PILPS 2e Experiment Summary

Scheme name:	
Names and affiliations of group members:	

Technical contact and address:

Model Structure:

General description of model structure:

1. List the most recent journal references describing model structure.

2. Description of recent changes/additions to the scheme not currently documented in peer-reviewed journals and/or location of additional information (e.g. web site):

Atmospheric Stability:

1. How are aerodynamic resistances calculated?

2. Does you model make use of atmospheric stability corrections? ☐ Yes/ ☐ No

3. If yes, how are aerodynamic resistances adjusted?
   - ☐ Monin-Obuhkov mixing lengths
   - ☐ Flux Richardson's number
   - ☐ Bulk Richardson's number
   - ☐ Gradient Richardson's number
   - ☐ Other, please explain:

Snow model structure:

4. In the analysis of snow results from PILPs 2d, Slater et al. (2000) classified each snow scheme into one of 5 categories. Please indicate which description best fits your model:
   ☐ Zero dimensional, i.e. bucket model;
   ☐ Implicit snow pack, "allowances made to the soil/canopy model";
   ☐ Composite layer, interactions with the snow pack are concentrated into the fraction of the grid which is covered with snow, but the snow and first soil layer function as a single thermal unit;
   ☐ Bulk layer, same as above, but snow is a separate bulk layer above the soil layers;
   ☐ Multi-layer, same as above, but multi-layer model.
   ☐ None of the above, please explain:

Vegetation model structure:

1. Is heat storage in the canopy computed? ☐ Yes/ ☐ No
2. Are heat fluxes from the ground and canopy resolved separately? ☐ Yes/ ☐ No

   ☐ Other, please explain:

Lake model structure:

1. How is the presence of open water in the basin resolved?

   ☐ Ignored: Vegetation fractions re-scaled to exclude water or water fractions set to some other land use category.
   ☐ Evaporation from open water explicitly calculated.
   ☐ Other, please explain:

2. If open water evaporation is resolved is there any interaction between the water fraction and the remainder of the model grid cell?

Soil freeze/thaw:

1. Is soil freeze/thaw represented? ☐ Yes/ ☐ No If yes:
   ☐ Temperature index
   ☐ Explicit calculation of soil temperatures using diffusion equations
   ☐ Other, please explain:

Derivation of surface parameters:

Runoff:

1. Surface runoff production mechanism:

2. Subsurface runoff production mechanism:

Soils:

1. Total soil depth?
2. Soil moisture:
   ☐ "Diffusion schemes"
      1. Number of layers?
      2. Thickness of each layer?
   ☐ Other: Please describe how moisture values were assigned to vertical levels.

3. Soil parameter set used:
   ☐ Clapp et al. (1978)
   ☐ Cosby et al. (1984)
   ☐ Rawls et al. (1982)
   ☐ Other, please explain:

Vegetation:

1. For vegetation parameters associated with each vegetation class (LAI, albedo, and vegetation height), how were the parameters used?
   - ☐ Used the unique value for each vegetation type in the grid cell.
   - ☐ Simple weighted average with respect to vegetation fraction over the grid cell.
   - ☐ Other averaging method: _____
   - ☐ Other, explain:

_____

Optional parameters

1. Snow albedo (visible):
   - ☐ Recommended value
   - ☐ Other: _____
2. Thermal damping depth:
   - ☐ Recommended value ☐ N/A
   - ☐ Other: _____
3. Snow albedo (infrared):
   - ☐ Recommended value
   - ☐ Other: _____

	Veg 0	Veg 1	Veg 5	Veg 6	Veg 7	Veg 8	Veg 9	Veg 10	Veg 12
4. Displacement Height									
☐ Recommended									
☐ Other:									
5. Roughness Height									
☐ Recommended									
☐ Other:									
6. Architectural Resistance									
☐ Recommended									
☐ Other:									
7. Min. Stomatal Resistance									
☐ Recommended									
☐ Other:									
8. Root Distribution									
☐ Recommended									
☐ Other:									

9. If other in any of the above, provide source:

_____

Definition of output variables:

1. Sign convention
   - ☐ Mathematical
   - ☐ Traditional
   - ☐ Other, please explain:

2. Spatial resolution used by model
3. Input time step used by model:
4. Output time step produced by model:

5. For the more complex models, several processes must be lumped into the key energy budget variables. To avoid confusion, please define what is included in each of these output variables: *i.e. Qle is the latent heat flux plus melting soil ice*

a) DelColdcont	
b) DelSoilHeat	
c) Qle	
d) Qg	
e) Qa	
f) Qf	
g) Qv	

6. Please describe any other variables which do not exactly match the ALMA definition, or may cause confusion:

Calibration

1. Describe how the Ovre Lansjarv and Ovre Abiskojokk catchments were calibrated? Which parameters were changed?

2. How was calibration knowledge applied to the validation catchments?

3. How was calibration knowledge applied to the basin-wide runs?

General Impressions

1. What are your preliminary impressions on this application regarding:
   A. The ability of the model to represent the basin?

   B. The ability of the met forcings to represent the basin?

   C. The ability of the parameters to represent the basin?

2. Please describe any specific problems or concerns experienced:
   A. Data format (e.g. use of netcdf).

   B. Problems with manipulating and transmitting large data sets.

   C. Analyzing results and understanding model representation of conditions and processes typical of subpolar regions.

3. What are your recommendations for future experiments and applications? Would your modeling group be likely to participate in a PILPS 2e Stage 2 application to the Mackenzie River basin?