

# GOES-10 Used to Assess Moisture from Remnants of Isis

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WR-SSD

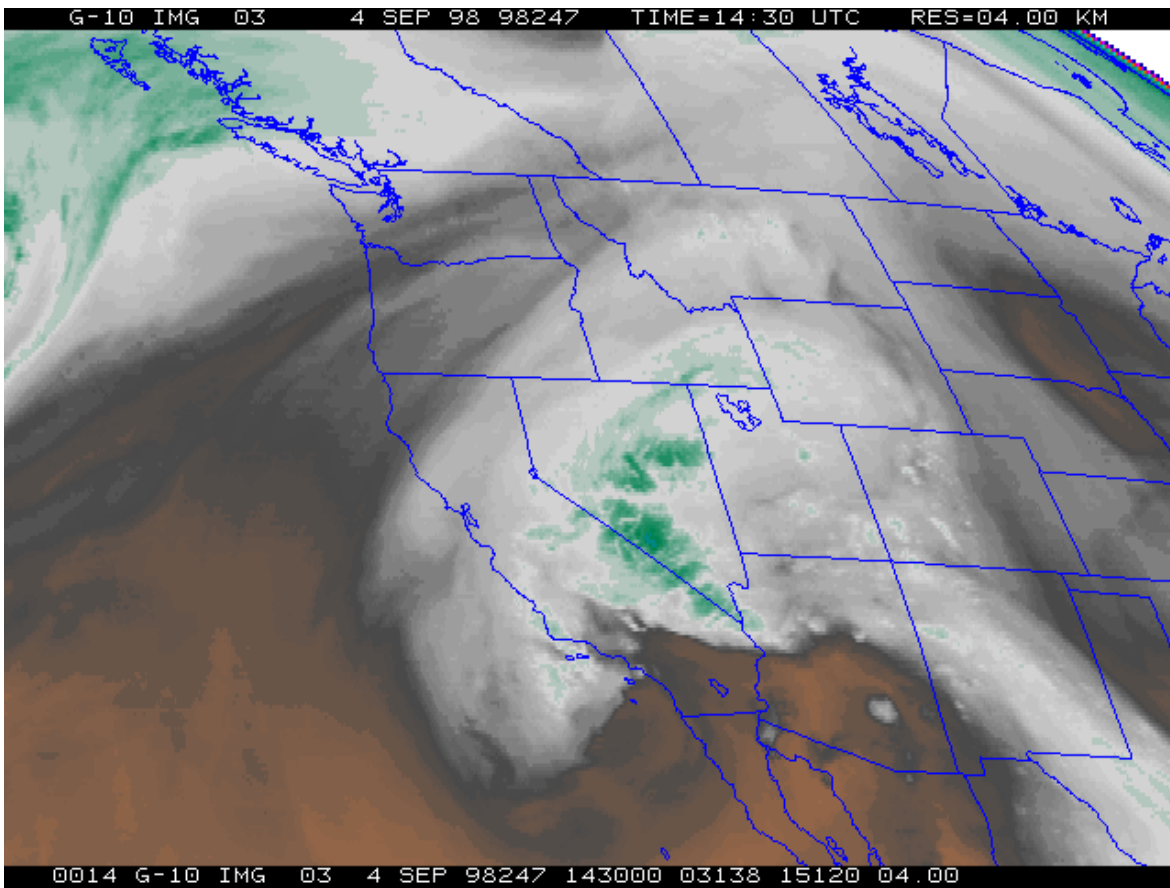
This TA-lite will look at the moisture distribution over the Western US on 4 Sept 98. Remnants of Hurricane Isis are affecting this area by bringing in large amounts of moisture. The [4km WV](#) image shows upper level moisture over northern Arizona, central California, Nevada, Utah, southeast Oregon, southern Idaho, and western Montana. This image shows significant upper level drying over southern California and Arizona. But is this drying seen in the WV imagery evidence of drying at mid and low levels? The GOES-10 [sounding PW](#) clearly shows that total precipitable water values in southern California and Arizona are still well above 1" (even above 1.5" in many locations). Looking a comparison of the [12Z RAOB, ETA first guess, and the GOES-10 retrieval](#) shows that the atmosphere dries very rapidly above about 550mb. This drying is responsible for the very dry signature in the WV imagery. Also of note is the fact that below 700mb the ETA first guess (12hr forecast valid at 12Z) is too dry and the the GOES-10 retrieval is closer to the RAOB profile. Then above 700mb the ETA first guess tends to be too moist. Again the GOES-10 retrieval is a little drier (though not as dry as the RAOB). This example reinforces what we should already know: **don't use the WV imagery to determine moisture content of the mid and low levels of the atmosphere.**

The moisture distribution around the rest of the western US is shown well with the GOES-10 [sounding PW](#). Note that deep moisture (PW>0.75") extends through Arizona, Utah, Nevada, and most of California. Again, the upper level moisture evident in the WV image in Idaho and Montana does not let us know that it is relatively dry in the mid and lower levels. Looking at some GOES-10 retrievals in this area highlight this fact. The [Boise retrieval](#) shows that total PW is only 14mm (0.55") and that the upper levels are more moist than the lower levels. The [Pocatello retrieval](#) shows that total PW is only 15mm (0.59") and that the upper levels are more moist than the lower levels. The [Missoula retrieval](#) shows even drier conditions with a total PW is only 10mm (0.39").

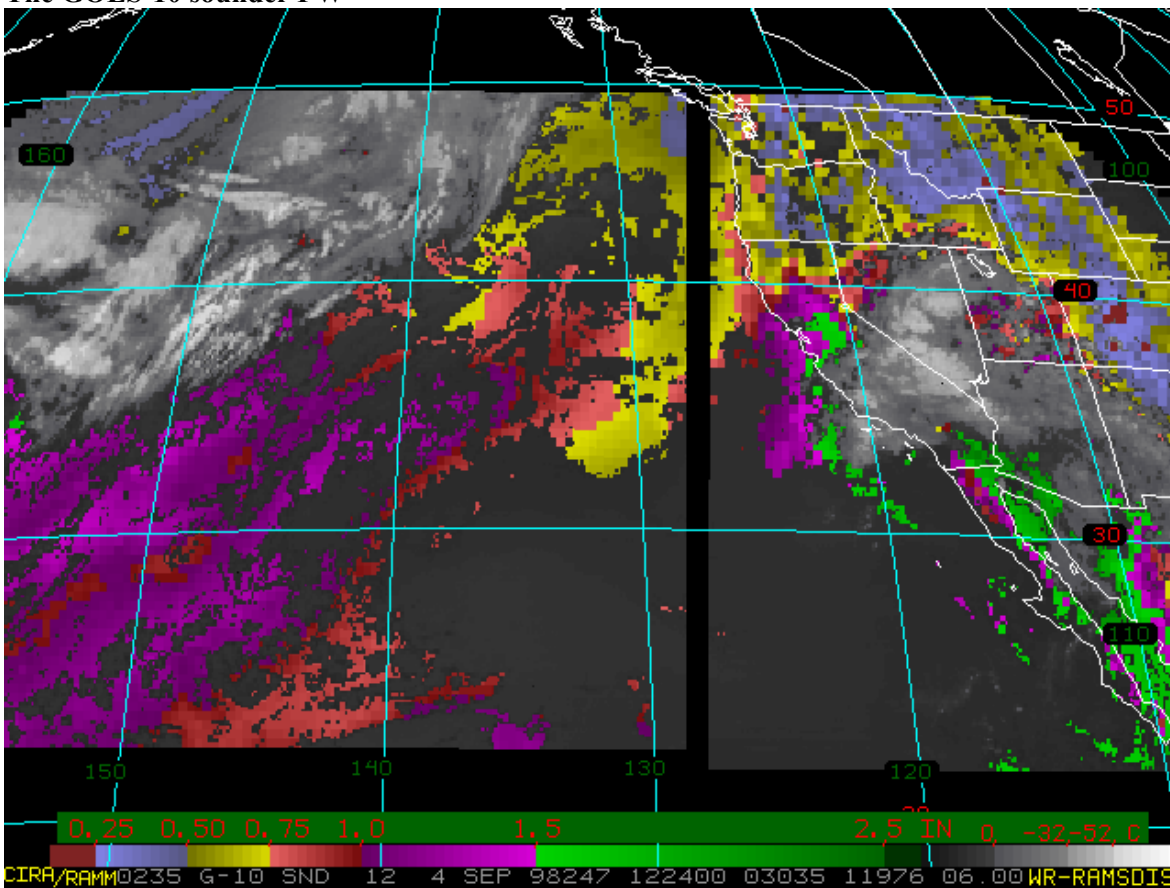
The problem for the day is then, "where can we expect large rainfall amounts?". Just looking at the satellite data (and for this short term forecasting situation, satellite may be best since the ETA does not seem to have a real good handle on the moisture structure) can be useful in the attempt to answer this question. There are no significant shortwaves seen in the [4km WV](#) image. However, the [4km VIS](#) shows clear areas in extreme southern California and extreme southwest Arizona. This will likely lead to quick destabilization as daytime heating takes place. The GOES-10 [derived LIs](#) at 14Z are already showing -5C. [CAPE](#) values derived from GOES-10 are over 500 J/kg at 14Z. The GOES-10 [derived PW](#) shows values in this area near 50mm (~2"). Therefore, this area should be closely monitored for convection later in the day. Areas on the fringe of the cloud shield in the western US may also be areas to expect convective development since moisture is abundant and daytime heating destabilizes the atmosphere.

The products used in this TA-lite are available on the [WR satellite homepage](#).

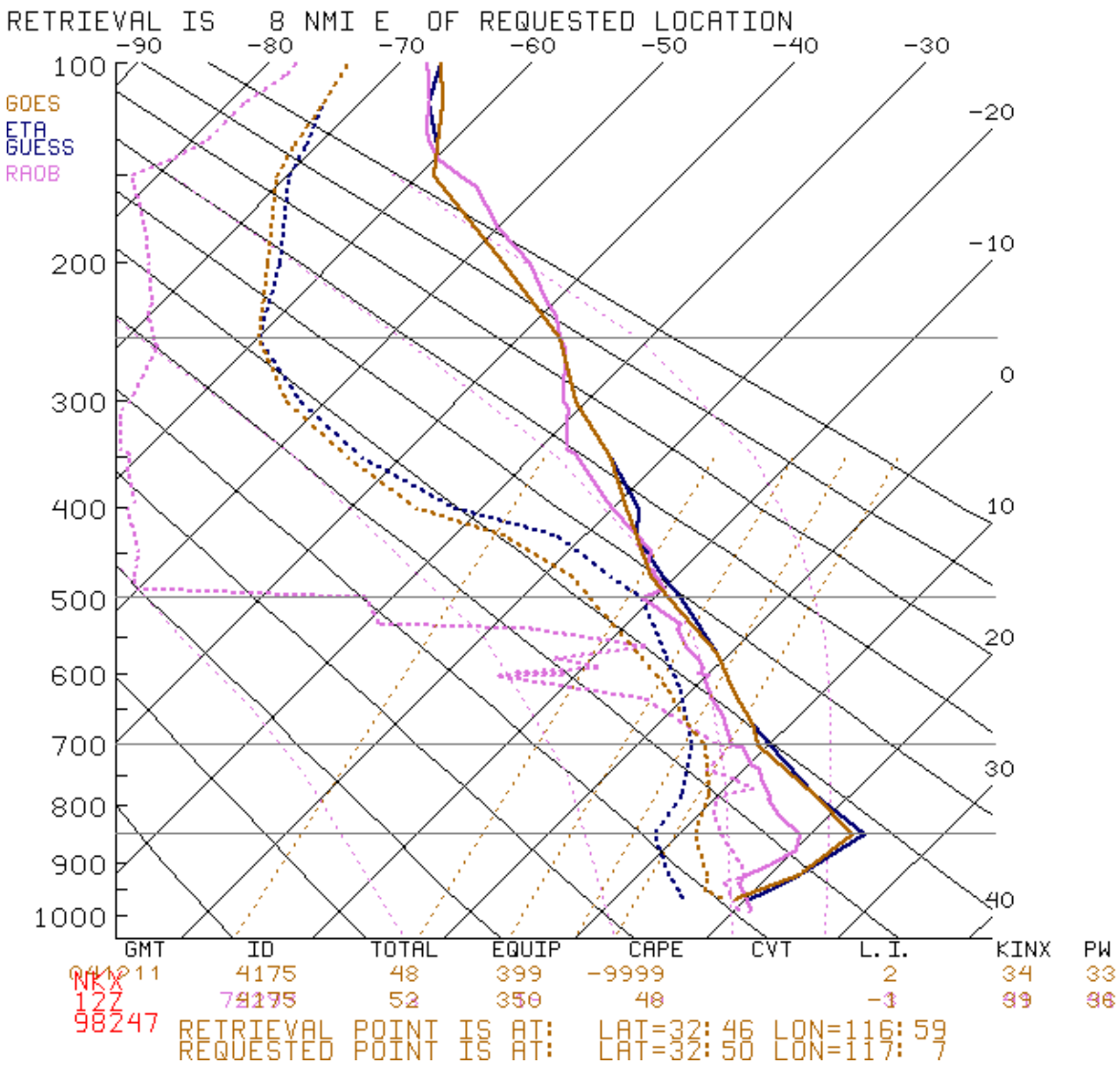
**The 4km WV image**



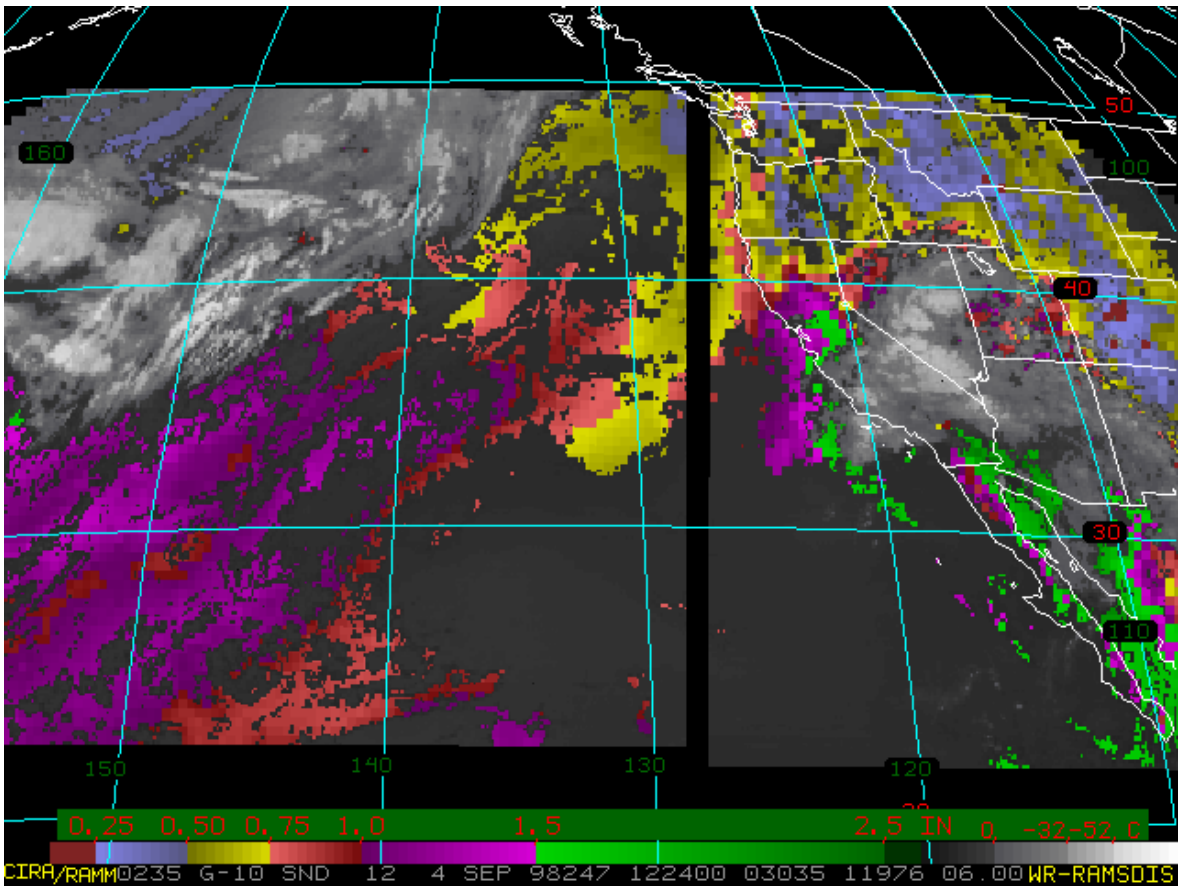
The GOES-10 sounder PW



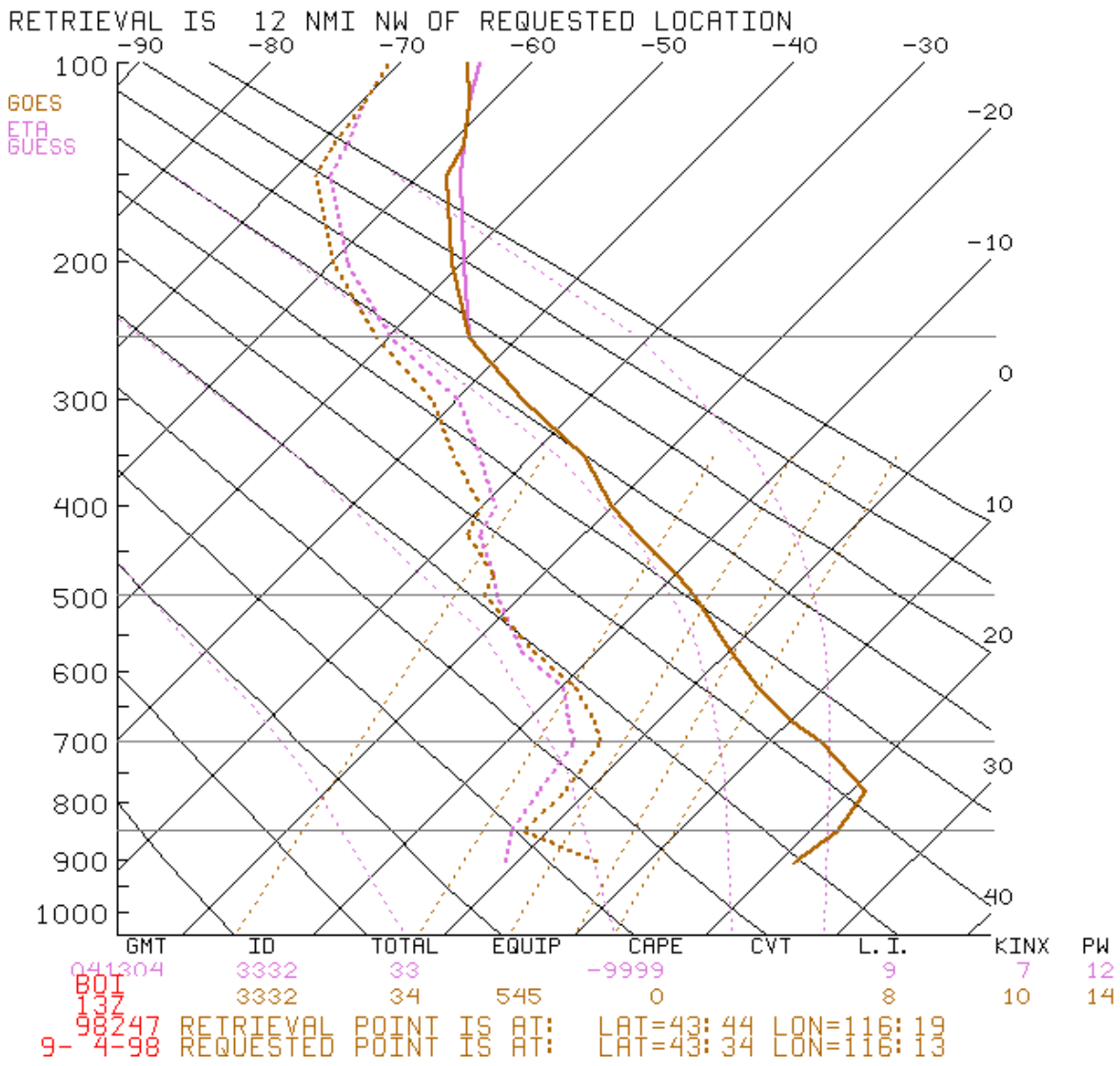
The 12Z RAOB, ETA first guess, and the GOES-10 retrieval



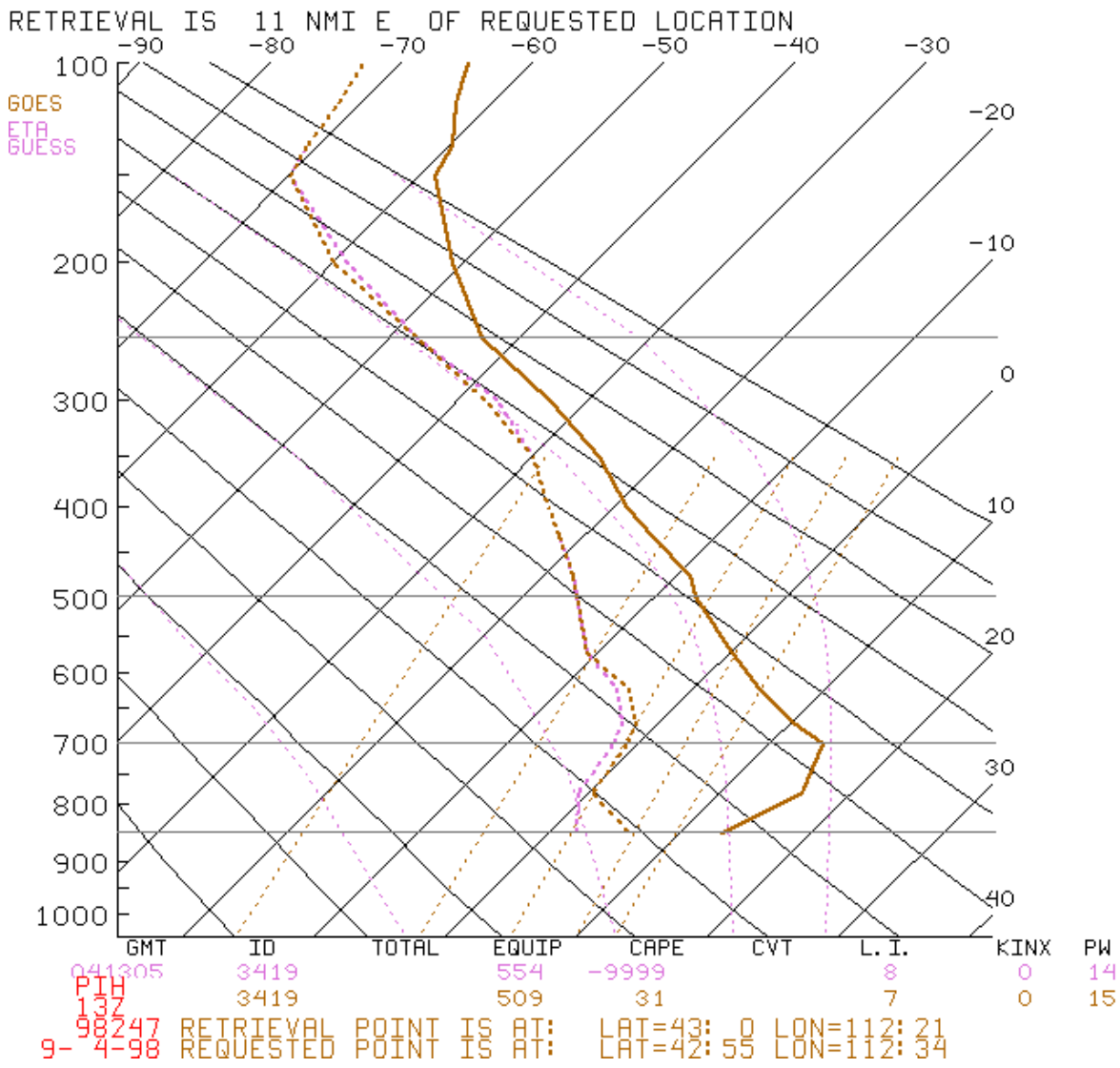
The GOES-10 sounder PW



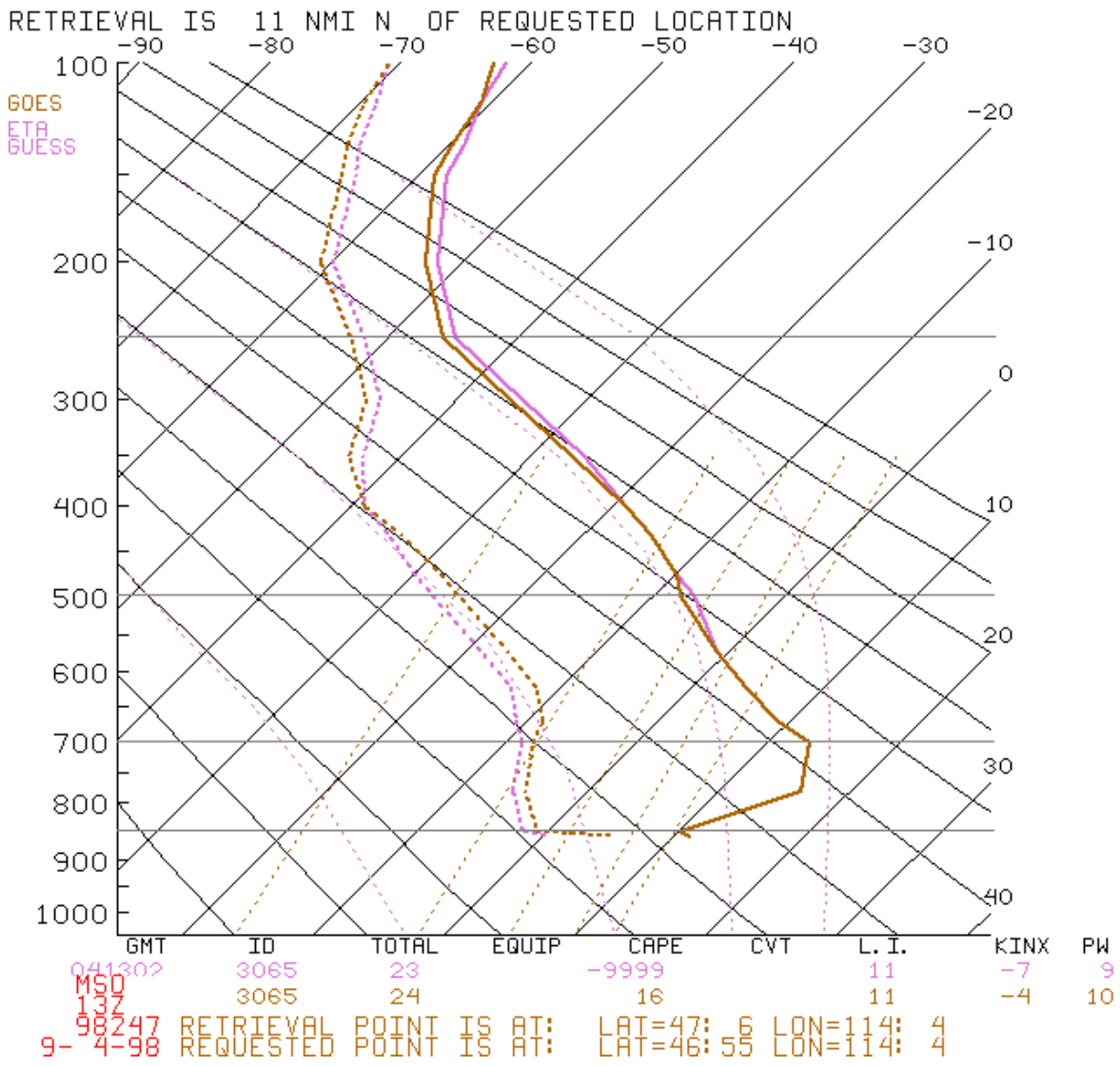
The Boise retrieval



**The Pocatello retrieval**

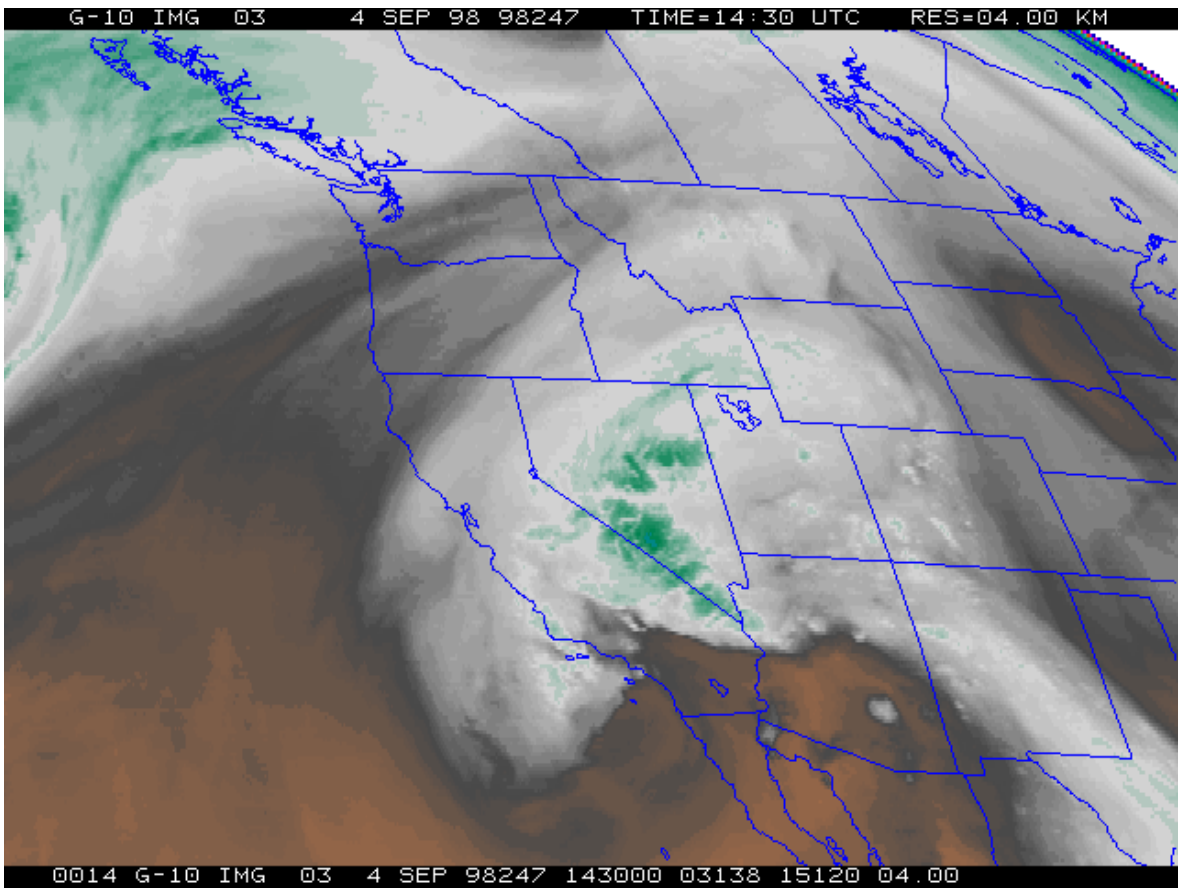


**The Missoula retrieval**

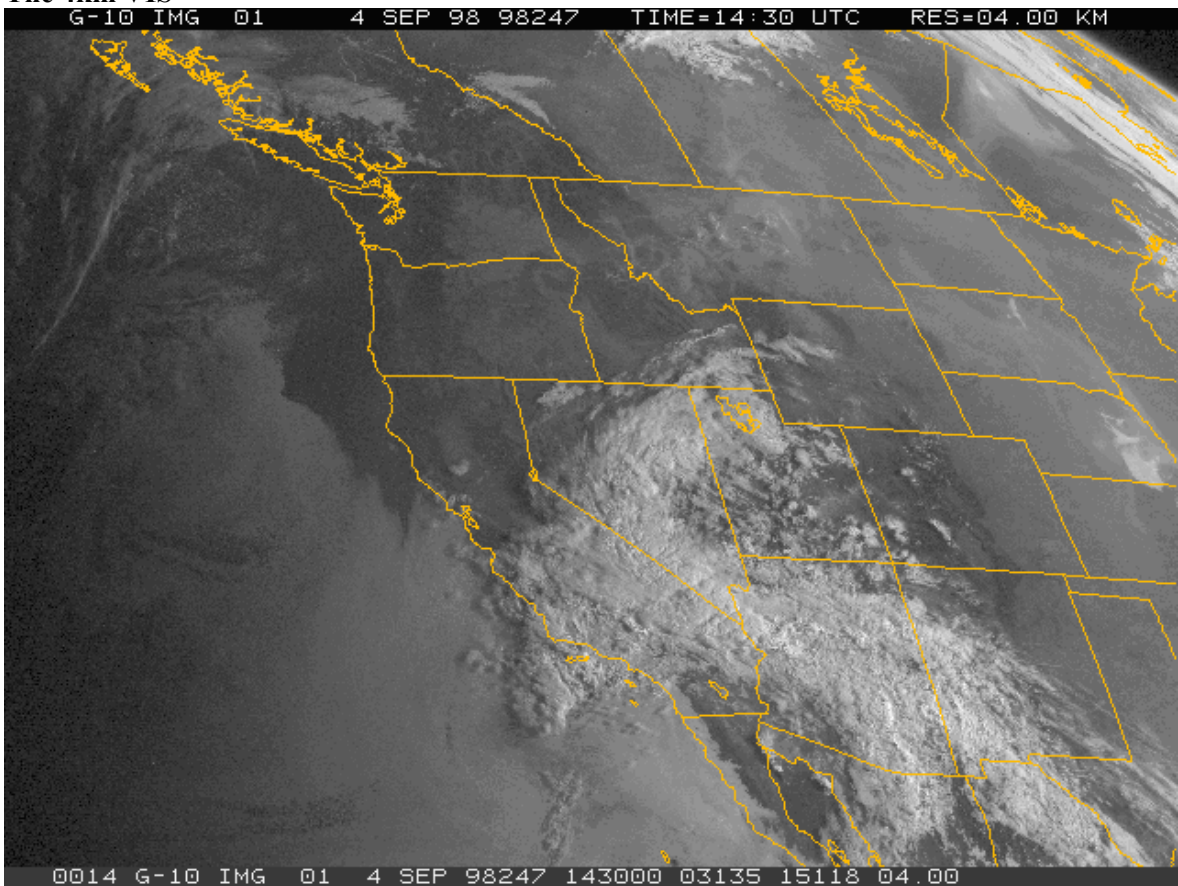


The 4km WV image



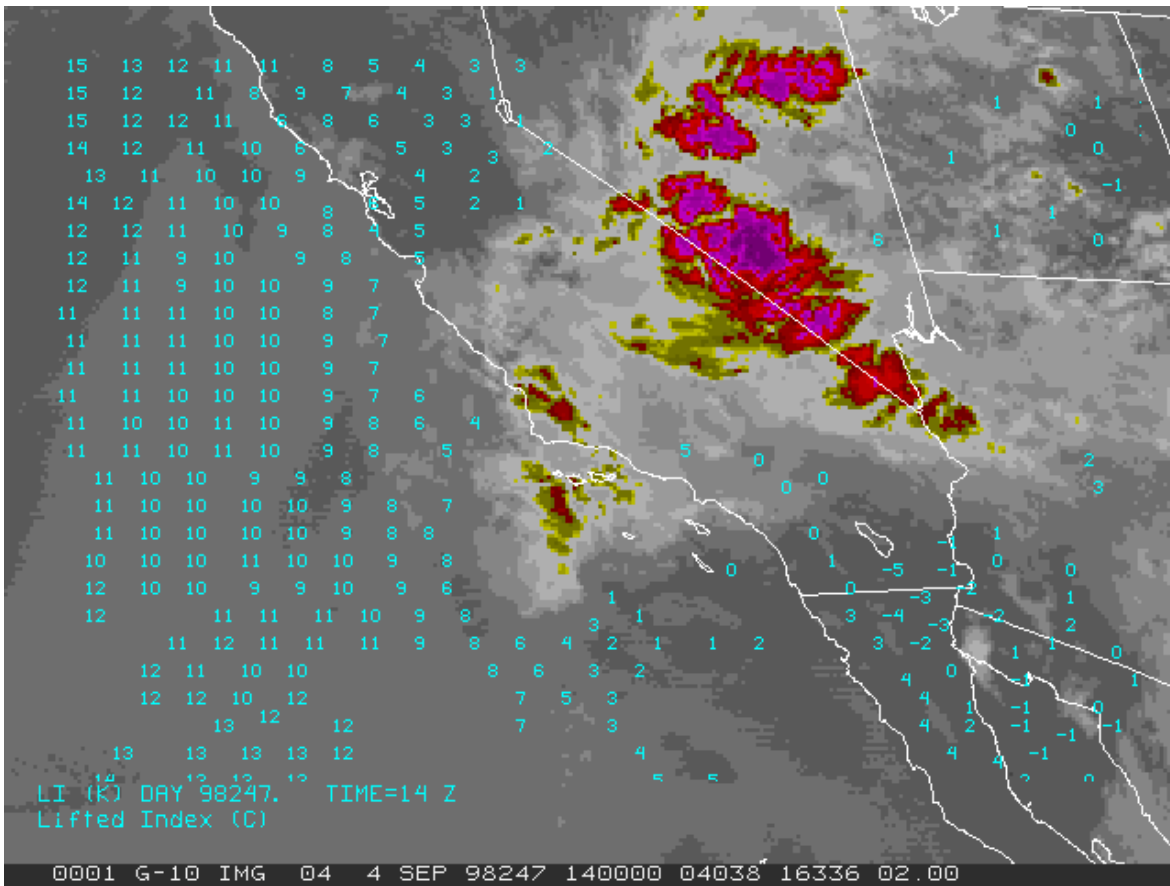


The 4km VIS

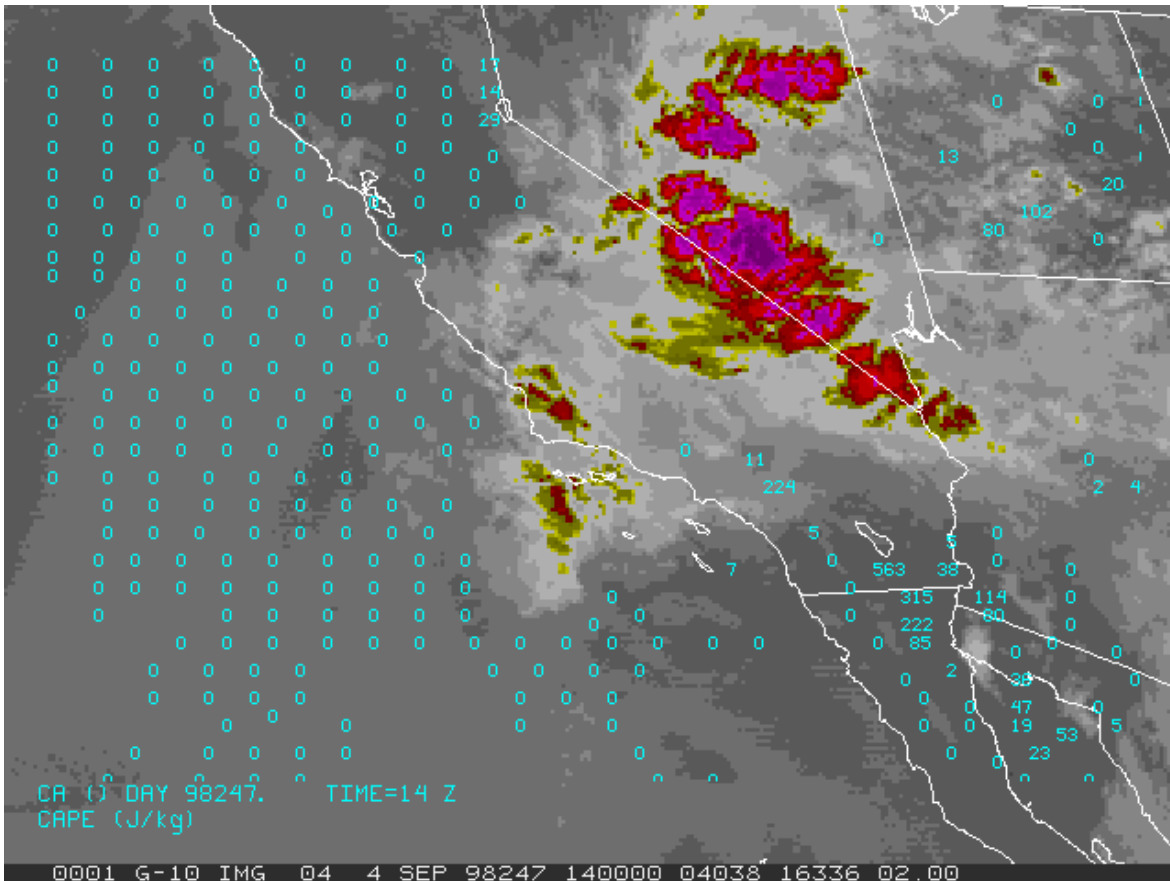


The GOES-10 derived LIs at 14Z





The CAPE values derived from GOES-10



The GOES-10 derived PW

