



Comparison of Standard Methods for the Height Assignment of Atmospheric Motion Vectors (AMVs) with the New Measurements from Instruments on the A-Train

In response to CGMS Recommendation 34.14

Current AMV extraction schemes rely on passive remote sensing techniques for vector height assignments. Five different height assignment algorithms are available for application for each AMV within the NESDIS/CIMSS retrieval, and nine at EUMETSAT. Traditionally, improvements in the height assignment routines have been developed, tested, validated and shared among AMV research groups using passive methods focused on cloud properties; then comparing the AMV data sets to collocated RAOBs. This approach has been effective for many AMV applications, however, the RAOBS have temporal and spatial coverage shortfalls that can limit the height accuracy assessments.

Calipso's active measurements now provide a new means for an inspection of AMV cloud heights. Researchers at CIMSS are coordinating efforts with a team led by EUMETSAT to look at how Calipso cloud height measurements match up with current AMV cloud height assignments. Algorithms matching Calipso's orbital paths with AMV locations, and deriving appropriate spatial averaging (i.e., a number of Calipso's footprints fall within a single AMV target scene) are being designed. We will be looking for systematic biases in the passive height assignments. If found, these biases will be applied to the AMV data sets, and compared against RAOBs to understand how the altered heights affect the AMV performance/accuracy statistics.