

Supplement

Table S1. SNOTEL station metadata and snow water equivalent change (Δ SWE) values where record weekly snow melt occurred throughout April 2021 (shown in Figure 2b of manuscript).

April 1-7						
Name	SNOTEL ID	State	Elevation (m)	POR (years)	Δ SWE (mm)	Δ SWE (σ)
Dollarhide Summit	450	Idaho	2566	40	-87	-3.73
Snider Basin	765	Wyoming	2457	40	-64	-3.39
East Rim Divide	460	Wyoming	2417	36	-76	-3.24
Copper Bottom	413	Montana	1585	43	-97	-3.17
Sylvan Road	807	Wyoming	2170	34	-112	-3.06
Apishapa	303	Colorado	3048	41	-139	-3.02
Rocky Boy	917	Montana	1433	54	-107	-3.01
Wolf Creek Summit	874	Colorado	3353	35	-94	-2.90
Moose Creek	638	Idaho	1890	40	-78	-2.84
Slumgullion	762	Colorado	3523	41	-33	-2.76
Schweitzer Basin	738	Idaho	1856	40	-91	-2.73
Skalkaho Summit	760	Montana	2210	45	-46	-2.72
Calvert Creek	381	Montana	1960	46	-91	-2.65
Lubrecht Flume	604	Montana	1426	51	-99	-2.59
Currant Creek	432	Utah	2412	43	-143	-2.59
Emery Creek	469	Montana	1326	45	-84	-2.53
Bear Canyon	320	Idaho	2408	41	-51	-2.52
Kimberly Mine	557	Utah	2774	41	-114	-2.50
Medano Pass	914	Colorado	2941	26	-145	-2.43
Banner Summit	312	Idaho	2146	41	-84	-2.42
Tizer Basin	893	Montana	2097	33	-61	-2.42

Willow Creek	868	Wyoming	2463	40	-99	-2.39
Grouse Camp	507	Washington	1643	39	-114	-2.34
Brooklyn Lake	367	Wyoming	3121	40	-28	-2.33
Black Pine	349	Montana	2198	56	-36	-2.33
Gallegos Peak	491	New Mexico	2987	41	-130	-2.33
Brundage Reservoir	370	Idaho	1905	35	-94	-2.29
Bug Lake	374	Utah	2434	43	-61	-2.28
Mc Clure Pass	618	Colorado	2670	41	-96	-2.22
Howell Canyon	534	Idaho	2432	41	-91	-2.16
Stillwater Creek	793	Colorado	2658	36	-112	-2.15
Independence Pass	542	Colorado	3231	41	-43	-2.13
Sherwin	752	Idaho	975	40	-107	-2.12
Divide Peak	449	Wyoming	2707	41	-59	-2.11
Big Flat	339	Utah	3154	43	-20	-2.10
Kirwin	560	Wyoming	2911	41	-18	-2.08
Red River Pass #2	715	New Mexico	3002	42	-124	-2.07
Frohner Meadow	487	Montana	1975	49	-41	-2.03
Overland Res.	675	Colorado	2999	32	-61	-2.01
Steel Creek Park	790	Utah	3096	43	-15	-2.01
Burro Mountain	378	Colorado	2865	41	-67	-2.00
Big Creek Summit	338	Idaho	1999	40	-56	-1.98
North Costilla	665	New Mexico	3231	42	-94	-1.98
Middle Fork Camp	1014	Colorado	2725	20	-61	-1.97
Triple Peak	831	Wyoming	2591	36	-66	-1.94
Slug Creek Divide	761	Idaho	2202	41	-107	-1.94

Diamond Peak	443	Nevada	2444	38	-122	-1.91
Brown Duck	368	Utah	3223	43	-26	-1.84
Garfield R.S.	492	Idaho	1999	41	-107	-1.84
Ripple Creek	717	Colorado	3152	35	-46	-1.81
Roach	718	Colorado	2957	41	-33	-1.79
Indian Creek	544	Wyoming	2873	40	-31	-1.79
Bear Lake	322	Colorado	2896	41	-25	-1.79
Agua Canyon	907	Utah	2713	27	-104	-1.76
Schwartz Lake	915	Idaho	2630	26	-23	-1.76
Peterson Meadows	930	Montana	2195	51	-12	-1.76
Copper Mountain	415	Colorado	3216	43	-18	-1.76
Evening Star	472	Wyoming	2804	39	-18	-1.74
Olallie Meadows	672	Washington	1228	39		-1.74
Pickle Keg	691	Utah	2749	43	-84	-1.70
Rabbit Ears	709	Colorado	2865	35	-46	-1.69
Vernon Creek	844	Utah	2256	43	-117	-1.67
Mill Creek Summit	627	Idaho	2682	40	-20	-1.63
Nevada Ridge	903	Montana	2140	27	-18	-1.60
Sandstone RS	732	Wyoming	2484	36	-88	-1.56
Rubicon #2	724	California	2322	41	-87	-1.54
Grave Springs	501	Wyoming	2606	29	-15	-1.51
Tower	825	Colorado	3200	42	-18	-1.50
Loveland Basin	602	Colorado	3475	29	0	-1.48
Granite Creek	497	Wyoming	2063	34	-51	-1.42
Rough And Tumble	939	Colorado	3158	23	-8	-1.37
Leavitt Lake	574	California	2927	32	-21	-1.22
Echo Lake	936	Colorado	3231	23	-10	-1.19
Lookout Mountain	595	New Mexico	2591	41	0	-0.16

April 8-14						
Jones Pass	970	Colorado	3170	22	-68	-2.86
Vail Mountain	842	Colorado	3139	43	-51	-2.82
Diamond Lake	442	Oregon	1609	40	-196	-2.67
South Colony	773	Colorado	3292	30	-61	-2.63
Stump Lakes	797	Colorado	3414	35	-58	-2.61
Independence Camp	539	California	2128	43	-191	-2.54
Bateman	316	New Mexico	2835	42	-114	-2.37
Clayton Springs	983	Utah	3063	21	-109	-2.12
Snowslide Canyon	927	Arizona	2966	24	-137	-2.11
Tolby	934	New Mexico	3103	23	-122	-2.09
Vacas Locas	1017	New Mexico	2836	20	-124	-2.01
Wesner Springs	854	New Mexico	3389	32	-74	-1.98
Spring Creek Divide	779	Wyoming	2743	41	-18	-1.96
Camp Jackson	383	Utah	2700	36	-122	-1.81
Ute Creek	1005	Colorado	3246	21	-63	-1.56
Independence Lake	541	California	2541	43	-38	-1.45
Gerber Reservoir	945	Oregon	1490	23	0	-0.31
April 15-21						
Spirit Lake	777	Washington	1073	37	-259	-3.82
Corral Pass	418	Washington	1768	39	-150	-3.45
King Mountain	558	Oregon	1323	41	-130	-3.34
Mores Creek Summit	637	Idaho	1859	40	-168	-2.99
Quartz Peak	707	Washington	1433	34	-206	-2.95
Dungeness	943	Washington	1222	22	-171	-2.92

Santiam Jct.	733	Oregon	1140	43	-259	-2.80
Three Creeks Meadow	815	Oregon	1734	41	-163	-2.73
Spruce Springs	984	Washington	1737	21	-142	-2.66
Salmon Meadows	728	Washington	1359	39	-153	-2.63
Bowman Springs	362	Oregon	1381	43	-203	-2.54
Annie Springs	1000	Oregon	1832	21	-97	-2.53
Derr.	440	Oregon	1783	41	-191	-2.51
Lost Horse	599	Washington	1561	31	-145	-2.50
Park Creek Ridge	681	Washington	1402	43	-236	-2.49
Green Lake	502	Washington	1804	39	-107	-2.48
South Fork Bull Run	925	Oregon	820	24	-140	-2.47
Alpine Meadows	908	Washington	1067	27	-142	-2.45
Potato Hill	702	Washington	1375	38	-150	-2.45
Moscow Mountain	989	Idaho	1433	21	-178	-2.43
Bogus Basin	978	Idaho	1932	22	-129	-2.40
Touchet	824	Washington	1686	39	-198	-2.38
Bumping Ridge	375	Washington	1405	40	-104	-2.33
Peavine Ridge	687	Oregon	1042	40	-191	-2.29
Elbow Lake	910	Washington	927	26	-198	-2.28
Pope Ridge	699	Washington	1094	40	-178	-2.28
Shanghi Summit	747	Idaho	1402	39	-206	-2.23
Buckskin Lower	373	Nevada	2112	41	-140	-2.22
Mud Ridge	655	Oregon	1241	43	-181	-2.16
Hand Creek	510	Montana	1535	45	-76	-2.15
Mckenzie	619	Oregon	1454	40	-191	-2.13
Beaver Pass	990	Washington	1106	20	-81	-2.13

Clear Creek #2	400	Utah	2389	43	-168	-2.10
Snow Mountain	767	Oregon	1899	43	-150	-2.08
Gold Center	494	Oregon	1649	41	-155	-2.05
Mica Creek	623	Idaho	1375	31	-138	-2.03
Cedar Pass	391	California	2143	43	-178	-2.02
Blewett Pass	352	Washington	1292	40	-173	-1.93
Blue Lakes	356	California	2459	41	-94	-1.89
Swamp Creek	975	Washington	1198	22	-134	-1.85
Clackamas Lake	398	Oregon	1036	41	-157	-1.81
Mount Gardner	898	Washington	890	28	-145	-1.81
Wilson Creek	871	Idaho	2170	31	-138	-1.76
Monitor Pass	633	California	2532	31	-130	-1.75
Ward Creek #3	848	California	2056	42	-188	-1.72
Sheldon	750	Nevada	1788	32	0	-0.25
April 22-28						
Pigtail Peak	692	Washington	1768	40	-208	-3.06
Santa Fe	922	New Mexico	3488	25	-104	-2.48
Stevens Pass	791	Washington	1204	41	-216	-2.47
Lyman Lake	606	Washington	1823	39	-112	-2.28
Trapper Lake	827	Colorado	2957	36	-125	-1.89
Kendall R.S.	555	Wyoming	2359	36	-127	-1.78
Donkey Reservoir	452	Utah	2987	36	-122	-1.77
Crowder Flat	977	California	1576	22	0	-0.22
Happy Jack	969	Arizona	2326	22	0	-0.22
Coronado Trail	416	Arizona	2560	41	0	-0.16

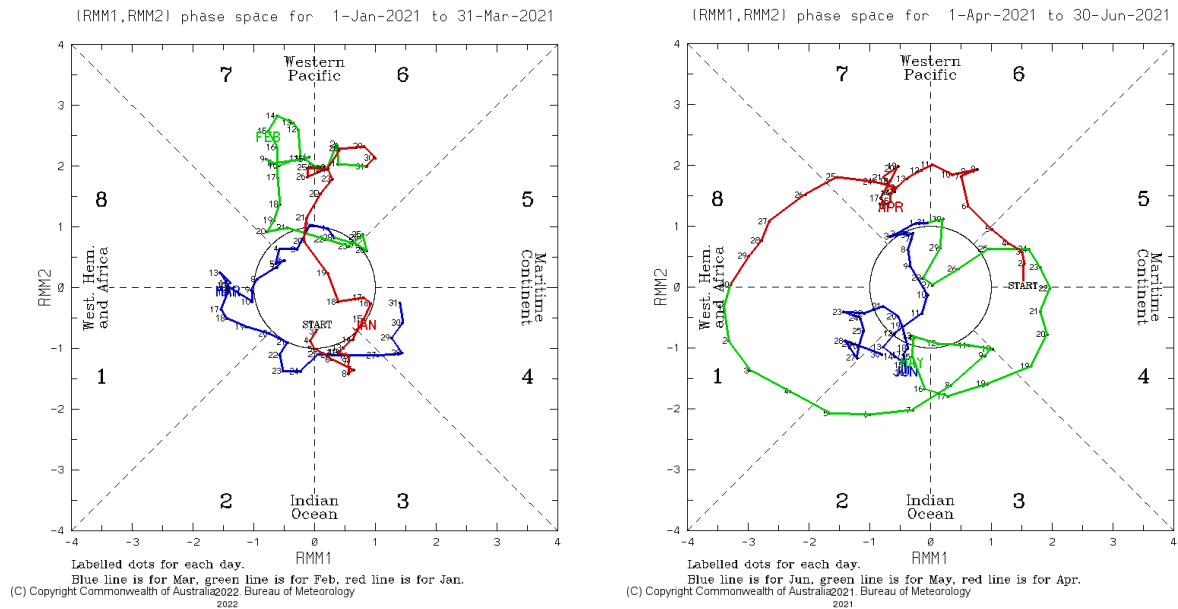


Figure S1. MJO phase diagrams for (left) January-March 2021 and (right) April-June 2021 showing the magnitude and location of the MJO. Main manuscript text describes March 2021 (blue line on left figure) and April 2021 (red line on right figure) MJO. Figure obtained from <http://www.bom.gov.au/climate/mjo/> with permission under the [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).