National Weather Service (NWS) Service Description Document (SDD) Impact-Based Decision Support Services for NWS Core Partners April 2018

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1 Background

As documented in National Weather Service Roadmap 2.0, the National Weather Service (NWS) is evolving to build a Weather-Ready Nation, where communities are ready, responsive, and resilient to increasing vulnerabilities from extreme weather¹, water, and climate events and environmental hazards. To build a Weather-Ready Nation, we are committed to providing science-based analysis, forecasts and partnership interactions in a consistent way across the agency to effectively deliver accurate and timely weather, water and climate information to decision makers at the federal, state, local and tribal nation levels. NWS service evolution in the area of Impact-based Decision Support Services (IDSS) is based on the recognition of the expanding demands of our core partners² to prepare and respond to extreme events. At the same time NWS recognizes the growing capacity of America's Weather and Climate Industry (AWCI)³ to provide tailored support for an increasing range of customers, including these key decision makers, driving the need to describe the respective roles for the greater good of the Weather, Water, and Climate Enterprise.

1.1 Policy/Legal Context

The NWS mission of protecting lives and property and enhancing the national economy is an inherently governmental function. The enactment of the Weather Research and Forecasting Innovation Act of 2017 (Public Law 115-25) codifies NWS provision of IDSS, making public safety a top priority. It describes the primary role of the NWS Warning Coordination Meteorologist (WCM) position to increase IDSS, "to help ensure that users of products of the National Weather Service can respond effectively to improve the outcomes of weather events." The Act directs the WCM to "work closely with state, local, and tribal emergency management agencies, and other agencies related to disaster management, to ensure a planned, coordinated, and effective preparedness and response effort" and encourages the NWS to "assign other staff as the Director considers appropriate to carry out such responsibility."

Through the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), DOC/NOAA has a statutory requirement to support the Emergency Management community (see Section 3.1, below, for details of who will receive these services) at the federal, state, tribal, territorial and local levels. Likewise, the National Preparedness System, mandated by Presidential Policy Directive (PPD)-8: National Preparedness, includes a series of National Planning Frameworks, one for each of the five mission areas: Prevention, Protection, Mitigation,

¹ In this document, "weather" is used generally to mean all service areas which the NWS supports, including space weather, tsunamis, aviation, fire, marine, etc.

² The definition of "core partner" can be found in NWSPD 10-24, Impact-based Decision Support Services (in preparation) and repeated in Section 3.1 of this document until NWSPD 10-24 is published.

³ America's Weather and Climate Industry includes all elements of the private sector (including media, consultants, equipment providers, etc.) which provide services to the public in the areas of climate, water, and weather, broadly defined (e.g., includes space weather). The term does not exclude foreign-owned companies which provide services to the American public.

⁴ Public Law 115-25, Section 405(c)1(A)

⁵ Public Law 115-25, Section 405(c)1(E)

⁶ Public Law 115-25, Section 405(c)2

Response, and Recovery. NWS plays a key federal role in ensuring national preparedness related to weather, water and climate.

1.2 Whole Community Concept

The above Public Laws and Statutes provide direction to NWS to directly support emergency and disaster management at all government levels. However, the NWS recognizes this is not the exclusive domain of the government. Furthermore, the National Planning Frameworks and PPD-8 itself emphasize that it takes support from the "whole community" to build and sustain preparedness across all societal elements. The whole community includes federal, state, local, tribal, and territorial governments; private (including America's Climate and Weather Industry), academic/research and non-profit sectors; communities; households; families; and individuals, all contributing to successful preparedness efforts. This "whole community" concept is echoed in NWS' Weather-Ready Nation efforts. Achieving a Weather-Ready Nation depends not just on NWS, but on an entire Weather Enterprise, our core partners, as well as the educated actions of individuals who are prepared for and can respond to weather-related events⁷.

While recognizing "whole community" participation is critical for effective preparedness and response activities, NWS IDSS is largely focused on providing services to government core partners, especially those in emergency management and water resources management who engage in decision-making which impacts protection of life and property. It is critical that all elements of the broader community have the weather-preparedness they need, using support provided by the entire Weather Enterprise, to fulfill their role in national preparedness and to support successfully building a Weather-Ready Nation.

1.3 Guiding Principles

Given the context provided above, NWS provision of IDSS will be guided by the following principles:

- NWS's primary focus is on supporting government partners who share similar mission objectives. 8
- NWS will focus on ensuring the safety of the public and particularly vulnerable populations.
- NWS will support disaster management efforts of federal⁹, state, local, tribal and territorial governments.
- NWS will interact with its partners at the highest level, reaching as many as possible who are potentially in harm's way.
- NWS will be flexible in how we provide IDSS to our partners, keeping in mind that they may also be receiving support from others in the Weather, Water and Climate Enterprise.

⁷ Within this SDD, the term event is used to refer to actual hazardous weather events of impact to the public (e.g., hurricane), incidents that are impacted in some way by weather conditions (e.g., environmental hazards such as chemical release), and large gatherings of people at a venue where public safety is often impacted by hazardous weather conditions (also referred to as "special events").

⁸ Non-government entities may also be supported as described within this document.

⁹ To honor agreements with contiguous countries and territories and the terms of other international agreements, the term "federal" within this document encompasses international governments and organizations supported by NWS.

2 IDSS Description

NWS defines IDSS as the provision of relevant information and interpretative services to enable core partners' decisions when weather¹, water, or climate has a direct impact on the protection of lives and livelihoods. IDSS may be characterized as either episodic or recurring:

- Episodic IDSS Provision of information and interpretative services to directly support an event or incident where weather, water, or climate has a direct impact on the protection of lives/livelihoods. Examples include event-related webinars, NWSChat, iNWS, and on-site or remote interaction.
- Recurring IDSS Provision of ongoing support to a subset of core partners throughout the year to improve partner mitigation, preparation, response, and recovery related to event/incidents where weather, water, or climate has a direct impact on the protection of lives/ livelihoods; or to support routine-high value decisions. Examples include joint training, Integrated Warning Team interactions, pre-event/scenario planning, water use/contingency forecasts and planning, table-top exercises used to plan actions and procedures addressing these events or incidents, after-action reviews, and daily coordination regarding routine high-value decisions such as aviation operations or reservoir releases.

Note: IDSS is a specialized service for core partners, however not all core partners are the recipient of IDSS. For example, members of the media may be an active participant in some NWS IDSS activities because of the unique role they play (in coordination with NWS) in communicating critical public safety information; however, NWS does not provide decision making support to the media.

This document provides details on who will be provided IDSS and the level of support provided. The services described herein apply to all NWS offices¹⁰.

3 Who Will be Supported:

NWS will provide the services described in Section 4, below, to entities identified as NWS core partners who engage in decision-making which impacts protection of life and property.

3.1 Definition of Core Partner

The NWS has defined a classification of its users which it terms "core partners." This class of users is defined as:

Government and non-government entities which are directly involved in the preparation, dissemination and discussions involving weather¹, water, or climate related National Weather Service information¹¹, that supports decision making for routine or episodic,

¹⁰ All NWS offices includes any offices staffed by NWS employees or contract agents, including WFOs, RFCs, NCEP Centers, Office of Water Prediction, NWS National Headquarters, NWS Regional Headquarters, CWSUs, Tsunami Warning Centers, etc.

¹¹ This information may pertain to any service areas which the NWS supports, including space weather, tsunamis, aviation, fire weather, marine, etc.).

high impact¹² events. These entities have a unique need for increased interaction with NWS personnel for provision of Impact-based Decision Support Services (IDSS) or to facilitate their role in supporting the NWS mission.

While there are a large number of individuals who contribute to the overall services provided by NWS or who are critical enterprise partners in building a Weather-Ready Nation by providing quality services to the public, this "core partner" designation is meant to identify those entities which have a unique need for direct access to NWS information and/or increased interaction with NWS personnel for provision of IDSS, because of the level of critical public services they provide or to facilitate their role in supporting the NWS mission.

Core partners enable NWS' inherently governmental public safety mission via message amplification (force multipliers). General Criteria for core partners:

- Directly involved in the preparation, dissemination, or discussion involving hazardous weather¹, water, climate, or other emergency information
- Possess a unique need for increased interaction with NWS for IDSS
- Have an operational nexus necessitating mutual exchange of data/information to support each other's operations

NWS "core partners" consist of the following four categories:

- a. Members of the Emergency Management (EM) Community¹³. Public safety officials who serve as employees or contract agents of a government agency at the federal⁹, state, local, tribal, or territorial level and are charged with protecting the public from hazards that are influenced by weather¹ or weather-related events. In select cases, NWS may provide similar support for organizations which are not formally government agencies, but which employ personnel who routinely exercise authorities equivalent to the public safety officials described above, particularly those who serve vulnerable populations. Examples include the emergency management function of primary/secondary schools, colleges/universities, and hospitals/long-term care facilities. With approval of NWS management, NWS offices providing IDSS may extend support to these organizations. Other members of this community include local SKYWARN® Coordinators and Net Control Operators, such as Amateur Radio Emergency Services (ARES) and Radio Amateur Civil Emergency Services (RACES).
- b. <u>Members of the water resources management (WRM) community</u>. Public officials who serve as employees or contract agents of a government agency at the federal⁹, state, local, tribal, or territorial level and are charged with managing the nation's water resources for the public good, including infrastructure (e.g., dams, levees, reservoirs, etc.) supporting these management activities. In addition, NWS may provide similar support to quasi-government

¹² High impact - Any weather-dependent event that significantly impacts safety, health, the environment, economic productivity, or homeland security. No standard, nationwide criteria define a high impact event. It may impact millions of people or one sector, and it may vary in timing or location. (WRN Roadmap 2.0, p. 11)

¹³ NWS IDSS for the EM community includes support to government emergency operations at the federal, state, local, tribal, and territorial levels (e.g., Incident Command Posts, Emergency Operations Centers, etc.), including support to government operations of Emergency Support Functions (ESF), described in the National Response Framework, for which NOAA has been identified as playing a federal support role.

and private organizations which are not formally government agencies but which employ personnel who routinely exercise authorities similar to the public officials described above, as the actions of these organizations impact NWS forecasts. With approval of NWS management, NWS offices providing IDSS, may extend support to these organizations.

- c. <u>Government partners</u>. Federal⁹, state, local, tribal, or territorial government partners who have missions that require close coordination with the NWS to support the nexus of an allied mission or critical interdependency on each other's data or actions which impact the missions of both organizations. Government partners include (but are not limited to) the FAA, FEMA, state DOTs, DoD, USGS, USACE, U.S. Coast Guard, and other water and land management officials.
- d. Members of the electronic media. Members of the electronic media are parties, and contract agents of parties, who have a need to actively participate in discussions with NWS forecast offices on imminent weather or other hazards, and operate systems that routinely and rapidly relay weather and water watches, advisories, warnings and forecast information to a significant part of the population served by an NWS office. Electronic media includes providers of weather content through electronic information distribution such as radio, television, internet, cellular, and other wireless means. Members of the electronic media are not included in the subset of core partners receiving IDSS, but may be an active participant in some NWS IDSS activities because of the unique role they play (in coordination with NWS) in communicating critical public safety information. NWS does not provide decision-making support to the media.

Note: Individuals, companies, or other entities involved in 'chasing' weather events and posting or streaming video or pictures of the event, but who do not otherwise have a need to communicate with NWS, do not meet the "core partner" definition. In addition, individual NWS spotters, who play a key role in providing information to our forecast offices, but who do not routinely require direct access to NWS information to fulfill their function as a spotter, are not included in the "core partner" definition.

3.2 Clarifications to Core Partner Definition

To better understand which entities are included or not included in the four categories of core partners, guidelines for NWS interpretation are provided in Table 1, below ¹⁴:

¹⁴ This table does not include references to all NWS partners, but serves to provide guidance on who is included in the core partner definition for specific sectors where additional clarification is needed. The clarifications serve as a means for NWS to standardize its level of service across NWS offices and in some cases may indicate where NWS

may need to scale back and refer contacts to AWCI as an alternative source of services in the future.

Sector	Included	Not Included
Education	[EM Community] Emergency management function for a school district or college/university (functional, not title-specific (e.g., school district superintendent) Support limited to communication of hazardous weather information and preparedness; not interpretative services such as evacuation decisions or consulting on community resilience Not to be identified as deep relationship core partners	Other personnel within a school/school district or college/university who request support which does not fall under the umbrella of protection life/property as a public safety function (e.g., individual teachers/professors, transportation depot, grounds operations, event organizers, venue operators)
Health	 [EM Community] Emergency dispatch centers [EM Community] EM function of hospital/long term care facilities (e.g., hospice facility/nursing home, upon request 15 of deep relationship core partner (see section 4) Support limited to communication of hazardous weather information and preparedness; not interpretative services such as evacuation decisions or consulting on hospital resilience Not to be identified as deep relationship core partners [Gov't Partners] Federal 5/state/local departments of health (public health and health care related) 	EMS/ambulance/paramedic personnel All other care facilities (urgent care, clinics, surgi-centers, etc.)
Utilities	[WRM Community] Utilities that fall within Water Resources Management Community (Includes but not limited to hydroelectric power, dam operator, water supply, etc.) Enhanced level of interaction is critical because actions of these partners has direct input on the quality and timeliness of NWS forecasts/warnings (e.g., river/flow forecasts, flood warnings) [EM Community] The EM function of other utilities may be core in very rural locations, considered "market failures"	Phone, electric, wind, solar, (and other utilities that do not fall within Water Resources Management Community) Note: NWS may still coordinate with EM function of these utilities as part of government EM response effort (e.g., within EOC, joint exercises) or general education/outreach

Table 1. Clarifications to Core Partner Definition

 15 NWS will consider the request and may provide service only per mutual agreement of NWS and the requestor.

Sector	Included	Not Included
VOAD/ COAD /NGO ¹⁶	• [EM Community] If/when working within ICS coordination structure or as a non-profit entity with a specific MOU in place to provide support	All others
Govern- ment	 [Gov't Partners] Federal⁹, state, local, tribal, territorial government organizations Limited to organizations with existing nexus of allied mission or critical interdependency on each other's data/actions which impact the missions of both organizations [Gov't Partners] Includes international governments and organizations where existing formal agreements are in place for NWS to provide a specialized level of support [Gov't Partners] Quasi-government (quasi-private) organizations - may receive core level service if the organization's primary mission responsibility is related to public safety 	Those government organizations with no mission nexus
Private Sector	 [Electronic media] -No IDSS provided. May include private weather service providers who routinely and rapidly relay NWS alerts to a large segment of an office's area [WRM Community] -see Utilities, (e.g., private dam operator) 	Most private sector entities are not considered core partners, including retail stores (e.g. Walmart); farmers, agriculture organizations; amusement parks, resorts (e.g., lake, mountain, ski, beach), casinos; sporting and other venues; transportation/shipping, cruise lines; airlines (unless per FAA direction)
NOAA Offices	 ◆ [Gov't Partners] Other NOAA Line Offices will be provided IDSS to support our shared NOAA mission ○ NWS will not provide services that are outside the scope of NWS legal authorities, but may relay information on behalf of other NOAA LOs (e.g., inclusion of National Ocean Service forecasts within an NWS Beach Hazards Statement) 	Partners of other NOAA LOs (e.g., private marine lab), unless they otherwise meet the core partner definition

Table 1. Clarifications to Core Partner Definition (cont.)

3.3 Review of Core Partner Definition

NWS may occasionally review the group of organizations supported and/or refine the definition of core partners provided in this section. Based on experience and external input, review will

 16 Voluntary Organizations Active in Disasters/Community Organizations Active in Disasters/Non-Government Organizations

take place, both informally and in the context of post-event evaluations of IDSS services (see NWSPD 10-1606, Service Assessment), to recognize and address any impacts to AWCI services as NWS is made aware of them.

4 Level of Support Provided:

NWS IDSS support for core partners varies based on the depth of the relationship that NWS has with various partners. Figure 1 identifies three levels of relationships: (1) deep relationship core partners, (2) core partners, (3) general partners/public¹⁷.

NWS may provide IDSS to a NWS core partner, providing direct, interactive support for a weather-related event or for an event or incident which may be impacted by hazardous weather (i.e., <u>episodic IDSS</u>). Once identified as a core partner for IDSS (according to the definition in Section 3.1), individual NWS offices assess partners based on standard criteria (listed below) to determine if they are a deep relationship core partner. Deep relationship core partners will have an additional focus of support on <u>recurring IDSS</u>.

In addition, general partners/public always have access to our standard products and services to support their decision-making needs, including:

- Provision of general forecasts/warnings via standard NWS dissemination media
- Response to calls from the public
- Education about how to access and interpret NWS data/products
- Outreach/interaction for preparedness
- Interaction as part of NWS StormReady®/TsunamiReady® programs and NOAA WRN Ambassador Initiative

The level of decision support provided by NWS varies according to the IDSS relationship level. For those entities that meet the NWS definition of core partner for IDSS¹³, each NWS office has the flexibility to identify which of its core partners are categorized as deep relationship core partners. Categorization is carried out by:

- (1) Ensuring the partner meets the NWS definition for core partner for IDSS¹³;
- (2) Assessing the level of key criteria which warrant a need for a deep relationship; and
- (3) Identifying the **service level** appropriate for supporting the particular partner.

Flexibility to make this decision for each particular NWS office ensures that variations in how our partners operate across the country are taken into account in identifying an appropriate level of service. NWS offices should also take into account that AWCI may already be providing services to some core partners and adjust the level of service provided to that needed/requested by the partner. In addition, to meet core partner service requirements stemming from a particular event or incident, on a temporary basis, the level of service provided may be adjusted to that of a deep relationship core partner, per discretion of local office management.

¹⁷ General partners/public constitutes all users of NWS products/services who are not classified as core partners. General partners are other entities that NWS has some relationship with, but who don't otherwise meet the definition of "core partner."

4.1 Key Criteria for Designation as a Deep Relationship Core Partner

Core partners, who relative to others, most strongly exhibit characteristics of the four comparative assessment criteria, below, may be categorized as deep relationship core partners by an NWS office.

- 1. There is a legal mandate to support the core partner (e.g., Executive Order, statute) or support is a matter of national security;
- 2. Exercises a large degree of authority or influence relative to other core partners, on public safety or management of the nation's water resources for the public good;
- 3. Serves a population or entity particularly vulnerable to impacts of weather¹, water, or climate hazards:
- 4. Acts a force multiplier to help amplify NWS messages to other partners.

4.2 Service Levels

Deep relationship core partners can also be distinguished from core partners and general partners/public by the depth of service needed to carry out NWS mission. Specific examples of the difference in service level are provided in Figure 1, below, and enable NWS offices to better recognize whether a partner is general/public, core, or deep relationship core.

General partners/public receive a standard level of service that can consistently be provided to all NWS users. Core partners receive an additional level of service with a focus on episodic IDSS. Deep relationship core partners receive the core partner service level with an added focus on recurring IDSS and deployment/embedding.

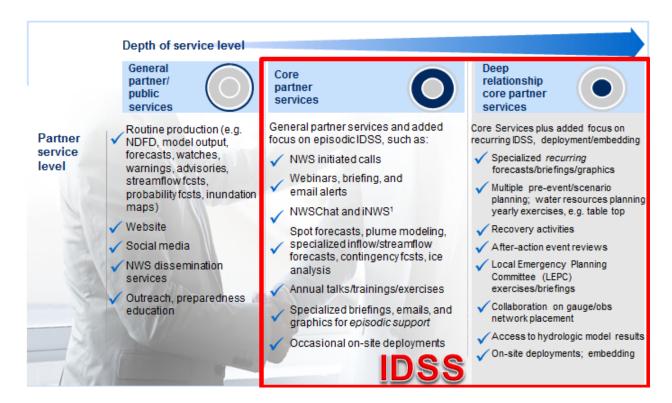


Figure 1. Partner service levels and examples of services (Note: not a complete list)

4.3 Capacity to Provide Support

NWS aims to provide an equitable level of support to all entities within each group/service level described above. However, local office management will continue to have the discretion to determine how to most effectively support multiple requests for IDSS, especially during large-scale events with wide-spread impacts. This statement does not reflect a change from current levels of support provided to core partners. NWS resources available to support all operations are subject to the limitations of budget appropriations and decisions on how best to apply those resources continue to be the responsibility of government managers. In the event of wide-spread impacts, NWS regional and national management will support decisions on investing the resources to best meet the needs of NWS core and deep relationship core partners at the federal, state, local, tribal, and territorial levels.

5 Guidelines for Provision of IDSS

5.1 Context of National Response Framework

NWS IDSS for the EM community includes support to government emergency operations at the federal, state, local, tribal, and territorial levels (e.g., Incident Command Posts, Emergency Operations Centers, etc.), including support to government operations of Emergency Support Functions (ESF)¹⁸, described in the National Response Framework (NRF), for which NOAA has been identified as playing a federal support role.

5.2 Provision of IDSS When Multiple Providers are Present

NWS core partners obtain support in a variety of ways. Some maintain in-house expertise (e.g., a state government which employs a State Meteorologist); some contract for ongoing support for specialized services provided by members of AWCI; and some rely wholly on services provided by NWS. In addition, there may be businesses or other government agencies (e.g., private and public sector infrastructure providers) simultaneously supporting NWS core partners who are receiving weather support services either in-house or from members of AWCI. When multiple support providers are present, NWS will be flexible in the level and/or type of IDSS provided, seeking input from core partners as to what support is needed and what level of coordination is required.

Support to NWS core partners, where weather services may also be provided by those external to NWS is addressed in existing NWS policies. NWSI 10-1806, NWS Support for Special Events, describes the NWS roles and responsibilities for supporting the EM community and government core partners during special events, including federally-mandated support for National Special Security Events. The NWS does not provide special event organizers or venue operators with site-specific, tailored forecasts and consulting services. Rather the NWS refers event organizers and venue operators to our existing product suite, as well as recommends they contact our partners in AWCI. NWS uses the following resources to refer requests for support to AWCI:

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¹⁸ These emergency support functions, as defined by FEMA's National Response Framework, include transportation, communication, public works and engineering, firefighting, information and planning, logistics management, public health and medical services, search and rescue, oil and hazardous materials response, agriculture and natural resources, energy, public safety and security, long-term community recovery, and external affairs.

- Information on weather services available from NWS and from AWCI supporting special events https://www.weather.gov/media/stormready/resources/specialevents.pdf
- Resource with listings of private sector weather service providers http://www.nws.noaa.gov/im/dirintro.htm.

In addition, NWS has long recognized the various levels of weather support arrangements used by our core partners at state/local Departments of Transportation (DOT). NWS Guidance for Support of State/Local DOTs describes the NWS focus of support providing our expertise on the evolution, timing, and communication of hazardous weather and water events to help ensure public safety, while our partners in AWCI provide the necessary expertise in helping to guide DOT operations in areas related to recommendations for chemical applications and predicted road/pavement conditions (in addition to routine forecasts).

5.3 Coordination

NWS recognizes the value of coordination during an event to ensure consistent weather messaging to all involved in the support effort and to the general public. Upon request of core partner authorities in charge of the response activities, NWS will work with core partners in charge to identify weather support providers involved (i.e., NWS and any in-house or contracted provider of weather services to core partners or other entities involved in the response effort) and will provide an opportunity for coordination to ensure consistency of messaging and that weather-related roles in the support effort are well understood. For example, NWS may activate a private NWSChat room or similar capability for weather service providers supporting the event. NWS encourages this coordination; however, core partners, in conjunction with their weather support providers will determine the appropriate level of and procedures for coordination and interaction between NWS and those providers. Actual capacity to provide coordination will inherently depend upon the scope and nature of the event, available resources, as well as the willingness and ability of the parties to participate in any coordination activities.

5.4 Support to General Partners/Public

5.4.1 Within NIMS Context

IDSS, especially direct, interactive support provided on-site, is typically provided for core partner operations that are implemented through coordinating structures consistent with the concepts and principles outlined in the National Incident Management System (NIMS). In support of these coordinating structures at the federal, state, local, tribal, or territorial level (e.g., Incident Command Post, state, local or event Emergency Operations Center, Joint Field Office, etc.), the NWS provides a common level of awareness and knowledge on the nature and timing of relevant weather events to inform core partner operations. These coordinating structures may include representatives of and participation by organizations that are not covered under the definitions of NWS core partners provided in Section 3.1 (e.g., critical infrastructure facilities, private sector utility partners). NWS support to these coordinating structures focuses on informing core partners and their supporting government agencies.

When NWS provides IDSS within these coordinating structures to support the aggregate life-safety preparation and response, NWS recognizes that information of value and use in operational efforts is indirectly provided to all response participants. NWS will not, however, provide tailored advice to non-core partner entities on impacts of weather in areas such as how to

expedite restoration activities or how to mitigate for hazardous weather in the future. In responding to requests for specific weather guidance and information beyond that provided to core partners, NWS personnel will inform the requestor that tailored support, including customized and highly localized forecasts and warnings, may be provided through AWCI.

5.4.2 Outside NIMS Context

Outside the context of a core partner-managed coordination structure (e.g., Incident Command Post, Emergency Operations Center, Joint Field Office, etc.), requests to NWS for direct IDSS services to individuals or organizations which fall outside the core partner definition must be addressed at the request¹⁵ of a core partner for purposes that are critical to public safety.

In addition, services other than IDSS will continue to be provided to non-core partners, including provision of general forecasts/warnings via standard NWS dissemination media; response to calls from the public; education about how to access and interpret NWS data/products; outreach/interaction for preparedness; and interaction as part of the NWS StormReady®/TsunamiReady® programs and NOAA WRN Ambassador initiative.

5.5 Support for Special Events

As described in NWSI 10-1806, support for special events is provided only upon request by and in support of NWS core partners. NWS does not intend to provide IDSS for every large gathering (e.g., every local/recreational sporting event) within an office's area of responsibility; however, NWS has always maintained situational awareness of these types of events to inform the warning process so that life-saving notification can be provided.

5.6 Method of Provision

IDSS may be provided either on-site (e.g., at an Emergency Operations Center) or remotely, depending on the nature of the event and available resources. Remote support may be provided by the most appropriate means available, including, but not limited to, telephone, email, chat, on-line briefings/webinars, recorded briefings, live 2-way briefings, social media, etc. Deep relationships core partners will have more instances of on-site support, with full-time embedding into partner operations in some cases (e.g., NWS CWSU personnel embedded in FAA ARTCCs, liaison at FEMA HQ, etc.).

5.7 Specialized, Decision-Specific Information Supporting IDSS

In addition to existing standard NWS products, during events that are hazardous to life and property, rapid prototyping, modification of existing products or development of new NWS data/products to meet the immediate needs of core partners may be needed. As resources permit, NWS will aim to provide core partners with any relevant NWS information needed by the entity being served. While in most cases, NWS will rely on currently existing products/services to provide information to core partners, NWS is also committed to using whatever technologies and display formats are necessary (e.g., use of GIS) to communicate critical information and meet the immediate operational needs of our core partners, within the bounds of current NWS policy. These data/products are a valuable source of information in weather-related decision making and are often a critical means of communicating information supporting IDSS.

If a new or enhanced product/service is required to effectively support IDSS for core partners for a particular event, NWS will determine, after the event, whether the product/service is temporary (only relevant to that particular incident/event) or if it may be applied more broadly across NWS to support core partners on an ongoing basis or to support similar events in the future. If the latter, the new/enhanced product/service will be identified as an "experimental" product/service and made available for public comment/review before a decision is made to continue use of the product/service on an operational basis. This is consistent with the standard practice of seeking input on new/enhanced NWS products/services – see NWSI 10-102, New or Enhanced Products and Services.

Any new information/products provided as part of the IDSS support described in this SDD will also, as resources allow and if safety and security considerations do not prohibit, be made available in a timely manner for broader distribution, e.g., via NWSChat, NWS webpages and/or social media.

5.8 Training

NWS personnel providing IDSS will have expertise and training in the relevant conditions being addressed, be familiar with the needs of core partners. All relevant NWS product content and interpretation will be coordinated, as appropriate, with other NWS offices and National Centers to ensure a consistent NWS message. In particular, NWS staff, including deployed personnel, is provided the tools and training to work effectively with core partners, as well as to coordinate closely with personnel at NWS offices ensuring consistency between operations supporting multiple core partners and the general public.

6 Requests for IDSS Support

This section addresses how NWS becomes cognizant of which core partners/deep relationship core partners have need of IDSS from our offices. Products/services for general partners/public are provided uniformly to all external users, thus no knowledge of a unique need for these services is required. As described below, NWS will validate core partner status of the requestor and will determine if a deep core partner relationship is appropriate, based on the criteria listed in Section 4.1.

Each NWS office maintains a record of core/deep relationship core partners afforded IDSS (e.g., within office contact listings or within the NWS Impacts Catalog, currently under development). With implementation of NWS Impacts Catalog, NWS (Analyze, Forecast, and Support Office) aims to be able to respond to external requests for this information ¹⁹ from interested parties.

To process requests for IDSS support, NWS will carry out the following: (Note: This is a <u>one-time</u> request to be included as an organization receiving IDSS from NWS when conditions warrant. No additional approval is needed for actual support for a particular event other than a standard support request.)

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¹⁹ Information provided will be limited to organization supported. More detailed information will not be available due to privacy restrictions.

6.1 Current Recipients of NWS IDSS

NWS offices have a long history of providing mission-critical decision support services to core partners in their area of responsibility. These well-established IDSS relationships with existing members of the emergency management and water resources management communities and government core partners will be documented by the NWS office providing the support, but do not require a new request to continue IDSS service.

6.2 New Recipients of NWS IDSS

As NWS continues its efforts to improve IDSS, there is a reasonable expectation that additional organizations will request these services. These requests will be processed in the following manner:

- a) Any organization may request IDSS from their local/regional/national NWS office by describing how they meet definition of core partner (Section 3.1). Requests should be provided in some traceable form, such as written or electronic. (Note: This is a one-time request to be included as an organization receiving IDSS from NWS when conditions warrant in the future. This type of approval is not needed for actual support for a particular event.)
- b) The local/regional/national NWS office will evaluate the request based on information provided in the request, the definition of core partner, and office management's determination of ability to provide the support. NWS will also apply best practices based on our body of experience, for classes of entities which should/should not be approved for services.
- c) After internal NWS review/validation, a reply decision to accept or deny providing IDSS will be provided within 7 days upon receipt of user request. In cases where additional review is needed, a provisional acceptance may be provided, with a final decision within 30 days of original request. ²⁰
- d) If participation is denied, the office will provide an explanation to the requestor, typically in the form of an email.
- e) Denied requests may be appealed through the offices identified in Table 2. All appeals will be coordinated with the originating office, the office of first appeal (for final appeals) and the requesting organization prior to reaching a decision. NWS processing of each appeal is not to exceed 45 days from the date of appeal.

Office Receiving Request	First Appeal	Final Appeal
WFO, RFC, CWSU, Regional	Regional Headquarters	Office of Chief Operating
Operations Center		Officer (OCOO) or designee
NCEP Centers	NCEP Headquarters	OCOO or designee
Office of Water Prediction,	OCOO/Operations Division	OCOO or designee
NWS Operations Center		

Table 2. Appeals for IDSS Requests

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 $^{^{\}rm 20}$ IDSS service may be provided during the provisional period.

6.3 Identification of Deep Relationship Core Partners

As NWS offices become familiar with the needs of their identified core partners, they will be able to use the criteria and service level descriptions provided in Section 4.2 to make a designation of deep relationship core partners. This designation may change with time as requirements and relationships are reassessed.

7 Emergency Circumstances

In rare cases, if NWS staff are concerned that lives and property are at imminent risk, IDSS may be provided to individuals/organizations without a previous request/approval being in place. For example, in the event of an immediate threat, direct notification by NWS about the threat may be initiated. The purpose of this type of notification, which is expected to occur infrequently, is to ensure awareness of the threat and that precautionary actions are underway. No further actions will be taken if the individual/organization is already informed of the threat (e.g., per AWCI service).

If such an action is taken, the senior NWS office official will be notified, a record of the action made, and review performed after the incident to determine impacts, if any, of this action and if IDSS for the individual/organization is needed on an ongoing basis. If the NWS office providing direct IDSS has a reasonable expectation of providing future IDSS services to the individual/organization, then request and approval for future services will be obtained after the emergency situation has passed.

8 Need for Continued Review

The content in this SDD describes the NWS planned approach for providing IDSS to our core partners while acknowledging the role of those in AWCI who are similarly providing support to help build a Weather-Ready Nation. The document cannot address every possible question or situation that our forecasters will be presented with, but tries to describe the approach NWS will take in providing IDSS and the guidance provided to our forecasters in managing many of the issues which may arise concerning boundaries between NWS and our partners in AWCI.

In reality these boundaries will continue to be adjusted as all parties in the Enterprise continue to learn from actual support situations. NWS is committed to incorporate lessons learned from review, both informally, and in the context of post-event evaluations of IDSS services. These lessons learned will drive improvements, both in services to our core partners, and in better recognizing and addressing any impacts to AWCI and their role in providing complementary or exclusive services to customers, to ensure the safety of life and property in our nation.

9 Feedback Method

This SDD is a first issuance (v. 1.0) and will be updated periodically. As described in section 8, above, NWS will continue to assess and revise our guidance for providing IDSS based on internal input, feedback from our core partners, and input from our partners in the Weather, Water, and Climate Enterprise. Feedback may be provided to NWS during in-person

interactions (e.g., NWS Partners Meetings) or questions and comments may be addressed at any time by sending to:

Office of the Chief Operating Officer National Weather Service 1325 East West Hwy W/COO Room 15326 Silver Spring, MD 20910 nws.idss.comments@noaa.gov

Appendix A Descriptive Example Scenarios of IDSS for NWS Core Partners

The scenarios presented in this appendix are meant to provide descriptive examples of how Impact-Based Decision Support Services (IDSS) may be provided to NWS core partners. IDSS will be provided to State, local and tribal emergency management agencies, and other agencies related to disaster management, to ensure a planned, coordinated, and effective preparedness and response effort. The intent is to further illustrate the description of services provided in the body of this Service Description Document (SDD). Any references to specific products or actions within the scenarios are not intended to represent required actions on the part of the NWS.

Scenario 1: Severe thunderstorms (weather event, local; Service levels: general partners/public, core partner, and deep relationship core partner)

Over previous months and years, a local NWS Weather Forecast Office (WFO) has engaged in various activities to ensure the local EM community, other government core partners, and the general public are all able to successfully take advantage of the common suite of products/services provided by NWS to the general public which are a valuable source of information in weather-related decision making. These activities include leading a Severe Weather Preparedness Week, participating in tabletop exercises of severe thunderstorm and tornado disasters, providing severe weather climatology for the local area, developing public outreach materials, and holding severe weather spotter training classes. As a result of these activities, the EM community is fully familiar and able to take advantage of the standard products issued by NWS, including severe weather watches and warnings.

When an outbreak of severe thunderstorms with potential for the development of tornadoes is forecast, the WFO initiates IDSS, inviting the local EM community and other area government core partners to attend a series of multimedia teleconferences describing the prediction of severe weather. The goal is to ensure that all have a coordinated understanding of the nature and timing of the forecast events. Local WFO records indicate that the emergency manager of the county impacted (a deep relationship core partner) has requested inclusion on the call of emergency coordination staff from two local hospitals, as well as the utility company providing power to the area. At the request of the local EM, these contacts are invited to join the call, as well.

During the call, the local WFO briefs participants on the nature, severity and timing of the forecast severe weather event. Some time is allowed for questions from participants. NWS responses are focused on ensuring that all on the call have a common understanding of the forecast events and where/when to monitor for new or updated information from NWS as the event evolves²¹.

Scenario 2a: Significant winter storm (weather event, local/state, Service levels: general partners/public, core partner, and deep relationship core partner)

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²¹ Any requests for tailored or specific products from participants on the call who are not core partners, to directly assist with preparation, response, or optimization of their infrastructure or business activities, would be referred to AWCI.

An early winter storm is expected to affect a state with significant ice accumulation and heavy wet snow before all of the leaves have fallen off the trees. Outreach and preparedness activities (ensuring successful use of the common suite of products/services provided by NWS to the general public which are a valuable source of information in weather-related decision making to all NWS users) and multimedia, interactive briefings with NWS and its core partners have been completed. In anticipation of the storm, the State Emergency Operations Center (EOC) is activated. The local WFO Meteorologist-In-Charge determines that resources will allow a 24-hour deployment of an NWS deployment-ready meteorologist to the State EOC (the State EM has been classified as a deep relationship core partner). Due to the possibility of impassable roads, power outages, and communication failures, the state's Incident Commander also activates Emergency Support Function (ESF)-1 (Transportation), ESF-2 (Communications), and ESF-12 (Energy). Representatives of electricity and cellular telephone providers, Department of Transportation (DOT) officials, and a private contractor responsible for helping to clear the roads will be among those responding to the State EOC to support these ESFs.

While deployed to the EOC, the NWS meteorologist coordinates with staff at the WFO using NWSChat to ensure that he and other forecast office staff are using consistent information and products to communicate across the broad community of users being supported by NWS. The deployed meteorologist also joins in on scheduled on-line briefings between the WFO and core partners to ensure consistent communication is provided both to the EM community, other public safety officials, the media, and the general public.

The NWS deployed personnel primarily interacts with the Incident Commander and the Situational Awareness Section Chief, but everyone else in the EOC will be in a position to monitor any verbal or written briefings provided by the NWS. The focus of NWS briefings is on the timing, location, amounts, and rate of precipitation, as well as wind and temperature, to support the aggregate life-safety preparation and response. The NWS meteorologist does not, for example, work with the contractor on the types of materials to use when treating roads, nor do they work with the energy providers on temperature trend forecasts for strategic business planning (e.g., transactions on the electricity market). If asked, the NWS would refer the companies to our partners in America's Weather and Climate Industry (AWCI) for support of this nature.

Scenario 2b: Significant winter storm (weather event, local/state; Service levels: general partners/public, core partner, and deep relationship core partner; EM has in-house meteorological support services)

An early winter storm is expected to affect a state with significant ice accumulation and heavy wet snow before all of the leaves have fallen off the trees. Outreach and preparedness activities (ensuring successful use of the common suite of products/services provided by NWS to the general public which are a valuable source of information in weather-related decision making to all NWS users) and multimedia, interactive briefings with NWS core partners have been completed. The EM in this area benefits from in-house meteorological services provided by the State. In anticipation of the storm, the State Emergency Operations Center (EOC) is activated. Due to the possibility of impassable roads, power outages, and communication failures, the state's Incident Commander also activates Emergency Support Function (ESF)-1 (Transportation), ESF-2 (Communications), and ESF-12 (Energy). Representatives of electricity

and cellular telephone providers, Department of Transportation (DOT) officials, and a private contractor responsible for helping to clear the roads will be among those responding to the State EOC to support these ESFs.

The local WFO Meteorologist-In-Charge determines that resources will allow IDSS to its deep relationship core partner²², the EM. Because the EM uses the service of an in-house meteorologist, NWS IDSS is provided remotely. As the WFO has done in the past per EM request, the NWS coordinates closely with the EM's in-house meteorologist and is present via remote connection in EOC coordination briefings²³. During the briefings, the NWS confirms that information provided on the timing, location, amounts, and rate of precipitation, as well as wind and temperature are consistent with information and messaging being provided to the media and the general public. In addition he relates a summary of spotter reports that have been received confirming the continuation of snowfall across the area, as forecast.

Scenario 3: Major hybrid tropical/extra-tropical system (weather event, national significance, Service levels: core partner and deep relationship core partner)

A dangerous "hybrid" (tropical/extra-tropical) system is expected to impact several states and large cities from the Mid-Atlantic to Northeast US. In anticipation of the disaster, numerous EOCs at the local, tribal, state, regional, and national level are activated. The NWS makes a determination in coordination with the EM community, based on the expected scale and severity of the event and the resources available at the time, as to which EOCs can be supported with onsite deployments and which will be supported via remote IDSS, from the WFO. All relevant ESFs are activated at the EOCs, including private sector representatives from a variety of critical commerce sectors (e.g., transportation, energy, communication, retail, health care, etc.).

When deployed, the NWS deployment-ready meteorologist coordinates with the Incident Commander and Situational Awareness/Planning personnel to identify critical participants for weather coordination. EM staff identify that one retail, one health care, and two communications infrastructure entities are employing AWCI support. The NWS deployed meteorologist identifies an ad hoc NWSChat room for weather-related coordination for the duration of this event and all weather service providers are invited to coordinate with NWS via NWSChat to ensure all parties are providing similar messaging to those they support.

Whether deployed or remotely supporting an EOC, the NWS provides regular overview briefings, both written and verbal, to the Incident Commanders and Situational Awareness/Planning personnel. These materials focus on the various hydrometeorological aspects of the hazardous weather event and are generally made available to all EOC participants. Discussions with EOC personnel are focused on key life-safety decisions such as providing

²² The EM is still classified by the local office as a deep relationship core partner because the WFO is often engaged in training and tabletop exercises along with the EM and other public safety personnel.

²³ Any requests for tailored or specific products from non-EM community participants during the briefings, to directly assist with preparation, response, or optimization of their infrastructure or business activities, would be referred to AWCI.

weather input to evacuation decisions, road closures, protection of personnel and infrastructure, and so on²³.

The unusual nature of the event requires "temporary" products to be provided to the Incident Commanders - that is, specialized products specific to the event and its response. This "hybrid" (tropical/extra-tropical) system produced heavy rainfall over a large watershed and has led to multiple locations exceeding flood stage. Intense rainfall bands concentrated in basins upstream of a dam are resulting in elevated reservoir pool levels behind the dam. In response to the rapidly rising reservoir pool levels, the dam operator is making significant adjustments to their planned reservoir release schedule. The increasing reservoir releases from the dam, combined with high tributary inflows below the dam, are increasing flood impacts at downstream locations.

NWS personnel (RFC and WFO forecasters along with the deployed meteorologist) are in continuous coordination with the dam operator (an NWS core partner, part of the water resources management community) who provides updated reservoir release information. RFC forecasters incorporate these newly coordinated reservoir releases and projected tributary inflows into river models and provide updated river forecasts for downstream locations. Based on the new forecasts, the WFO issues updated river flood warnings. A set of contingency forecasts for reservoir and tributary flows is also generated by the RFC, based on various meteorological scenarios coordinated with the Weather Prediction Center and the WFO. These contingency forecasts are useful for the EM community and partners to make risk-informed decisions. This impact information is then shared with the NWS meteorologist deployed at the FEMA Regional Response Coordination Center (RRCC), provided to ESF-3 (Public Works and Engineering) Army Corps of Engineers personnel and made available via NWSChat for those core partners who are able to make use of this additional information and understand the uncertainty associated with these forecasts.

In addition, after landfall of the storm, products are generated to integrate new NOAA aerial photography and shoreline survey information with updated NOAA hydrographic surveys, and NWS marine data/forecasts covering key shipping channels in order to safely re-open the ports and enable emergency response activities. These products (not available to the general public for security reasons) organize existing information available from NOAA in a manner to make it more directly and efficiently useful to EOC staff in developing recovery strategies, facilitating search and rescue efforts, and identifying hazards to navigation.

Due to the time-critical need for the products, they would not be subject to the typical NWS new/experimental product processes. However, after action reviews with the response agencies capture feedback on the efficacy of these products and a determination would be made whether similar future events would include similar products. If similar products are planned to be used to support future events, the product would be fully described and undergo the standard public comment/review process governing new/enhanced products/services (see http://www.nws.noaa.gov/directives/sym/pd01001002curr.pdf).

To help ensure the integrity of public communications infrastructure, an Incident Commander has included a representative of three cellular network providers in the EOC. Cell network providers A and B have ongoing support from AWCI and arrive in the EOC up-to-speed on the

potential impacts to their network. Plans are already underway to shore up their network and maintenance crews are on standby to implement the cell network providers' recovery plans. The cell network providers A and B coordinate with their weather services providers to determine if they should relay the NWS information they receive in the EOC to their weather service providers or if they will be monitoring the NWS-provided chat room for updates. Either option will ensure they are aware of the messaging that is being provided by NWS.

Cell network provider C does not retain the services of an AWCI provider. This cell network provider has access to the basic information provided by the NWS deployed meteorologist to the Incident Commander and EOC personnel related to the severity and timing of weather impacts. Cell provider C uses the information to help ensure the safety of any recovery efforts as they are deployed. The representative from provider C makes a note on the Weather-Ready Nation pamphlet given to him by the NWS meteorologist, to speak to company management about employing weather support services from AWCI, in the future, as a means to avoid the likely heavy disruption in service that they expect their customers will experience with type of event should it occur again.

Scenario 4: Sailing competition (planned outdoor event; Service level: Core Partner)

A large, multi-day sailing competition annually draws a million people including spectators, competitors, and staff. The NWS, at the request of the event's multi-agency EOC Incident Commander, deploys an NWS meteorologist to provide on-site support, focusing on hazardous weather and water information such as lightning, high seas, strong winds, and low visibility. The NWS meteorologist also proactively runs dispersion models in case of a hazardous materials release and monitors winds aloft and ceiling forecasts for the safety of aviation activities. The NWS meteorologist provides daily verbal and written briefings²⁴, as well as special briefings when necessary, to guard against threats to safety of fans and participants, and to support Coast Guard operations and any rescue efforts.

The NWS meteorologist does **not** provide direct support to the race organizers (e.g., forecasts for making profit by selling umbrellas or lemonade) or to competitors (e.g., wind forecasts to win the race). The NWS meteorologist also does not interfere in a contract between race organizers and an AWCI vendor to deploy wind instruments around the course, but does work with the vendor to obtain the data in support of the EOC.

Scenario 5: Inland Oil spill response (unplanned, non-weather event)

An oil pipeline bursts unexpectedly, with oil spilling into a tributary of a major river. A multiagency EOC is activated in response, supported by the county EOC. A Unified Command is established with co-equal incident commanders from the EPA, the State environmental department, and the pipeline operator. The NWS determines, based on available resources and the significance of the event, to staff the command center during regular business hours and

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²⁴ Any requests for tailored or specific products from non-EM community recipients of the briefings, to directly assist with non-safety-related aspects of event preparation, would be referred to AWCI.

provide "on call" remote support during nights and weekends with no hazardous weather. The primary purpose of the NWS support is safety of the response teams from threats such as lightning, extreme heat or cold, flooding of the tributary/river, and so on. Interpretation of hydrologic (river) modeling provided by NOAA and other agencies is also critical to the response, through interaction with a US Army Corps of Engineers official also deployed to the EOC. While on-site, a representative from the pipeline company asks the deployed NWS meteorologist if she would be able to provide long-term temperature trends to support improved efficiency in pipeline maintenance for the future. After a brief conversation with regional managers to confirm the appropriate response, the meteorologist responds that this type of support is more appropriately provided by our partners in AWCI and refers the pipeline company to the a resource listing of AWCI providers at http://www.weather.gov/im/dirintro.htm.

[Note: This scenario does not represent the full range of oil spill related response activities that are carried out by NOAA.]

Scenario 6: Application of SDD Section 7, Emergency Circumstances:

An outdoor concert is being held at the State Fairgrounds with over 4,000 expected in attendance. A month previous, the WFO had been contacted by the concert organizer to ensure they were aware of the most appropriate NWS products to monitor for expected weather conditions during the time of the concert. The WFO provided standard information on key NWS products and provided the organizer with a "Special Events" flyer describing levels of support for outdoor events available both by NWS and AWCI. As the concert date approaches, NWS support has not been requested by emergency managers, but the local WFO is aware of the event as a matter of routine situational awareness of possible vulnerabilities within their area of responsibility.

NWS radar (WSR-88D) is indicating that a line of severe thunderstorms capable of producing quarter size hail and damaging winds in excess of 60 mph, will approach the Fairgrounds within the next 20 minutes. A severe thunderstorm warning has been issued. However, the lead forecaster, remembering the fatalities resulting from the Indiana State Fair stage collapse and very concerned about the possible impact on the spectators at the concert, makes a call to the concert organizer while another staff member calls the county emergency manager. Concert staff quickly indicates that they are aware of the situation and that evacuation is underway. NWS office staff continue to keep the emergency manager informed as the thunderstorm approaches.

The lead forecaster enters his action to call the concert organizer in the office's operations log for the day and contacts the MIC to let her know that the action had been taken. The MIC notifies her office's regional headquarters and Regional Operations Center staff. The following week, staff at the NWS regional headquarters follows up with a brief call to the concert organizer to inquire about actions taken during the thunderstorm. The concert organizer indicated that they had hired a private meteorologist who recommended evacuation, but appreciated the effort to ensure the spectators were safe as well as the WFO's flyer providing information about the type of weather support available from AWCI.

A summary of the results of the action is generated indicating (1) that the concert organizer does not require approval IDSS (concert organizer does not fall within the NWS definition of core

partner and IDSS support is not warranted) and (2) that no disruption of AWCI services was identified by the office's action. The regional headquarters staff also suggests that the WFO proactively coordinate with emergency managers to determine whether contacting EMs may be the most efficient means of contacting event staff about hazards, even if the WFO hasn't been formally asked to provide weather support to the EM for that event.