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Reporter-Herald/STEVE STONER

A cannonball off the diving board by Colby Brower, 16, douses youngsters at poolside Thursday at Loveland's Winona Pool. Back from left are Emma Allen, 8, Joe Benavidez, 11, Kasey Miller, 9, and James Moore, 8.

Summer in full force

This hot, dry season known for drought can also produce flash floods

By Lisa Coalwell
Reporter-Herald Staff Writer

Daily summer weather forecasts in Northern Colorado can get a bit repetitive: higher temperatures, with a chance of thunderstorms in the afternoon.

Ditto tomorrow, the next day and the next week.

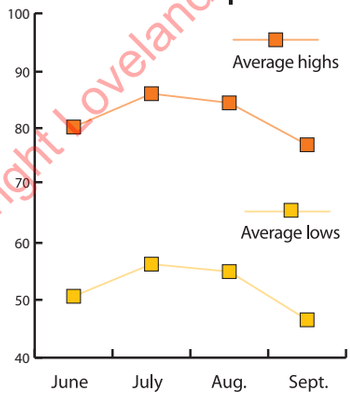
Yet the summer season can hold many surprises — slow-moving rainstorms that cause flash floods, wildfires fueled by low humidity and high winds, and thunderstorms with no rain.

Train-ing Storms

The Fort Collins Spring Creek flood of 1997 and the Big Thompson flood of 1976 were both caused by a line of slow-

See Summer, Page A2

Summertime temperatures



Water conservation tips

- If you step on your grass and leave footprints, it's time to water.
- Turn off the water while you brush your teeth.
- Run full loads in the washing machine and dishwasher.

ON THE NET: For more tips:

- The Environmental Protection Agency's WaterSense program, complete with a game to test your "water sense": www.epa.gov/watersense/tips/cons.htm
- The city of Loveland's water conservation Web page: www.ci.loveland.co.us/wp/water/Conservation/watercon.htm
- The city of Greeley's water conservation Web pages: www.greeleygov.com/water/indoorconservation.aspx and www.greeleygov.com/water/outdoorconservation.aspx

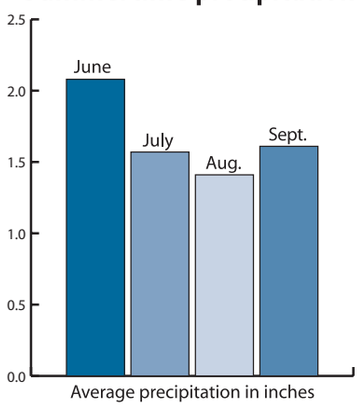
Monsoon season

Although "monsoon" is commonly associated with torrential rains in India, Colorado does have a monsoon of sorts.

"It isn't about rain, though," said Colorado State Climatologist Nolan Doesken. "It's a seasonally varying wind pattern that brings tropical moisture from Mexico into the southern Rocky Mountain region. In Northern Colorado, it does not affect rainfall, but it does affect the daily cloud pattern. It gives us clear mornings and clouds that pop over the mountains in the afternoon, which keeps it from getting so hot."

During the monsoon season here — the last couple of weeks of July through the first couple weeks of August — the afternoons cool off, but the humidity increases, and nights do not feel as cool as they do in early summer, Doesken said.

Summertime precipitation



July 31, 1976
Big Thompson Canyon

July 18, 2002
Big Elk Meadow, Estes Park

July 27, 1997
Spring Creek, Fort Collins

Aug. 15, 2002
Boyd Lake, Loveland

SUMMER: Season's weather can be pretty predictable

FROM PAGE A1

that dumped huge amounts of rain in a small area.

"Those storms are 'training,'" said Colorado State Climatologist Nolan Doesken. "Like a train where you add cars and pass them over and over the same area — the track — the storms form and pass over the same area, dumping rain," he explained.

The probability for these intense storms increases in late July and early August, when the high jet stream winds that move the storms are light.

"The storms move slower, and it's also the time of year when the atmosphere is carrying the most water vapor," Doesken said. "Larimer County has a history of flash floods, and that is something people should always be cognizant of."

He said he watches the clouds carefully and can tell the difference between clouds "that give us some sprinkles" and ones that might create a "storm of concern."

Those clouds, he said, are thicker and lower, at about the level of a high foothill. There is often a dense shaft of rain coming straight down that obscures the view behind it.

Such storms also can cause lightning.

LIGHTNING 'ETIQUETTE'

"June, July and August are the time of year when the chances of having lightning strike in your vicinity is the highest, and it's the time to be most aware of proper lightning 'etiquette,'" Doesken said.

He suggested that people get under shelter when thunderstorms are first forming lightning bolts.

"People have been hit by the very first bolt, because they haven't heard the thunder yet," he said. "Around here, many of the storms don't bother to make rain, so sometimes, there doesn't seem to be a reason to come in. You've got to have the wisdom to get inside."

If you cannot reach shelter and are caught in a lightning storm, squat as low as you can to the ground, with your feet close together or even on only one foot if possible, he said.

The less contact you have with the ground, the less likely it is that the lightning will use you as a conductive path.

If you're trying to walk to shelter, take short, quick steps.

"Those of us who take shorter steps are better off than those of us who take long steps," Doesken said, "because you make a path from one part of the ground to the other, and the shorter the path, the better." Lightning storms can also spark wildfires.

WILDFIRE TIME

"Historically, some of our worst wildfires are in June and early July," Doesken said. "No matter how much it rains, it rarely rains enough to keep up with the evaporative demand for vegetation."

Evapotranspiration — the rate at which vegetation uses water — is greatest now, and plants and trees will use as much water as you give them, he said. If the vegetation does not get enough water, it starts to dry out, because the evapotranspiration rate is so high.

"Even with average precipitation, we're always vulnerable to drought," Doesken said. "If there are two to four weeks without rain, things start drying out, making conditions right to carry wildfires."

Even in years without drought conditions, daytime humidity levels are lower in late June and early July (12 percent to 15 percent as compared with 20 percent to 25 percent during the monsoon months), and winds are stronger than later in the summer. The combination of conditions allows wildfires to burn faster and hotter, Doesken said.

"As you get into later July and mid-August, the humidity is often higher and the winds lower," he added. "Sometimes, there is more lightning to trigger fires then, but the fires are less likely to race out of control."

SO WHAT'S TYPICAL?

Floods, lightning, drought and wildfires aside, summer weather can be pretty predicable.

"We go through a couple of stages," said meteorologist Mark Heuer of DayWeather in Cheyenne, Wyo. "Late spring through June is a fairly active time for showers and thunderstorms," Heuer said. "Then in early to mid-July, the storm pattern decreases some, and we go into a pattern of hotter temperatures and drier conditions. Typically in late July and early August, we go back into the afternoon thunderstorm pattern because of the formation of the monsoon season."

WHAT'S THE FORECAST?

In forecasting those summer storms, a 20 percent chance of storms in the summer means something different than in the winter, Doesken said.

"In the winter, a 20 percent chance means a one-in-five chance," he said, "but in summer, it means that there almost certainly will be showers, but only about 20 percent of the area will be hit," he said.

Best advice, then, for being prepared for summer weather?

Take your umbrella ... and your shades, raincoat, sunscreen, rubber boots, waders and any fire-retardant clothing you might have lying around.

ON THE NET: To find out how you can join a nationwide precipitation study, go to www.cocorahs.org. Click on Colorado to see local precipitation and hail reports.

Editor's note: This story is the second in a four-part series that looks at the climate of Loveland and Northern Colorado. The next story will appear around the autumnal equinox, which is Sept. 22.