Climate change in Massachusetts

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2015

Climate Change in Massachusetts

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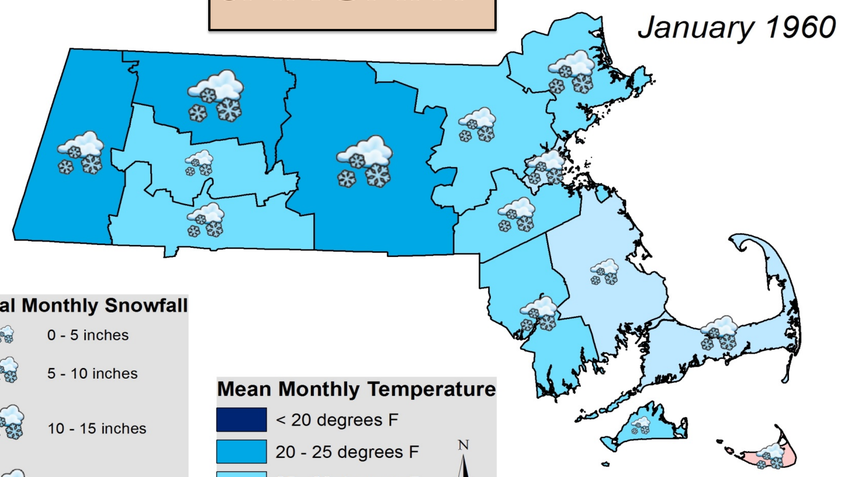
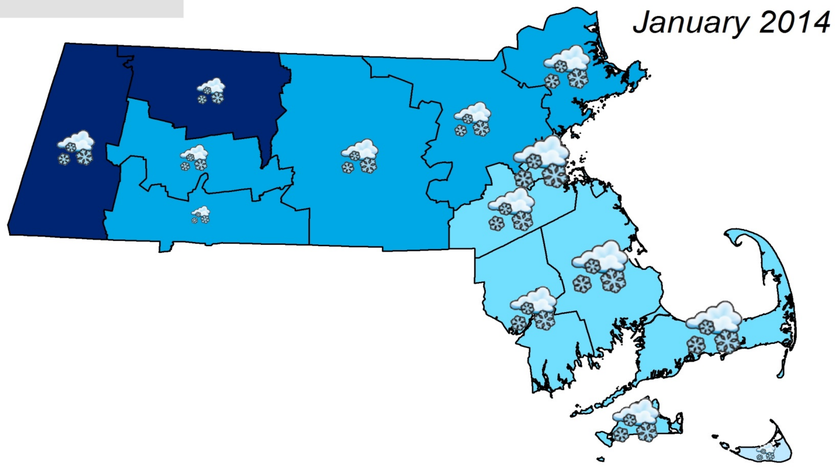
BC GIS Contest 2015

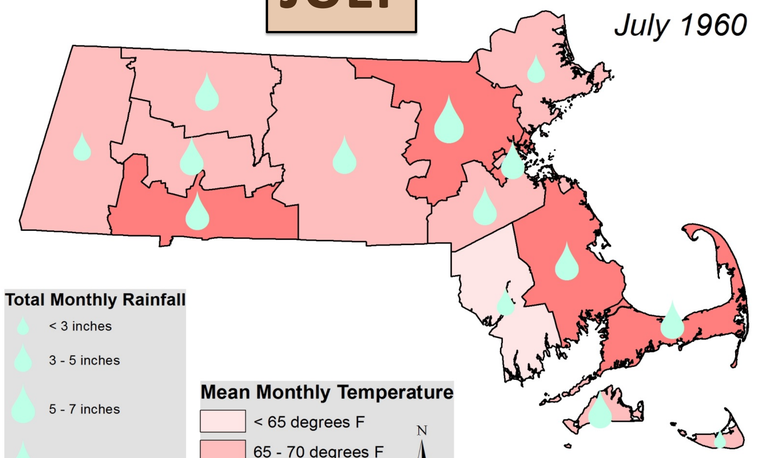
JANUARY

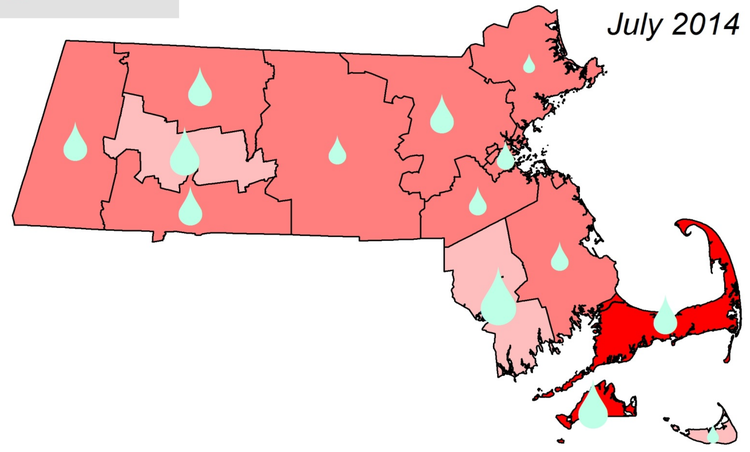


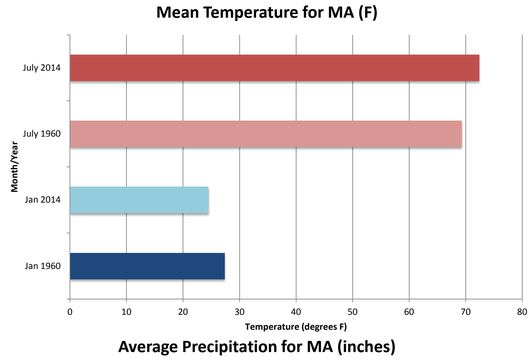


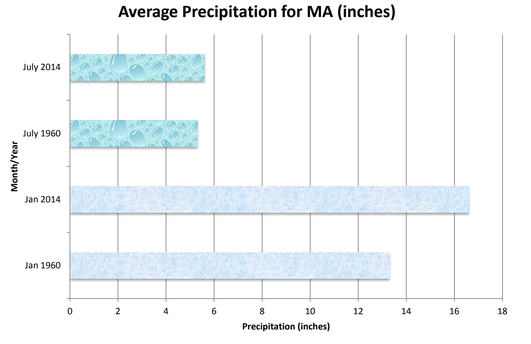
Why is this socially important? Increased temperatures and heavy precipitation are affecting the seasons and heightening the intensity of natural disasters. These changes make it more difficult for farmers to grow crops and for animals to survive, which is a major issue because our lives depend on agriculture. A future food shortage could initiate a “domino effect,” impacting hunger worldwide. These changes also impact businesses and schools’ ability to function. For example, Boston College was directly affected, having to cancel classes for 5 days.

JULY









How was GIS used? Results? GIS was used to create maps comparing the temperature and precipitation data from January and July, 1960 to those of January and July, 2014 in Massachusetts. We used the “multiple attributes” feature to create a color ramp, distinguishing counties by mean temperature. We then created symbols that vary by size, describing the average precipitation for each county. The blue maps on the left, as well as the top graph, show that mean temperatures were lower in January, 2014 than they were in January, 1960. There was also more snowfall in January, 2014 than in January, 1960. The red maps on the right, also on the top graph, show that mean temperatures were higher in July, 2014 than they were in July, 1960, and July, 2014 experienced more rainfall than July, 1960 did. These changes in precipitation and temperature are indicators of changes in the Massachusetts climate toward the extreme. Warmer air can hold more water vapor, so with global warming comes the threat of more precipitation.

Sources: MA Office of Geographic Information (www.Mass.gov) for the data layers of MA map, including counties; Weather Warehouse (www.weather-warehouse.com) for the temperature and precipitation data.