



NEWSLETTER

National Weather Association

NO. 11 – 11 NOVEMBER 2011

The National Weather Service's Geographic Information System-based Storm Damage Assessment Toolkit

Keith Stellman, NWS Shreveport, La.

The NWS is responsible for assessing and recording storm damage information following severe weather events. The NWS Central and Southern Region Headquarters with Weather

Forecast Offices (WFOs) Tallahassee, Fla., Shreveport, La., and Omaha, Neb., have developed a prototype Damage Assessment Toolkit application that leverages Geographic Information System (GIS) server-based technology, BlackBerry® smartphones and laptop computers to collect and transmit storm damage data directly from a field damage survey site to a central data server.

Currently, there is no standardized way to collect such data, and the WFOs use various techniques, most of which involve manually marking paper maps, taking hand-written notes, and recording geo-coordinates from hand-held Global Positioning System (GPS) devices. The Toolkit addresses these issues by standardizing the collection technologies and techniques.

See GIS, page 2



Screenshot of the BlackBerry® form showing a list of dropdown menu items the user can easily click through to generate a point in the database.

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NWA Award Winners

This edition is dedicated to the members who make the National Weather Association so strong! Awards were presented by NWS President Pat Market at the Annual Meeting. We applaud our 2011 Award winners in this Newsletter!



John (Jack) Hales (retired)
NOAA/NWS/National Centers for Environmental Prediction (NCEP) – Storm Prediction Center (SPC) Norman, Okla.
Lifetime Achievement

For an unparalleled 46-year career dedicated to blending science and public service, which included the issuance of over 5500 severe thunderstorm and tornado watches that saved countless American lives.



(right) Janice Bunting, Fort Worth, Texas
Member of the Year

For outstanding and significant contributions to the NWA over a period of years serving as Councilor, Newsletter Editor, and for service on the Membership & Marketing, Publications and IT Committees.

(left) Josh Korotky (retired), National Oceanic and Atmospheric Administration (NOAA)/National Weather Service (NWS)/Pittsburgh, Pa.
Lifetime Achievement

For significant contributions to operational meteorology over many years, which included pioneering software applications, numerous and varied research efforts, and a commitment to teaching and instruction.



Ted Schmidt, KTTC-TV Rochester, Minn.
Broadcaster of the Year

For dedication and passion providing accurate, informative, entertaining forecasts, and critical weather information under adverse conditions, and for his outstanding commitment to community service.



See more on pages 4, 5 and 8

A damage assessment team (typically two people) equipped with the Toolkit (a camera and laptop with a GPS puck, or a smartphone) collects the raw storm damage data, and enters them in a predefined Toolkit application format. The team can augment the predefined fields with comments and GPS-tagged photos of the impact. Upon completion of the data collection, the information can be immediately transmitted using the Toolkit to centralized servers for subsequent quality control and aggregation. If direct communication is not available, the data are stored locally and can be uploaded once a broadband link is available.

If a GIS-enabled laptop computer is used for data collection, the Toolkit software includes a base map with a damage logging form. The data entered include the specific information necessary to ascertain a damage rating based on the Enhanced Fujita scale. Alternatively, the team can use a BlackBerry® smartphone with a damage logging form and a base map in separate applications (Fig. 1, page 1).

The Web interface shown in Fig. 2 includes tools to quality control the data received from the mobile devices, and also has an option to manually enter data and/or upload images from a GPS enabled camera. The Web interface also contains a tool that allows damage swaths to be manually added to the database.

The data transmitted to the geo-database on the central server are immediately available for any of the NWS offices to review and edit as necessary. Staff at the office can aggregate the data and generate a comprehensive storm damage report, even while the survey team is still in the field. The data can be exported from the server in many common GIS formats.

During the April 25-27, 2011 tornado outbreak across the southern U.S., the Toolkit was used by many of the damage assessment teams, which resulted in more timely and accurate damage assessments. A very detailed track analysis of the Tuscaloosa, Ala., EF4 tornado (April 27, 2011) is shown in Fig. 3. Although several survey teams worked on portions of this tornado track, the use of the Toolkit permitted more rapid collection, quality control, and dissemination of the data for this major outbreak. The quick availability of the damage assessment data on the local WFO Web pages helped local, state, and federal officials in the development of their own assessments and reports.

An NWS Integrated Work Team has been formed to determine if the Toolkit is an economical solution to the problem of

disorganized storm damage collection. Two damage surveys were conducted; one with, and one without, the Toolkit. Substantial savings in man-hours and overtime were realized due to the efficiency of the Toolkit. Possible future upgrades to the Toolkit will include other portable devices (e.g., electronic tablets or other smart phones).

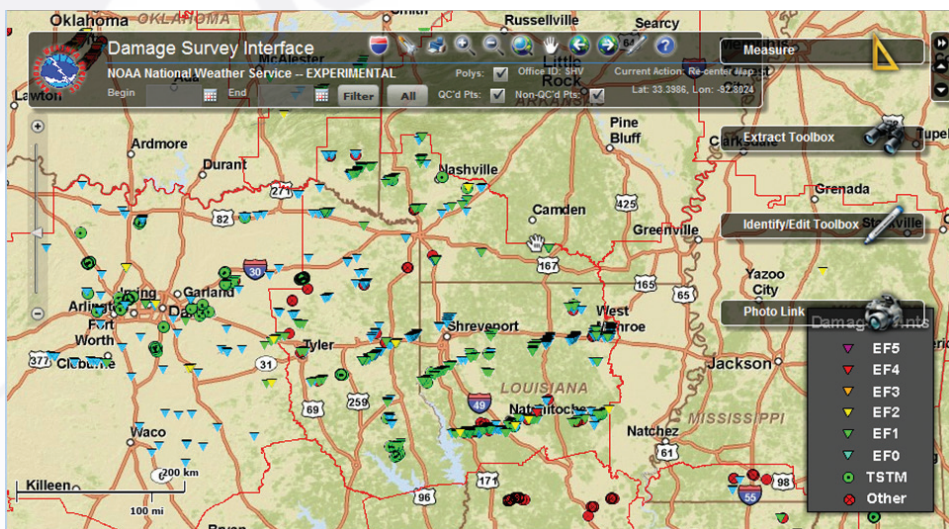


Figure 2. The Web editor portion of the Toolkit centered over the NWS Shreveport office. The various colored icons indicate all of the damage data collected using the Toolkit during its prototype phase. The tools used in the Web editor are shown on the right of the image.

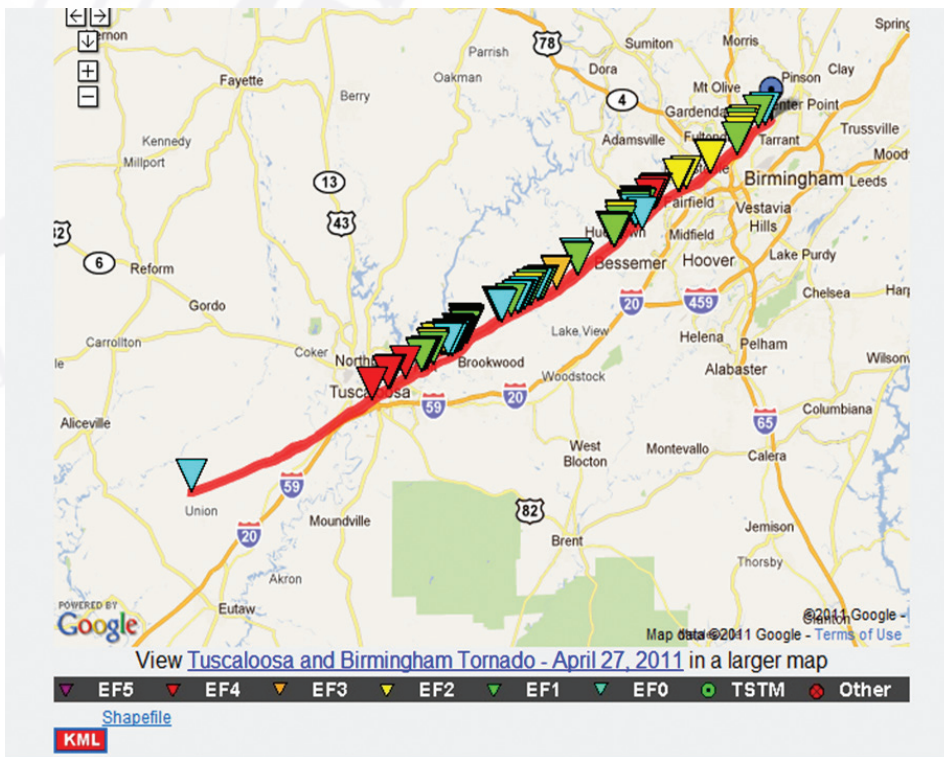


Figure 3. Annotated track map for the Tuscaloosa, Ala. EF4 tornado that occurred on April 27, 2011. The triangles represent the data points collected along the track using the Toolkit, which can be displayed by clicking on the interactive map.

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President's Message – Welcome to the new Social Media Committee

Facebook statuses were updated, comments and questions were Tweeted, photos got Flickr'd and colleagues got linked up at LinkedIn. There is no doubt that this year's Annual Meeting relied more on social media to convey information and facilitate discussions than any previous NWA conference. Recognizing the changing digital landscape, the NWA Council acted on related issues during the October Meeting in Birmingham. Among these was the creation of a Social Media Committee, whose mission is to "...enhance NWA communication and social media content by providing policy, guidance, and new initiatives." The chairperson is Diane Cooper. Among the other goals of this new committee, they propose to:

- Establish policy and guidelines for posts,
- Explore emerging advances of social media outlets,
- Engage members, committees and NWA leadership to post/interact on social media,
- Facilitate real time interaction during the annual conference, and
- Leverage social media venues to increase membership.

In other Council actions, a dialogue has begun on the advice of the Publications Committee about the possibility of making our National Weather Digest journal completely electronic, and perhaps merging it with our Electronic Journal of Operational Meteorology. Doing so would eliminate the

need for paper publication, make our authors' works more easily and quickly accessible, and perhaps generate enough combined articles to get our journal(s) listed and ranked in the prestigious Thomson Reuters Journal Citation Reports. Of course, there are several hundred members who still prefer to pay a premium for their traditional hard copy Digest, so I do not expect this Council discussion to be a hasty one. Still, the conversation propels us further into the 21st century.

Among the many other committee activities, the Membership and Marketing Committee is at work preparing to update the NWA Logo. This has not been done in nearly 15 years, and there is currently no cohesiveness between the organizational logo and the broadcaster seal. This has been in the works, and the final results await Council approval as of this writing.

Each of these highlighted committee activities (and there are many others I haven't mentioned) aims to continue modernizing how we do business. They also make the NWA much more accessible and tractable to our younger/student members as well as potential members. Indeed, our new Social Media Committee represents a kind of bridge, not only between generations within the NWA, but also to the meteorological community outside our immediate confines. I want to welcome Diane and her committee members and thank them, as well as all NWA Committee chairs and members, for the work and effort that they invest to keep taking the NWA forward.

Happy Holidays.

Patrick Market
NWA President

A Grand Welcome to Our Newest NWA Members Who Joined in September

Regular/Military/ Retired Members

Stephen Ampula
Michael Birdsell
Peter Blottman
Notanee Bourassa
Kari Bowen
Holly Britton
John Cameron
Jerry Combs
Andrew Courney
Caribe Devine
Kenneth Garcia
Gary Goggins
John Hales
Jordan Higley
Gary Huffines
Justyn Jackson
Joshua Johnson
Johnny Kicklighter
Andy Kula
Jessica Losego
Steven Maiers
Robert Miller

Anthony Mostek
Matt Peterson
Philip Sakal
Mark Sannutti
Samuel Stocks
Victor Thomas
Bradley Travis
William Watt
Lance Wood
Jacob Wycoff
Andrew Zimmerman

Student Members

Ryan Adams
Sean Bailey
Stephanie Barichello
Kevin Barrett
Eric Beamesderfer
Garrett Bedenbaugh
Kyle Berry
Alan Black
Heather Buinicky
Jeffrey Cohen
Caitlin Fagan

Traci Fehnel
Clifford Felton
Scott Feretti
Natalie Gaggini
Bonnie Gonzalez
Michael Griffith
Sarah Harris
Tara Hecke
Brittany Herrholtz
Amber Hill
Ericka Hines
Ryan Hoke
Joshua Hollingsworth
Jacob Holmes
Larry Hopper
Samantha Huddleston
Marc Jacobs
Robert Janiec
Emanuel Janisch
Donald Jellison Jr.
John Justen
Jay Kanish
Kimberly Klockow
Brittany Kusniar
Evan Kutta

Nicholas Kyper
Ryan Lingo
Jenna Mackin
Jamie Melzer
Dave More
Matthew Muscato
James Nieder
Jared Rackley
Gary Rann
Christine Rapp
Scott Roberts
Toni Rosati
Jessica Schaer
Dustin Shea
Elizabeth Smith
Willaim Syrett
Erin Thead
Justin Thompson-Gee
Ryan Wade
Sean White
Ryan Willis
Kathleen Wilson
Amber Winstead
Bradley Workman

More NWA Award Winners



John Gordon NOAA/NWS Louisville, Ky. (left) and Jan Null San Francisco State University & Golden Gate Weather Services Saratoga, Calif. (below)
Public Education Award

For developing the "Beat the Heat, Check the Backseat" campaign to raise awareness of the dangers of hyperthermia to children left in the backseat of vehicles.



(Above) Dr. Russ Schneider, SPC Director, accepted this award for NOAA/NWS/NCEP – SPC, Norman, Okla., from President Market. Not pictured: Phillip Bothwell, John Hart, Corey Mead and Richard Thompson
Operational Achievement Group Award

For the development of a multifaceted mesoanalysis web page that provides critical diagnostic weather information for many operational meteorologists, as well as for those pursuing research of hazardous weather events.



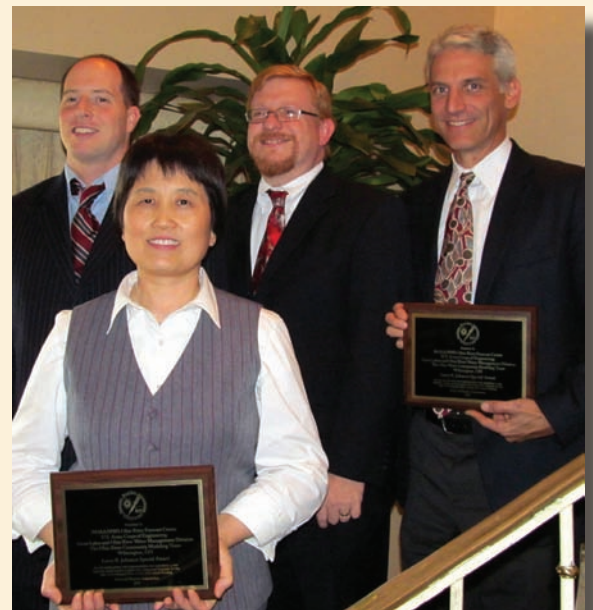
Tim Burke (above) accepted on behalf of the High Plains AMS/NWA Local Chapter (XI) Western Oklahoma, Western/Central Kansas and Nebraska Local Chapter of the Year Award

For outstanding science sharing and outreach activities promoting the NWA and weather, such as sponsoring a regional conference and a regional workshop, maintaining a local chapter web page, participation on Facebook, and awarding an educational scholarship.



Timothy Schmit (left) NOAA/ National Environmental Satellite, Data, and Information Service (NESDIS) Center for Satellite Applications and Research Madison, Wis.
T. Theodore Fujita Research Achievement Award

For excellence in promoting and extending the use of satellite data within the operational community currently and in the future.



NOAA/NWS Ohio River Forecast Center, U.S. Army Corps of Engineers (USACE), Great Lakes and Ohio River Water Management Division and The Ohio River Community Modeling Team Wilmington, Ohio (Picture left to right) Robert Moyer, USACE; Sherry Chen, NOAA/NWS Ohio River Forecast Center (OHRFC); President Market and Trent Schade, USACE.
The Larry R. Johnson Special Award

For the development and implementation into operations of a new hydraulic model used to produce lifesaving river forecasts for the Ohio and Mississippi Rivers during 2011 record flooding.

*Eric Wise
NOAA/NWS Springfield, Mo.
Operational Achievement
Individual Award*

For the expert analysis and resultant warning decision that provided over 20 minutes of lead time for the Joplin, Mo. EF-5 rated tornado on May 22, 2011.



*Perry McEwen Shelby County Sheriff's
Office Memphis, Tenn.
The Walter J. Bennett Public Service
Award*

For exemplary and lifesaving service to the City of Memphis and Shelby County during the historic flooding and tornado outbreak on May 1, 2010.



*NOAA/NWS Center Weather Service Unit Atlanta, Ga.
and Weather Forecast Office Peachtree City, Ga.
(Picture left to right) Steve Nelson and Jessica Fieux,
WFO; President Pat Market; Trisha Palmer, WFO and
Chip West, Meteorologist in Charge, Center Weather
Service Unit (CWSU)
Aviation Meteorology Award*

For the sustained commitment to aviation safety and efficiency through leadership, innovation, collaboration and service in support of the Atlanta Hartsfield-Jackson International Airport and the National Air Space aviation programs.

High Plains NWA Chapter News

Members of the High Plains NWA Chapter met at the Town and Country Kitchen in Norton, Kan., on Oct. 27. There was a long, but important business meeting among the 14 members in attendance.

The group discussed whether the chapter checking account should be at a bank that is better suited for interstate banking to make it easier for new treasurers to manage, like one of the more popular national branches (e.g., Bank of the West). The first draft of Form 1023 to apply for tax-exempt status is done. Mike Umscheid will meet with Jim Johnson, who has much experience in this area, to go over the form and make additions/corrections/etc. before submitting it to the IRS, hopefully in December. Members were also asked to start thinking about participating on the Jim Johnson Scholarship committee. The committee needs one member representing each WFO in the chapter: Goodland, Kan. (GLD), Dodge City, Kan. (DDC), Hastings, Neb. (GID), and North Platte, Neb. (LBF).

Overall, the High Plains Conference went well with many good speakers and a decent turnout. The Wichita Chapter had a \$750 loss due to unforeseen taxes from the conference host hotel. Our chapter voted to offer \$400 to the Wichita Chapter as a goodwill gesture. A discussion began about how to tackle the problem of a lack of student presentations (e.g., focus more on the local colleges and cast a wider net including allowing other physical science students, increase financial incentives and scholarships, etc.). The decreasing numbers of talks from the four offices that make up the chapter are a concern, and there was some discussion on how to increase the numbers

of meteorological talks from operational meteorologists from these offices (GLD, DDC, GID and LBF). The dates for the next conference are Aug. 8-10, 2012, Wednesday-Friday, to be held at the Wilson Center on the campus of Hastings College. The first organizational meeting was already held, with two committees formed for planning and other items. We want to go back to the focus of the original High Plains Conferences and try to get as many high plains speakers as possible.

Our chapter was selected for the National Weather Association Chapter of the Year Award for 2011 for the third time in eight years (2003, 2008, 2011). Tim Burke, chapter Secretary, accepted the award in person on the chapter's behalf thanks to several financial contributions from chapter members. The plaque was presented to the members and will reside at GLD where the current President, Chris Foltz, is assigned.

It was suggested a few meetings ago to set dates for the following year's meetings. The President suggested the second Wednesdays of January, March and October, with the fourth face-to-face meeting at the conference in August. June 13 and Dec. 12 are set for conference calls. Online voting is going to be the method for electing the 2012 officers: Vice President Al Pietrycha, GLD will not be running. If anyone is interested, please submit your nominations to the chapter either through e-mail or at the next meeting in December. The next conference call meeting in December will hopefully have 2012 officers selected so that they can assume their role beginning the first face-to-face meeting in January.

Tim Burke, Secretary

The Hydrometeorology Testbed (HMT)

Rob Cifelli

NOAA Earth Science Research Laboratory,
Physical Science Division

Tim Schneider

NOAA Office of Hydrologic Development

The NOAA Hydrometeorology Testbed (HMT) conducts research on precipitation and weather conditions that can lead to flooding and flash flooding, and fosters transition of scientific advances and new tools into forecasting operations. HMT developed as an outgrowth of NOAA's California Land-Falling Jets Experiment (CALJET) and Pacific Land-falling Jets Experiment (PACJET)-projects (1997-2003), which were aimed at improving short-term forecasting of land-falling storms impacting the west coast of the U.S. Intense precipitation associated with these storms often brings challenges to regional

National Water Center (http://www.noanews.noaa.gov/stories2011/20110922_nwc_construction.html).

HMT-West is the first regional demonstration of the HMT implementation strategy (Fig. 1). Since the first full-scale deployment in winter of 2005-2006, the HMT-West effort has focused on the North Fork of the American River Basin, located between Sacramento, Calif., and Reno, Nev., on the western slopes of the Sierra Nevada, and to a lesser extent on the Russian River Basin in Sonoma County. Water from the American River Basin is a critical resource for California's economy and natural ecosystems, and the threat of flooding poses an extremely serious concern for the heavily populated downstream area. In fact, the Sacramento area is sometimes considered to be the nation's next "Katrina." The Russian River Basin is one of the most flood-prone rivers in California because of the watershed's unique geography and proximity to the coast, which together produce climatologically heavy wintertime rainfall, frequent flooding and mudslides. There are increasing stresses for maintenance

See HMT, page 7

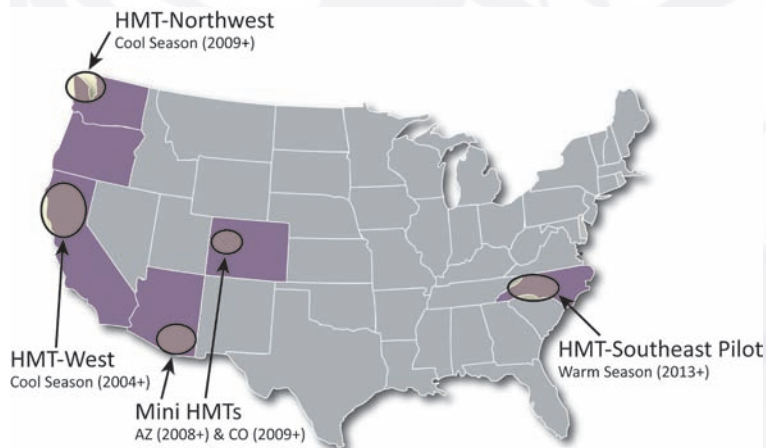


Figure 1. Locations of current and future HMT regional implementations.

water managers attempting to balance the need for water supply storage and flood mitigation.

HMT activities support efforts to balance water resource demands and flood control in a changing climate. Specifically, HMT aims to:

- accelerate the development and prototyping of advanced hydrometeorological observations, models and physical process understanding;
- foster infusion of these advances into operations of the NWS; and
- support the broader needs for 21st Century precipitation information for flood control, water management and other applications.

HMT addresses these goals through innovation, demonstration and infusion in five major activity areas, including (i) quantitative precipitation estimation (QPE), (ii) quantitative precipitation forecasting (QPF), (iii) snow information, (iv) hydrologic applications and surface processes, and (v) decision support tools. Guided by NWS operational requirements, emerging scientific questions and new technologies, HMT directly engages the forecasters and scientists in the research and development process. New ideas, technologies and predictive models are developed, demonstrated, evaluated and refined through the testbed before being transitioned to operations. This will include linkages to and impacts on NOAA's

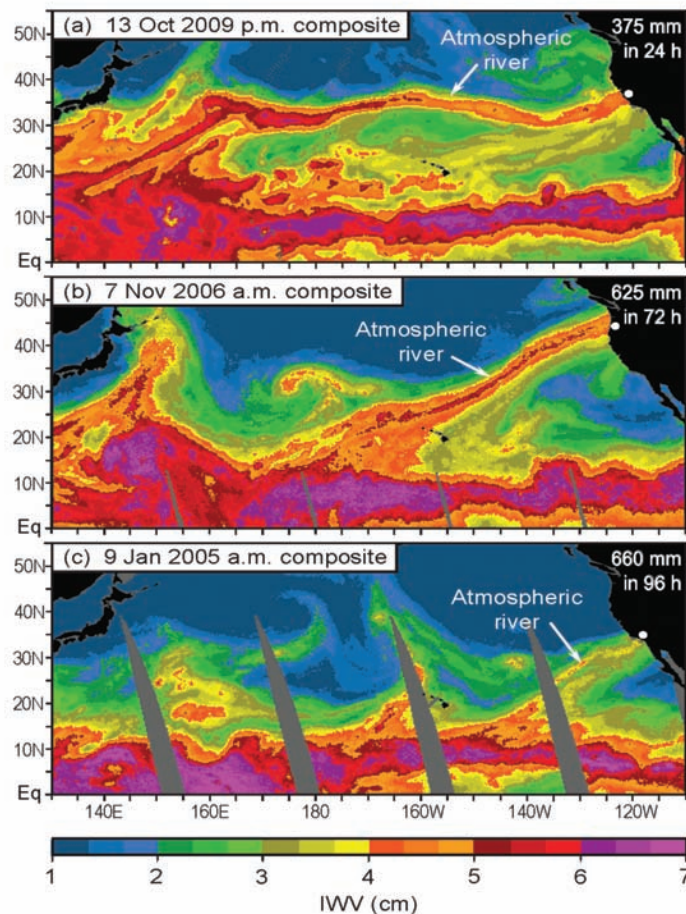


Figure 2. Examples of AR events that produced extreme precipitation on the U.S. west coast, and exhibited spatial continuity with the tropical water vapor reservoir as seen in SSM/I satellite observations of integrated water vapor (Ralph et al. 2011).

of stream flows and habitat for endangered fisheries, competing uses for domestic and agricultural water supply, and demands for water-based recreation.

Data from HMT-West and operational sources are being merged in algorithms with the intent to produce multi-sensor (e.g., radar + rain gauge) QPF. These blended estimates overcome deficiencies inherent in estimates based on single instrument types. Equally important, demonstrations and evaluations of precipitation forecast improvements are being conducted for the HMT-West region using high-resolution numerical prediction models, now in use as research tools.

HMT-West brings researchers and operational forecasters together to improve the accuracy and lead time of extreme precipitation and flood forecasts and warnings in the west coast region. One of the important findings of HMT-West is the recognition that the bulk of heavy precipitation associated with land-falling winter storms is often triggered by “atmospheric rivers” (ARs), which are corridors of concentrated water vapor transport in the warm sector region of mid-latitude cyclones (Fig. 2). As a consequence of HMT-West research, the NWS has recently begun a series of training sessions on ARs to improve overall situational awareness for forecasters and water resource managers.

HMT-West has fostered a wealth of innovative research to improve our understanding of ARs and has led to 60 peer-reviewed publications and growing (see the list of HMT-related publications).

As shown in Fig. 1, HMT has grown substantially since 2004 and is now active in several regions outside of California, including the Pacific Northwest, Arizona, and Colorado. In addition, a pilot study is planned for the spring-summer of 2013 in the North Carolina region. This approximately five month effort will be conducted jointly with the NASA Global Precipitation Measurement (GPM) mission ground validation program.

More information about HMT can be found at <http://hmt.noaa.gov/>.

HMT RESOURCES

www.esrl.noaa.gov/psd/programs/caljet/1998/

www.esrl.noaa.gov/psd/programs/pacjet/2003/

www.esrl.noaa.gov/psd/programs/2006/hmt/

<http://hmt.noaa.gov/pubs/>

References

Ralph, F. M., P. J. Neiman, G. N. Kiladis, K. Weickman, and D. W. Reynolds, 2011: A multi-scale observational case study of a Pacific atmospheric river exhibiting tropical-extratropical connections and a mesoscale frontal wave. *Mon. Wea. Rev.*, in press.

NWA Sponsored Meetings for 2012

Jan. 14: Minnesota Storm Chasing Convention

This convention is being cosponsored by the NWA and many other organizations. It will be held at the Best Western Kelly Inn – Plymouth, Minn. www.mnstormchasingconvention.com

Feb. 27 – March 1: 2nd National Flood Workshop

Organized by Weather Research Center (private, non-profit education and research center) in Houston Texas, workshop will bring together agencies, emergency managers, academia, and professionals from across the nation to encourage dialogue on various aspects of flooding. For more information about the workshop, visit <http://www.nationalfloodworkshop.net>, call Weather Research Center at 713-539-3076 or email wrc@wxresearch.org.

March 1-3: 12th National Severe Weather Workshop

A unique and growing national workshop focused on hazardous weather information-sharing and discussions on the effective transmission of messages about meteorological risk. Emergency managers, weather enthusiasts, teachers, students, meteorologists, broadcasters, and vendors in threat alerting, sheltering, and communications will gather, present, and discuss inter-related topics about weather hazards in early March. Presentations include: Social Science Implications and Assessments from 2011 Tornadoes; National Weather Service Products, Services and Outreach; Weather Radar Technology Updates and Training; The Role of Law Enforcement in Weather Emergencies; and Weather Trade & Technology Expo.

<http://www.norman.noaa.gov/nsww/>

March 2 – 3: 10th Annual Southeast Storms Symposium

Sponsored by the East Mississippi Chapter of the NWA/AMS, it will once again be held on the Mississippi State University Campus in the Bost Extension Center in Starkville, MS.

<http://www.nwa.org.msstate.edu/symposium.shtml>

March 2 – 4: 37th Annual Northeastern Storm Conference

The Lyndon State College AMS/NWA Local Chapter sponsors this annual conference and it will be held at the Holiday Inn Rutland/Killington in Rutland, Vt. See: <https://sites.google.com/site/lyndonstateamsnwa/north-eastern-storm-conference>

March 29 – 31: 16th Annual Severe Storms & Doppler Radar Conference

This conference sponsored by the NWA Central Iowa Chapter will be held at the Courtyard by Marriott Hotel in Ankeny, Iowa. Details at: <http://www.iowa-nwa.com/conference/>

Other Meetings & Conferences

Jan. 22 – 26: 92nd Annual AMS Meeting

New Orleans, La. Visit the NWA at booth #710 in the Exhibit Hall. <http://www.ametsoc.org/MEET/annual/index.html>

Jan. 22: AMS Short Course On Art & Science of Forensic Meteorology

New Orleans, La. Co-organizer is Steve Harned, NWA Executive Director. For details: <http://annual.ametsoc.org/2012/index.cfm/programs-and-events/short-courses/ams-short-course-on-the-art-science-of-forensic-meteorology>

The 2011 NWA Award Recipients

Row near stair rail: (left-right) NWA President Patrick Market, Josh Korotky, Jack Hales, Trent Schade, Sherry Chen, Timothy Schmit, Jessica Fieux, Trisha Palmer.

Back row: (left-right) Awards Committee Chair Fred Glass, Janice Bunting, Ted Schmidt, Robert Moyer, John Gordon, Russell Schneider, Tim Burke, Perry McEwen, Steve Nelson, Chip West, Eric Wise.

See pages 1, 4 and 5 for award details.



Dates **2** Remember

Jan. 14: 2012 Minnesota Storm Chasing Convention, Plymouth, Minn.

Jan. 22 – 26: 92nd Annual AMS Meeting, New Orleans, La.

Feb. 27 – March 1: 2nd National Flood Workshop, Houston, Texas.

March 1 – 3: 12th National Severe Weather Workshop, Central Oklahoma (TBA)

March 2 – 3: 10th Southeast Storms Symposium, Mississippi State, Miss.

March 2 – 4: 37th Northeastern Storm Conference, Rutland, Vt.

March 29 – 31: 16th Severe Storms & Doppler Radar Conference, Ankeny, Iowa.

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