Part 1: Watershed Balance

-watershed, catchment, basin used interchangeably
  -but sometimes basin refers to large watershed, catchment is a small watershed

watershed: area that catches water and directs it into a particular stream or water body
  -any area with an upslope area will have a watershed
  -zero, 1st, 2nd, 3rd order watersheds are “muddy” terms but refer to watershed size
  -there’s an infinite number of watersheds within a given watershed
  -area of land that is drained by a river and its tributaries

-perennial stream flows all year round

sub-watershed: the area of land within a larger watershed that is draining to either a stream reach or a lake (synonymic with sub-catchment according to prof)

-manual watershed delineation
  -identify outlets
  -water flows are perpendicular to contour lines
  -ridges show contour vs. point downhill
  -drainages show contour vs. point upstream

-watershed delineation using GIS
  -uses DEM (digital elevation model)
  -lidar data is 1mx1m pixel resolution now we have mm resolution

-Ottawa River is more than 1,130 km long, total basin area of 146.300 km2 (65% QB, 35% ON)
  -Gatineau River is the largest tributary to the Ottawa River

-precipitation is the only input that needs to be considered for a drainage basin
- evaporation, leakage (from groundwater) and discharge are the three losses from watersheds

-precip may evap (sublimate) before hitting the surface, or it may be trapped in vegetation before absorbing into soil, then groundwater, then some lost via leakage

Newfoundland Floods 2018
  -started with higher than normal precipitation which was amplified bc rain on snow
    -rain melts the existing snow, increases the total precip
  -midwinter thaw = frozen ground, less infiltration, high overland flow

California Floods 2018
  -was severely amplified bc of the summer’s forest fires