

Use of the fog/stratus product to detect a stratus deck on December 29, 1997

Kevin J. Schrab, WRH/SSD

[Figure 1](#) shows the 12Z IR image on 29 Dec 1997. Can you detect an area that contains a stratus deck? It is difficult to determine since the cloud top temperatures and ground temperatures are similar. [Figure 2](#) shows the 12Z IR image with an enhancement that color codes each 5 degrees Celsius (enter EU REST IRTEMPS on your RAMSDIS to display this enhancement). The use of the fog/stratus product is essential in this case to pick out the water clouds (stratus). [Figure 3](#) shows the 12Z fog/stratus image. It is very apparent that there are water clouds over much of northern and western Utah, as well as northern Nevada and southern Idaho. But are these stratus clouds or fog? [Figure 4](#) shows the 12Z fog/stratus image with the observed weather overlain. [Figure 5](#) shows the 12Z fog/stratus image with the visibilities overlain. These observations indicate that little if any fog is present in this region. METARs indicate that [ceiling heights](#) in the region range from about 2000 feet to 7000 feet. RAOBs ([Elko](#) and [Grand Junction, CO](#)) in the region indicate that clouds tops (based on cloud top temperatures of about -10C to -12C obtained by placing cursor over cloud and entering MINMAX2 on RAMSDIS) are at about 600mb. As it turns out the cloud top temperatures for this stratus deck are about 5C warmer (see [12Z surface temperatures](#)) than the surrounding surface temperatures in the clear regions (where radiational cooling allowed colder surface temperatures to occur as compared to the stratus covered regions).

Another interesting feature is the spatial distribution of the stratus deck. [Figure 6](#) shows the topography of the region. When comparing this with the extent of the stratus deck (see [Figure 7](#)) we see a strong correlation of stratus extent to topography. [Figure 8](#) shows the 700mb winds from the 12Z RAOBs. These winds indicate downslope drying would be occurring in the lee of the higher terrain of eastern Utah (Uinta Mountains and Wasatch Range). The fog/stratus image does indeed verify this occurrence. Also, the terrain may be acting to block these rather low clouds.

Figure 1.

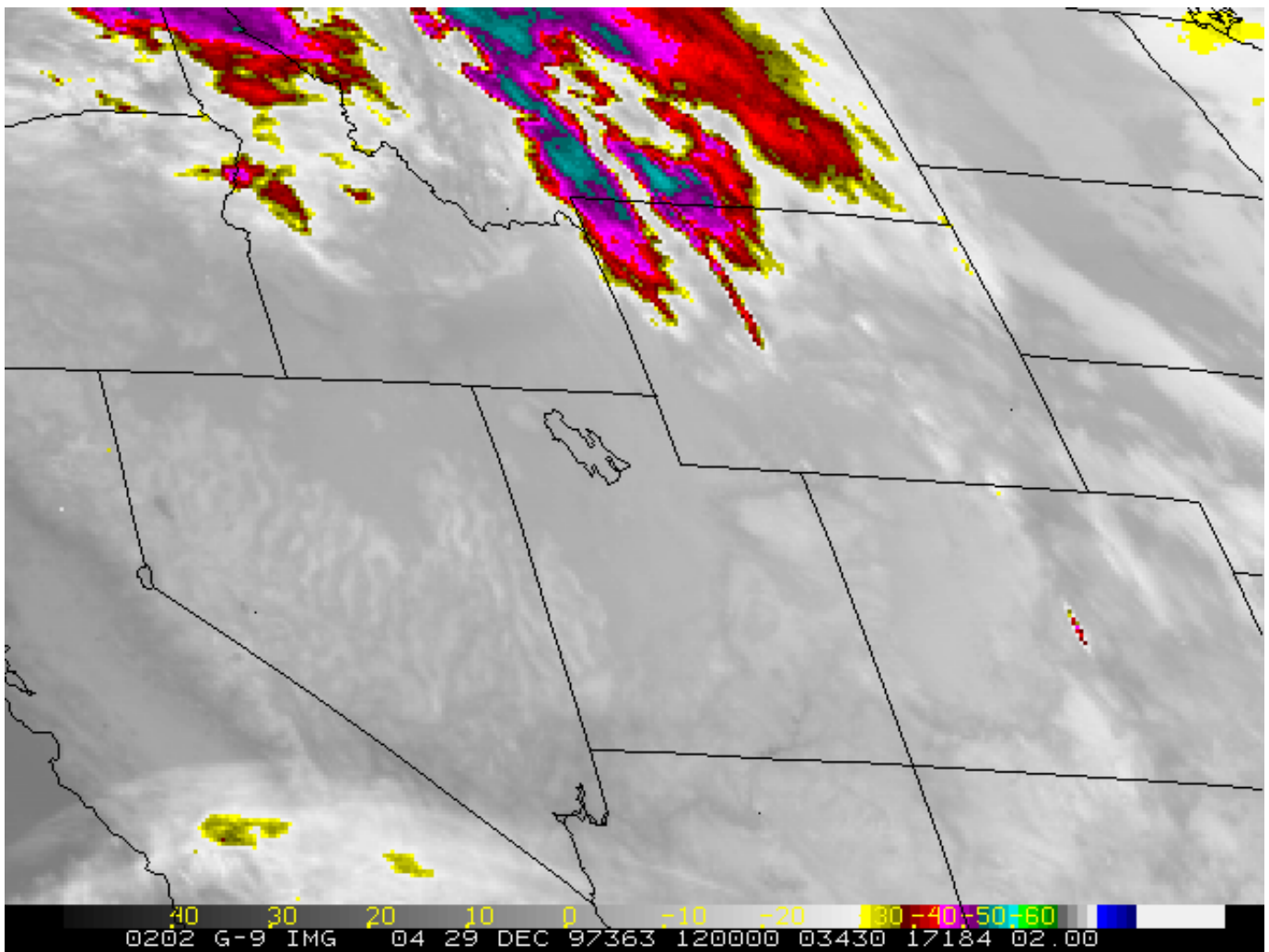


Figure 2.

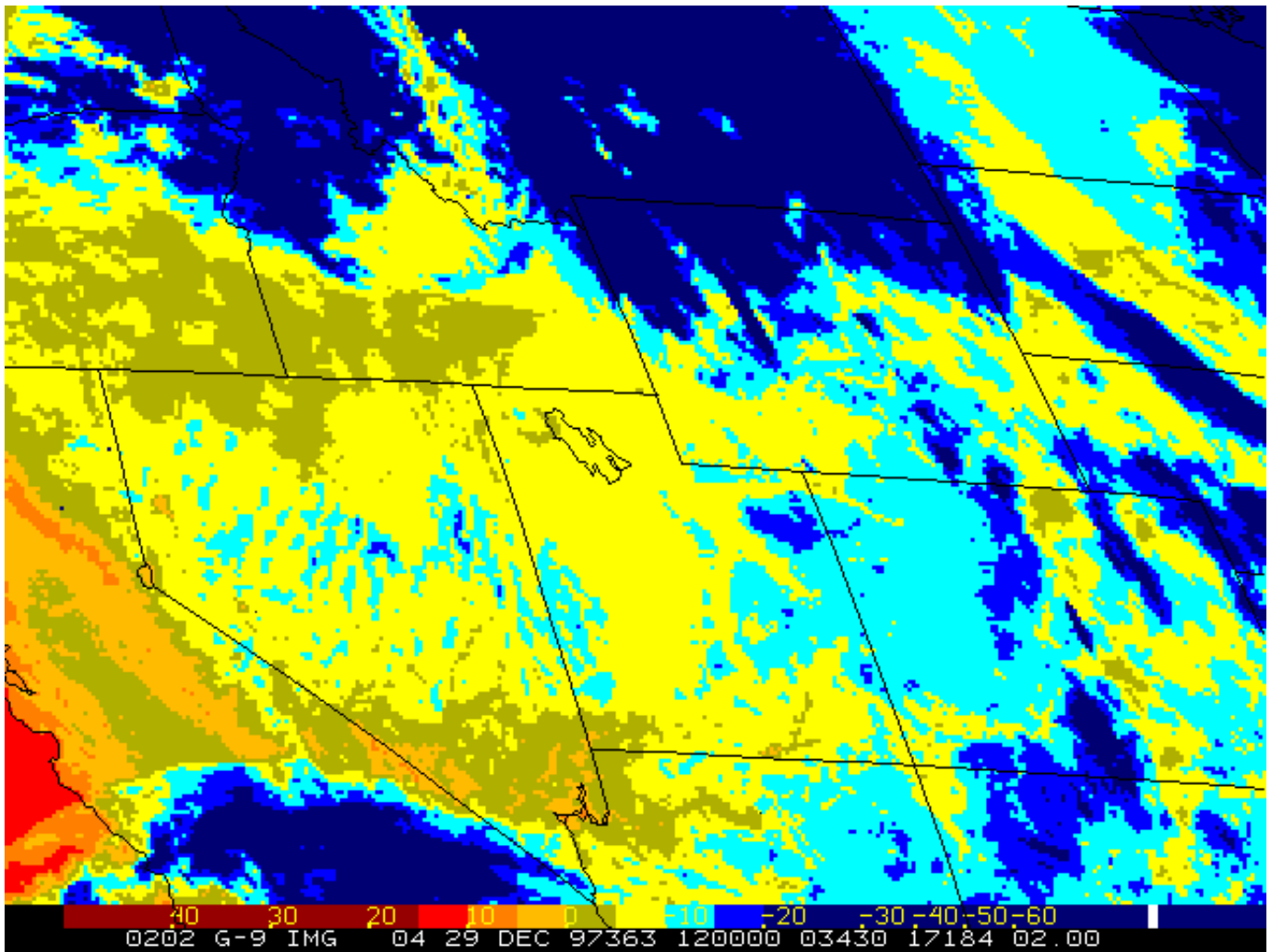


Figure 3.

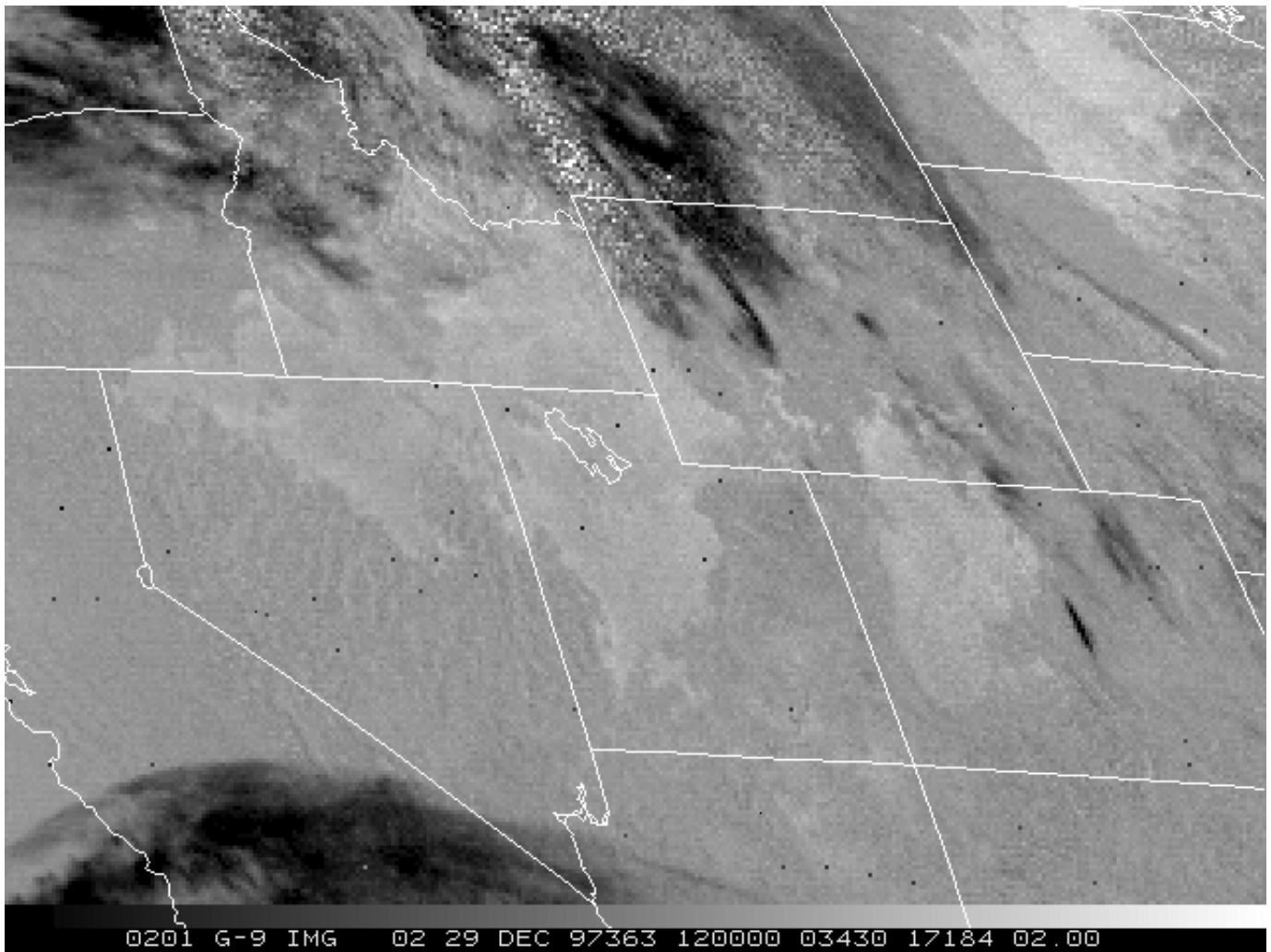


Figure 4.

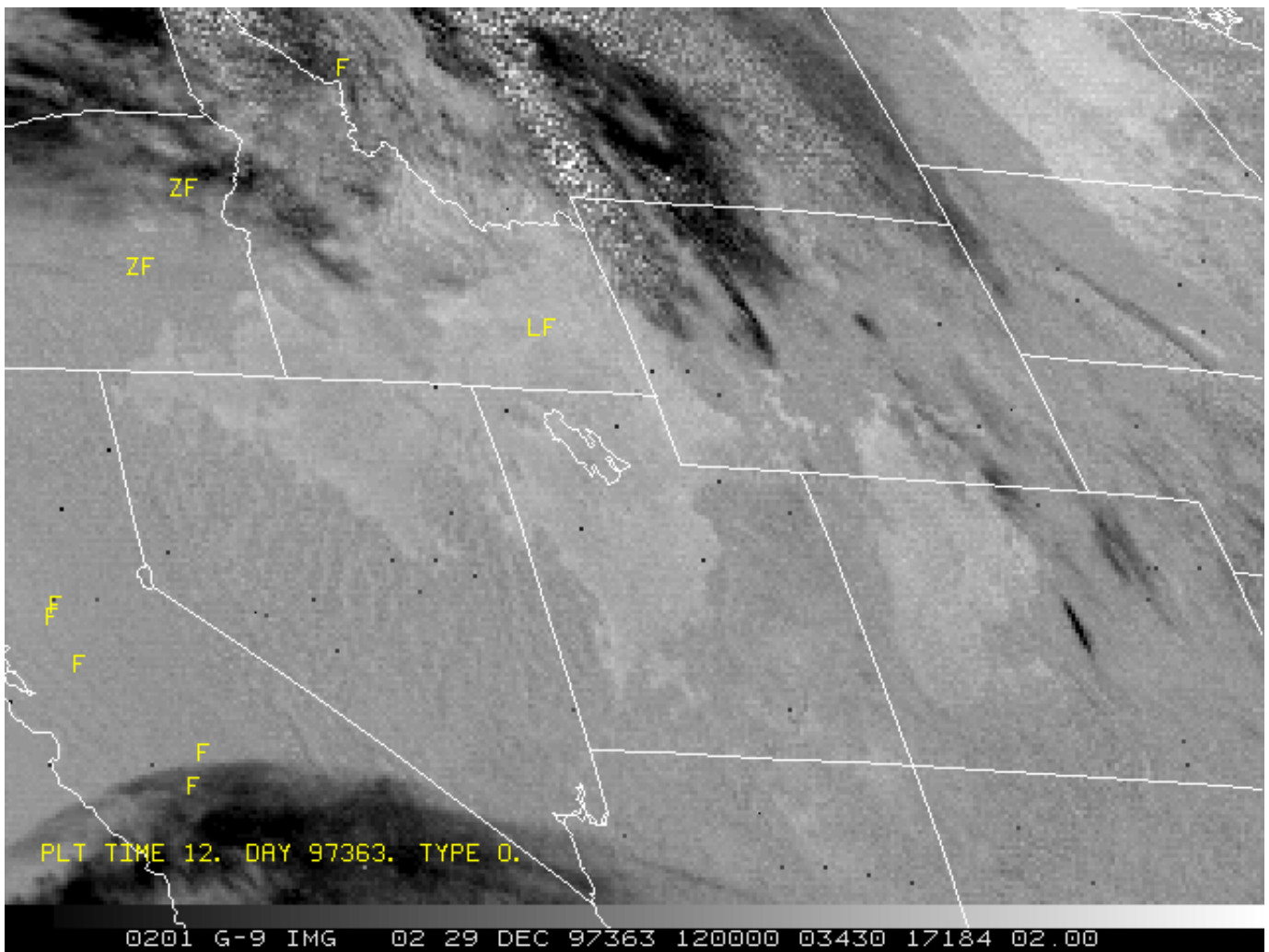
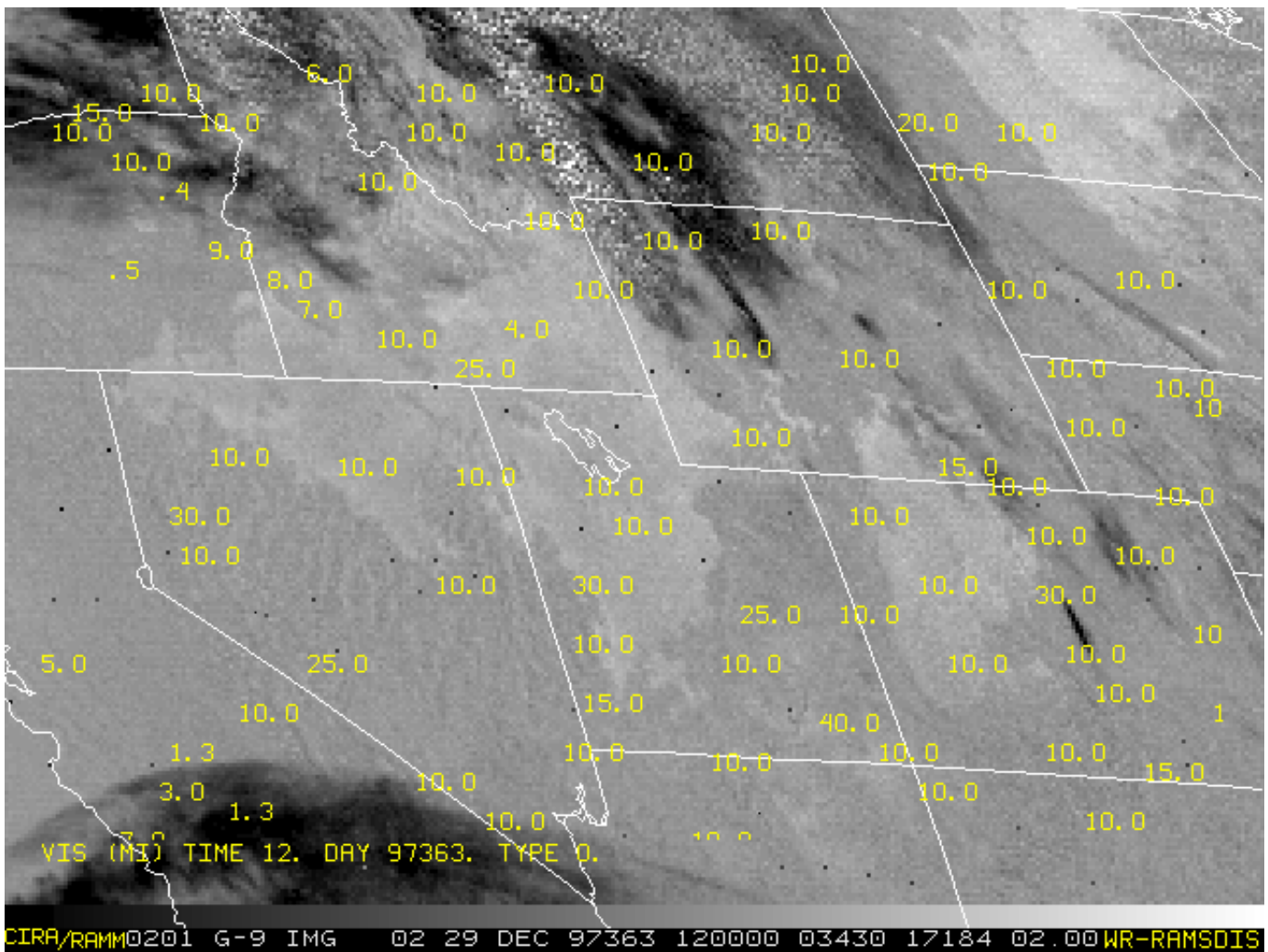
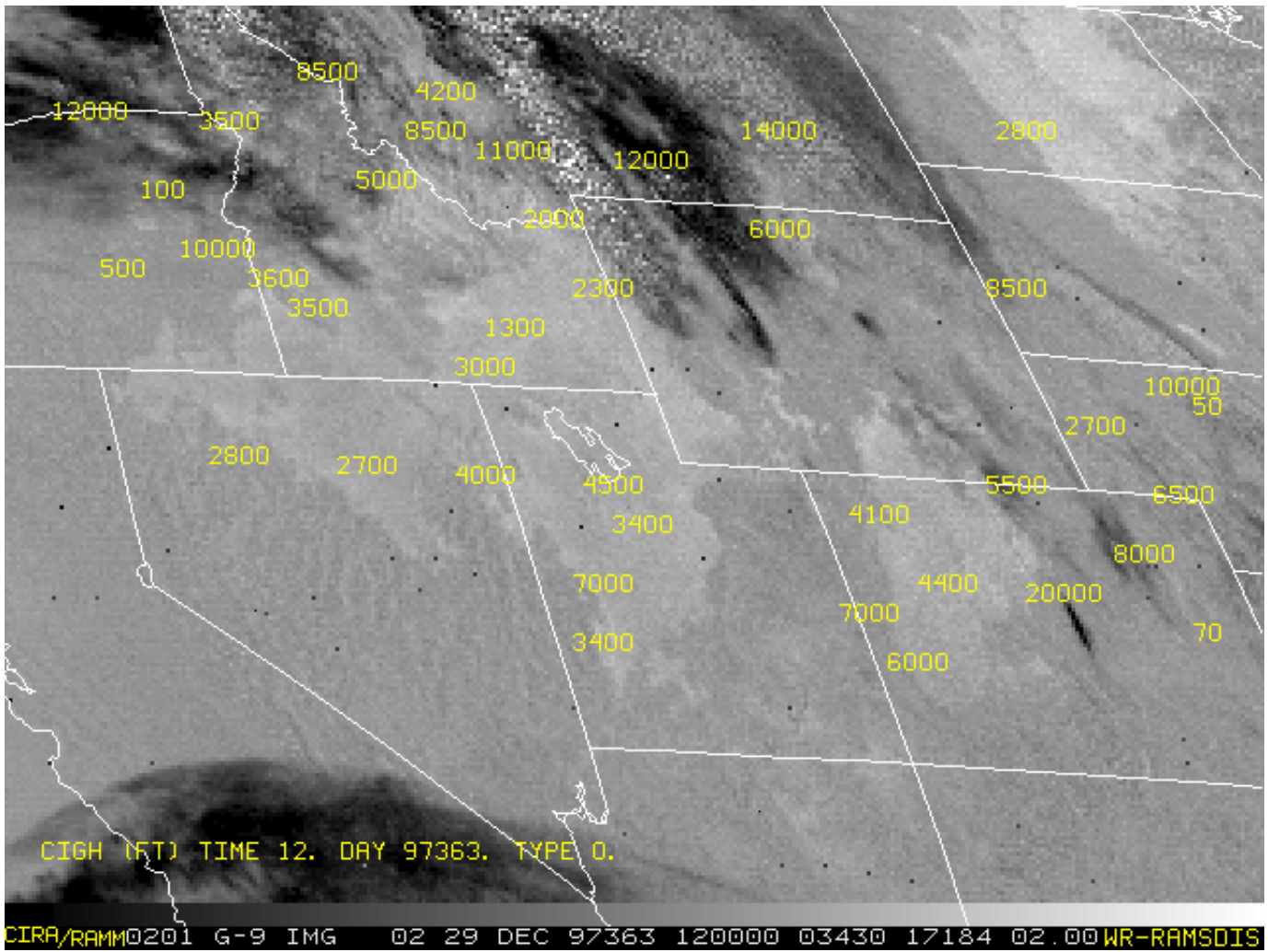


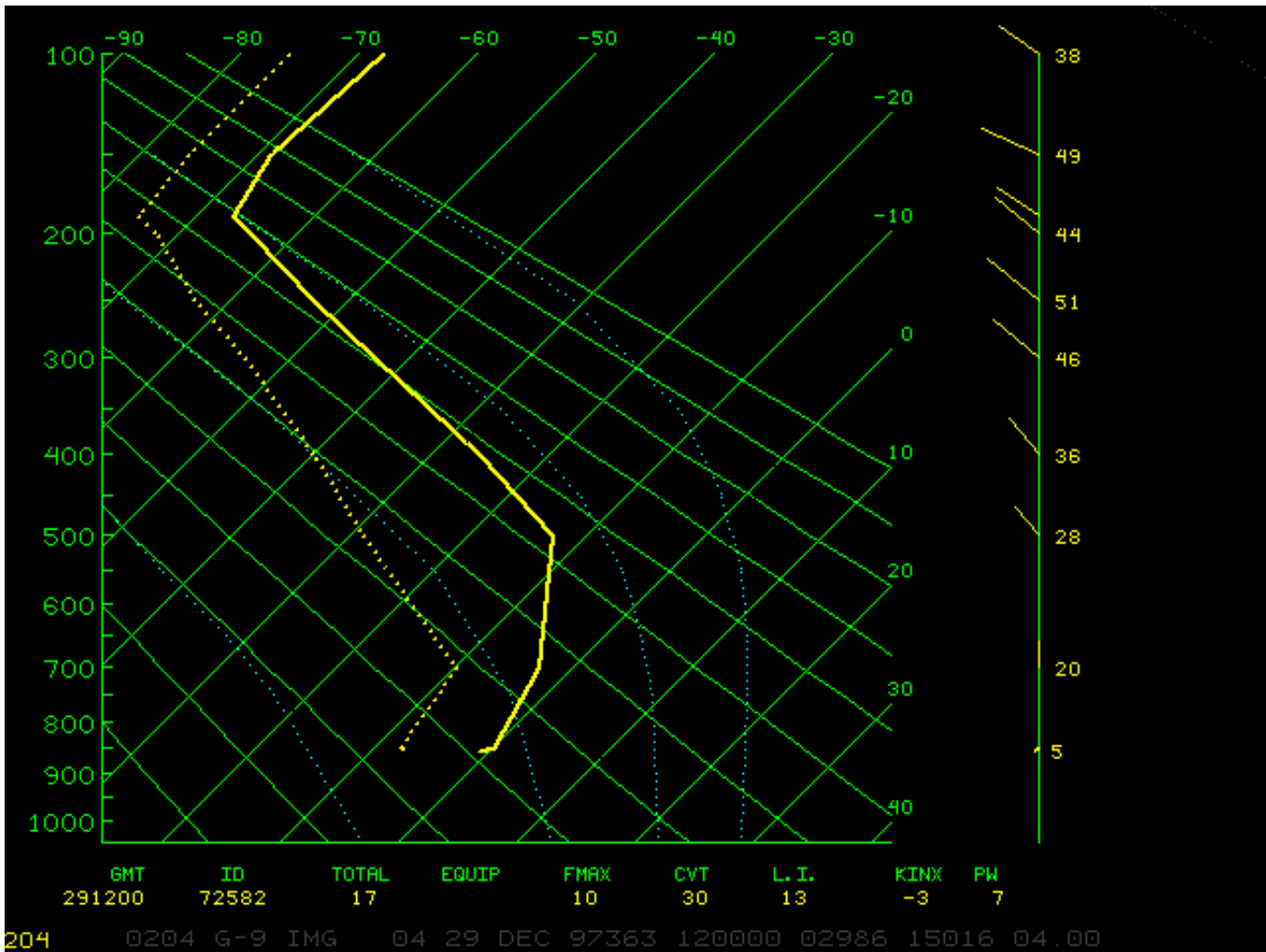
Figure 5.



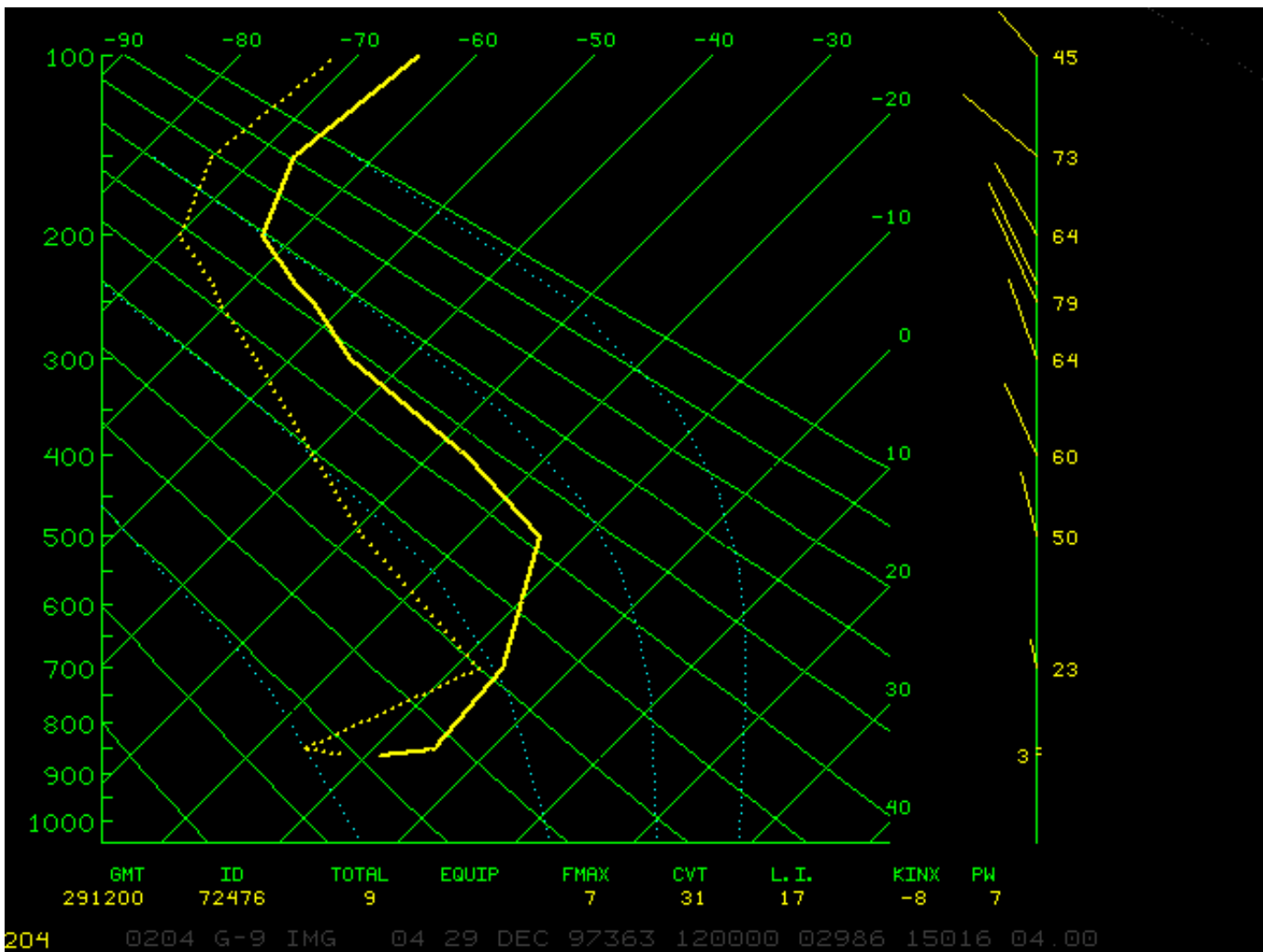
ceiling heights



Elko



Grand Junction, CO



12Z surface temperatures

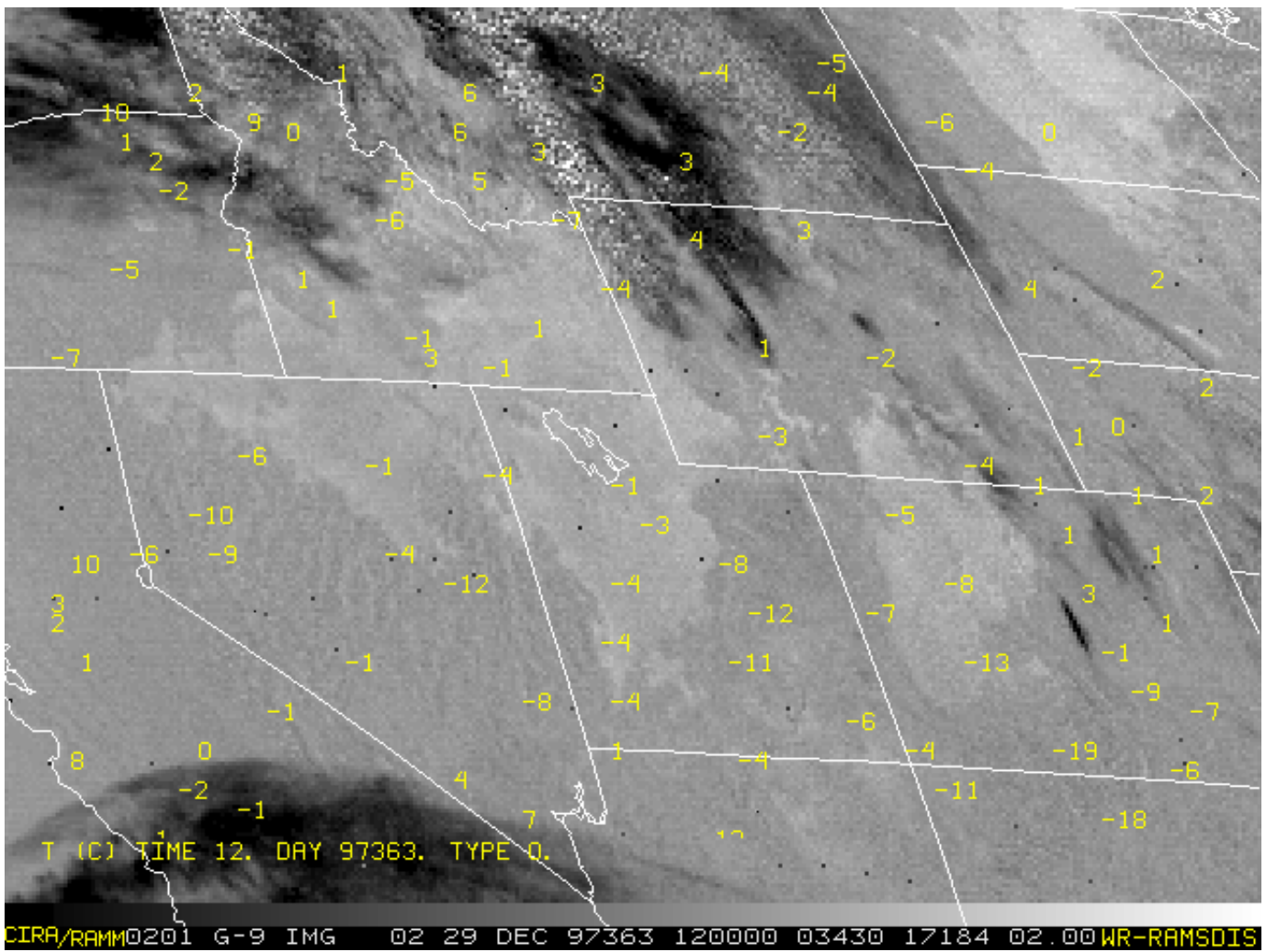


Figure 6.

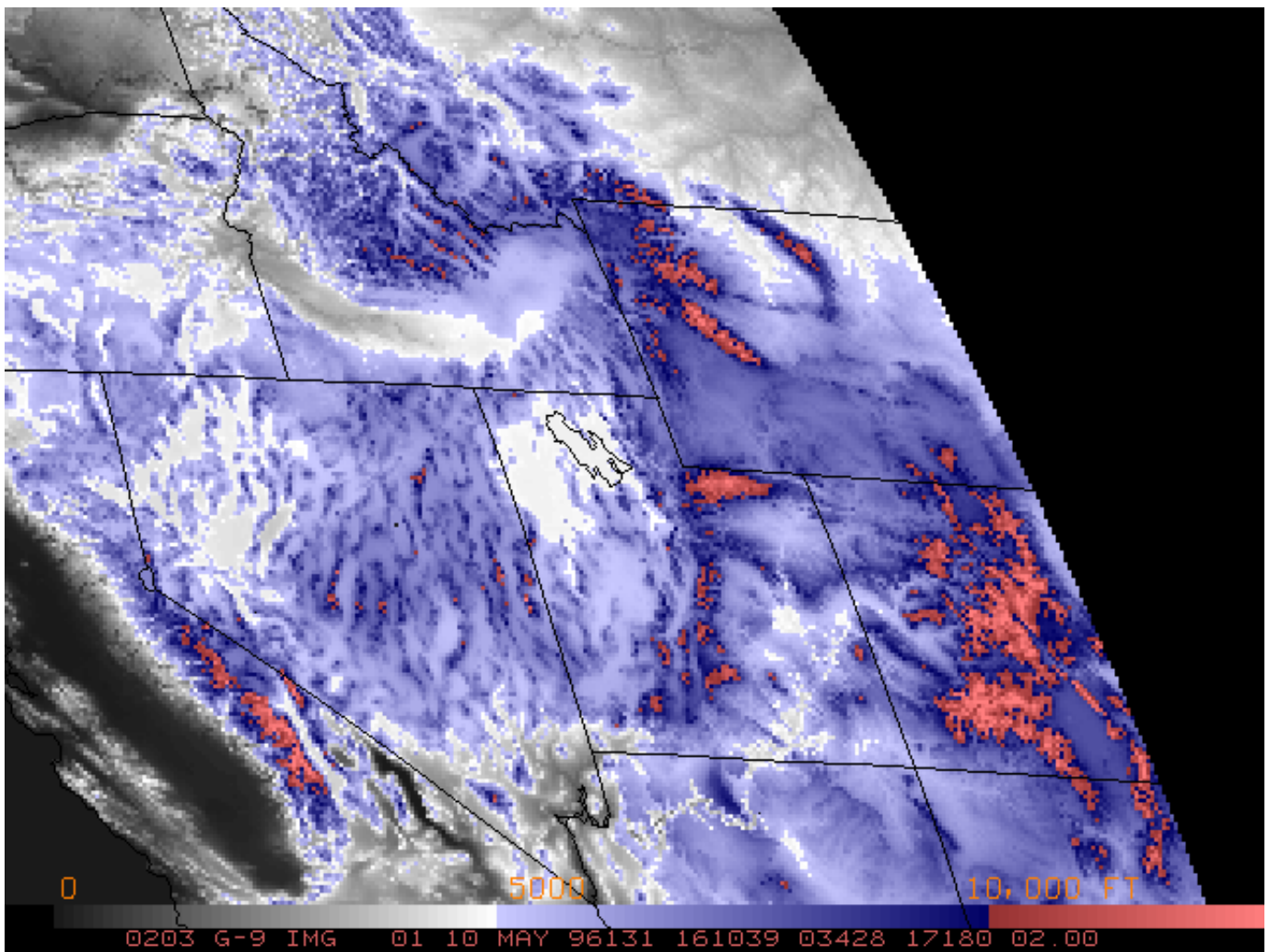
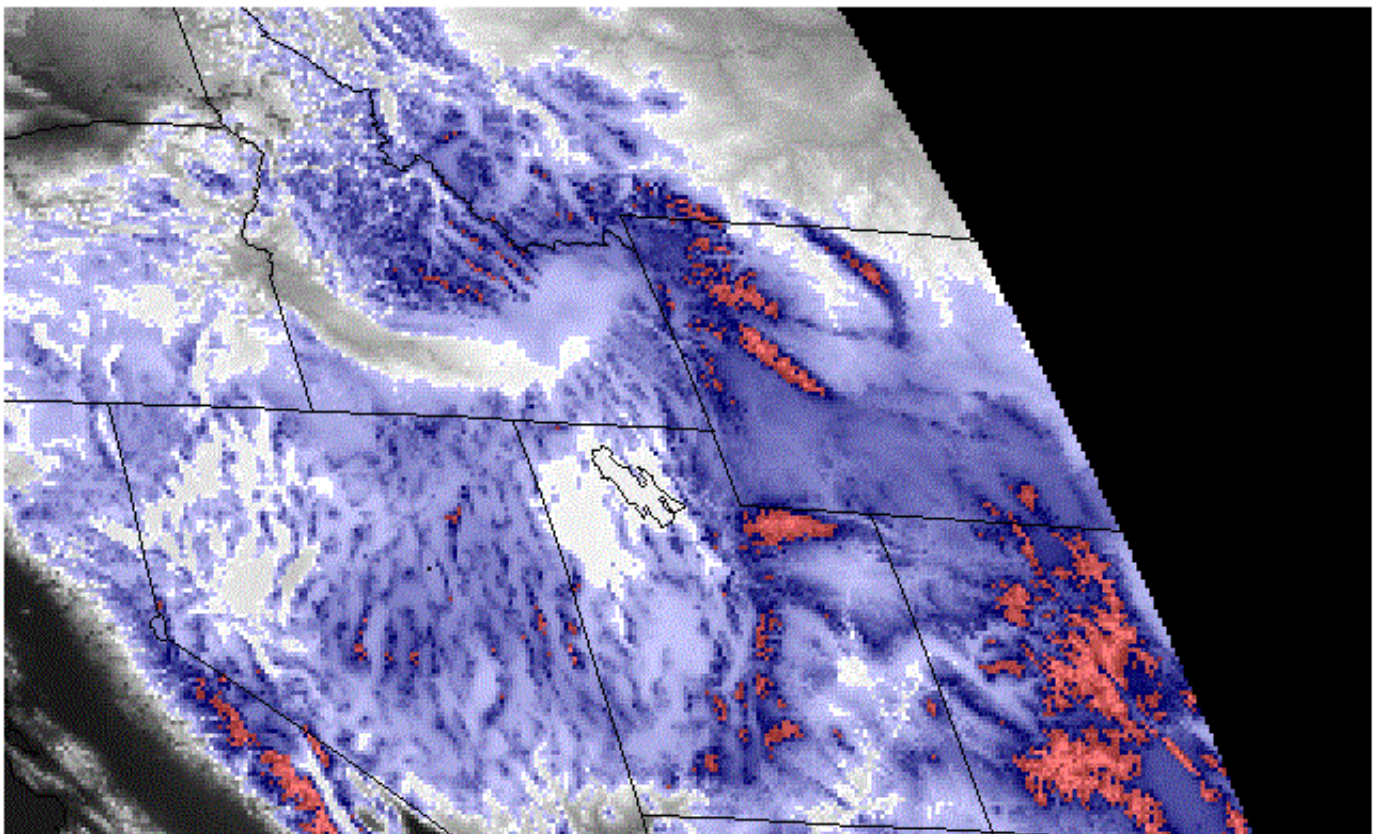


Figure 7.



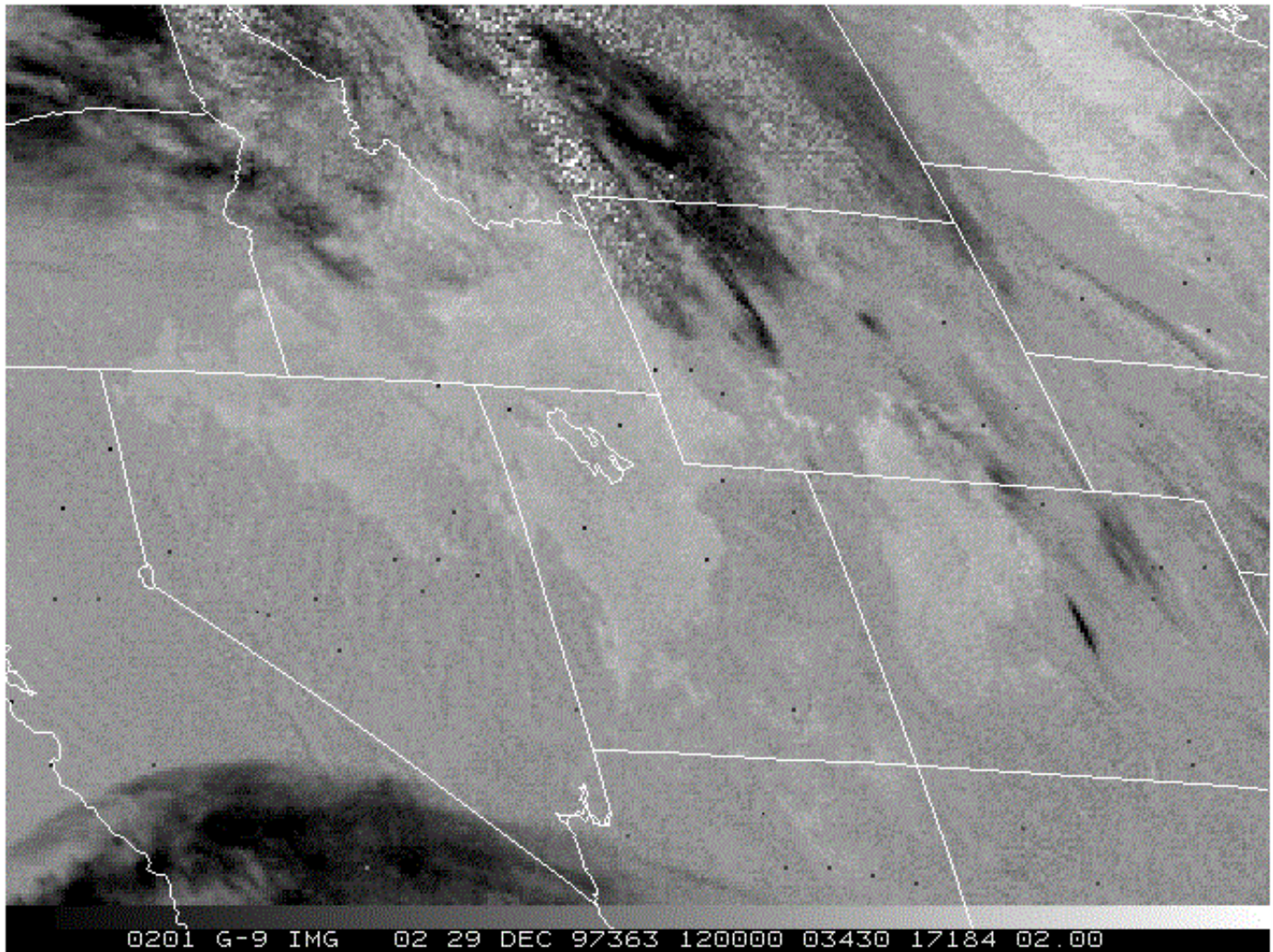
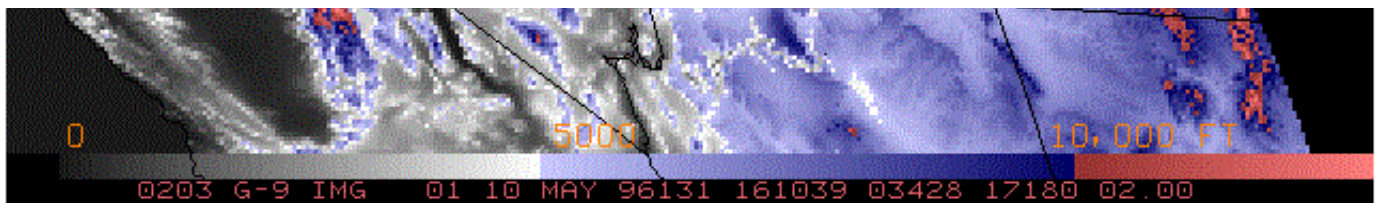


Figure 8.

