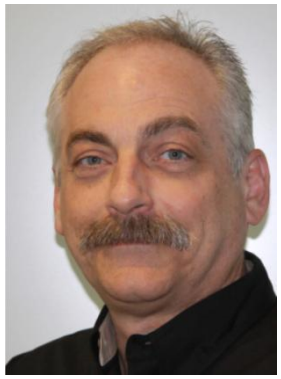
Association of Contingency Planners



Ed Goldberg, DM, PE, CBCP, CBCA
Director of Education
Association of Contingency Planners

Ed Schlichtenmyer
Business Continuity Program Manager,
ImpactWeather, Inc.

Critical Results from Severe Weather Monitoring and Notification (Real-World Case Studies)

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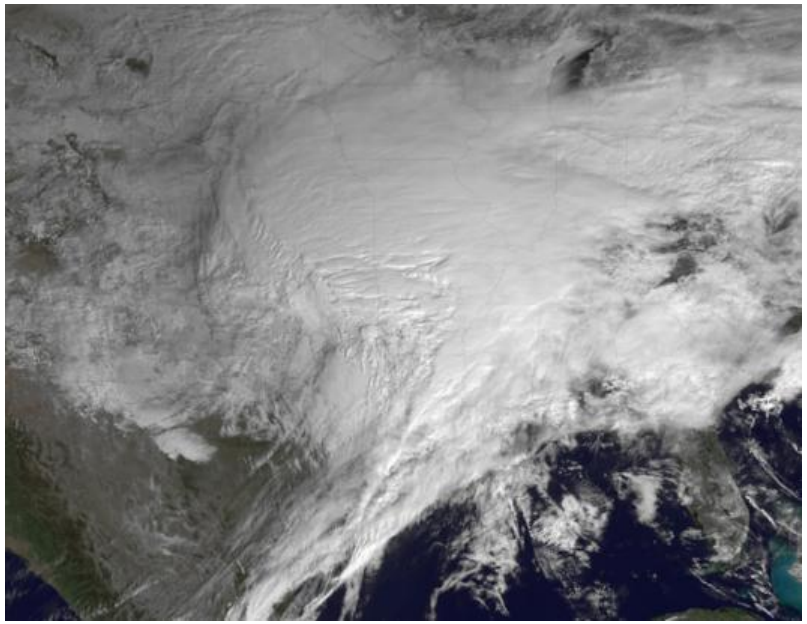
ImpactWeather℠
Your Weather Department℠

Agenda

- Introduction
- Overall Weather Impact
- Case Studies
- 2008 Hurricane Ike
- 2007 Oklahoma Ice Storm
- 2011 Joplin Tornado
- Summary



Weather's Impact on Business

- Forrester Research Report – Natural Disaster / Extreme Weather **59%** (multiple responses accepted)
- BCI Supply Chain Survey – Adverse weather jumped to the top as the main cause of disruption around the world with **53%** citing this, followed by unplanned IT and telecommunication outages following close behind
- Chartered Management Institute BCM Survey – **64%** experienced disruption due to extreme weather

Severe weather is the leading cause of business disruption.

This Year's Incidents

2011 so far has experienced what appears to be the most extreme series of weather events in history. Several natural disasters, each totaling more than a billion dollars in losses, have befallen the US this year.

- **2011 Blizzard** – 2,000-mile-long trail of snow and ice from the Midwest to the Northeast and two-thirds of the nation facing downed power lines, collapsed roofs, shuttered highways and thousands Total losses estimated to be more than **$3.9B** and **36 lives**.

Tornado

- **5 tornado outbreaks** in April and May which account for losses in excess of **$23B** and some **539 lives**, including the tornado in Joplin, MO – *the single deadliest tornado in the U.S. since record -keeping began*.

Drought

- **Drought and wildfires** – drought and wildfires across Texas, New Mexico and western Oklahoma racked up fighting/suppression costs of about $1 million a day. Total losses to agriculture and cattle were estimated between **$1.5 and $3 billion** as of 16 June. Expenses are likely to rise as the drought continues.

Flood

- **Mississippi River flooding** – Estimated economic loss ranges from **$2 to 4 billion**. The Missouri River floods have not made it onto this list, since their onset was near the end of the compilation period

Some Examples of How to Reduce the Impact

- Companies in the South and along the Gulf Coast will focus on hurricanes and floods, while those in the upper Midwest will concentrate on blizzards and ice storms. Everyone is aware of severe storms that spawn tornadoes.
- For each event, a series of time-based actions can greatly mitigate the impact of a severe weather event.
- Let's touch on:
  - **Hurricane Ike**
  - **Oklahoma Ice Storm**
  - **Joplin Tornado**

Hurricane Ike

Specific Weather Detail

Achieved tropical Depression status on September 1st

15- to 20-ft Storm surge arrived in Galveston early on the 12th and the eye of the Category 1 hurricane passed over downtown Houston around 4am on the 13th

By 11:30am on the 13th, wind fell below 39mph

Economic Impact

Power was disrupted to **7.5 million**

Damages in excess of **$27 billion**

3rd costliest in U.S. history

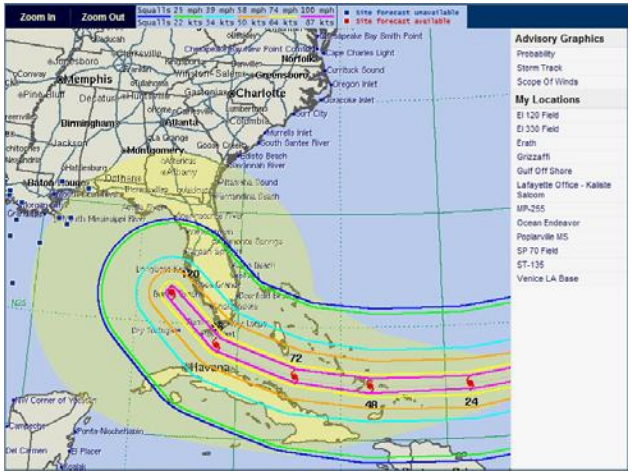
Deaths were reported in 10 states

Weather Alerting & Response Timeline

Phase 1 ~ 4 days out, 39mph wind field – Activate plan, identify personnel, plan travel needs, inventory resources, communicate with stakeholders

Wind Field Forecast and Worst-Case Arrival Times at Your Location					
	Forecast ETA			Worst-Case ETA	
Wind Field	Hrs. Until Arrival	Arrival Time/Date	Duration	Hrs. Until Arrival	Arrival Time/Date
39mph	N/A	N/A	N/A	**100**	8am Fri Sep 12th
58mph	N/A	N/A	N/A	104	12pm Fri Sep 12th

Phase	Trigger Parameter	Trigger Reached?	Est. Time to Next Phase
N/A	Hurricane Risk Indicator Positive	Yes	-
1	39mph winds < 96hrs and PWI58 > 15%	No	4hrs 8am Mon Sep 8th
2	39mph winds < 72hrs and PWI58 > 20%	No	28hrs 8am Tue Sep 9th
3	39mph winds < 48hrs and PWI58 > 30%	No	52hrs 12pm Wed Sep 10th
4	39mph winds < 24hrs and PWI58 > 75%	No	78hrs 10am Thurs Sep 11th
5	Sustained winds fall below 39mph	No	128hrs 12:pm Sat Sep 13th

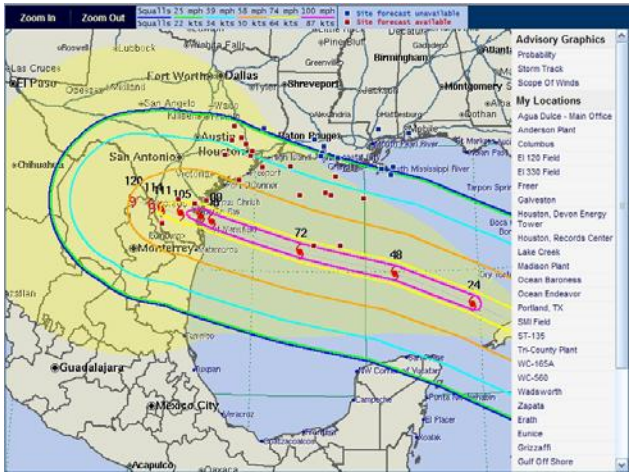


Progressing Through Plan

Phase 2 ~ 3 days – Acquire resources, deploy ride-out/damage assessment teams to prepare homes, plan transition of work processes, communicate with stakeholders

Wind Field Forecast and Worst-Case Arrival Times at Your Location					
	Forecast ETA			Worst-Case ETA	
Wind Field	Hrs. Until Arrival	Arrival Time/Date	Duration	Hrs. Until Arrival	Arrival Time/Date
39mph	N/A	N/A	N/A	64	2am Fri Sep 12th
58mph	N/A	N/A	N/A	71	9am Fri Sep 12th

Phase	Trigger Parameter	Trigger Reached?	Est. Time to Next Phase
N/A	Hurricane Risk Indicator Positive	Yes	-
1	39mph winds < 96hrs and PWI58 > 15%	Yes	-
2	39mph winds < 72hrs and PWI58 > 20%	Yes	-
3	39mph winds < 48hrs and PWI58 > 30%	No	28hrs 12pm Wed Sep 10th
4	39mph winds < 24hrs and PWI58 > 75%	No	52hrs 10am Thurs Sep 11th
5	Sustained winds fall below 39mph	No	124hrs 12:pm Sat Sep 13th

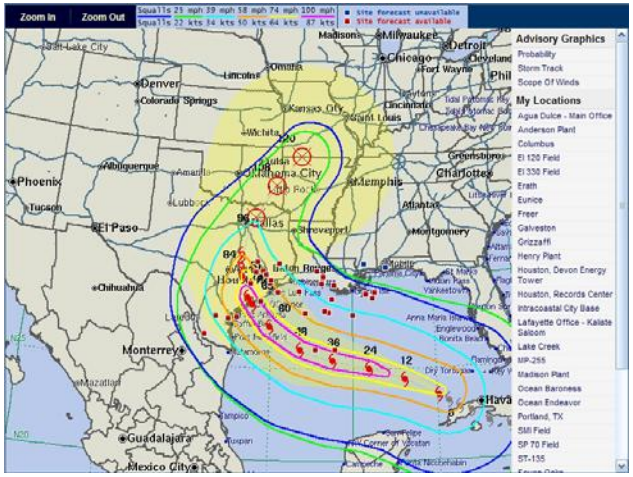


Progressing Through Plan

Phase 3 ~ 2 days – Transition work processes, prepare damage assessment teams, release personnel at close of business for home prep and/or evacuation, communicate with stakeholders, transfer command to away team

Wind Field Forecast and Worst-Case Arrival Times at Your Location					
	Forecast ETA			Worst-Case ETA	
Wind Field	Hrs. Until Arrival	Arrival Time/Date	Duration	Hrs. Until Arrival	Arrival Time/Date
39mph	60	4pm Sep 12th	20hrs	46	2am Fri Sep 12th
58mph	N/A	N/A	N/A	53	9am Fri Sep 12th

Phase	Trigger Parameter	Trigger Reached?	Est. Time to Next Phase
N/A	Hurricane Risk Indicator Positive	Yes	-
1	39mph winds < 96hrs and PWI58 > 15%	Yes	-
2	39mph winds < 72hrs and PWI58 > 20%	Yes	-
3	39mph winds < 48hrs and PWI58 > 30%	Yes	-
4	39mph winds < 24hrs and PWI58 > 75%	No	22hrs 10am Thurs Sep 11th
5	Sustained winds fall below 39mph	No	46hrs 2:30pm Sat Sep 13th

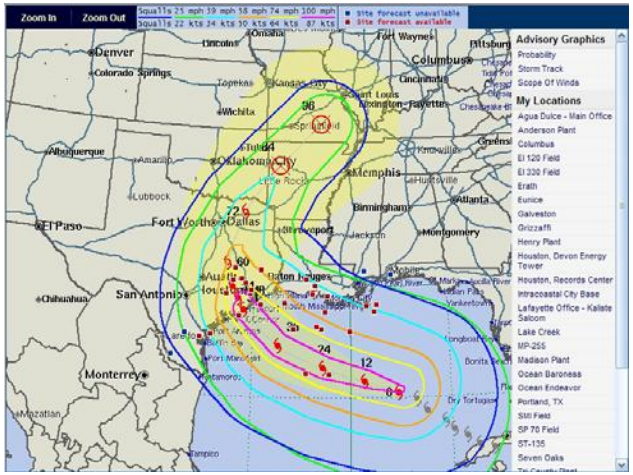


Progressing Through Plan

Phase 4 ~ 1 day – Communicate with stakeholders, review & refine post-storm plans

Wind Field Forecast and Worst-Case Arrival Times at Your Location					
	Forecast ETA			Worst-Case ETA	
Wind Field	Hrs. Until Arrival	Arrival Time/Date	Duration	Hrs. Until Arrival	Arrival Time/Date
39mph	31	5pm Fri Sep 12th	23hrs	20	6am Fri Sep 12th
58mph	38	12am Sat 13th	11	28	2pm Fri Sep 12th

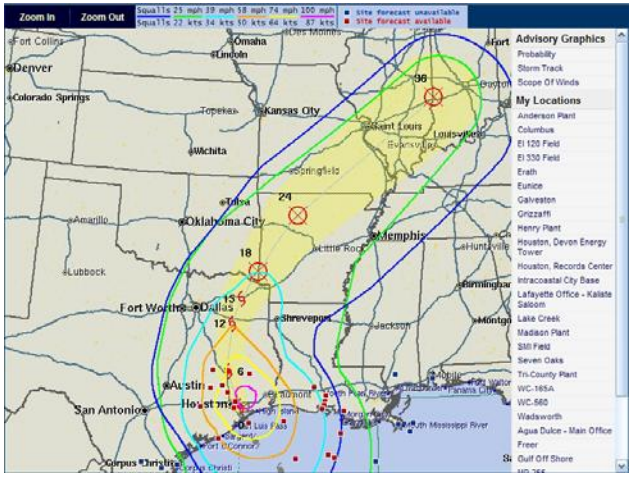
Phase	Trigger Parameter	Trigger Reached?	Est. Time to Next Phase
N/A	Hurricane Risk Indicator Positive	Yes	-
1	39mph winds < 96hrs and PWI58 > 15%	Yes	-
2	39mph winds < 72hrs and PWI58 > 20%	Yes	-
3	39mph winds < 48hrs and PWI58 > 30%	Yes	-
4	39mph winds < 24hrs and PWI58 > 75%	Yes	-
5	Sustained winds fall below 39mph	No	43hrs 12pm Sat Sep 13th



Recovery

Phase 5 ~ departure of sustained 39mph wind field – Deploy damage assessment teams, initiate accountability of personnel, communicate with stakeholders

Phase	Trigger Parameter	Trigger Reached?	Est. Time to Next Phase
N/A	Hurricane Risk Indicator Positive	Yes	-
1	39mph winds < 96hrs and PWI58 > 15%	Yes	-
2	39mph winds < 72hrs and PWI58 > 20%	Yes	-
3	39mph winds < 48hrs and PWI58 > 30%	Yes	-
4	39mph winds < 24hrs and PWI58 > 75%	Yes	-
5	Sustained winds fall below 39mph	Yes	-



Results

Loss of top 4 floors to building and portions of 11 other floors (total of more than 350 office relocations) due to roof damage

All personnel able to activate personal preparedness / evacuation (no casualties); Communications and annual awareness events

Only 4 full days of office closure and 6 partial-incident command system and annual exercises and mature BCP (Damage Assessment, DR, COOP and Return to Work Planning)

Integrated Weather Data with Response Plan

Oklahoma Ice Storm

Specific Weather Detail

Large dome of cold air penetrated the Midwest following an Alberta Clipper; the storm produced between one half to one and one half inches of ice across Oklahoma

Economic Impact

29 storm-related fatalities; federal emergency declaration in all 77 OK counties; more than 600,000 homes and businesses (~40%) without power

Weather Alerting & Response Timeline

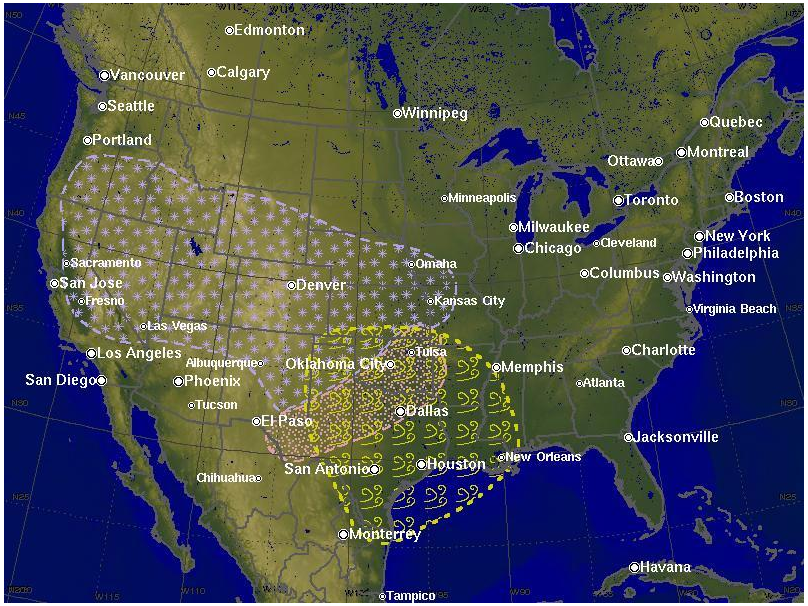
Daily Weather Briefing identified potential for severe weather ~ 5 days out – Activate plan, identify personnel, plan travel needs, inventory resources, communicate with stakeholders

Daily Briefing

Valid December 4 to December 15, 2007
Issued: 4:53am Dec. 4, 2007
December 9-11, 2007 Severe Winter Weather Event

Discussion:

A powerful winter system will begin dropping snow and ice through central Oklahoma. The biggest concern is the possibility of widespread ice accumulations in excess of 1”.



Progressing Through Plan

Mid Range Weather Update better detail of anticipated weather ~ 3 days out – Acquire resources, deploy ride-out / damage assessment teams to prepare homes, plan transition of work processes, communicate with stakeholders, initiate site-specific forecasts for 3 times daily

Planning Forecast (West Texas TEST CLIENT)

Issued: Wednesday, February 9th 2011 3:21am CST

Wednesday February 9th	Sunrise 7:35am	Sunset 6:29pm

Occasional Light Snow showers

High 31°F

Time	Wind	PoP	Amount
6am	N@23mph	13%	-
12pm	NNW@21mph	14%	-
6pm	N@13mph	14%	-

Thursday February 10th	Sunrise 7:34am	Sunset 6:30pm

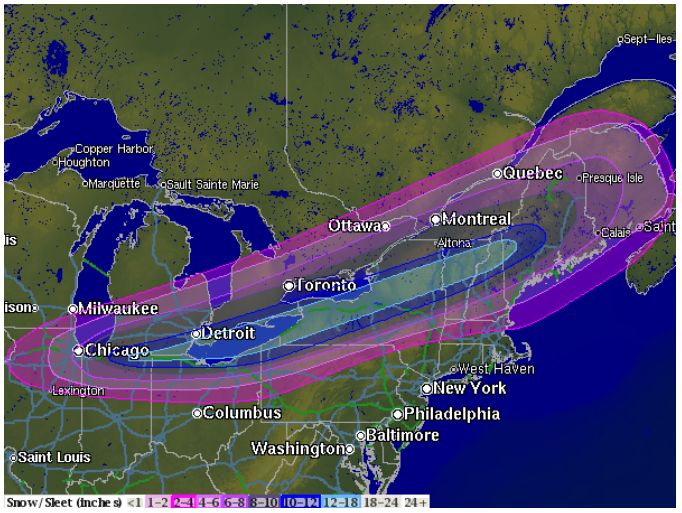
Partly cloudy

Low 7°F Wind Chill 22°F

High 41°F

Time	Wind	PoP	Amount
12am	NNW@7mph	7%	-
6am	NW@3mph	0%	-
12pm	N@7mph	-	-
6pm	E@8mph	0%	-

Friday February 11th	Sunrise 7:33am	Sunset 6:31pm

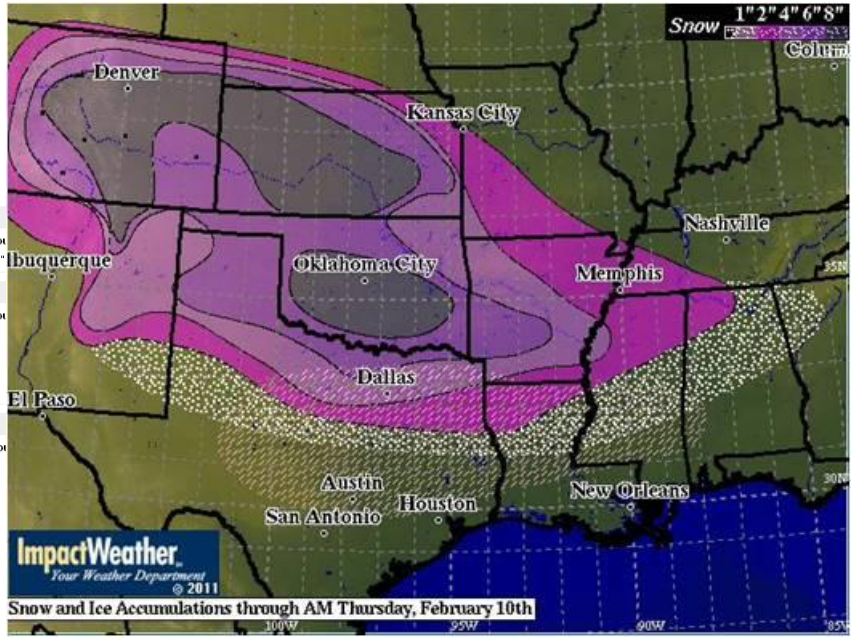


Progressing Through Plan

~2 days out – Review office closure policies, establish briefing/decision schedule, position response personnel, communicate with stakeholders

Planning Forecast (Oklahoma City)
Issued: Monday, August 22nd 2011 3:55pm CDT

Monday August 22nd				**Sunrise 6:55am**		**Sunset 8:09pm**	
	Mostly cloudy			**Time**	**Wind**	**PoP**	**Amou**
	High 96°F	**Heat Index**	104°F	Mon 7pm	ESE@15mph	22%	0.01"
Tuesday August 23rd				**Sunrise 6:55am**		**Sunset 8:09pm**	
				Time	**Wind**	**PoP**	**Amou**
	Mostly cloudy			Tue 1am	SE@14mph	15%	-
	Low 80°F			Tue 7am	S@11mph	8%	-
	High 102°F	**Heat Index**	104°F	Tue 1pm	SSW@15mph	9%	-
				Tue 7pm	SSE@15mph	10%	-
Wednesday August 24th				**Sunrise 6:56am**		**Sunset 8:07pm**	
				Time	**Wind**	**PoP**	**Amou**
	Mostly cloudy			Wed 1am	SSE@13mph	11%	-
	Low 80°F			Wed 7am	S@11mph	11%	-

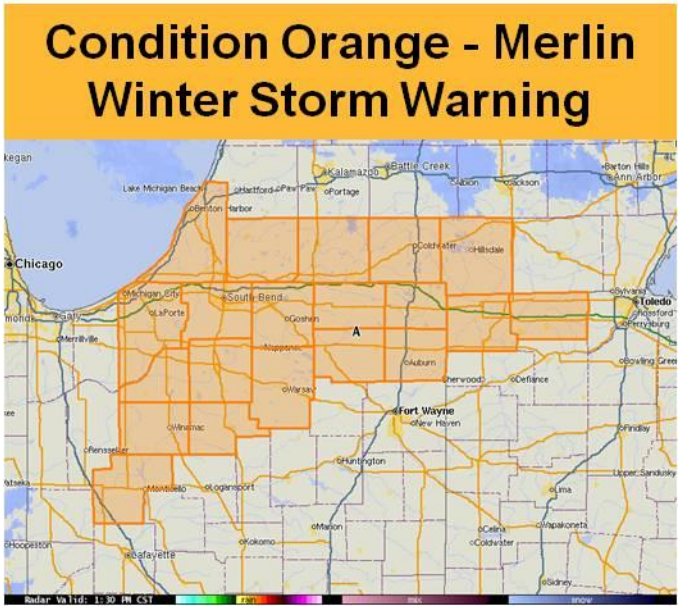


Recovery

Ice Storm Arrival – Close office, initiate accountability, communicate with stakeholders

Employee Accountability
via email escalate to cell phone escalate to home phone

To: All Personnel
From: Incident Management Team
Subject: Severe Weather Employee Accountability
This alert requires your response.
The incident management team continues to monitor the adverse weather situation in central Oklahoma. Storms and ice have produced several power outages across the area. The company has set up a shelter for those employees without power and in need of assistance.
Please respond as follows:
Options:
1 – I have power and am OK
2 – I have power, but require assistance
3 – I do not have power, but am OK
4 – I do not have power and require assistance



Results

Outcome

- All personnel able to effect personal preparedness / evacuation (no casualties); communications and annual awareness events
- 2 days of office closure
- Engendered the confidence and trust of personnel

Integrated Weather Data with Response Plan

Joplin Tornado

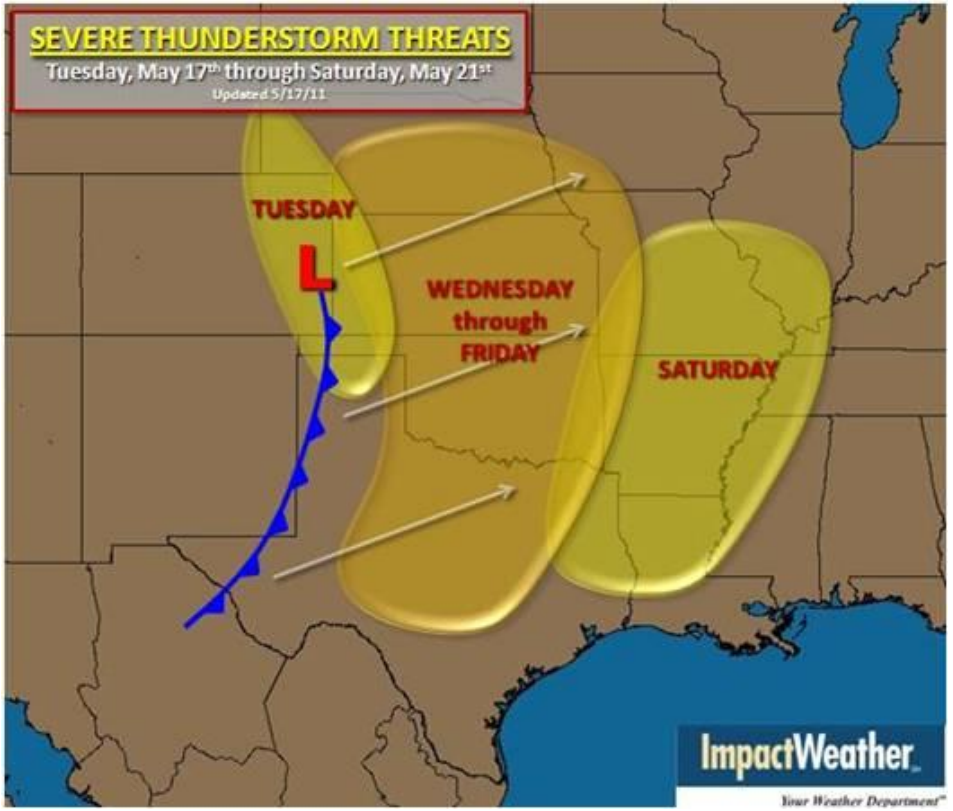
Economic Impact

Severe storms ripped across the country through the end of May, including a powerful E5-level tornado that destroyed some 2,000 buildings in Joplin, MO on May 22nd killing at least 141 people and injuring thousands.

Weather Alerting & Response Timeline

Daily Weather Briefing identified potential for severe weather ~ 5 days out – Activate plan, identify personnel, plan travel needs, inventory resources, communicate with stakeholders

Graphic shows the severe thunderstorm risk from Tuesday, May 17th through Saturday, May 21st:



Progressing Through Plan

Mid Range Weather Update better detail of anticipated weather ~ 3 days out – Acquire resources, deploy ride out/damage assessment teams to prepare homes, plan transition of work processes, communicate with stakeholders, initiate site specific forecasts for 3 times daily **Planning Forecast for May 22, 2011**

Sunday, May 22 (sunrise 6:43 am / sunset 8:12 pm)

Cond	A slow-moving upper level storm system over the central U.S. will continue to bring a chance of strong to severe thunderstorms across the plains on Sunday
Wind	SW 3-8 increasing to SE-SW 7-15 gust 20 afternoon decreasing to SW 5-12 evening
Precip	2” with local amounts > 4”
Temp	**Low:** 80ºF **High:** 100ºF **RH:** 38% **Heat Index:** 105 - 110ºF

Progressing Through Plan

~2 days out – Review office evacuation policies, establish briefing/decision schedule, position response personnel & resources, communicate with stakeholders

Planning Forecast (Oklahoma City)
Issued: Monday, August 22nd 2011 3:55pm CDT

Monday August 22nd				Sunrise 6:55am		Sunset 8:09pm	
				Time	Wind	PoP	Amount
Mostly cloudy							
High	96°F	Heat Index	104°F	Mon 7pm	ESE@15mph	22%	0.01"

Tuesday August 23rd				Sunrise 6:55am		Sunset 8:09pm	
				Time	Wind	PoP	Amount
Mostly cloudy				Tue 1am	SE@14mph	15%	-
Low	80°F			Tue 7am	S@11mph	8%	-
High	102°F	Heat Index	104°F	Tue 1pm	SSW@15mph	9%	-
				Tue 7pm	SSE@15mph	10%	-

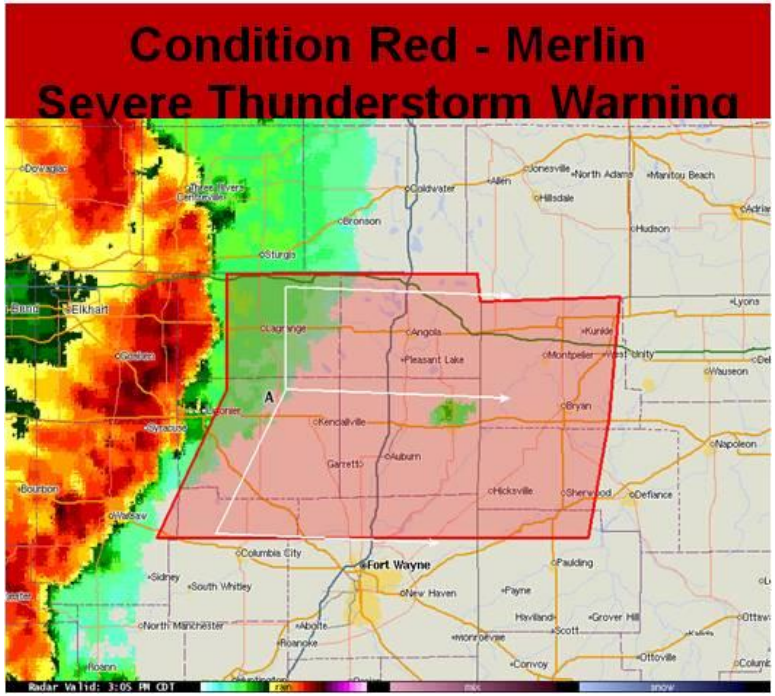
Wednesday August 24th				Sunrise 6:56am		Sunset 8:07pm	
				Time	Wind	PoP	Amount
Mostly cloudy				Wed 1am	SSE@13mph	11%	-
Low	80°F			Wed 7am	S@11mph	11%	-
High	101°F	Heat Index	103°F	Wed 1pm	SSW@11mph	11%	-
				Wed 7pm	S@10mph	10%	-

Thursday August 25th				Sunrise 6:57am		Sunset 8:06pm	
				Time	Wind	PoP	Amount
Mostly cloudy				Thu 1am	SSE@8mph	11%	-
Low	80°F			Thu 7am	ESE@7mph	12%	-
High	99°F			Thu 1pm	E@9mph	10%	-
				Thu 7pm	ESE@9mph	8%	-

Friday August 26th				Sunrise 6:58am		Sunset 8:05pm	
				Time	Wind	PoP	Amount
Mostly cloudy				Fri 1am	ESE@6mph	7%	-
Low	78°F			Fri 7am	SSE@5mph	5%	-
High	97°F			Fri 1pm	S@7mph	6%	-
				Fri 7pm	ESE@8mph	7%	-

Recovery

Severe Weather Event – Office evacuation, initiate accountability, communicate with stakeholders



Severe Weather Procedures

Weather conditions are monitored by the Incident Management Team; however, severe weather can also occur with little or no warning. Should it become necessary to take immediate shelter and you are directed to do so, please follow the steps below:

- Move away and stay away from windows
- Proceed to an interior area of the floor (if you are on another floor than your office, do not go back to your office)
- You will be directed by Floor Wardens to take shelter in one or more of the following areas:
  - Interior hallways
  - Bathrooms
  - Stairwells
  - Interior Conference Rooms, Team Rooms or Offices
  - Any interior area away from glass and possible flying debris

As you leave, close doors of exterior offices to protect the area from flying glass
Listen carefully for the “all clear” and/or other instructions
If a severe weather evacuation becomes necessary at the . . .

Results

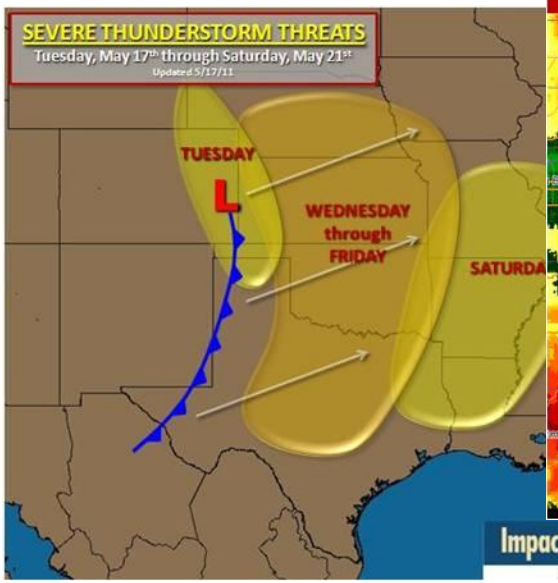
Outcome

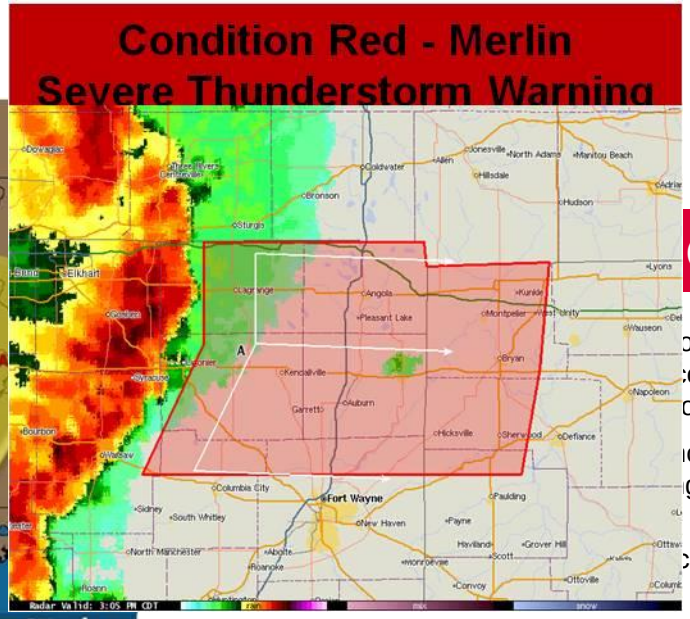
- 8 semi-tractor trailers and product destroyed – did not utilize planning forecasts
- Unable to respond to needs of community – lost product
- Period of chaos and confusion within organization – ineffective communication and preparedness

DID NOT Integrate Weather Data with Response Plan

Summary

Monitoring Integrated with Response Planning:
Long-Range / Mid-Range / Immediate





(sunrise 6:43 am / sunset 8:12 pm)

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ncreasing to SE-SW 7-15 gust 20 afternoon g to SW 5-12 evening

cal amounts > 4”

Temp **Low:** 80ºF **High:** 100ºF **RH:** 38% **Heat Index:** 105 - 110ºF

Summary Continued

Vital Characteristics of Effective Emergency Communication

- Factual and Succinct
- What the event is
- What to expect from the company
- What the company expects from personnel
- Where to get more info
- When to expect the next communication

Inclement Weather Advisory

Via email

To: All Personnel
From: Incident Management Team
Subject: Merlin Weather Update

The Incident Management Team is monitoring potentially hazardous weather to the west of our offices. This system could cause anything from no impact to a delayed commute early next week to a full office closure. We are monitoring the situation and will provide alert updates as additional information daily at 4am and 4pm. If you have not already submitted alternate contact information, please do so now.

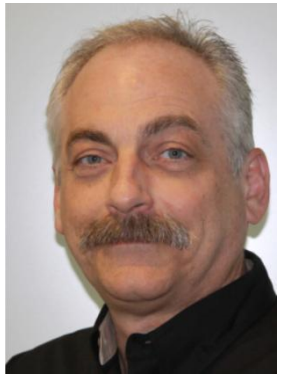
In preparation, please take anything home over the weekend that you might need for early next week in the event of an office closure. Finally, be sure to review your personal readiness plan.

Summary Continued

Practice

- Annual Table-Top Exercises
- Annual Employee Awareness Events

Association of Contingency Planners



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Critical Results from Severe Weather Monitoring and Notification

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Next ACP Webinar

BCP 101 – A Business Continuity Planning Beginner's Checklist

Thursday, September 22nd, 2011
11:30 AM - Noon EDT

You will receive an emailed invitation.

Bob Boyd, President

Agility Recovery

-Sample Data-
This is a Drill This is a Drill This is a Drill

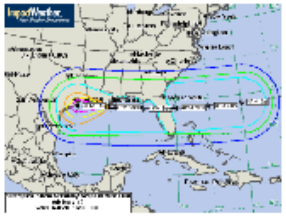
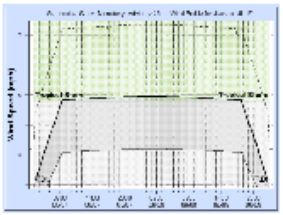
Timeline Tools Report for Your Location- Subtropical Storm Monotony Advisory 3

Generated: 4:02PM CDT Monday, June 14, 2010

Current Conditions	
Location	24.4N / 85.6W – 1085 miles SE
Movement	W @ 13 mph
HRI Status	Positive
Winds	40mph
Current HSI	4 (3 size / 1intensity)
Current Indicated Status	Threat ID

Forecast Conditions	
Max Forecast Winds	160mph
Max Forecast HSI	47 (25 size/22 intensity)
Hrs to Next Trigger Point	72
Estimated Next Status	After 4PM CDT THU June 17th

Forecast Track, Scope of Winds & Wind Profile Graphics

Note: Hours remaining is calculated from the time the report was generated. (4:02PM CDT Monday, June 14, 2010)

Wind Field Forecast and Worst-Case Arrival Times at Your Location							
	Forecast ETA			Worst-Case ETA		Probability of Wind Impact	
Wind Field	Hrs. Until Arrival	Arrival Time/Date	Duration	Hrs. Until Arrival	Arrival Time/Date (CDT)	Value	Trend
39mph	39	4AM CDT WED June 16th	33hrs	35	12AM CDT WED June 16th	8%	+8%
58mph	n/a	n/a	n/a	n/a	n/a	0%	-

Alert Level	Trigger Parameter	Trigger Reached?	Estimated Hours Remaining and Time
Threat ID	HRI+	Yes	Reached 10AM FRI June 11th
V	WCS39 < 96 and PWI 58MPH > 15% and Forecast HSI > 25	No	Not Expected to Reach Trigger
IV	WCS39 < 72 and PWI 58MPH > 27% and Forecast HSI > 25	No	Not Expected to Reach Trigger
III	FTA39 < 48 and PWI 58MPH > 45% and Forecast HSI > 25 with size component of the HSI > 15	No	Not Expected to Reach Trigger
II	FTA39 < 36 and PWI 58MPH > 62% and Forecast HSI > 25	No	Not Expected to Reach Trigger
I	FTA39 < 24 and PWI 58MPH > 85% and Forecast HSI > 25	No	Not Expected to Reach Trigger
Post	Sustained winds fall below 39mph	No	72 hours 4PM CDT THU June 17th

Predicted Conditions for Your Facility	
Rain	Rainfall will total 2 to 4 inches across the area through Thursday, with isolated totals of 8 inches possible.
Storm Surge	Tides along the east coast of Florida near Jacksonville will remain near normal today and tonight. Tides will become Slightly above normal on Wednesday through Thursday.

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