Real-Time Spatial Estimates of Snow-Water Equivalent (SWE)

Western United States Region

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Introduction

Figure 1 below displays estimated SWE amounts across the Western United States. Detailed SWE maps (in JPG format) and summaries of SWE (in Excel format) by individual basin and elevation band accompany the report and are publicly available here. Please note that the basin-wide percent of long-term average from the spatial SWE estimates is not directly comparable with the SNOTEL basin-wide percent of average. A better comparison might be made with the percent of average in the elevation banded tables (linked below) that contain SNOTEL sites.

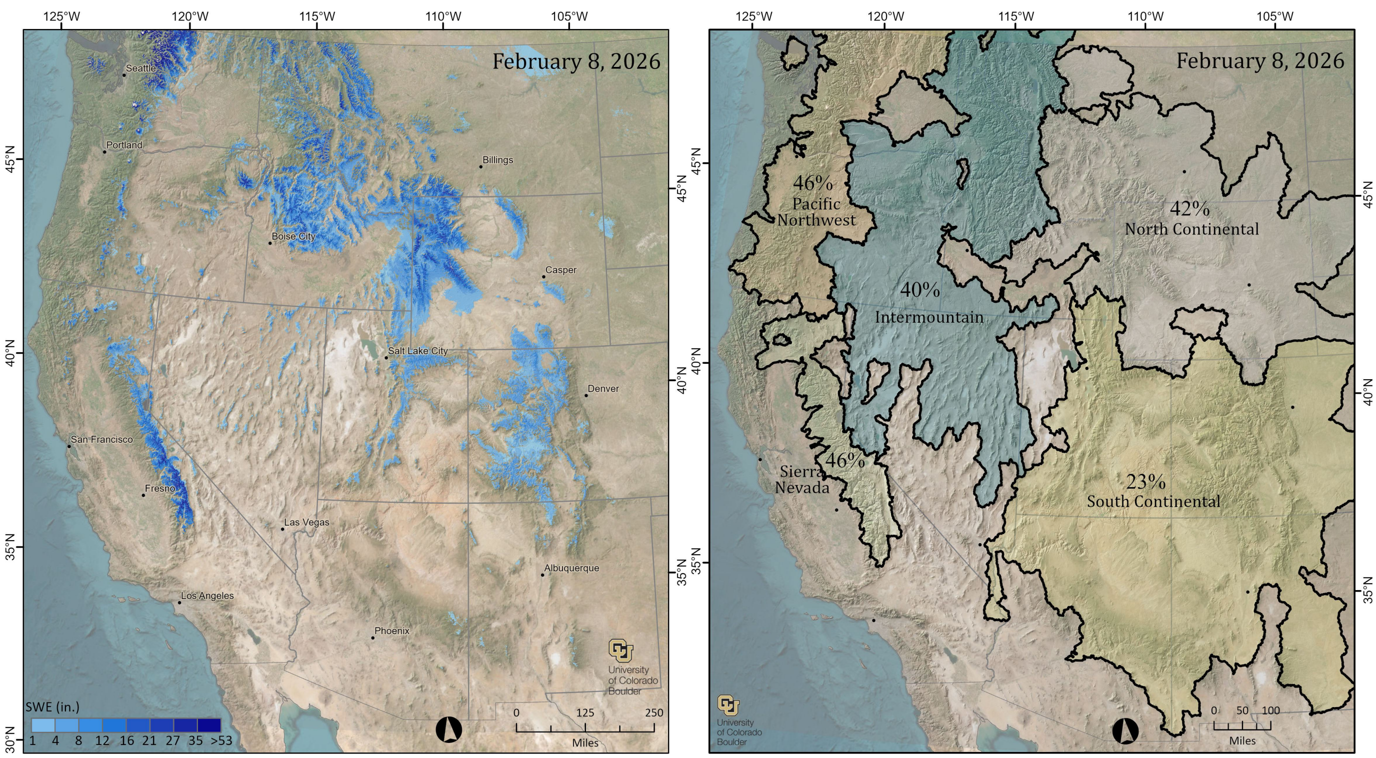

Figure 1. Estimated SWE and % of Average SWE across the Western U.S. SWE amounts across the entire Western region of the United States (left) and percent of long-term average (2001-2025) by five regions (right). Region boundaries are delineated based on Snowpack regimes of the Western United States (Trujillo and Molotch, 2014) and the Commission for Environmental Cooperation (CEC) Ecological Regions of North America, Level III [Commission for Environmental Cooperation, 2009, available at http://www.cec.org/north-american-environmental-atlas/terrestrial-ecoregions-level-iii/].

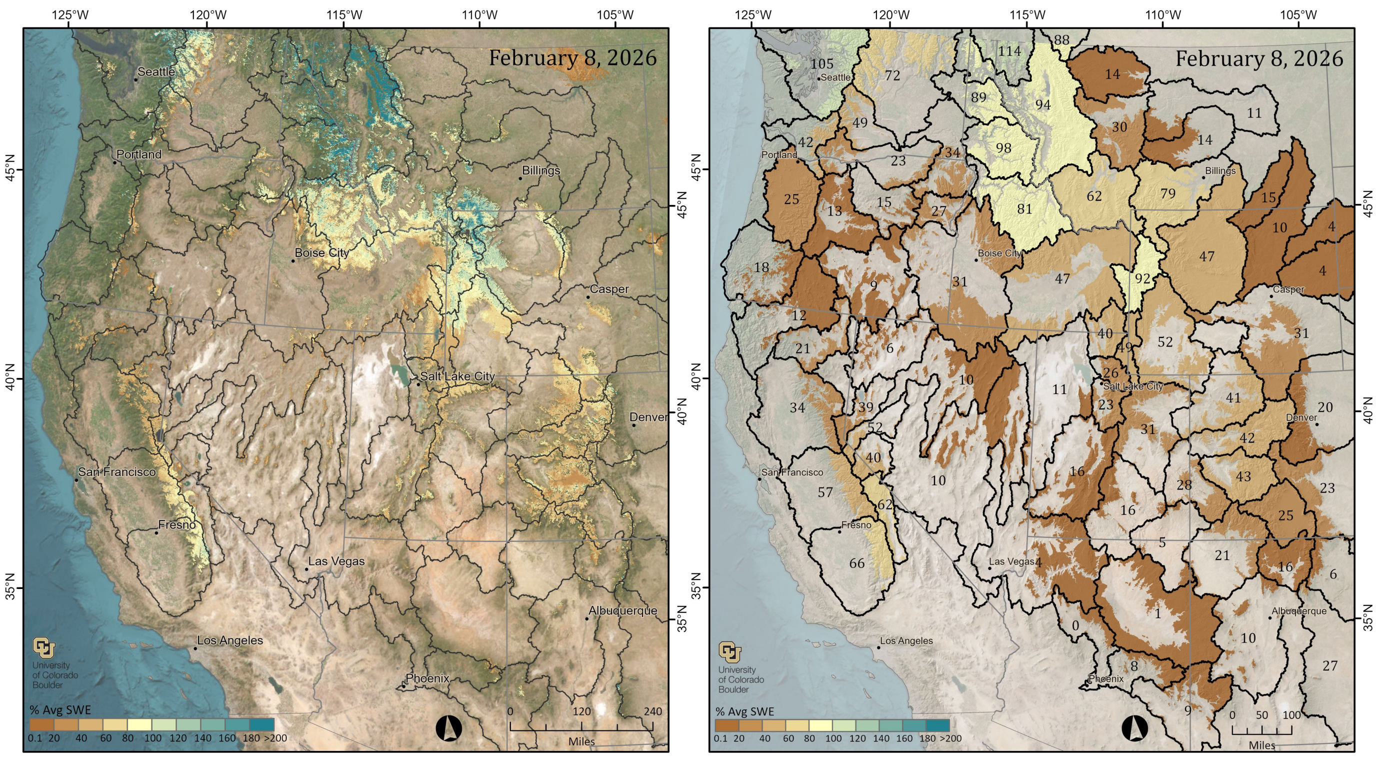

Figure 2. Estimated % of Average SWE across the Western U.S. Percent of long-term average (2001-2025) from the spatial SWE calculated for each pixel (left) and by HUC-6 basin (right); integer within each watershed represents the percent of average SWE for the report date. Shaded areas (right) correspond to the elevation bands used in the tables below.

For detailed maps and tabular summaries of SWE and snowpack water storage volumes for specific regions and watersheds, click on the links below:

Pacific Northwest
North Continental
South Continental
Intermountain
Sierra Nevada
Elevation Banded SWE Tables

About this report

This is an experimental research product that provides near-real-time estimates of snow-water equivalent (SWE) at a spatial resolution of 500 meters for the Western region of the United States from mid-winter through the melt season. The report is typically released within a week of the date of data acquisition at the top of the report. A similar report covering the Sierra Nevada has been distributed to water managers in California since 2012.

The spatial SWE data fusion (SWE-fusion) analysis method for the Western U.S. uses the following data as inputs:

- In-situ SWE from all operational NRCS and CDEC snow pillow sites, and the CoCoRaHS network when appropriate
- Fractional snow-covered area (fSCA) data from recent cloud-free satellite images
- Physiographic information (elevation, latitude, upwind mountain barriers, slope, etc.)
- Historical daily SWE patterns (1985-2021) retrospectively generated using historical fSCA data and an energy-balance model that back-calculates SWE given the fSCA time-series and meltout date for each pixel
- Satellite-observed daily mean fractional snow-covered area (DMFSCA)

For more details see the *Methods* section below. Please be sure to read the *Data Issues / Caveats* section for a discussion of persistent challenges or flagged uncertainties of the SWE-fusion product.

Data availability for reporting
Snow pillows located throughout the Western U.S. region are input as the dependent variable in the SWE-fusion system. 799 Natural Resources Conservation Service (NRCS) Snow Telemetry (SNOTEL) sites and 131 California Department of Water Resources (CA-DWR) California Data Exchange Center (CDEC) are potentially available for each model run. In addition, the Community Collaborative Rain, Hail and Snow (CoCoRaHS, https://www.cocorahs.org/) network provides over 500 snow measurements across the modeling domain.

Maps and Tables by Region
Maps and tables for each of the five western regions (Figure 1b) are shown below. Note that the basin-wide averages may reflect variable conditions across the elevation bands; see banded-elevation tables (linked below). Basin-wide percent of average is calculated across all model pixels inside a given basin and base elevation. Basin base elevations vary anywhere between sea level and 7,000’. Base elevations are dependent on long-term snow coverage. For example, a base elevation in the north could be lower as compared to a base elevation in the south.

Pacific Northwest

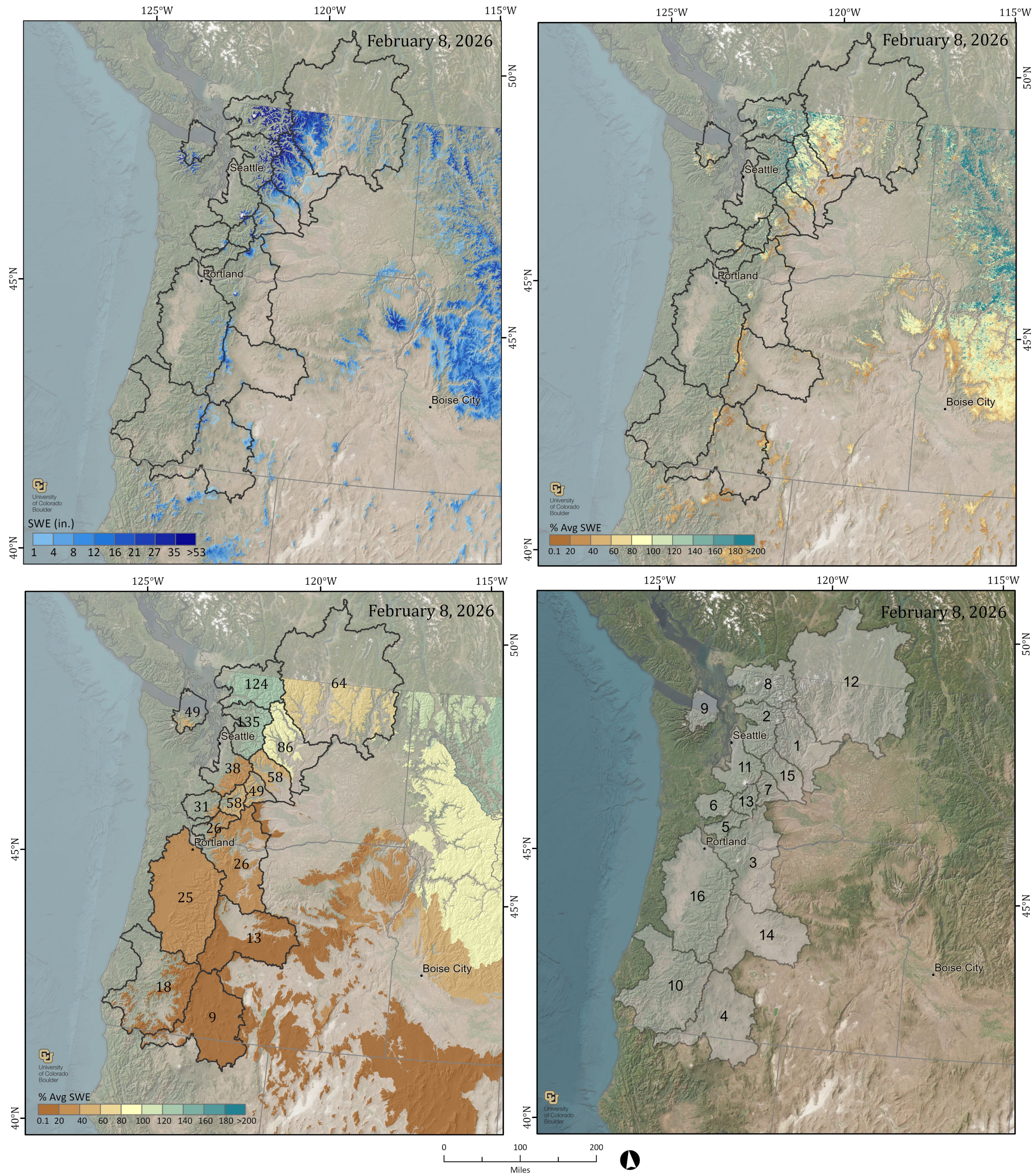

Figure 3. Estimated SWE and % of Average SWE across the Pacific Northwest Region. SWE amounts (upper left), percent of long-term average (2001-2025) SWE calculated for each pixel (upper right), basin-wide percent of long-term average (lower left) shaded areas correspond to the elevation bands used in the banded-elevation tables, and basin identification numbers that correspond to Table 1 below (lower right). The North Puget Sound and Upper Columbia basin portions that are inside Canada do not contain SWE-fusion model data due to lack of data availability needed to run the model in Canada.

Table 1. SWE by watershed. Shown are percent of average SWE to date for the current date (2001-2025 as derived from the regression model), mean SWE for the current report, current percent of snow-covered area, current SWE volume (acre-feet), the area (mi^2) inside each basin that contains data pixels (not including cloud-covered pixels, lakes or other satellite no data pixels), first of the month snow surveys, and current snow pillow sensors (the number of stations are in parentheses), for those areas collected, summarized for each basin. SWE tables by banded elevation are here.

Pacific Northwest SWE Report for 2/8/2026

	% of Average		SWE (in)					Pillows		SNODAS* (in)
Basin	2/1	2/8	2/1	2/8	SCA	Vol. (AF)	Area (mi^2)	2/1	2/8	2/8
1. Central Columbia	92	86	10	11.2	63.5	1,271,984	2,129.50	14.3 (7)	17.1 (6)	19.2
2. Central Puget Sound	142	135	6.4	6.9	30.1	455,328	1,246.10	13.3 (5)	13.0 (5)	15.4
3. Hood-Sandy-Lower Deschutes	29	26	0.5	0.5	7.2	147,519	5,083.40	4.8 (11)	4.5 (10)	2.9
4. Klamath	11	9	0.5	0.4	8.5	152,046	7,543.00	2.8 (16)	2.6 (16)	0.6
5. Lewis	29	26	0.7	0.7	6.9	22,441	583.2	8.7 (7)	8.1 (7)	4.6
6. Lower Cowlitz	37	31	1.9	2	21.5	20,085	190.5	4.9 (2)	4.3 (2)	1.5
7. Naches	55	49	3.1	3.2	35.4	104,698	614	13.5 (4)	14.9 (4)	10.8
8. North Puget Sound	130	124	6.7	7.4	31.1	925,401	2,342.10	21.0 (9)	21.1 (9)	22.6
9. Olympic	54	49	6.7	6.7	39.3	85,075	236.4	9.1 (3)	9.1 (3)	12.0
10. Rogue-Umpqua	22	18	0.5	0.5	5.1	95,659	3,388.60	1.3 (6)	0.8 (6)	0.4
11. South Puget Sound	41	38	1.3	1.4	10.4	84,270	1,146.00	6.2 (14)	6.2 (13)	8.4
12. Upper Columbia	69	64	4.9	5.7	42.2	1,656,512	5,486.20	9.0 (7)	9.4 (7)	8.3
13. Upper Cowlitz	61	58	2.3	2.4	15.1	92,862	717.7	10.2 (3)	10.3 (3)	11.3
14. Upper Deschutes-Crooked	13	13	0.6	0.6	8.3	179,531	5,681.70	4.3 (7)	4.3 (7)	1.0
15. Upper Yakima	66	58	4.5	4.7	47.9	257,585	1,031.70	6.8 (3)	7.1 (3)	6.8
16. Willamette	30	25	0.2	0.2	2.6	150,102	11,470.90	2.2 (18)	1.8 (18)	0.4

‡ Basin boundaries were derived from a combination of NRCS and HUC8 boundaries.

* This is a comparison to the SNODAS (SNOw Data Assimilation System) nationwide product from the National Weather Service.

North Continental

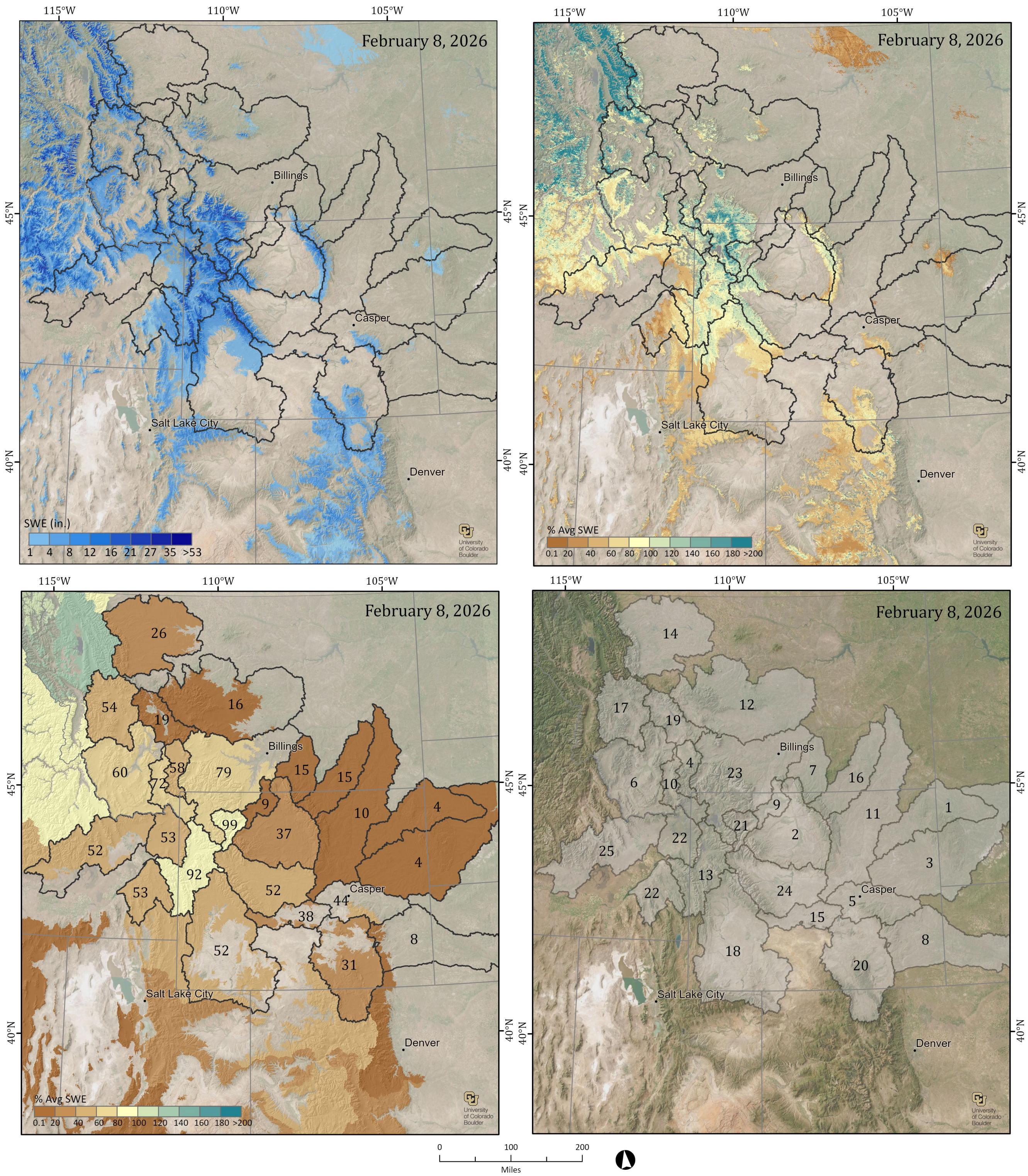

Figure 4. Estimated SWE and % of Average SWE across the North Continental Region. SWE amounts (upper left), percent of long-term average (2001-2025) SWE calculated for each pixel (upper right), basin-wide percent of long-term average (lower left) shaded areas correspond to the elevation bands used in the banded-elevation tables, and basin identification numbers that correspond to Table 2 below (lower right).

Table 2. SWE by watershed. Shown are percent of average SWE to date for the current date (2001-2025 as derived from the regression model), mean SWE for the current report, current percent of snow-covered area, current SWE volume (acre-feet), the area (mi²) inside each basin that contains data pixels (not including cloud-covered pixels, lakes or other satellite no data pixels), first of the month snow surveys, and current snow pillow sensors (the number of stations are in parentheses), for those areas collected, summarized for each basin. [SWE tables by banded elevation are here.]

North Continental SWE Report for 2/8/2026										
	% of Average		SWE (in)					Pillows		SNODAS* (in)
Basin	2/1	2/8	2/1	2/8	SCA	Vol. (AF)	Area (mi²)	2/1	2/8	2/8
1. Belle Fourche	4	4	0.2	0.1	5.9	28,950	7,233.40	1.6 (1)	1.8 (1)	0.1
2. Bighorn	47	37	1.4	1.3	14.1	606,953	8,864.60	6.4 (8)	6.5 (8)	0.8
3. Cheyenne	5	4	0.1	0	3.4	37,478	15,359.30	3.6 (2)	3.9 (2)	0.0
4. Gallatin	66	58	3.4	3.5	31.7	342,810	1,848.40	11.0 (4)	11.0 (4)	3.9
5. Glendo	56	44	3.8	3.5	44.7	133,991	714.1	2.5 (4)	2.5 (4)	0.4
6. Jefferson	70	60	3.7	3.7	37.4	1,723,408	8,812.20	7.7 (14)	7.8 (14)	2.4
7. Lower Bighorn	18	15	0.4	0.3	5.5	56,209	3,259.10	NA	NA	0.2
8. Lower No Platte	22	8	1.1	0.5	5.2	20,160	824	NA	NA	0.0
9. Lower Shoshone	12	9	0.2	0.2	2.4	13,440	1,474.60	NA	NA	0.0
10. Madison Headwaters in WY	82	72	4.5	4.7	44.5	643,912	2,557.60	10.3 (7)	10.6 (6)	6.3
11. Powder	13	10	0.3	0.2	3.1	163,448	13,397.20	3.7 (5)	3.7 (5)	0.1
12. Smith-Judith-Musselshell	23	16	0.8	0.7	9	298,858	8,339.80	7.2 (9)	7.1 (9)	0.3
13. Snake	102	92	8.2	8.7	85.1	2,658,630	5,741.50	12.9 (11)	13.0 (11)	9.5
14. Sun-Teton-Marias	35	26	0.9	0.8	6.9	427,799	10,541.30	5.5 (5)	5.2 (5)	0.9
15. Sweetwater	50	38	2.6	2.3	27.3	146,885	1,201.20	6.2 (2)	6.1 (2)	0.6
16. Tongue	19	15	0.4	0.4	5.8	103,384	5,405.20	3.3 (6)	3.3 (6)	0.3
17. Upper Clark Fork	67	54	3	2.8	28.8	886,377	6,006.90	7.7 (12)	8.3 (11)	3.0
18. Upper Green	61	52	3.9	3.8	35.3	1,958,095	9,583.60	7.8 (21)	7.8 (21)	2.9
19. Upper Missouri	26	19	1	0.8	9	129,706	2,956.30	3.8 (2)	3.7 (2)	0.3
20. Upper No Platte	41	31	2.3	2.1	27.2	857,909	7,590.10	9.7 (16)	9.8 (16)	2.2

‡ Basin boundaries were derived from a combination of NRCS and HUC8 boundaries.
* This is a comparison to the SNODAS (SNOw Data Assimilation System) nationwide product from the National Weather Service.

	North Continental SWE Report for 2/8/2026									
	% of Average		SWE (in)					Pillows		SNODAS* (in)
Basin	2/1	2/8	2/1	2/8	SCA	Vol. (AF)	Area (mi²)	2/1	2/8	2/8
21. Upper Shoshone	110	99	5.9	6.1	50.3	491,918	1,505.30	8.9 (4)	9.0 (4)	6.8
22. Upper Snake Basins	60	53	3.6	3.8	50.7	1,402,925	6,974.50	8.3 (11)	6.8 (10)	3.6
23. Upper Yellowstone	90	79	3.8	4	34.4	2,398,230	11,233.00	10.0 (20)	10.0 (20)	4.9
24. Wind	61	52	2	2.1	18.1	852,938	7,750.00	6.9 (9)	6.9 (9)	1.8
25. Wood and Lost Basins	60	52	3.8	3.8	39.8	1,504,257	7,420.10	8.0 (16)	8.0 (16)	2.9

‡ Basin boundaries were derived from a combination of NRCS and HUC8 boundaries.

* This is a comparison to the SNODAS (SNOw Data Assimilation System) nationwide product from the National Weather Service.

South Continental

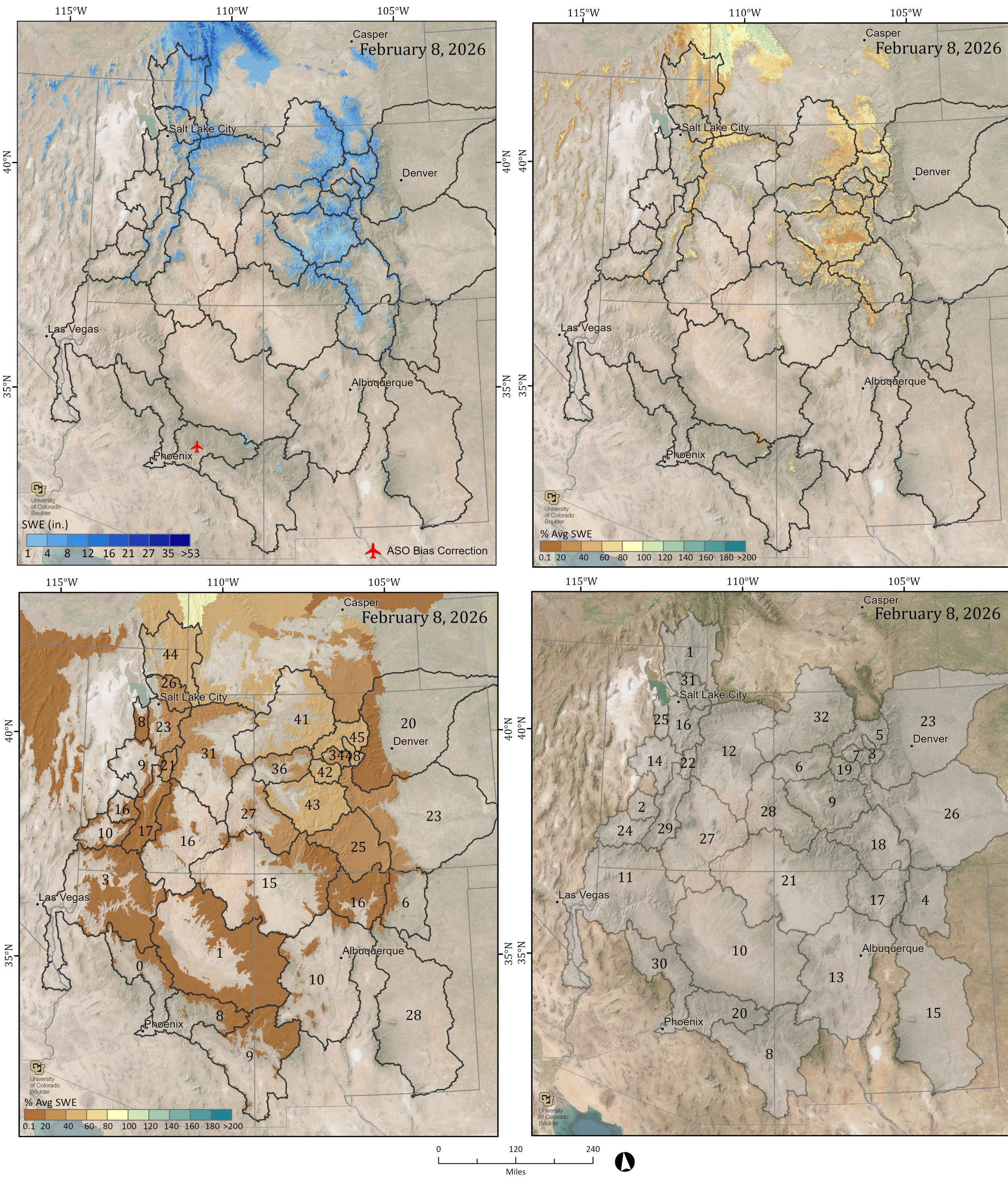

Figure 5. Estimated SWE and % of Average SWE across the South Continental Region. SWE amounts with red airplane markers indicating upper basin areas where the model was bias-corrected by Airborne Snow Observatories data (upper left), percent of long-term average (2001-2025) SWE calculated for each pixel (upper right), basin-wide percent of long-term average (lower left) shaded areas correspond to the elevation bands used in the banded-elevation tables, and basin identification numbers that correspond to Table 3 below (lower right).

Table 3. SWE by watershed. Shown are percent of average SWE to date for the current date (2001-2025 as derived from the regression model), mean SWE for the current report, current percent of snow-covered area, current SWE volume (acre-feet), the area (mi²) inside each basin that contains data pixels (not including cloud-covered pixels, lakes or other satellite no data pixels), first of the month snow surveys, and current snow pillow sensors (the number of stations are in parentheses), for those areas collected, summarized for each basin. *SWE tables by banded elevation are here.*

South Continental SWE Report for 2/8/2026

	% of Average		SWE (in)					Pillows		SNODAS* (in)
Basin	2/1	2/8	2/1	2/8	SCA	Vol. (AF)	Area (mi²)	2/1	2/8	2/8
1. Bear	54	44	4	3.6	45.5	1,225,650	6,323.40	7.4 (18)	7.7 (17)	2.9
2. Beaver	22	16	0.6	0.5	7.3	21,842	835.5	4.8 (2)	6.1 (1)	0.6
3. Blue	53	48	3.9	4.1	55.6	148,895	683.9	5.2 (5)	5.3 (5)	3.7
4. Canadian	11	6	0.3	0.2	3.6	11,318	1,265.80	2.9 (2)	3.0 (2)	0.3
5. Colorado Headwaters	50	45	3.5	3.7	54	567,681	2,906.10	5.5 (13)	5.6 (13)	3.5
6. Colorado Headwaters-Plateau	42	36	2.8	2.8	39.2	268,106	1,813.00	4.2 (1)	4.3 (1)	1.5
7. Eagle	38	34	2.7	2.8	37.5	135,217	918	4.1 (3)	4.1 (3)	3.4
8. Gila	15	9	0.1	0	1.6	12,589	4,926.30	0.9 (6)	0.8 (6)	0.1
9. Gunnison	47	43	3.3	3.2	54.1	1,105,179	6,459.70	5.0 (11)	5.0 (11)	3.1
10. Little Colorado	4	1	0.1	0	0.6	13,897	16,398.00	2.3 (5)	2.2 (5)	0.0
11. Lower Colorado Mainstream	4	3	0	0	0.5	14,996	10,697.40	2.6 (5)	2.5 (5)	0.0
12. Lower Green	38	31	2.5	2.3	29.1	694,604	5,693.80	4.4 (24)	4.2 (24)	2.1
13. Lower Rio Grande	25	10	0.6	0.2	5.7	22,044	1,796.70	2.5 (6)	2.3 (6)	0.2
14. Lower Sevier	13	9	0.6	0.4	7.1	19,258	906.4	2.6 (4)	2.6 (4)	0.6
15. Pecos	37	28	1.3	1.1	24.5	18,987	332.1	2.2 (2)	1.7 (2)	1.8
16. Provo-Utah Lake-Jordan	28	23	1.8	1.6	22.4	233,881	2,694.10	6.2 (18)	6.3 (18)	2.0
17. Rio Chama-Upper Rio Grande	19	16	0.7	0.6	12.9	156,684	5,227.90	3.3 (13)	3.3 (13)	1.0
18. Rio Grande Headwaters	29	25	1.2	1.2	16.7	476,552	7,613.30	3.9 (14)	3.8 (14)	1.2

‡ Basin boundaries were derived from a combination of NRCS and HUC8 boundaries.

* This is a comparison to the SNODAS (SNOw Data Assimilation System) nationwide product from the National Weather Service.

** The Animas Basin is part of the San Juan Basin. The values present in the San Juan Basin include those of the Animas by either a summation or weighted average based on the area that is referenced in the table.

§ Data in all ASO-collected basins have been bias-corrected using ASO data and therefore the SWE changes might not represent snowmelt/accumulation but rather an update to the SWE estimates based on airborne data.

South Continental SWE Report for 2/8/2026										
	% of Average		SWE (in)					Pillows		SNODAS* (in)
Basin	2/1	2/8	2/1	2/8	SCA	Vol. (AF)	Area (mi²)	2/1	2/8	2/8
19. Roaring Fork	47	42	4	4	57.1	291,774	1,360.30	5.6 (7)	5.6 (7)	4.2
20. Salt§	13	8	0.2	0.1	4.5	11,702	2,360.60	1.2 (8)	0.9 (8)	0.2
21. San Juan**	22	17	1.1	0.9	12.2	309,685	6,425.50	4.4 (15)	3.9 (14)	1.1
22. San Pitch	23	21	1.3	1.2	18.1	55,782	859.5	4.7 (6)	4.6 (6)	1.1
23. South Platte	25	20	0.9	0.9	11.4	260,655	5,641.90	4.6 (21)	4.6 (21)	0.9
24. Southwestern Utah	12	10	0.2	0.2	3.8	15,321	1,446.90	1.5 (5)	1.5 (5)	0.2
25. Toole Valley-Vernon Creek	12	8	0.4	0.3	3.4	12,479	902.1	2.5 (4)	2.6 (4)	0.4
26. Upper Arkansas	29	23	0.9	0.8	10.9	255,448	5,892.20	2.8 (7)	2.7 (7)	0.5
27. Upper Colorado-Dirty Devil	22	16	0.9	0.7	10.6	101,770	2,608.00	2.8 (7)	2.9 (7)	1.3
28. Upper Colorado-Dolores	37	27	2.1	1.6	28.9	303,320	3,453.30	5.3 (9)	5.3 (9)	1.8
29. Upper Sevier	21	17	1	0.8	14	161,042	3,767.80	3.1 (16)	3.1 (15)	0.8
30. Verde	0	0	0	0	0	84	1,820.70	0.7 (7)	0.6 (7)	0.0
31. Weber-Ogden	35	26	2.7	2.2	31	245,580	2,046.60	5.7 (17)	5.6 (17)	2.3
32. White-Yampa	51	41	3.6	3.5	48.3	1,107,503	5,952.40	8.0 (15)	8.0 (15)	2.7
33. Animas	37	31	2.6	2.5	30.1	123,043	922.5	4.8 (6)	4.3 (5)	2.7

‡ Basin boundaries were derived from a combination of NRCS and HUC8 boundaries.

* This is a comparison to the SNODAS (SNOw Data Assimilation System) nationwide product from the National Weather Service.

** The Animas Basin is part of the San Juan Basin. The values present in the San Juan Basin include those of the Animas by either a summation or weighted average based on the area that is referenced in the table.

§ Data in all ASO-collected basins have been bias-corrected using ASO data and therefore the SWE changes might not represent snowmelt/accumulation but rather an update to the SWE estimates based on airborne data.

Intermountain

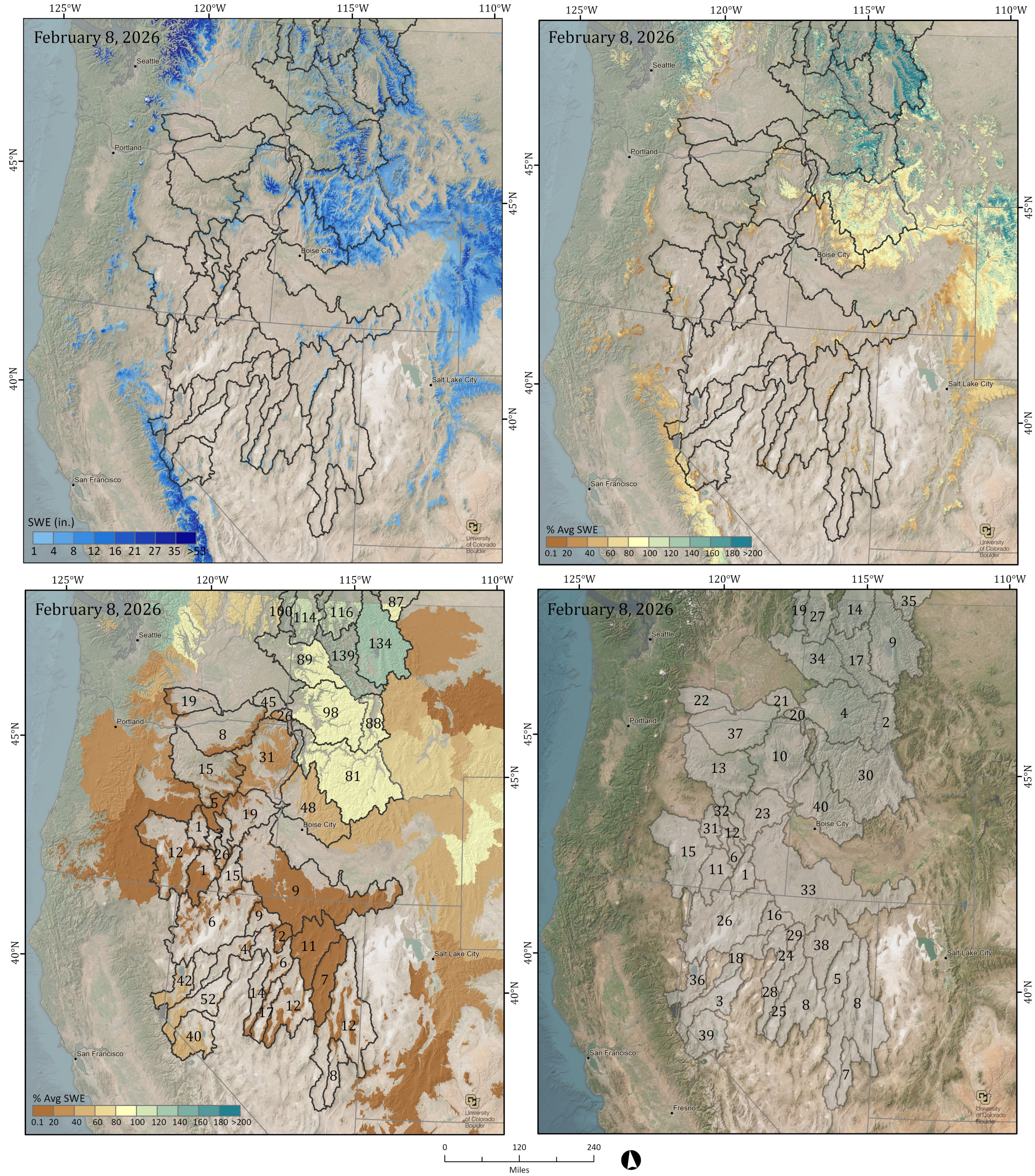

Figure 6. Estimated SWE and % of Average SWE across the Intermountain Region. SWE amounts (upper left), percent of long-term average (2001-2025) SWE calculated for each pixel (upper right), basin-wide percent of long-term average (lower left) shaded areas correspond to the elevation bands used in the banded-elevation tables, and basin identification numbers that correspond to Table 4 below (lower right).

Table 4. SWE by watershed. Shown are percent of average SWE to date for the current date (2001-2025 as derived from the regression model), mean SWE for the current report, current percent of snow-covered area, current SWE volume (acre-feet), the area (mi²) inside each basin that contains data pixels (not including cloud-covered pixels, lakes or other satellite no data pixels), first of the month snow surveys, and current snow pillow sensors (the number of stations are in parentheses), for those areas collected, summarized for each basin. [SWE tables by banded elevation are here.]()

Intermountain SWE Report for 2/8/2026										
	% of Average		SWE (in)					Pillows		SNODAS* (in)
Basin	2/1	2/8	2/1	2/8	SCA	Vol. (AF)	Area (mi²)	2/1	2/8	2/8
1. Alvord Lake	21	15	1.3	0.9	7.4	16,268	322.7	NA	NA	0.0
2. Bitterroot	103	88	5.1	5.5	48.7	568,444	1,955.00	9.5 (4)	9.6 (4)	7.0
3. Carson	61	52	2.5	2.4	26.5	180,540	1,407.70	9.7 (7)	9.4 (7)	2.9
4. Clearwater Basin	119	98	3.7	3.8	36.5	1,498,065	7,475.20	11.8 (9)	11.0 (10)	6.7
5. Clover Valley and Franklin	10	7	0.3	0.2	4.9	43,650	4,115.00	4.1 (2)	3.6 (2)	0.1
6. Donner und Blitzen	37	26	3.3	2.4	18.6	28,605	219.9	3.2 (2)	3.2 (2)	0.1
7. Dry Lake Valley	13	8	0.5	0.3	6	4,316	296.3	NA	NA	0.0
8. Eastern Nevada	20	12	0.8	0.5	10.4	107,946	4,375.20	3.6 (8)	3.2 (8)	0.5
9. Flathead	176	134	4	4.1	35.2	1,690,520	7,644.30	13.4 (13)	13.6 (13)	7.5
10. Grande Ronde-Burnt-Powder-Imnaha	38	31	2.5	2.2	23.4	631,711	5,316.00	5.0 (11)	4.8 (11)	1.8
11. Guano	1	1	0	0	0.1	1,732	2,062.90	0.0 (1)	0.0 (1)	0.0
12. Harney-Malheur Lakes	6	3	0.2	0.2	2.5	2,249	280.6	NA	NA	0.0
13. John Day	18	15	1	1	11.2	78,252	1,504.70	2.6 (2)	2.5 (2)	0.7
14. Kootenai	164	116	3.7	3.7	30.2	326,474	1,671.80	11.0 (5)	11.3 (5)	8.2
15. Lake County-Goose Lake	15	12	0.7	0.6	11.1	111,372	3,623.70	3.6 (2)	3.6 (2)	0.1
16. Little Humboldt	14	9	0.8	0.5	6.5	12,154	420.8	2.1 (3)	1.8 (3)	0.1
17. Lower Clark Fork	185	139	5.6	5.9	50.6	463,134	1,474.70	23.2 (3)	24.1 (3)	10.0
18. Lower Humboldt	8	4	0.3	0.1	1.3	1,793	272.6	0.0 (1)	0.0 (1)	0.0
19. Lower Pend Oreille	111	100	6.1	6.5	53.7	46,491	133.4	9.6 (1)	10.0 (1)	13.3

‡ Basin boundaries were derived from a combination of NRCS and HUC8 boundaries.
* This is a comparison to the SNODAS (SNOw Data Assimilation System) nationwide product from the National Weather Service.

Intermountain SWE Report for 2/8/2026										
	% of Average		SWE (in)					Pillows		SNODAS* (in)
Basin	2/1	2/8	2/1	2/8	SCA	Vol. (AF)	Area (mi²)	2/1	2/8	2/8
20. Lower Snake-Asotin	34	26	1.1	0.8	16.4	14,706	333.7	1.7 (2)	0.0 (1)	0.7
21. Lower Snake-Tucannon	49	45	2.8	2.8	50.4	16,234	108.3	NA	NA	3.4
22. Lower Yakima	22	19	1.1	1	17.2	26,534	485	7.4 (2)	7.7 (2)	1.6
23. Malheur	25	19	1.6	1.3	20	70,793	989.2	3.0 (3)	2.6 (3)	1.1
24. Middle Humboldt	14	6	0.6	0.2	2.3	6,698	633	NA	NA	0.0
25. Northern Big Smoky Valley	26	17	1.2	0.7	16.8	21,267	572.8	NA	NA	0.8
26. Northern Great Basin	9	6	0.4	0.3	3.4	30,575	2,224.90	1.2 (2)	1.2 (2)	0.0
27. Panhandle Basins	138	114	3.7	3.9	38.1	341,222	1,644.60	13.5 (3)	14.4 (3)	8.2
28. Reese	22	14	1.2	0.6	14.7	16,853	496.9	2.8 (2)	2.7 (2)	0.4
29. Rock	5	2	0.2	0.1	1.1	3,719	835.5	4.9 (1)	5.2 (1)	0.0
30. Salmon Basin	91	81	6.1	6.5	67.7	4,112,014	11,950.50	11.6 (11)	11.6 (11)	7.3
31. Silver	2	1	0.1	0.1	0.8	1,221	444.3	NA	NA	0.0
32. Silvies	8	5	0.4	0.3	4.5	18,028	1,317.40	1.5 (2)	1.3 (2)	0.1
33. Southern Snake Basins	15	9	0.7	0.4	4.5	242,076	12,552.70	2.6 (13)	2.6 (11)	0.2
34. Spokane	118	89	2.4	2.3	29	388,139	3,142.80	5.8 (7)	5.6 (8)	3.5
35. St. Mary	101	87	4.7	4.8	39	171,616	668.1	2.9 (1)	1.6 (1)	6.5
36. Truckee	55	42	2.7	2.4	27.9	188,381	1,443.60	10.2 (9)	9.8 (9)	3.1
37. Umatilla-Walla Walla-Willow	13	8	0.4	0.3	4.6	20,364	1,434.30	3.7 (7)	3.4 (7)	0.3
38. Upper Humboldt	16	11	0.7	0.5	7.6	122,010	5,035.80	3.4 (8)	3.0 (8)	0.3
39. Walker	41	40	1.8	1.7	42.2	173,449	1,942.90	11.3 (7)	11.2 (7)	2.6
40. West Central Basins	53	48	4.7	4.8	52.7	1,452,484	5,702.10	8.3 (16)	7.7 (14)	5.3

‡ Basin boundaries were derived from a combination of NRCS and HUC8 boundaries.
* This is a comparison to the SNODAS (SNOw Data Assimilation System) nationwide product from the National Weather Service.

Sierra Nevada

There is a separate SWE report which also includes maps and tables that has a stronger focus on the Sierra Nevada, it is available here. The Sierra report incorporates additional vetting and can include bias-corrections with Airborne Snow Observatory data. Below is one of the maps from the current report.

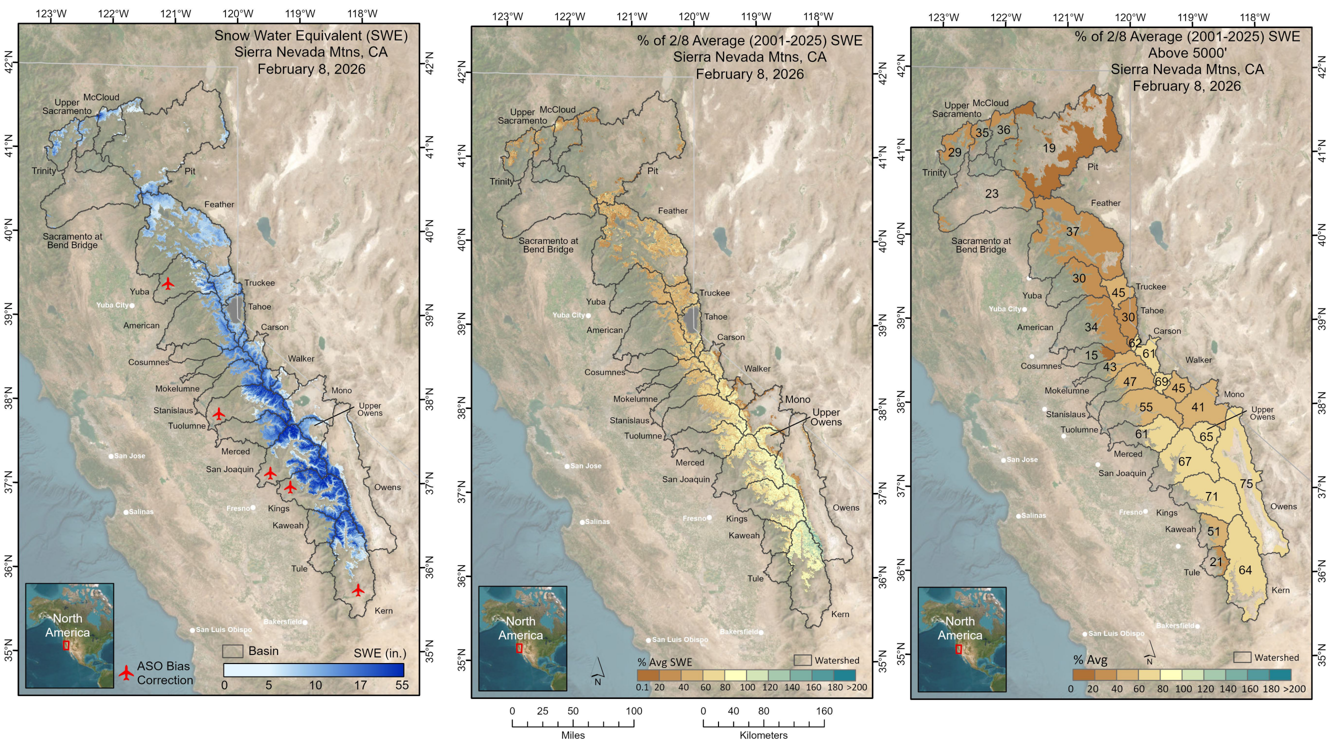

Figure 7. Estimated SWE and % of Average SWE across the Sierra Nevada. SWE amounts with red airplane markers indicating upper basin areas where the model was bias-corrected by Airborne Snow Observatories data (left), and percent of average (2001-2025) SWE for the Sierra Nevada, calculated for each pixel (middle) and basin-wide (right). Basin-wide percent of average is calculated across all model pixels >5000’ elevation.

Table 5. SWE by watershed. Shown are percent of average SWE to date for the current date (2001-2025 as derived from the regression model), mean SWE for the current report, current percent of snow-covered area, current SWE volume (acre-feet), the area (mi²) inside each basin that contains data pixels (not including cloud-covered pixels, lakes or other satellite no data pixels), first of the month snow surveys, and current snow pillow sensors (the number of stations are in parentheses), for those areas collected, summarized for each basin. *SWE tables by banded elevation are here.*

Sierra Nevada SWE Report for 2/8/2026										
	% of Average		SWE (in)					Pillows		SNODAS* (in)
Basin	2/1	2/8	2/1	2/8	SCA	Vol. (AF)‡	Area (mi²)	2/1	2/8	2/8
0. Trinity	41	29	4.9	4.7	54.5	79,760	321.4	4.4 (7)	4.1 (7)	2.5
1. Upper Sacramento	45	35	5.5	5.5	61.5	33,538	115.2	9.9 (2)	7.9 (2)	5.8
2. McCloud	48	36	4.9	4.8	73.1	42,135	164.9	9.7 (1)	9.6 (1)	11.2
3. Pit	26	19	1.3	1.1	16.8	118,669	2,086.20	6.3 (5)	6.5 (5)	1.6
4. Sacramento at Bend Bridge	30	23	2.3	2.1	23.2	27,277	240	NA	NA	3.2
5. Feather	55	37	4.8	4	57.9	455,139	2,117.50	9.6 (7)	8.7 (7)	4.8
6. Yuba§	37	30	4.5	3.8	45.9	105,299	525.6	11.9 (4)	11.7 (4)	5.7
7. American	41	34	5.4	4.8	46.9	206,411	807	8.0 (13)	7.7 (13)	4.9
8. Cosumnes	24	15	2	1.3	13.5	6,267	91.9	NA	NA	0.8
9. Mokelumne	47	43	6.1	5.9	47.6	100,265	317.9	11.4 (3)	11.1 (3)	6.2
10. Stanislaus	53	47	6.8	6.6	52.8	197,800	562.9	11.8 (4)	13.8 (4)	5.5
11. Tuolumne§	55	55	7.7	8.1	54	396,601	915	9.7 (8)	9.5 (8)	7.6
12. Merced	63	61	7.8	8.1	59.1	233,809	539.4	16.3 (2)	16.6 (2)	10.0
13. San Joaquin§	65	67	8.5	9.5	61.8	623,707	1,225.40	9.9 (7)	9.5 (7)	10.9
14. Kings§	67	71	8.9	9.7	59.9	630,428	1,213.40	14.4 (7)	15.2 (7)	10.0
15. Kaweah	53	51	5.3	5.1	33.8	85,900	314.4	11.7 (1)	11.4 (1)	5.8
16. Tule	33	21	1.6	1	8	7,339	137.6	2.3 (1)	1.7 (1)	0.8
17. Kern§	62	64	5.3	3.9	33.8	350,603	1,682.80	11.5 (5)	10.9 (5)	3.1

* This is a comparison to the SNODAS (SNOw Data Assimilation System) nationwide product from the National Weather Service.

‡ For volume totals above Shasta Lake add Upper Sac, McCloud and Pit volumes. For volume totals above Bend Bridge add Upper Sac, McCloud, Pit and Sac at Bend Bridge volumes.

§ Data in all ASO-collected basins have been bias-corrected using ASO data and therefore the SWE changes might not represent snowmelt/accumulation but rather an update to the SWE estimates based on airborne data.

Sierra Nevada SWE Report for 2/8/2026										
	% of Average		SWE (in)					Pillows		SNODAS* (in)
Basin	2/1	2/8	2/1	2/8	SCA	Vol. (AF)‡	Area (mi²)	2/1	2/8	2/8
18. Truckee	59	45	6.6	6.1	72.1	139,139	425.4	9.7 (6)	9.2 (6)	8.7
19. Tahoe	36	30	4.1	3.9	37.1	106,781	508.3	9.0 (7)	8.8 (7)	7.4
20. W Carson	70	62	9.1	9.5	85.7	33,152	65.3	12.3 (3)	12.3 (3)	12.0
21. E Carson	71	61	6.6	6.4	71.4	121,286	355.2	7.7 (4)	7.2 (4)	7.1
22. W Walker	68	69	8.4	9.5	86.9	91,009	179.8	13.1 (4)	12.8 (4)	11.0
23. E Walker	47	45	3.1	3	84.7	56,247	356.3	9.9 (1)	9.9 (1)	5.6
24. Mono	39	41	1.7	1.6	62	92,794	1,085.80	NA	NA	4.5
25. Upper Owens	72	65	4.7	5	82.8	101,133	382.7	13.2 (1)	19.5 (1)	10.0
26. Owens	69	75	2.5	2.7	28.4	254,573	1,772.90	8.7 (4)	8.9 (4)	2.1

* This is a comparison to the SNODAS (SNOw Data Assimilation System) nationwide product from the National Weather Service.

‡ For volume totals above Shasta Lake add Upper Sac, McCloud and Pit volumes. For volume totals above Bend Bridge add Upper Sac, McCloud, Pit and Sac at Bend Bridge volumes.

§ Data in all ASO-collected basins have been bias-corrected using ASO data and therefore the SWE changes might not represent snowmelt/accumulation but rather an update to the SWE estimates based on airborne data.

Elevation Banded SWE Tables
Due to the length of the banded elevation tables (tables 6-10), that data is being hosted on our GitHub repository. Direct links to all of the tables are below. Access to the GitHub repository for the tables in CSV format is here.

- Pacific Northwest (Table 6)
- North Continental (Table 7)
- South Continental (Table 8)
- Intermountain (Table 9)
- Sierra Nevada (Table 10)

The value of spatially explicit estimates of SWE
Snowmelt makes up the large majority (~60-85%) of the annual streamflow in the Western U.S. The spatial distribution of SWE across the landscape is complex. While broad aspects of this spatial pattern (e.g., more SWE at higher elevations and on north-facing exposures) are fairly consistent, the details vary a lot from year to year, influencing the magnitude and timing of snowmelt-driven runoff.

SWE is operationally monitored at hundreds of NRCS SNOTEL and California DWR CDEC snow pillow sites spread across the Western U.S., providing a critical first-order snapshot of conditions, and the basis for runoff forecasts from the CA DWR, NRCS and NOAA. However, conditions at snow pillow sites (e.g., percent of normal SWE) may not be representative of conditions in the large areas between these point measurements, and at elevations above and below the range of the pillow sites. The spatial SWE-fusion creates a detailed picture of the spatial pattern of SWE using snow pillows, satellite, and other data, extending beyond the snow pillow sites to unmonitored areas.

Interpreting the spatial SWE estimates in the context of snow pillow sites
The spatial SWE-fusion product estimates SWE for every pixel where the fractional snow-covered area (fSCA) satellite product identifies snow-cover. Comparatively, snow pillow samples on average 8-20 points per basin within a narrower elevation range. Thus, the basin-wide percent of long-term average from the spatial SWE-fusion estimates is not directly comparable with the snow pillow basin-wide percent of average. A better comparison might be made with the % average in the elevation bands (elevation-banded tables 6-10) that contain snow pillow sites.

Location of Reports, Excel Format Tables, and JPG Maps
https://github.com/CU-Mountain-Hydrology/WestWide

Methods
The spatial SWE-fusion estimation method is described in Yang, et. al. (2022) and Schneider and Molotch (2016). The method uses a General Linear Regression Model in which the dependent variable is derived from the operationally measured in situ SWE from all online NRCS SNOTEL and CDEC snow pillow sites in the domain and when applicable the CoCoRaHS SWE values. The gridded model output is then scaled by the fractional snow-covered area (fSCA). The fSCA is a near-real-time cloud-free daily satellite image from the Snow Today fSCA image (Rittger, et. al. 2019, https://nsidc.org/snow-today) which uses the SPIReS algorithm (Bair, et al. 2021).

The following independent variables (predictors) enter into the generalized linear regression model:

- Physiographic variables that affect snow accumulation, melt, and redistribution, including elevation, latitude, upwind mountain barriers, slope, and others. See Table 1 in Yang, et. al., (2022) for the full set of these variables.
- The historical daily SWE pattern (1985-2021) retrospectively generated using historical Landsat data, and an energy-balance model that back-calculates SWE given the fractional Snow-Covered Area (fSCA) time series and meltout date for each pixel. See Fang, et. al., (2022) for details. (For computational efficiency, only one image during the 1985-2021 period that best matches the real-time snow pillow-observed pattern is selected as an independent variable.)
- Satellite-observed daily mean fractional snow-covered area (DMFSCA) derived from Rittger, et. al., (2019) data.

The real-time regression model for this date has been validated by cross-validation, whereby 10% of the snow pillow data are randomly removed and the model prediction is compared to the measured value at the removed snow pillow stations. This is repeated 30 times to obtain an average R-squared value, which denotes how closely the model fits the snow pillow data. During development of this regression method, the model was also validated against independent historical SWE data from Airborne Snow Observatory lidar data and from snow surveys at 10 locations in Colorado.

List of All Known Data Issues/Caveats

- SATELLITE FSCA – Recent snowpack accumulation particularly in the Arizona / NM region may be under-estimated due to issues with satellite-observed fSCA.
- GLACIER & NON-SEASONAL SNOW – SWE values on non-seasonal snow and glaciers need to be excluded before data analysis.
- RECENT SNOWFALL – There are occasionally problems with lower-elevation SWE estimates due to recent snowfall events that result in extensive snow-cover extending to valley locations where measurements are not available. This scenario results in an over-estimation of lower- elevation SWE.
- LIMITED SNOW PILLOW DATA – When snow at the snow pillow sites melts out, but remains at higher elevations, the model tends to overestimate SWE at the under-monitored upper elevations. This issue typically occurs late in the melt season, resulting in less accurate SWE prediction at higher elevations compared to earlier in the snow season.
- CLOUD COVER – Cloud cover can obscure satellite measurements of snow-cover. While careful checks are made, occasionally the misclassification of clouds as snow or vice versa may result in the mischaracterization of SWE or bare ground.
- POOR QUALITY SNOW SENSOR DATA – Although data QA/QC is performed, occasional SNOTEL sensor malfunction may result in localized SWE errors.
- ANOMALOUS SNOW PATTERNS – Anomalous snow years or snow distributions may cause SWE error due to the model design to search for similar SWE distributions from previous years. If no close seasonal analogue exists, the model is forced to find the most similar year, which may result in error.
- DENSE FOREST COVER – Dense forest cover at lower elevations where snow-cover is discontinuous can cause the satellite to underestimate the snow-cover extent, leading to underestimation of SWE.
- PERCENT OF AVERAGE CALCULATIONS – Data utilized to generate this report change to optimize model performance. To maintain consistency across the historical record, the percent of average values are based on our baseline algorithm and therefore there can be discrepancies between absolute SWE values and corresponding percent of averages.
- MODELING METHODS – We work to generate the best SWE estimates for each reporting date. Our methods can change from one report to another. Sometimes data changes between reports is an artifact of method changes.
- EARLY SEASON FSCA ERRORS – The gap-filled fSCA requires some cloud-free images to determine fSCA amounts. Early in the season and if it has been particularly cloudy the algorithm hasn't had time to calculate fSCA amounts in some areas, typically in the Pacific Northwest and northern areas of the domain.

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