TRANSFER OF RECENT WOLF CREEK HYDROMETEOROLOGICAL PROCESS FINDINGS TO YUKON MINE RECLAMATION PROJECTS

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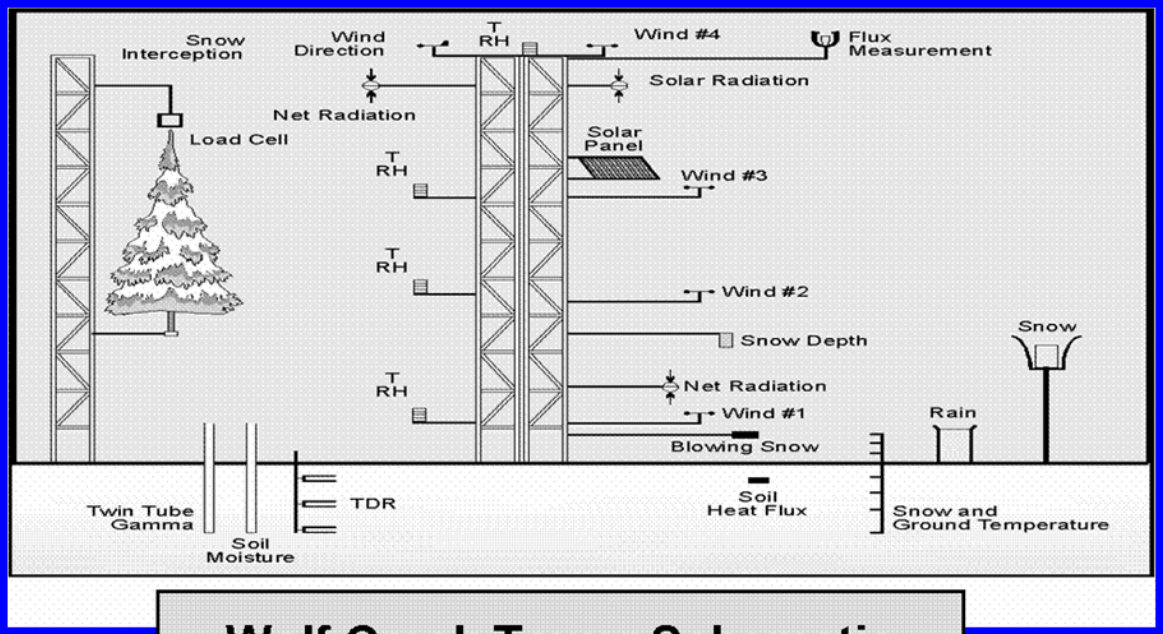
Yukon

WOLF CREEK - BACKGROUND

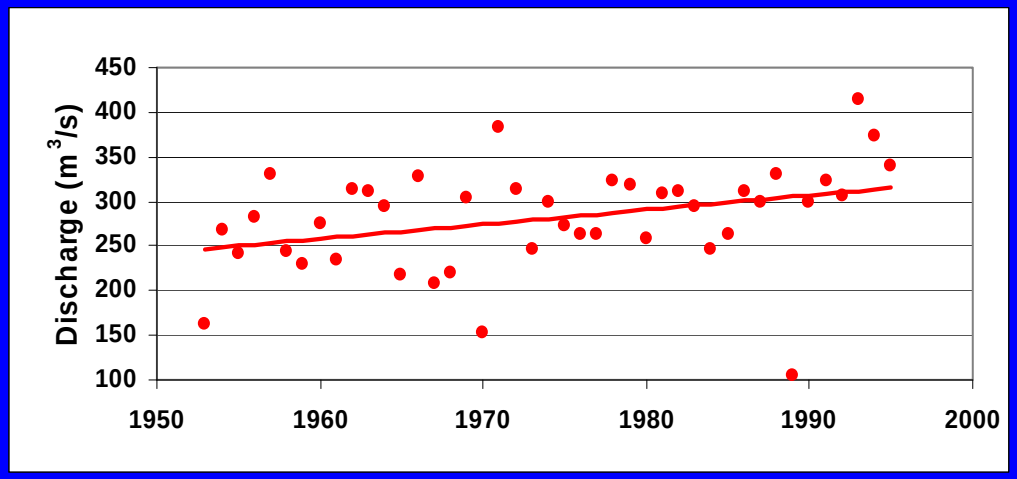
- Established 1992 for Hydrologic Model Development / Calibration Purposes
- Developed into an Integrated Study of Hydrometeorological Processes and Climate Research



Wolf Creek Tower Schematic

WOLF CREEK - LINKAGES

ANNUAL MAXIMUM DISCHARGE – ATLIN R



- Strong GY Support
  - Climate Change Issues Priority
- 2007 Major Flooding
- 197 Yr "Perfect Storm"
  - Linked to Climate Change
- Wolf Creek Research
  - Linked to Climate Change

FLOOD FORECASTING
(at its best!)

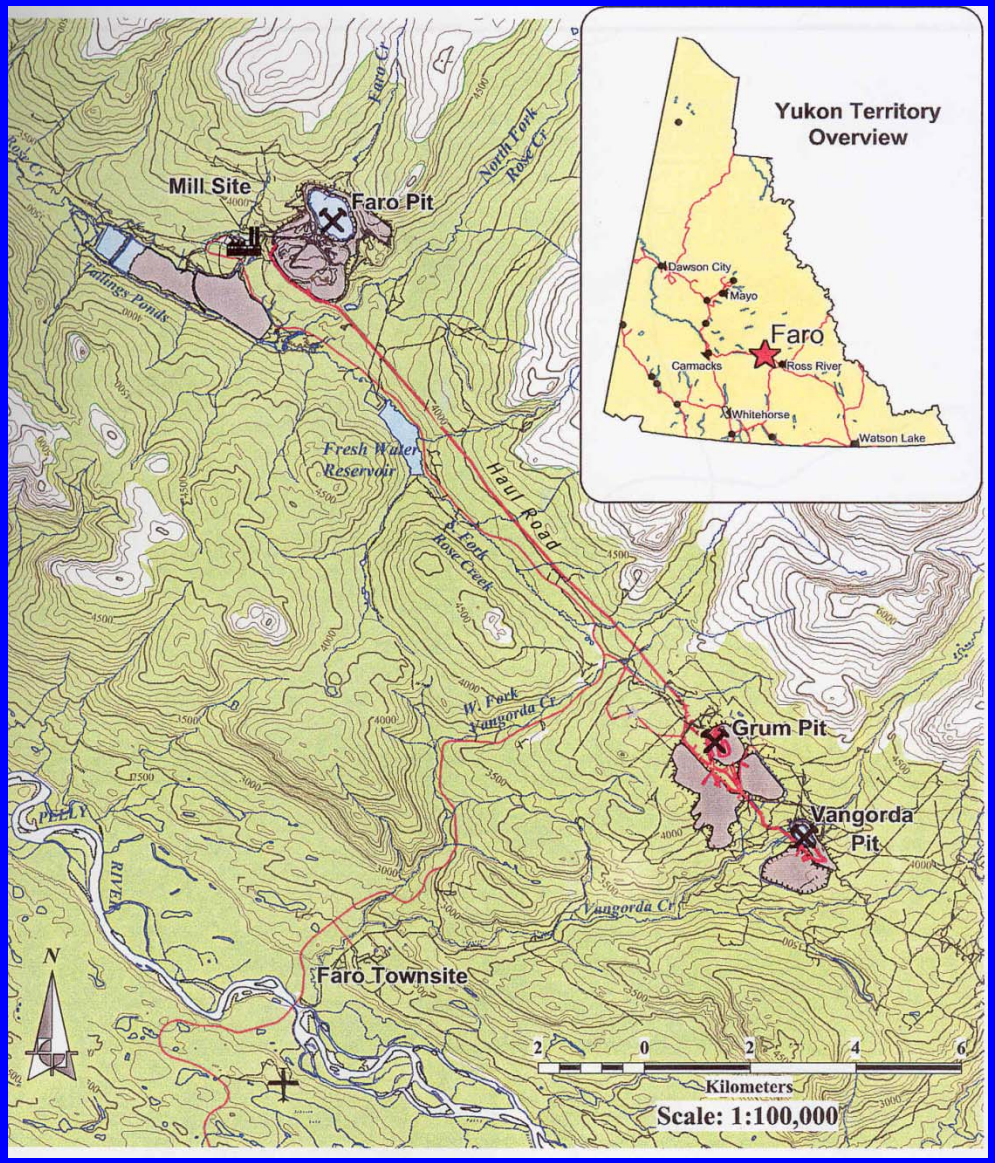
WOLF CREEK UPDATE

- IP3 / IPY Projects Underway
- Yukon Water Resources Continues to Maintain Baseline Networks (14 Yrs)
  - Completed $60 K upgrade all met stn (Yukon funds)
- Provide Logistical Support
- Collaborate / Carry Out Research

ANVIL RANGE MINING CORPORATION
FARO MINE COMPLEX

- SRK Consulting Ltd
- Deloite & Touche

- Could we Transfer Wolf Creek Finding to Faro Waste Rock Dumps to Develop a Water Balance?


Yukon Territory
Overview
Dawson City
Mayo
Faro
Carmacks
Ross River
Whitehorse
Watson Lake
Mill Site
Faro Pit
Tailings Ponds
Fresh Water
Reservoir
Haul Road
North Fork
Rose Cr.
Faro Cr.
Rose Cr.
S. Fork
Rose Creek
W. Fork
Vangorda Cr.
Grum Pit
Vangorda
Pit
Vangorda Cr.
Faro Townsite
PELLY
RIVER
N
2 0 2 4 6
Kilometers
Scale: 1:100,000

INVESTIGATION OF ANVIL RANGE MINING CORPORATION (FARO) WASTE DUMP

WATER BALANCE

Objective: Estimate Waste Rock Dump Recharge Determining Contaminant Seepage

- **Co-Investigators:** Raoul Granger & Newell Hedstrom (NWRI)

- 4 Year Study
  - Year 1: Develop Water Balance using Transposed Met Data
  - Year 2: Develop Water Balance using Site Meteorological Data
  - Year 3: Develop Estimates for Ave, Dry, Wet Scenario
  - Year 4: Apply Previous Work to Trial Covers

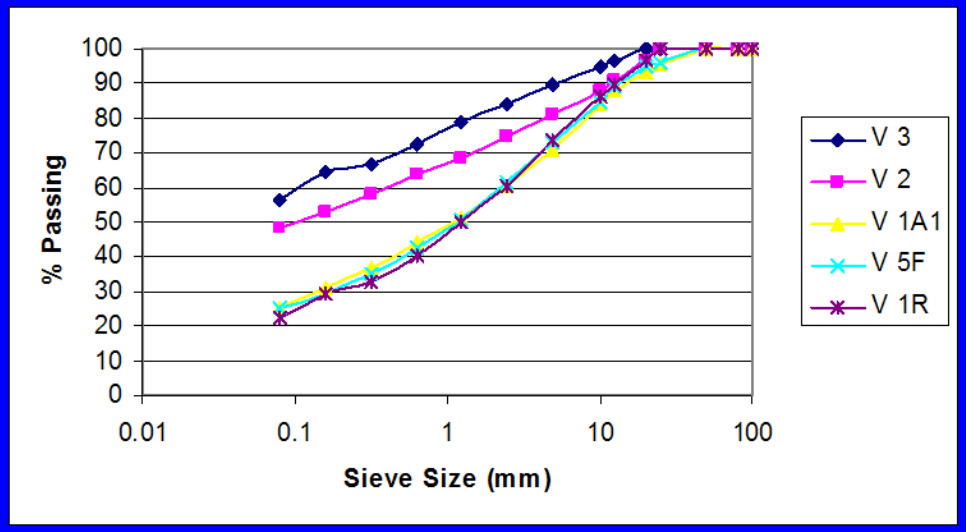
ANVIL RANGE MINING CORP MINESITE

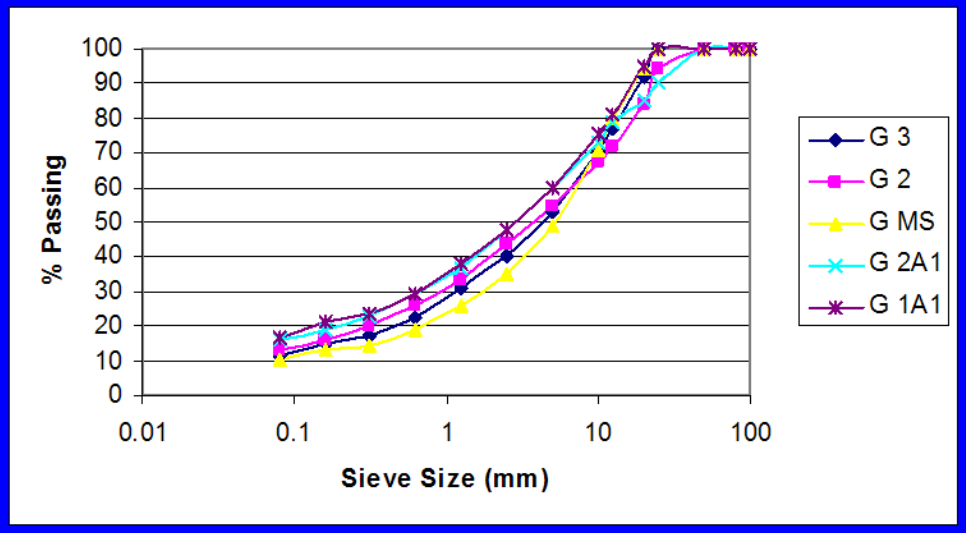
- 6 HRUs
  - Flat
  - Slopes (E.W.N.S)
  - Bubble

Met Stations

Snow Surveys

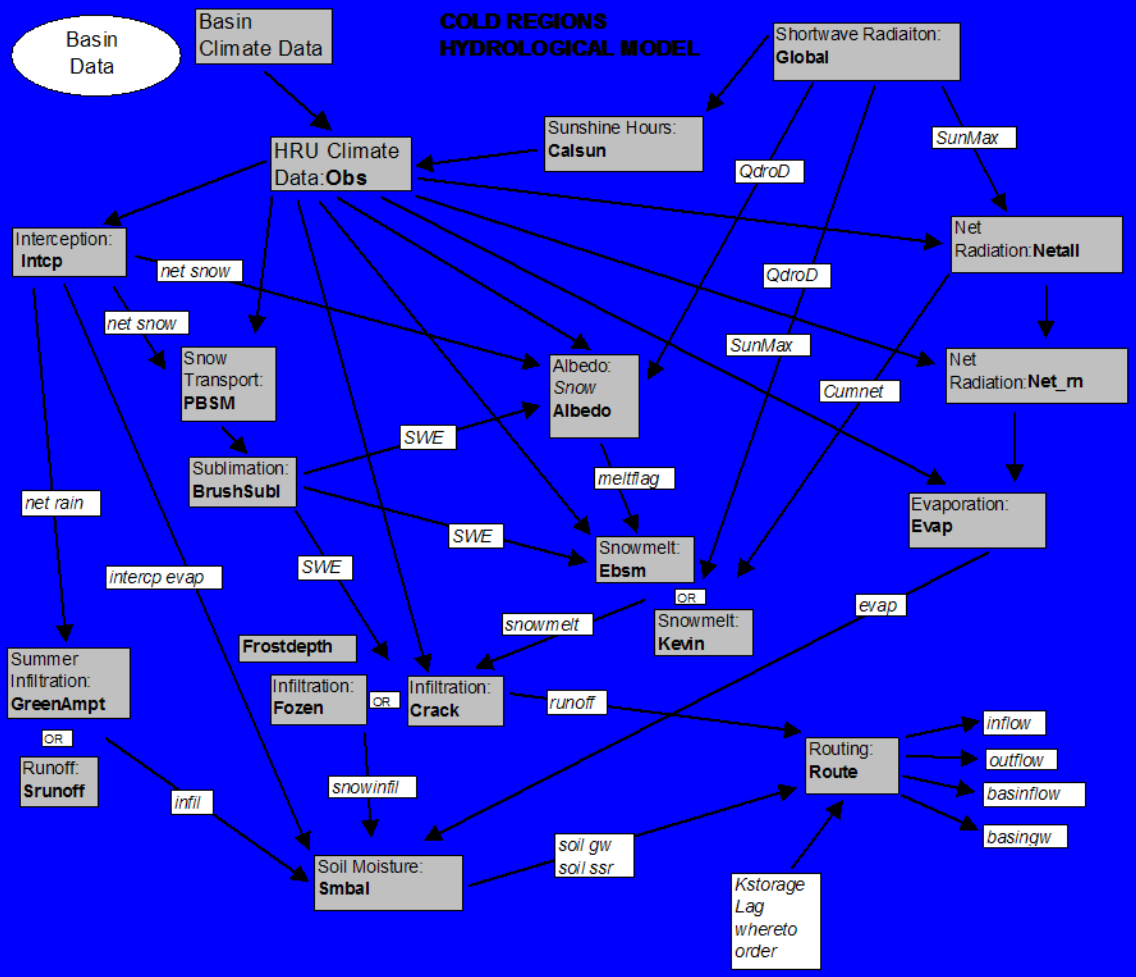
Material Characterization

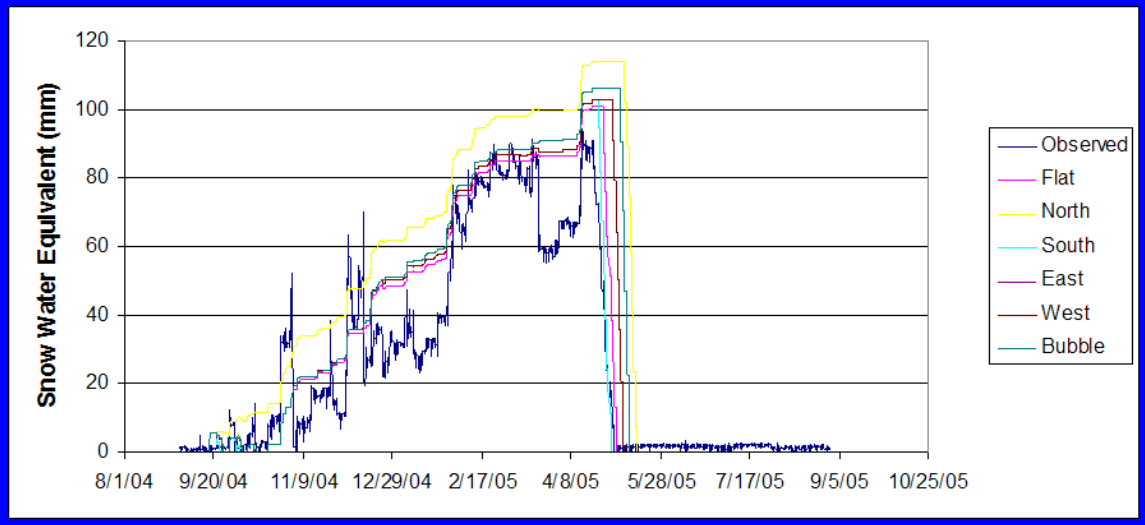




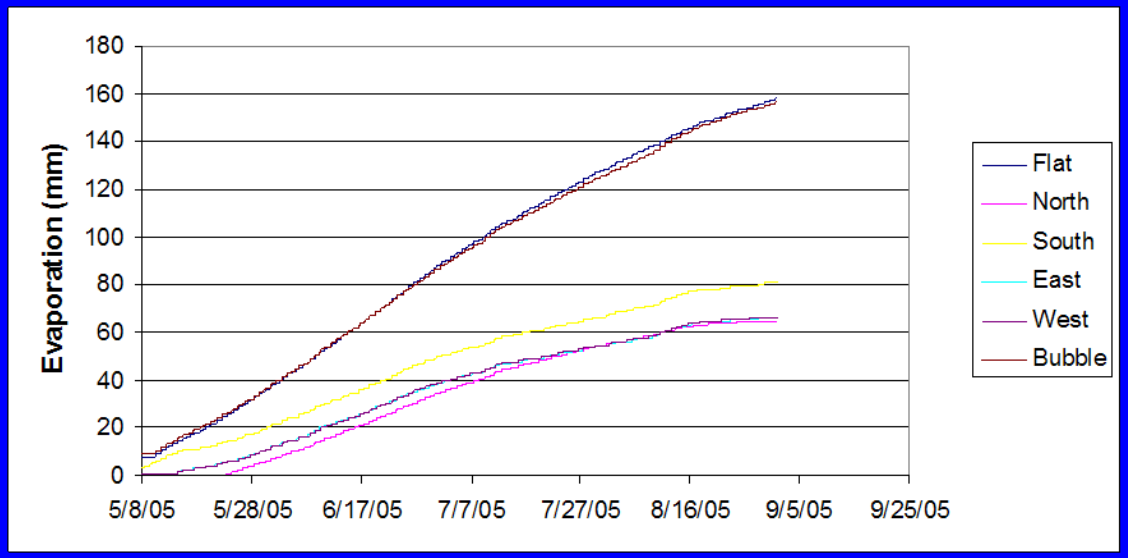
Infiltration Studies

COLD REGIONS HYDROLOGICAL MODEL

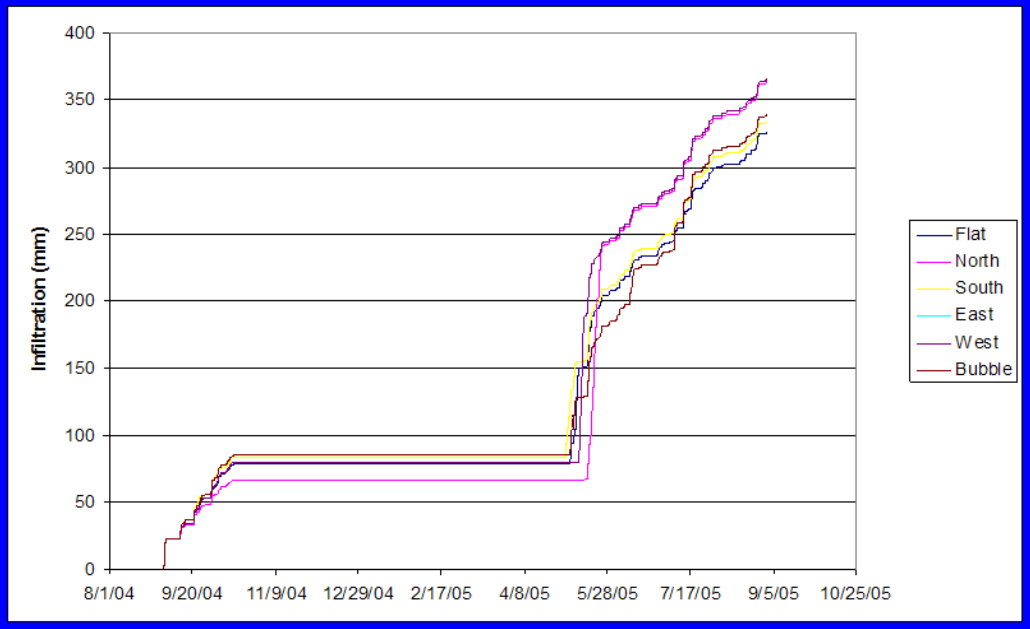




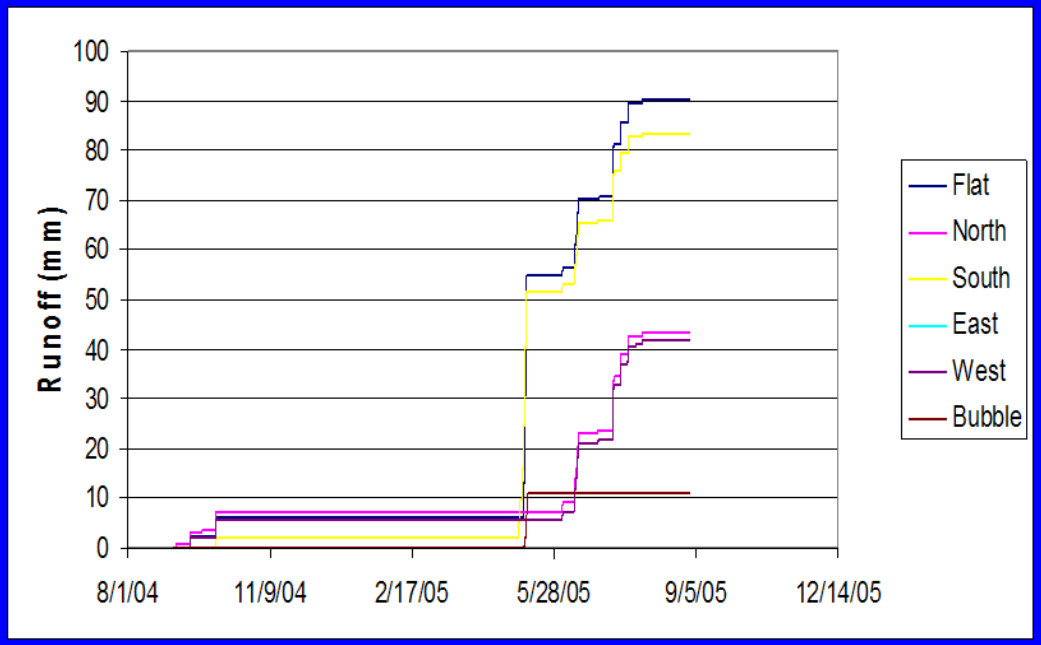
CUMULATIVE SWE



CUMULATIVE EVAPORATION



Cumulative Infiltration



Cumulative Runoff

TRIAL COVERS

TRIAL COVERS PROPERTIES

		Thickness (m)	Dry Density (kg/m^3)	Moisture* (%)	Standard Proctor Compaction (%)
CT#1	Uncompacted Till	1.8	2005	6.3	94.1
CT#2A	Uncompacted Till	1.11	2096	5.5	98.4
CT#2B	Uncompacted Till	0.75	1968	5	92.4
CT#3A	Glaciofluvial - L1	0.45			
	Uncompacted Till - L2	1.05	1981	2.8	93
CT#3B	Glaciofluvial - L1	0.5			
	Uncompacted Till - L2	0.6	1963	2.9	92.1
CT#4	Uncompacted Till - L1	1.79			
	Compacted Till - L2	0.5	2095	4.9	98.4

2007 RESULTS SUMMARY

- Simulated evaporation greater for horizontal covers as compared to the sloped covers
- Simulated snowmelt infiltration greater from horizontal covers
- Rainfall Infiltration is greater to sloped covers
- Snowmelt runoff is low from all covers, while rainfall runoff is more significant
- Simulated Annual recharge:
  - horizontal till – 117 mm
  - sloped till – 178 mm
  - sloped glacio-fluvial – 196 mm

2008 STUDY PLAN

Compare Simulated Values to Measured

Thank You