

2.6 HMAX: Height of Maximum Intensity Product

The screenshot shows the 'HMAX Product Configuration' window. It has a menu bar with 'File', 'Menus', 'Type', 'Commands', and 'Help'. The main area is divided into several sections:

- TASK SUMMARY**: Contains fields for 'TASK Name' (VOLUME), 'DSP Data' (Z T V W XH), 'Scan Mode' (PPI Full), 'Max Range' (150.0), and 'Angle List' (Az:Full Circle, El:9 angles from 0.5 to 30.0).
- Map Projection**: Includes 'Map Projection' (Azimuthal Eqdist) and 'Projection Name' (empty).
- PRODUCT PARAMETERS**: Includes 'Data:Display' (dBZ:Height), 'Max Range' (150.0), 'dBZ Minimum' (20.0), and 'XY Smoother' (1.0).
- DISPLAY PARAMETERS**: Includes 'Display Units' (0 to 25.3 km), 'Color Scale' (Default), 'Levels' (16), '1st Level/Step' (N/A), and 'Resolution' (720 x 720).

This section describes the fields of the Product Configuration menu that are unique to HMAX products. For general information, see these other sections of this chapter:

- Task Summary area, Section 2.1.1.
- Product Parameters, see Section 2.1.3.
- Display Parameters area, Section 2.1.4.

The HMAX product displays the height of the maximum reflectivity above each output pixel. It is similar in some respects to the MAX product which shows the value of the maximum reflectivity over each pixel. The HMAX algorithm requires a volume scan. It searches vertically through the elevation angles above each output pixel and determines the height of the maximum intensity.

The product can in some cases show the presence and height of the bright band. In animation, rapidly decreasing heights in convective storms may indicate the presence of a microburst. A limitation of the HMAX product is described in the note below:



Note: A limitation of this product is that the heights are quantized by the number of elevation angles. It is not possible to interpolate the maximum, so the height is simply the height of the elevation angle where the maximum occurs (with earth curvature correction). Using a volume scan with many elevation angles and the 2D Cartesian smoother both help to mitigate the effects of this quantization.

A sample HMAX Product Configuration menu is shown at the beginning of this section.

To open the HMAX Product Configuration menu:

Choose **Type**→**HMAX** from the menu bar.

Data : Display

The choices are:

dBZ Height

dBZc Height

dBZc Height

Max Range

This is to select the maximum range for the product

dBZ Minimum

This is to select the smallest maximum reflectivity for which to show height.

AZ/EL Smoother

The smoother is applied as the final step of the product generation. Because of the quantization of the heights by the elevation steps in the volume scan, you may want to try a longer smoother than you would typically use to help smooth over the quantization (e.g., 3.0 km).