

**Report Title:** Advanced Satellite Aviation Weather Products (ASAP) initiative at the University of Wisconsin-Madison (CIMSS/SSEC)  
**Prepared For:** Randy Moore (NASA LaRC) and John Murray (NASA LaRC)  
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### **Task Highlights & Progress Summary:**

This is the 1st quarterly progress (July 15 – September 15, 2010) report for the 2010 ASAP initiative at University of Wisconsin-Madison CIMSS/SSEC in collaboration with the University of Alabama-Huntsville, MIT, and NCAR. Described are tasks as listed on the NASA LaRC/SSAI CIMSS Statement of Work for ASAP 2010.

Wayne Feltz leads the University of Wisconsin-Madison CIMSS/SSEC effort. The contact information is (608) 265-6283, or [wayne.feltz@ssec.wisc.edu](mailto:wayne.feltz@ssec.wisc.edu). The CIMSS ASAP-project staff also includes: Justin Sieglaff, Tony Wimmers, Mike Pavolonis, Ralph Petersen, Jason Brunner, and Chris Velden. Coordination between John Mecikalski at the University of Alabama-Huntsville, Robert Sharman NCAR, and Marilyn Wolfson/Haig Iskenderian MIT is ongoing.

### **Coordination, Presentations and Conferences:**

Internal ASAP coordination meeting was held on August 11th, 2010 and September 8<sup>th</sup>, 2010. A telcon was also conducted with Dr. Haig Iskenderian on above dates with regard to satellite-based convective interest field and wind processing development. Other areas of common interests were discussed including turbulence.

### **Research Progress:**

#### **1) Support for JPDO NextGen Involvement (In collaboration with UAH and NASA LaRC)**

Wayne Feltz participated in the following coordination conferences and meetings with one of primary goals to make sure satellite-based research applications are connected to operational pathways:

- Participated in GOES-R Proving Ground Pacific region testbed workshop connecting satellite aviation requirements to end user testbeds in Honolulu, Hawaii from July 28-30<sup>th</sup>, 2010
- Prepared for overview of GOES-R Aviation algorithm linkages with NextGen activities related to turbulence, convection, icing, and volcanic ash at annual EUMETSAT conference in Cordoba, Spain

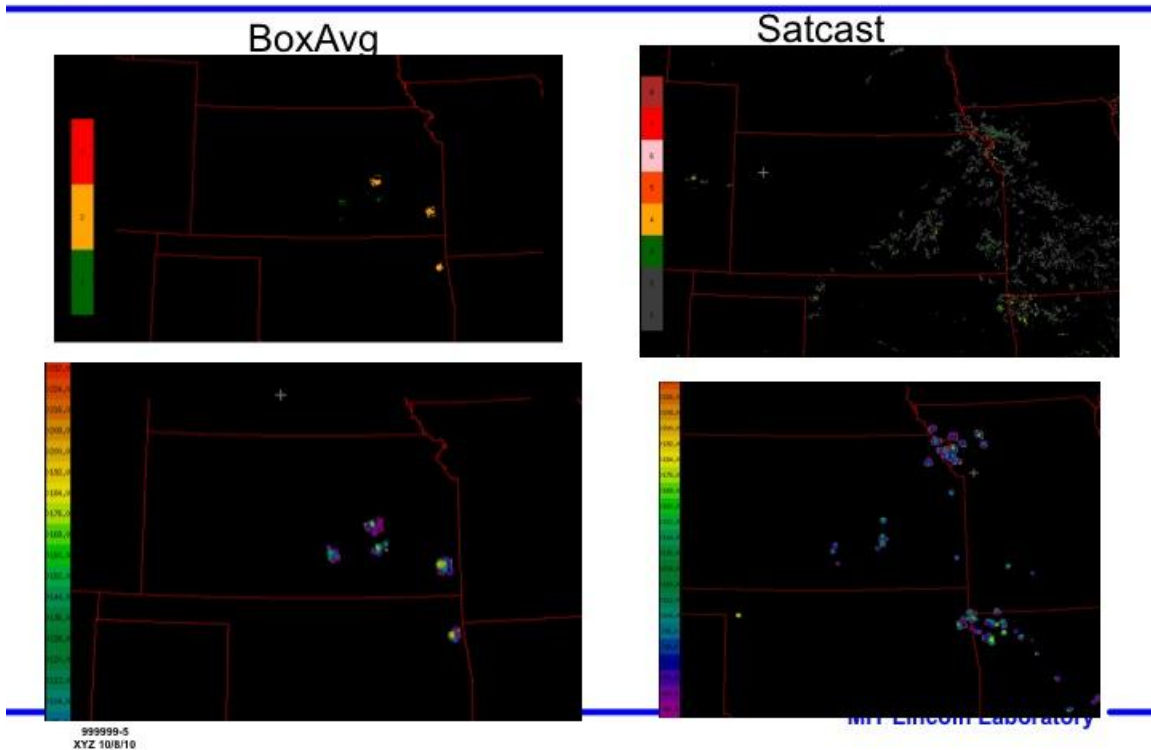
#### **2) Continue CoSPA validation ASAP research (In collaboration with UAH, MIT, and NCAR)**

UW-CIMSS continues to collaborate with MIT/Lincoln Lab and UAH on transition of SATCAST into CoSPA algorithm. Highlights below:

- Transitioning atmospheric motion vectors for optimal use with GOES-13
- Provided oversight and feedback on using box-average method within SATCAST to speed production time of convective initiation products, Figure 1 shows a comparison between to methods which account for scene to scene motion
- Provided ideas on how to account for satellite parallax



## CI Interest from Box Average



**Figure 1: Comparison of convective initiation signal using box average vs atmospheric motion vectors to account for cellular movement between consecutive GOES-12 images.**

### 2010 ASAP related Peer-reviewed Papers:

- Bedka, K. M., J. Brunner, R. Dworak, W. Feltz, J. Otkin, and Thomas Greenwald, 2010. Objective Satellite-Based Overshooting Top Detection Using Infrared Window Channel Brightness Temperature Gradients, *Jour. of Appl. Meteor. and Clim.*, 49, 2, 181-202.
- Sieglauff, J., L. Cnonce, K. Bedka, W. F. Feltz, K. M. Bedka, M. J. Pavolonis, and A. K. Heidinger, 2010. Nowcasting Convective Storm Initiation Using Satellite Based Box-averaged Cloud Top Cooling and Cloud Typing Trends. *Jour. Appl. Meteor. and Clim.*, Accepted for publication. Online copy at: <http://journals.ametsoc.org/doi/pdf/10.1175/2010JAMC2496.1>

## **Conferences**

GOES-R OCONUS Proving Ground Testbed Workshop, Honolulu, HI, 28-30 July 2010 – Preparing for geostationary testbed to support Pacific region, Focus was on making sure GOES-R Aviation products are connected to NextGen activities