



The NWA: Connecting
operational meteorologists
in pursuit of excellence
in weather forecasting,
communication, and
service.

No. 12 – 9

Newsletter SEPTEMBER

2012

Dear NWA Members, Council and Staff:



We are incredibly fortunate to have such creative and dedicated people in this organization who have been working diligently over several months to enhance the membership experience. The addition of a new weekly news brief I believe will be a step up in keeping us connected and relevant. The Annual Meeting in Madison is going to be one to remember with

thought provoking presentations and new ways to interact in this fast changing world. I hope you are planning on attending and taking advantage of the opportunity to share, learn and enjoy the feeling of being infused with new insight in the world of operational meteorology.

It is then with such regret that I must announce a leave of absence from my Presidency. As many of you know, I have been challenged with breast cancer in recent months. I am happy to report good results in treatment and expect to be beyond this learning experience by next spring. What is keeping me from attending the meeting in Madison, however, is an illness my husband acquired over a month ago. He remains in the ICU at Oklahoma Medical Center. I do not know what the future brings for him and my time must be dedicated for his eventual healing.

Be assured that your NWA Council will function just fine in the interim. President Elect Bruce Thomas and Vice President Wendy Abshire, in addition to being good people, are talented leaders and will proceed in my absence with the business of the organization. With these folks, NWA staff, the Council and the Committee Chairs, you could not ask for more!

With warmest regards,

Liz

NWA 2011 Tax Returns: Operating Surplus!

INCOME

Dues, contributions, grants	\$ 120,672
Program service revenue*	191,830
Investment income	4,458
Other income	16,361
Total Revenue	333,321

EXPENSES

Salaries	86,703
Annual Meeting	84,143
Publications	41,990
Scholarships/Grants	17,418
Professional Svcs	7,428
IT	855
Office/Admin	19,472
Travel	8,095
Other printing/postage	3,983
Insurance	1,626
Other	21,454
Total Expenses	293,167

Operating surplus for 2011	40,154
Increase in value of investments	2,837
Liabilities	-1,215
Increase in Net Worth	41,776

Net Worth

December 31, 2011	219,339
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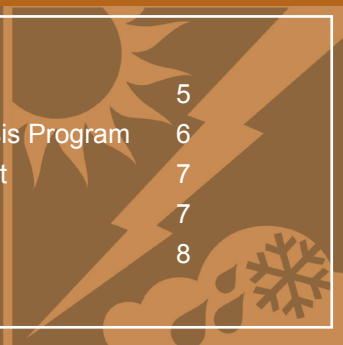
**Program service revenue: Annual meeting income, Broadcast certification income, Subscriptions, Digest author page charges*

See page 3 for more

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Two New Articles in Electronic Journal of Operational Meteorology (EJOM)










Submitted by Michael Brennan, EJOM Editor
National Hurricane Center

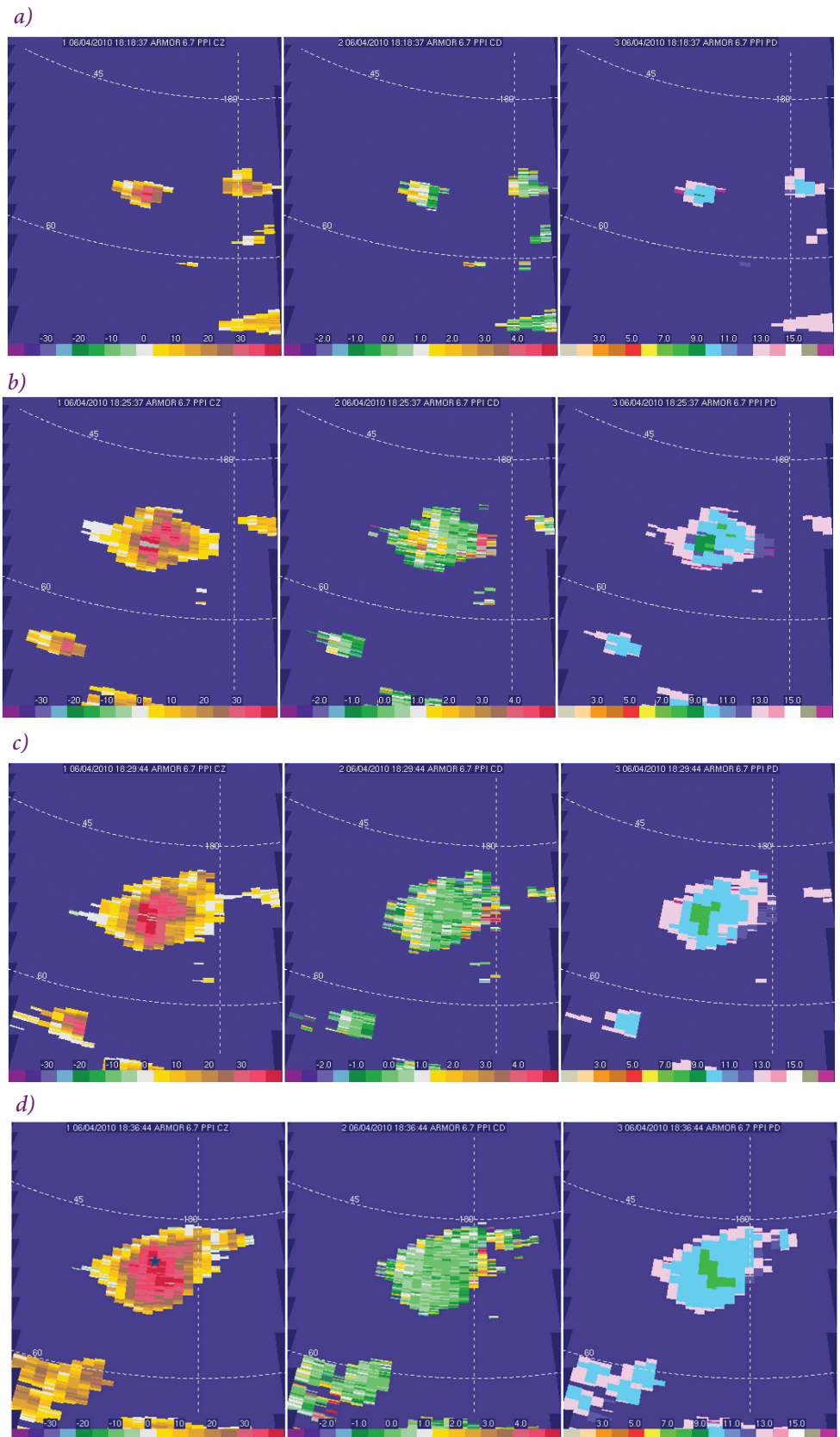
“Operational Utility of Dual-Polarization Variables in Lightning Initiation Forecasting (NWA EJOM 2012-EJ6)”

by Crystal Woodard and Lawrence Carey of University of Alabama (UA) in Huntsville, Ala., Walter Petersen of Wallops Flight Facility in Va., and William Roeder of the 45th Weather Squadron at Patrick Air Force Base, Fla.

Radar-based operational forecasting algorithms for lightning initiation have relied heavily on the use of radar reflectivity. Few, if any, algorithms rely on the use of variables specific to dual-polarimetric (DP) radar. In this article, a series of algorithms are synthesized based on past research and tested to determine if DP observations can improve lightning initiation forecasting. DP radar observations, such as horizontal reflectivity (Z_H) and differential reflectivity (Z_{DR}), and a DP-based fuzzy-logic particle identification (PID) algorithm are used to identify the first instance of hydrometeors required for significant charging (e.g., graupel, hail, or their antecedent particles such as supercooled raindrops). For example, the progression of precipitation characteristics in the charge zone at -10°C within a typical thunderstorm can be inferred from the multi-panel figure. This figure displays a cell from the first indication of significant radar echo (row a) leading up to the first lightning flash (row d). The formation of supercooled raindrops at -10°C can be seen in rows a and b where $Z_H > 30\text{ dBZ}$, $Z_{DR} > 1.0\text{ dB}$ and PID values indicate a rain and graupel mixture (color code table). The complete freezing of the

See EJOM page 3

Color codes for the PID categories used in the figure.	
Color	PID Category
	Hail
	Rain and Hail
	Graupel and Small Hail
	Graupel and Rain
	Dry Snow
	Wet Snow
	Ice Crystals
	Irregular Ice Crystals
	Super-cooled liquid drops



NWA History Clip

As we are in the midst of hurricane season, this tidbit from March 1983 seemed a good one!

The Newsletter reprinted a letter to the editor to a Beaumont, Texas, newspaper from a “retired hurricane chaser”. It included the following statement: “If you are inland, you are safe from hurricanes.”

He was obviously not an NWA member!

NWA Posts Operating Surplus for 2011

As a result of the largest ever Annual Meeting in Birmingham plus a significant increase in new members, the NWA posted a increase in net worth in 2011. The operating surplus was over \$40,000 and investments increased in value by almost \$3000. The net worth of the NWA at the end of 2011 was \$219,339, up from \$177,563 at the end of 2010. For details, please refer to page 1 which has data from the NWA 990 IRS return filed in August.

EJOM from page 2

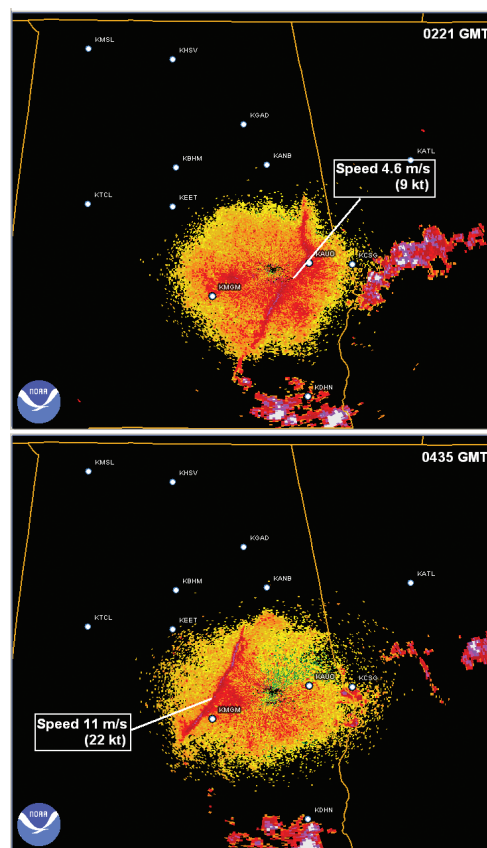
supercooled drops are indicated by Z_{DR} values near 0 where $Z_H > 30$ dBZ and is supported by the PID categorization of graupel and small hail in rows c and d. The production of graupel and small hail identified by the radar at -10°C preceded the first flash by about 11 minutes in this case. For the overall study, fifty ordinary convective cells similar to that depicted in this figure are analyzed using DP radar observations. Although the use of DP radar variables does not significantly improve overall skill for first flash forecasting, it can reduce the false alarm ratio (FAR) by as much as 50%, while providing a similar lead time (10-11 minutes) relative to a reflectivity benchmark.

Advanced Radar for Meteorological and Operational Research (ARMOR) Plan Position Indicator (PPI) images at 6.7° elevation angle that highlight precipitation development in a thunderstorm leading up to the first lightning flash. From left to right, Z_H (dBZ), Z_{DR} (dB) and PID depiction of precipitation growth at approximately the -10°C thermal level in a thunderstorm on June 6, 2010. The UTC time of each scan: a) 1818:37, b) 1825:37, c) 1829:44, and d) 1836:44. Values are shaded as shown in the legend at the bottom of each image. The color codes for the PID panels in the rightmost column are shown in the table. In d) Z_{HP} , the black star indicates the location of the first flash at 1837 UTC. An animation of the time evolution of these three parameters is available with the article on the NWA website. This is Fig. 3 in the article.

“A Long-Lived Nocturnal Bore on Radar: Diagnosis and Relevance (NWA EJOM 2012-EJ7, Images of Note)” by Timothy A. Coleman of the University of Alabama in Huntsville, Ala.

A radar animation is used to show the propagation of a bore that traveled over 200 km (125 mi) across Alabama. Surface observations are used to show the typical rise in surface pressure and temperature and drop in dewpoint temperature as the bore passed over Birmingham. The radar animation shows the increase in speed of the associated radar fine line as the outflow from storms in Georgia produced the bore. A discussion of the destabilization of the atmosphere behind bores and associated convection initiation (CI) is included, and differences between bores and outflow boundaries, including surface weather changes and effects on CI, are discussed.

These two images from the WSR-88D radar reflectivity animation in the article are from the radar at Maxwell Air Force Base (AFB), Ala. They show the transition from density current to bore, with acceleration between 0221 and 0435 UTC on June 1, 2007. The time period for the Maxwell AFB data in the animation is 0058-0445 UTC. The animation also includes images from the Robins AFB, Ga., radar showing the initial density current (2204 UTC on May 31 to 0055 UTC on June 1), and the Birmingham, Ala., radar showing the propagation of the bore across central Alabama (0452-0903 UTC).



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South Central Texas AMS/NWA Chapter News
Dr. Rich Dixon, Texas State University,
Geography Department

The South Central Texas Chapter of the American Meteorological Society and the National Weather Association (SCTX AMS/NWA) has completed its spring program with two meetings and the election of new officers for 2012-2013. The February meeting was mostly organizational, with individual committee reports on such items as chapter support to local science fairs and planning for a Texas Weather Conference to be held in late 2013. The chapter also was active in the South Texas Severe Weather Workshop held in San Antonio in March. Chapter President Brian Alonzo addressed the conference describing the role of SCTX AMS/NWA and providing information on membership to those in attendance. The chapter will be active in the upcoming AMS 93rd Annual Meeting in Austin next January.

The May meeting coincided with the rollout of the new online chapter newsletter. The first issue included articles on the dual-polarization upgrade of the WSR-88D radar at the Austin-San Antonio NWS office, an update on the South Texas drought and cloud seeding programs in South Texas. You can view the newsletter from the "News" link of the chapter web page: www.sctxamsnwa.net.

Theresa Gage, Director of External Affairs for the Electric Reliability Council of Texas (ERCOT) was the invited speaker at the May chapter meeting. ERCOT manages the flow of electric power to 23 million Texas customers representing 85 percent of the state's electric load. As the independent system operator for the region, ERCOT schedules power on an electric grid that connects 40,500 miles of transmission lines and more than 550 generation units. ERCOT is governed by a board of directors and subject to oversight by the Public Utility Commission of Texas and the Texas Legislature. ERCOT actively seeks to diversify the sources of electrical power generation. For example, Texas is now the leading state in wind power with over 10,000 MW of the 74,000 MW peak system capacity generated from wind. Of course, the least expensive power is that which you conserve, so Theresa provided a list of energy conservation tips for both summer and winter seasons. A new ERCOT smartphone app to help consumers stay aware of the importance of electrical conservation includes graphs of forecasted peak load by time of day.

The chapter concluded its activities for the season with the election of new officers:

President: Veronica Holtz

Vice President: Susan Street

Secretary/Treasurer: Stephanie Beall

The next meeting of SCTX AMS/NWA will be this September following our normal summer hiatus.

High Plains AMS/NWA Chapter
June and August Meetings
Tim Burke, Secretary

A teleconference/GoToMeeting of the High Plains AMS/NWA Chapter was held on June 13. President Chris Foltz from the NWS office in Goodland, Kan., served as the leader. There were 14 High Plains members logged into the call. The meeting started with a presentation by Jason Ahsenmacher of North Platte, Neb., NWS office (LBF), entitled "Vorticity Aspects of Case Studies of Rapid Cyclogenesis." Occurrences of rapidly forming cyclones are relatively rare, but can produce significant weather. One case Jason reviewed was from Feb. 28-29 in which a major winter storm, including a few tornadoes, occurred in western Nebraska. He emphasized low-level moisture as an important factor in rapid cyclogenesis and identified $d\text{prog}/dt$, defined as the change in forecast over time for a given date, as another tool that might lead to earlier forecasts of rapid cyclogenesis. Further, Jason found that model quantitative precipitation forecasts, or QPF, in these situations is poor.

In the business meeting, Rick Ewald, the Science Operations Officer at the Hastings, Neb., NWS office (GID) gave the treasury report. Mike Umscheid is still working with Jim Johnson on getting the forms prepared to submit to the IRS for the chapter to be a tax exempt organization. Our Jim Johnson Scholarship winner for 2012 was Conner Dennhardt of Grand Island, Neb. Conner will attend the University of Nebraska and will major in meteorology. More information on Conner, is on the chapter web site: <http://www.highplains-amsnwa.org>.

The Aug. 13 chapter meeting was also a teleconference beginning at noon. There were 16 members logged into the call. Vice President Bill Taylor officiated this meeting since President Chris Foltz had recently been transferred to the Great Falls, Mont., NWS office. The executive committee had voted via email to have Bill Taylor of LBF to fill in as President and Jeremy Wesley of GID as Vice President for the remaining Chapter year. A Chapter vote with a quorum ratified these choices unanimously.

The only new business item discussed was whether to provide the funds (\$250) to a Nebraska teacher who requested the chapter to fund a Weather Loan Box. This box would contain various weather items to assist students in kindergarten through fifth grade to learn about weather. John Stoppkotte at LBF has taken the lead on this project. The chapter voted unanimously to fund this box and donate it to the Nebraska Academy of Science, made up of members of the Nebraska Association of Teachers. Anyone is invited to email John Stoppkotte at LBF with suggestions on what to include in the box. The Kansas offices may follow Nebraska's lead in the future and purchase a Weather Loan Box for use in their state.

Meeting attendees had a strong opinion that the next meeting be face-to-face. However, this may or may not be possible as it depends on each office's travel budget. The next meeting will likely be Tuesday, October 30. A chapter member from GID volunteered to speak on phased array radar subjects given recently at a conference in Norman, Okla. The Vice President, Jeremy Wesley, will notify the chapter of the exact date, time and place of the next meeting.

The National Weather Association presents

The 10th Annual Scholarship Golf Outing

Saturday, October 6, 2012

Yahara Hills Golf Course

Madison, Wisconsin



\$85 per golfer

Price includes golf fees, lunch and
donation to the NWA Scholarship Fund.

Please contact Betsy Kling to sign up:

betsykling@wkyc.com

Students: Apply Now for Fall 2012 NWA Scholarships

The application period for the three Fall NWA scholarships is now open; they will be accepted through Oct. 25. In addition to the Arthur C. Pike and Phillips Family Scholarships, the NWA is pleased to offer for the first time the Dr. Bob Glahn NWA Scholarship in Statistical Meteorology. The new scholarship will be presented to an undergraduate student who is in their last two years of study and who has demonstrated a true interest in statistics and might be interested in a career in meteorology related to statistics.

http://nwas.org/committees/ed_comm/application/

NWA 37th Annual Meeting Information

October 6–11, 2012 in Madison, Wisconsin



MONONA TERRACE®

Where business and inspiration meet.

The meeting sessions will
be held in the beautiful
Frank Lloyd Wright
designed Monona Terrace
Convention Center in
downtown Madison

Location & Schedule

Monona Terrace Convention Center
One John Nolen Drive, Madison, WI 53703

The 2012 NWA Annual Meeting will include the annual Broadcaster Workshop and DVD swap, and the Fifth Annual Student Session both on Sunday, Oct. 7.

The general sessions will be held Oct. 8–11. The NWA annual awards luncheon will be held on Wednesday, Oct. 10.

Exhibits from NWA Corporate Members and others will be available Sunday through Tuesday.

Theme

**"Synthesizing Weather Information for Society: From
Observations to Action across our Communities".**

Today's meteorologists understand that the best forecast means collaborating with weather partners in education, emergency management, government, research, broadcast media and more. At this year's meeting, the breadth of the professional community is invited to explore the emerging technologies, ideas, and science that not only allow us to improve weather forecasts but also to fine tune the message to customers and the general public.

Hotel Rooms Filling Up

If you have not reserved your hotel room yet, they are booking up quickly!! We urge you to make a reservation today: <http://nwa2012.com/hotels/>

More Info on Madison, the Meeting, the Program Planning & Social Media:

The meeting blog at <http://nwa2012.com/> will be maintained by the NWA Annual Meeting Program Committee, for information on the events, the agenda, the hotels and the local area as well as breaking news.

NWA will also provide updates on this Web page, on the NWA Facebook page, Twitter and other social media. Please use the hashtag #NWA12 for any tweets associated with the 2012 Annual Meeting. Attendees are most welcome to use their Twitter accounts to send out information, and retweet liberally.

All Annual Meeting information is located at:
www.nwas.org/meetings/nwa2012

Storm Monitor and Analysis Program

David Hotz and Shawn O'Neill
NWS, Morristown, Tenn.

Jason Schaumann
NWS, Springfield, Mo.

A best practice frequently noted in service assessments of severe weather events is situational awareness of the near storm environment. This article (and associated presentation at the 36th NWA Annual Meeting) will introduce the Storm Monitor and Analysis Program, developed as a tool for local weather forecast offices to monitor severe weather potential. This UNIX-based software is designed to accept both observed and model forecast data, such as surface weather observations, WSR-88D Velocity/Azimuth Display Wind Profiles, and data from the Rapid Refresh (RAP) and Local Analysis and Prediction System (LAPS) models, to provide a continuous weather watch of severe weather potential. The program provides updated monitoring of wind shear, helicity, buoyancy, thermodynamic and composite parameters. There are 28 parameters available to monitor, and additional parameters are being added with each new version. The Storm Monitor uses color codes to highlight parameters that meet or exceed specified thresholds.

Forecasters can display a hodograph for each station identifier. The hodograph is interactive and allows the user to modify the wind speed, wind direction and storm motion. The ability to easily display and modify the wind profile gives the forecaster a useful tool to monitor the near-storm environment, thereby increasing situational awareness.

The following images illustrate the use of the software during the tornado outbreak of April 27-28, 2011. At 2200 UTC April 27, 2011, the Storm Monitor highlighted large values of shear and helicity (Fig. 1) across the area. The Significant Tornado Parameter (STP) column heading is highlighted and values in the column are sorted from highest to lowest. Notice CHA, the Chattanooga Metropolitan Airport location, is well

See STORM page 7



Figure 1: Storm monitor at 2200 UTC April 27, 2011. The STP column heading is highlighted in purple and values in that column are sorted from highest to lowest. Green indicates values in the columns not normally associated with tornado occurrence, warm colors show increasing association with tornado occurrence from yellow to purple.

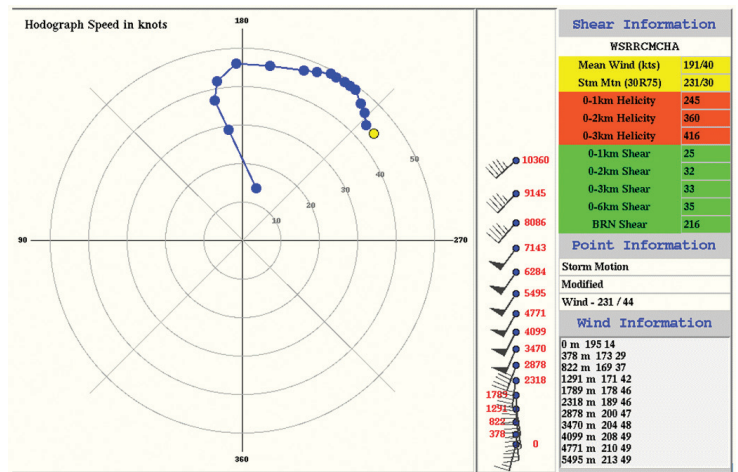


Figure 2: Time line graph of the STP at CHA from 0000 to 2359 UTC April 27, 2011. The tornadoes occurred near CHA.

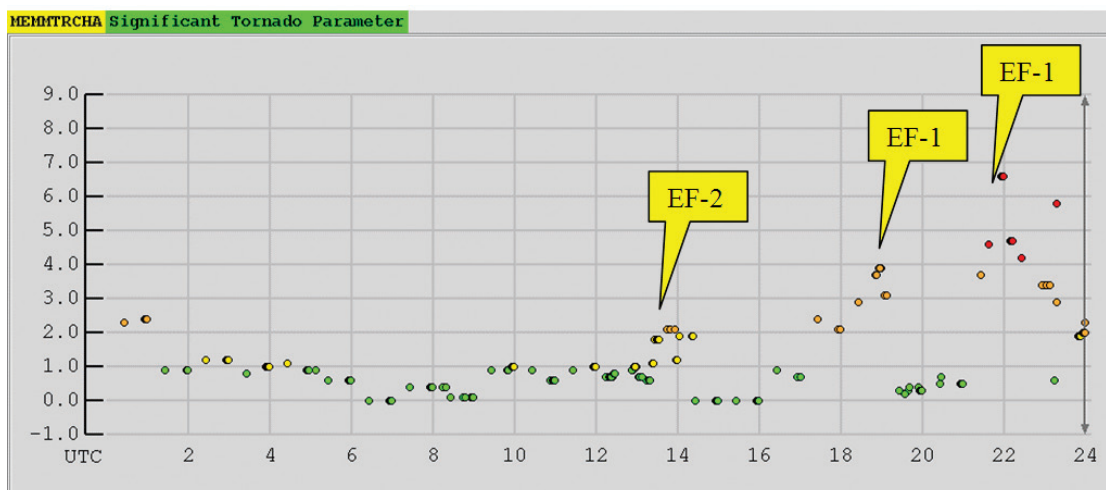


Figure 3 (at left): Hodograph at CHA using RAP wind speed analysis in knots (blue dots) and computed storm motion (yellow dot) at 0000 UTC April 28, 2011. The heights display in red are in meters. The shear information column at top right is color-coded for quick identification. Wind and storm motion information is yellow, helicity values are red, and shear values are green. The shear information will automatically change if the wind speed and/or storm motion are modified.

STORM from page 6

above the threshold for tornado occurrence (threshold is ≥ 1 for tornadoes, ≥ 2 for strong tornadoes). An EF-1 occurred at 2215 UTC April 27, 2011 and an EF-4 occurred at 0027 UTC April 28, 2011 near CHA.

The software allows the user to view time-line graphs of each parameter, such as the plot of the STP during the tornado outbreak (Fig. 2). The tornadoes across the Chattanooga, Tenn., area have been annotated on the graph. There is a spike in the STP during or just before each tornado touchdown.

Forecasters will have the ability to view the hodograph for each observation site. The hodographs are interactive and can be manipulated to change storm motion and wind input. Figure 3 shows the hodograph at CHA using the RAP analysis and surface observations at 0000 UTC April 28, 2011.

NWA sponsored Annual Meetings, Conferences and Special Events

Oct. 6-11: 37th National Weather Association Annual Meeting

See page 5 and www.nwas.org/meetings/nwa2012

Oct. 27: Southern New England Weather Conference

This annual conference will be at Meditech at the base of the Great Blue Hill in Canton, Mass. www.snewweatherconf.org/index.shtml

March 8-10, 2013: The 38th Annual Northeastern Storm Conference

Sponsored by the Lyndon State College AMS/NWA local chapter, it will be held at the Holiday Inn in Rutland, Vt.

<https://sites.google.com/site/lyndonstateamsnwa/>

Other Meetings, Conferences and Special Events

Oct. 2-4: 16th Annual Great Divide Weather Workshop

The Glasgow and Billings NWS Forecast Offices are hosting this virtual event! www.wrh.noaa.gov/wrh/greatdivide/welcome.php?wfo=byz

Oct. 13: Fourth Tri-State (NY, NJ and CT) Weather Conference

This conference will be held in the Science Building on the mid-town campus of Western Connecticut State University on White Street in Danbury, Conn.

www.wcsu.edu/weatherconference

Oct. 31-Nov. 1: The 14th Northeast Regional Operational Workshop (NROW)

This annual conference will be on the University at Albany Campus, Albany, NY. www.erh.noaa.gov/aly/NROW/nrow14.htm

January 6-10, 2013: 93rd American Meteorological Society Annual Meeting

Meeting will be in Austin, Texas.

<http://annual.ametsoc.org/2013/?CFID=12137&CFTOKEN=14711286>

April 8-12, 2013: NOAA Satellite Conference for Direct Readout, GOES/POES, and GOES-R/JPSS Users

This conference will be in Miami, Fla.

<http://satelliteconferences.noaa.gov/Miami2013>

April 17-24, 2013: The South Padre Island Weather Conference

This is a professional conference for Broadcast Meteorologists in U.S. and will focus on tropical system forecasting, disaster preparedness, safety, research, impacts and social media communications. The conference will be held at the Isla Grand Resort on Padre Island, Texas. Website coming soon.

New NWA Members from August 2012

Regular/Military/Retired

Kelsey Angle
Donald Britton
Timothy Bush
Louis Cantrell
Jeffrey Cox
Jim Floyd
William Gail
Terry Jameson
Rebecca Jones
Anton Kapela
Vijaya Karyampudi
Bradley Maushart
Adria McClain
Aisha Muhammad
Jason Ninneman
Sean Richmond
Brian Schroeder
Philip Schwarz
Steven Selden
Kyle Spangle
Jeffrey Zimmerman

Students

Brandon Bouche
Chase Bullman
Tyler Castillo
Heather Caye
Krista Cooley
Lauren Gunter
Jensen Hackett
Wendy Hakken
Kathryn Haughn
Megan Hodge
Mark Humble
Jason Jones
Marshall Larson
Christopher Marciano
Carlyle McNaught
Jason Moreland
Kyle Noel
Jim Palac
Austin Pearson
Jared Pocock
Jerry Post
Stephen Quinn
Isha Renta
Allison Stupica
Emily Wahls
Augusta Williams

PROFESSIONAL
DEVELOPMENT

What's New from COMET

This summer we would like to highlight the past quarter's new publications from the COMET Program available via the [MetEd website \(www.meted.ucar.edu\)](http://www.meted.ucar.edu). Click the topics below to visit on the MetEd site.

New Publications:

- [Weather Radar Fundamentals](#)
- [Space Weather Impacts on Aviation](#)
- [Satellite Feature identification: Atmospheric Rivers](#)
- [Suomi NPP: A New Generation of Environmental Satellites](#)
- [Topics in Dynamic Meteorology: Thermal Wind](#)
- [Quality Management Systems](#)

New Editions:

- [Anticipating Hazardous Weather and Community Risk, 2nd Ed.](#)
- [Imaging with VIIRS: A Convergence of Technologies and Experience, 2nd Ed.](#)
- [Microwave Remote Sensing: Overview, 2nd Ed.](#)

The materials are free to everyone, courtesy of our sponsors: National Oceanic and Atmospheric Administration NWS and National Environmental Satellite, Data, and Information Service programs, European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT), the Naval Meteorology and Oceanography Command, and the Meteorological Service of Canada.

Registration is required to access the modules. Comments, suggestions, or feedback you have on these or any other training offerings available through the [MetEd website](http://www.meted.ucar.edu) are welcome!

Greg Byrd

Interim Deputy Director/Senior Project Manager
UCAR/COMET

IMPORTANT DATES

Oct. 6-11
37th NWA Annual Meeting, Madison, Wisc.

Oct. 25
Application period for NWA Arthur C. Pike, Phillips Family, and Bob Glahn Scholarships closes

Oct. 27
Southern New England Weather Conference, Canton, Mass.

Jan. 6-10, 2013
93rd American Meteorological Society Annual Meeting, Austin, Texas

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Submit newsletter items to nwanewsletter@nwas.org using the Instruction for Authors at http://www.nwas.org/newsletters/newsletter_instructions.php.

Members receive the Newsletter and *National Weather Digest* as part of their regular, student or corporate membership privileges. Printed Newsletter subscriptions are available for \$25 per year plus extra shipping costs outside U.S. Single copies are \$3. Address, phone number, email and affiliation changes can now be made online: member.nwas.org.

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