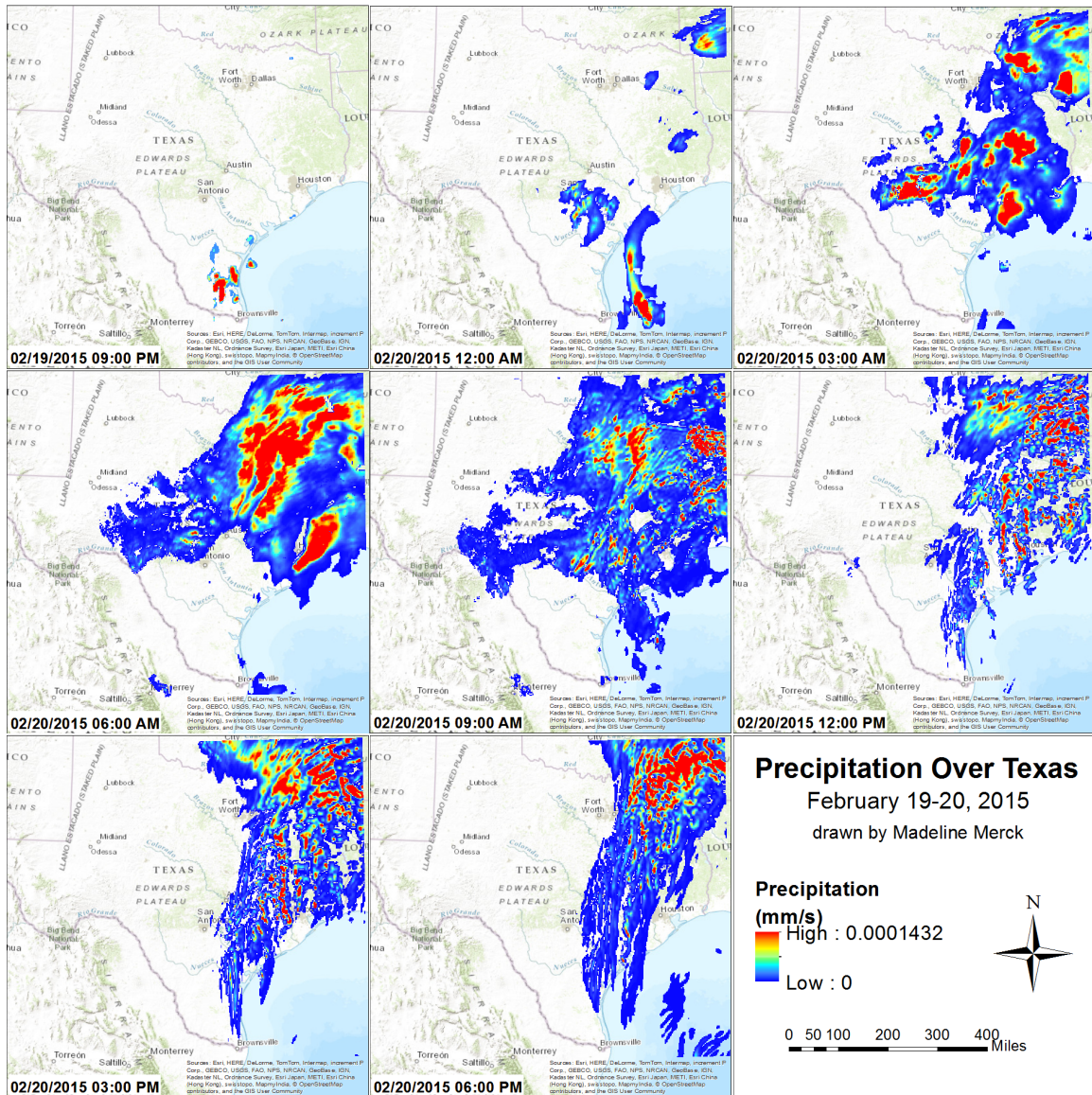
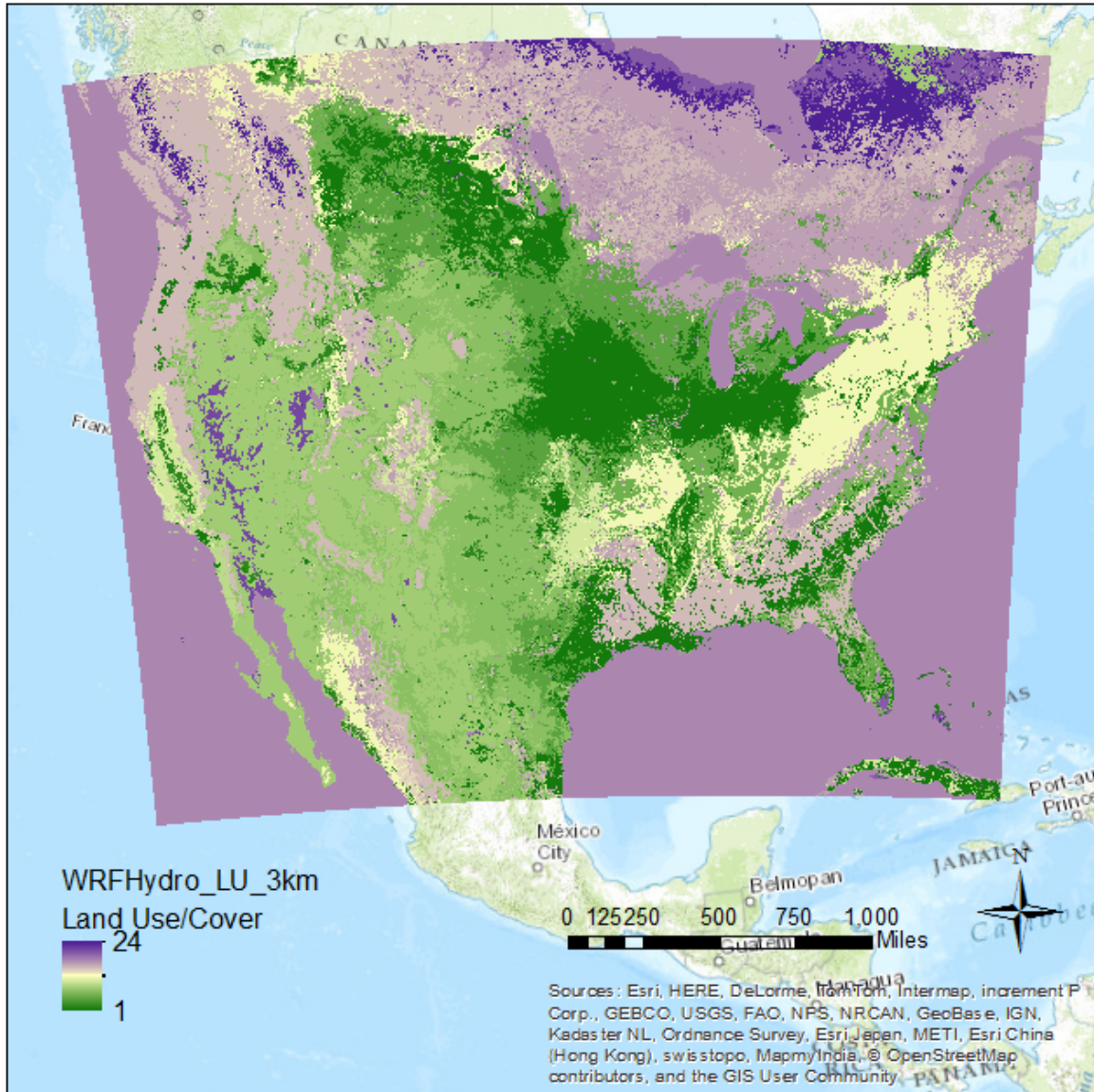


1) A short sequence of maps showing precipitation over Texas:



2a) A map showing the Geogrid over North America:

Geogrid Over North America Land Use / Land Cover drawn by Madeline Merck

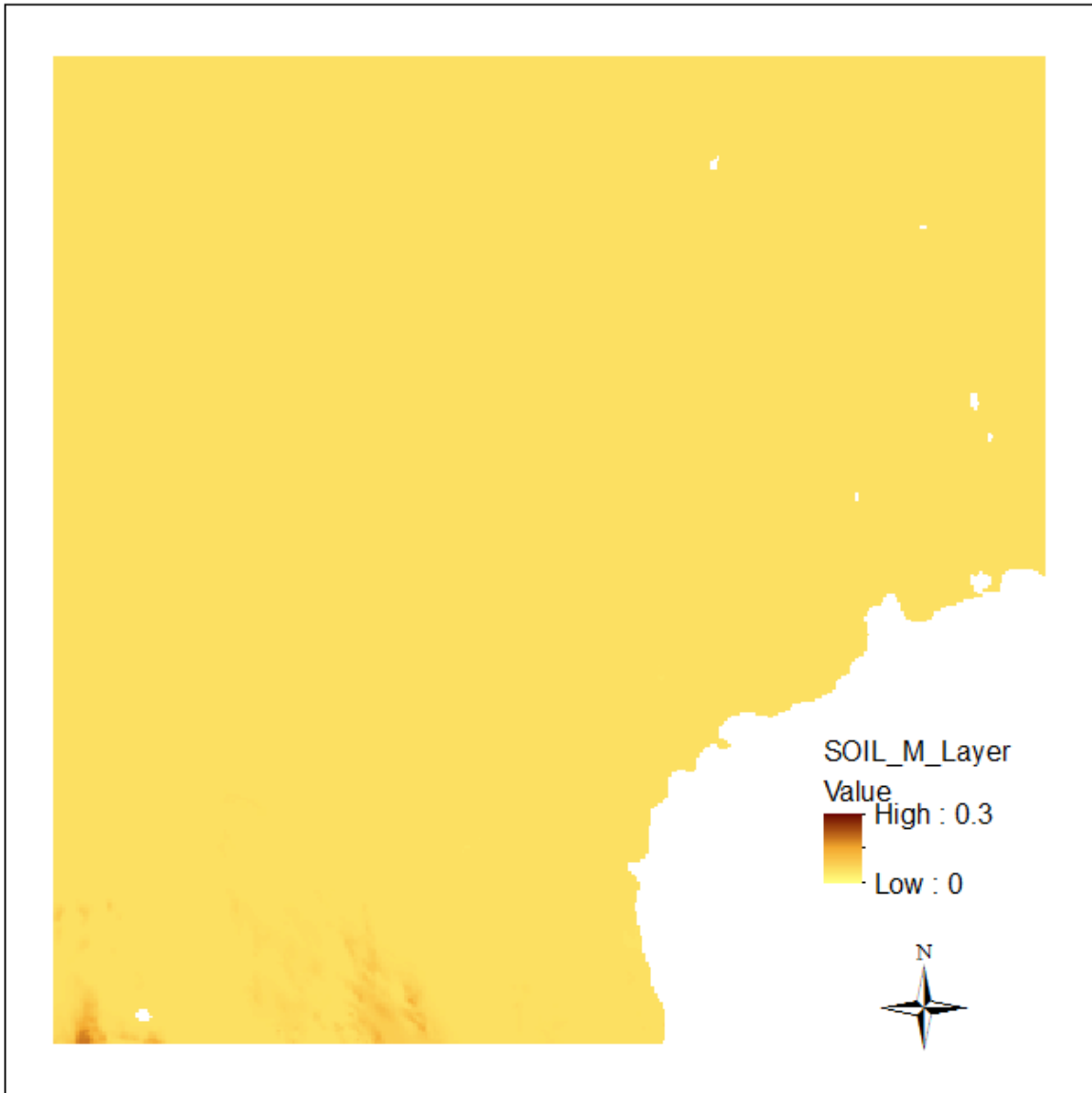


2b) A map showing one of the outputs of the WRF-Hydro computation over Texas:

WRF-Hydro Output Over Texas

Soil Moisture

drawn by Madeline Merck



3a) Make a map of catchment 5781369 within the Travis County NFIE-Geo coverage overlaid by the WRF-Hydro geogrid mesh.

Travis County NFIE-Geo within the WRF-Hydro Geogrid drawn by Madeline Merck



Legend

WRFHydro_GRID_Texas

Boundary

Catchment

Catchment5781369

MFlowline

Natur_Flow

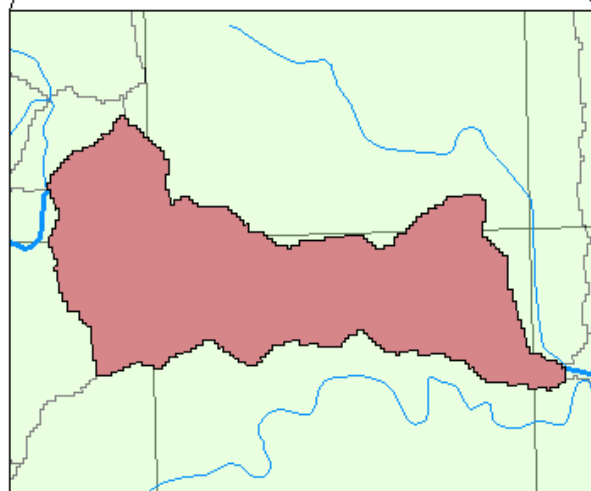
0 - 10

10 - 30

30 - 70

70 - 200

200 - 3100



3b) Determine the weight table needed to convert WRF-Hydro runoff to produce input flows for RAPID for this catchment. Explain how this would be used to compute total runoff for this catchment.

FEATUREID	area_sqm	west_east	south_north	npoints	weight	Lon	Lat	x	y
5781369	629409.9	198	171	5	0.146869	-97.7291	30.1713	-22250	-8517.11
5781369	584823.8	198	172	5	0.136465	-97.7292	30.198	-22250	-5517.11
5781369	2629731	199	171	5	0.613631	-97.6982	30.1714	-19250	-8517.11
5781369	388532.3	199	172	5	0.090661	-97.6983	30.1981	-19250	-5517.11
5781369	53030.67	200	171	5	0.012374	-97.6674	30.1714	-16250	-8517.11

$$Runoff_{catchment} [m^3] = \sum Runoff_{grid\ cell} [mm] * \frac{1m}{1000mm} * Area_{catchment\ within\ grid\ cell} [m^2]$$

Where $Runoff_{catchment}$ = total runoff for the catchment, $Runoff_{grid\ cell}$ = runoff of a particular grid cell (from model output), and $Area_{catchment\ within\ grid\ cell}$ = area of the catchment that overlaps the particular grid cell (second column listed above).

(I believe the method for calculating the total runoff of the catchment outlined in the handout is incorrect. The areas of overlap between the catchment and the grid cells are already calculated and provided in the table above. So, in effect, the weight column is redundant for this calculation.)

3c) Specify the Muskingum routing parameters for the flowline of this catchment.

Musk_kfac	Musk_k	Musk_x
17044.181663	5965.463582	0.3

(I'm not sure what the units are on these parameters; I couldn't find them listed.)