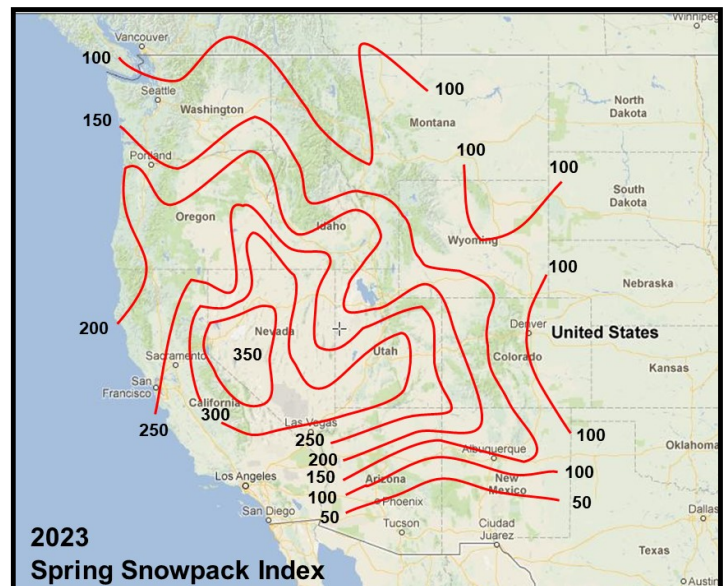# 2023 Spring Snowpack Index

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The Spring Snowpack Index (SSPI) is a unique product developed by Weather Research and Consulting Services, LLC that has proven to be an effective predictor of wildland fire season severity. The SSPI combines Snow Water Equivalent (SWE) values and snowmelt rates from National Resources Conservation Service (NRCS) SNOTEL data resulting in a number that integrates both winter and spring weather (i.e. temperature, precipitation, and evaporation). Our research indicates that it is a much better predictor of fire season severity than SWE alone because it is a measure of snowmelt date, fire season length, soil moisture and both live fuel and large dead fuel moisture. SSPI values have a wide range extending from -100 to 300 or higher. In general, the lower the SSPI value, the higher the probability of an active fire season.

The graphic to the right displays this year's SSPI calculated for river basins in the Western United States using NRCS SNOTEL data. The lowest SSPI values, less than 50, are in southern Arizona and southern New Mexico. Values around 100 extend from northern Washington to Montana and down the eastern slopes of the Rockies in Wyoming and Colorado. Elsewhere across the West, SSPI values exceed 200. An area of 300 or greater is located in the central and southern Sierra Mountains of California and much of Nevada. These high SSPI values are the result of record-breaking winter snow in the Sierra Mountains and a cool, wet spring that delayed snowmelt.

2023
Spring Snowpack Index

2023
Projected Fire Season Severity
Based on the Spring Snowpack Index (SSPI)

Using updated algorithms that predict acres burned for each of the western states, a below average fire season is probable for Oregon, California, the Great Basin states of Idaho Nevada and Utah and the Southwestern states of Arizona and New Mexico. An average fire season can be expected in Washington, northern Idaho, Montana, Wyoming, and Colorado. Our algorithms do not indicate any states with the potential above average fire season.

The table below lists the statewide SSPI averages for the past ten years. Figures in red indicate negative values with Arizona and New Mexico reporting the most. Nearly every state is reporting higher SSPI values in 2023 compared to last year. In fact, most states reported the highest values this year compared to previous years. The only exceptions are Washington and Montana which have slightly lower SSPI values this year.

State	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
MONTANA	105	125	91	101	109	154	151	67	56	166
WASHINGTON	127	149	104	86	73	140	146	48	24	125
WYOMING	130	103	92	91	83	116	155	125	49	145
IDAHO	217	123	28	61	112	78	200	55	9	113
CALIFORNIA	321	73	-6	23	165	36	317	73	4	9
COLORADO	135	53	43	68	122	34	94	117	49	94
OREGON	318	144	4	7	87	34	200	8	4	62
NEVADA	258	63	8	-23	132	4	192	92	-9	57
UTAH	314	20	12	47	152	-6	115	89	1	53
ARIZONA	370	-27	-77	-14	49	-7	4	-6	0	-9
NEW MEXICO	127	-18	-28	-12	97	-13	40	48	15	15
AVG	220	73	25	40	106	52	147	65	18	75

Data developed by Weather Research and Consulting Services, LLC

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