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**DERIVED PRODUCT IMAGE (DPI) USE ON WESTERN
REGION (WR) RAMSDIS**

Kevin J. Schrab, WRH/SSD Salt Lake City, UT

Introduction

Derived Product Imagery (DPI) is now available at WR RAMSDIS sites that have installed the new RAMSDIS upgrade hard disk. The products available are the imager lifted index, imager total precipitable water, sounder lifted index, and sounder total precipitable water. These DPI are available on a trial basis and different DPI may be substituted for the current DPI at some point in the future.

It should be noted that the presence of clouds prevents the calculation of DPI values. Where clouds are present a gray scale proportional to the cloud top temperature is inserted.

DPI description

DPI from the imager on GOES-9 includes lifted index (LI) and total precipitable water (PW). The DPI are derived from the 5 channels on the imager. As a result, the vertical resolution is rather poor. Therefore, the absolute PW and LI values seen in the imager DPI may not be accurate (compared to RAOBs, this aspect is under study at NESDIS. It is believed that the time trends of these DPI can provide valuable information. The imager DPI have a horizontal resolution of 4 km.

DPI from the sounder on GOES-9 includes lifted index (LI) and total precipitable water (PW). The DPI are derived from the 19 channels on the sounder. Thus, the sounder has better vertical resolution than the imager, giving more accurate estimates of LI and PW. A description of the products that are generated from the GOES-8/9 sounders can be seen at <http://orbit7i.nesdis.noaa.gov:8080/gray95.html>. The sounder DPI have a horizontal resolution of 10 km. The LI DPI is calculated to coincide with how LI is calculated from a RAOB. LI DPI units are degrees C. The PW DPI is a measure of the total atmospheric column precipitable water. The PW DPI are in units of inches.

DPI ingest and display

The imager DPI are ingested on an hourly basis from the NESDIS Forecast Product Development Team's server. The data is in general available about 1.5 hours after the image

time. This delay is due to the processing time necessary to generate the DPI and get it onto the NESDIS server. Work is underway to reduce this delay in distributing the data. The imager LI DPI is viewable on RAMSDIS by pressing the Ctrl-F8. The LI DPI is enhanced to highlight regions of instability. The imager PW is viewable on RAMSDIS by pressing the Ctrl-F5. The PW DPI is enhanced to accentuate the gradients in total precipitable water. Examples of what these two loops look like can be seen in the WR homepage version of this TA. As noted above, the absolute numbers portrayed in the DPI may not match values seen from RAOBs, but the time trends should prove to be useful in determining the relative changes in stability and total precipitable water.

The sounder DPI are ingested hourly from the Space Science and Engineering Center (SSEC) on the campus of the University of Wisconsin-Madison. They are produced by the Advanced Satellite Products Team of NESDIS located in Madison, WI. The data is generally available about 2.5 hours after image time. This delay is due to processing time and the fact that these are not operational NESDIS products. Please note that the sounder DPI consist of two separate sectors that have been composited. The time stamp is from the Pacific sector (xx:23). The image over the western US is at xx:23 + 00:37 (or the top of the following hour. For example, a sounder DPI with time 15:23 contains the 15:23 Pacific sector and the 16:00 western US sector. The sounder LI DPI is viewable on RAMSDIS by pressing Ctrl-F6. The sounder PW DPI is viewable on RAMSDIS by pressing Ctrl-F7. Examples of what these two loops look like can be seen in the WR homepage version of this TA.

Figures 1-4 are a comparison of the 4 types of DPI with the same image time. Note the differences in LI and PW values between the imager DPI and the sounder DPI. These images are much clearer on the WR homepage version of this TA.

DPI digital values

The digital values of the DPI can be displayed using RAMSDIS. While viewing a single LI DPI image (either from imager or sounder) place the cursor over the desired location and enter MINMAXLI on command line. This will display an array of LI values and the minimum and maximum LI values under the cursor. You may wish to reduce the size of the cursor (i.e., CUR 3 3) first to avoid pixel that contain bad data. Digital values of PW can be extracted in a similar way using the MINMAXPW command. In the array listed will be 100 times the actual PW value. Again, you may wish to adjust cursor size when using MINMAXPW.

Summary

GOES-9 DPI are now available to all WR RAMSDIS sites through use of the function keys. These products will be part of the WR GOES-9 Evaluation in August and September. Results of this evaluation will help determine the usefulness of these products.

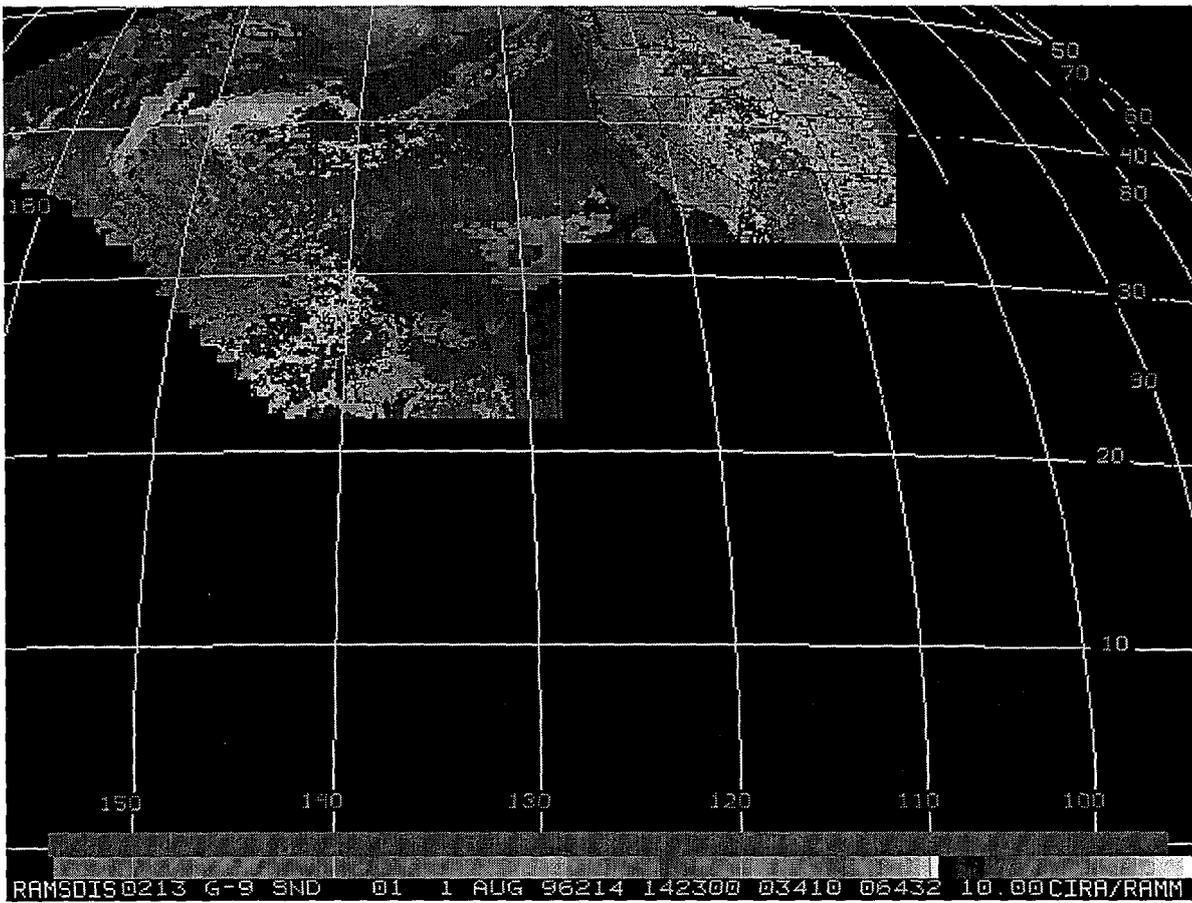


Figure 1. GOES-9 sounder derived lifted index DPI.

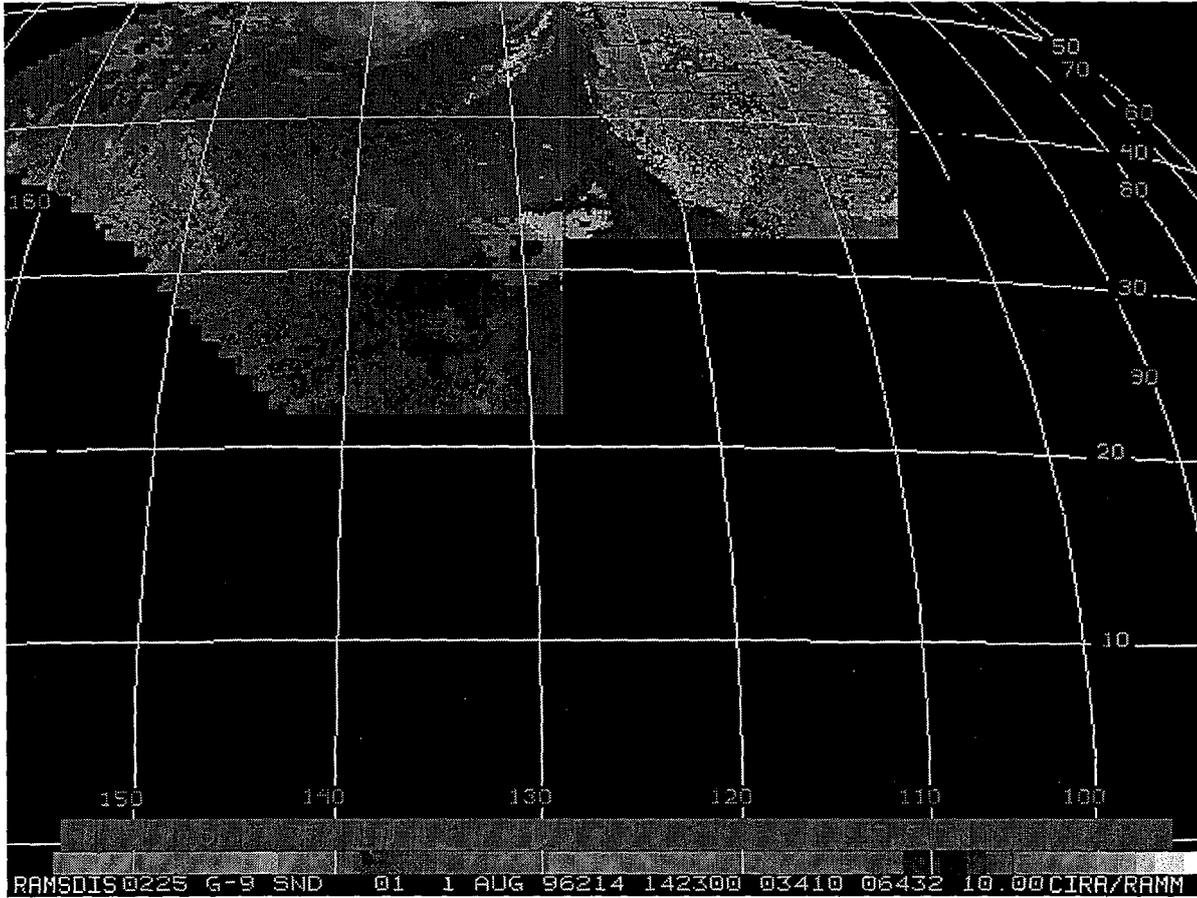


Figure 2. GOES-9 sounder derived total precipitable water DPI.

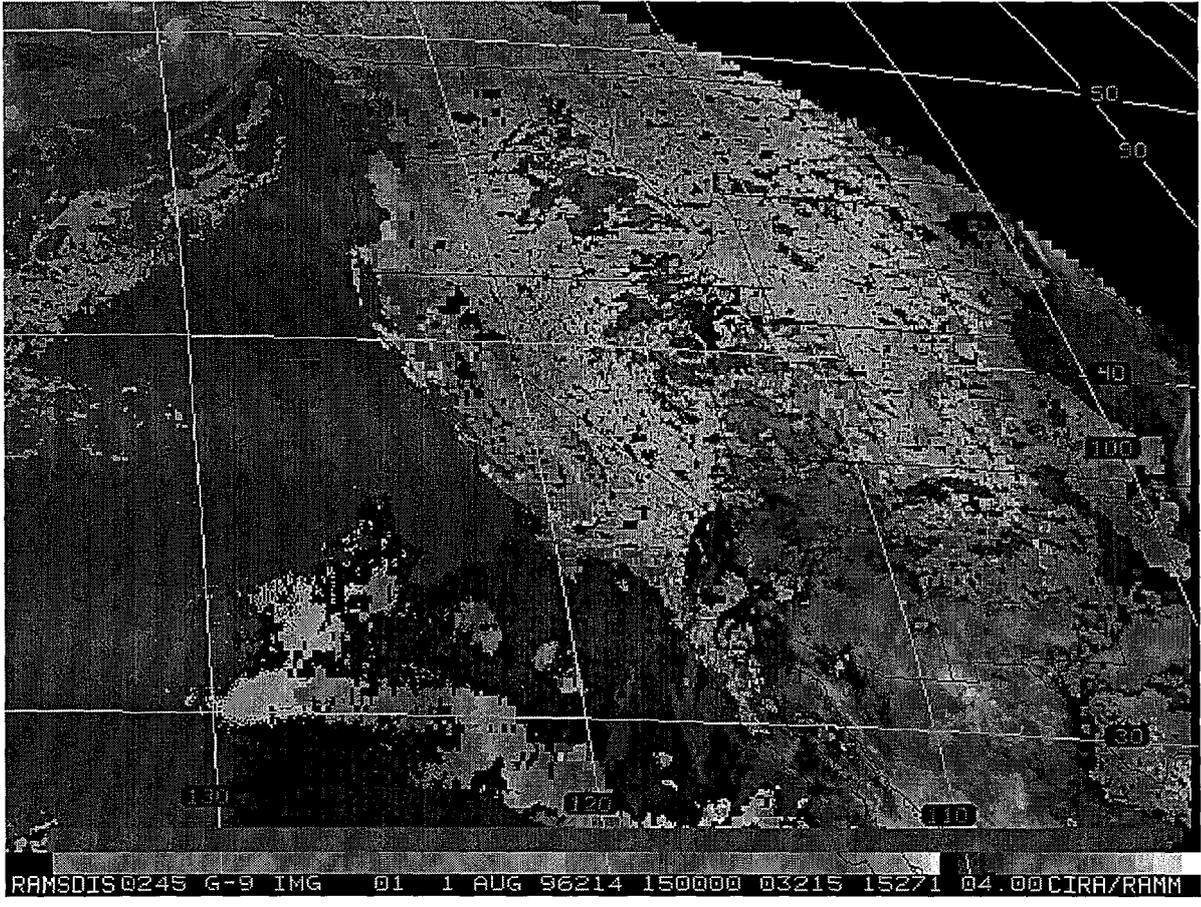


Figure 3. GOES-9 imager derived lifted index DPI.

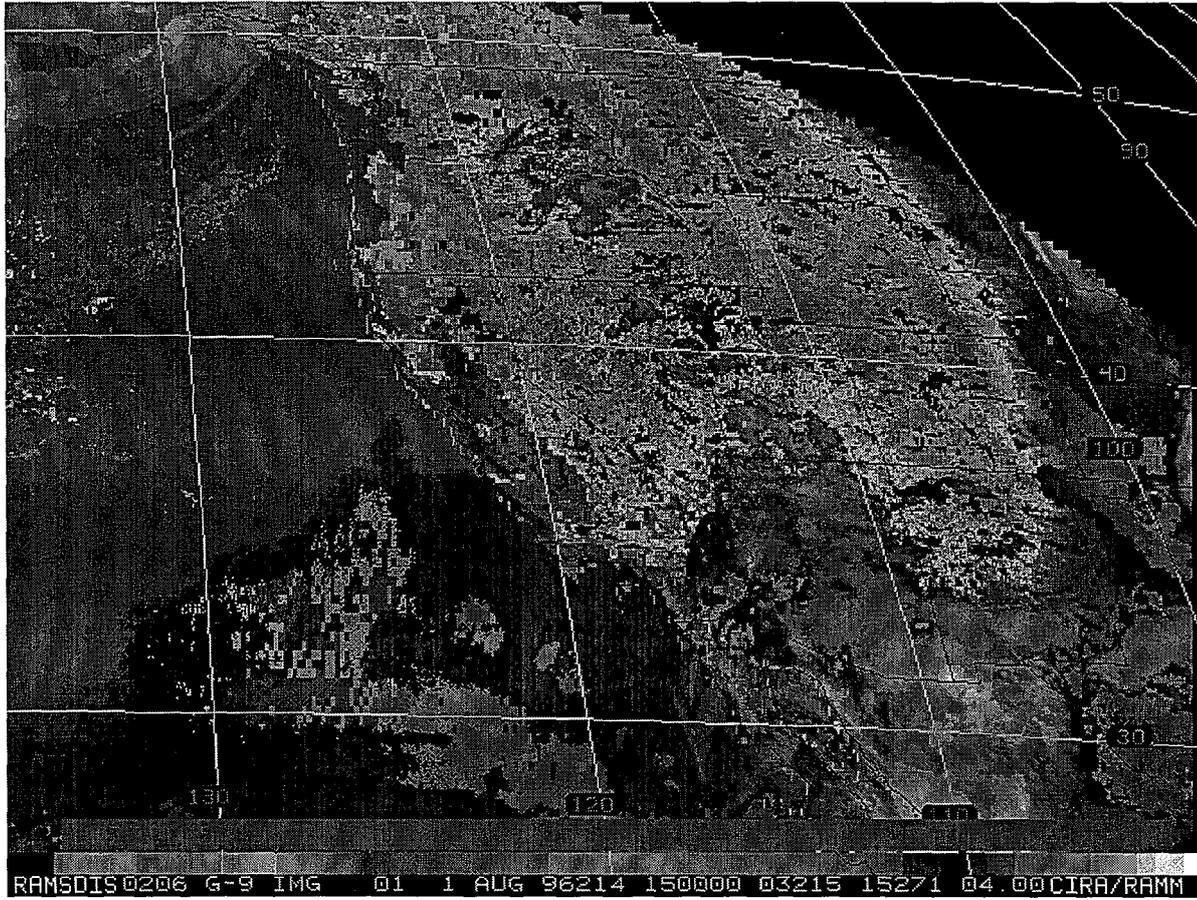


Figure 4. GOES-9 imager derived total precipitable water DPI.