Sivarajah Mylevaganam
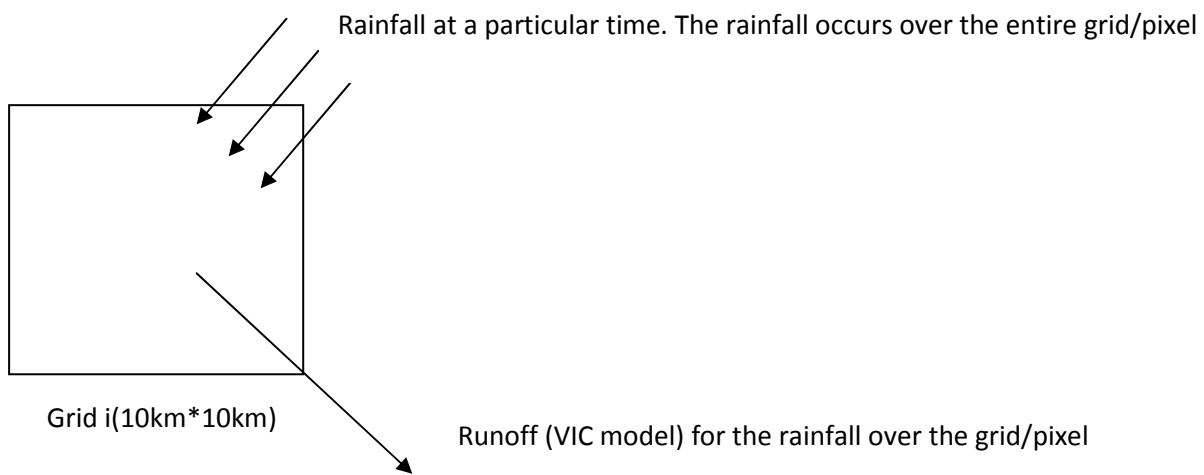Alumnus, Spatial Sciences Laboratory, Texas A&M University, College Station, USA.

1) As per the authors, the temporal resolution of the modeling work was 3 h (line 270-271). Moreover, as per the authors, the temporal resolution of the precipitation dataset was 24 h (line 165-166). The conversion algorithm from 24 h to 3 h is not found in the current version of the manuscript. How was this conversion carried out in the integrated modeling environment? The computation of R_{glac}(eq.2 and eq.3) contradicts line 270-271.

2) As per eq.1 (line 278-282), R_{vic} is the runoff (surface+baseflow) computed by a model named Variable Infiltration Capacity (VIC). In other words, given the rainfall and the other defining parameters, the model generates the runoff for each pixel/grid (spatial resolution of 10km, see the attached pdf file). As per eq.1, the authors consider only the portion of the runoff (i.e., $(1-f)R_{vic}$) generated in a grid/pixel for the rainfall value given for that pixel/grid. What has happened to the other component (i.e., f*Rvic)? As per eq.2, the parameter DDF (i.e., the degree-day factor of glacier or snow melt, see line 284-285) doesn't account for this component (i.e., f*Rvic).

Rainfall at a particular time. The rainfall occurs over the entire grid/pixel

Grid i(10km*10km)

Runoff (VIC model) for the rainfall over the grid/pixel

Assume that this particular grid/pixel has a glacier as per the figure below. What will be the runoff from this grid/pixel?

Glacier

f

1-f

Non-Glacier

Grid i(10km*10km)
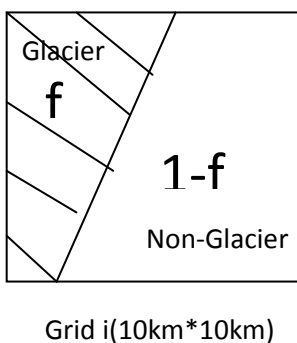
Didn't the rainfall occur over the shaded area? Didn't VIC produce runoff over the shaded area?

3) Refer to Part IV

Acknowledgement and Disclaimer