

**Working Group on Space-Based Lidar Winds  
Destin FL  
February 2 - 4, 2010**

**Action Items**

**Destin FL January 2010**

1. Define Space Station Mission Science Proposal IDL / MDL Conceptual Designs	MDT, LWG
2. Define Hybrid Airborne Mission.  Get hybrid airborne capability, targeted at ADM cal/val, on the agenda at NASA and NOAA.  Need science component for Ramesh support, technology for George Komar support, ADM cal/val for NOAA support.  Make the case that hybrid really works, packaged together, looking at same air, getting same data, adds value to ADM data.  NASA / NOAA Roundtable	Hardesty Riishojgaard Gentry Kavaya Emmitt
3. Venture Class proposal, workshop to define mission?	Hardesty, Riishojgaard
4. Partnering Validate Kirtland partnering International partners	Baker Emmitt Komar
5. Update NRC White Paper	MDT
6. BAMS Paper	Baker Et al
7. Japanese representative to next WG meeting	Hardesty, Riishojgaard
8. New NPOESS organization	
9. Science Team for an incremental step between airborne and GWOS?	Hardesty

**Wintergreen VA June 2009**

1. Develop history of wind OSSEs and history and future utility of Nature Runs.	Riishojgaard Emmitt
2. Develop map of DWL locations	Emmitt

		Tucker
3. WG statement of support to NOAA/NESDIS for using Wallops along with Svalbard as ADM Ground Station		Riishojgaard
4. ISS experiment with AF <ul style="list-style-type: none"> <li>• Telecon between Komar and Adang</li> </ul>		Baker
5. Define Venture Class Space Mission and partnerships <ul style="list-style-type: none"> <li>• Preliminary discussion with GSFC Instrument Design Lab on feasibility of iterative design for mission (Bruce)</li> <li>• De-scope GWOS design and requirements to match cost constraints of Venture Class mission (MDT)</li> </ul>		MDT
6. Convene Wind Science and Applications Workshop focused on non-NWP applications – climate, renewable energy, atmospheric processes, etc. Attempt to attract representation from Decadal Survey Subgroups, e.g. Hydrological		Hardesty Riishojgaard Bach
7. Update Decadal Survey White Paper		Baker Hardesty Yoe Miller
8. Encourage Lidar Winds Scientist in NESDIS / STAR		Baker Yoe Lars Peter

**Destin, Florida**  
**January 27 – 30, 2009**

5. Renew contact with Air Force & FAA	<p>FAA contacts are focused on other things (Note: FAA should be concerned about improved forecasts of turbulence for flight safety; optimizing route planning to reduce fuel consumption)</p> <p>Air Force willing to send a new letter to NASA HQ after new NASA leadership confirmed</p>	Baker Miller
6. Look at impact of alternative sources of energy on atmospheric modeling, especially with respect to complex terrain.	<p>Optimizing energy production, planning, etc.</p> <p>Look at DOE papers, American Wind Energy Association</p> <p><b>New: (Mango) Study where wind energy is being deployed, a lot of deployments may not be in appropriate places. No standards, no criteria for what the site capability has to be. Look at where initiatives are being suggested and assess sites. Taxpayers are paying for</b></p>	Wilkerson Miller Tucker

	inefficient sites. Total US wind and solar is under 2% of energy now, projected for 4% in a decade.	
7. Discuss the importance of lidar global wind measurements to climate change research with NOAA Climate Goal Team Lead, Tom Karl.	Briefing given to NWS/Climate Services Chief on February 27, 2009	Hardesty Baker

**Wintergreen, VA  
July 8 - 11, 2008**

1. CAL / VAL Activities	<p>Identify funding sources for the various ADM Cal/Val activities. (NSF, Hardesty check with NCAR, and other). Investigators find their own funds.</p> <p>Hardesty – proposal submitted and accepted, provides access to data but no funding</p> <p>Trying to identify funding within NOAA (NESDIS &amp; OAR), briefed Kicza, submitted request to director of OAR, don't know status, meeting early February on funding (Hardesty)</p> <p>Want to go to NSF too</p> <p>ADM delayed till April 2011</p>	Hardesty
2. Explore further benefits	<p>Benefits to insurance industry</p> <p>Brown has insurance contacts – look at how ins companies handle episodic events and global warming. They tend to not factor in episodic events. Don't forecast long term, just recalculate year to year.</p> <p>Emmitt – Don't really address tails of distributions,</p> <ul style="list-style-type: none"> <li>• interested in very short term reaction to episode, mobilize before theft and damage etc., spread risk broadly</li> <li>• long term – just along for the ride – where they invest is a major interest more than what they insure</li> </ul> <p>1/3 of US economy \$4 trillion is in weather sensitive industries, NOAA just published analysis – relook at benefits of wind data.</p>	Miller Brown Emmitt

**Monterey, CA  
January 2008**

1. Re-examine aerosol background mode.		Bowdle Emmitt
Funded and in progress		
Emmitt - SWA / TPARC P3 lidar did background structure study, overlaid it on CALIPSO data. P3 got a lot more return below 3 km		

<p>than GLOBE suggested. Is CALIPSO measuring the same thing?</p> <p>Falcon data is available too.</p> <p>CALIPSO 532 nm and 1 micron, Dave at 2 micron, LITE</p>		
<p>2. Formalize collaboration on</p> <ul style="list-style-type: none"> <li>• Post-ADM mission planning</li> <li>• Reducing latency for North America and Southern Hemisphere (Lars Peter) – identify additional ground station so we can get data quicker</li> <li>• Joint OSSEs for ADM &amp; follow-on mission</li> </ul>		<p>Baker          Riishojgaard          Hardesty          Emmitt          Gentry          Reale</p>

**Snowmass, CO  
 July 2007**

<p>6. Define experiment to compare single-LOS vs. bi-perspective (2 LOS in close proximity) using T-PARC data with more than one assimilation system.</p>	<p>Weissmann – no progress June 09, not funded.</p>	<p>Riishojgaard          Emmitt          Weissmann</p>
<p>10. Assess Post-ADM scenario with GWOS in 60 degree orbit</p>	<p>Funded NASA ROSES 07</p>	<p>Emmitt</p>
<p>11a. Assess aviation needs for direct wind profiles vs. just weather forecast improvements.</p> <p>Also an issue with military – compare actuals with models to improve weather models</p> <p>Real time discrepancies between forecasts and actual</p> <p>Identify air pockets, Clear Air Turbulence, in real time?</p>	<p>AADLATS with Walter Bach is funded and ongoing</p> <p>Dugway Proving Ground has ongoing research activities modeling wind direction and speed (Bach)</p> <p>Shear at 150 – 200 feet, impact on diffusion models and on energy generation (Emmitt). A lot could be done to generate useful data. Many practical applications (Emmitt)</p>	<p>Emmitt</p>

### January 2006

<p>13. Inventory the various wind lidars for wind measurement.</p> <p>Identify companies (half a dozen or so) are marketing DWLs, can ask them who the users are. Would like to know where DWLs are located.</p> <p>Statistics on shear are not captured by anemometers etc, but are important and could be characterized by DWLs.</p> <p>Gary Spiers had a website with a start on this</p>	<p>Put list on USRA Website.</p>	<p>Tucker Emmitt Hallmark</p>
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### June 2005

<p>6. Use CALIPSO, GLAS data to improve existing models of aerosol backscatter at both UV and NIR wavelengths.</p>	<p>Emmitt is in the middle of this study</p> <p>Emmitt paper @ Snowmass</p> <p>Moved from cloud statistics, now looking at aerosols.</p>	<p>Emmitt Winker Spinhirne Bowdle McGill</p>
<p>12. Interact with transport studies community, Army battlefield, boundary layer thru stratospheric transport</p> <p>Walter Bach funding this</p> <p>Good paper at recent AMS</p>	<p>Ongoing</p> <p>Ted Shepherd (Canada) talk Monterey Feb 09.</p> <p>Lars Peter invite GSFC people for talks</p> <p>W. Bach talk on requirements?</p>	<p>Hardesty Riishojgaard Bach</p>

### June 2004

<p>7. Articles for refereed literature on advances in lidar technology, OSSEs, ground-based and airborne measurements, etc. since the BAMS 1995</p>	<p>Closed</p> <p>Wayman will take lead on paper in September 2009</p> <p>Bob is working on refereed article on OSSE results.</p> <p>Jim Ryan sent a chapter to Ken &amp; Wayman</p>	<p>Atlas Emmitt Ryan Wilkerson Yoe</p>
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Note: Missing numbers correspond to closed action items.