Runoff Grid Creation

- We are going to create a grid based surface in which each cell represents runoff transport.
- Runoff can be used for estimating stream flow.
- Runoff is used to calculate loadings and concentrations of water quality.
- A precipitation grid is needed that has 30 year average annual values in mm/yr.
- The cell sizes of the precipitation grid should be resampled to match the grids for flow direction.
- Cell sizes, snap raster, mask and extent have to be consistent with other grids.
- Converting the precipitation grid to floating point can preserve values.
- A runoff grid in which .655474 is multiplied by the precipitation in mm/yr gives a general value for WV watersheds based on previous studies.
- To get cumulative yearly runoff the weighted flow accumulation command is used with the runoff as the weight grid. A multiplication factor of .1 is used for 10m cellsizes, .4 for a 20m cellsize, or .9 with a 30m cellsize.
- To calculate estimated flow in cfs we use a conversion which multiplies the cumulative runoff (which is in meters cubed per year) by the number of cubic feet per cubic meter (35.2875) and divide by the number of seconds per year (31557600). For estimated flow display, the item grid-code will have the flow in cfs values.

Student Notes:

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