

BOREAS HYD-02 Estimated Snow Water Equivalent (SWE) from Microwave Measurements

Summary:

The surface meteorological data collected at the BOREAS tower and ancillary sites are being used as inputs to an energy balance model to monitor the amount of snow storage in the boreal forest region. The BOREAS HYD-02 team used snow water equivalent (SWE) derived from an energy balance model and in situ observed SWE to compare the SWE inferred from airborne and spaceborne microwave data, and to assess the accuracy of microwave retrieval algorithms. The major external measurements that are needed are snowpack temperature profiles, and in situ snow areal extent and snow water equivalent data. The data in this data set were collected during February 1994 and cover portions of the SSA, NSA, and the transect areas.

A guide document which includes more information about this data set can be found at http://daac.ornl.gov/boreas/HYD/h02swed/comp/HYD02_Aircraft_SWE.txt.

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

Data Citation

Cite this data set as follows:

Powell, H., A. T. C. Chang, and D. Knapp. 1998. BOREAS HYD-02 Estimated Snow Water Equivalent (SWE) from Microwave Measurements. 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/256](https://doi.org/10.3334/ORNLDAAC/256).

References:

Chang, A.T.C., J.L. Foster, D.K. Hall, A.E. Walker, B.E. Goodison, J.R. Metcalfe (1996). "Snow Parameters Derived From Microwave Measurements During the BOREAS Winter Field Campaign", 22nd Conference on Agricultural and Forest Meteorology (AMS Conference), Atlanta, GA, Jan. 1996

Chang, A.T.C., J.L. Foster and D.K. Hall, 1987, Nimbus-7 derived global snow cover parameters, *Annals of Glaciology*, 9, 39-44.

Chang, A.T.C., J.L. Foster and D.K. Hall, Effect of vegetation on microwave snow water equivalent estimates, "Proceedings of the International Symposium on Remote Sensing and Water Resources", Enschede, The Netherlands, 137-145, 1990

Goodison, B.E., and A.E. Walker, Canadian development and use of snow cover information from passive microwave satellite data, *Passive Microwave Remote Sensing of Land-Atmosphere Interactions*, (Eds. Choudhury, Kerr, Njoku and Pampaloni), VSP, 245-262, 1994.

Goodison, B.E., and A.E. Walker, Use of snow cover derived from satellite passive microwave data as an indicator of climate change. *Annals of Glaciology*, 17, 137-142, 1993.

Goodison, G., A.E. Walker and F.W. Thirkettle, Determination of snowcover on the Canadian prairies using passive microwave data, "proceedings for the International Symposium on Remote Sensing and Water Resources", Enschede, The Netherlands, 127-136, 1990

Hall, D.K. , J.L. Foster and A.T.C. Chang, "Mapping snow cover during the BOREAS Winter Experiment," AGU Annual Fall Meeting, 1994.

Hallikainen, M.T., and P.A. Jolma, Comparison of algorithms for retrieval of snow water equivalent from Nimbus-7 SMMR data in Finland. *IEEE Trans. on Geoscience and Remote Sensing*, 30, 124-131, 1992.

Hallikainen, M.T., P.A. Jolma and J.M. Hyyppa, Satellite microwave radiometry of forest and surface types in Finland. *IEEE Trans. on Geoscience and Remote Sensing*, 26, 622-628, 1988.

Rott, H. and J. Aschbacher, On the use of satellite microwave radiometers for large-scale hydrology, *Proc. IASH 3rd Int. Assembly on Remote Sensing and large Scale Global Processes*, Baltimore, 21-30, 1989.

Walker, A.E. and B.E. Goodison, Discrimination of a wet snow cover using passive microwave data, "*Annals of Glaciology*", 17, 307-311, 1993.

Wang, J.R., R. Meneghini, H. Kumagai, T.T. Wilheit, W.C. Boncyk, P. Racette, J.R. Tesmer and B. Maves, Airborne active and passive microwave observations of super typhoon Flo, "*IEEE Trans. Geoscience and Remote Sensing*", 32, 231-242, 1994.

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/boreas/HYD/h02swed/comp/h02swed.def>

Document Information:

12-Oct-1998 (data citation revised on 18-Sep-02)

Document Review Date:

12-Oct-1998

Document Curator:

webmaster@daac.ornl.gov

Document URL:

<http://daac.ornl.gov>