



Weather and Climate



Wrangell – St. Elias Winter 2013-2014 Weather Summary

How did the winter of 2013-2014 stack up to normal?

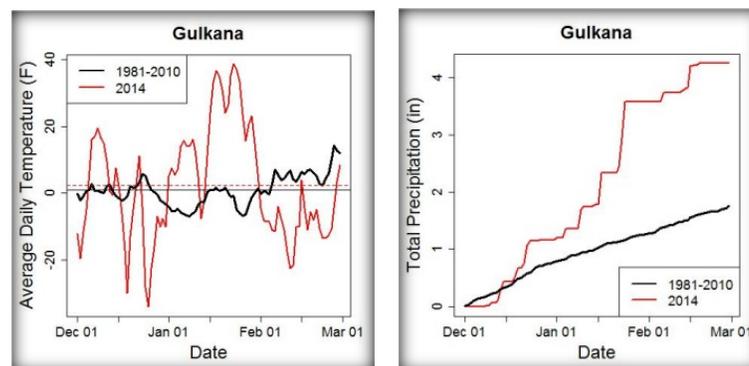
The winter time temperature roller coaster continues – December was cool, January was approaching hot, and February slid back to cold temperatures.

Gulkana held the distinction of having the warmest temperature deviation from normal for January and the coldest temperature deviation statewide for February.

In Gulkana, there was more snow than normal, and a few rain events were recorded. The average temperatures were 20 to 30 degrees warmer than normal in January and overall it was the 2nd warmest on record.

In Gulkana, December was cold and dry. The average temperature was -4.4 °F, almost 5 °F below normal. The precipitation total for the month was 1.16 inches, 149% of normal. The temperatures soared in January! The average temperature for the month was 18.6 °F, 21.5 °F above normal – this was the highest positive temperature deviation from normal for the state of Alaska for the month. It was the second warmest January on record after 1981. Two daily high records were set on January 23 and 24. The total precipitation for the month was 2.42 inches, which is a whopping 526% of normal. Three record precipitation events occurred on the 16th, 23rd, and 24th – the average temperature on all 3 of these days was >32 °, indicating these were rain events. February brought cold temperatures back to the region and once again Gulkana held the distinction of having the greatest temperature deviation from normal for the entire state. This time, however, it was negative. The -8.5 °F monthly temperature was 14.0 °F colder than normal. The precipitation total for the month was 131% of normal. Snow depths around the park were above normal for the month. There was 21 inches of snow at the end of February at the new snow course in Copper Center near park HQ.

Gulkana Temperature and Cumulative Precipitation (red) compared to Normal (black).

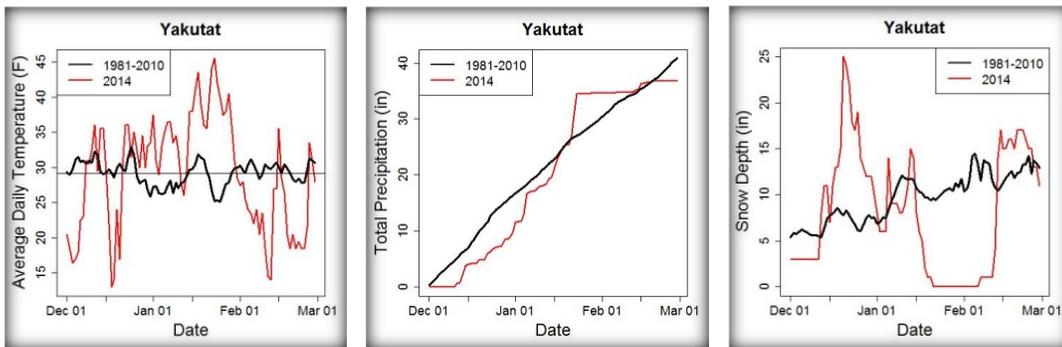


And along the southern coast.....in Yakutat, December was cool and dry despite a record daily snowfall event on December 19 when 13.3 inches of snow fell in a 24-hour period. The monthly average temperature was 27.4 °F, normal is 29.6 °F. The total precipitation for the month was 9.68 inches, 60% of normal. The average temperature for January was 36.0 °F, well above freezing – the normal average temperature is 28.1°F. Daily record high temperatures were observed each day

Wrangell – St. Elias Winter 2013-2014 Weather Summary

between January 23 -28! Precipitation for the month was 183% of normal with 24.98 inches falling during the month. There were 17 days of measurable precipitation with no corresponding snowfall totals, bringing the snow depth to zero in mid-January. On January 23rd 3.95 inches of precipitation was recorded, a new record for that day. This was the same day that an avalanche closed the Richardson Highway. It cooled off again in February in southeast Alaska, including Yakutat. The average monthly temperature was 23.5 °F, or 6.2 °F colder than average. The precipitation total for the month was extremely low at 2.08 inches, only 19% of normal. Most of the precipitation that was recorded came in the form of snow rather than rain. The snowfall total for the month ended up just shy of normal with 28.1 inches falling during the month; this was the highest monthly total for the state.

Yakutat Temperature, Cumulative Precipitation, and Snow Depth (red) compared to Normal (black).



~~~~~

### Gulkana Weather Records:

Climate Normal Period 1981 – 2010; Climate Record Period 1949 – 2014

#### Temperature

| Gulkana Winter | Average Monthly Temp °F | 1981-2010 Normal °F | Departure from Normal °F | Monthly High °F / Date | Monthly Low °F / Date |
|----------------|-------------------------|---------------------|--------------------------|------------------------|-----------------------|
| December       | -4.4                    | 0.4                 | <b>-4.8</b>              | 23 / Dec 8             | -41/ Dec 18           |
| January        | 18.6                    | -2.9                | <b>+21.5</b>             | 43 / Jan 23            | -16/ Jan 12           |
| February       | -8.5                    | 5.5                 | <b>-14.0</b>             | 27 / Feb 28            | -35 / Feb 11          |

Winter Season Temperature Departure from Normal: +0.9°F

#### Precipitation

| Gulkana Winter | Total Monthly Precip. in. | 1981-2010 Normal in. | Departure from Normal in. | Greatest 24 –hr. total in. / Date | # Days with >=0.01 in. water |
|----------------|---------------------------|----------------------|---------------------------|-----------------------------------|------------------------------|
| December       | 1.16                      | 0.78                 | <b>+0.38</b>              | 0.32 / Dec 22                     | 11                           |
| January        | 2.42                      | 0.46                 | <b>+1.96</b>              | 0.63 /Jan 24                      | 10                           |
| February       | 0.67                      | 0.51                 | <b>+0.16</b>              | 0.37 / Feb 15                     | 7                            |

Winter Season Departure from Normal: +0.83inches

# Wrangell – St. Elias Winter 2013-2014 Weather Summary

## Yakutat Weather Records:

Climate Normal Period 1981 – 2010; Climate Record Period 1949 – 2014

### Temperature

| Yakutat Winter | Average Monthly Temp °F | 1981-2010 Normal °F | Departure from Normal °F | Monthly High °F / Date | Monthly Low °F / Date |
|----------------|-------------------------|---------------------|--------------------------|------------------------|-----------------------|
| December       | 27.4                    | 29.6                | -2.2                     | 42 / Dec 14            | 3 / Dec 18            |
| January        | 36.0                    | 28.1                | +7.9                     | 50 / Jan 25            | 20 / Jan 31           |
| February       | 23.5                    | 29.7                | -6.2                     | 48 / Feb 27            | -3 / Feb 23           |

Winter Season Temperature Departure from Normal: -0.2°F

### Precipitation

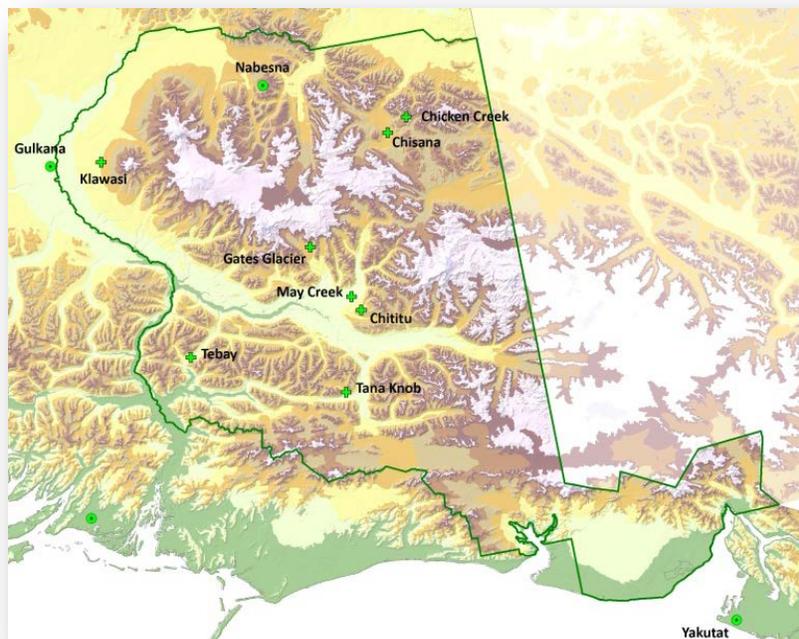
| Yakutat Winter | Total Monthly Precip. in. | 1981-2010 Normal in. | Departure from Normal in. | Greatest 24 –hr. total in. / Date | # Days with >=0.01 in. rain or snow |
|----------------|---------------------------|----------------------|---------------------------|-----------------------------------|-------------------------------------|
| December       | 9.68                      | 16.28                | -6.60                     | 1.56 / Dec 14                     | 21                                  |
| January        | 24.98                     | 13.66                | +11.32                    | 3.95 / Jan 23                     | 26                                  |
| February       | 2.08                      | 10.86                | -8.78                     | 0.90 / Feb 15                     | 11                                  |

Winter Season Departure from Normal: -4.06inches

### Snowfall

| Yakutat Winter | Total Monthly Snowfall in. | 1981-2010 Normal in. | Departure from Normal in. | Greatest 24 – hr. snowfall total in. / Date | Snow Depth End of Month in. |
|----------------|----------------------------|----------------------|---------------------------|---------------------------------------------|-----------------------------|
| December       | 36.7                       | 23.2                 | 13.5                      | 13.3 / Dec 19*                              | 10                          |
| January        | 21.4                       | 31.9                 | -10.5                     | 5.8 / Jan 12                                | 0                           |
| February       | 28.1                       | 28.6                 | -0.5                      | 10.2 / Feb 13                               | 11                          |

As part of the climate monitoring vital sign, additional NPS climate stations were installed in the park to complement the long-term records at Nabesna, Gulkana, and Yakutat. These additional sites provide critical data on a park-wide scale that help characterize the climate gradients and patterns affecting resources in Wrangell-St. Elias National Park and Preserve.



# Wrangell – St. Elias Winter 2013-2014 Weather Summary

Wrangell – St. Elias Remote Automated Weather Station (RAWS) summary – Winter 2013-14:

| Site          | Elev.<br>Ft. | Average Temp °F |      |      | Winter<br>Avg. Temp<br>°F | Extremes °F |     | Snow<br>Depth<br>In. * | Peak<br>Wind<br>mph | High T –<br>Low T °F<br>** |
|---------------|--------------|-----------------|------|------|---------------------------|-------------|-----|------------------------|---------------------|----------------------------|
|               |              | Dec             | Jan  | Feb  |                           | High        | Low |                        |                     |                            |
| Chicken Creek | 5240         | 11.1            | 24.2 | 8.0  | 14.4                      | 46          | -21 | 6                      | 43                  | 67                         |
| Chisana       | 3318         | -8.6            | 12.2 | -6.5 | -1.0                      | 47          | -43 | 18                     | 20                  | 90                         |
| Gates Glacier | 4060         | 16.7            | 27.4 | 12.6 | 18.9                      | 50          | -16 | 50                     | 27                  | 66                         |
| May Creek     | 1600         | -1.5            | 22.1 | -4.9 | 5.2                       | 42          | -36 | 21                     | 21                  | 78                         |
| Klawasi       | 3100         | 3.3             | 25.8 | 3.3  | 10.8                      | 47          | -21 | ***                    | 65                  | 68                         |
| Tebay         | 2000         | 4.3             | 23.2 | -0.7 | 8.9                       | 38          | -25 | 46                     | 16                  | 63                         |

\* Snow depth on Feb. 28<sup>th</sup>; \*\* Difference between the high and low temperature for the season \*\*\*not measured  
Tana Knob and Chititu sites are currently not transmitting real-time data and therefore are not summarized.

Interesting notes from RAWS stations:

- Chisana stayed relatively cool through the January warm up. The average January temperatures at the other locations around the park were well above normal and within 5 degrees of each other, while the average at Chisana was ~ 10 degrees colder than May Creek the second lowest average temperature for the month.
- Normally January is the coldest month, but like most of the rest of the state January 2014 was the warmest month this winter season (December-February) for all WRST RAWS stations.
- The 50°F in mid-January at Gates Glacier, at 4060' in the Wrangell Mountains, saddled between two huge glaciers, is quite impressive!



Chicken Creek Climate Station

Please Note: The summarized data are preliminary and have not undergone final quality control. Therefore, these data are subject to revision.

## Connecting Further

The latest Intergovernmental Panel on Climate Change [Summary Report](#) – released March 30, 2014

[Central Alaska Network](#) climate monitoring vital sign

Access near real-time data from [Western Regional Climate Center](#) and [MesoWest](#)

Check out the 3 month weather outlook from the [NOAA Climate Prediction Center](#)

Statewide summary of weather highlights in the latest [Climate Dispatch](#) from the Alaska Center for Climate Assessment and Policy

[Map](#) of projected temperature and precipitation changes Wrangell - St. Elias National Park and Preserve.

### For more information contact:

Pam Sousanes or Ken Hill  
Central Alaska Network  
[pam\\_sousanes@nps.gov](mailto:pam_sousanes@nps.gov); [kenneth\\_hill@nps.gov](mailto:kenneth_hill@nps.gov)  
907.455.0677 907.455.0678