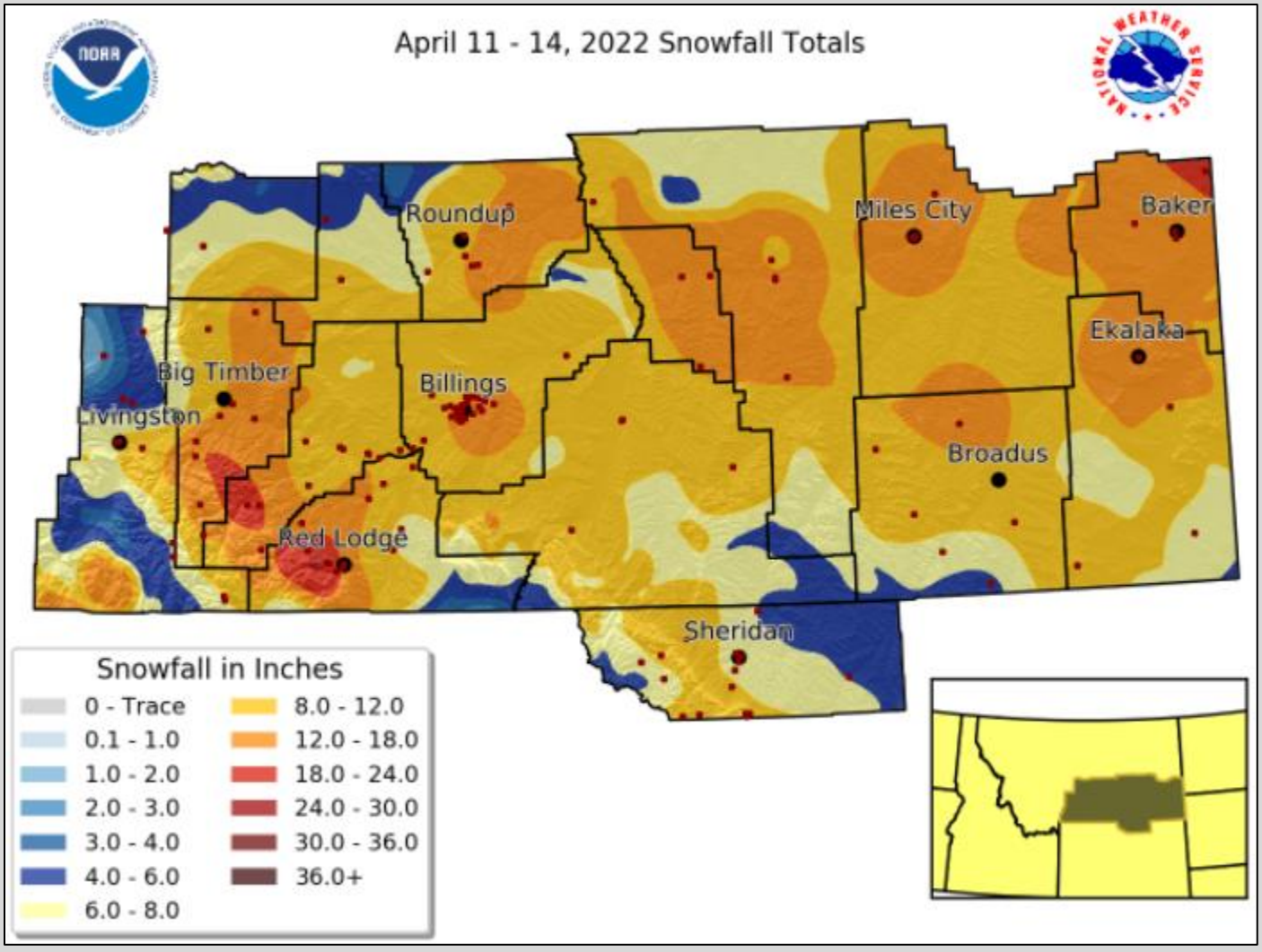
Heavy Snow & Record Cold

April 11-16, 2022

National Weather Service – Billings, MT

HEAVY SNOW: Snow began on the evening of Monday April 11th, impacted much of our west and central parts with heavy snow into Tuesday the 12th, and evolved into a blizzard for southeast Montana that lasted into Thursday April 14th. The storm had wide-ranging and long duration impacts to southcentral/southeast Montana and northern Wyoming. Most locations (with the exception of the Shields River and Paradise Valleys) received 8-15 inches of snowfall, while some areas east of Billings saw up to around 20 inches and the Beartooth and Red Lodge Foothills around two feet. Here is a map of measured snowfall across the region:



SNOW AT BILLINGS: Snowfall during the morning of April 12th was particularly heavy in the city of Billings. Snowfall rates of 2-3”/hour were observed, and snow piled up quickly. Approximately 10-12 inches fell between roughly 6 am and noon. Total snowfall at the Billings Airport on the 12th ended up being a whopping 13.9 inches. This was the heaviest single day total in April since 1955, and the 6th greatest single day total on record (for any time of year). Additionally, the snow depth of 13 inches observed at the airport on the morning of the 13th was the greatest depth on record so late in the spring.

IMPACTS: The combination of heavy snowfall and strong winds caused significant blowing and drifting snow, especially over southeast Montana where winds were strongest. Some livestock were lost due to the snow, cold and wind. Several school districts closed schools for the day on Tuesday and/or Wednesday. Road closures delayed truck travel across much of the area. The following highways were closed for significant periods of time:

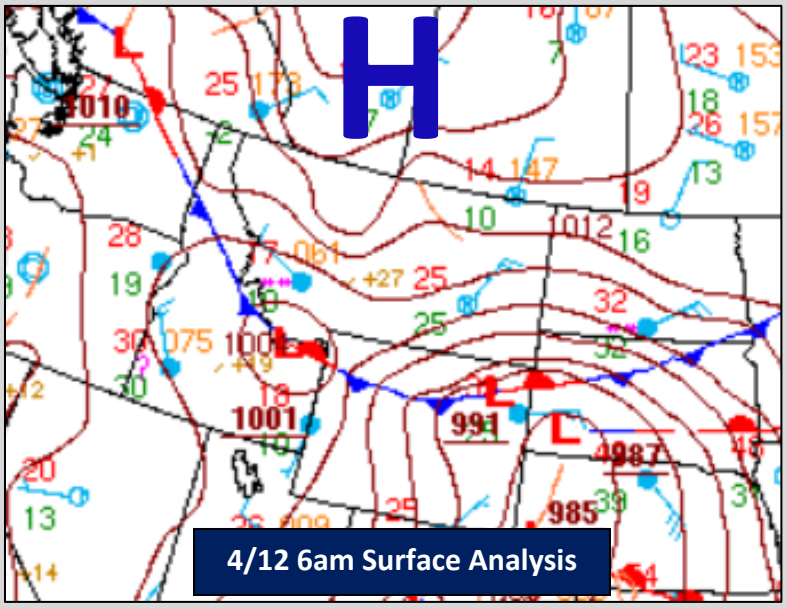
- I-94 from Billings to the North Dakota state line (and further east)
- US-212 from Crow Agency to Alzada
- US-12 from Miles City to the North Dakota State line
- MT-59 from Miles City through Broadus to the Wyoming state line
- MT-7 from Baker to Ekalaka
- S-323 from Ekalaka to Alzada

RECORD COLD: An unseasonably cold air mass settled over the region during the snowstorm and lasted through the week. Many daily record low and cold high temperatures were broken from the 13th through the 16th. Some locations even fell below zero, including Melville (-10°), Springdale (-7°), Columbus (-6°), Red Lodge (-4°) and Bridger (-2°). The lows of 4° at Billings and 7° at Livingston on the morning of the 14th were the coldest on record so late in the spring. The following table is a summary of records broken or tied at our four main climate stations during the cold snap.

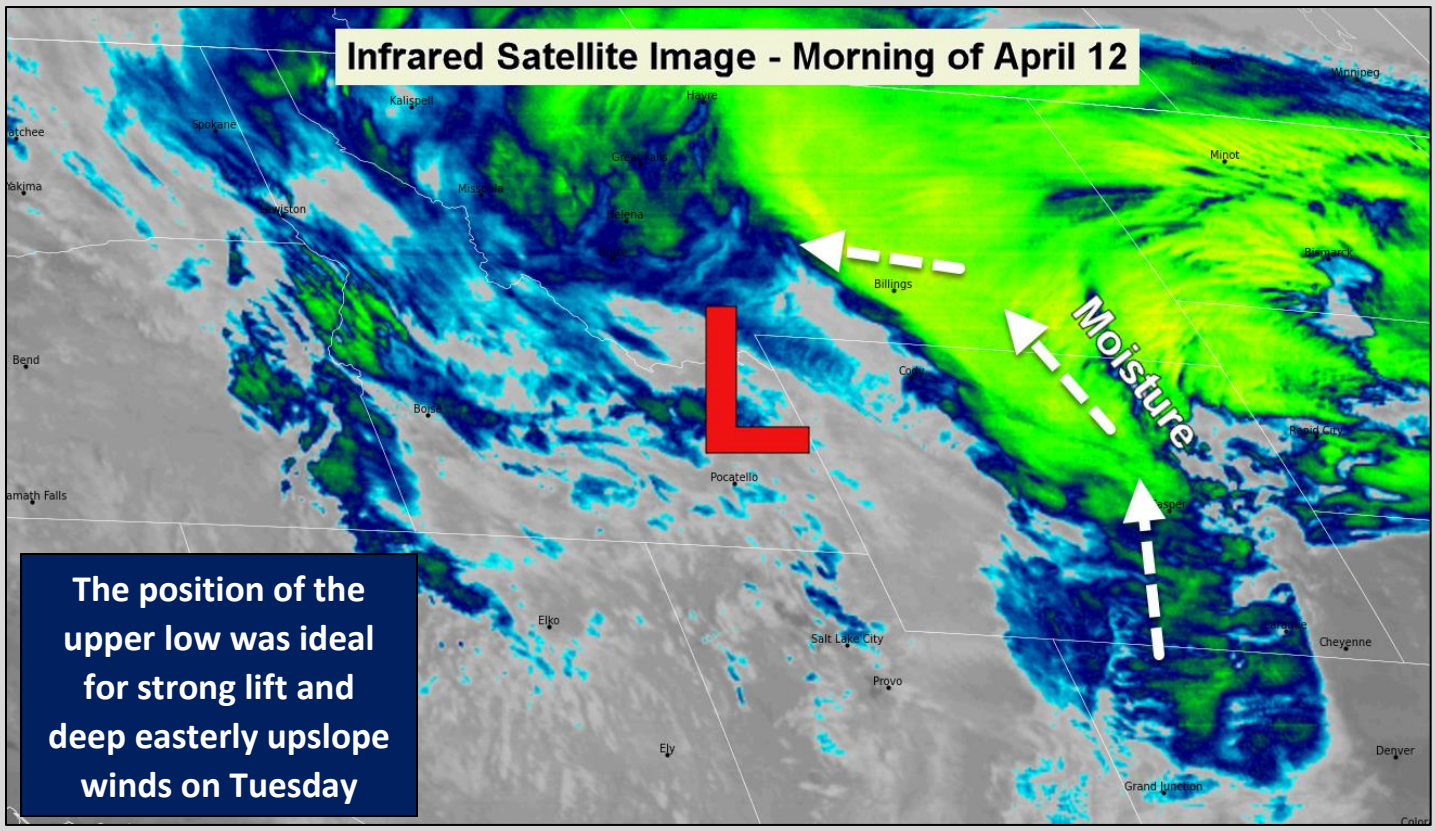
RECORD LOW AND COLD HIGH TEMPERATURES TIED OR BROKEN			
BILLINGS	**LIVINGSTON**	**MILES CITY**	**SHERIDAN**
Low of 9° on the 13th	High of 24° on the 12th	High of 20° on the 13th	High of 21° on the 13th
Low of 4° on the 14th	High of 24° on the 13th	High of 28° on the 15th	Low of 6° on the 14th
Low of 10 on the 15th	Low of 7° on the 14th	Low of 11° on the 16th	High of 26° on the 14th
High of 29° on the 15th	High of 23° on the 14th		High of 26° on the 15th
Low of 15° on the 16th	Low of 8° on the 15th		Low of 10° on the 16th
	High of 29° on the 15th		
	High of 30° on the 16th		

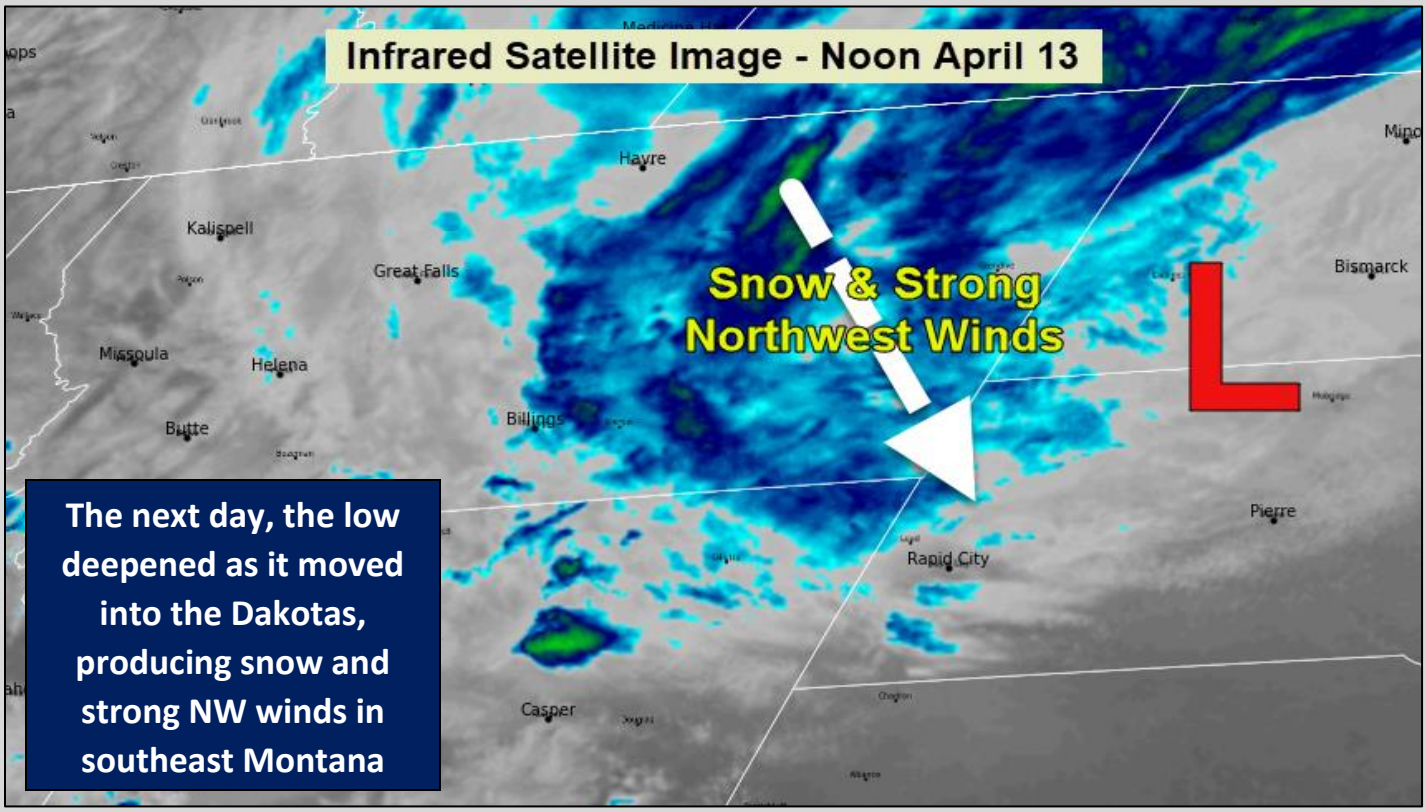
METEOROLOGY: A cold front on April 9th followed by a chilly air mass across the region on the 10th and 11th were important components to this winter storm, as relatively cold air was already in place when the Pacific system (and even colder Canadian air) arrived. The combination of strong upper level ascent, deep easterly (upslope) winds and temperatures favoring dendritic snow growth led to intense snowfall rates on the night of the 11th and morning of the 12th. The upper level low deepened and tracked slowly as it moved from Wyoming into the Dakotas, and this was responsible for the long-duration blizzard conditions that occurred in southeast Montana (as well as northeast Montana and most of North Dakota). Overall, the strength, duration and magnitude of cold associated with this spring winter storm made it an event for the history books.

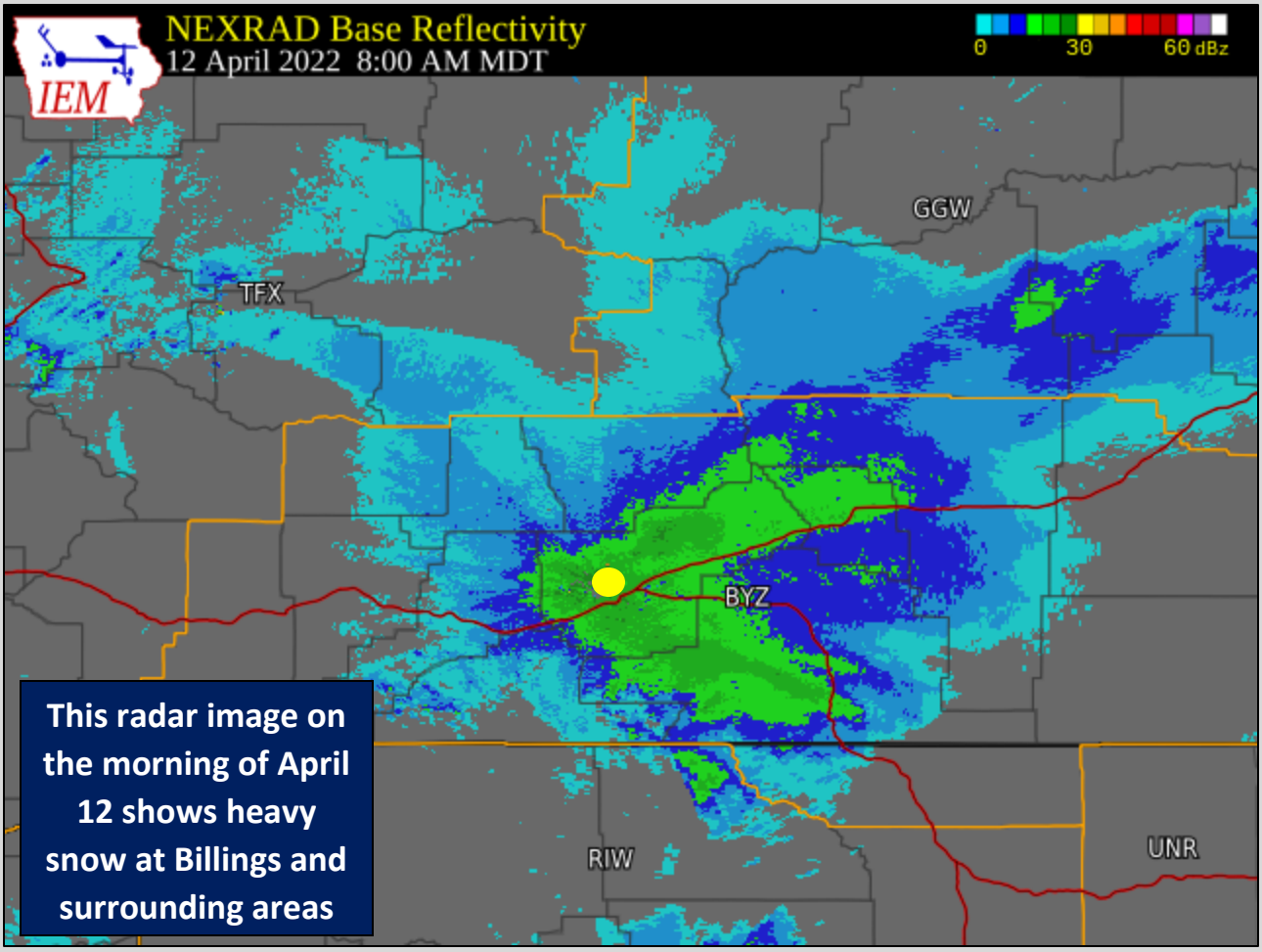
The surface analysis on the right shows cold high pressure surging out of Canada as the storm system moved from southern Idaho into Wyoming. This is an ideal scenario for heavy snow in southern Montana and northern Wyoming.



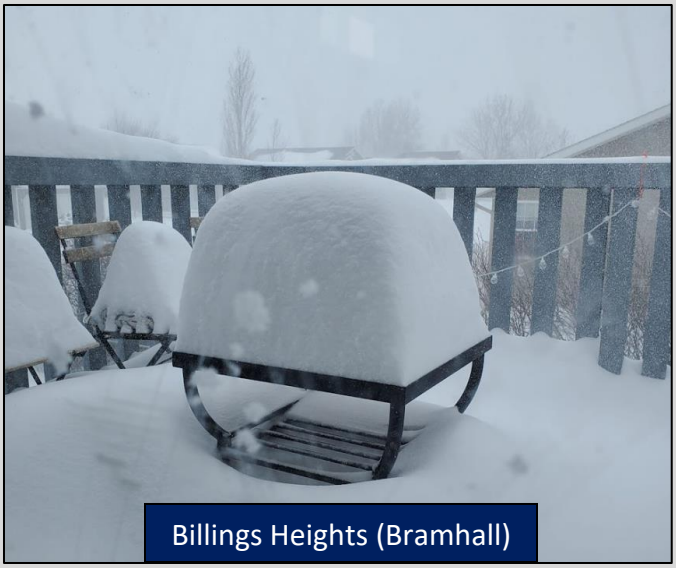
4/12 6am Surface Analysis


Infrared Satellite Image - Morning of April 12
Kalispell
Havre
Spokane
Great Falls
Minot
Missoula
Helena
Billings
Bismarck
Bend
Boise
Pocatello
Moisture
L
Elko
Salt Lake City
Provo
Cheyenne
Ely
Denver
Grand Junction
The position of the upper low was ideal for strong lift and deep easterly upslope winds on Tuesday


Infrared Satellite Image - Noon April 13
Havre
Kalispell
Great Falls
Bismarck
Snow & Strong
Northwest Winds
L
Missoula
Helena
Butte
Billings
Pierre
Rapid City
Casper
The next day, the low deepened as it moved into the Dakotas, producing snow and strong NW winds in southeast Montana



PHOTOS: Here is a sampling of photos from across the area.



Storm's Aftermath in Baker

Highway 7 between Baker & Ekalaka (Butori)

Trucks in Broadus waiting for US-212 to open (Pedersen)

Heavy Snow in Dean (Adams)