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FLEXPART v10.1 simulation of source contributions to Arctic black carbon

Chunmao Zhu et al.

Correspondence to: Chunmao Zhu (chmzhu@jamstec.go.jp)

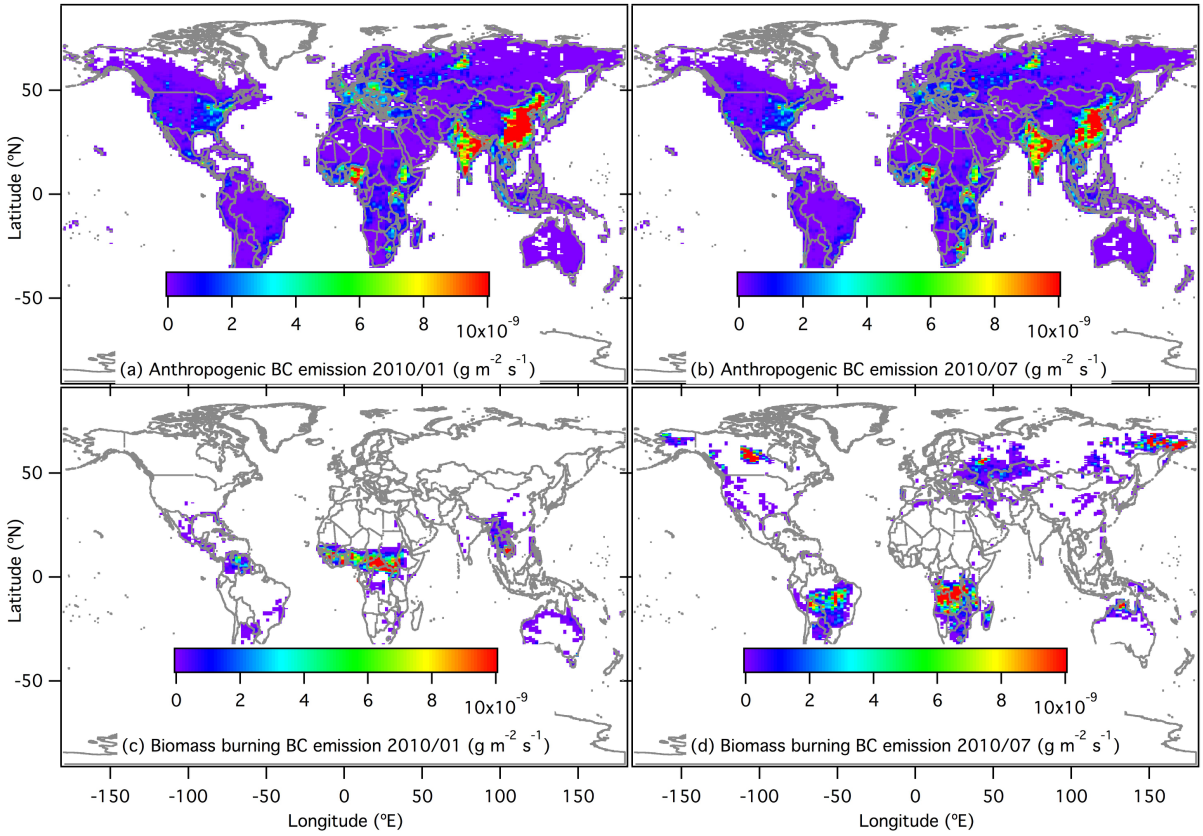

Figure S1. Spatial distributions of BC emissions from (a) anthropogenic sources in January 2010, (b) anthropogenic sources in July 2010, (c) open biomass burning in January 2010, and (d) open biomass burning in July 2010.

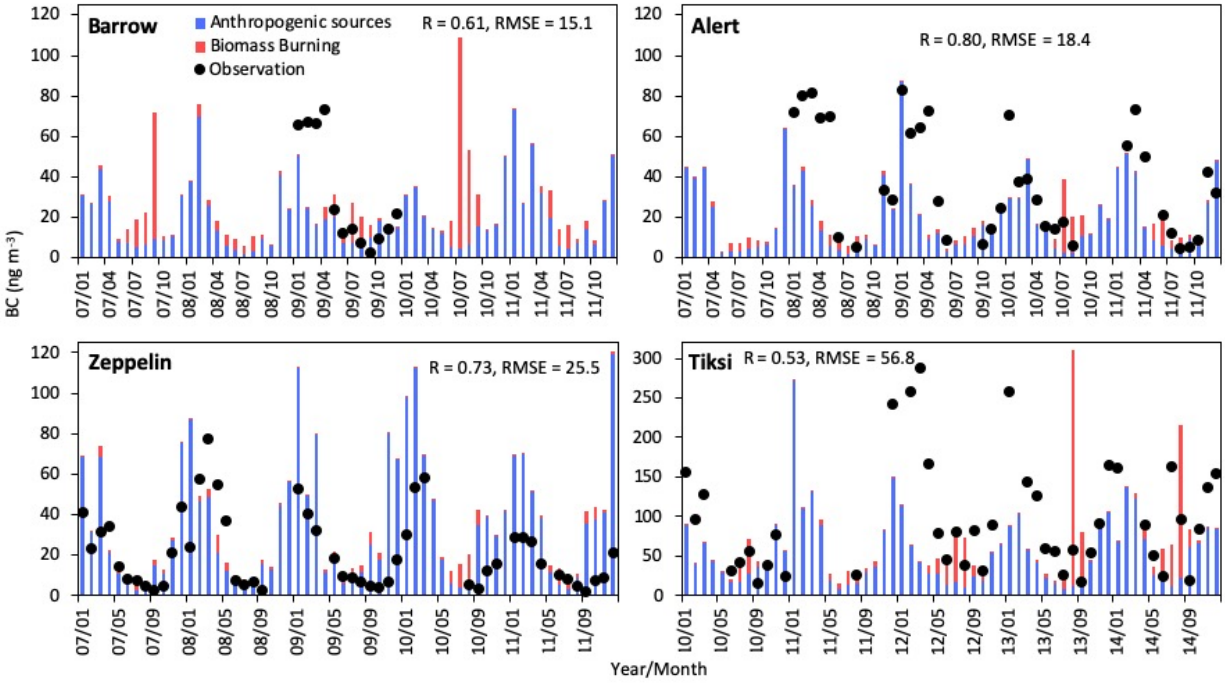

Figure S2. Time series of observed (filled circles) and modeled (bars) seasonal variations in BC mass concentrations at Arctic sites. Contributions from anthropogenic sources (blue) and open biomass burning (red) in each month are shown. Monthly averages of observed (filled circles) BC are shown for 2007–2011 at Alert, Canada (62.3° W, 82.5° N), and Zeppelin, Norway (11.9° E, 78.9° N), for 2009 at Barrow, USA (156.6° W, 71.3° N), and for 2010–2014 at Tiksi, Russia (128.9° E, 71.6° N). *R* and RMSE indicate correlation coefficient and root-mean-square error (ng m^{-3}), respectively.

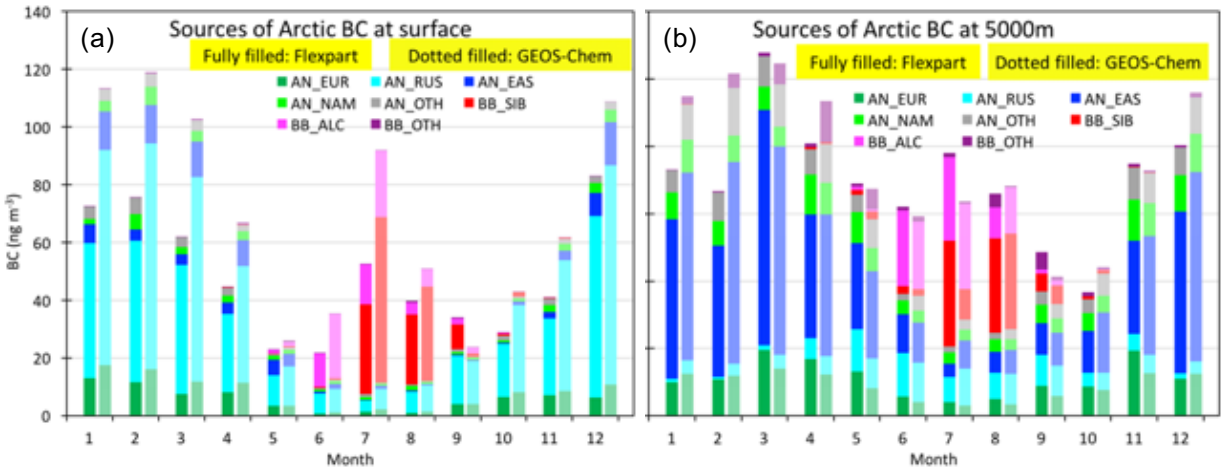

Figure S3. Comparison of Flexpart-simulated Arctic BC sources with those obtained by using GEOS-Chem.