

# BOREAS HYD-03 Snow Measurements

## Summary:

The BOREAS HYD-03 team collected several data sets related to the hydrology of forested areas. This data set contains measurements of snow depth, snow density in 3-cm intervals, an integrated snow pack density and snow water equivalent (SWE), and snow pack physical properties from snow pit evaluation taken in 1994 and 1996. The data were collected from several sites in both the SSA and the NSA. A variety of standard tools were used to measure the snowpack properties, including a meter stick (snow depth), a 100 cc snow density cutter, a dial stem thermometer and the Canadian snow sampler as used by HYD-04 to obtain a snow pack-integrated measure of SWE. This study was undertaken to predict spatial distributions of snow properties important to the hydrology, remote sensing signatures, and the transmissivity of gases through the snow.

A guide document which includes more information about this dataset can be found at [http://daac.ornl.gov/boreas/HYD/h03sd96d/comp/HYD03\\_Snow\\_Meas.txt](http://daac.ornl.gov/boreas/HYD/h03sd96d/comp/HYD03_Snow_Meas.txt).

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

## Data Citation:

Cite these data sets as follows:

Hardy, J. P., and R. E. Davis. 1998. BOREAS HYD-03 Snow Depth Data: 1996. 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/259.

Hardy, J. P., and R. E. Davis. 1998. BOREAS HYD-03 Snow Pit Measurements: 1996. 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/260.

Hardy, J. P., and R. E. Davis. 1998. BOREAS HYD-03 Snow Temperature Profiles. 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/261.

Hardy, J. P., and R. E. Davis. 1998. BOREAS HYD-03 Snow Water Equivalent: 1996. 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/263.

Hardy, J. P., and R. E. Davis. 1998. BOREAS HYD-03 Snow Water Equivalent 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/262.

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Hardy, J.P., R.E. Davis, and G.C. Winston. 1995. Evolution of factors affecting gas transmissivity of snow in the boreal forest. In: *Biogeochemistry of Seasonally Snow-Covered Catchments* (ed. by K. Tonnessen, M.W. Williams, and M. Tranter) (Proc. Boulder Symp., July 1995). IAHS publication no. 228, p. 51-60.

Hardy, J.P., R.E. Davis, and R. Jordan. 1996. Snow melt modeling in the boreal forest. *Eos Transactions, AGU 1996 Fall Meeting, abstract*, p. 196.

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Hardy, J.P., R.E. Davis, R. Jordan, X. Li, C. Woodcock, W. Ni, and J.C. McKenzie. 1997. Snow ablation modeling at the stand scale in a boreal jack pine forest. *Journal of Geophysical Research*. 102(D24): 29397-29406.

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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, F.E. Guertin. 1997. BOREAS in 1997: Experiment overview, scientific results, and future directions. *Journal of Geophysical Research*. 102(D24):28731-28770.

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ecosystem-atmosphere study (BOREAS): an overview and early results from the 1994 field year. Bulletin of the American Meteorological Society. 76(9):1549-1577.

Winston, G.C., B.B. Stephens, E.T. Sundquist, J.P. Hardy, and R.E. Davis. 1995. Seasonal variability in gas transport through snow in a boreal forest. In: Biogeochemistry of Seasonally Snow-Covered Catchments (ed. by K. Tonnessen, M.W. Williams, and M. Tranter) (Proc. Boulder Symp., July 1995). IAHS publication no. 228, p. 61-70.

## **Data Format:**

For information on Parameter/Variable Names, Variable Description/Definition, Units of Measurement, and Data File Format see the companion file

<http://daac.ornl.gov/boreas/HYD/h03sd96d/comp/h03sd96d.def>

<http://daac.ornl.gov/boreas/HYD/h03sp96d/comp/h03sp96d.def>

<http://daac.ornl.gov/boreas/HYD/h03swed96d/comp/h03swed96d.def>

<http://daac.ornl.gov/boreas/HYD/h3swe96d/comp/h3swe96d.def>

<http://daac.ornl.gov/boreas/HYD/h03sntmd96d/comp/h03sntmd96d.def>

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