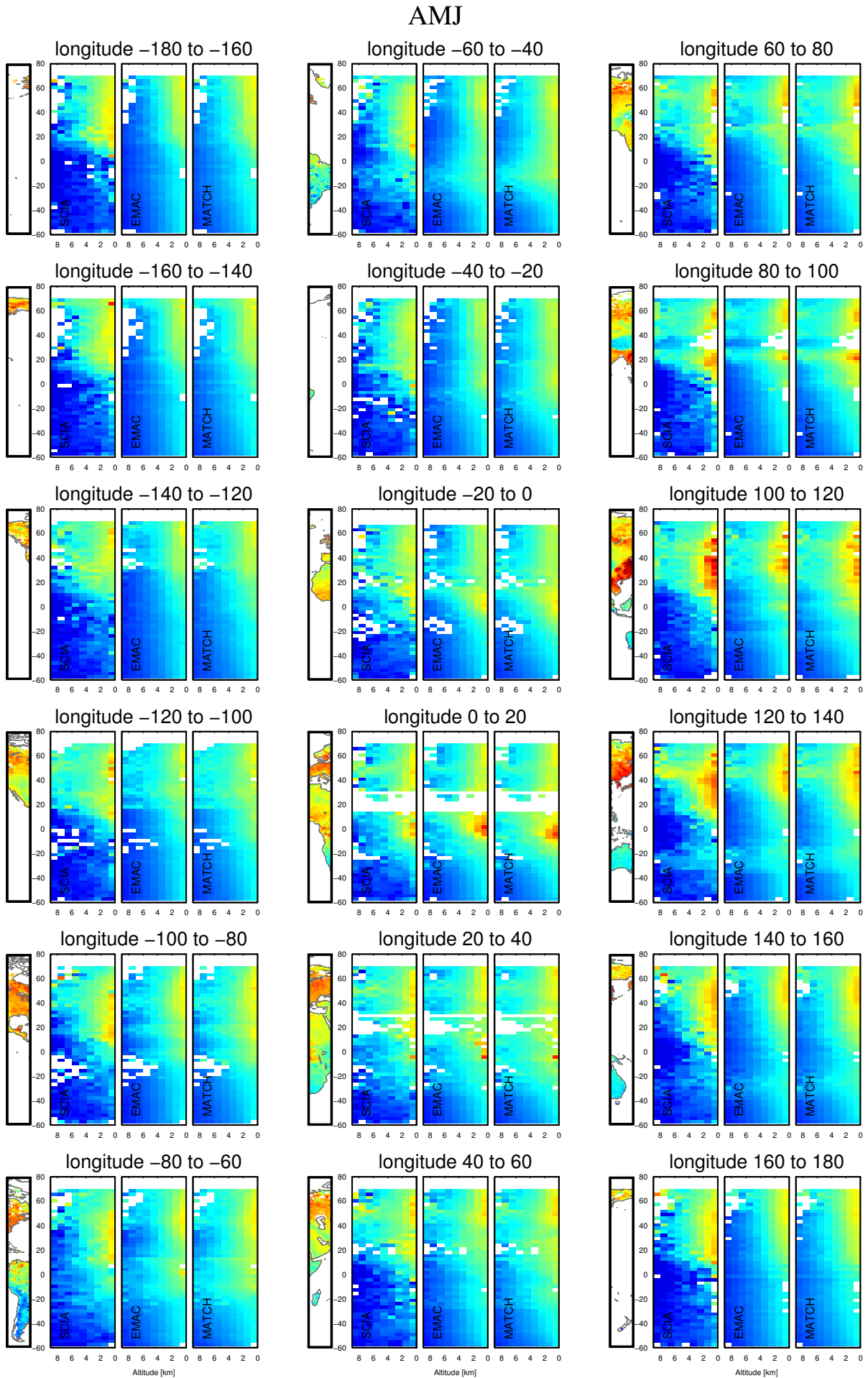


Fig. S3 (cont). Meridional cross sections of profiles of CO PVCDs for April to June 2003-2005.

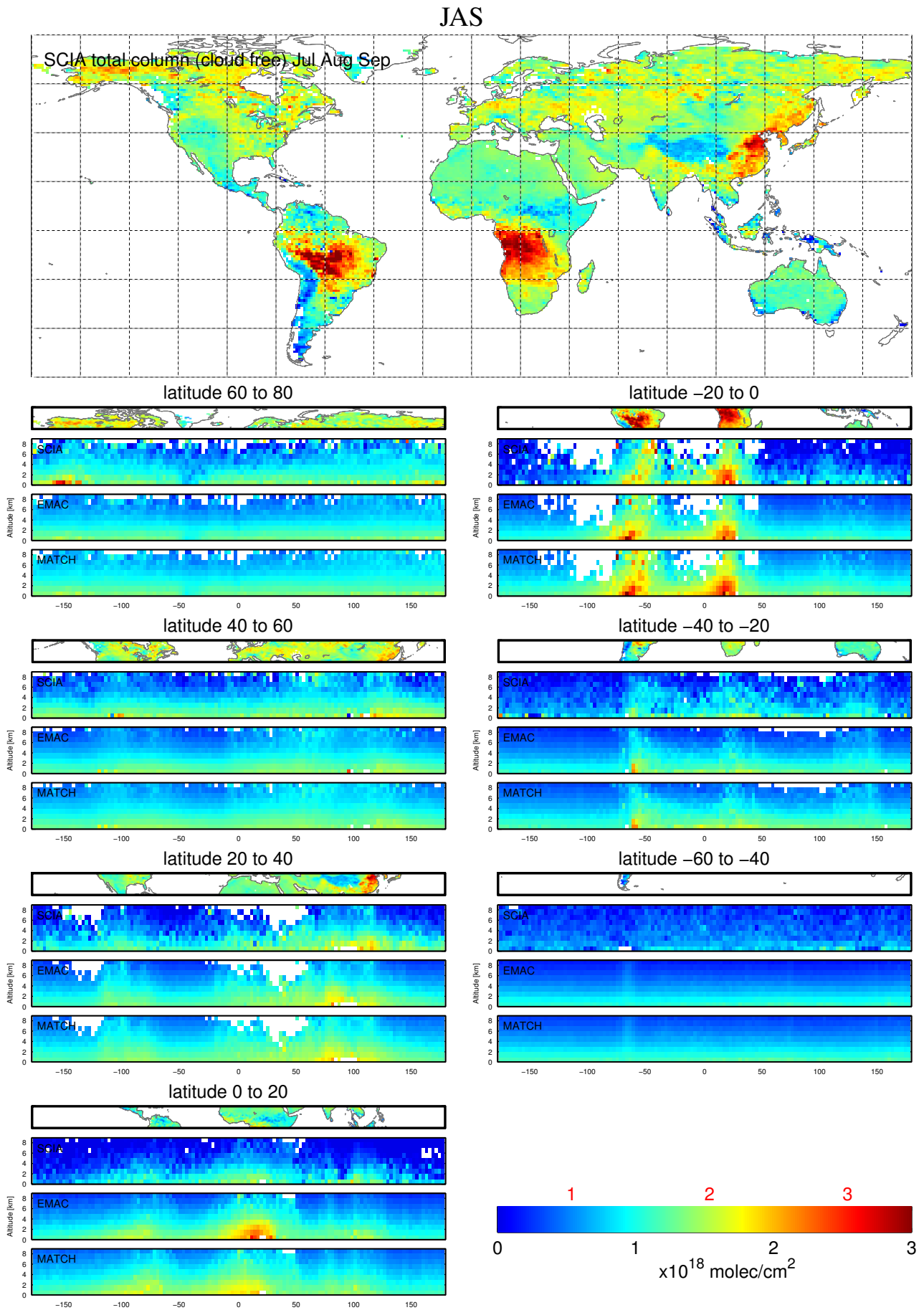


Fig. S3. (cont). Total CO VCD (cloud free) (top) and zonal cross sections of profiles of CO PVCDS for July to September 2003-2005.

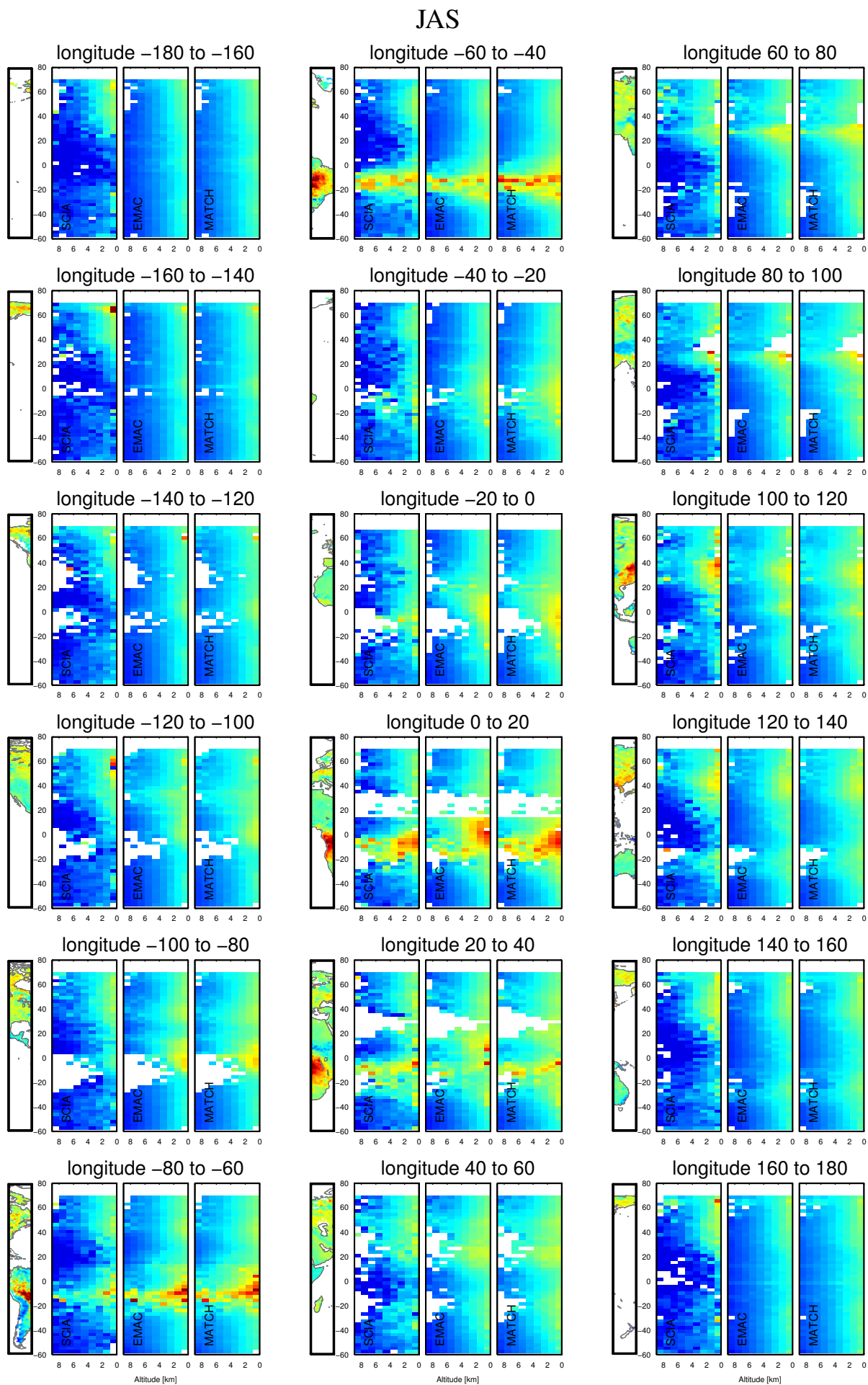


Fig. S3 (cont). Meridional cross sections of profiles of CO PVCs for July to September 2003-2005.

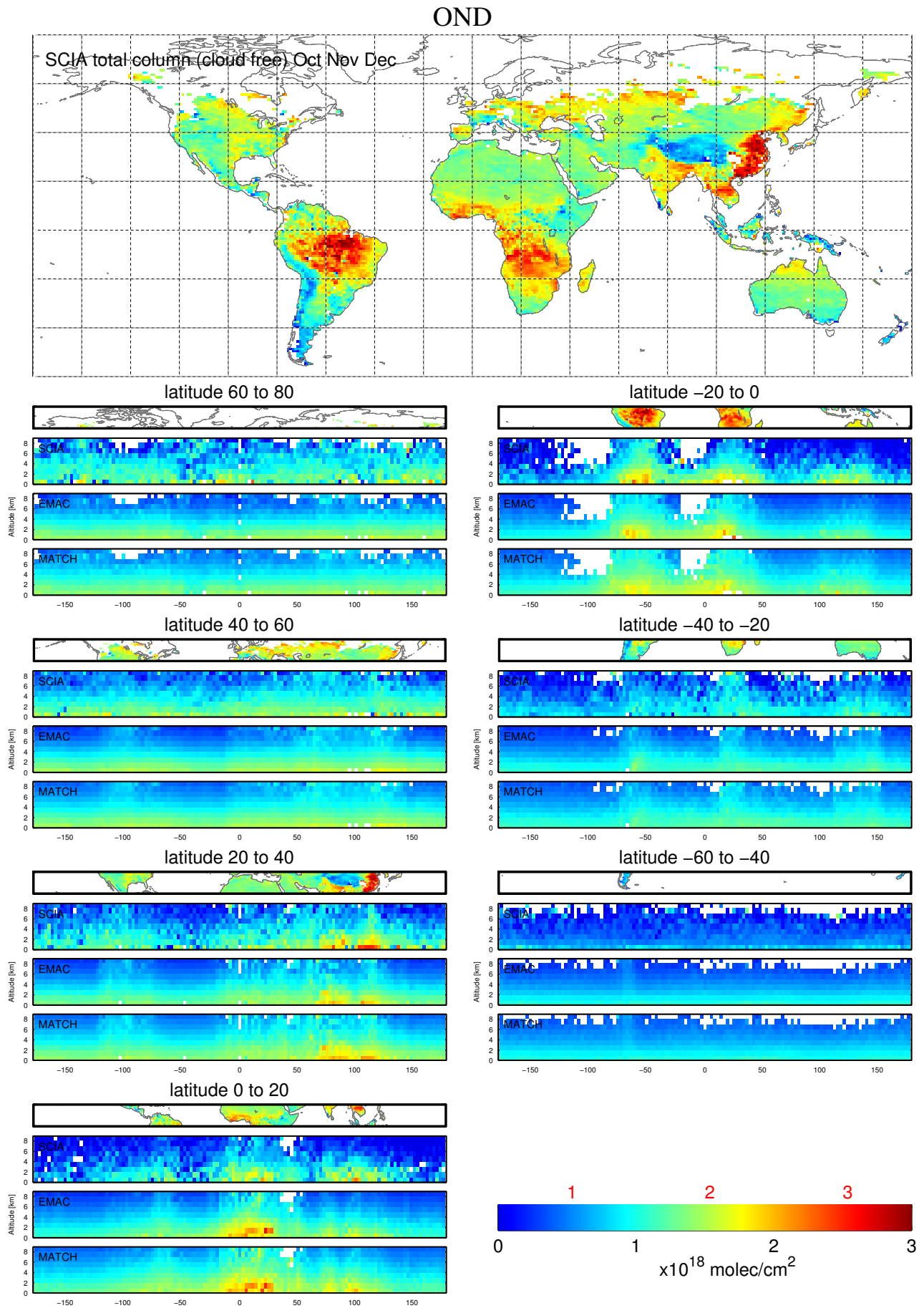


Fig. S3. (cont). Total CO VCD (cloud free) (top) and zonal cross sections of profiles of CO PVCDS for October to December 2003-2005.

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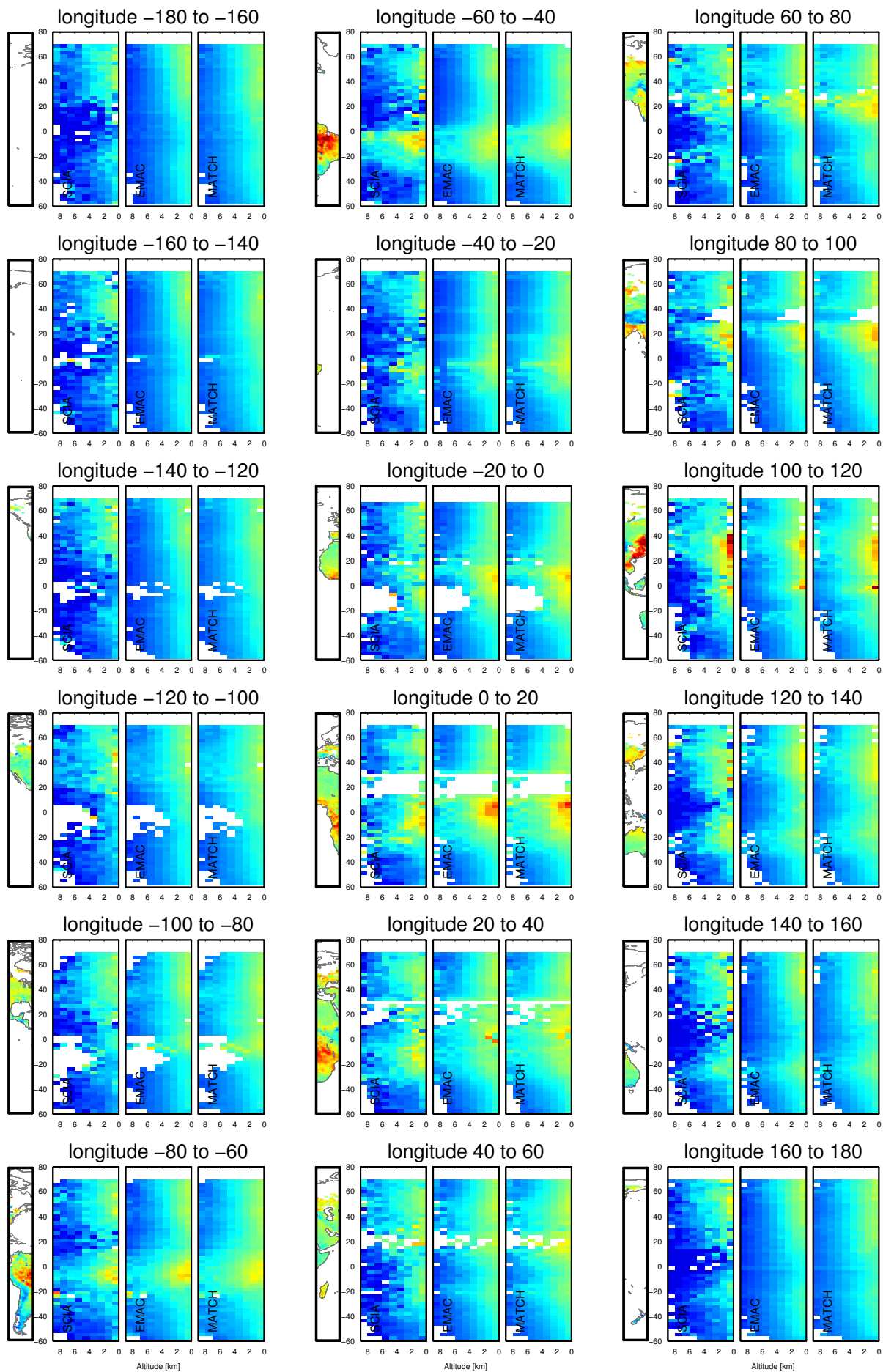


Fig. S3 (cont). Meridional cross sections of profiles of CO PVCs for October to December 2003-2005.