

Technical Attachment

The Success of Instant Messaging for Improving Communications with the Local Media

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1. Introduction

The primary mission of the National Weather Service (NWS) is to protect lives and property. While NWS forecasters issue watches and warnings, the broadcast media plays a critical role in distributing this vital weather information to the public. The Birmingham, Alabama Weather Forecast Office (WFO BMX) and the local media have formed a partnership to improve real-time communications during hazardous weather events. Through this collaborative effort, lives and property are being saved.

2. How it All Started

In 2000, two lead forecasters at WFO Birmingham were trying to figure out why the office staff rarely heard from the local media stations, especially during severe and winter weather events. Meetings with these partners were set up to determine ways of improving communication and service. The forecasters learned that effective phone communication was often difficult to achieve in TV studios. In addition, the media indicated some reluctance to “bother” the WFO during the “heat of the battle”. However, each station did mention that they had live Internet access. One of the forecasters had been using a type of Instant Messaging (IM) to “chat” with friends and family at home, so it was decided to test the feasibility of this medium for establishing two-way communication with various weather contacts in the area. The project was initiated in hopes of fostering better communications between the media and the National Weather Service. Types of information shared would include severe weather, snowfall or heavy rain reports, equipment outages, and live forecast and warning decision making discussions.

NWS workload priorities were clearly conveyed to the media during the initial phase of the project. Given the WFO’s crucial warning role, it was understood that forecasters might not always be available to participate in the IM chat. However, all the information shared during the IM session would be archived, so if the WFO had to temporarily load shed the chat, staff members could go back and read the archive at their next available opportunity.

3. What is Instant Messaging?

Instant Messaging is sometimes called “Instant Mail.” It is an electronic communication system that is inexpensive (usually free) and easy to use. IM differs from electronic mail (e-mail) in that it is a

synchronous or real-time communication medium. It is also faster than e-mail because it is software based (DMR, 2002). Users create a buddy list, and can either “chat” one on one with individuals, or with many other users via a conferencing feature. (Fig. 1). IM was started by an Israeli firm called Mirabilis in November, 1996. Since then, several other companies have created similar IM systems. (Brand, 2001).



Figure 1. Example of IM interface, with excerpt from conference transcript during a recent severe weather event. Text in red refers to chat traffic originating from WFO BMX; entries in black type originate from media entities in the Birmingham market.

4. Use of Instant Messaging at Birmingham

WFO Birmingham chose IM software that was easy to install, relatively easy to use, and free. (For specific information concerning the BMX IM configuration, please contact the author). Since employing Instant Messaging, communications with the media have dramatically improved. In fact, during the Veteran's Day Weekend Tornado Outbreak Survey Assessment, the use of IM technology was considered the number one "Best Practice for Communications to Customers and Partners." (Service Assessment 37; to view a copy, please see the following link:

<ftp://ftp.nws.noaa.gov/om/assessments/veteran.pdf>.) Communication between the media and WFO Birmingham now occur through a broad range of contexts. Before large outbreaks, an IM conference is started with the entire broadcast community, with WFO staff leading the discussion. The day's weather situation is outlined, including discussions of SPC outlooks, significant sounding parameters, and issues of timing, location and impact. A similar process occurs prior to smaller scale events, though the breadth of the conference may be more limited.

5. Specific Advantages of IM

The greatest advantage of IM is its facilitation of instantaneous warning information exchange. The WFO staff advises the media when a warning is about to be issued, and provides the reasoning behind the warning decision. While the warning is being composed in WarnGen by one of forecasters, another staff member working the IM chat relays the information to the media. This can (and often does) increase the speed with which the warning is publicly disseminated by the broadcaster – sometimes by several minutes. If the public has more time to receive the warning and act on it, it is reasonable to assume that more lives and property can be saved and protected. Instead of the broadcasters waiting for the warning to "pop-up" on their vendor system, they receive word of the warning as it is being typed, saving critical seconds (or minutes) before it is issued. The information sent over IM is abbreviated - basically the type of warning, the county or counties it is for, the expiration time, and the reasoning behind the warning (if needed). The media still receives the actual text warning on their system and any additional basis information contained in the warning.

Besides serving as a "heads up" for warnings, IM provides a forum for discussing the current meteorological situation. The media can query the WFO concerning a storm they see on their radar, and receive the forecasters' reasoning for issuing (or not issuing) a warning. This kind of dialog with the media can (in some cases) help the forecasters make better warning decisions, particularly if the decision is not clear cut. Access to NWS warning reasoning also assists the media in informing their audiences about severe weather, particularly in terms of attaching the appropriate level of urgency to their weather broadcasts. Real-time communication methods such as IM promote a more calibrated response to weather events by the media. In this manner, particularly dangerous storms can be addressed aggressively, while less threatening situations are handled in a more restrained fashion.

Another advantage of using Instant Messaging is the sharing of real time damage reports. Television stations often receive a large number of damage reports, some of which may not be received by the WFO in real time. With IM, the media can easily pass this information to the NWS, which in turn can

disseminate it to other core partners and the public via Severe Weather Statements and other products. Reception of reports can positively influence decision making for future warnings. Conversely, as the WFO gets damage reports from spotters and amateur radio operators, it can pass that information to the media. In the past, media outlets had to monitor scanners to receive reports of this type.

Forecasters have also utilized IM to request special camera shots from the TV broadcasters. As part of their severe operations, WFO Birmingham actively monitors the weather coverage being provided by all the local stations. On past occasions, the office has received live ground truth by asking television stations to repoint a weather camera, or to redisplay a live shot that was shown a moment earlier. IM is the vehicle for accomplishing this request. IM-requested video shots have helped determine if storms were rotating, and if so, how close to the ground the rotation was occurring. Examination of post-event video has also assisted the WFO staff in determining the extent of recent damage, and the locations of greatest impact.

In addition to severe weather, IM can be used to exchange heavy rainfall or snowfall reports, and to discuss science related phenomena. During the May 7-8, 2003, record flood event across north central Alabama, the chat was used to share live rainfall totals with the media. The spotter reports the media received were used by WFO BMX to issue and upgrade warnings. Although some locations received 100 year flood rain amounts, no lives were directly lost due to flooding. Part of this success can be attributed to the increased communications with the media, facilitated by IM.

6. Problems with IM

While the advantages of IM have far outweighed the problems, there have been a few bumps along the road. Software stability was a big issue when WFO BMX first started the Instant Messaging initiative. Some media sites were being knocked off the chat for no apparent reason. After further investigation, it was determined that inappropriate software versions and firewall access issues were causing most of the stability problems. To maximize stability, all participants should run the same version of the chosen IM software. In addition, any firewall-related instructions should be followed closely. The legality of using commercial software has also been a concern. Designation of software as “freeware” does not always guarantee its legal use by government agencies. In WFO BMX’s case, the software company permitted access after they were contacted and notified of the intended use for public safety purposes.

The security of using Instant Messaging on the NWS network has been another concern. When IM was first started at BMX, it was placed on the Local Area Network (LAN). This left the local and regional network vulnerable to outside threats. In line with Southern Region policy, IM was set up on a stand alone Virtual Private Network that was completely isolated from the regional network. Several methods exist for accessing the Internet for use with IM. The Birmingham office uses a satellite uplink and downlink, while some other WFOs have access via a cable modem. For the offices that are co-located at a university or another research type facility, associated networks are likely available. Since WFO Birmingham uses a satellite connection, rain fade becomes a concern during certain situations. The chat may be lost for a few minutes, during which time a back up method is used. When the rain moves out of the area, the default satellite connection is automatically restored.

One additional organizational concern involved staffing. Instant Messaging is most beneficial and widely used during major weather events. From the outset, it was made clear to all the participants that if the staff became too busy to chat, the WFO's participation in the chat would be suspended. The WFO still appreciated the information, however, and would review it when time became available. Continuation of the chat was encouraged among the remaining parties (even competing media partners), and it has continued on the few occasions that WFO BMX has not been an active participant. Fortunately, there have not been many times that WFO staff members have been unable to chat. Given the large role IM plays in the dissemination of life saving warning information, efforts are usually made to ensure that someone will be available to work the chat. Through experience, it has been found that having a staff member dedicated to the IM role works best. When severe weather is widespread, it is usually too difficult to monitor the radar effectively, and operate the chat at the same time. During smaller scale events, IM efforts may be curtailed somewhat due to reduced staffing. In these situations, best efforts are made to give the minimal information required for re-broadcast of the warnings, and to answer any questions that arise. When only a few storms are on the radar, it is normally practical for the radar operator to handle both roles. While the new scans come in, he or she can give updates and answer questions.

Thankfully, one potential problem has been avoided by WFO Birmingham: detrimental competition between members of the same media market. As word of Instant Messaging has spread across the country, television meteorologists in some markets have stated that their management would never let them participate in collaborative IM, because their job is to beat the other stations in town. Fortunately, the stations in the Birmingham CWA realize they are in the business of saving lives as well as the business of making a profit. Competition certainly exists, but when it comes to severe weather, all stations try to work together in the public's interest. Each on air meteorologist has educated their producers and managers regarding the benefits of IM and cooperation with the NWS. Those few station managers who initially expressed reluctance were invited by their meteorologists to sit with them during a severe weather event. In this way, they witnessed first hand the power of Instant Messaging. The meteorologists were able to convince the producers and managers of the edge other stations would have by participating, and that they should join as well to maintain standing. If a station remains dead set against sharing information such as damage reports on a group chat, they can still participate by privately sending the relevant information to the WFO.

7. Conclusions

Instant Messaging has drastically improved the level of communication between WFO Birmingham and the media members in its forecast area. The office has formed a close, crucial partnership with their broadcasters, and the public is the real winner. IM fosters a rich exchange of information and ideas between the NWS and the media. Future steps might include outreach efforts to radio stations that provide extensive severe weather coverage, as well as certain TV stations that have been less active in the IM process. Instant Messaging is a true success story, enhancing the meteorological community's ability to work together for the safety and common good of Alabama's citizens.

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9. References

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