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Contact:
Stephen Saunders (303) 880-4598
saunders@rockymountainclimate.org

New climate analysis projects much hotter summers in Summit County unless emissions reduced

August 23, 2021.—The Rocky Mountain Climate Organization (RMCO) today released a new climate analysis projecting that Summit County will see many more extremely hot summer days by mid-century, with even larger increases later, unless global heat-trapping emissions are sharply reduced.

As examples, in the Frisco/Dillon Reservoir area, reflecting temperatures in and around Frisco, Breckenridge, and the other communities around Dillon Reservoir, the median projections with continuing high emissions are the hottest days of the year:

- In typical mid-century years, would average 85°.
- In the extreme year in mid-century, would be 88°.
- In typical late-century years, would average 90°.
- In the extreme year in late century, would get as hot as 94°.

For comparison, the hottest day of the year in 1970–1999 averaged 79°, and the single hottest day in the period was 82°. So an *average* summer day in mid-century could be three degrees hotter than the single hottest day of the late 20th century.

Also in the Frisco/Dillon Reservoir area with high emissions, days 80° and hotter per year:

- In typical mid-century years, would average 12 days—a thirty-fold increase over a 1970–1999 baseline average 0.4 such day per year.
- In the hottest year in mid-century, would occur 37 times—more than a full month's worth.
- In typical years late in the century, would average 54 days—nearly two months's worth.
- In the extreme year late in the century, would occur 89 times—a full summer's worth.

The above results are projections for average conditions across a grid of 18 miles by 14 miles, within which temperatures would vary with elevation. Because their elevations are lower than the grid's average elevation, Frisco and other communities around Dillon Reservoir would have temperatures about 3° hotter than the grid's average, and Breckenridge would be about 1° hotter.

There is good news, too, from this analysis—it also shows how completely the above changes can be avoided if global emissions of heat-trapping pollution are sharply reduced. With very low future emissions, 80°-plus days in the Frisco/Dillon Reservoir area are projected:

- In typical years in 2020–2039 in typical years, to average three such days per year.
- Then to stay the same from that point forward, also averaging three such days for the rest of the century.

Stephen Saunders, the president of RMCO, said, "These numbers show both how much Summit County has at stake as humans continue to change the climate and how much difference climate protection actions can make to head off unacceptable changes. And this will be of interest in other Colorado mountain communities with similar elevations, because they can expect similar changes, again depending on future emissions."

The report was commissioned by Summit County, the towns of Breckenridge and Frisco, and the Northwest Colorado Council of Governments Water Quality/Quantity Committee**.**

"We are experiencing the effects of climate change here in Summit County, with more extreme heat, wildfires, and mudslides becoming more routine. This report brings home that these changes are just the beginning if we don't work together to aggressively address the growing impacts of the climate crisis," said Summit County Commissioner Josh Blanchard.

"The science is clear that increased levels of greenhouse gases produced by human activity are causing the Earth to warm in response, and that our mountain communities are not immune. This is not a hopeless situation though. Our actions can change this outcome, and that is why the Town of Frisco has made a commitment to understanding the facts and acting on them, which includes getting to 100% renewable energy by 2035," stated Mayor Hunter Mortensen.

"We have known, both anecdotally and experientially, that our climate in Breckenridge is changing. That is why the Town of Breckenridge has been galvanized in the last ten years to create Sustainable Breck and to address climate change in our community," comments Mayor Eric Mamula. "This report is critical because it gives us the data to see just how much climate change is currently affecting Breckenridge and how it will continue to affect all of the Mountain West. I hope that this report convinces our community of the seriousness of our situation and also inspires all of us to action by seeing that we can still do something about it."

In addition to identifying projected changes in summer heat, the report details how winters could become warmer, spring warm-up could occur earlier, and intense rainstorms and snowstorms could become more frequent. The report, "Climate Projections in Summit County, Colorado," is one of the most detailed studies yet done of how climate change may affect a particular locality. It analyzes 24 million individual projections of daily high temperatures, low temperatures, and precipitation amounts:

- using four different scenarios, ranging from continued high emissions of heat-trapping pollution to very low future emissions;
- derived from 12 to 20 global climate models per emission scenario;
- downscaled to produce local results for three specific areas in Summit County; and
- covering four 20-year periods (2020–2039 through 2080–2099).

RMCO today also released a companion report with similar analyses of climate projections for locations in Eagle County.

Read the report at www.rockymountainclimte.org/extremes/summit.