

Wyoming Streamflow Conditions

Prepared for the Climate Issues Committee meeting, November 30, 2009

Streamflows in Wyoming 1999-2008

Streamflow records from all USGS gaging stations for water years 1901-2008 were compiled and estimates of annual runoff by hydrologic unit were determined (1). Percentiles were computed from the estimates for each hydrologic unit, grouped into 7 classes, and mapped (figure 1). As illustrated by the number of hydrologic units with estimated annual runoff less than the 10th percentile, streamflow conditions of the previous decade included the smallest recorded in the last century for many watersheds in Wyoming. This analysis further defines the extent and severity of the recent hydrologic drought in the State as one of the more significant in the systematic record.

For more information on this and other streamflow products see <http://waterwatch.usgs.gov/>

Streamflows in Wyoming 2009

Streamflow data have not been finalized for water year 2009 and percentiles of estimated annual runoff have not been determined. Percentiles of monthly mean streamflow, however, have been estimated by hydrologic unit, classified, and mapped. Those months during which most of the annual runoff occurs in Wyoming indicate streamflow conditions during water year 2009 were normal to above normal for all of the State (figure 2). Normal to above normal snowpack and precipitation resulted in sustained normal to above normal runoff.

For more information on current Wyoming streamflow conditions contact Kirk Miller (information below) or see <http://waterdata.usgs.gov/wy/nwis/rt>

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- (1) Only gages with complete water years used. Runoff is calculated from dividing streamflow by drainage area. For an explanation of hydrologic units, see <http://water.usgs.gov/GIS/huc.html>

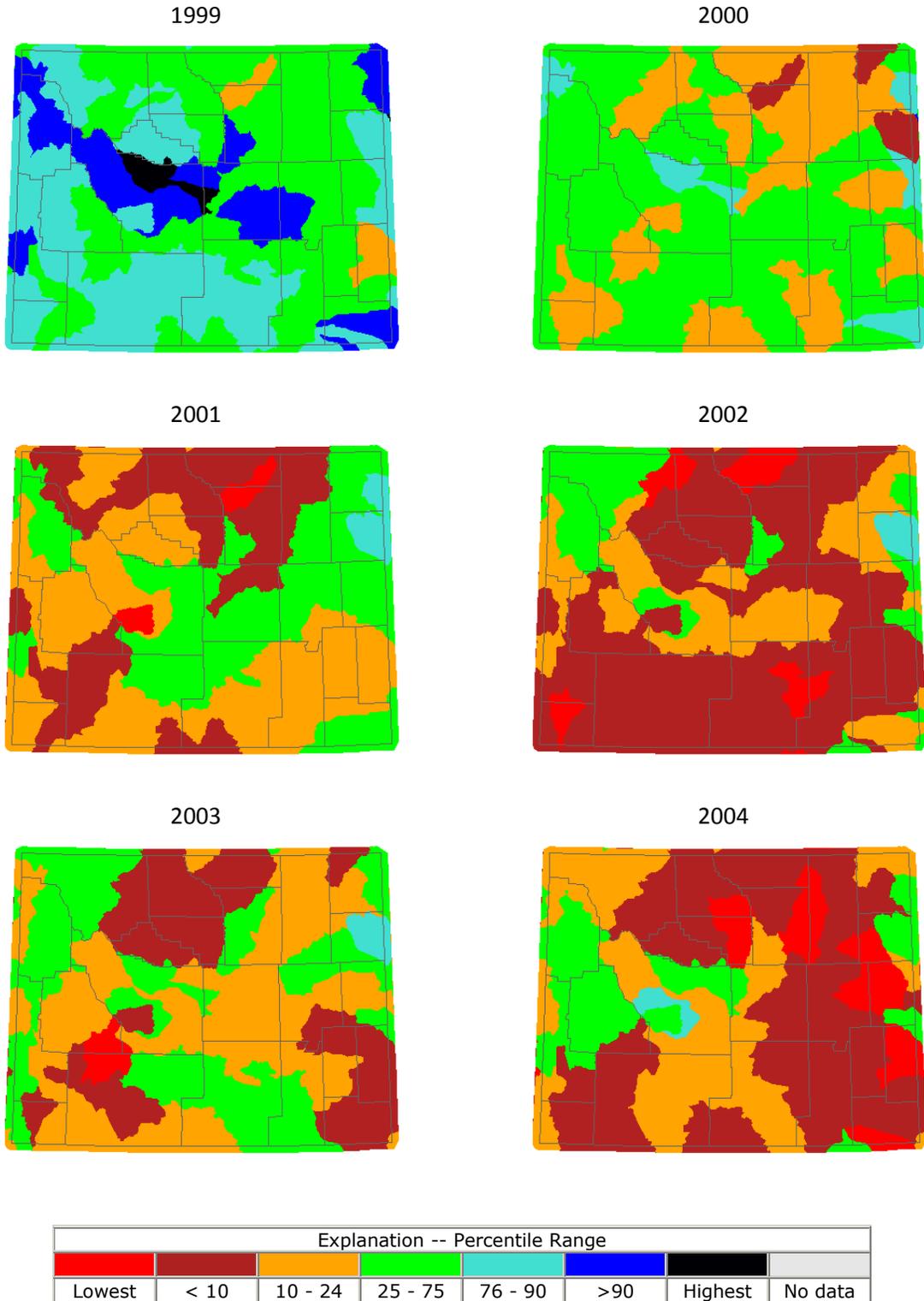
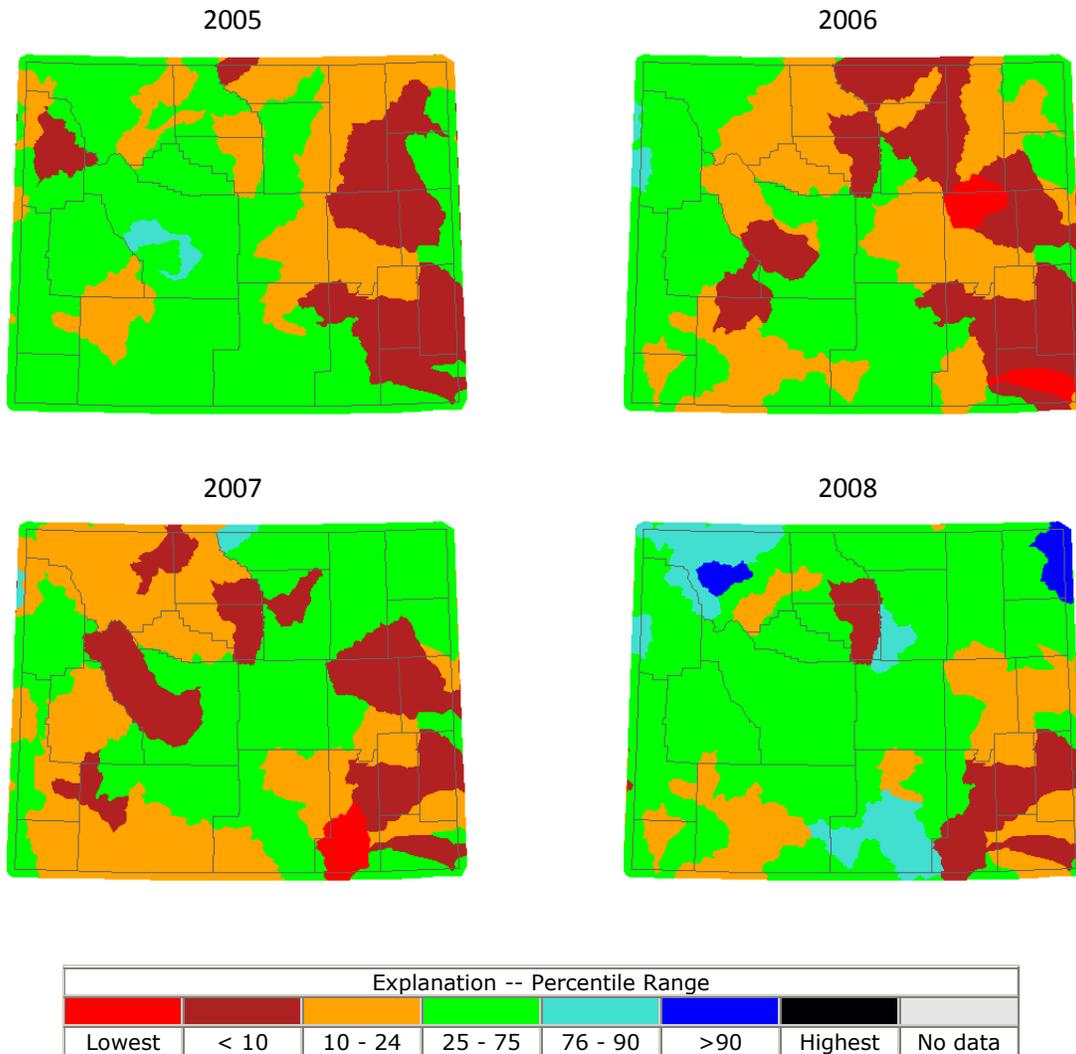


Figure 1. Percentiles of estimated *annual runoff* by hydrologic unit, Wyoming, water years 1999-2008



Estimates of annual runoff by hydrologic unit for water years 1901-2008 were computed by combining historical flow data collected at streamgages, the drainage basins of the streamgages, and the boundaries of hydrologic units. Annual runoff at each streamgage was determined by dividing annual mean streamflow by drainage area. Estimates of annual runoff by hydrologic unit were computed as the area-weighted average annual runoff from streamgages associated with the hydrologic unit. Percentiles of estimated annual runoff by hydrologic unit were computed for water years 1901-2008. For more information see <http://waterwatch.usgs.gov/wwhelps/romap3.html>

Figure 1. Percentiles of estimated *annual runoff* by hydrologic unit, Wyoming, water years 1999-2008 (continued)

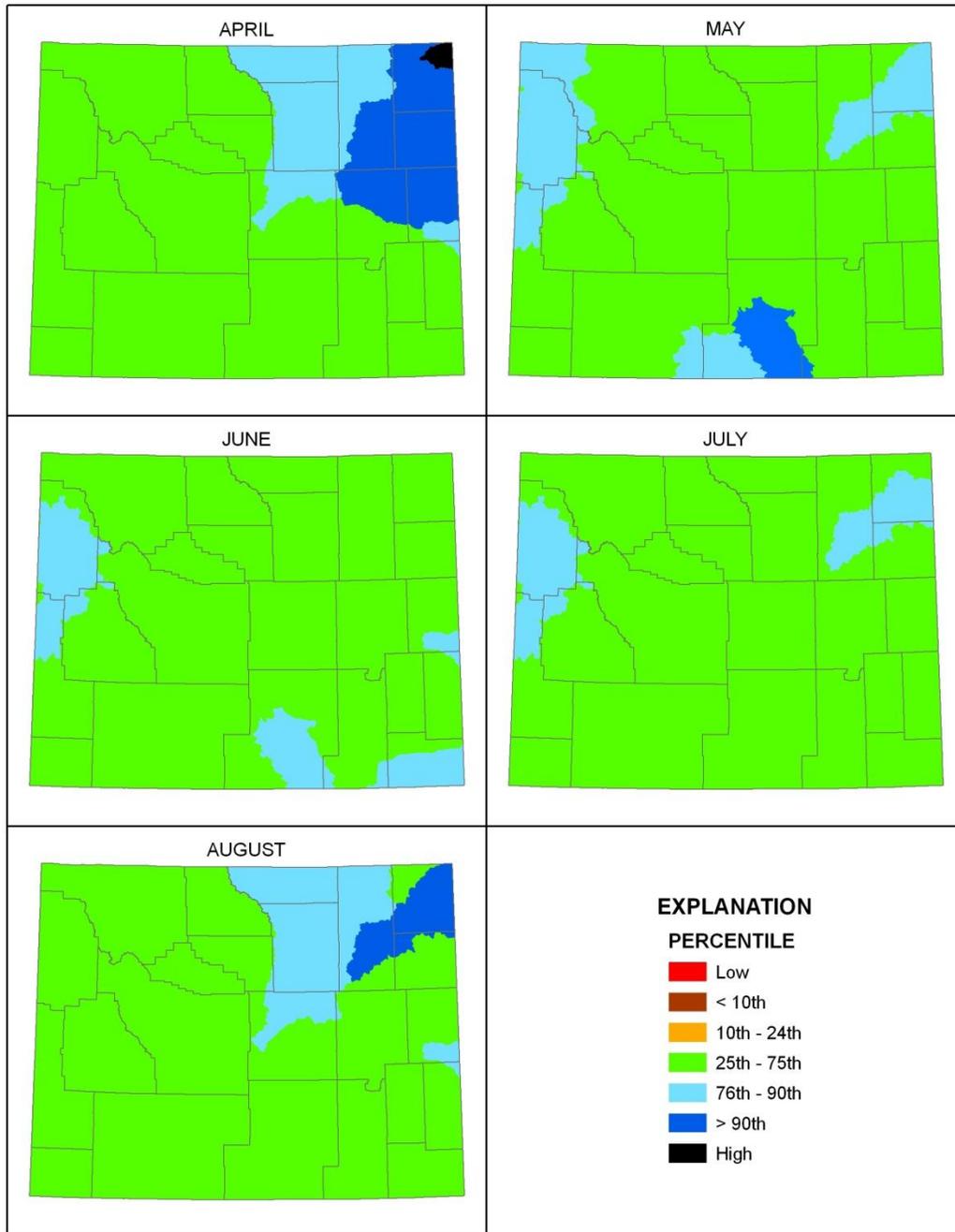


Figure 2. Percentiles of estimates of *monthly streamflow* by hydrologic unit, Wyoming, April through August, 2009.