

Sublimation of Snow Daily Weather Blog

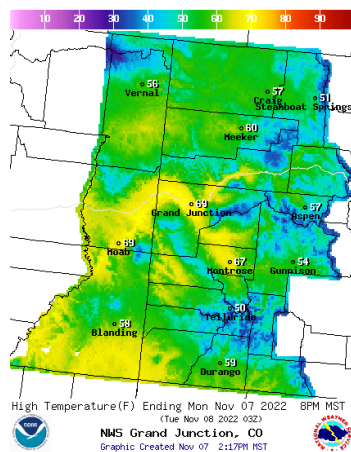
Discussion of observations from the site, Gothic, and synoptic events weather around the region for Winter 2022-2023

Week 22: March 20 to March 26, 2023

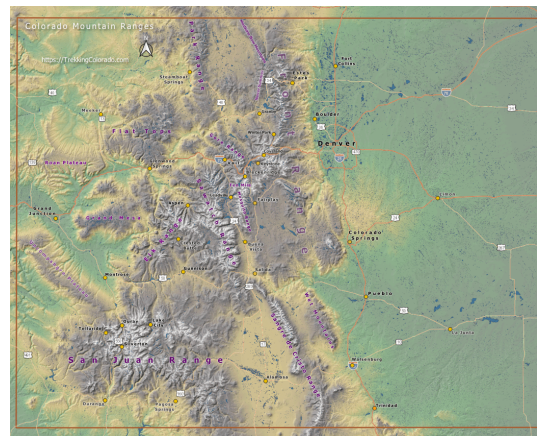
Resource Links

- [Surface Analysis Maps](#)
- [Windy.com](#) for Forecast
- [Tropical Tidbits Forecast](#)
- [billy barr site](#)
- [Grand Junction Area Forecast Discussion](#)
- [Alicia Bentley GFS Maps](#)
- [SOS Field Project - EOL/ISFS Home](#)

County Warning Area



Mountain Ranges of CO



March 20, 2023

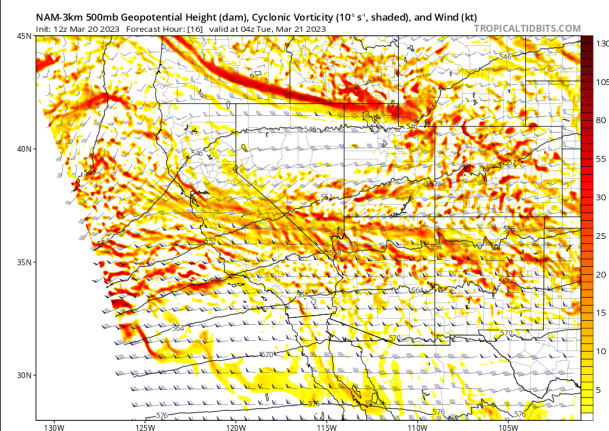
Daily Weather Discussion

becoming cloudy overnight as the next storm system moves in with light snow starting an hour before sunrise, picking up a bit later and holding light to moderate until letting up late morning. Only very light snow in the afternoon with no wind as it warms to near freezing.

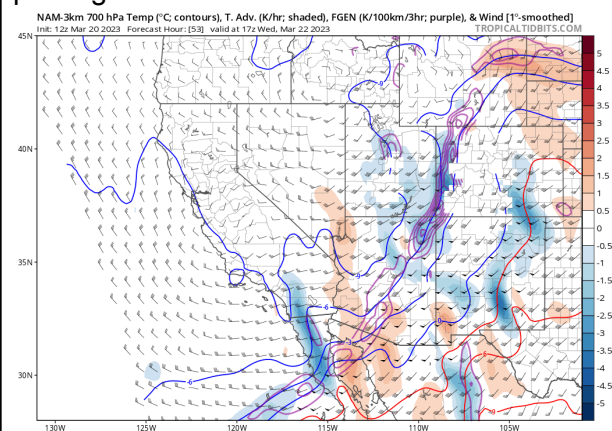
Synoptic Overview

Shower activity started up this morning and the atmosphere saturated rather quickly although certain areas in the central mountains were a bit slower to saturate. With this saturation came cooling temperatures. A shortwave shed from the parent trough over the PNW continues to slide east and should be on the other side of the divide by midday today. The parent trough slides down the Northern Rockies and over into the Plains by tomorrow morning (March 21) and will continue to usher in PWAT values above normal. After the trough passage, subsidence will take over for areas in the central and northern mountains, but the southern mountains may be able to hang onto some snowfall with zonal flow in place and remnant moisture. Tomorrow, a second, more potent, closed low in this AR will hit the CA coast. The base of this system will spread far to the south and result in strong south-southwest flow over the four-corners region. The low will be slow to move inland and stay along the coast into tomorrow evening. Winds aloft will be on the increase as a strong jet lies overhead as it rounds the base of the trough in place. Precipitable water values will spike up above normal again. With abundant moisture and increases in jet dynamics aloft, showers will increase over the day from the south to the north. Temperatures will be on the decrease over the day today, relative to yesterday (March 19), due to the persistent cloud cover. Warmer temperatures will remain in place into tomorrow. Precipitation will continue to become more widespread tomorrow night as the AR pushes further inland. As the trough axis moves overhead early Wednesday morning (March 22), a cold front will drape across the region.

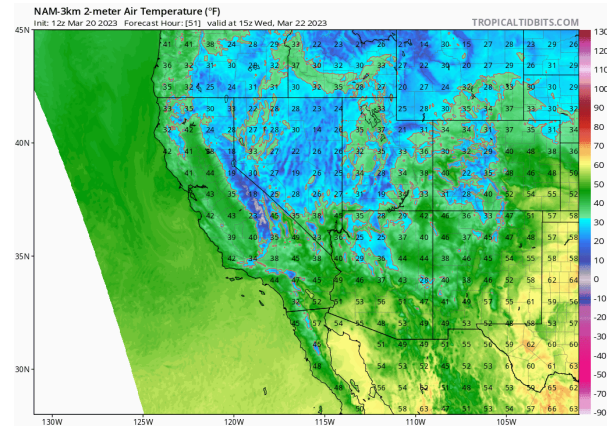
Forecast: Orographic lift powers vertical motion tomorrow



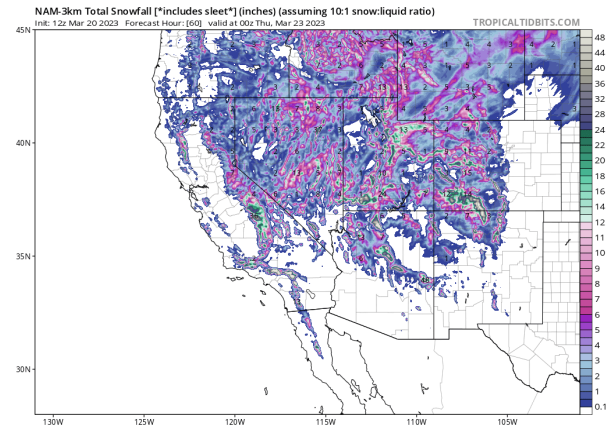
Forecast: Late Wednesday (3/22) for frontal passage



Forecast: Temperatures stay mild, then cool with cold front



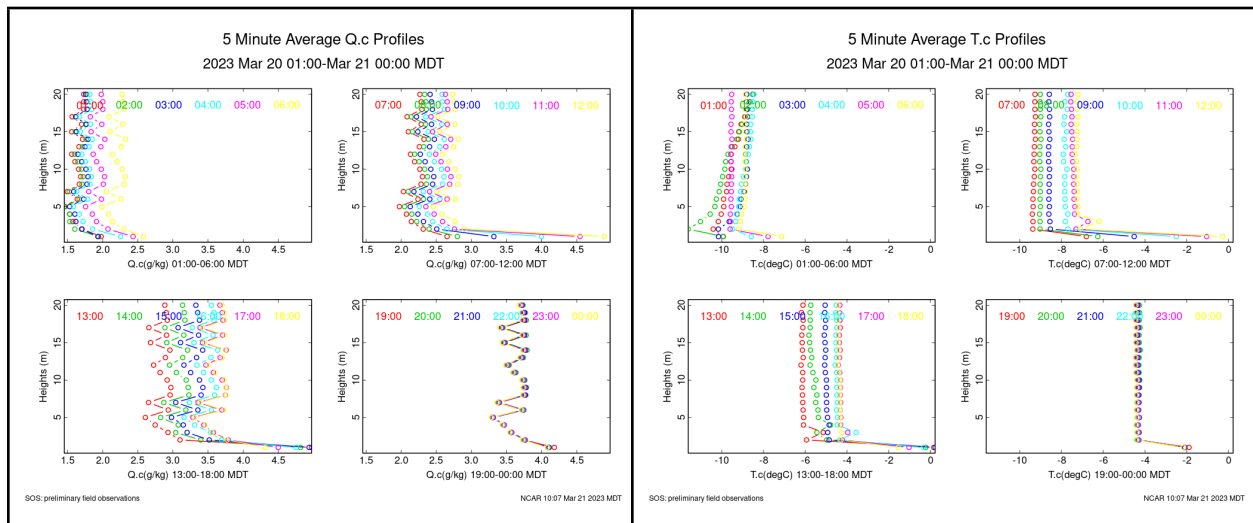
Forecast: Widespread snowfall centered to our south by 3/23

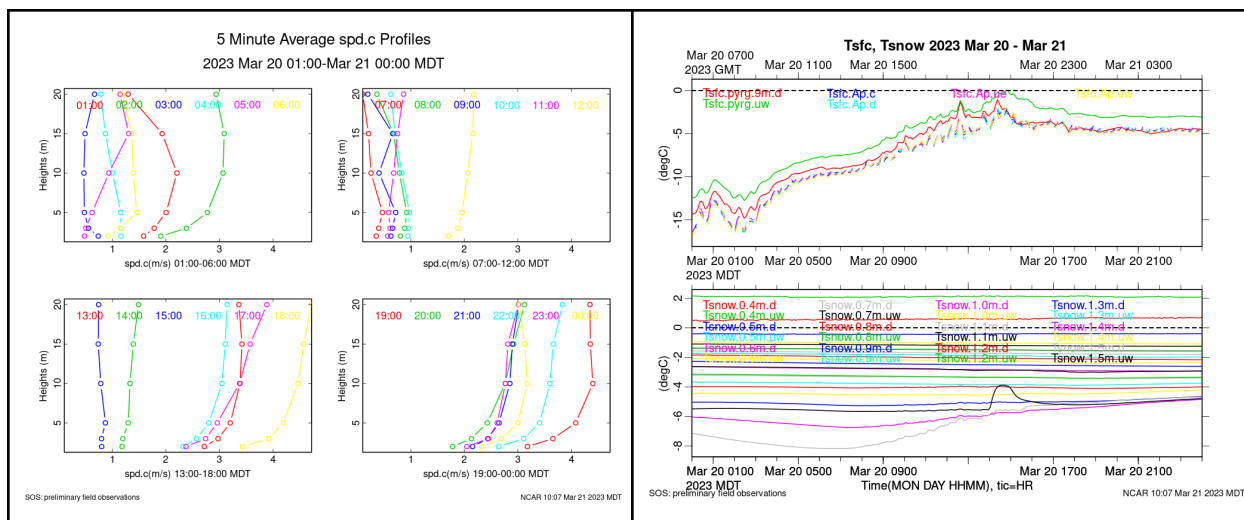


Equipment Notes

- Not as extreme but 0.4 and 0.5 uw Tsnows are out
- Sonic on downwind at 2m is buried
- IRGA went out for much of the day
- Blowing snow in the afternoon

Figures





March 21, 2023

Daily Weather Discussion

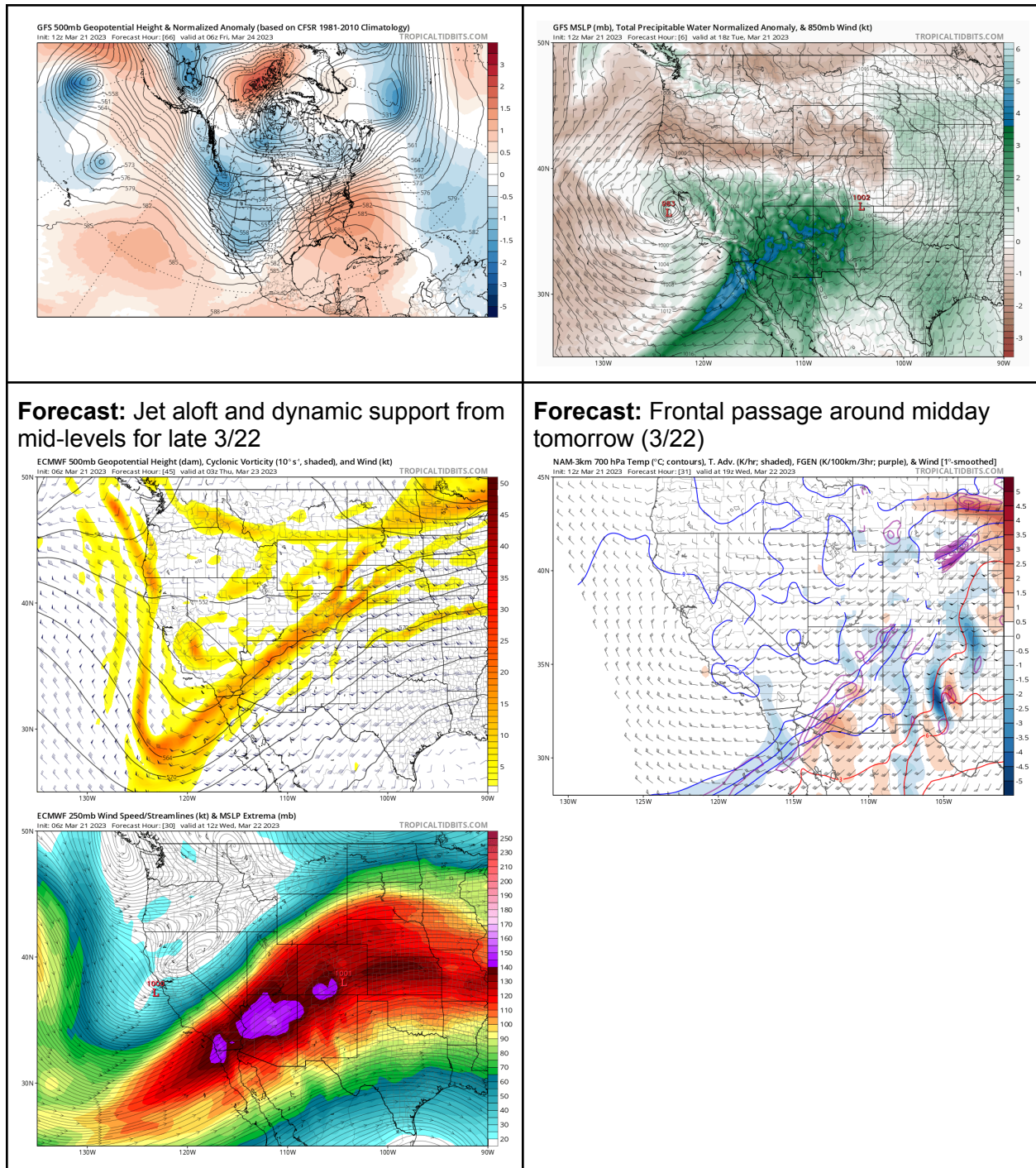
cloudy most of the night with steady snow and strong wind just after midnight, then clearing and calm a couple hours before sunrise so temperature drops fast, then clouds build soon after sunrise. Cloudy, calm and mild all day with scattered, light afternoon snow showers.

Synoptic Overview

A rex pattern/omega block is setting up with ridging over the Pacific, troughing over the western US and a blocking high pressure system to the east. A strong system arrives into the CA coast today and the blocking pattern will allow the trough to continue to deepen down into Mexico. This setup is favorable for AR moisture to be brought well inland, which will occur today into tonight. Snow tapers off in the central and northern zones this morning as the storm that came down from the PNW heads to the northeast. This Pacific trough has a strong jet associated with it, and this jet will start to nose into the region later today. The southern mountains will get the bulk of snowfall with precipitation moving towards the north over the day. Snow levels will stay high with strong and moist/warm advection. Unstable air will be moving in aloft, so some lower snow levels are possible due to this instability. With the jet above and mid-level frontogenetical instability, precipitation will continue through the morning tomorrow (March 22). Well below average temperatures continue for the foreseeable future.

Forecast: REX pattern showing up

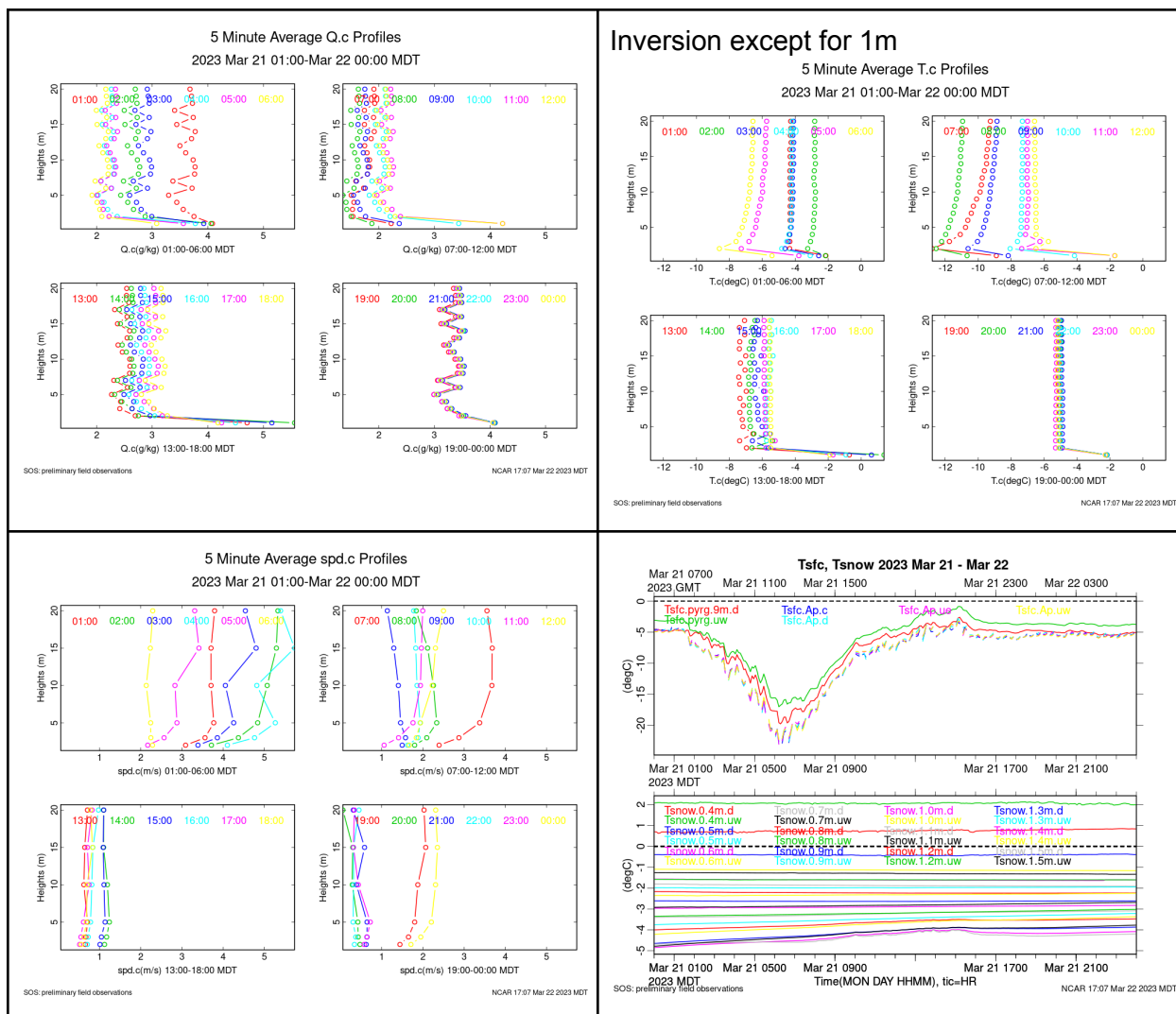
Forecast: AR moisture on 3/22



Equipment Notes

- IRGAs went down later in the afternoon
- Blowing snow in the morning and afternoon

Figures



March 22, 2023

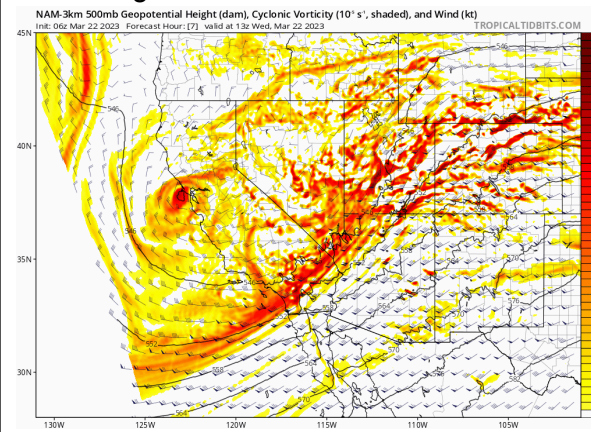
Daily Weather Discussion

cloudy with steady light to moderate snow overnight with wind picking up at midnight as it stays quite warm. It stays cloudy and warm with just light snow as wind holds moderate but gusting but by mid-morning the wind lets up and snowfall becomes heavy, letting up at noon. Light, wet snow through the afternoon with steady, moderately strong wind. 14" measured from billy.

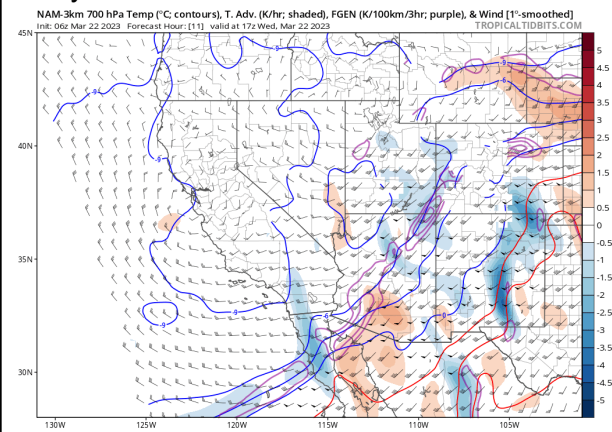
Synoptic Overview

Deep, moist, southwest flow is in place today with the AR moisture tapped and entrained into the region and a strong jet aloft assisting in the forcing. The cold front associated with the passing system moves across the region later in the day today driven by the negatively tilted trough. The front passes through during the time of peak-heating, allowing instability to take hold and power strong banded precipitation. With fast flow aloft, the winds will be strong with blowing snow. Behind the front, temperatures and snow levels will drop. Cold and dry air will then be filling in, drying out the atmosphere. With clearing in the afternoon and breezy conditions, the boundary layer should be well mixed. The strong jet moves eastward into the evening along with its forcing. A trailing wave in the post-frontal westerly flow moves through tomorrow (3/23) and will allow for another round of showers to develop with instability in place. Temperatures remain below normal.

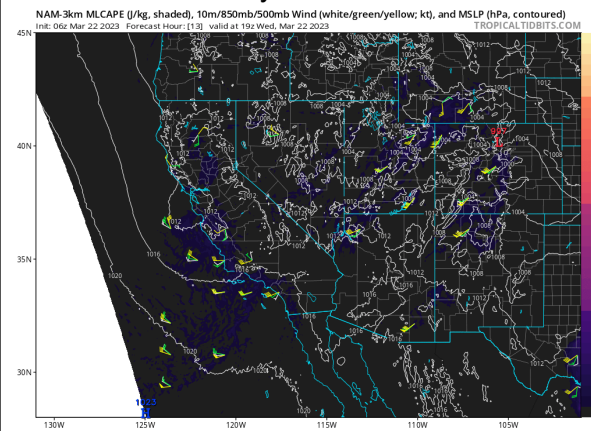
Forecast: Vorticity and digging negatively tilted trough 3/22-3/23



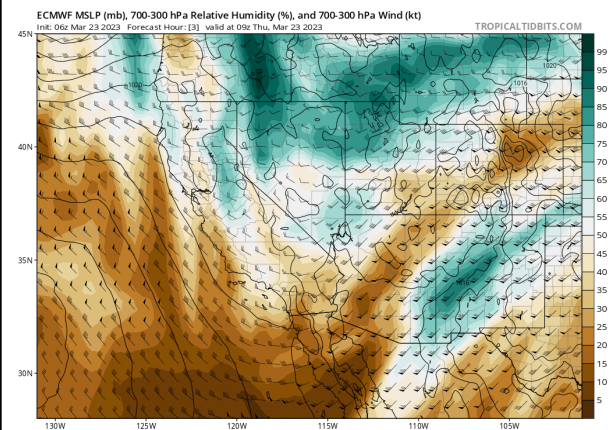
Forecast: Cold front timing around mid-day today



Forecast: Instability around for the afternoon



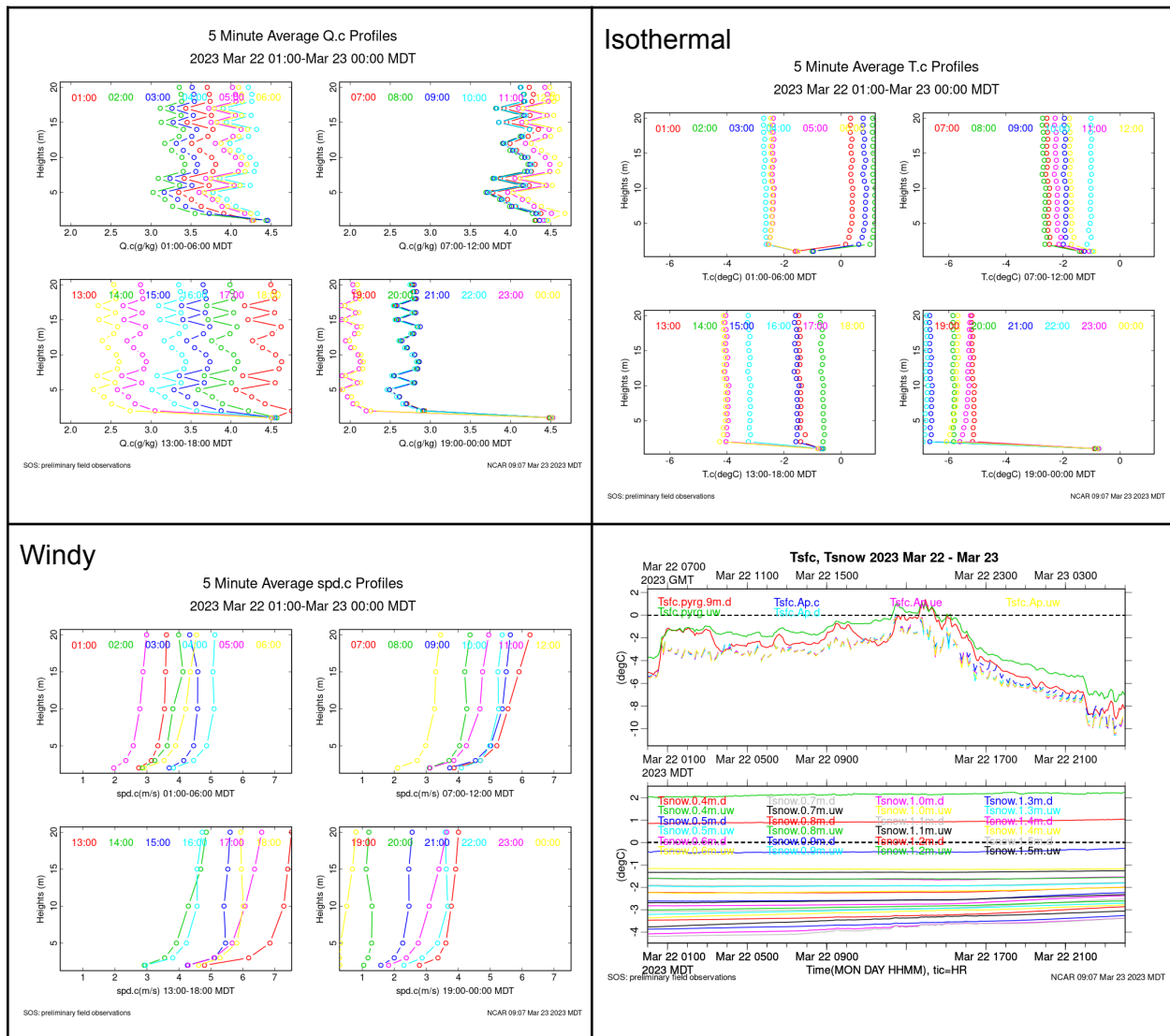
Forecast: Atmosphere drying out tonight after the front



Equipment Notes

- Lowest C, D and UE sonics are buried
- 0.4 and 0.5 m Tsnows are down
- Mild temperatures

Figures



March 23, 2023

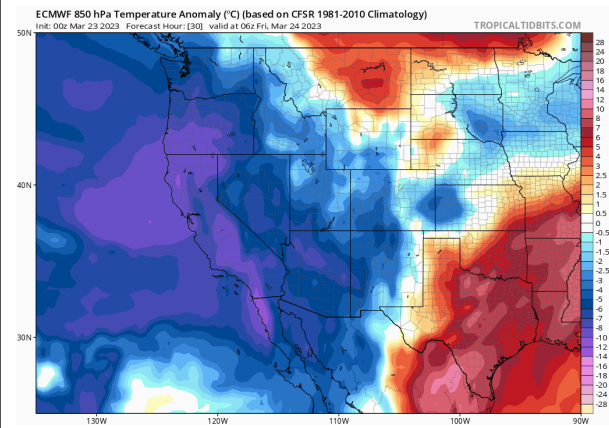
Daily Weather Discussion

cloudy and mild with light snow ending by midnight with wind letting up near sunrise following by some clearing, though only lasting briefly. Mostly cloudy and warming through the morning, then holding steady through the afternoon until turning cloudy with light snow in the evening. 3" measured from billy.

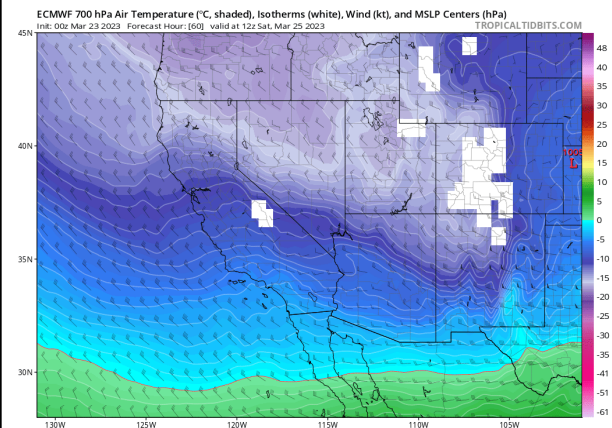
Synoptic Overview

The bulk of North America is currently under a large scale trough with a blocking Bermuda high over the southeast. The long wave trough will be reinforced today by some high latitude energy descending down the Pacific coastline. The energy aloft will move over the Great Basin/SW over the next 24 hours. A more potent system will kick through the area tomorrow and drag a strong surface cold front over the area. With residual moisture, steep lapse rates, and orographic flows, any perturbations will start kicking off convective showers as the PBL heats over the day. Small areas of significant snowfall are possible with these convectively driven storms with low density snow. Temperatures in the near term will stay below average with temperatures dropping further behind the cold front arriving tomorrow (3/24). The negatively tilted shortwave and vorticity maxima will move through by tomorrow night (3/24). Showers will be cut off behind the front as northwest flow and subsidence take hold.

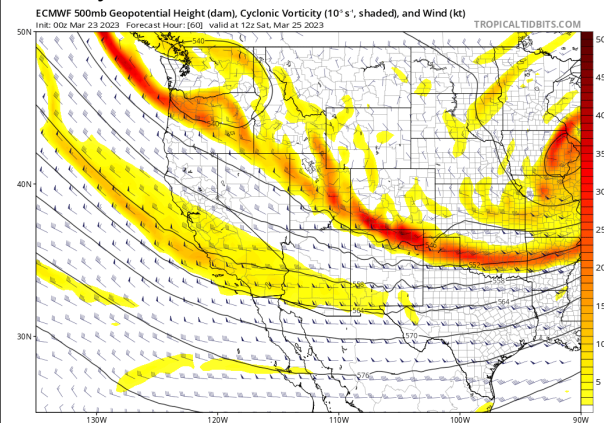
Forecast: Cold front moving through Friday afternoon, 3/24



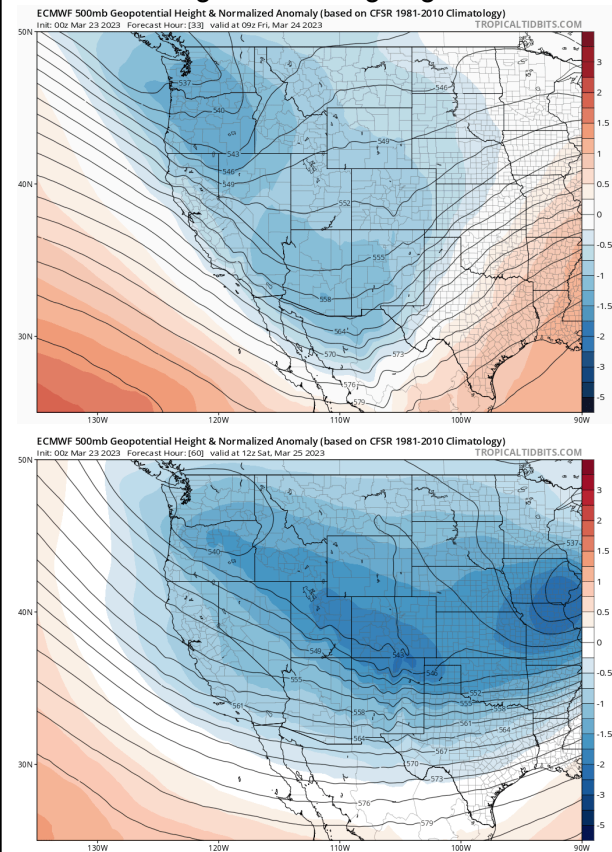
Forecast: Tongue of cold air coming in by 3/25



Forecast: Shortwave disturbance with vorticity on 3/25



Forecast: Large-scale troughing 3/25-3/28



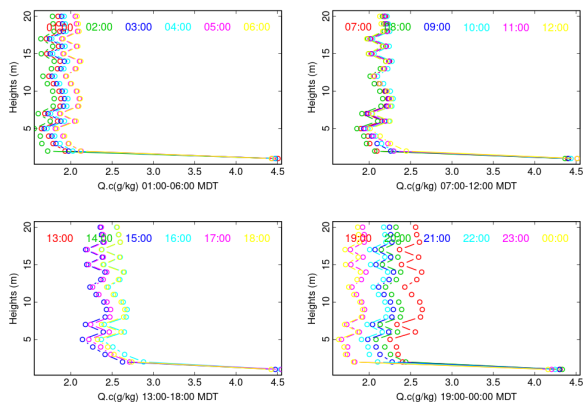
Equipment Notes

- Blowing snow in AM
- C, D, UE towers 1m sonics down
- System down for 35 minutes in afternoon

Figures

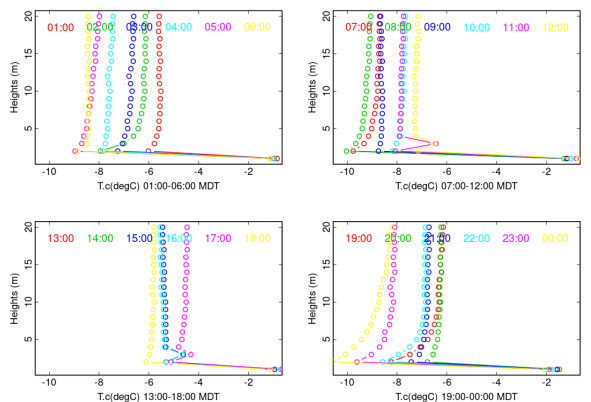
Ignore the buried T/RH

5 Minute Average Q.c Profiles
2023 Mar 23 01:00-Mar 24 00:00 MDT



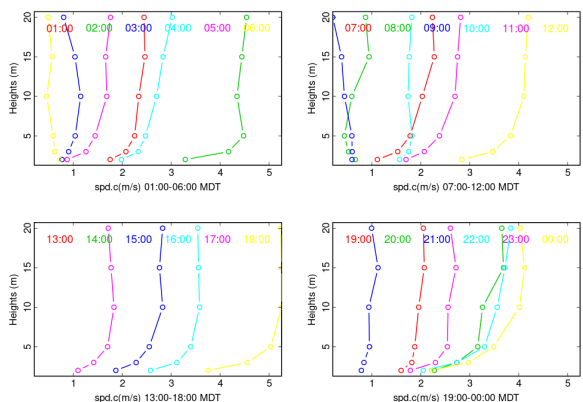
Mild under the snow

5 Minute Average T.c Profiles
2023 Mar 23 01:00-Mar 24 00:00 MDT



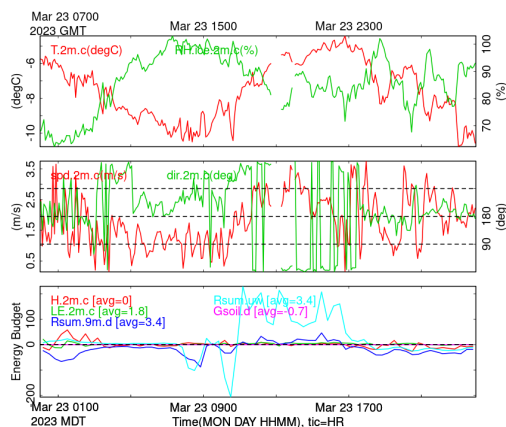
Winds

5 Minute Average spd.c Profiles
2023 Mar 23 01:00-Mar 24 00:00 MDT



Remaining cool

2023 Mar 23 - Mar 24



March 24, 2023

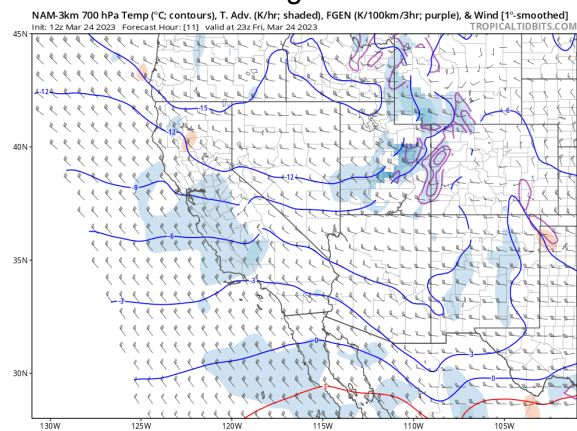
Daily Weather Discussion

cloudy and cooler with light, scattered snow overnight. A bit of clearing after sunrise and turning mostly cloudy mid-morning, then mostly cloudy and windy through the afternoon until becoming cloudy late day with very light snow. 1.5" measured from billy.

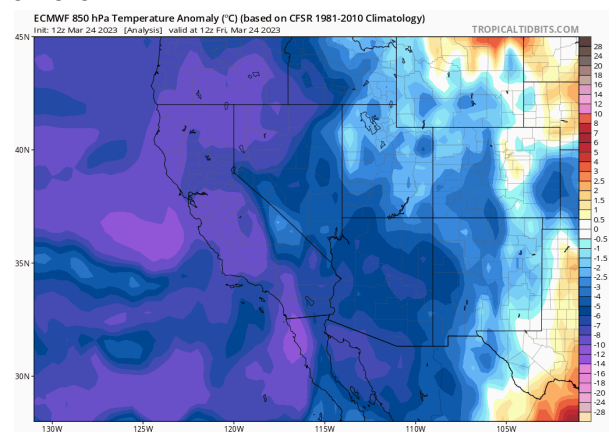
Synoptic Overview

Broad troughing over the western US is ushering in another day of active weather with cold air aloft. Convectively driven showers are in store with a stronger March sun and cold air in place, allowing unstable conditions to develop. Temperatures remain well below normal for this time of year. Later in the afternoon, things get a bit more interesting as the strong mid-level, negatively tilted shortwave moves through with a vorticity maxima over the western CO region. Diffuence aloft and positive differential vorticity advection overlaid by the area being under the left exit region of a decently strong upper level jet will develop favorable conditions for ascent from the large scale forcing. Much colder air will move in behind the developing cold front that will be brought in. Along the front, snow squall parameters are high, so windy, snowy conditions are possible along with some thunderstorm activity. Timing looks to be around the late afternoon/early evening. The table is set in the mountains for significant snowfall rates with CAPE, steep lapse rates, and strong lift within the dendritic growth zone. While this squall line won't last long, orographics will be able to keep snow coming. Continued troughing and very cold air in the mountains will keep passing snow showers in the area and a wintry feel as temperatures remain near record lows.

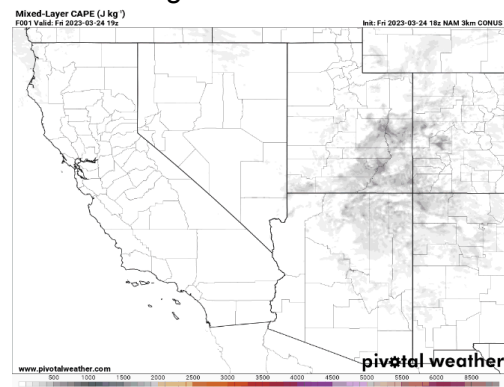
Forecast: Front timing on 3/24



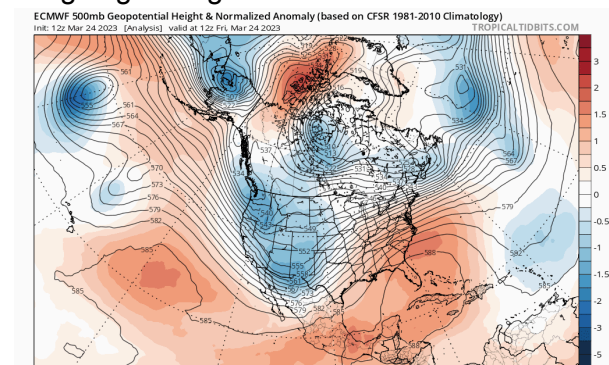
Forecast: Post-frontal Temperature anomaly 3/25-3/27



Forecast: Signs of convection 3/24-3/26



Forecast: A look ahead towards continued troughing through 3/30



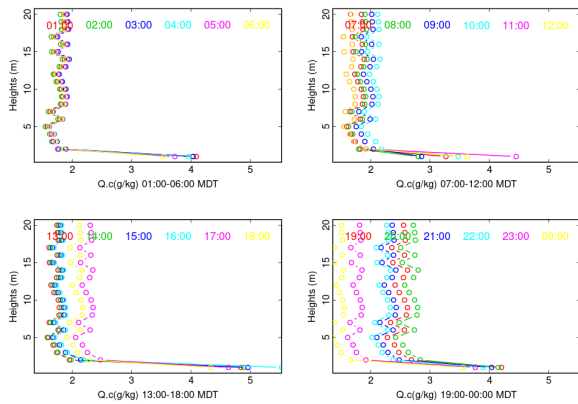
Equipment Notes

- UE 1m going in and out. C and D are down
- Blowing snow in the afternoon

Figures

Upward flux in Q

5 Minute Average Q.c Profiles
2023 Mar 24 01:00-Mar 25 00:00 MDT

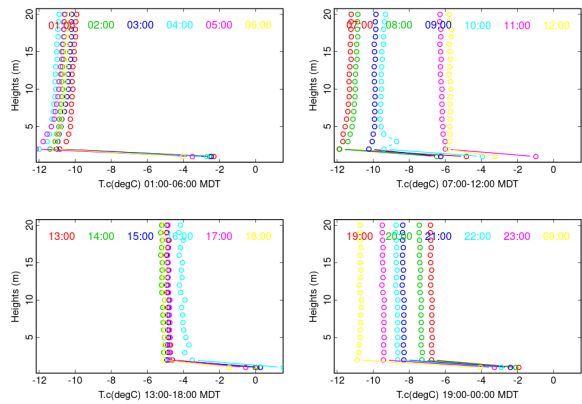


SOS: preliminary field observations

NCAR 17/97 Mar 25 2023 MDT

Relatively isothermal

5 Minute Average T.c Profiles
2023 Mar 24 01:00-Mar 25 00:00 MDT

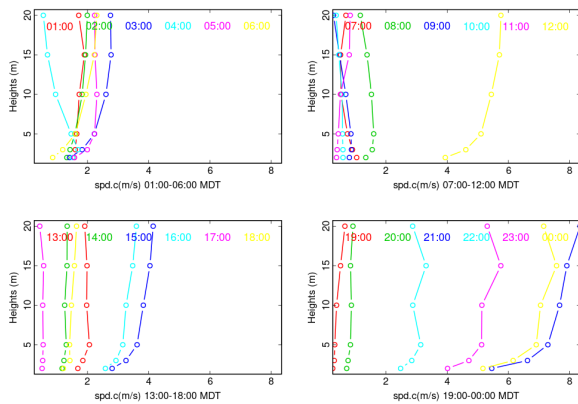


SOS: preliminary field observations

NCAR 17/97 Mar 25 2023 MDT

Windy in the evening

5 Minute Average spd.c Profiles
2023 Mar 24 01:00-Mar 25 00:00 MDT



SOS: preliminary field observations

NCAR 17/97 Mar 25 2023 MDT

March 25, 2023

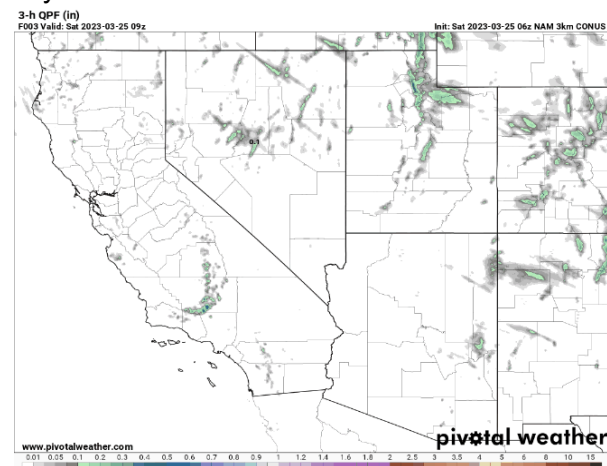
Daily Weather Discussion

cloudy and cooler with moderate to heavy snow after dark, stopping by midnight, then breezy and cold. Some clearing an hour after sunrise while it stays cold and breezy becoming cloudy mid-day with a light, cold weather (small crystals) snow and windy and stays that way through the afternoon. 6" measured from billy.

Synoptic Overview

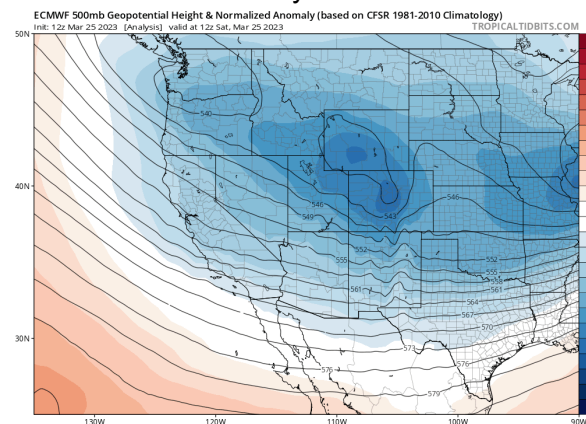
The strong surface cold front has moved into the CO plains with light snow showers left behind. The polar jet remains to the south with a broad area of low pressure still in place. Weak circulations and shortwaves will keep small snow showers moving through. Clouds build over the day as a disturbance moves through from the northwest. Generally, cold temperatures remain in place over the weekend (March 25-26) with increasing clouds and precipitation chances over the day before the brunt of precipitation moves through tomorrow afternoon. Into tomorrow (March 26) evening, a mid-level shortwave trough and associated vorticity maxima is progged to move west to east along the northern border of CO, dragging a strong surface cold front.

Forecast: Precipitation popping up over the day

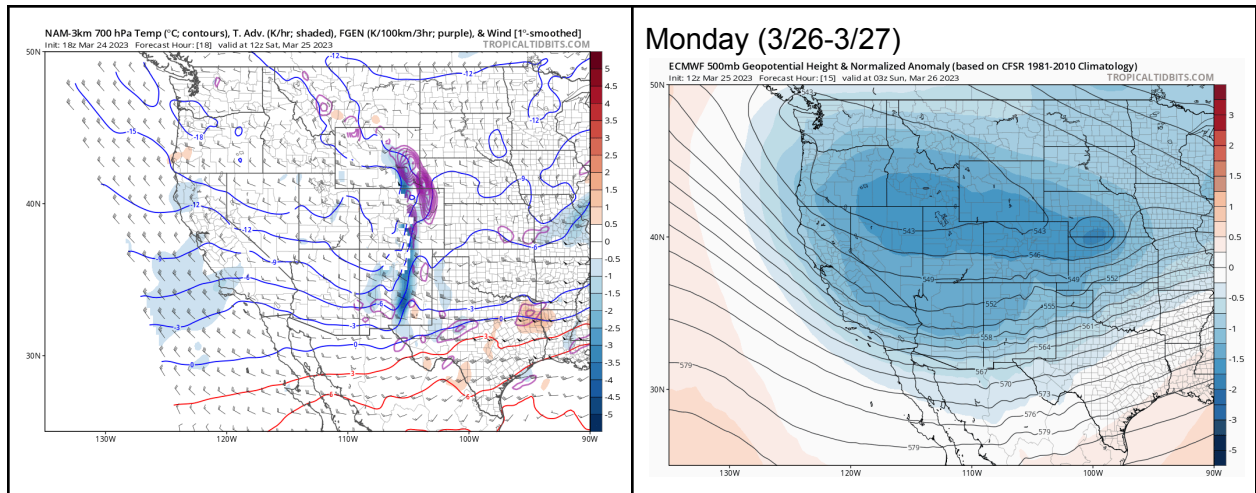


Forecast: Frontogenesis to the north today

Forecast: Broad scale troughing over western CONUS today



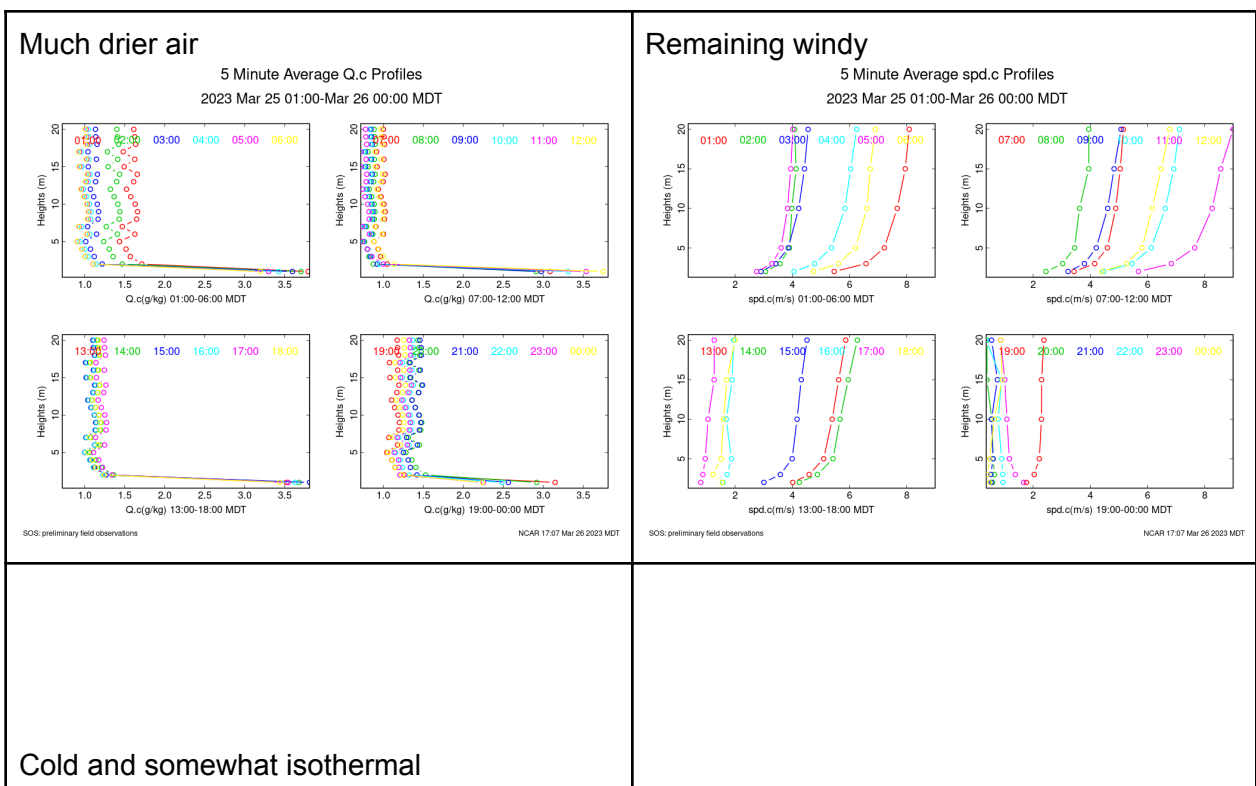
Forecast: Building ridge after Sunday and

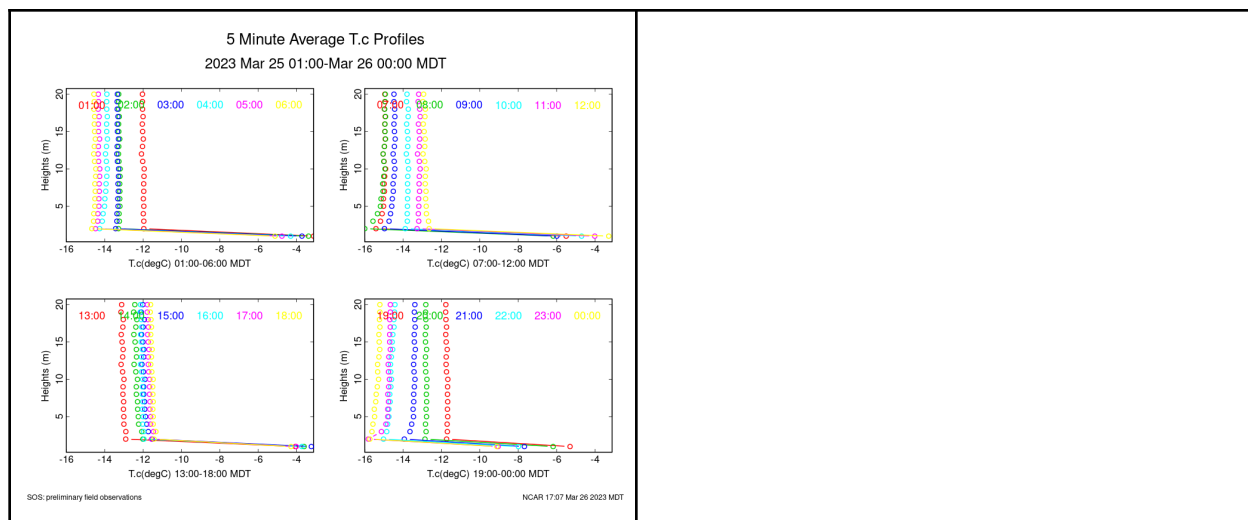


Equipment Notes

- All pillows above 400 mm swe.
- 1m sonics on D, UE and C are down
- Remained rather cold all day

Figures





March 26, 2023

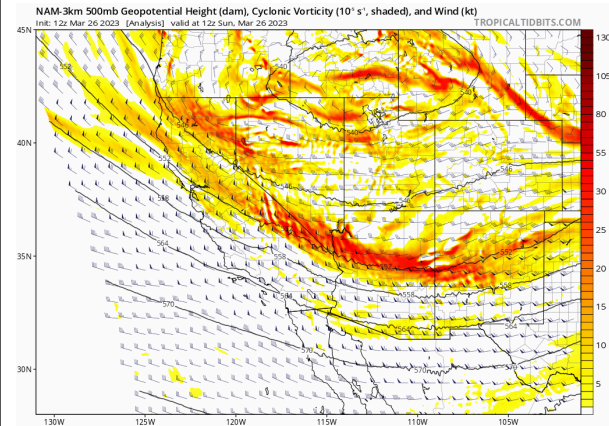
Daily Weather Discussion

some short-lived limited clearing overnight with light, scattered snow, turning very cold while cloudy. A bit of clearing mid-morning but cloudy by noon, then mostly cloudy to cloudy through the afternoon before staying cloudy with light snow in the evening. 2" measured from billy.

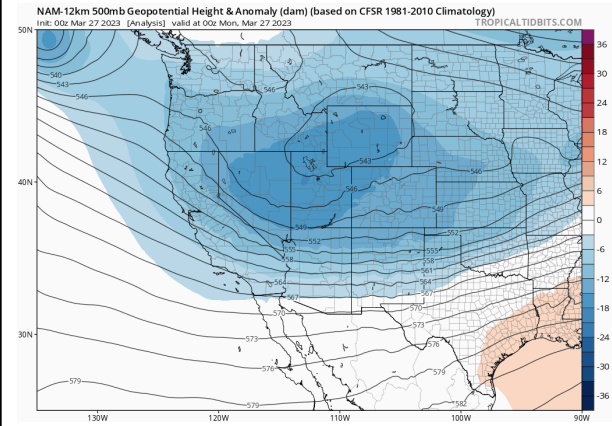
Synoptic Overview

A broad, closed mid-level low is spinning over western CONUS with the center over southern Idaho and progressing slowly eastward towards WY. Underneath this low, shortwaves of energy are progged to move through eastern UT and western CO. Cold air aloft, vertical motion associated with these pulses and the strong March sun will combine to develop steep lapse rates and snow showers over much of the region. Along with these shots at light snow, temperatures will remain well below average yet again. As the parent low moves east, a final strong shortwave trough and vorticity maxima will push across eastern UT and western CO with an associated surface cold front coming in from the northwest. Frontogenetical forcing and surface convergence will power the forcing along the front with diffluence and positive differential vorticity advection aloft allow the upper levels to support further ascent. By tomorrow morning (March 27), the front will have passed to the eastern part of the region. Temperatures will remain cold after the front ushered in another reinforcing shot of cold air. Sunshine and light winds may make the temperatures feel a bit more seasonable, however. Good agreement exists for a trough to start building overhead Tuesday (March 28) with warmer air finally being brought in from the SW.

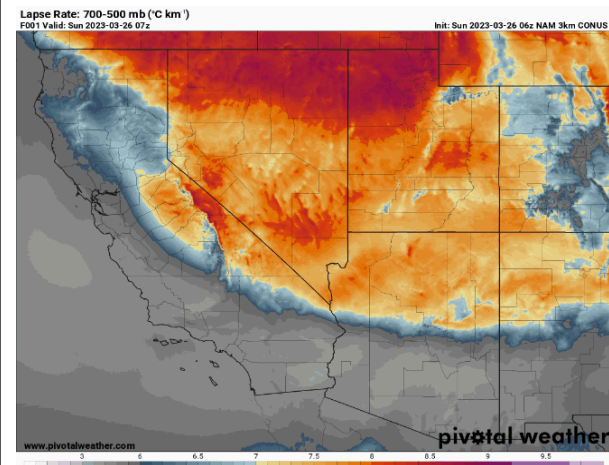
Forecast: Vorticity maxima and frontogenesis for early next week (3/27-28)



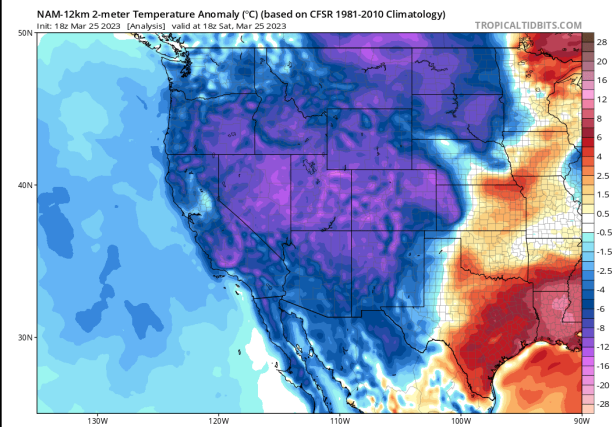
Forecast: Shortwaves of energy moving through 3/27-3/28



Forecast: 500-700 mb lapse rates and instability on 3/26-3/27



Forecast: Cold air moves in again



Equipment Notes

- System went down for around 1 hour towards the end of the day
- Blowing snow in the evening

Figures

