

## **8.5 GOES R Algorithm Working Group: Cloud Properties – Andy Heidinger and William Straka III**

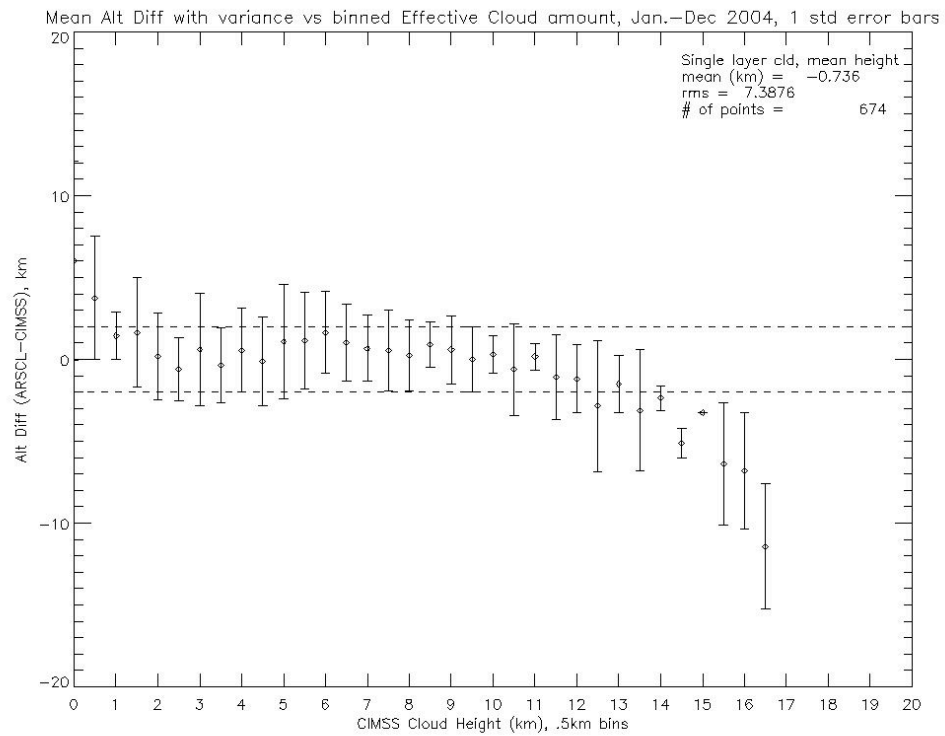
### **Proposed Effort**

This project includes all of the CIMSS efforts relating to the GOES-R Algorithm Working Group (AWG) Cloud Application Team. The task of the team is to develop a set of consensus cloud algorithms and all documentation for delivery to the NESDIS/STAR integration teams. Our effort also includes development of a cloud product test bed and new algorithms where appropriate.

### **Summary of Accomplishments and Findings**

The major accomplishment this year has been the development of the Geostationary Earth Orbiting Cloud Algorithm Test-bed (GEOCAT). GEOCAT serves as the main tool for the GOES-R AQC cloud application team. It consolidates the core functions of reading, calibrating and navigating data from various geo platforms and allows for the simultaneous generation of multiple products from multiple algorithms. We have developed GEOCAT and are now implementing some core algorithms such as the cloud mask. We are also validating the performance of the radiative models used within GEOCAT. Recently we added a new CIMSS derived surface emissivity data-base and new higher spatial resolution surface type data-base to make better use of the spatial and spectral information from the ABI on GOES-R.

We are also developing and improving analysis techniques to help come to consensus on algorithmic approaches for the GOES-R cloud products. Analysis of the cloud top pressure using an algorithm developed and used operationally here at CIMSS was compared with one developed at NASA. To date we have compared the GOES-12 CIMSS cloud heights with those from NASA LaRC. The comparisons were done using the cloud boundary information (ARSCL) provided by the lidar/radar sensors at the ARM CART site. The figure shown below gives one example of the type of analysis being done for this effort. The analyses have indicated strengths and weaknesses in both methods that will be factored into the final GOES-R algorithm. Once our GOES-R algorithms are available, we will be able to compare them to their predecessors using the same analysis.



**Publications/Presentations:**

Heidinger, Andrew and Michael Pavolonis: The GOES-R AWG Cloud Application Team.  
Fourth GOES Users Conference, Broomfield, CO, May 2006.