

EARTHDATA

Other DAACs ▾

Feedback

ORNL DAAC Home



ORNL DAAC
DISTRIBUTED ACTIVE ARCHIVE CENTER
FOR BIOGEOCHEMICAL DYNAMICS

NASA Home



□

About Us

Get Data

Submit Data

Data Management

Tools

□ Sign in

[DAAC Home](#) > [Get Data](#) > [Field Campaigns](#) > [Boreal Ecosystem-Atmosphere Study \(BOREAS\)](#) > [User guide](#)

BOREAS TE-07 SAP FLOW DATA

[Get Data](#)

Summary:

The BOREAS TE-07 team collected data sets in support of its efforts to characterize and interpret information on the sap flow of boreal vegetation. The heat pulse method was used to monitor sap flow and to estimate rates of transpiration from aspen, black spruce, and mixed wood forests at the SSA-OA, MIX, SSA-OBS, and Batoche sites in Saskatchewan, Canada. Measurements were made at the various sites from May to Oct 1994, May to Oct 1995, and Apr to Oct 1996. A scaling procedure was used to estimate canopy transpiration rates from the sap flow measurements.

A guide document which includes more information about this data set can be found at http://daac.ornl.gov/daacdata/boreas/TE/te07sapf/comp/TE07_Sapflow.txt.

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

Data Citation

Cite this data set as follows:

Hogg, E. H., and P. A. Hurdle. 1998. BOREAS TE-07 Sap Flow Data. 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/334](https://doi.org/10.3334/ORNLDAAC/334).

References:

- Barrett, D.J., T.J. Hatton, J.E. Ash, and M.C. Ball. 1995. Evaluation of the heat pulse velocity technique for measurement of sap flow in rainforest and eucalypt forest species of south-eastern Australia. *Plant Cell Env.* 18:463-469.
- Black, T.A., G. den Hartog, H.H. Neumann, P.D. Blanken, P.C. Yang, C. Russell, Z. Nescic, X. Lee, S.G. Chen, R. Staebler, and M.D. Novak. 1996. Annual cycles of water vapor and carbon dioxide fluxes in and above a boreal aspen forest. *Global Change Biol.* 2: 219-229.
- Blanken, P.D., T.A. Black, P.C. Yang, H.H. Neumann, Z. Nescic, R. Staebler, G. den Hartog, M.D. Novak, and X. Lee. 1997. Energy balance and canopy conductance of a boreal aspen forest: partitioning overstory and understory components. *Journal of Geophysical Research*, 102 (D24), 28915-28927.
- Cohen, Y., M. Fuchs, and G.C. Green. 1981. Improvements of the heat pulse method for determining sap flow in trees. *Plant Cell Env.* 4:391-397.
- Environment Canada. 1982. Canadian climatic normals 1951-1980. Temperature and precipitation. Prairie Provinces. Atmospheric Environment Service, Downsview, Ontario, Canada, 429 pp.
- Halliwell, D. and M.J. Apps. 1996. BOREAS biometry and auxiliary sites. Overstory and understory data, Version 2. Canadian Forest Service, Edmonton, Alberta, 256 p.
- Hogg, E.H. 1994. Climate and the southern limit of the western Canadian boreal forest. *Can. J. For. Res.* 24:1835-1845.
- Hogg, E.H. 1997. Temporal scaling of moisture and the forest-grassland boundary in western Canada. *Agric. Forest Meteorol.* 84: 115-122.
- Hogg, E.H. and P.A. Hurdle. 1995. The aspen parkland in western Canada: a dry-climate analogue for the future boreal forest? *Water Air Soil Pollut.* 82:391-400.
- Hogg, E.H. and P.A. Hurdle. 1995. Responses of sap flow in aspen(*Populus tremuloides*) to vapor pressure deficit in the boreal forest and aspen parkland of central Saskatchewan, Canada. Abstracts of presentations at the 80th Annual Ecological Society of America Meeting, 30-Jul-1995 to 3-August-1995, Snowbird, Utah.
- Hogg, E.H. and P.A. Hurdle. 1997. Sap flow in trembling aspen: implications of stomatal responses to vapor pressure deficit. *Tree Physiology*, 17:501-509

(BOREAS Special Issue).

Hogg, E.H., T.A. Black, G. den Hartog, H.H. Neumann, R. Zimmermann, P.A. Hurdle, P.D. Blanken, Z. Nesic, P.C. Yang, R.M. Staebler, K.C. McDonald, and R. Oren. 1997. A comparison of sap flow and eddy fluxes of water vapor from a boreal deciduous forest. Journal of Geophysical Research, 102 (D24), 28929-28937.

Marshall, D.C. 1958. Measurement of sap flow in conifers by heat transport. Plant Physiol. 33:385-396.

Price, D.T. and M.J. Apps. 1995. The Boreal Forest Transect Case Study: global change effects on ecosystem processes and carbon dynamics in boreal Canada. Water Air Soil Pollut. 82:203-214.

Sellers, P. and F. Hall. 1994. Boreal Ecosystem-Atmosphere Study: Experiment Plan. Version 1994-3.0, NASA BOREAS Report (EXPLAN 94).

Sellers, P. and F. Hall. 1996. Boreal Ecosystem-Atmosphere Study: Experiment Plan. Version 1996-2.0, NASA BOREAS Report (EXPLAN 96).

Sellers, P., F. Hall, and K.F. Huemmrich. 1996. Boreal Ecosystem-Atmosphere Study: 1994 Operations. NASA BOREAS Report (OPSDOC 94).

Sellers, P., F. Hall, and K.F. Huemmrich. 1997. Boreal Ecosystem-Atmosphere Study: 1996 Operations. NASA BOREAS Report (OPSDOC 96).

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, 102 (D24), 28731-28769.

Sellers, P.J., 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 early results from the 1994 field year. Bull. Am. Meteorol. Soc. 76:1549-1577.

Siau, J.F. 1971. Flow in wood. Syracuse Wood Science Series 1. Syracuse University Press. 131 p.

Swanson, R.H. 1983. Numerical and experimental analyses of implanted-probe heat pulse velocity theory. Ph.D. thesis, University of Alberta, 298 p.

Swanson, R.H. 1994. Significant historical developments in thermal methods for measuring sap flow in trees. Agric. For. Meteorol. 72:113-132.

Swanson, R.H. and D.W.A. Whitfield. 1981. A numerical analysis of heat pulse velocity theory and practice. J. Exp. Bot. 32:221-239.

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/TE/te07sapf/comp/te07sapf.def>

Document Information:

07-Dec-98 (data citation revised on 25-Sep-2002)

Document Review Date:

07-Dec-98

Document Curator:

uso@daac.ornl.gov

Document URL:

<http://daac.ornl.gov>



Privacy Policy | Feedback | Help



☐ Home	About Us Who We Are Partners User Working Group Data Citation Policy News	Get Data Complete Dataset List Search for Data Field Campaigns Land Validation Regional/Global Model Archive	Submit Data Submit Data Form Data Scope and Acceptance Data Authorship Policy Data Publication Timeline Detailed Submission Guidelines	Data Management Best Practices Data Management Plan How-to's	Tools MODIS THREDDS SDAT Daymet CARVE Data Viewer Soil Moisture Visualizer Land - Water Checker	Help FAQs
-------------------------------	---	---	--	--	---	---------------------

