

[Home](#)[Online Library ACP](#)

- Recent Final Revised Papers
- [Volumes and Issues](#)
- Special Issues
- Library Search
- Title and Author Search

[Online Library ACPD](#)[Alerts & RSS Feeds](#)[General Information](#)[Submission](#)[Review](#)[Production](#)[Subscription](#)[Comment on a Paper](#)

Impact
Factor
4.865

ISI
indexed

[Volumes and Issues](#) [Contents of Issue 2](#)

Atmos. Chem. Phys., 7, 295-308, 2007

www.atmos-chem-phys.net/7/295/2007/

© Author(s) 2007. This work is licensed under a Creative Commons License.

Evidence for a CO increase in the SH during the 20th century based on firn air samples from Berkner Island, Antarctica

S. S. Assonov¹, C. A. M. Brenninkmeijer¹, P. Jöckel¹, R. Mulvaney², S. Bernard³, and J. Chappellaz³

¹Max Planck Institute for Chemistry, PO 3060, 55020 Mainz, Germany

²British Antarctic Survey, High Cross, Madingley Road, Cambridge CB3 0ET, UK

³Laboratoire de Glaciologie et Géophysique de l'Environnement, 54 rue Molière, Domaine Universitaire, BP 96, 38402 St. Martin d'Hères Cedex, France

Abstract. Trends of carbon monoxide (CO) for the past 100 years are reported as derived from Antarctic firn drilling expeditions. Only one of 3 campaigns provided high quality results. The trend was reconstructed using a firn air model in the forward mode to constrain age distributions and assuming the CO increase to be proportional to its major source, namely CH₄. The results suggest that CO has increased by ~38%, from 38±7 to 52.5±1.5 ppbv over a period of roughly 100 years. The concentrations are on the volumetric scale which corresponds to ~1.08 of the scale used by NOAA/CMDL. The estimated CO increase is somewhat larger than what is estimated from the CO budget estimations and the CH₄ growth alone. The most likely explanation might be an increase in biomass burning emissions. Using CH₃Cl as another proxy produces a very similar reconstruction.

[Final Revised Paper](#) (PDF, 546 KB) [Discussion Paper](#) (ACPD)

Citation: Assonov, S. S., Brenninkmeijer, C. A. M., Jöckel, P., Mulvaney, R., Bernard, S., and Chappellaz, J.: Evidence for a CO increase in the SH during the 20th century based on firn air samples from Berkner Island, Antarctica, Atmos. Chem. Phys., 7, 295-308, 2007. [Bibtex](#) [EndNote](#) [Reference Manager](#)

[Search ACP](#)

Library Search

Author Search

[News](#)

- [Sister Journals AMT & GMD](#)
- [Financial Support for Authors](#)
- [Journal Impact Factor](#)
- [Public Relations & Background Information](#)

[Recent Papers](#)

01 | ACPD, 28 Nov 2008:
Estimating surface CO₂ fluxes from space-borne CO₂ dry air mole fraction observations using an ensemble Kalman Filter

02 | ACPD, 28 Nov 2008:
Comparison of tropospheric chemistry schemes for use within global models

03 | ACP, 28 Nov 2008:
Measurements of HNO₃ and N₂O₅ using ion drift-chemical ionization mass spectrometry during the MILAGRO/MCMA-2006 campaign