

**Supplemental Figure S1:** The time series (left column) and de-seasonalized monthly anomalies (right column) of the CO column from MOPITT (black), the MOPITT a priori (gray), and simulated by G-Ref-C1 (red), Ref-C1-SD (blue), EmFix (green), and AltEmis (purple) for 2000-2011.