



Highlights
DMCC Teleconference 12-05
Tuesday, November 20, 2012, 12:30–1:30 p.m. EST

Participants

Fernando Aluzzi, LLNL NARAC
John Ciolek, AlphaTRAC
Kirk Clawson, NOAA ARLFRD/INL
Dave Freshwater, NA-41
Cliff Glantz, PNNL
Erik Kabela, ORNL
Laura Kidd, ORISE

Carl Mazzola, Shaw Environmental
John Merrick, Retired
Ivy Olberding, BNL
Jeremy Rishel, PNNL
Walt Schalk, ARLSORD/NNSS
Gus Vazquez, DOE/HS-22

Roll Call and Welcome

Walt Schalk conducted a roll call and acknowledged that 13 individuals from five DOE/NNSA sites involved in the EMI SIG DMCC program were present, and the fifth DMCC teleconference of 2012 was called to order at 12:32 p.m. EST.

DMCC Pre-Call Update

Walt and Carl Mazzola prepared a pre-call update that was sent out on November 14, 2012. It covered the following topics: (1) Assist Visit activities; (2) Voluntary Consensus Standards activities; (3) DMCC web page update; and, (4) Forecast models and GPUs. Attachment I shows the pre-call update with additional information discussed during the teleconference.

Assist Visit Activities

Carl and Walt briefly discussed the Assist Visits to Y-12 and Oak Ridge National Laboratory (ORNL) during the week of August 6, 2012. Final reports have been issued, and both meteorological programs are satisfied with the results. During FY13, there are plans for assist visits at Los Alamos National Laboratory (LANL) and Sandia National Laboratories (SNL), which can also be accomplished in the same week.

Voluntary Consensus Standards Activities

Carl and John Ciolek gave brief updates of the many voluntary consensus standards (VCSs) on which DMCC members are working. Carl mentioned that the last comment on ANS-2.15 has been resolved and described the remaining process as follows (which involves no additional effort of the working group): Re-balloting by the ANS Nuclear Facilities Standards Committee (NFSC), ANS Standards Board (SB) approval, American Nuclear Standards Institute (ANSI)



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Board of Standards Review (BSR) approval, ANS editing and eventual publication by mid-2013. This standard will have taken about 8.5 years to develop; while the average time for standards development is 6.1 years. John mentioned that both ANS-2.16 and ANS-3.8.10 were discussed at the October 17, 2012 Nuclear Utility Meteorological data User Group (NUMUG) meeting, and the first draft of ANS-2.16 is targeted for November 2013.

John, for Tom Bellinger, briefly mentioned the first full ANSI/ANS-3.11 (2010) revision meeting was held on October 17, 2012, just prior to the NUMUG meeting in McLean, VA. The working group has been reconstituted. and writing assignments have been issued.

Carl mentioned that ANSI/ANS-2.21(2012) has been issued.

Walt indicated that a first draft of ANS-2.31 will be finalized at a December 6, 2012 Las Vegas, NV WG meeting. This standard has only been in development for a little over a year, and a good first draft will be sent to NFSC Subcommittee 25 for review.

Carl mentioned that ANS-58.25 continues under the review of the Joint Committee for Nuclear Risk Management (JCNRM).

DMCC Web Page Update

Cliff Glantz mentioned that there were no new additions to the DMCC web page since the last teleconference.

Forecast Models and GPUs

John discussed forecast models and Graphical Processing Unit (GPU) applications that are contained in the pre-call notes.

Old Business

EMI SIG DMCC Meeting 2013

Walt provided an update on the 2013 EMI SIG Meeting from his recent meeting with Jim Fairbent. At this time, there still has not been a decision regarding whether the 2013 meeting will be approved. Jim is waiting to hear from the Secretary of Energy's office regarding the conference. However, review of meeting approvals so far provides hope of a future approval. The meeting, if approved, is planned to be held in the Chicago, Illinois area in early May 2013.



DOE EH-0173 Revision Support (Activity Continuing)

Gus Vazquez provided an update on recent activities regarding DOE-EH-0173T. He pointed out the current document was published in 1991. As a result of DOE O 458.1 being issued last year, DOE/HS-22 decided to conduct a preliminary review of DOE-EH-0173T by HS Subject Matter experts. Gus indicated that the group decided to request a review by the DMCC on the meteorology-related chapter and appendices and will send a DMCC Review request to Walt by the end of September and request Jim Fairbent approval prior to distribution.

EMI SIG Training Product Review (Activity Continuing)

Walt mentioned that he had contacted the EMI SIG Training Committee Chair to inquire if a DMCC review and comment of their Lessons Learned project document was still desired. The Training Committee stated that it is still interested in a DMCC review. Accordingly, Walt sent out a request for a review and comment to the DMCC community and included the web link to the document. Walt will assemble comments by October 15, 2012 and forward to the Training Committee.

NUMUG Meeting (Activity can be closed)

Walt indicated that DMCC provided presentations and VCS support at the October 2012 NUMUG meeting. The next NUMUG meeting will be in June 2014 at the location of the RETS-REMP meeting, which conjoins with NUMUG every third year.

DOE/EH-0173T Revision Support (Activity Continuing)

Gus Vazquez thanked DMCC for review comments to the revision of DOE/EH-0173T that were so far provided. Final consolidated comments from other DMCC members are due by December 16, 2012. Once all comments are received, DOE/EH-0173T will go back for full DOE/NNSA review through REVCOM.

EMI SIG Training Product Review (Activity can be closed)

Walt mentioned that he had not received any input to the EMI SIG Training Committee Lessons Learned project document and will close this activity.

SODAR Survey (Activity Continuing)

Per the request at an earlier teleconference of Jean Dewart, who needs to replace the now defunct LANL SODAR, Walt sent out a survey of SODAR equipment that is being used at the DOE and NNSA sites. Walt is compiling the information and will send it out as a DMCC product when it is completed. No additional discussion at this teleconference.

MADIS Data Quality Assurance Standard (Activity Continuing)

At an earlier teleconference, John mentioned that CAPARS at ORNL uses readily-available MADIS data. This large database has various levels of quality assurance, some of which may not be sufficient to ensure that the consequence modeling results can be trusted. In addition, some of the instrumentation may not be properly sited. John stated that there is a need to develop a standard to screen the data. No additional discussion at this teleconference.

Issues with Wind Speed Data and MACCS2 X/Q (Activity Continuing)

Earlier in the year, Walt was contacted by Chip Lagdon, DOE/HSS, to coordinate a response to a technical issue found by a MACCS2 user that involves the resolution of the wind speed data used in MACCS2 and the appropriate determination of 95% X/Q values. Cliff Glantz and Carl drafted a White Paper on this issue and will be providing the draft for DMCC and SCAPA Consequence Assessment Modeling Working Group (CAMWG) peer review. Walt and Cliff had a conference call with Jorge Schulz, the issue originator, and discussed the issue about the scenarios modeled and how the input data were used. Cliff also contacted Nate Bixler, the MACCS-2 custodian. Cliff will write up the results of the conference call, and the paper will be finalized for NA-41 review.

ALOHA-HYSPLIT (Activity Continuing)

At an earlier teleconference, Mark Miller presented the new Hybrid HYSPLIT model developed by NOAA NOS Seattle, WA, NOAA ARL HQ, Silver Spring, MD, and NOAA ARL FRD, Idaho Falls, ID. Mark described the new model setup as an integration of the ALOHA model into the HYSPLIT model. No additional discussion at this teleconference

IMAAC Operations Center Change (Activity can be closed)

At an earlier teleconference, Mark Miller mentioned that a memo had gone out to the IMAAC community stating that technical operations are being moved from NARAC at LLNL to the Defense Threat Reduction Agency (DTRA) effective October 1, 2012. Mark said he would forward the memo to Walt so he could distribute it to the DMCC community; which Walt did prior to this teleconference.

New Business

Experiments at Dugway Proving Grounds (Activity Continuing)

John Ciolek gave a small presentation on Go ToMeeting about the information that John Pace, Meteorology Director at Dugway Proving Grounds, had provided about some experiments to be conducted in this recently developed meteorology test bed. Granite Mountain in the Utah desert has been instrumented with a sensor spacing of approximately 1 km, which will give high-resolution meteorological information on katabatic winds and inversion formation and



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depth. Information should be available during the April-June 2013 timeframe. A copy of the presentation will be included with these Call Highlights on the DMCC web page. If you wish to use or pass along information contained in this presentation, please contact John Pace (john.c.pace.civ@mail.mil).

Round Robin

DOE/NNSA Site	Discussion
BNL (Olberding)	Two meteorological towers have received a full upgrade of their instrumentation in response to a DMCC recommendation. Instrumentation is at the 2-meter, 10-meter, 50-meter and 85-meter levels and is maintained by an engineer in the atmospheric sciences group.
Hanford/PNNL (Rishel)	<p>Hanford EOC had a practice exercise drill last week, which involved the simulation of a small chlorine release in calm winds. ALOHA, EPICode, and NARAC were used to simulate the release, and the models showed good agreement.</p> <p>RASCAL Version 4.3 is under development and slated for release sometime in February-March of 2013. This release is expected to have an automated meteorological data downloader that will allow the user to import NOAA observations and forecasts from the web. The forecasts are from NOAA's National Digital Forecast Database (NDFD) and are at a resolution of ~5 km (~2.5 km in mountainous regions). The meteorological download utility should streamline the process of gathering and entering meteorological data for use in RASCAL.</p>
INL (Clawson)	<p>Rick Eckman, Dennis Finn and Brad Reese have volunteered to test the beta version of the ALOHA-HYSPLIT code.</p> <p>A draft gap analysis of HYSPLIT has been prepared for evaluation for the SCAPA toolbox.</p> <p>The Memorandum of Understanding (MOU) of the research partnership between INL and NOAA has been approved. The Interagency Agreement (IA) for 2013-2017 is being finalized.</p> <p>Additional equipment has been installed at the north end of INL to collect information to determine anabatic and katabatic wind</p>



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DOE/NNSA Site	Discussion
	flows. Missoula Fire Department and a Boise State professor have shown interest in partnering in the study. Will be contacting Kevin Birdwell, ORNL, who is familiar with similar wind flows at Oak Ridge, TN.
LLNL NARAC (Aluzzi)	The dry deposition velocity study of the MACCS-2 and Hotspot codes is moving along well with completion scheduled for January-February 2013.
NNSS (Schalk)	<p>The total upgrade of the mesonet is moving along well with all of the towers acquired and about 50 percent of the instrumentation, communications, and data loggers acquired. The new network should be available by late-2013.</p> <p>The electrical technician that left the site in June 2012 will be replaced. In addition, a requisition has been approved to hire another meteorologist.</p>
ORNL (Kabela)	<p>Doing due diligence on the formation of a meteorological group in response to a DMCC assist visit recommendation. All parties involved favor this reorganization.</p> <p>Erik has just received his Ph. D., writing his thesis on validating downscaled climatic models. A copy will be hung on the DMCC web page once he sends it to Walt.</p>
SRS (Mazzola)	The new five-year meteorological database that addressed Defense Nuclear Facilities Safety Board (DNFSB) concerns will be available by the end of the year. Safety Basis documents at SRS, including the Integrated Safety Analysis (ISA) for the Mixed Oxide Fuel Fabrication Facility (MFFF) will be revised using the new database.

Next DMCC Teleconference

The next DMCC teleconference is scheduled for **Tuesday, January 15, 2013**, at **12:30 p.m. EST**. All 2013 DMCC conference calls are scheduled to be conducted on the third



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Tuesday of every odd month, with the exception of May, unless circumstances dictate otherwise.

Adjournment

The meeting adjourned at **1:45 p.m. EST**. Walt thanked everyone for their contributions.

Respectfully Submitted,

Carl Mazzola



ATTACHMENT I: Pre-Call Notes (11/14/2012)

Assist Visit Program Status

Brookhaven National Laboratory (BNL): Joe Terranova is addressing the 17 observations and recommendations from the July 30-31, 2009 AV. BNL management have funded a 0.75-FTE position and budgeted \$240,000 in FY11 for instrumentation upgrades. **Discuss follow-up AV at EMI SIG meeting.**

Hanford: Paul Fransioli used the 28 observations and recommendations from the September 25-26, 2008 AV in planning the transition of the meteorological program from PNNL to Hanford's Mission Support Alliance (MSA). **Ken Burk was sent an email to see if there was an interest in a follow-up AV. No response as of yet.**

Idaho National Laboratory (INL): Kirk Clawson is addressing the nine new observations and recommendations from the follow-up AV that was conducted on April 20-21, 2010.

Lawrence Livermore National Laboratory (LLNL): A consultation was performed on September 14, 2011 and is under review. **Tony Wegrecki will be broadening the scope with a self-assessment of some other program areas that were not covered.**

Los Alamos National Laboratory (LANL): Scot Johnson postponed his request to have a follow-up AV in the summer 2010 by two years until summer 2012, which will be six years since the initial AV in August 2006. **Scot has taken a one-year sabbatical for CY12. Summer 2012 AV possibility being discussed with Jean Dewart.**

Nevada National Security Site (NNSS): The last AV was conducted in September 2007. **Walt Schalk to decide whether a follow-up AV is needed.**

Oak Ridge National Laboratory (ORNL): An AV was conducted the week of August 6-10, 2012, coupled with a Y-12 AV update. **The ORNL Assist Visit report was developed and distributed in mid-October to ORNL Meteorologists, Kevin Birdwell and Erik Kabela.**

Pantex: The last AV was conducted in 1997. **No point of contact to discuss a follow-up AV.**

Sandia National Laboratory (SNL): The last AV was in 2003. DMCC will attempt to combine SNL with LANL in 2012 if SNL agrees to a follow-up AV. **Gina Deola was sent an email to inquire if there was an interest in a follow-up AV. No response as of yet.**



Savannah River National Laboratory (SRNL): Chuck Hunter continues to address the 11 observations and recommendations from the June 2009 AV, which were well-received by both DOE and SRNL stakeholders.

Waste Isolation Pilot Plant (WIPP): The last AV was in August 2005. Dan Watterson was sent an e-mail **to determine if there was an interest in a follow-up AV. No response as of yet.**

Y-12: **An AV was conducted the week of August 6-10, 2012, coupled with an ORNL AV update. The Y-12 Assist Visit report was developed and distributed in mid-October to the Y-12 Meteorologist, Tom Bellinger.**

ANSI/ANS VCS Status

ANSI/ANS-2.3 (Mazzola) Standard for Estimating Tornado, Hurricane, and Extreme Straight Line Wind Characteristics at Nuclear Power Sites: Issued on April 22, 2011; supporting the Natural Phenomena Hazard (NPH) DOE standard (i.e., DOE-STD-1020-2011). **ACTIVITY COMPLETED**

ANS-2.15 (Ciolek) Standard for Criteria for Modeling and Calculating Atmospheric Transport of Routine Releases from Nuclear Facilities: A presentation was given at the George Mason University modeling conference in July 2012. The group was informed about the ANSI/ANS standards process, key points of the Standard, and future direction of the working group. Several new volunteers were added to the working group: Steve Hanna, Joe Chang (DHS), Bruce Egan, and Jay Boris (Naval Research Laboratory). **A Final Draft was passed by all NFSC reviewers on November 9, 2012. The document is being reviewed by Carl Mazzola for substantive changes. ACTIVITY COMPLETED**

ANS-2.16 (Ciolek/Rishel) Standard for the Criteria for Modeling Design-Basis Accidental Releases from Nuclear Facilities: A presentation was given at the George Mason University modeling conference in July 2012. The group was informed about the ANSI/ANS standards process, key points of the Standard, and future direction of the working group. Several new volunteers were added to the working group: Steve Hanna, Joe Chang (DHS), Bruce Egan, and Jay Boris (Naval Research Laboratory). **ACTIVITY PROCEEDING**

ANS-2.21 (Vigeant) Criteria for Assessing Atmospheric Effects on the Ultimate Heat Sink: Standard has been published in September 2012. **ACTIVITY COMPLETED**

ANS-2.31 (Mazzola/Schalk) Standard for Estimating Extreme Precipitation at Nuclear Facility Sites: WG has been formed and Walt Schalk and Carl Mazzola are members. WG populated with both meteorologists and hydrologists. Kick-off meeting was held in Cleveland, OH, on



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October 24, 2011 and writing assignments given out by WG Chairman John Stevenson. Carl Mazzola has completed Sections 2-3. First draft is expected by April 2012. **First draft was reviewed by the working group in July. The next meeting of the WG is being planned and is scheduled for December 6, 2012 in Las Vegas at the DOE Nevada Support Facility. ACTIVITY PROCEEDING**

ANS-3.8.10 (Ciolek/Rishel) Standard for the Criteria for Modeling Real-time Accidental Releases at Nuclear Facilities: The ANS-2.15 working group will begin ANS-3.8.10 for emergency response consequence assessment after it sends ANS-2.16 for consensus review. John Merrick volunteered to be on the working group. A presentation was given at the George Mason University modeling conference in July. The group was informed about the ANSI/ANS standards process, key points of the Standard, and future direction of the working group. Several new volunteers were added to the working group: Steve Hanna, Joe Chang (DHS), Bruce Egan, and Jay Boris (Naval Research Laboratory). **A full working group meeting was held during the NUMUG Conference in October 17, 2012. Discussion started on what the standard for emergency response should contain. ACTIVITY PROCEEDING**

ANSI/ANS-3.11 (Bellinger/Call) Standard for Determining Meteorological Information at Nuclear Facilities: Tom Bellinger(Y-12) and Jennifer Call (TVA) are the new Working Group Co-Chairs. An initial planning meeting was held in Oak Ridge on August 7, 2012. A solicitation for reviewers and writers has gone out. **The first full WG meeting was held on October 17, 2012. ACTIVITY PROCEEDING**

ANS-58.25 (Mazzola) Standard for Radiological Accident Offsite Consequence Analysis (Level 3 PRA) to Support Nuclear Installation Applications: The standard associated with Level III probabilistic risk assessments that address both meteorological data (Section 4.7) and atmospheric transport and diffusion models (Section 4.8) for risk-informed safety evaluations received 520 comments in the RISC consensus review; 69 associated with Sections 4.7 and 4.8. Some members of the WG met in Chicago, IL in late-October 2011, and three others met in early-November, while at the Winter ANS meeting in Washington, DC, to resolve the comments. A full WG meeting was held on January 24-26, 2012 in Atlanta, GA to resolve the comments. The WG met in Chicago on July 11-12, 2012 to address CNRM comments. **ACTIVITY PROCEEDING**



Forecast Models and GPUs Status

News from the 2012 International Conference for High Performance Computing includes:

AMD

AMD announced dual-GPU FirePro S10000 is aimed more at virtualization markets

- 3,584 cores
- 5.9 teraflops (single precision)
- 1.48 (double precision)

NVIDIA

NVIDIA announced their latest GPUs (Tesla K20 and K20X) built for HPC clients

Tesla K20

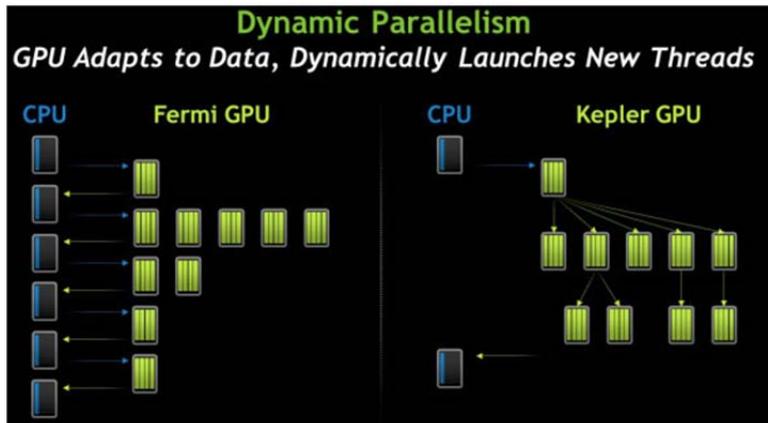
- 2,496 cores
- 5 GB
- 3.52 teraflops (single precision)
- 1.17 teraflops (double precision) for servers and workstations

Tesla K20X

- 2,688 cores
- 6 GB
- 3.95 teraflops (single precision)
- 1.31 teraflops (double precision) for servers only

New features

Dynamic Parallelism, which allows GPU threads to spawn new threads without having to go back through the Central Processing Unit (CPU)



Hyper-Q, which allows connections from multiple CUDA streams, from multiple MPI processes, or from multiple threads within a process



GPUDirect, which allows other devices to query the GPU without waiting on the CPU to handle the transaction

Note: ORNL's Titan supercomputer (currently ranked the world's fastest super computer at 17.59 petaflops) has 18,688 Tesla K20X GPUs and over 560,640 AMD processors.



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No updates were reported.