

Nevada
Two Floods and their Season

The Chinook of March 17-21, 1907.

See Bulletin pp. 30-31.

The Flood of January 13-18, 1909.

Quite unlike the Chinook in its origin and continuance is the flood of January 13-18, 1909. In this not the wind but the rain of itself and acting upon the snow was the chief factor in the high waters.

During the early days of January a ~~mass~~ mantle of snow had fallen on the Sierra Nevada and its fast hills quite similar to that which covered the mountains in ~~the~~ March, 1907 preceding the Chinook.

The river gage on Monday, January 11, registered the low water level of 1.4 ft.

On Jan 11, two days before the flood

Preceding the days of the flood the temperature ~~range~~ was low, ranging between 22^{°F} Max. and 4^{°F} Min. and the river level was at the extraordinary low level of 1.4 ft. to which it had fallen during from its normal of 2 ft and more (2.7 July 6 + 2.2, July 7)

The day was clear, becoming cloudy ~~and~~ with a light fall of snow during the night.

With the moderation in the temperature on the following day of Jan^y 12 to 40[°]F. Max. and 20[°]F. Min. ~~the~~ and the light precip. (.1 inch), the river level rose to 1.9 feet.

The day was calm (Max. 9 hrs.) (Av. vel. 2.2) - and the precipitation light being .12 inches.

On Jan^y 13, the temperature rose above freezing and continued so day and night until ~~Jan^y 2~~ the night of Jan^y 21, when the temp. sank to 27[°]F. and ^{on} the succeeding days to the normal low temperatures of January weather.

The thermogram will show the general tendency of the temperature.

At no time, however, did the temperature rise as high as during the Chinook. ^{the average temp. for day and night was higher} but it remained on the average higher.

January 14.

Temp. 54 41

Snow on the ground 0

Precip. .72

Wind av. 7.9 Max. 34 S.W. 10:05 a.m.

Gage 4.2

| | | | |
|-----------|---------|-------------------------|------|
| 8: a.m. | 4.2 ft. | 9 p.m. | 5.5 |
| 10 a.m. | 4.7 | 10 p.m. | 5.5 |
| 12 noon | 4.9 | 11 p.m. | 5.65 |
| 2 p.m. | 5.9 | 12 Mid. | 5.85 |
| 3 p.m. | 6.0 | Rainfall 5 p.m. to Mid. | |
| 4 p.m. | 6.0 | estimated to be .08 | |
| 5 p.m. | 5.8 | | |
| 6:30 p.m. | 5.7 | | |
| 8 p.m. | 5.6 | | |

Jan 15.

Temp. 53 40

Precip. .37

Wind. av. 8 Max. 22 S.E. 12:20 p.m.

Gage.

| | | | | |
|------------|-------|---------|-----|--|
| 12:30 a.m. | 6 ft. | 10 a.m. | 6.6 | Rainfall Mid to 5 a.m. estimated to be .15 |
| 1 a.m. | 6 | 11 a.m. | 6.8 | |
| 2 a.m. | 6 | 12 M. | 6.7 | |
| 5 a.m. | 6 | 1 p.m. | 6.6 | |
| 8 a.m. | 6.2 | 5 p.m. | 6.6 | |
| 9 a.m. | 6.3 | 7 p.m. | 6.6 | |
| 9:30 a.m. | 6.4 | 8 p.m. | 6.6 | |

Jan 16-

Temp. 59 37

Precip. T.

Wind Av. 5.3 Max. 16 E 3:25 p.m.

Gage

5 a.m. 6.6

8 a.m. 6.5

9 a.m. 6.5

11 a.m. 6.5

1 p.m. 6.4

Jan 17-

Temp. 54 33

Precip. T

Wind Av. 5 Max. 22 S 12:35 p.m.

Gage

5 a.m. 5.7

9 a.m. 5.4

12:30 p.m. 5.2

4 p.m. 4.9

Jan 18-

Temp. 55 40

Precip. 0

Wind Av. 5.2 Max. 18 W 4 a.m.

Gage 4.9

Jan 19-

Temp. 54 42

Precip. .04

Wind Av. 8.9 Max. 25 SE. 6:40 p.m.

Gage 4.2

Jan 20-

Temp. 49 38

Precip. .32

Wind Av. 8.6 Max. 26 W 11:42 p.m.

Gage 3.9

Jan 21-

Temp. 47 27 (First freezing).

Snow on ground ^{5 p.m.} T 12 Mid. .1 inch.

Precip. .58

Wind Av. 13.2 Max. 30 S.W. 2:20 p.m.

Gage 3.9

Jan 22-

Temp. 33 24.

Snow on ground .5

Total snowfall .8

Precip. .05 (i.e. melted snow + rain).

Wind Av. 6.5 Max. 18 N.W. 10:30 p.m.

Gage 3.7

July 23-

Temp. 35 17

Snow on ground 5 p.m. T.

Precip. 0

Wind av. 4.3 Max. 14 N.W. 4:05 p.m.

Humid 3.4

Jan 11-

Temp. 22° 4°

Precip. 0 - (Wind. to mid.) Snow on ground 1 sp. in. 1.5"

Wind Av. 3 - Max. 6 S.W.

Gage 1.4

Snow very dry.

Jan 12-

Temp. 40° 20°

Snow on ground 5 p. in. 3 in.

Precip. .12

Wind. Av. 2.2 Max. 9 W

Gage 1.9

Jan 13-

Temp. 49 39

Snow on ground ^{5 p. in.} 0 in. disappeared during day very rapidly.

Precip. .62

Wind. Av. 9.5 Max. 25 S.W.

Gage 2.3 at 8 a. m.

2.5 at 12 M.

3.1 at 5 p. m.

Chinook - 1907-

March 16 - ^{Temp.} 46-35 °F.

" 17 - 57-44
 " 18 - 48-42
 " 19 - 59-38
 " 20 - 52-33

Precip. 1.32 in.

Wind -

av. 2.9 mi. Max. 15 mi

| | |
|------|----|
| 15.9 | 44 |
| 12.2 | 27 |
| 7 | 28 |
| 10.5 | 26 |

Rain Gage -

2.3 feet.
 2.5 (Precip. .32 in)
8.2 (Precip. .66)
 8.2-9.2-87-8.3 (Precip. .20 in.)
 8.2-7.5-7.4-7.2-7 (Precip. .02 in.)
 6.3-6.2-6.2-5.9

Snow - On Teahilla?

Obtain record of snow on ground
 and rain at Verdi, Boca, Nevada,
 Summit.

Note -

Chinook Wind ^{15.9 mi. Max 44} 4.3 in. precip.
 raised river suddenly from 2.5
 to 8.2 feet, ^{diff.} 5.7 feet. (better to 9.2, diff. 6.7)

A wind 12.2 Max. 27 + Temp. 7
 9° less than prev. day + .66 in.
 precip. raised river from 8.2 to
 9.2 feet, difference of 1 foot.

Why so little on second day?
 Rain itself has little effect. 6.2 did not raise them.
 Because snow on Teahilla
 was gone? Could lower wind
 velocity have caused evaporation? See Shreve's letters

Fresnet - 1907-

Temp.

July 12 - 40-20 °F.
 " 13 - 49-39
 " 14 - 54-41
 " 15 - 53-40
 " 16 - 59-37

Precip. 1.86 in.

Wind -

av. 2.02 mi. Max. 9

| | |
|-----|----|
| 9.5 | 25 |
| 7.9 | 34 |
| 8 | 22 |
| 8 | 22 |

Rain Gage -

1.9 feet (Precip. .02)
 2.3-2.5-3.1 (Precip. .62)
 4.2-4.7-4.9-5.9-6.0-5.8-5.7-5.6 (Precip. .72)
 6.0-6.2-6.3-6.4-6.6-6.8-6.7-6.6-6.4 (Precip. .37)

Snow -

On Grand? July 12 - 3 in.
 and on Teahilla

July 13 - 0 - at 5 p.m.
 it's off and on quickly.

Note -

Wind - 9.5 mi. Max. 25
 raised river from 1.9 to 3.1,
 diff. 2.2 ft. (or better to 6 ft, diff. 4.1 ft.)
 Wind 7.9 mi. Max. 34 raised river
 from 6 ft(?) to 6.8 ft. diff. 7.8 ft.
 Rain 7.72 raised stream by 4 ft. snow .8 ft.

Snow remained on first day by
 rain wind? and caused snow.

Fredite defend an instance of snow below 5000
 [Answer] Temp. not very different.

The precipitation was much larger than during the Chinook being

| | | | |
|------------------|------------|-------------|-------------|
| Tuesday, July 12 | .12 inches | March 16... | .11 |
| Wed. July 13 | .62 " | " 17... | .33 |
| Thurs. July 14 | .72 " | " 18... | .66 |
| Fri. July 15 | .37 " | " 19... | .20 |
| Sat. July 16 | T | " 20... | .02 |
| Sun. July 17 | T | | <u>1.32</u> |
| Mon. July 18 | 0 " | | |
| Tues. July 19 | .04 " | | |
| Wed. July 20 | .32 " | | |
| Thurs. July 21 | .23 " | | |
| Fri. July 22 | .05 " | | |
| Sat. July 23 | 0 " | | <u>.64</u> |

Total 2.45 inches, or almost

twice the precip. if the entire per. be included otherwise 1.81 against 1.31.

Chinook

| | |
|------------|-------------|
| | Feb. .95 |
| .09 | .27 |
| .03 | .08 |
| .18 | .01 |
| <u>.34</u> | <u>1.31</u> |
| .31 | |
| <u>.95</u> | <u>.64</u> |
| | <u>1.59</u> |

| | |
|-------------|--|
| 2.45 | Chinook took snow off too suddenly - Rain took it off more gradually - and so much at beginning that rising wind, temp + rain seemed only to increase depth grad. + kept it at a moderate high water mark. |
| .64 | |
| <u>1.81</u> | |

March 15 - Temp. 51 27 - (Freezing)
March 16, 1907.

Temp. 46 35

Snow on ground 0

Precip. .11

Wind Av. 2.9 Max. 15 S. 11:15 p.m.

Gage 2.3

March 17 -

Temp. 57 44

Precip. .33

Wind Av. 15.9 Max. 44 S.W. 3:30 p.m.

Gage 2.5

March 18

Temp. 48 42

Precip. .66

Wind Av. 12.2 Max. 27 S. 10:50 a.m.

Gage 8.2

8 a.m. 8.2 ft.

10 a.m. 9.2

10:30 a.m. 8.7

2:30 p.m. 8.3

5:20 p.m. 8.3

8 p.m. 8.3

March 19-

Temp. 59 38

Precip. .20

Wind Av. 7 Max. 28 S. 4:30 a.m.

Gage 7.5

5 a.m. 8.2

8 a.m. 7.5

9 a.m. 7.4

12 M. 7.2

5 p.m. 7

March 20-

Temp. 52 33

Precip. .02

Wind Av. 10.5 Max. 26 S 9:25 p.m.

Gage 6.3

8 a.m. 6.3

9 a.m. 6.2

12 M. 6.2

5 p.m. 5.9

March 21-

Temp. 46 32

Precip. 0

Wind av. 9.3 Max. 24 S. 4:10 p.m.

Gage 5.2

March 22-

Temp. 43 30

Precip. 0

Wind av. 12.8 Max. 29 S.E. 7:45 p.m.

Gage 4.6

March 23-

Temp. 37 30 (Almost no quite freezing)

Precip. 1.25 inches. (to 5 a.m. .01; to 5 p.m. 1.13) Temp. dropped steadily during day from 37 to 30°F.

Wind av. 9.5 Max. 36 S 3:05 a.m.

Gage 4

March 24-

Temp. 40 27

Snow on ground 4.2 in.

Precip. .18 (to 5 a.m. .11; to 5 p.m. .03)

Wind av. 7.5 Max. 34 S.W. 1:47 p.m.

Gage 3.9

March 25-

Temp. 39 17

Snow on ground 2.

Precip. 0

Wind av. 5.1 Max. 14 W. 12:45 a.m.

gage 3.8

March 26-

Temp 40 17

Snow on ground 1.3

Precip. 0

Wind - av. 3.5 Max. 9 E. 12:03 p.m.

gage 3.6

March 27-

Temp. 40 15

Snow on ground 0.

Precip. 0

Wind - av. 4.5 Max. 11 N. 8:50 p.m.

gage 3.5

Gage levels (cont.)

March 28 - 3.4

" 29 - 3.3

" 30 - 3.4

" 31 - 3.4

April 1 - 3.7

" 2 - 3.8

" 3 - 3.7

" 4 - 3.6

" 5 - 3.5

" 6 - 3.5

etc. " 7 - 3.6