2018/2019 WINTER STORM #1

Storm Summary Statistics:
Storm precip began between 1600 – 1700 hrs MST Sunday, November 4, 2018 (DOY 308)
Storm precipitation ended: 0700 hrs MST Monday, November 5, 2018 (DOY 309)
Storm duration = 16 hrs
Storm total water content at SASP = 12 mm (0.5 inches)
Mean precip intensity: 0.75 mm/hr
Max precip intensity: 2 mm/hour on multiple occasions
Max gain in snow depth at SASP = 8.8 cm (3.5 inches)
Max gain in snow depth at SBSP (wind affected) = 0 cm (0 inches)
Peak gust at PTSP at: 0420 hrs MST Monday, November 5, 2018 (DOY 309)

Storm Wind Rose (Putney Study Plot data)
CSAS Putney Study Plot 12,323 ft.
No. of hours: 16
No. of missing hours: 0
From hour ending: Nov 04, 2018 1800 MST
To: Nov 05, 2018 0700 MST
Avg. wind dir: 300
Avg. wind spd: 22.8 mph
Peak gust: 57.2 mph

Average Hourly Wind Speed (mph)
2018/2019 WINTER STORM #2

2018-19 Winter Storm #2: Nov 22-23, 2018
Senator Beck Basin Study Area, at Red Mountain Pass, CO

Storm Summary Statistics:
Storm precip began: between 1400 – 1500 hrs MST Thursday, November 22, 2018 (DOY 326)
Storm precipitation ended: 0100 hrs MST Friday, November 23, 2018 (DOY 327)
Storm duration = 12 hrs
Storm total water content at SASP = 14 mm (0.6 inches)
Mean precip intensity: 1.17 mm/hr
Max precip intensity: 4 mm/hour on DOY 326 at 2000
Max gain in snow depth at SASP = 22.4 cm (8.8 inches)
Max gain in snow depth at SBSP (wind affected) = 5.7 cm (2.2 inches)
Peak gust at PTSP at: 2400 hrs MST Thursday, November 22, 2018 (DOY 326)

Storm Wind Rose (Putney Study Plot data)

CSAS5 Putney Study Plot 12,323 ft.
No. of hours: 12
No. of missing hours: 0
From hour ending: Nov 22, 2018 1400 MST
To: Nov 23, 2018 0100 MST
Avg. wind dir: 290
Avg. wind spd: 24.6 mph
Peak gust: 58.2 mph

Average Hourly Wind Speed (mph)
2018/2019 WINTER STORM #3

2018-19 Winter Storm #3: Nov 30-Dec 1, 2018
Senator Beck Basin Study Area, at Red Mountain Pass, CO

Storm Summary Statistics:
Storm precip began between 0200 – 0300 hrs MST Friday, November 30, 2018 (DOY 334)
Storm precipitation ended: 1300 hrs MST Saturday, December 01, 2018 (DOY 335)
Storm duration = 36 hrs
Storm total water content at SASP = 23 mm (0.9 inches)
Mean precip intensity: 0.4 mm/hr
Max precip intensity: 3 mm/hour on DOY 335 at 0800
Max gain in snow depth at SASP = 31.6 cm (12.4 inches)
Max gain in snow depth at SBSP (wind affected) = 16.9 cm (6.7 inches)
Peak gust at PTSP at: 1700 hrs MST Friday, November 30, 2018 (DOY 334)

Storm Wind Rose (Putney Study Plot data)

CSRS Putney Study Plot 12,323 ft.
No. of hours: 36
No. of missing hours: 0
From hour ending: Nov 30, 2018 0200 MST
To: Dec 01, 2018 1300 MST
Avg. wind dir: 303
Avg. wind spd: 19.3 mph
Peak gust: 49.1 mph

Average Hourly Wind Speed (mph)
- >45
- 22-45
- 11-22
- 6-11
- 0-6
- calm
**Storm Summary Statistics:**

- Storm precip began between 1500 – 1600 hrs MST Wednesday, December 12, 2018 (DOY 346)
- Storm precipitation ended: 2300 hrs MST Wednesday, December 12, 2018 (DOY 346)
- Storm duration = 9 hrs
- Storm total water content at SASP = 13 mm (0.5 inches)
- Mean precip intensity: 1.44 mm/hr
- Max precip intensity: 3 mm/hour on DOY 346 at 1900
- Max gain in snow depth at SASP = 19.7 cm (7.8 inches)
- Max gain in snow depth at SBSP (wind affected) = -.6 cm (-.2 inches)
- Peak gust at PTSP at: 2300 hrs MST Wednesday, December 12, 2018 (DOY 346)

**Storm Wind Rose (Putney Study Plot data)**

- No. of hours: 9
- No. of missing hours: 0
- From: Dec 12, 2018 1500 MST
- To: Dec 12, 2018 2300 MST
- Avg. wind dir: 343
- Avg. wind spd: 30.4 mph
- Peak gust: 62.9 mph

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**2018/2019 WINTER STORM #4**

2018-19 Winter Storm #4: Dec 12, 2018
Senator Beck Basin Study Area, at Red Mountain Pass, CO

- Hourly Precip (mm H2O)
- SASP Height of Snow
- SBSP Height of Snow (wind affected)

**Wednesday, Dec 12**

- **Precip (mm)**
  - 0
  - 1
  - 2
  - 3
  - 4

- **Height of Snow (meters)**
  - 0
  - 0.5
  - 1

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2018/2019 WINTER STORM #5

Storm Summary Statistics:
Storm precip began between 0300 – 0400 hrs MST Monday, December 24, 2018 (DOY 358)
Storm precipitation ended: 1300 hrs MST Monday, December 24, 2018 (DOY 358)
Storm duration = 11 hrs
Storm total water content at SASP = 12 mm (0.5 inches)
Mean precip intensity: 1.09 mm/hr
Max precip intensity: 2 mm/hour on DOY 358 at multiple times.
Max gain in snow depth at SASP = 18.1 cm (7.1 inches)
Max gain in snow depth at SBSP (wind affected) = 7.3 cm (2.9 inches)
Peak gust at PTSP at: 1000 hrs MST Monday, December 24, 2018 (DOY 358)

Storm Wind Rose (Putney Study Plot data)

No. of hours: 11 From hour ending: Dec 24, 2018 0300 MST
No. of missing hours: 0 To: Dec 24, 2018 1300 MST

Avg. wind dir: 281
Avg. wind spd: 23.3 mph
Peak gust: 53.2 mph
2018/2019 WINTER STORM #6

2018-19 Winter Storm #6: Dec 25-Dec 27, 2018
Senator Beck Basin Study Area, at Red Mountain Pass, CO

Storm Summary Statistics:
Storm precip began between 1400 – 1500 hrs MST Tuesday, December 25, 2018 (DOY 359)
Storm precipitation ended: 0100 hrs MST Thursday, December 27, 2018 (DOY 361)
Storm duration = 36 hrs
Storm total water content at SASP = 18 mm (0.7 inches)
Mean precip intensity: 0.50 mm/hr
Max precip intensity: 2 mm/hour on DOY 359 at 2300.
Max gain in snow depth at SASP = 18.4 cm (7.2 inches)
Max gain in snow depth at SBSP (wind affected) = 18.5 cm (7.3 inches)
Peak gust at PTSP at: 0200 hrs MST Wednesday, December 26, 2018 (DOY 360)

Storm Wind Rose (Putney Study Plot data)
CSAS Putney Study Plot 12,323 ft.
No. of hours: 36
No. of missing hours: 0
From hour ending: Dec 25, 2018 1400 MST
To: Dec 27, 2018 0100 MST
Avg. wind dir: 112
Avg. wind spd: 18.1 mph
Peak gust: 46.2 mph
2018/2019 WINTER STORM #7
2018-19 Winter Storm #7: Dec 31, 2018-Jan 1, 2019
Senator Beck Basin Study Area, at Red Mountain Pass, CO

Storm Summary Statistics:
Storm precip began between 0400 – 0500 hrs MST Monday, December 31, 2018 (DOY 365)
Storm precipitation ended: 1200 hrs MST Tuesday, January 01, 2019 (DOY 001)
Storm duration = 33 hrs
Storm total water content at SASP = 16 mm (0.6 inches)
Mean precip intensity: 0.48 mm/hr
Max precip intensity: 2 mm/hour on DOY 001 at 0300.
Max gain in snow depth at SASP = 10.2 cm (4.0 inches)
Max gain in snow depth at SBSP (wind affected) = 19.8 cm (7.8 inches)
Peak gust at PTSP at: 0900 hrs MST Tuesday, January 01, 2019 (DOY 001)

Storm Wind Rose (Putney Study Plot data)

No. of hours: 33
No. of missing hours: 0
From hour ending: Dec 31, 2018 0400 MST
To: Jan 01, 2019 1200 MST
Avg. wind dir: 182
Avg. wind spd: 13.8 mph
Peak gust: 37.8 mph

Average Hourly Wind Speed (mph)

>45
22-45
11-22
6-11
0-6
calm
2018/2019 WINTER STORM #8

2018-19 Winter Storm #8: Jan 5-7, 2019
Senator Beck Basin Study Area, at Red Mountain Pass, CO

Storm Summary Statistics:
Storm precip began between 2400 – 0100 hrs MST Saturday, January 5, 2019 (DOY 005)
Storm precipitation ended: 1200 hrs MST Monday, January 7, 2019 (DOY 007)
Storm duration = 37 hrs
Storm total water content at SASP = 19 mm (0.7 inches)
Mean precip intensity: 0.51 mm/hr
Max precip intensity: 2 mm/hour on DOY 006 at multiple times.
Max gain in snow depth at SASP = 16.7 cm (10.5 inches)
Max gain in snow depth at SBSP (wind affected) = 29.4 cm (11.6 inches)
Peak gust at PTSP at: 2000 hrs MST Sunday, January 06, 2019 (DOY 006)

Storm Wind Rose (Putney Study Plot data)

CSAS Putney Study Plot 12,323 ft.
No. of hours: 37
No. of missing hours: 0
From hour ending: Jan 06, 2019 0000 MST
To: Jan 07, 2019 1200 MST
Avg. wind dir: 213
Avg. wind spd: 21.6 mph
Peak gust: 47.8 mph

Average Hourly Wind Speed (mph)
Storm Summary Statistics:
Storm precip began between 2000 – 2100 hrs MST Tuesday, January 15, 2019 (DOY 15)
Storm precipitation ended: 1600 hrs MST Wednesday, January 16, 2019 (DOY 16)
Storm duration = 21 hrs
Storm total water content at SASP = 19 mm (0.7 inches)
Mean precip intensity: 0.90 mm/hr
Max precip intensity: 2 mm/hour on multiple occasions
Max gain in snow depth at SASP = 23.6 cm (9.3 inches)
Max gain in snow depth at SBSP (wind affected) = 8.6 cm (3.4 inches)
Peak gust at PTSP at: 1345 hrs MST Tuesday, January 16, 2019 (DOY 16)

Storm Wind Rose (Putney Study Plot data)

CSAS Putney Study Plot 12,323 ft.
No. of hours: 21  From hour ending: Jan 15, 2019 2000 MST
No. of missing hours: 0  To: Jan 16, 2019 1600 MST
Avg. wind dir: 228
Avg. wind spd: 20.4 mph
Peak gust: 42.3 mph

Average Hourly Wind Speed (mph)
>45
22–45
11–22
6–11
0–6
calm
2018/2019 WINTER STORM #10

2018-19 Winter Storm #10: Jan 17-18, 2019
Senator Beck Basin Study Area, at Red Mountain Pass, CO

Storm Summary Statistics:
Storm precip began between 1900 – 2000 hrs MST Thursday, January 17, 2019 (DOY 17)
Storm precipitation ended: 2100 hrs MST Friday, January 18, 2019 (DOY 18)
Storm duration = 27 hrs
Storm total water content at SASP = 31 mm (1.2 inches)
Mean precip intensity: 1.48 mm/hr
Max precip intensity: 5 mm/hour on Friday at 0400 multiple occasions
Max gain in snow depth at SASP = 26.1 cm (10.3 inches)
Max gain in snow depth at SBSP (wind affected) = 9.5 cm (3.7 inches)
Peak gust at PTSP at: 1345 hrs MST Tuesday, January 16, 2019 (DOY 16)

Storm Wind Rose (Putney Study Plot data)

CSAS Putney Study Plot 12,323 ft.
No. of hours: 28
No. of missing hours: 0
From hour ending: Jan 17, 2019 1900 MST
To: Jan 18, 2019 2200 MST
Avg. wind dir: 329
Avg. wind spd: 21.9 mph
Peak gust: 70.0 mph

Average Hourly Wind Speed (mph)
Storm Summary Statistics:
Storm precip began between 1100 – 1200 hrs MST Monday, January 21, 2019 (DOY 21)
Storm precipitation ended: 2300 hrs MST Tuesday, January 22, 2019 (DOY 22)
Storm duration = 37 hrs
Storm total water content at SASP = 13 mm (0.5 inches)
Mean precip intensity: 0.35 mm/hr
Max precip intensity: 2 mm/hour on Monday, January 21 during the hour 1400
Max gain in snow depth at SASP = 8.2 cm (3.2 inches)
Max gain in snow depth at SBSP (wind affected) = 2.1 cm (0.8 inches)
Peak gust at PTSP at: 1224 hrs MST Monday, January 21, 2019 (DOY 21)

Storm Wind Rose (Putney Study Plot data)

No. of hours: 37
No. of missing hours: 0
From hour ending: Jan 21, 2019 0000 MST
To: Jan 22, 2019 1200 MST
Avg. wind dir: 208
Avg. wind spd: 24.6 mph
Peak gust: 72.5 mph

Average Hourly
Wind Speed(mph)

>45 22-45 11-22 6-11 0-6 calm
2018/2019 WINTER STORM #12

Storm Summary Statistics:

Storm precip began between 1300 – 1400 hrs MST Wednesday, January 23, 2019 (DOY 23)

Storm precipitation ended: 1100 hrs MST Thursday, January 24, 2019 (DOY 24)

Storm duration = 23 hrs

Storm total water content at SASP = 12 mm (0.5 inches)

Mean precip intensity: 0.52 mm/hr

Max precip intensity: 1 mm/hour on multiple occasions

Max gain in snow depth at SASP = 14.1 cm (5.6 inches)

Max gain in snow depth at SBSP (wind affected) = 14.9 cm (5.9 inches)

Peak gust at PTSP at: 1936 hrs MST Wednesday, January 23, 2019 (DOY 23)

Storm Wind Rose (Putney Study Plot data)

CSAS Putney Study Plot 12,323 ft.

No. of hours: 23
No. of missing hours: 0

From hour ending: Jan 23, 2019 1300 MST
To: Jan 24, 2019 1100 MST

Avg. wind dir: 332
Avg. wind spd: 20.4 mph
Peak gust: 43.9 mph

Average Hourly Wind Speed (mph)
2018/2019 WINTER STORM #13

Storm Summary Statistics:
Storm precip began between 0100 – 0200 hrs MST Sunday, February 3, 2019 (DOY 34)
Storm precipitation ended: 1600 hrs MST Sunday, February 3, 2019 (DOY 34)
Storm duration = 16 hrs
Storm total water content at SASP = 16 mm (0.6 inches)
Mean precip intensity: 1 mm/hr
Max precip intensity: 3 mm/hour on multiple occasions
Max gain in snow depth at SASP = 14.2 cm (5.6 inches)
Max gain in snow depth at SBSP (wind affected) = 16.2 cm (6.4 inches)
Peak gust at PTSP at: 800 hrs MST Sunday, February 3, 2019 (DOY 34)

Storm Wind Rose (Putney Study Plot data)
No. of hours: 16
No. of missing hours: 0
From hour ending: Feb 03, 2019 0100 MST
To: Feb 03, 2019 1600 MST
Avg. wind dir: 209
Avg. wind spd: 26.9 mph
Peak gust: 58.5 mph
Average Hourly Wind Speed (mph)
0.0% 5% 10% 15% 20% 25% 30% 35% 40% 45% 50%
**Storm Summary Statistics:**

Storm precip began between 0400 – 0500 hrs MST Monday, February 4, 2019 (DOY 35)

Storm precipitation ended: 0600 hrs MST Thursday, February 7, 2019 (DOY 38)

Storm duration = 75 hrs

Storm total water content at SASP = 35 mm (1.4 inches)

Mean precip intensity: 0.47 mm/hr

Max precip intensity: 2 mm/hour on multiple occasions

Max gain in snow depth at SASP = 25.5 cm (10.0 inches)

Max gain in snow depth at SBSP (wind affected) = 19.0 cm (7.5 inches)

Peak gust at PTSP at: 525 hrs MST Tuesday, February 5, 2019 (DOY 36)

**Storm Wind Rose (Putney Study Plot data)**

No. of hours: 75

No. of missing hours: 0

From hours ending: Feb 04, 2019 0400 MST

To: Feb 07, 2019 0600 MST

Avg. wind dir: 213

Avg. wind spd: 29.9 mph

Peak gust: 66.8 mph

Average Hourly Wind Speed (mph)

- >45
- 22-45
- 11-22
- 6-11
- 0-6
- calm
2018/2019 WINTER STORM #15

2018-19 Winter Storm #15: Feb 13-15, 2019
Senator Beck Basin Study Area, at Red Mountain Pass, CO

Storm Summary Statistics:
Storm precip began between 1400 – 1500 hrs MST Wednesday, February 13, 2019 (DOY 44)
Storm precipitation ended: 0500 hrs MST Friday, February 15, 2019 (DOY 46)
Storm duration = 40 hrs
Storm total water content at SASP = 49 mm (1.9 inches)
Mean precip intensity: 1.23 mm/hr
Max precip intensity: 3 mm/hour on multiple occasions
Max gain in snow depth at SASP = 41.3 cm (16.3 inches)
Max gain in snow depth at SBSP (wind affected) = 25.2 cm (9.9 inches)
Peak gust at PTSP at: 87.8 mph peak at 0100 hrs MST Friday, February 15, 2019 (DOY 46)

Storm Wind Rose (Putney Study Plot data)
CSAS Putney Study Plot 12,323 ft.
No. of hours: 40
No. of missing hours: 0
From hour ending: Feb 13, 2019 1500 MST
To: Feb 15, 2019 0600 MST
Avg. wind dir: 233
Avg. wind spd: 22.6 mph
Peak gust: 87.8 mph

Average Hourly Wind Speed (mph)

- >45
- 22-45
- 11-22
- 6-11
- 0-6
- calm
**Storm Summary Statistics:**

Storm precip began between 1700 – 1800 hrs MST Sunday, February 17, 2019 (DOY 48)

Storm precipitation ended: 2100 hrs MST Tuesday, February 19, 2019 (DOY 50)

Storm duration = 53 hrs

Storm total water content at SASP = 17 mm (.7 inches)

Mean precip intensity: 0.32 mm/hr

Max precip intensity: 1 mm/hour on multiple occasions

Max gain in snow depth at SASP = 4.5 cm (1.8 inches)

Max gain in snow depth at SBSP (wind affected) = 0 cm

Peak gust at PTSP at: 1730 on February 18, 2019 (DOY 49)

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**Storm Wind Rose (Putney Study Plot data)**

CSAS Putney Study Plot 12,323 ft.

No. of hours: 53

No. of missing hours: 0

From hour ending: Feb 17, 2019 1700 MST

To: Feb 19, 2019 2100 MST

Avg. wind dir: 191

Avg. wind spd: 14.5 mph

Peak gust: 50.8 mph
**Storm Summary Statistics:**

- **Storm precip began:** between 1600 – 1700 hrs MST Wednesday, February 20, 2019 (DOY 51)
- **Storm precipitation ended:** 40000 hrs MST Saturday, February 23, 2019 (DOY 54)
- **Storm duration:** 61 hrs
- **Storm total water content at SASP:** 40 mm (1.6 inches)
- **Mean precip intensity:** 0.66 mm/hr
- **Max precip intensity:** 2 mm/hour on multiple occasions
- **Max gain in snow depth at SASP:** 33.3 cm (13.1 inches)
- **Max gain in snow depth at SBSP (wind affected):** 24.1 cm (9.5 inches)
- **Peak gust at PTSP at:** 736 on February 22, 2019 (DOY 53)
Storm Summary Statistics:
Storm precip began between 0800 – 0900 hrs MST Saturday, March 2, 2019 (DOY 61)
Storm precipitation ended: 0900 hrs MST Monday, March 4, 2019 (DOY 63)
Storm duration = 50 hrs
Storm total water content at SASP = 56 mm (2.2 inches)
Mean precip intensity: 1.12 mm/hr
Max precip intensity: 4 mm/hour at 0300 on Sunday, March 3 (DOY 62)
Max gain in snow depth at SASP = 50.5 cm (19.9 inches)
Max gain in snow depth at SBSP (wind affected) = 29.6 cm (11.7 inches)
Peak gust at PTSP at: 1931 on Saturday, March 2, 2019 (DOY 61)

Storm Wind Rose (Putney Study Plot data)
CSAS Putney Study Plot 12,323 ft.
No. of hours: 50
No. of missing hours: 0
From hour ending: Mar 02, 2019 0800 MST
To: Mar 04, 2019 0900 MST
Avg. wind dir: 271
Avg. wind spd: 18.7 mph
Peak gust: 65.9 mph

Average Hourly Wind Speed (mph)
2018/2019 WINTER STORM #19

Storm Summary Statistics:
Storm precip began between 0600 – 0700 hrs MST Wednesday, March 6, 2019 (DOY 65)
Storm precipitation ended: 1000 hrs MST Saturday, March 9, 2019 (DOY 68)
Storm duration = 77 hrs
Storm total water content at SASP = 57 mm (2.2 inches)
Mean precip intensity: 0.74 mm/hr
Max precip intensity: 4 mm/hour at 2100 on Friday, March 8 (DOY 67)
Max gain in snow depth at SASP = 35.9 cm (14.1 inches)
Max gain in snow depth at SBSP (wind affected) = 12.4 cm (4.9 inches)
Peak gust at PTSP at: 1559 on Wednesday, March 6, 2019 (DOY 65)

Storm Wind Rose (Putney Study Plot data)

CSAS Putney Study Plot 12,323 ft.
No. of hours: 77
No. of missing hours: 0
From hour ending: Mar 06, 2019 0600 MST
To: Mar 09, 2019 1000 MST
Avg. wind dir: 235
Avg. wind spd: 26.3 mph
Peak gust: 80.5 mph

Average Hourly Wind Speed (mph)

>45
22-45
11-22
6-11
0-6
calm
2018/2019 WINTER STORM #20

2018-19 Winter Storm #20: March 11-14, 2019
Senator Beck Basin Study Area, at Red Mountain Pass, CO

Storm Summary Statistics:
Storm precip began between 0500 – 0600 hrs MST Monday, March 11, 2019 (DOY 70)
Storm precipitation ended: 0300 hrs MST Thursday, March 14, 2019 (DOY 73)
Storm duration = 71 hrs
Storm total water content at SASP = 78 mm (3.1 inches)
Mean precip intensity: 1.10 mm/hr
Max precip intensity: 3 mm/hour on multiple occasions
Max gain in snow depth at SASP = 13.9 cm (5.5 inches)
Max gain in snow depth at SBSP (wind affected) = 50.6 cm (19.9 inches)
Peak gust at PTSP at: 0706 on Wednesday, March 13, 2019 (DOY 72)

Storm Wind Rose (Putney Study Plot data)

CSAS Putney Study Plot 12,323 ft.
No. of hours: 71
No. of missing hours: 0
From hour ending: Mar 11, 2019 0600 MST
To: Mar 14, 2019 0300 MST

Avg. wind dir: 239
Avg. wind spd: 28.5 mph
Peak gust: 62.1 mph

Average Hourly Wind Speed(mph)

>45 22-45 11-22 6-11 0-6 calm
**2018/2019 WINTER STORM #21**

### Storm Summary Statistics:
- **Storm precip began:** between 0800 – 0900 hrs MST Thursday, March 21, 2019 (DOY 80)
- **Storm precipitation ended:** 1300 hrs MST Saturday, March 23, 2019 (DOY 82)
- **Storm duration:** 54 hrs
- **Storm total water content at SASP:** = 29 mm (1.1 inches)
- **Mean precip intensity:** 0.54 mm/hr
- **Max precip intensity:** 4 mm/hour on March 21 at 1500
- **Max gain in snow depth at SASP:** = 50 cm (19.7 inches)
- **Max gain in snow depth at SBSP (wind affected):** = 23.7 cm (9.3 inches)
- **Peak gust at PTSP at:** 1800 on Thursday, March 21, 2019 (DOY 80)

### Storm Wind Rose (Putney Study Plot data)

- **CSNS Putney Study Plot 12,323 ft.**
- **No. of hours:** 54
- **No. of missing hours:** 0
- **From hour ending:** Mar 21, 2019 0800 MST
- **To:** Mar 23, 2019 1300 MST
- **Avg. wind dir:** 224
- **Avg. wind spd:** 17.5 mph
- **Peak gust:** 59.9 mph

![Storm Wind Rose Diagram](image)
Storm Summary Statistics:
Storm precip began between 2200 – 2300 hrs MST Tuesday, April 9, 2019 (DOY 99)
Storm precipitation ended: 0100 hrs MST Friday, April 12, 2019 (DOY 102)
Storm duration = 52 hrs
Storm total water content at SASP = 38 mm (1.5 inches)
Mean precip intensity: 0.73 mm/hr
Max precip intensity: 5 mm/hour on April 10 at 2000 hrs MST
Max gain in snow depth at SASP = 33.7 cm (13.3 inches)
Max gain in snow depth at SBSP (wind affected) = 7.7 cm (3.0 inches)
Peak gust at PTSP at: 0351 on Wednesday, April 10, 2019 (DOY 100)

Storm Wind Rose (Putney Study Plot data)
CSAS Putney Study Plot 12,323 ft.
No. of hours: 52
No. of missing hours: 0
From hour ending: Apr 09, 2019 2200 MST
To: Apr 12, 2019 0100 MST
Avg. wind dir: 312
Avg. wind spd: 24.0 mph
Peak gust: 72.9 mph
Average Hourly Wind Speed (mph)
>45  22-45  11-22  6-11  0-6  calm

2018/2019 WINTER STORM #22
2018-19 Winter Storm #22: April 9-12, 2019
Senator Beck Basin Study Area, at Red Mountain Pass, CO

[Graph showing hourly precipitation, SASP Height of Snow, and SBSP Height of Snow (wind affected).]

[Wind Rose diagram showing wind direction and speed data.]
2018/2019 WINTER STORM #23

2018-19 Winter Storm #23: April 13-14, 2019
Senator Beck Basin Study Area, at Red Mountain Pass, CO

Storm Summary Statistics:
Storm precip began between 0900 – 1000 hrs MST Saturday, April 13, 2019 (DOY 103)
Storm precipitation ended: 0300 hrs MST Sunday, April 14, 2019 (DOY 104)
Storm duration = 18 hrs
Storm total water content at SASP = 12 mm (0.47 inches)
Mean precip intensity: 0.67 mm/hr
Max precip intensity: 3 mm/hour on April 14 at 0300 hrs MST
Max gain in snow depth at SASP = 9 cm (3.5 inches)
Max gain in snow depth at SBSP (wind affected) = 1.0 cm (0.4 inches)
Peak gust at PTSP at: 0051 on Sunday, April 14, 2019 (DOY 104)

Storm Wind Rose (Putney Study Plot data)

CSAS Putney Study Plot 12,323 ft.
No. of hours: 18
No. of missing hours: 0
From hour ending: Apr 13, 2019 0900 MST
To: Apr 14, 2019 0200 MST
Avg. wind dir: 358
Avg. wind spd: 9.1 mph
Peak gust: 23.0 mph

Average Hourly Wind Speed (mph)

>45
22-45
11-22
6-11
0-6
calm
2018/2019 WINTER STORM #24

Storm Summary Statistics:
Storm precip began between 0500 – 0600 hrs MST Monday, April 29, 2019 (DOY 119)
Storm precipitation ended: 1700 hrs MST Wednesday, May 1, 2019 (DOY 121)
Storm duration = 60 hrs
Storm total water content at SASP = 58 mm (2.3 inches)
Mean precip intensity: 0.97 mm/hr
Max precip intensity: 4 mm/hour on multiple occasions
Max gain in snow depth at SASP = 34 cm (13.4 inches)
Max gain in snow depth at SBSP (wind affected) = 46.5 cm (18.3 inches)
Peak gust at PTSP at: 2254 on Tuesday, April 30, 2019 (DOY 120)

Storm Wind Rose (Putney Study Plot data)

CSAS Putney Study Plot 12,323 ft.
No. of hours: 60
No. of missing hours: 0
From hour ending: Apr 29, 2019 0600 MST
To: May 01, 2019 1600 MST
Avg. wind dir: 218
Avg. wind spd: 19.7 mph
Peak gust: 57.9 mph

Average Hourly Wind Speed (mph)

>45
22-45
11-22
6-11
0-6
calm
2018/2019 WINTER STORM #25

Storm Summary Statistics:
Storm precip began between 1000 – 1100 hrs MST Wednesday, May 8, 2019 (DOY 128)
Storm precipitation ended: 0100 hrs MST Friday, May 10, 2019 (DOY 130)
Storm duration = 57 hrs
Storm total water content at SASP = 16 mm (0.6 inches)
Mean precip intensity: 0.28 mm/hr
Max precip intensity: 2 mm/hour on multiple occasions
Max gain in snow depth at SASP = 6.1 cm (2.4 inches)
Max gain in snow depth at SBSP (wind affected) = 9.7 cm (3.8 inches)
Peak gust at PTSP at: 1322 on Thursday, May 8, 2019 (DOY 129)
Storm Summary Statistics:
Storm precip began between 1800 – 1900 hrs MST Thursday, May 16, 2019 (DOY 136)
Storm precipitation ended: 1600 hrs MST Saturday, May 18, 2019 (DOY 138)
Storm duration = 47 hrs
Storm total water content at SASP = 23 mm (0.9 inches)
Mean precip intensity: 0.49 mm/hr
Max precip intensity: 3 mm/hour on Saturday, May 18, at 0500
Max gain in snow depth at SASP = 7.4 cm (2.9 inches)
Max gain in snow depth at SBSP (wind affected) = 15.5 cm (6.1 inches)
Peak gust at PTSP at: 1708 on Thursday, May 16, 2019 (DOY 136)
2018/2019 WINTER STORM #27

2018-19 Winter Storm #27: May 19-May 23, 2019
Senator Beck Basin Study Area, at Red Mountain Pass, CO

Storm Summary Statistics:
Storm precip began between 1000 – 1100 hrs MST Wednesday, May 19, 2019 (DOY 139)
Storm precipitation ended: 1900 hrs MST Sunday, May 23, 2019 (DOY 143)
Storm duration = 106 hrs
Storm total water content at SASP = 59 mm (2.3 inches)
Mean precip intensity: 0.56 mm/hr
Max precip intensity: 4 mm/hour on Thursday, May 20, at 0400
Max gain in snow depth at SASP = 29.4 cm (11.6 inches)
Max gain in snow depth at SBSP (wind affected) = 34 cm (13.4 inches)
Peak gust at PTSP at: 1244 on Thursday, May 23, 2019 (DOY 143)

Storm Wind Rose (Putney Study Plot data)

CSAS Putney Study Plot 12,323 ft.
No. of hours: 106
No. of missing hours: 0
From: May 19, 2019 1000 MST
To: May 23, 2019 1900 MST
Avg. wind dir: 193
Avg. wind spd: 19.4 mph
Peak gust: 99.6 mph

Average Hourly Wind Speed (mph)

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-6</td>
<td>21%</td>
</tr>
<tr>
<td>6-11</td>
<td>18%</td>
</tr>
<tr>
<td>11-22</td>
<td>12%</td>
</tr>
<tr>
<td>12-24</td>
<td>6%</td>
</tr>
<tr>
<td>24-30</td>
<td>9%</td>
</tr>
<tr>
<td>30-45</td>
<td>6%</td>
</tr>
<tr>
<td>45-60</td>
<td>9%</td>
</tr>
<tr>
<td>&gt;60</td>
<td>3%</td>
</tr>
</tbody>
</table>
Storm Summary Statistics:
Storm precip began between 1800 – 1900 hrs MST Sunday, May 26, 2019 (DOY 146)
Storm precipitation ended: 1300 hrs MST Tuesday, May 28, 2019 (DOY 148)
Storm duration = 44 hrs
Storm total water content at SASP = 21 mm (0.8 inches)
Mean precip intensity: 0.48 mm/hour
Max precip intensity: 2 mm/hour on multiple occasions on multiple days
Max gain in snow depth at SASP = 8.1 cm (3.2 inches)
Max gain in snow depth at SBSP (wind affected) = 8.0 cm (3.1 inches)
Peak gust at PTSP at: 0315 hrs MST Monday, May 27, 2019 (DOY 147)

Storm Wind Rose (Putney Study Plot data):

Putney (CSAS) 12327 ft
No. of observations: 49
From: May 26, 2019 05:00 pm MDT
To: May 28, 2019 05:00 pm MDT
Ave. wind dir: 189
Ave. wind spd: 19.3 mph
Peak gust: 61 mph
2018/2019 WINTER STORM #29
2018-19 Winter Storm #29: June 18, 2019
Senator Beck Basin Study Area, at Red Mountain Pass, CO

Storm Summary Statistics:
Storm precip began between 1000 – 1100 hrs MST Tuesday, June 18, 2019 (DOY 169)
Storm precipitation ended: 2100 hrs MST Tuesday, June 18, 2019 (DOY 169)
Storm duration = 12 hrs
Storm total water content at SASP = 17 mm (0.7 inches)
Mean precip intensity: 1.42 mm/hour
Max precip intensity: 6 mm/hour at 1500 hrs MST Tuesday, June 18, 2019 (DOY 169)
Max gain in snow depth at SASP = 0 cm (0 inches)
Max gain in snow depth at SBSP (wind affected) = 3.8 cm (1.5 inches)
Peak gust at PTSP at: 1958 hrs MST Tuesday, June 18, 2019 (DOY 169)

Storm Wind Rose (Putney Study Plot data):

No. of observations: 43

Wind Speed (mph)
>25 15-25 5-15 0-5 calm