**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)
**Reporting Period:** 1 June 2010 – 15 July 2010
**Prepared By:** Wayne F. Feltz
**Date:** 29 July 2010

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**Task Highlights & Progress Summary:**

This is the 1st quarterly progress (June 1 – July 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. 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 July 15th, 2010. A telcon was conducted with Dr. Haig Iskenderian with regard to satellite-based convective interest field and wind processing development on June 30th 2010. 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 JPDO Environmental Information team on regularly scheduled telcons. Provided GOES-R Aviation satellite-based algorithm overview to Darien Davis/Steve Abelman and NextGen Aviation science roadmap. Among other connections (networking) that has been accomplished:

- Member of NextGen Environmental Information team
- Tom Carty and Mike Richards - FAA Tech center visited UW-Madison CIMSS In February to talk about aviation-related satellite applications to populate 4-D cube prototype
- Attended two NextGen planning meetings in DC
- Tri-agency NASA/NOAA/FAA Aviation Program review and NextGen discussion in March 2010
- Provided overview of GOES-R Aviation algorithm linkages with NextGen activities related to turbulence, convection, icing, and volcanic ash at GOES-R Proving Ground and Algorithm Working Group annual meetings

## 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:

- ➢ Implemented MIT improved nearest neighbor wind interpolation routine
- ➢ UW-CIMSS has integrated box-average cloud top cooling rate methodology into SATCAST algorithm (ver 1.3) and provided to UAH and MIT
- ➢ WINDCO code has been made more efficient (64-bit) and MIT has significantly increased processing speed

### 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 Clima, 49, 2, 181-202.

Feltz, W. F.; Bedka, K. M.; Otkin, J. A.; Greenwald, T. and Ackerman, S. A., 2009. Understanding satellite-observed mountain-wave signatures using high-resolution numerical model data. Weather and Forecasting, Volume 24, Issue 1, 2009, pp.76-86. Call Number: Reprint # 6016

Lenz, A., K. Bedka, W. Feltz, and S. Ackerman, 2009:  Convectively-Induced Transverse Band Signatures in Satellite Imagery. J. of Wea. and Fore., 24, 5, 1362-1373

Sieglaff, J., L. Cronce, 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., In review.

### 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

2010 EUMETSAT meeting, Cordoba, Spain, 20 – 24 September 2010, Presentation of satellite turbulence application originally developed within ASAP activities.