



## Please Note....

Don't forget to send in your  
Freeze-up Forms.

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Our last weekend staffing is scheduled to be October 25 - 26. For those of you continuing to take measurements in November or beyond, please hold your weekend measurements and give them to us on Mondays, or enter them on-line at <http://aprfc.arh.noaa.gov>. Web entry requires a password. Instructions and password can be obtained from any APRFC staff member.

### Significant Flooding Soaks the Interior by Ed Plumb

Heavy rain drenched portions of the central interior the last few days of July. Some 4 to 6 inches of rain fell between Fairbanks and Delta Junction over a 4-day period. This resulted in some of the worst flooding on the Tanana River in over 40 years in some areas, and was only surpassed by the record flood of 1967. In response to the deluge, the Tanana River rapidly rose out of its banks and inundated large swaths of the adjacent floodplain from Salcha downstream to Nenana. Several residential neighborhoods in the Fairbanks area were flooded with many feet of water, and many residents could only access their homes by way of boat. The extremely high water levels on the Tanana River also caused the lower Chena River to backup and rise over its banks. The Tanana River at Fairbanks crested at its second highest recorded stage during this event. Estimates by the Fairbanks North Star Borough indicate that at least 300 residences were impacted by the flood waters.

Outside of the Fairbanks North Star Borough, much of the city of Nenana was completely inundated and many residences and businesses received damage. Submerged tracks and a washout of the Alaska Railroad forced officials to cancel passenger and freight service between Denali Park and Fairbanks for several days. Persistent wet weather after the initial surge of water resulted in a very slow recession of floodwaters and some locations were inundated for up to a week after the initial event. Preliminary estimates indicate that Nenana alone received nearly \$2.5 million in damages during this event.



Debris backed up behind the Chena Flood Control Project. The Army Corps of Engineers operated the dam and controlled the flow of the Chena River for approximately 24 hours. Photo courtesy of Ed Plumb



Floodwaters from the Tanana River inundate portions of Nenana. Photo courtesy of Ed Plumb

### Meet Richard Lam

Richard Lam was one of the two students that worked for the Alaska-Pacific River Forecast Center this past summer. He was born in Hong Kong, and became a citizen of the United States in September of 2007.

On Memorial Day, Richard arrived in Anchorage to begin his summer position with us. Prior to his arrival in Anchorage, Richard lived in Wilmington, Delaware, about 30 miles southwest of Philadelphia. He attended Penn State from 2004 to 2008, where he received his Bachelor's degree in Meteorology, with double minors in Geography and Earth Systems. This fall, he began attending the University of Oklahoma in order to pursue his Master's degree in Professional Meteorology. Upon graduation, Richard plans to go to work for the National Weather Service.

Richard "really likes non-competitive sports." He enjoys walking, running, hiking, and biking. In 2004, he participated in the Philadelphia Marathon and finished in just under 3 hours and 20 minutes. He has also completed six half-marathon races in the past four years. He traveled to Seward on the Fourth of July to participate as a spectator at the annual Mount Marathon Race.



Richard enjoys a hike with Larry Rundquist's dog Shiya  
Photo courtesy of Charly Clendenning

It was a pleasure working with Richard this summer and we wish him well in his future endeavors.

### Welcome New Observers

Mark Occhipinti  
(Welcome Back!)  
Montana Creek at Parks Hwy  
Susitna River at Sunshine  
May 2008

Cecelia and Francis Nollner  
Koyukuk River at Huslia  
June 2008

Brandon Garnett  
East Fork Chandalar River  
at Arctic Village  
June 2008

Bert and Donna Smith  
Fortymile River at South Fork  
Fortymile River at Walker Fork  
June 2008

Pamela (Penny) Green  
Lake Minchumina  
June 2008

Mike Jackson  
Eyak Lake at Cordova  
September 2008

Jacque Sawyer  
Klutina River near Copper Center  
September 2008

The Alaska-Pacific River Forecast Center staff thanks you for your river and weather observations this season, and looks forward to working with you again next year.



Photo of Montana Creek on the Parks Highway courtesy of Mark Occhipinti. Mark resumed his duties as river observer on both Montana Creek and the Susitna River at Sunshine after a seven year hiatus. We're glad to have him back.



Lake Minchumina observer, Penny Green, drives her dog team to the base of Denali on the northwest side. Photo courtesy of Penny Green



Pictured from left: Becky Perry, Ed Plumb, with new Koyukuk River at Huslia observers Francis and CeCe Nollner

### Dave Has Left the Building..

Dave Streubel has left the River Forecast Center (RFC) staff for a position in the Western Region Headquarters of the National Weather Service (NWS) in Salt Lake City, Utah. As a Hydrologist in the Science and Service Division, he will "evaluate and implement tools that benefit hydrology related decision support in Western Region."

Dave began his NWS career in the RFC fifteen years ago. While working for the RFC in Alaska, he had the opportunity to fly annual river reconnaissance over the lower Yukon River during breakup, travel to villages across the state for the purpose of surveying and installing river gages, take ice thickness measurements on local area lakes, and to put his skis on for trips up to Hatcher Pass for snow course measurements.

Dave's departure opens a rare vacancy in our office. Five of our 10 person staff have worked together for nearly 15 years. In the not-too-distant future, callers to our office will be greeted by a new



Dave surveying a slope profile gage on the banks of the Nushagak River at Koliganek June 2007

voice. In the meantime, we miss Dave and his laid back personality, and wish him well in his new position.

### Wet Start, but Summer Weather Finally Arrived in the Central Interior by Rick Thoman and Ed Plumb

This summer started off wet in the central interior. In the Salcha area, east of Fairbanks, 9.10 inches of rain fell during July alone. This is nearly as much rain as Salcha usually receives in an entire year. The weather finally transitioned to a sunny and dry pattern during the middle of August. While the Fairbanks airport reported 2.66 inches of rain in August (nearly an inch above normal), all the rain fell in the first 17 days of the month, not a drop of rain fell at the airport during the last two weeks of the month. Prior to this year, Fairbanks had never had a completely dry final two weeks of August in more than 100 years of records.

#### *Other weather trivia from this summer...*

Thunder was heard in the Fairbanks area on the five consecutive days of August 13<sup>th</sup> to August 17<sup>th</sup>. In more than 75 years of observations, five consecutive days with thunder are the most ever recorded in Fairbanks.

A total of 8.86 inches of rain fell at the Fairbanks airport for the summer as a whole (much higher amounts were reported to the west of the city). This total is almost twice the normal total, coming in as the 6<sup>th</sup> largest June through August total on record, and the most summer season rain since 1990. Temperatures averaged somewhat below normal, though not dramatically so. The average temperature at the Fairbanks Airport for June through August was 58.6 degrees, 1.1 degrees

below normal. The summers of 2006 and 2002 were both cooler than this summer.

### End of 2008 Open Water Season

The 2008 open water season is coming to a close and we would like to thank you for your assistance in taking water level readings and ask that you stop taking readings when ice actually prevents you from making an accurate reading safely.

We would appreciate any information on the condition of the river and the formation of river ice. Please complete the enclosed Freeze-up Form and return to us. Your help contributes to a more complete record of freeze-up data for Alaska and is greatly appreciated.



An open hole on the frozen Kuskokwim River in front of the village of Kwethluk - December 2007  
Photo courtesy of Bethel Search and Rescue

**River ice breakup and glacier dammed lake releases require close monitoring to assess the potential for flooding on Alaskan rivers.**

**Breakup 2008**



Former RFC Senior Hydrologist Dave Streubel flew to the village of Kobuk to observe ice jam flooding that occurred on the Kobuk River during this year's breakup.



US Fish & Wildlife pilot Brad Scotton captured this photo of a moose on a sheet of ice cruising down the Yukon River near Galena.



Snake River at Nome breaking up. Photo was taken May 12. Courtesy of Jerry Steiger, Meteorologist-In-Charge of the WSO in Nome.

**Glacial Activity**



The Tweedsmuir Glacier is surging and threatening to block off the Alsek River to form a glacier dammed lake. The Alsek River originates in Canada, but flows through the northern portion of the Alaska panhandle. In this recent photo taken by the National Park Service looking downstream on the Alsek River, the Tweedsmuir Glacier on the right has closed the gap to about 100 yards wide. Once the glacier pinches off the river, a lake will begin to form above the blockage.



The Skilak Glacier Dammed Lake is located in the Harding Ice Field above the Skilak River. The lake typically releases in the late fall every two years and typically causes a 1-4 foot rise in the Kenai River below Skilak Lake. The photo above gives us an estimated water level rise of 25 feet from photos taken a month ago. There is no established target breakout water level, but it appears to be approaching a level at which it is likely to release. A fall 2008 release is very likely.



RFC Hydro Tech Becky Perry and Fairbanks WFO Service Hydrologist Ed Plumb take a flow measurement on the Koyukuk River at Bettles. Local resident Tom Shanahan drove the boat.



Aaron Jacobs, Forecaster from the WFO in Juneau, surveying on the Skagway River Bridge.



RFC Forecaster Eric Holloway with survey rod by the Chilkat River Bridge at Haines.



Staff from the River Forecast Center (RFC) often partner with Weather Forecast Office (WFO) and Weather Service Office (WSO) staff to conduct field work during the summer months. In addition to the work seen in these photos, field work was conducted this summer in Allakaket, Hughes, Huslia, Kobuk, Cordova, Chitina, the Susitna River at Denali Highway, and at Lake Minchumina near Denali.



Joe Kryston, Forecaster from the WFO in Fairbanks, assists with installation of a slope profile gage on the East Fork of the Chandalar River.



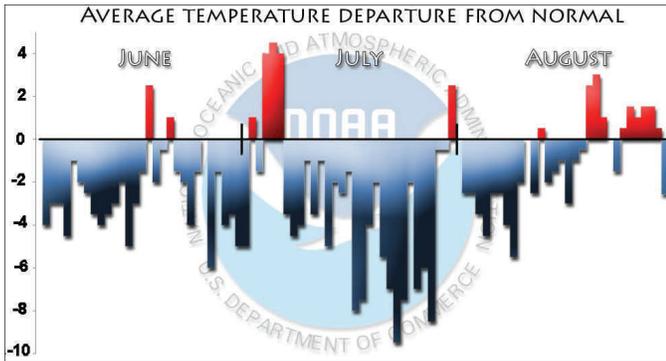
MFKA2 – Middle Fork Koyukuk @ Wiseman

Forecaster Ray Little (left) and Observation Program Leader Brad Sipperly perform routine maintenance on a wire weight gage located on the Middle Fork of the Koyukuk River. Both Ray and Brad work in the Fairbanks WFO.

## Anchorage Summer 2008 Summary by Sam Shea

The summer of 2008 - defined by the months of June, July, and August - will easily be remembered by everyone for how cool it seemed and for how wet July was. In Anchorage, the average high temperature was 60.9 degrees (3 degrees below normal). The average low temperature was 47.7 degrees (1.9 degrees below normal). The average temperature for the season was 54.3 degrees (2.4 degrees below normal). For the season, 4.80 inches of precipitation were recorded (0.86 inches below normal).

There were only 17 days where temperatures were above normal. That means that only 18% of days this summer were warmer than normal, 5% of the days were considered normal and an astonishing 77% of the days were cooler than normal. The most dramatic stretch occurred in July with 24 consecutive days of below normal temperatures. Anchorage set three records during those cool three weeks as well.



It is astonishing to see how many days were below normal this summer. In fact, there were 24 consecutive days in July with below normal temperatures. These cool weeks followed the only hint of 70 degree weather seen.

July was the only month to experience any days with temperatures reaching above 70 degrees. Those temperatures occurred at the beginning of the month and were immediately followed by a long stretch of cool and wet weather. With only two days above 70 degrees this year, that sets a new record for the fewest days to reach 70. The old record was three 70+ degree days set in 1927, 1939 and 1980. Anchorage normally experiences around 16 days reaching at least 70 degrees.

The summer of 2008 seemed cool, but it was not an all around record cool summer. When looking into the daytime maximum temperature - this summer would rank in as the 3rd coolest on record. What seemed like endless days of cloud cover kept the daytime highs averaging 3 degrees below normal. Inversely, the cloud cover helped to keep overnight temperatures up. For minimum temperatures, the summer of 2008 only ranked in as the 34th coolest on record.

## Summer Climate Breakdown

### June:

	Actual	Normal	Deviation
Max Temperature	58.9°F	62.5°F	-3.6°F
Min Temperature	45.5°F	47.2°F	-1.7°F
Avg Temperature	52.2°F	54.9°F	-2.7°F
Precipitation	0.63"	1.05"	-0.42"

### July:

	Actual	Normal	Deviation
Max Temperature	61.7°F	65.6°F	-3.9°F
Min Temperature	49.0°F	51.9°F	-2.9°F
Avg Temperature	55.4°F	58.7°F	-3.3°F
Precipitation	3.25"	1.69"	1.56"

### August:

	Actual	Normal	Deviation
Max Temperature	62.2°F	63.5°F	-1.3°F
Min Temperature	48.5°F	49.7°F	-1.2°F
Avg Temperature	55.3°F	56.6°F	-1.3°F
Precipitation	0.92"	2.92"	-2.00"

**Anchorage Summer 2008 Summary can be read in its entirety by going to the following link:**  
<http://pafc.arh.noaa.gov/stories/summer2008.php>

### Start of Ice Thickness Measurements

Those of you who measured ice thickness last year are requested to do so again this year. Please let us know if you need more forms or envelopes for this season. For those of you who have measured in the past but do not intend to this year, please contact us to get instructions on sending the valuable equipment back to us so that we can use it at another location.

We will enter your data into a database and use the data in a monthly analysis of snow and ice for forecasting breakup characteristics next spring. We would like you to make the measurement as close to the last day of each month as possible and mail the results to us. Be sure to include the date and location on the form. A phone call to our 800 number would also aid in the analysis process, or use the NWS Observers form on the Forms menu on the APRFC website to enter the information at: <http://aprfc.arh.noaa.gov>. The ice thickness measurements should be made in the same locations as in the past, preferably far enough from the shore line to prevent drilling in mud and not so far as to encounter strong currents. Before drilling the ice, measure the depth of the snow on top of the ice at that point and record the snow depth in inches. It is preferable to drill a new hole each time rather than use the previously drilled hole. Inaccuracies due to differences in heat transfer can occur at previously drilled holes.