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 User guide

# BOREAS TGB-12 RADON-222 FLUX DATA: NSA

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## Summary:

The BOREAS TGB-12 team made measurements of soil carbon inventories, carbon concentration in soil gases, and rates of soil respiration at several sites to estimate the rates of carbon accumulation and turnover in each of the major vegetation types. Sampling strategies for soils were designed to take advantage of local fire chronosequences, so that the accumulation of carbon in new moss growth could be determined. All the data are used to 1) calculate the inventory of carbon and nitrogen in moss and mineral soil layers at NSA sites, 2) determine the rates of input and turnover (using both accumulation since the last stand-killing fire and radiocarbon data), and 3) link changes in soil respiration rate to shifts in the  $^{14}\text{C}$  content of soil  $\text{CO}_2$  to determine the average 'age' respired  $\text{CO}_2$ . These  $^{222}\text{Rn}$  flux data were collected from 15-NOV-1993 to 16-AUG-1994 over the NSA sites.

A guide document which includes more information about this data set can be found at [http://daac.ornl.gov/daacdata/boreas/TGB/tgb12rfd/comp/TGB12\\_RadonFlux.txt](http://daac.ornl.gov/daacdata/boreas/TGB/tgb12rfd/comp/TGB12_RadonFlux.txt).

ORNL DAAC maintains information on the entire [BOREAS Project](#).

## Data Citation

Cite this data set as follows:

Harden, J. W., S. E. Trumbore, E. T. Sundquist, and G. C. Winston. 1998. BOREAS TGB-12 Radon-222 Flux Data: NSA. Data set. Available on-line [<http://www.daac.ornl.gov>] from Oak Ridge National Laboratory Distributed Active Archive Center, Oak Ridge, Tennessee, U.S.A.  
doi:[10.3334/ORNLDAAC/401](https://doi.org/10.3334/ORNLDAAC/401).

## References:

- Davidson, E.A. and S.E. Trumbore. 1996. Gas diffusivity and production of  $\text{CO}_2$  in deep soils of the eastern Amazon. *Tellus*. 47B: 550-565.
- Donahue, D.J., T.W. Linick, and A.J.T. Jull. 1990. Isotope-ratio and background corrections for accelerator mass spectrometry radiocarbon measurements. *Radiocarbon* 32: 135-142.
- Goh, K.M. 1990. Carbon dating, chapter 8.In: D.C. Coleman and B. Fry, *Carbon Isotope Techniques*, Academic Press, San Diego. pp. 125-145.
- Harden, J. W., K. P. O'Neill, S. E. Trumbore, H. Veldhuis, and B. J. Stocks. 1997. Moss and soil contributions to the annual net carbon flux of a maturing boreal forest. *Journal of Geophysical Research*, BOREAS Special Issue, 102(D24), Dec. 1997, pp. 28805-28816.
- Mathieu, G.G.P., E. Biscaye, R.A. Lupton, and D.E. Hammond. 1988. System for measurement of  $^{222}\text{Rn}$  at low levels in natural waters. *Heath Physics* 55:989-992.
- O'Neill, K.P., J.W. Harden, S.E. Trumbore, and H. Veldhuis, 1995.. U.S. Geological Survey Open File Report.
- Sellers, P.and F. Hall. 1996. Boreal Ecosystem-Atmosphere Study: Experiment Plan. Version 1996-2.0, NASA BOREAS Report (EXPLAN 96).
- Sellers, P.and F. Hall. 1994. Boreal Ecosystem-Atmosphere Study: Experiment Plan. Version 1994-3.0, NASA BOREAS Report (EXPLAN 94).
- Sellers, P., F. Hall, and K.F. Huemmrich. 1996. Boreal Ecosystem-Atmosphere Study: 1994 Operations. NASA BOREAS Report (OPS DOC 94).
- Sellers, P., F. Hall, and K.F. Huemmrich. 1997. Boreal Ecosystem-Atmosphere Study: 1996 Operations. NASA BOREAS Report (OPS DOC 96).
- Sellers, P., F. Hall, H. Margolis, B. Kelly, D. Baldocchi, G. den Hartog, J. Cihlar, M.G. Ryan, B. Goodison, P. Crill, K.J. Ranson, D. Lettenmaier, and D.E. Wickland. 1995. The boreal ecosystem-atmosphere study (BOREAS): an overview and earlyresults from the 1994 field year. *Bulletin of the American Meteorological Society*. 76(9):1549-1577.

Sellers, P.J., F.G. Hall, R.D. Kelly, A. Black, D. Baldocchi, J. Berry, M. Ryan, K.J. Ranson, P.M. Crill, D.P. Lettenmaier, H. Margolis, J. Cihlar, J. Newcomer, D. Fitzjarrald, P.G. Jarvis, S.T. Gower, D. Halliwell, D. Williams, B. Goodison, D.E. Wickland, and F.E. Guertin. 1997. BOREAS in 1997: Experiment Overview, Scientific Results and Future Directions. Journal of Geophysical Research, BOREAS Special Issue, 102(D24), Dec. 1997, pp. 28731-28770.

Southon, J.R., J.S. Vogel, S.E. Trumbore, et. al. 1992. Progress in AMS measurements at the LLNL spectrometer, Radiocarbon 34: 473-477.

Stephens, B.B. and E.T. Sundquist. 1998. submitted to??. Measurements of soil surface gas fluxes using closed chamber techniques. (contact authors for status - Stephens is now a student at Scripps Institution of Oceanography)

Stuiver M. and H. Polach. 1977. Reporting of 14C data. Radiocarbon 19: 355-363.

Stuiver, M. and R. Kra. 1993. Radiocarbon v. 35 No 1. Calibration Issue.

Taylor, R.E., A. Long, and R. Kra, eds. 1992. Radiocarbon after Four Decades: An interdisciplinary perspective, Springer-Verlag, NY, 596 pp.

Trumbore, S.E. 1993. Comparison of carbon dynamics in two soils using measurements of radiocarbon in pre- and post-bomb soils. Global Biogeochemical Cycles 7:275-290.

Trumbore, S.E. 1996. Measurement of cosmogenic isotopes by accelerator mass spectrometry: applications to soil science, in Mass Spectrometry of Soils, T. Boutton and S. Yamasaki, eds, Marcel Dekker (New York), p. 311-340 .

Verardo, D., P.N. Froelich, and A. McIntyre. 1990. Determination of organic carbon and nitrogen in marine sediments using the Carlo-Erba-NI-1500 Analyzer. Deep-Sea Research, Part A - Oceanographic Research Papers 37:157-165.

Winston, G. C., E. T. Sundquist, B. B. Stephens and S. E. Trumbore. 1977. Winter CO2 fluxes in a boreal forest.Journal of Geophysical Research, BOREAS Special Issue, 102(D24), Dec. 1997, pp. 28795-28804.

Data Format:

For information on Parameter/Variable Names, Variable Description/Definition, Units of Measurement, and Data File Format see this companion file <http://daac.ornl.gov/daacdata/boreas/TGB/tgb12rfd/comp/tgb12rfd.def>

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