

SPOT REPORTING



A training course for REACT Teams and members

This is a new REACT course designed to give every REACT member a familiarity with disaster data to support operations by REACT and the national and local organizations we support. This knowledge will help common operating pictures to support effective decision making.

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Table of Contents

I.	The Value of Information	Page 4
II.	The Sources of Information	5
III.	A Reporting System	6
IV.	What to Report	6
V.	How to Report	11
VI.	When to Report	13
VII.	And Then There Are the Bizarre Cases	14

I. THE VALUE OF INFORMATION

In major emergencies and large-scale disasters information is a highly valuable commodity. Such events generate both data and information, and, at the same time, requirements for more data and information. Data is individual facts, or parts of facts, about the disaster situation. Information is the combination of data and its assessment and interpretation. Data is the genesis of information, and information is the foundation for decision making by emergency managers and responders.

The quality of information depends on the accuracy, quality, completeness, and verifiability of the data. For example, let's take the example of flooding on the Blackwater River in Virginia in Hurricane Floyd in 1999. The initial report was that the Blackwater River was out of its banks and over US Highway 460 at Zuni. That was an accurate report. However, the quality and completeness of the report would have been increased by an informed estimate if the depth of the water over the roadway, when the rise started, rate of rise, amount of debris in the river, rate of flow, etc.

However, the importance of this limited version of this data was quite significant. It allowed mobilization and staging of state emergency medical services resources to be ready to respond. The next morning, when a city experienced rapid onset historical levels of flooding, those state Task Forces were ready to roll immediately when the statewide call for response went out.

In this process, verifiability of information is important. If a report is verified from another source, the confidence that decision makers can place in the report increases. Thus every report is potentially valuable.

When data is reported is also important. Early reports during disasters, especially in the first 24 hours are often wrong. This is not necessarily the fault of the people making the report. Reports tend to be relatively few and to cover only small areas. Observers may not be trained to recognize critical data vital to understanding what is happening. This means that in the early stages of an event, data is only partial, sometimes poorly understood, and its reporting may be delayed, creating incomplete information. This is part of the natural friction of such events.

Reports are also perishable. Delays in transmission may mean that, when the report arrives at the decision-maker's workstation, the situation may have changed for the better or the worse from the time of the report. This may result in insufficient

resources being allocated to a worsening situation. Conversely, if the situation has improved or been resolved, resources may be committed that are not needed.

II. THE SOURCES OF INFORMATION

In disasters there are many possible sources of data. Some data is gathered by emergency responders in the field and developed as information by their agencies or by the intelligence function in the Incident Command system or in the Emergency Operations Center. It is gathered and reported by news organizations, including video. It is reported by sensor systems such as weather radar, stream gauges, seismic monitoring stations, traffic management camera systems, etc. Trained observers, many with their own sensors, provide data. All of these data sources are generally reliable and make a serious effort to produce as good quality data and information as conditions allow.

There are other sources. Citizen reports vary widely in quality from very accurate to completely false. Reports by untrained observers may be focused on what the observer saw and be highly accurate. In some cases, such reports have contradicted current understandings of the situation, were not believed, only to be proven correct later. This means that disaster managers must develop significant effort to confirming citizen reports.

On the other hand, such reports may reflect a lack of understanding of the details of what was seen. In some cases, reports may include information made up by the witness to fill in missing information to “help” the response effort. In a worst case, the report may be complete fiction, either to “help” or to satisfy the need of the witness to participate and be important.

Social Media, including various Zello channels, are of uncertain value. Humanity Road, an international volunteer organization, has developed over the past two decades a high-quality capability to mine, confirm, and report social media reports to emergency management organizations. On the other hand, anyone can say anything on social media, and comments that convey the feeling of the event on social media are seen by many as being a more important way to participate than doing any actual work.

People reporting reports are particularly problematic. The disaster management structure knows what is reported in the press, on television, and on their own communications systems, websites, and social media pages. Feeding back these

same reports as new data confuses the situation and may cause commitment of resources that are needed elsewhere.

III. A REPORTING SYSTEM

REACT is working to establish a reporting system to increase the value of our emergency communications capability for the organizations we support. A good reporting system has certain key characteristics:

- (1) Trained Observers/Reporters. Individual participants must be trained in how to observe and report events that are of significance to the organizations we support.
- (2) Standard Reporting Criteria. Each organization or agency has specific criteria for the type of event that they consider reportable. Our members must know those criteria.
- (3) Standard Information. Supported organizations also have specific types of data that they consider operationally important. Reporting information that does not meet the agency standard clogs their system with information that may not be operationally useful to them.
- (4) Reliable Data and Information. What is reported must be accurate. If information is unconfirmed by the observer it must be clearly noted as such and its source identified.
- (5) Standard Format and Content. Reporting data in a standard format makes it easier to record that data and speeds up the reporting process.
- (6) Rapid and Reliable Transmission. The data must make its way quickly to the agency that needs it, and must not lose content in the process.

For REACT to develop a reporting capability, our organization, as a whole, and individual Teams have to be prepared to meet these standards.

IV. WHAT TO REPORT

We use the term Spot Report to cover both what Radio Relay International divides into weather reports and situation reports. A Spot Report is a short, concise report

that relays operationally important data to contribute to the overall common operating picture supporting decision making.

The following reporting criteria are a general standard for our Spot Reports based on common practices. Organizations you support may have very different information needs and different criteria for the threshold for reporting. Note that there is little standardization between SKYWARN™ reporting organizations in terms of what categories of information to report or of the specific minimum criteria for a report. Always work to meet the needs of the organizations you support.

<p>Every report</p>	<p>STATION OF ORIGIN - Traffic Stations list TRAFFIC STATION + their number. Team stations use their Team Name + unit number (the same number may be used in many Teams). Amateur Radio operators should use their call sign if the message will be handled by Amateur Radio.</p> <p>PLACE OF ORIGIN - City, town, village, settlement where observed.</p> <p>TIME FILED - Time of the observation (in 24 hour clock with the time zone – use Universal Coordinated Time for messages passed by Amateur Radio).</p> <p>DATE - Date of the observation.</p> <p><i>Station, place, time, and date are included in the radiogram message preamble.</i></p> <p>TO - Give the duty position or job and agency to which the message is being sent. ZIP code is used to route message traffic. The telephone number is key to making a phone call to deliver the message. If the message is going to an addressee that has an Amateur Radio Station include call sign and identify if known to operate Winlink or Packet with pathway.</p> <p>OPS NOTE - Identify whether this is a report to be forwarded to the agency in the address block or if it is a duplicate for the information of the REACT Incident Management Team</p> <p>COUNTY – The county in which the event is observed and as much additional information that will allow pinpoint location of the observation.</p> <p><i>Included at the start of the message text.</i></p>
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	<p>SIGNATURE - The person making the report. Include e-mail or phone number for follow-up.</p> <p><i>If someone other than the person submitting the message reported the observation include their name and position in the report text. For reports to National Weather Service include your observer identification number.</i></p>
Earthquake	<p>FELT OR NOT FELT is it felt, or is it not felt if you are close enough to the reported location that you would expect to feel it.</p> <p>LOCATION inside building, outside building, in stopped vehicle, in moving vehicle, other.</p> <p>INTENSITY weak, mild, moderate, strong, violent.</p> <p><i>If you have Internet access this report can be made on the form at https://earthquake.usgs.gov/earthquakes/eventpage/unknown#impact tellus</i></p>
Hurricanes	<p>RAIN inchesRtenths of inches (<i>total since the start of precipitation - use R as the decimal point – example 3R5</i>).</p> <p>WIND sustained speed above 30 miles per hour/gusting miles per hour</p> <p>PRESSURE barometric pressure in inches of mercury (<i>barometer should have been compared to official weather reports prior to event and correction applied, use R as the decimal point – example 29R28</i>).</p> <p>OBSERVED FLOODING estimated extent and depth of water where observed</p>
Riverine, Urban Runoff or Flash Flooding	<p>RIVER FLOODING or FLASH FLOODING include name of river or stream and landmark identifying the place or location. Include if river out of banks, bridge or road blocked or washed out, estimated extent of flooding from river.</p> <p>URBAN RUNOFF FLOODING include location, approximate extent, estimated depth.</p>
Ice	ICE accumulation on surfaces
Snow	SNOW generally 1 inch or more in one hour
Heavy Rain	RAIN generally 1 inch or more in one hour
Hail	HAIL generally of ½ inch or greater diameter or any hail accumulation that covers the ground
Tornado	TORNADO, FUNNEL, or WALL CLOUD

	ROTATION report if wall cloud is rotating TRACK approximate direction in which the tornado or funnel is moving
High Winds	HIGH WIND generally above 50 to 58 miles per hour
Visibility	DUST or FOG identifies the type of obstruction. Include estimated visibility in milesRtenths of miles.
Other Situation Information	Only describe impacts that are significant. For example, a house losing some shingles off its roof or one tree fallen in a yard is not significant. damage to a block of houses, trees and debris blocking a highway, breech of a dike, bridge collapse, landslide or mudslide, extensive power or telephone outages, numbers of injured people, structural fires, etc. are.

Note that a number of these items require either precise measurement (if possible) or estimation. The following may help in estimating:

Wind Speed – the Beaufort Scale provides descriptions of the effect of wind that can be used to determine approximate wind speed.

Beaufort	mph	Name	Description
0	<1	Calm	Smoke rises vertically
1	1-3	Light Air	Direction of wind shown by smoke drift but not by wind vanes
2	4-7	Light Breeze	Wind felt on face; Leaves rustle; Wind vanes moved by wind
3	8-12	Gentle Breeze	Leaves and small twigs in constant motion; Wind extends light flag
4	13-18	Moderate	Raises dust, loose paper; Small branches moved
5	19-24	Fresh	Small trees begin to sway; Crested wavelets form on inland waters
6	25-31	Strong	Large branches in motion; Whistling heard in telephone wires; Umbrellas used with difficulty
7	32-38	Near Gale	Whole trees in motion; Inconvenience felt walking against the wind
8	39-46	Gale	Twigs break off trees; Wind generally impedes progress; Mobile homes may shake
9	47-54	Strong Gale	Slight structural damage occurs; Mobile homes, sheds, roofs, lanais, and RV's suffer minor damage

10	55-63	Storm	Small trees uprooted; Moderate damage occurs to mobile homes and RV's; Brick and wood frame houses receive minor structural and roof damage; Some signs blown down
11	64-73	Violent Storm	Moderate sized trees uprooted; Large branches snapped off trees; Chimneys and road signs toppled; Significant mobile home damage; Power lines downed
12	74-95	Hurricane	Mobile homes overturned; Large trees and branches downed; Moderate roof damage to wood and brick homes; Minor pier damage

Rain – a simple rain gauge can be made from any vertical sided container and a ruler. High quality rain gauges are available from WeatherYourWay.com and AmbientWeather.com.

Snow – measure on any flat surface in an open area without drifting with a ruler.

Barometric Pressure – home weather station barometers should be calibrated by comparing readings from current weather reports with readings on the barometer to determine a correction factor. This should be done before there is a weather event.

Hail – hail should be measured with a ruler or compared to a commonly available standard such as a dime, nickel, quarter, golf ball, or baseball.

Ice – ice deposition is measured as the amount added to the surface being measured. A common measurement is the amount of ice added to tree branches.

Visibility – visibility is difficult to measure. For standard preplanned observation locations or for observations from a home station we recommend that you pick easily seen objects and measure the approximate distance to them by use of Google Earth map

EXAMPLE TEXTS OF REPORTS

Earthquake	FAIRBANKS NORTH STAR BOROUGH MURPHY DOME EARTHQUAKE FELT INSIDE BUILDING MILD
Hurricane	VIRGINIA BEACH ATLANTIC AVENUE 82ND STREET RAIN 6Ro WIND 47/55

	PRESSURE 28R96 FLOODED APPROXIMATELY 1 FOOT DEEP
Flooding	EL PASO COUNTY DRY WASH EAST PLATTE BRIDGE FLASH FLOODING OUT OF BANKS
Ice	HENRICO COUNTY FOREST TRACE LANE ICE 0.5 INCH ACCUMULATION ON TREE BRANCHES
Snow	ALAMANCE CO GLENCOE TEXTILE HERITAGE MUSEUM SNOW 1R5 STARTING 2000Z
Heavy Rain	BAY COUNTY CALLAWAY RAIN 1R3 STARTING 0930Z
Hail	EL PASO COUNTY US 24 1R5 MILES SW OF FALCON HAIL TRACK TO SOUTHEAST 30 YARDS WIDE COVERS ROAD
Tornado	WEBB COUNTY ESTIMATED 500 YARDS SE OF AGUILARES TORNADO TRACKING EAST
High Wind	ST LOUIS COUNTY AT THE LIFT BRIDGE WINDS 50 SUSTAINED LAST HOUR
Visibility	YORK COUNTY SOUTH END OF YORK RIVER BRIDGE FOG ESTIMATED VISIBILITY 0R4

V. HOW TO REPORT

Teams and individual members have three primary pathways to report ground truth information in major emergencies and disasters:

- (1) Report directly by telephone, fax, or radio to the appropriate agency or supported organization. Direct reporting is the fastest way to get information to the organization that needs it. It also allows for questions and clarifications and fosters credibility and a good working relationship with the supported organization. Direct reports are most likely to be taken seriously if you have a well established relationship with the agency to which you are reporting. For reporting to National Weather Service Forecast Offices you need to have an observer number issued after completion of SKYWARN™ training.

(2) Report through the REACT Traffic System using the online template at <http://reactwarning.org/spot-report>. This sends the report to a Watch Officer who will transmit it to the appropriate agency or organization by telephone, Amateur Radio, fax, or e-mail. This is not as fast as direct reporting, but it allows us to try multiple communications paths to get the data to the people who need it.

(3) Report through Radio Relay International's (RRI) Amateur Radio traffic system directly to the user by radiogram message. This requires that your Team has an established relationship with a RRI operator. It also requires that you have a good address, including Zip Code, and telephone number (and sometimes Amateur Radio call sign for their station) for the agency to which you are directing the report.

Even if you report direct, also send a copy of the report through the REACT Traffic System. This helps our Incident Management Team maintain situation awareness. If you have already made a direct report, be sure to select "Duplicate Report" in the *Operations Note* below the *To* block so that we do not duplicate a report.

The key considerations as to which pathway you select include the following characteristics:

ACCESS – can you reach the desired agency or organization by this pathway. Access can change rapidly based on outages caused by the impacts of the event.

RAPID REPORTING – will the information arrive quickly enough to be useful? In general in major emergencies and disasters fast transmission of information is important. Some of us remember when it was not unusual to deliver an Amateur Radio message that had made its way across the continent in hours by postcard through the United States Postal Service for its last leg in our community. That is probably not rapid enough ...

INFORMATION INTEGRITY – does all of the information in the report reach the intended destination? Does what arrives accurately preserve the original information? Or is part of the information lost or information added by well meaning people who did not make the original observation?

DELIVERY RELIABILITY – does the information reach its intended destination?

VI. WHEN TO REPORT

When you make reports is as important as how and what you report. The goal is to push information forward so that it is available for decision making when it is needed. The following are the common reporting schedules used in most emergency situations:

Initial report	The first report that you make is the initial report, typically at the point when a supported organization's reporting criteria has been met or you realize there is a problem.
Significant change	When the situation has worsened or improved to the degree that your last report does not reflect current conditions.
When a specific threshold is met	Some organizations may have levels of activity tied to increasing threats. These may have additional criteria attached to them for subsequent reports when those criteria are met.
Hourly or some number of hours	Usually "a report every hour" or similar request is tied to expectations that the situation will steadily get worse. Your supported agency wants to know when it reaches a critical point for their response.
Before or after shift change or to meet deadlines for planning	In an incident with a fully staffed General Staff, the Planning Section operates on a 12 hour schedule to produce a new plan for each operational period. At some point they may need the latest data well before the end of the shift to let them produce the plan on time.
When the impact dissipates	Generally not made. May be requested by the supported organization based on the type of incident.

Typically REACT International will ask for reports from its Teams when we are asked by national partners for reports from you. If a disaster is evolving that poses a threat to a Team or that may trigger a mutual aid request from a Team or Council, we may also ask for Spot Reports. If we ask, it is because we need the information.

Do not assume that if you post a social media posting on the Facebook REACT members page that we will see that (we are generally too busy). And we need information reported in the same way in the Spot Report format – trying to match up different social media posts to extract information, some of which we can use, much of which we can't, slows everything down and increases the workload of our Incident Management Team. So spend the approximately 5 minutes it takes to complete the online template and help us do our job for REACT.

Not every incident demands that all these reports be submitted - you may make an initial report, the situation changes, and no further reports are needed. Not every supported organization will want all these reports – report what your memorandum of agreement says they want. Not every report can be made because of communications failures or the level of threat to you as an observer/reporter – stay safe.

VII. AND THEN THERE ARE THE BIZARRE CASES

Sometimes you just know what a witness tells you can't possibly be true. Sometimes you just know the data does not make any sense. So what do you do? If it does not make sense, the observer is clearly unreliable, etc. you don't report it ... right? Well, not so quick. There is a cautionary tale here.

Some years ago the author of this text was the search mission coordinator managing the search for a missing aircraft in the Florida panhandle. The aircraft had departed Pensacola headed for Tallahassee in the late afternoon and never arrived. One of the search teams came in to debrief with one of those “you aren't going to believe this one” reports. They had stopped to interview a resident of a rather rundown rural home west of Defuniak Springs. The individual was sitting on his front porch surrounded by empty bottles of the beer, whiskey, and wine persuasion. He insisted that he had seen the missing aircraft in the late afternoon. It was a pink aircraft, it came from the west, it circled twice around an antenna tower south of his residence and then turned back to the west.

Suffice it to say that the aircraft was white with blue trim, not pink. It circling the tower twice and then heading west made no sense. And our interviewees were pretty certain the fine, but very drunk citizen, would have had trouble seeing anything but the next bottle.

But then we got the radar track data – the aircraft came from the west, flew two circles about where the tower was, and headed back west, only to disappear from coverage approximately over the Blackwater River swamp. The aircraft was never found, but our witness was the last person to see and report it in flight. Oh, and the pink color, well under late afternoon conditions and the right angle he could very well have seen reflected sunlight giving the aircraft a pink hue.

If you have data that appears to make no sense, it may not make any sense now, but as the incident evolves more data may turn it into useful information. When you report it, it is important to note that the data is unconfirmed, that it appears questionable. But report it. In section 1 of this course, we mentioned the flooding river triggering a resource mobilization. Yes, both Virginia and Florida have Blackwater Rivers. No other state agency saw the Blackwater River flooding in Virginia as a significant threat. The Operations Section in the state EOC questioned why Emergency Medical Services resources were being mobilized. But it turned out to be a historic flood. Sometimes the right data has to be reported to the right person at the right time to make the right decision. And that reporting is part of your job as an emergency communicator.