



UNIVERSITY OF WASHINGTON & UNIVERSITY OF BRITISH COLUMBIA
INVITE YOU TO:

**DISTRIBUTED HYDROLOGY SOIL VEGETATION MODEL
FIRST USERS GROUP MEETING
Asian Centre, 1871 West Mall (Auditorium)
Vancouver, British Columbia**

**Thursday and Friday March 18/19, 2004
Vancouver, British Columbia**

ABSTRACT

The Distributed Hydrology Soil Vegetation Model (or DHSVM) was originally developed in the early 1990s by Mark Wigmosta while at the University of Washington (Wigmosta et al. 1994). Since then the model code has been further developed by a wide cast of characters at the University of Washington, Pacific Northwest National Laboratory, and the University of British Columbia.

DHSVM is a physically based parameter model that explicitly estimates the spatial distribution of moisture, energy fluxes, and runoff generation by subdividing the model domain into small computational grid elements using the spatial resolution of an underlying digital elevation model (DEM). DHSVM consists of a two layer canopy model for evapotranspiration, energy balance models for canopy and ground snow accumulation and ablation, a multi-layer soil model, and subsurface surface, and channel flow routing models. The digital elevation data are used to model topographic controls on meteorology, energy, and water movement. One dimensional energy and water balance equations are solved individually for every grid cell in the model domain at appropriate time steps.

DHSVM has predominantly been applied to mountainous watersheds in the Pacific Northwest at high spatial resolutions on the order of 5 to 10 m grid cells for smaller watersheds (less than 100 km²) and on the order of 100 m grid cells for larger watersheds (100 to 10⁴ km²). The model has also been used in single event and continuous multiyear simulation modes at daily and sub-daily time steps.

Over the last several years, an increased number of publications in WRR, HP, and Journal of Hydro-Meteorology have emerged on the application and further development of DHSVM. Currently, DHSVM is being used as a research and operational tool by universities and research laboratories in North America and elsewhere in the world.

The University of Washington and the University of British Columbia invite you to attend the first DHSVM Users Group Meeting to be organized in Vancouver British Columbia Thursday and Friday March 18 and 19, 2004. The objectives of this meeting are:

- (i) Keeping all users up-to-date with recent developments and applications
- (ii) Coordinating DHSVM model development and testing
- (iii) Increasing communication between DHSVM users
- (iv) Formalizing a users support group for DHSVM
- (v) Contemplating funding venues for future DHSVM activities

While this meeting will be focusing on DHSVM development and applications we encourage other modelers to participate as well.

Co-Chairs of the Meeting:

Prof. Younes Alila, UBC Forestry & Prof. Dennis Lettenmaier, UW, Civil Engineering

PROGRAM

Thursday, March 18th

8:00 to 9:00

Registration

9:00 to 9:15

Workshop Organization and Logistics

9:15 to 9:30

Opening Statement by Younes Alila, Faculty of Forestry, University of British Columbia

Morning Session Chair: Dr. Walt Megahan (retired Forest Hydrologist with USDA Forest Service)

9:30 to 10:00

A brief history of the Distributed Hydrology Soil Vegetation Model (DHSVM)

Mark Wigmosta, Chief Scientist, Pacific Northwest National Laboratory, Richland, WA

10:00 to 10:30

Overview of the long-term watershed experiments in British Columbia

Eugene Hetherington (retired forest hydrologist with Canadian Forest Service) and Rita Winkler (research hydrologist with BC Ministry of Forests)

10:30 to 11:00

Morning Coffee Break

11:00 to 11:30

Peak flow responses to clear cutting and roads in the maritime regions of the Pacific Northwest: A preferential hillslope perspective, Joseph Beckers, Komex International Ltd., Burnaby, British Columbia

11:30 to 12:00

Forest harvesting influences on the peak flow regime in the Interior snow dominated watersheds of south eastern BC: An investigation using long-term numerical modelling, Markus Schnorbus, University of British Columbia

12:00 to 12:30

Snowmelt runoff processes and modelling for three small catchments draining a glaciated valley wall, Dan Moore, FRBC Chair in Forest Hydrology, Departments of Geography / Forest Resources Management, University of British Columbia

12:30 to 1:30

LUNCH

Afternoon Session Chair: Professor Gordon Grant (Oregon State University)

1:30 to 2:00

Virtual experiments: Towards a dialog between experimentalists and modelers, Markus Weiler, FRBC Chair in Forest Hydrology, Departments of Geography / Forest Resources Management, University of British Columbia

2:00 to 2:30

Experiences in applying DHSVM in the commercial sector: A focus on calibration and parameter transferability, Pascal Storck, 3TIER Environmental Forecast Group Inc., Seattle, WA, USA.

2:30 to 3:00

Developing Mid-Range Forecasts of Streamflow using DHSVM, Michael Miller, Department of Civil and Environmental Engineering, University of Washington, Seattle, USA

3:00 to 3:30

AFTERNOON COFFEE BREAK

3:30 to 4:00

Evaluating the impacts of climate change on water supplies using DHSVM, Matthew Wiley, Department of Civil and Environmental Engineering, University of Washington, Seattle, USA

4:00 to 4:30

DHSVM erosion and sediment transport model, Jordan Lanini, Department of Civil and Environmental Engineering, University of Washington, Seattle, USA

4:30 to 5:00 **More Discussion**

Evening: BEER GARDEN AT GROUSE MOUNTAIN

Friday March 19th

9:00 to 9:30 Opening Statement by Dennis Lettenmaier, Department of Civil and Environmental Engineering, UW Seattle

9:30 to 12:00 Roundtable Open Discussion – Moderator: Laura Bowling, Department of Agronomy, Purdue University, Indiana

- a) Identify various Versions of DHSVM and what they contain
- b) Define a "vanilla" version of DHSVM upon which changes will be made
- c) Develop module components in a protocol that would allow them to be added to a "vanilla" version of DHSVM

12:00 to 1:00 LUNCH

1:00 to 3:00 Roundtable Open Discussion, Moderator: Bart Nijssen, Departments of Civil Engineering and Engineering Mechanics / Hydrology and Water Resources, University of Arizona

- d) Develop documentation
- e) Develop support tools that ease the learning curve associated with using DHSVM including case studies
- f) Promote the use of DHSVM by making the distributed hydrology modeling community more aware of its existence

3:00 to 3:00 Rap-up and closing statements, Richard Palmer, Department of Civil and Environmental Engineering, University of Washington, Seattle, USA

ACCOMMODATION AND SOCIAL EVENTS

We have made reservations for on campus accommodation at the UBC Peter Wall Institute for Advanced Studies (with fabulous mountain and ocean views with affordable rates in Canadian dollars). We plan to have an exciting social event on the evening of Thursday March 18, 2004.