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For immediate release

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More Extremely Hot Days and Heat Waves in Fort Collins

Extreme heat is on the increase in Fort Collins, Colorado, with the number of 95-degree Fahrenheit days tripling in the past 14 years, compared to the last four decades of the 20th century. If heat-trapping pollution is unchecked, the frequency of 95-degree days could double again by 2050 and yet again by the end of the century, to 13 times the 1961-1999 rate, according to a new report prepared by the Rocky Mountain Climate Organization for the City of Fort Collins, available at http://www.rockymountainclimate.org/reports_4.htm.

"In the last four decades of the 20th century, Fort Collins averaged three 95-degree days a year, but so far this century those very hot days have already tripled," said Rocky Mountain Climate Organization president Stephen Saunders, the report's lead author. "If we keep changing our climate, Fort Collins could have 17 very hot days a year by mid-century and 38 before the century's end. But if we limit pollution, we can escape with only a few more really hot days than in recent years."

Heat waves have similarly increased. The frequency of three straight days of 90 degrees or more has nearly tripled so far in this century, compared to 1961–1999. With a current emissions path, their frequency by mid-century could be five times the historic rate, and near the end of the century be nine times higher. Again, with lower emissions, future rates would be much lower. (See the table on page 3.)

"One possible future has extreme heat as the new normal, and the other still has a great climate that keeps this such a special place to live," Saunders said. "This is what we have at stake as humans change the climate and why Fort Collins' award-winning leadership in reducing climate-changing pollution matters."

"The City is already engaged in evaluating risk and vulnerability to the provision of City services and infrastructure from a changing climate. The information contained in this unique report will help the City plan for and prioritize actions to minimize the impacts of predicted heat increases," said Lucinda Smith, director of the Environmental Services department.

One of the reasons that more extreme heat matters is that in the last decade more Americans died from the effects of excessive heat than from any other weather-related cause, such as tornadoes, hurricanes, or floods.

"The extent that extreme heat threatens public health in Colorado is not well studied, just as it is not in many other states," said Todd Sanford, an author of a report on heat waves by the Union of Concerned Scientists. "But we know that extreme heat increases the risk of deaths and heat-related illnesses here, just as it does in any place that has heat waves. And with the forecast of a much hotter Colorado, this is an issue that will only become more important in the coming years and decades."

The report also includes new information identifying the linkage of extreme heat to Colorado's most destructive wildfires in the past two years, which all began on very hot days:

- The High Park fire west of Fort Collins in 2012, which destroyed 259 homes and killed one person, started on a day that in Fort Collins had a high temperature of 93°, according to the daily temperature data analyzed for this report.
- The Waldo Canyon fire west of Colorado Springs in 2012, which burned 347 homes and killed two people, started when Colorado Springs had a record-tying high temperature for that date of 100°.
- The Black Forest fire north of Colorado Springs in 2013, which burned 488 homes and killed two people, started on a day that in Colorado Springs had a record high for that date of 97°.

"We have worked hard to maintain accurate historic climate data for Fort Collins," said Nolan Doesken, state climatologist and senior research scientist at Colorado State University's prestigious Department of Atmospheric Science. "We realize the warming described in this report is a combination of local warming resulting from the growth and urbanization of what was once just a small rural community along with regional warming affecting much of Colorado in the past few decades. The higher frequency of very hot temperatures is indicative of what we all may be dealing with more often in the near future. I appreciate that our city is thinking about potential future consequences from heat, drought, wildfire and floods and being proactive today."

The report was based on an analysis of daily maximum temperature records at the Colorado State University weather station, maintained by Doesken and others. The station is part of the U.S. Historical Climatology Network of the nation's best, longest standing weather stations.

The climate projections in the report are locally downscaled projections of daily maximum future temperatures from the Community Climate System Model, originally developed by the National Center for Atmospheric Research in Boulder, with three model runs each for a scenario of lower future emissions and a scenario of medium-high future emissions for 2046-2065 and 2081-2100.

"When temperatures increase in summer, as observed in Colorado and around the world, it has consequences for drought, wild fires, pine beetle and other pests, and water demand," said Kevin Trenberth, a climate scientist with the National Center for Atmospheric Research. "The effects on humans and ecosystems can be devastating, as we have experienced in recent years. The analysis by RMCO helps provide a very useful perspective on this vital issue of climate change from human activities," Trenberth said.

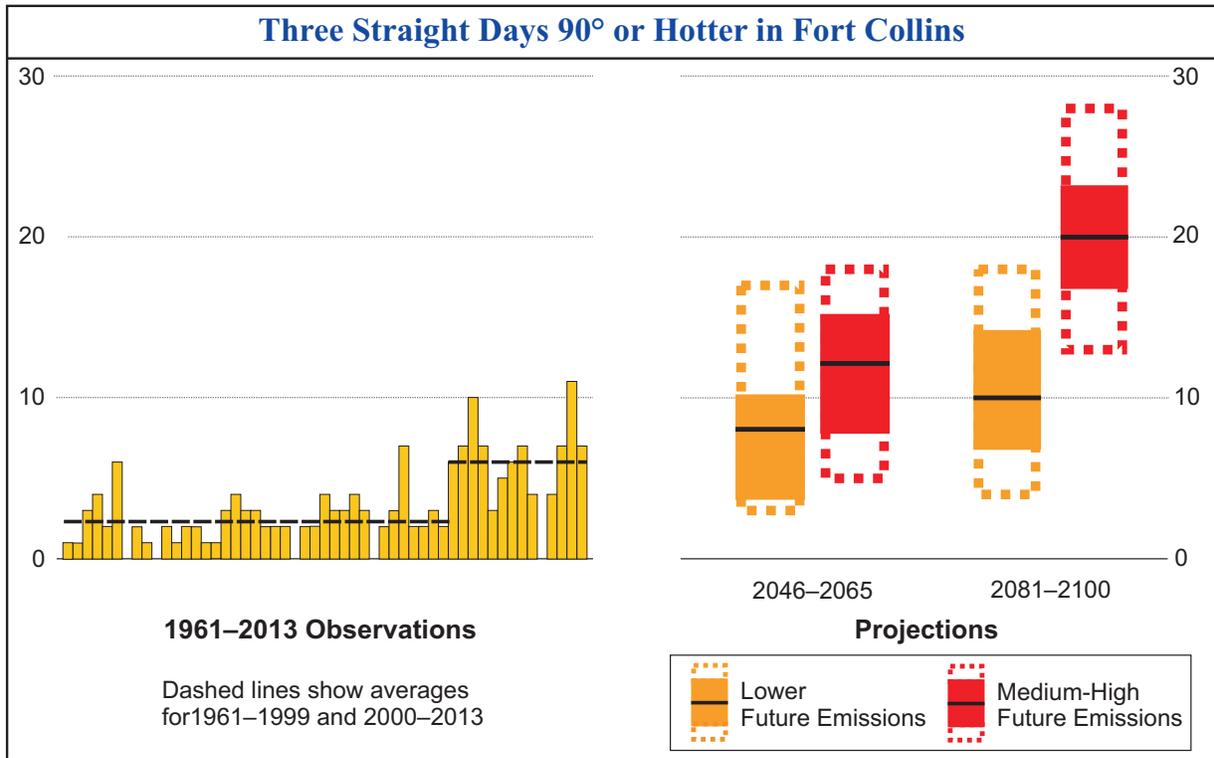
The table on the following page summarizes the report's data.

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Hot Days and Hot Stretches per Year in Fort Collins Observations and Projections						
	Observations		2046–2065		2081–2100	
	1961–1999	2000–2013	Lower Emissions	Medium-High Emissions	Lower Emissions	Medium-High Emissions
Single Days						
90° or hotter	17.9	33.7 (188%)	43 (240%)	55 (307%)	49 (274%)	81 (453%)
95° or hotter	2.9	8.8 (303%)	10 (345%)	17 (586%)	12 (413%)	38 (1,310%)
100° or hotter	0.1	0.6 (600%)	1 (1,000%)	2 (2,000%)	1 (1,000%)	10 (10,000%)
3 Straight Days						
90° or hotter	2.3	6.0 (261%)	8 (348%)	12 (522%)	10 (435%)	21 (913%)
95° or hotter	0.2	0.5 (250%)	1 (500%)	2 (1,000%)	1 (500%)	8 (4,000%)
100° or hotter	0	0 (N/A)	0 (N/A)	0 (N/A)	0 (N/A)	2 (N/A)

In the table above, the values shown for future years are averages of projections. The numbers in parentheses are comparisons to 1961-1999 values.



In the figure above, the dashed lines on the left show averages for the actual numbers in 1961–1999 and 2000–2013. On the right, the boxes show the range of the middle half of all projections, the solid lines show the averages, and the dashed extensions show the ranges from the 10th to the 90th percentiles.