Updates on a common hydrology component

IROWCs, NAHARP Program

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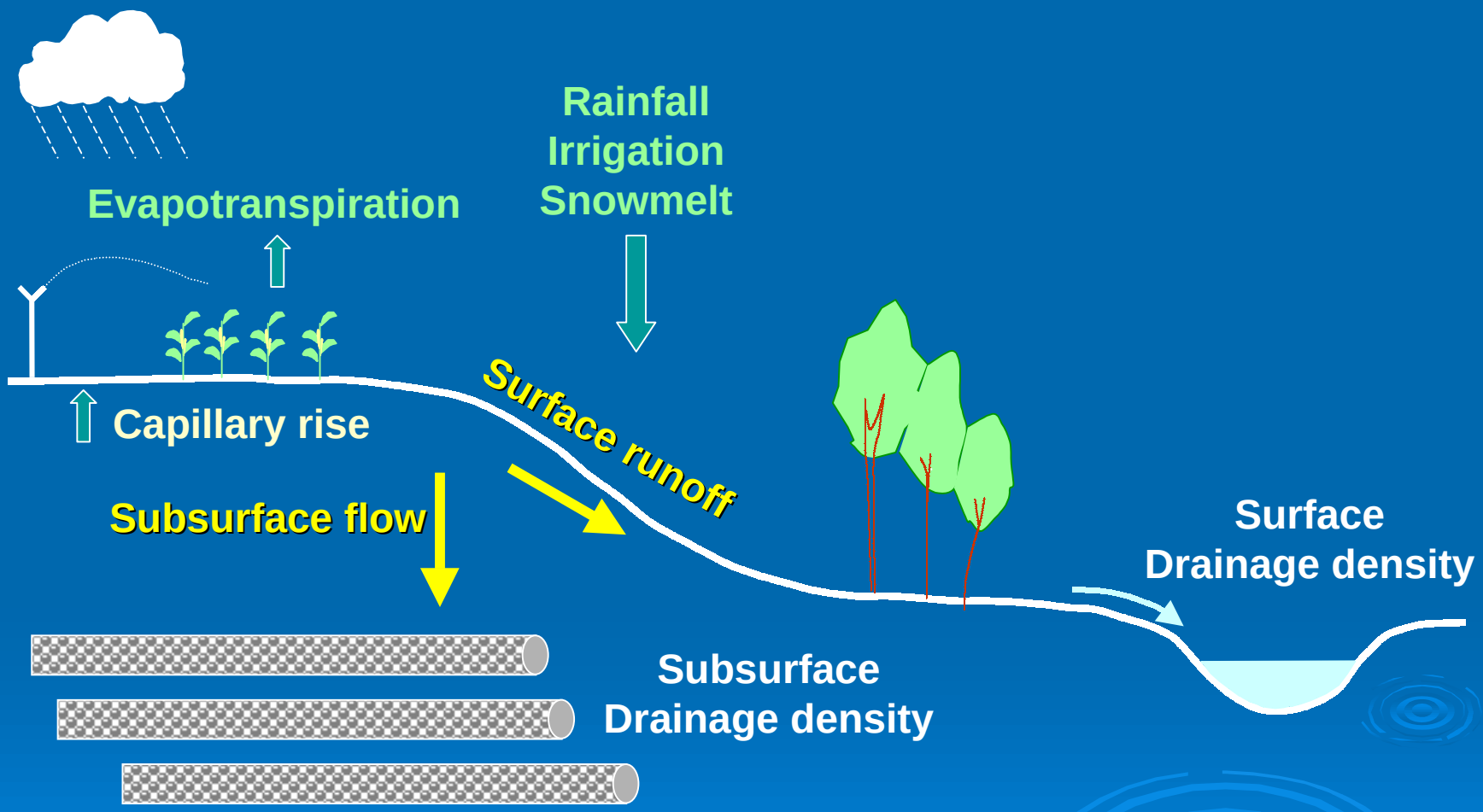
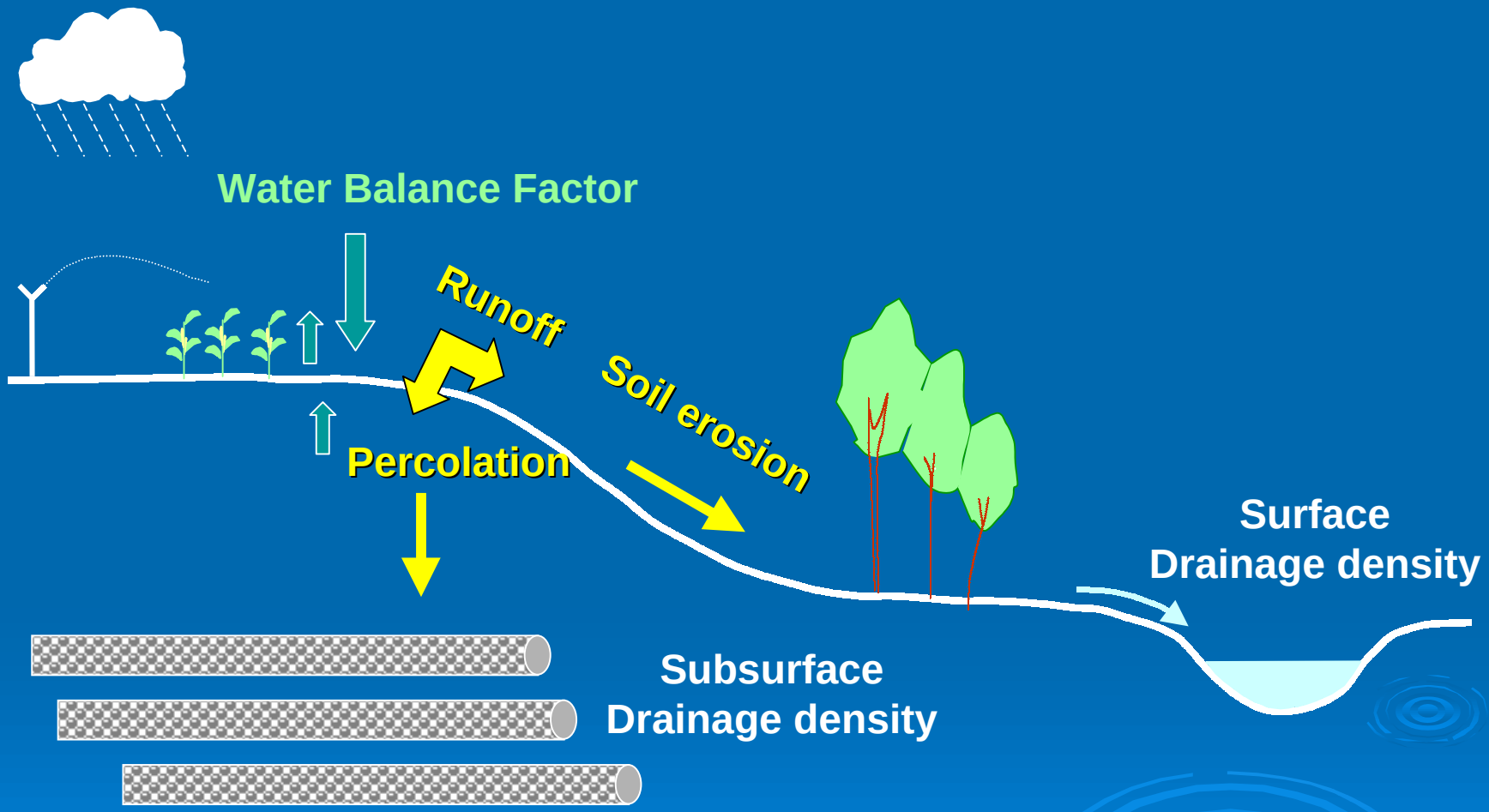
Canada

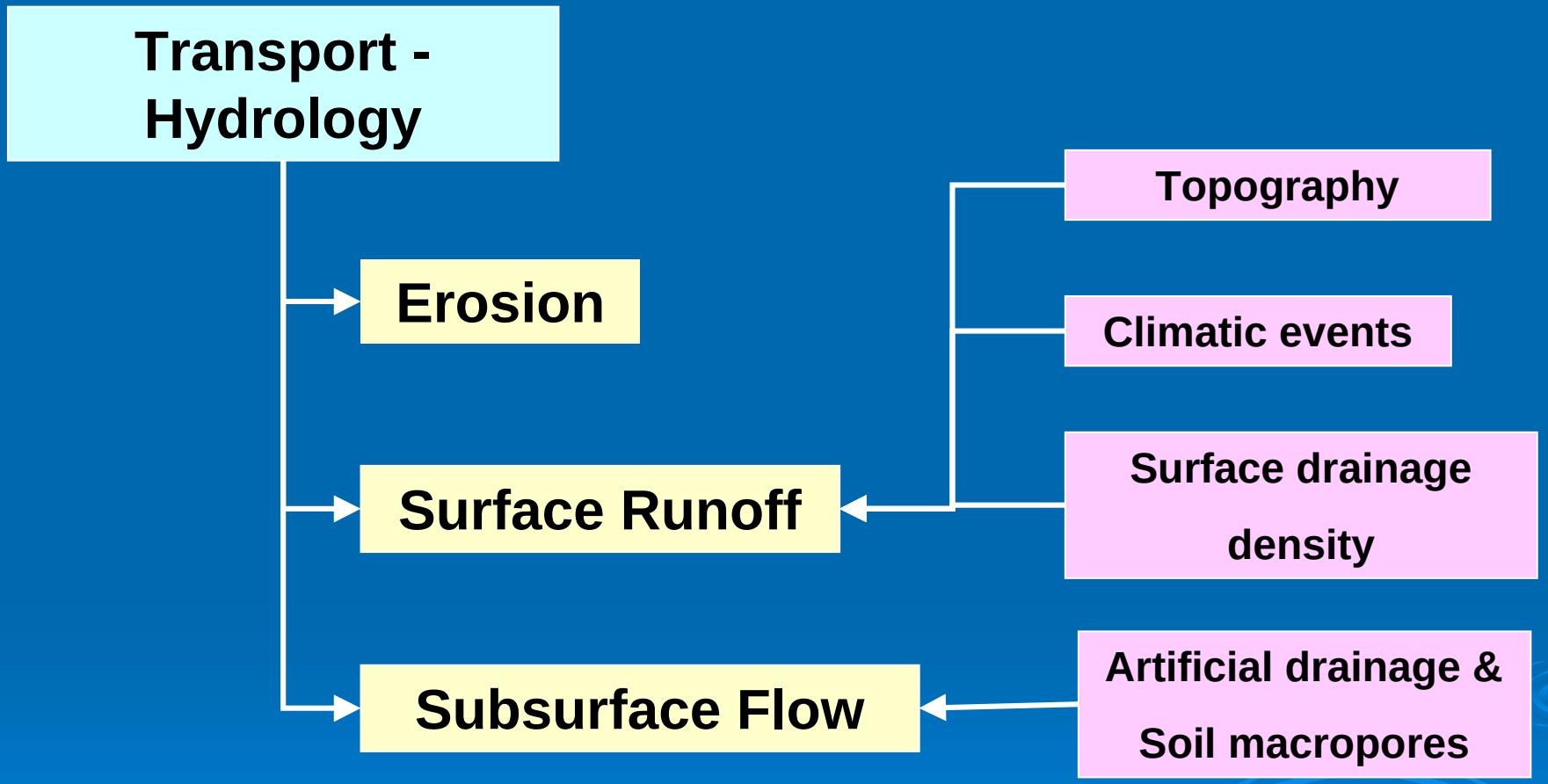
Water flow & density



Transport factor



TRANSPORT - HYDROLOGY COMPONENT



Transport - hydrology algorithm

$$TH = E + WBF \times (SDD + ADM + Tindex)$$

Transport
« dynamic »

Hydrology
« static »

E: Soil erosion

WBF: Surface runoff and subsurface flow

SDD: Surface drainage density

ADM: Artificial drainage & Soil macropores

Tindex: Topographic index

Transport - hydrology algorithm

TH = E + CN + WB + Tindex + SDD + ADM

« Infiltration excess runoff »

« Saturation runoff » & seasonnality

Water connectivity

E: Soil erosion (RUSLE)

CN: Curve numbers

WB: Water Balance

Tindex: Topographic index

SDD: Surface drainage density

ADM: Artificial drainage & Soil macropores

Soil erosion < Erosion risk indicator (E)

A = R x K x L x S x C x P (RUSLEFAC)

R = Rainfall factor
K = Soil erodability factor
L = Slope length factor
S = Steepness factor
C = Cropping-management factor
P = Support practice factor

Water balance factor (WBF):

Infiltration + Runoff (Curve Numbers)

$$WBF = AWE - FC$$

AWE : Amount of Water Excess
FC : Field Capacity

Surface runoff Partition

- **Hortonian runoff :**
  High intensity rainfall, Steep slope
  - **Recurrence of extreme events**
- **Saturation excess runoff:**
  Spring snowmelt, Gentle slope, High water table
  - **Tindex**

Five major comments issued from the Ste.Foy workshop discussions which resulted in the possibility of a common hydrology concept for the four IROWCs and some specific commitments for the next months.

- **Water balance development** in common for the four IROWCs will be lead by IROWC-N (Reinder DeJong). Reinder accepted to provide us a summary document on the WB algorithm and data needs by the end of March 2004. Farida Dechmi (IROWC-P) available for collaboration on WB. Irrigation is to be integrated into WB if available: collaboration with the Water use Efficiency Indicator / Laurie Tollefson & John Harrington.
- **Macropore flow** will be investigated by IROWC-N and Bob Eilers to be discriminated from infiltration: is it feasible from SLC raw criteria?

- **Partitioning of surface runoff** will be developed by IROWC-P. Alain N. Rousseau (INRS-ETE) to provide a feasibility report on a “Topography Index” (non-Hortonian runoff) in English by March 31st. Development of the Hortonian runoff calculation: runoff curve numbers (overland flow) to be used?
- **Hydrology glossary** specific to the common hydrology component development work to be developed by somebody of the IROWC teams and circulated. Who to start? Allan’s proposal …
- Use of a “complex” **model** versus a “simple” indicator? This key question raised by IROWC-pest team to be studied more deeply … experts advises from outside needed at this stage.