Decoding Avalanche Weather Guidance

INTRODUCTION

An increasing number of National Weather Service offices are now providing detailed meteorological forecasts to local avalanche centers. These forecasts are known as the Avalanche Weather Guidance (AVG). This document will explain how to read and interpret the AVG. An example of a complete AVG is also included.

WHAT IS THE AVALANCHE WEATHER GUIDANCE?

The Avalanche Weather Guidance (AVG) displays various forecasted weather parameters at a specific point or geographic location in variable time intervals out to 48 hours and beyond. These intervals combined with a matrix format create a detailed forecast, allowing quick procurement of forecast parameters. The AVG is available to disseminators of National Weather Service products and is available on the internet.

Currently, based upon the issuing Weather Forecaster Office, the AVG provides 3-hourly, 6-hourly, or 12-hourly forecasts up to 48 hours into the future. An optional extended portion of the AVG provides 6-hourly and 12-hourly forecasts 7 days into the future.

HOW TO READ AND INTERPRET THE AVG PRODUCT

An example of the AVG product issued for 3-hourly increments is displayed below. There are several forecast parameters, which appear in the AVG. At the top of each product is the time and date that the AVG was issued. In the case below, the forecast was issued on Wednesday, October 19th, 2022 and the issuance time was 2:31 a.m. Mountain Daylight Time (MDT). Below the time and date, the location name will be found. Below the location name, two forecast time lines are provided in 3-hour increments for 48 hours (2 days) into the future. Listed on the far left of the first time line is LT (the abbreviation for Local Time). Below that line, the a.m./p.m. time will be found with “A” standing for A.M and “P” standing for P.M. In this example, MDT is listed, which means the hours in the time line are in Mountain Daylight Time.

231 AM MDT WED OCT 19 2022

...MT. FARWELL (10,200 FT)...

DATE	WEDNESDAY 10/19/22								THURSDAY 10/20/22								
TIME (LT)	06	09	12	15	18	21	00	03	06	09	12	15	18	21	00	03	06
	6A	9A	12	3P	6P	9P	12	3A	6A	9A	12	3P	6P	9P	12	3A	6A
CLOUD COVER	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL	FW
CLOUD COVER (%)	0	0	0	0	0	0	0	0	0	0	5	5	0	5	5	5	10
TEMPERATURE	35	41	48	52	48	40	38	36	35	39	46	51	47	42	39	35	32
MAX/MIN TEMP					52				35				51				32
WIND CHILL														35	32	28	25
WIND DIR	N	N	NW	NW	NW	N	N	W	W	SW	SW	W	W	W	SW	SW	SW
WIND (MPH)	5	4	10	12	9	5	4	4	4	4	11	16	14	12	11	9	8
WIND GUST (MPH)																	
PRECIP PROB (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PRECIP TYPE																	
12 HOUR QPF					0.00				0.00				0.00				0.00
12 HOUR SNOW					0.0				0.0				0.0				0.0
LOW END SNOW					0.0				0.0				0.0				0.0
HIGH END SNOW					0.0				0.0				0.0				0.0
12 HOUR ICE					0.00				0.00				0.00				0.00
SNOW LEVEL (KFT)	7.4	8.1	9.8	10.4	10.3	9.3	8.2	8.2	7.3	7.6	9.5	10.2	10.0	9.5	8.8	8.2	7.6

An example of the AVG issued for 6-hourly increments is below:

...Thompson Pass Upper Elevations (above 4000 ft)...

Date			Friday 10/21/22				Saturday 10/22/22		
Time (LT)	18	00	06	12	18	00	06	12	18
	6p	12	6a	12	6p	12	6a	12	6p
Cloud Cover	OV	OV	OV	OV	BK	SC	FW	FW	BK
Cloud Cover (%)	100	100	95	85	55	40	20	25	55
Temperature	28	27	24	23	21	17	17	16	17
Min/Max Temp			21		25		13		20
Wind Dir	SE	S	N	N	N	N	NE	NE	NE
Wind (mph)	18	6	14	19	23	21	17	9	6
Wind Gust (mph)									
Precip Prob (%)	100	90	80	10	10	5	5	0	5
Precip Type	S	S	S	S					
12 Hour QPF			0.35		0.03		0.00		0.00
12 Hour Snow			4.0		0.2		0.0		0.0
Snow Level (kft)	2.6	1.9	1.1	0.3	0.9	0.1	0.0	0.0	0.0

An example of the AVG issued for 12-hourly increments is below:

...EASTERN ALASKA RANGE...

DATE	SATURDAY 10/22		SUNDAY 10/23		
TIME (LT)	06	18	06	18	06
	6A	6P	6A	6P	6A
CLOUD COVER	BK	BK	OV	BK	SC
CLOUD COVER (%)	65	65	80	60	30
TEMPERATURE	17	10	12	8	8
MAX/MIN TEMP		20	8	15	4
WIND CHILL		2	-2	-3	1
WIND DIR	NW	N	N	N	NE
WIND (MPH)	3	5	13	8	3
WIND GUST (MPH)		28	40	37	
PRECIP PROB (%)	40	40	60	60	10
PRECIP TYPE	S	S	S	S	
12 HOUR QPF		0.01	0.01	0.10	0.04
12 HOUR SNOW		0.1	0.1	1.1	0.6
12 HOUR ICE		0.00	0.00	0.00	0.00
SNOW LEVEL (KFT)	0.0	0.0	0.0	0.0	0.0

AVG Forecast Parameters

Below are forecast parameters in the AVG.

1) CLOUD COVER - The expected cloud cover forecast for every interval out to 48 hours. The contractions used and their meanings are as follows:

CL - Clear
FW -Mostly Clear
SC - Partly Cloudy
BK - Mostly Cloudy
OV - Cloudy

2) CLOUD COVER (%) – The expected cloud cover percentage forecast for every interval. This is a snapshot of the expected percentage of sky obscured by clouds at the indicated hour.

3) TEMPERATURE – The temperature that is forecast for each interval. It is a snapshot of the expected temperature at the indicated hour.

4) MAX/MIN TEMP- A forecast of maximum or minimum temperatures during the daytime or nighttime hours, respectively. The maximum temperatures are forecast from 7:00 a.m. to 7:00 p.m. Local Standard Time. Minimum temperatures are forecast from 7:00 p.m. to 8:00 a.m.

Local Standard Time. The overnight lows and daytime highs are displayed as a single number for the specific point or geographic location.

5) WIND DIR - The expected wind direction forecast for the corresponding time using the 8 points of a compass (e.g., W, NW, N. . . etc.).

6) WIND (MPH) - The expected average wind speed in miles per hour for the time in question.

7) WIND GUST (MPH) - A wind gust will appear in the interval block whenever forecasted wind gusts exceed the sustained wind speed (Wind (mph)) by at least 15 MPH. The wind gust is a snapshot of gusts of wind occurring at the indicated hour and is available at 3-hour projections.

8) PRECIP PROB (%) - The probability of precipitation for every time block.

9) PRECIP TYPE - The AVG may list several types of precipitation. Precipitation types are only shown in the AVG if they are forecast to occur at any point in the 48-hour forecast.

For each type of precipitation that is forecast, a probability of precipitation is specified for 3-hour time periods. The types of precipitation that may be forecast in the AVG are listed below.

R - Rain

RW- Rain showers

T- Thunderstorms

S- Snow

SW- Snow showers

IP- Sleet (ice pellets)

ZR- Freezing rain

10) 12 HOUR QPF - This parameter, a quantitative precipitation forecast, lists the precipitation expected. 12 HOUR QPF is forecast in 12 hour periods ending at 6:00 a.m. or 6:00 p.m. Local Time. 12 HOUR QPF is located towards the ending time of each 12-hour period.

11) 12 HOUR SNOW - This is the expected snowfall accumulation (in inches) forecast to occur in the forecast during a 12-hour period ending at 6:00 a.m. or 6:00 p.m. local time. 12 HOUR SNOW is located towards the ending time of each 12-hour period.

12) LOW END SNOW – This parameter depicts a reasonable lower-end snowfall amount for the time period shown, based on many computer model simulations of possible snowfall totals. This lower amount is an unlikely scenario with a 9 in 10, or 90% chance that more snow will fall, and only a 1 in 10, or 10% chance that less snow will fall during a 12-hour period ending at 6:00 a.m. or 6:00 p.m. local time. LOW END SNOW is located towards the ending time of each 12-hour period.

13) HIGH END SNOW – This parameter depicts a reasonable upper-end snowfall amount for the time period, based on many computer model simulations of possible snowfall totals. This higher amount is an unlikely scenario, with only a 1 in 10, or 10% chance that more snow will fall, and a 9 in 10, or 90% chance that less snow will fall during a 12-hour period ending at 6:00 a.m. or 6:00 p.m. local time. HIGH END SNOW is located towards the ending time of each 12-hour period.

14) 12 HOUR ICE - This parameter is the expected ice accumulation (in inches) forecast to occur in the forecast area during a 12-hour period ending at 6:00 a.m. or 6:00 p.m. local time. 12 HOUR ICE is located towards the ending time of each 12-hour period.

15) SNOW LEVEL (KFT) - The snow level is forecast in 3-hour intervals. Multiply SNOW LEVEL (KFT) by 1000 to get the snow level (feet) in Mean Sea Level (MSL). It is the elevation above which snow will fall, and below which rain will fall. A mix of rain and snow may be observed at elevations within a few hundred feet of the snow level.

16) WIND CHILL -When the Wind Chill Index is forecast to be 40 degrees F or lower, 5 degrees colder than the temperature and with a 5 mph or greater wind speed, a row titled WIND CHILL will be listed under the MAX/MIN TEMP.