Aware

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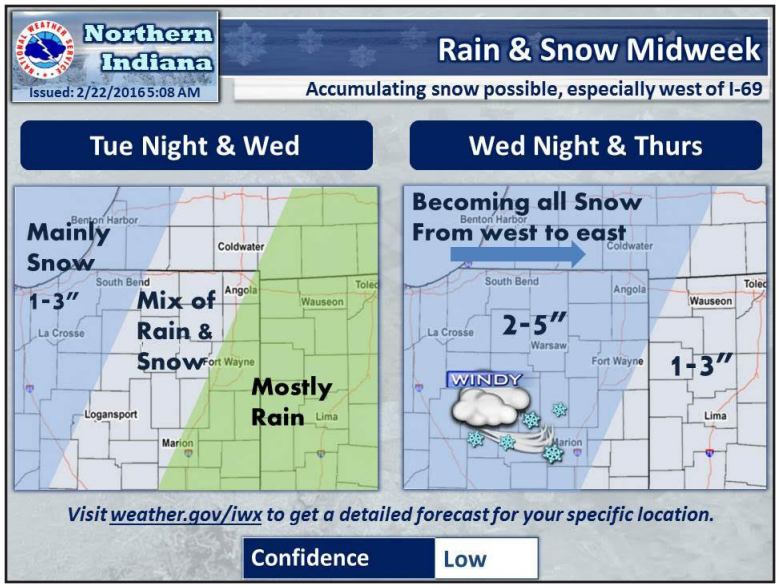
Three Part Approach Better Integrates NWS Partners

By Amos Dodson, NWS Northern Indiana DSS Team

The Impact-Based Decision Support Services (IDSS) team at NWS Northern Indiana believes intensive partner interaction is the heart of the Weather-Ready Nation initiative and is critical to successfully sending life-saving forecasts and warnings.

The mission of our team is to "shape and sustain an NWS forecast office that is fully integrated with our core partners responsible for public safety." To achieve that mission and foster the necessary relationships, we have undertaken three major initiatives: partner-driven forecaster workshops, county Local Emergency Planning Committee (LEPC) visits, and an annual Integrated Warning Team (IWT) meeting.



New briefing templates were created based on partner feedback.

Part 1: Partner-Driven Forecaster Workshops

Like many offices, we have annual forecaster workshops to prepare for the winter and convective seasons at which we tackle both science and communication. For the 2015 winter weather workshop, we invited some of our partners to provide real-time feedback on the development of our weather briefings. The forecasters were given a scenario and asked to create a multimedia weather briefing and deliver a mock webinar. Our partners, which included Emergency Management Agencies, dispatch, and Department of Transportation representatives, provided feedback as the briefing materials were being generated, resulting in changes to content, timing and delivery of the briefings.

Dawn Baldwin, Williams County Ohio EMA Director, said, "I sure read/view the weather briefings with a new appreciation for their development. Overall, a great success and pleased to have been invited to participate. Thanks for the opportunity, bring them on." Following the overwhelming success of the winter workshop, a similar approach is planned for our 2016 spring convective workshop.

Part 2. Attending Local Emergency Planning Committee Meetings

Under the Emergency Planning and Community Right-to-Know Act, LEPCs are required to identify facilities and transportation routes of hazardous substances in their county and to develop an emergency response plan. LEPCs are comprised of emergency management, law enforcement, fire, public health, water and environmental resource managers, transportation officials, businesses with critical infrastructure, local political leaders, and other core partners responsible for public safety. NWS Northern Indiana started attending LEPC meetings and found they provide a unique opportunity to make these partners aware of NWS HAZMAT response products and to share our willingness to join annual drills and exercises. LEPC meetings also offer a great opportunity to build relationships with a larger cross-section of core partners. These meetings have opened the door for additional collaboration and improved services.

During an LEPC meeting in Putnam County, Ohio, the Village of Kalida Police Department made us aware of a significant flash flood that had occurred during the prolonged rainfall in June. During this discussion, we discovered that a U.S. Geological Survey (USGS) river gage had been installed at Kalida to support Harmful Algal Bloom monitoring. NWS Northern Indiana coordinated with local officials, the USGS, and the Ohio River Forecast Center (RFC) to identify what could be done to make Kalida a forecast point along the Ottawa River. The village has purchased a rain gage and will continue to fund the operations and maintenance of this gage. Later this year, the Ohio RFC will begin issuing river forecasts.

Part 3. Focused Integrated Warning Team Workshops

Since 2012, our office has held annual IWT meetings. They have successfully built relationships between the media, NWS and the EMA. We have consistently maintained a narrow focus for each workshop, allowing the office to achieve specific action items geared toward better communicating life-saving information. In 2016, our theme is "Stay Ahead of the Game," focusing on time. Our partners discussed their timeline during various weather scenarios and when they need NWS information. This narrow focus allowed all of the IWT members to gain a better understanding of each other's timelines and needs.

Getting a Bird's Eye View of Storm Damage Using Drones

*By **Ron Morales**, WCM, NWS Charleston, SC*

For the past year, the NWS Eastern Region has had a team exploring the feasibility of using unmanned aerial vehicles (UAVs), or drones, to assist with rapid response storm damage surveys. This small team is comprised of WCM Ron Morales, NWS Charleston, SC, and Forecaster Mike Sporer, NWS Blacksburg, VA.

The initial goal was to find out whether it would be feasible for individual Weather Forecast Offices (WFO) to purchase and operate their own UAVs. After several indepth discussions and remote meetings with the NOAA Unmanned Aircraft Systems Program Office, it was clear that this option was not the way for WFOs to go due to liability, budget, training and sustainability issues.

Example of aerial imagery provided by local Section 333 UAS/drone Operators. Tornado damage from February 25, 2016 in Appomattox County, VA.

The team then turned its focus toward other viable solutions for obtaining UAS/drone data to assist with storm damage surveys through local county EM teams and the FAA UAS Test Sites. Through these options, the two WFOs were able to obtain data without cost, liability or training issues for local NWS offices. The unmanned systems data was obtained on a royalty free basis without data restrictions, operational control of or responsibility for the platform, a principle-agent relationship, liability, or any waiver or immunity from compliance with applicable laws including FAA regulations.

Last fall, Sporer successfully conducted a storm spotting training session in conjunction with the UAS operators associated with the FAA's Virginia UAS Test Site. This event connected qualified UAS operators willing to share aerial imagery with the NWS and provided an opportunity for both NWS and Virginia UAS Test Site personnel to stress the importance of safe and responsible UAS operations. Any WFO can easily adapt this line of communication and concept for obtaining volunteered data of opportunity, which does the following:

- Highlights NWS's need for aerial imagery for storm damage
- Connects UAS Operators with the FAA's Know B4UFLY training and application
- Details the types of damage that may be caused by various severe weather phenomena, what that damage may look like from an aerial perspective, and how this information can greatly benefit NWS storm damage survey efforts
- Offers specifics on how data can be shared with the NWS

In a parallel effort, through local EM relationships, NWS Charleston, SC, was able to acquire airborne imagery from UAS by tapping into the rapidly growing community of commercial UAS operators that have a special waiver with the FAA to legally fly their small UAVs (less than 55 lbs.). This waiver is called a Section 333, (FAA Modernization and Reform Act of 2012, Public Law 112-95 FEB. 14, 2012, Section 333).

At the time of this article, there were more than 4,400 operators across the country with a Section 333 waiver. The EM responsible for the Charleston, SC, region hired a local UAS imaging company with a Section 333 to conduct an aerial survey following a severe storm event. The EM shared the UAS imagery with the NWS Charleston and other county partners. NWS Charleston was able to use this aerial video and high-resolution imagery to determine the severe storm event was a F-1 tornado. Thus, the EM partnership facilitated a post-storm damage assessment of a tornadic event within a county warning area at no charge to NOAA/NWS. This is an innovative data acquisition strategy supporting NOAA's Weather-Ready Nation.

Backcountry Enthusiasts Better Served by New NWS Partnerships

*By **Vern Preston**, WCM, NWS Pocatello, ID*

To improve backcountry safety, over the last 3 years, NWS Pocatello has fostered relationships with the U.S. Forest Service (USFS) Sawtooth Avalanche Center, the USFS Utah Avalanche Center, and the National Avalanche Center.

Last year, the Utah Avalanche Center, NWS Salt Lake City and NWS Pocatello identified a lack of current warning capabilities for the Wasatch Mountains of southeast Idaho. This high use backcountry area was not covered by an avalanche center. As a result of this meeting, the Utah Avalanche Center agreed to assume avalanche warning responsibilities over this area and NWS Pocatello will send warnings. This key partnership will go a long way toward protecting backcountry enthusiasts in southeast Idaho.

This meeting also resulted in a standardized avalanche warning template, which will allow users to receive a similar avalanche warning across state boundaries.

NWS Pocatello Avalanche Program Lead Travis Wyatt now meets semi-annually with partners to keep them up to date on new services as well as get their input on how the Pocatello office can better assist them. This past fall Travis and NWS Pocatello Information Technology Office Jeremy Schulz helped the Sawtooth Avalanche Center install new snow observing stations. This was a great learning experience that led to a better understanding of the challenges avalanche forecasters face.

NWS Forecasters go onsite to better understand Avalanche risk factors. Show are Meteorologists Travis Wyatt, Scott Savage and Jeremy Schulz at Vienna Mine

NWS Pocatello has made significant improvements in its products over the last few years. The office issues the Snow and Avalanche Guidance (SAG) forecast to give backcountry recreationalists guidance on upcoming weather conditions and for use as a guidance product by partnering avalanche forecasters. Pocatello has increased the product from covering just a single point to five distinct forecast points in the backcountry. Each one of these points corresponds to a backcountry snow observing station, giving the forecasters the ability to verify forecast accuracy. In addition, the improved SAG now includes probabilistic Quantitative Precipitation Forecast guidance, a critical tool for USFS avalanche forecasters. Lead Forecaster Dawn Harmon was instrumental in these improvements.

Pocatello staff also created a snow and avalanche webpage that includes snow forecast information, backcountry observations, climatology, and avalanche safety resources. General Forecaster John Hinsberger was key in creating specialized WRF model cross sections and time series that USFS avalanche forecasters now use on a routine basis.

Spring: Get Ready for Some of America's Wildest Weather

By NWS Communications Staff, Silver Spring, MD

Tornadoes, lightning, floods, rip currents and early season heat—spring is three months of danger that can imperil the unprepared. It roars in like a lion, rampaging across the United States throughout March, April and May. And there's one hazard that can strike the coasts at any time: tsunamis. Spring hazards include severe weather/tornadoes, floods, lightning,tsunamis, rip currents/beach hazards and heat.

Nobody knows the hazards of this dynamic season more than the NWS. We ask that you get weather-ready for spring with just a few simple steps:

- **Know Your Risk:** Check weather.gov or your favorite weather outlet every morning. It is a simple action that will ensure that you are ready for the day's weather. Don't leave home without knowing the forecast.
- **Take Action:** Assemble an emergency supplies kit with 72 hours worth of food and water. In an emergency (such as after a tornado or some other hazard event), you may be stuck at home without electricity for three days or more. Make sure that you are prepared. Also, ensure that everyone in your life knows how to stay in touch with an emergency communication plan. This plan lists meeting places and alternate ways of communicating in case of emergency.
- **Be A Force of Nature:** Inspire others by sharing your weather-ready story on social media with the hashtag **#SpringSafety.** It can be a simple as posting a photo of your emergency supplies kit or letting your friends know how to reach you during an emergency. Together, we can build a Weather-Ready Nation, one that is ready for any extreme weather, water, or climate event. Find out more at our Spring Safety site.

Tenth Annual Severe Weather Awareness Draw Thousands

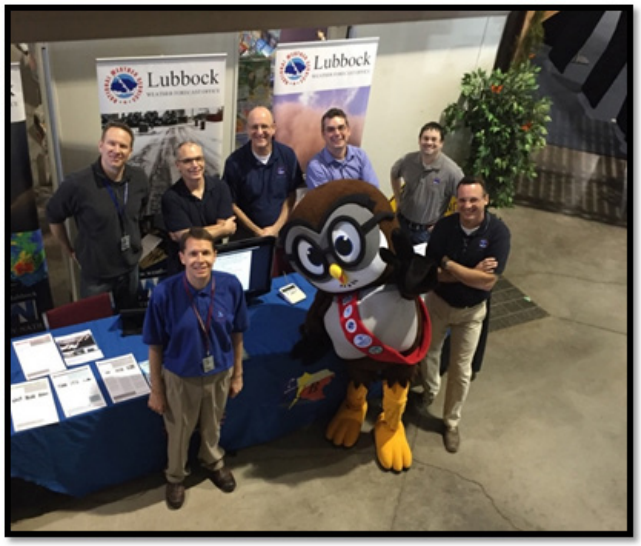
By Jody James, WCM, NWS Lubbock, TX

Special guests and hand-on experiments drew thousands to the 10th Annual West Texas Weather Safety Day. NWS Lubbock, TX, staff worked with members of the Texas Tech American Meteorological Society, the Science Spectrum Museum, KCBD-TV and local first responders to maximize outreach.

The annual Severe Weather Awareness Day has grown from humble beginnings of only 50 visitors to now regularly attracting 2,000-3,000 from the community each year.

This year, for the 10th Anniversary, a NWS meteorologist donned the Owlie SKYWARN mascot costume to greet kids at the event. Special guest Sarah Dillingham, of The Weather Channel's Weather Underground, met with adult weather enthusiasts throughout the day.

Safety talks, hands-on experiments, lightning demonstrations and even a SKYWARN training session all helped South Plains residents become more weather ready.



NWS Lubbock, TX, staff and mascot Owlie SKYWARN greet visitors at the 10th Annual West Texas Weather Safety Day.

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