

A Review of the 2009 Water Year in Colorado State University

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Abstract. The water year, for many hydroclimatic applications in Colorado, is defined as the period from October 1 through the following September. It represents the winter snow accumulation season (October-April) followed by the spring snowmelt and summer irrigation season and ends approximately at the end of the summer growing season.

The 2009 water year (October 1, 2008 – September 30, 2009) began with wet weather over the eastern plains of the state providing good fall soil moisture to benefit rangeland and winter wheat conditions. November was mild and dry, but December brought the onset of very heavy snows to Colorado's southwestern mountains which continued into early January. Much of the state experienced relatively mild midwinter weather in January and February into early March. Mountain snowpack built gradually in the northern and central mountains and was not far from average. With relatively little winter moisture east of the mountains, drought concerns grew along the Front Range from near Trinidad and Pueblo northward to the foothills and adjacent plains of Boulder and Larimer counties. Strong winds occurred frequently during the winter and spring months and included several major dust storms over southwestern Colorado that deposited several dust layers on the mountain snowpack.

A long-lived April "upslope" storm dropped significant precipitation in the form of cold rain and wet snow later in April and greatly improved the moisture conditions along and east of the Front Range. Warmer, drier weather returned again in May and mountains snows melted rapidly with many rivers reaching peak flows in mid month. Then a dramatic weather pattern change occurred with cool, wet conditions retarding snowmelt and adding soil moisture both east, west and in the mountains. When it finally warmed again in late June, rivers and streams reached a second high peak runoff.

Heavy storms and widespread hail were observed in parts of the state in June. Stormy weather continued in July and August but primarily east of the mountains. Monsoonal moisture was very limited and much of western and southwestern Colorado experienced a warm, dry late summer. With abundant rainfall and lush vegetation, eastern Colorado enjoyed a cooler than average summer for only the second time this decade.

The year ended with fairly typical September weather. Soil moisture, however, was quite low west of the mountains. Overall, streamflow from Colorado's rivers and streams were near to above average for the 2009 water year. With the late June peak streamflows and reduced demand for summer irrigation water over eastern Colorado, reservoir levels for stayed high and ended the year near to above average.

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