Customer Thresholds

Recognize Impacts

Andy Devanas
NWS Key

Questions to Address

- What are Thresholds?
- How are thresholds determined/found?
- Use of Operational Significance?
- Use of Operational/planning Cycles?

UNDERSTANDING PERSPECTIVES
a good place to start

Meteorologist *Focus on* Conditions	General Public *Focus on* Personal Protection	Decision Makers *Focus on* Impacts
What is expected storm surge, flooding, wind, etc?	Am I safe? What is going to happen to me?	What protective actions need be taken? (what's gonna break)
What is timing and duration of event?	Do I leave or Stay?	Where will we need to respond?
How to communicate weather hazards?	What do I do? (needs instruction)	What type of recovery will be needed?

(7 ft Storm Tide -> inundation of coast -> Evacuation of coastal communities)

What are Thresholds?

- Thresholds are critical values (time, space, impact-condition) which represent decision points where customers will take action.
- Threshold values represent coordinated information.
  - They do not come from us.
  - Local Mitigation Studies/Traffic Studies
- Some thresholds are hard wired/some not.
  - Examples of hard wired vs soft wired??

Critical Thresholds Values

Timing

- C130 to evacuate special needs – 84hrs
- National Guard activation – 54hrs
- Multiphase evacuation, tourists – 48hrs
- Mobile home residents – 30hrs
- All residents – 24hrs
- Arrival of TS winds – Evacuation terminates
  - Refuges of last resort open

Customer Thresholds Exceedence

Conditions -> Impacts

- 35mph – School buses cannot cross bridges
- 35mph – Electrical bucket boom trucks
- 40mph – Law enforcement, public works, Aqueduct authority cease operations
- 45mph – All Electrical, Public Works, and Routine emergency/fire rescue response ceases
- Critical services may occur on case by case up to 60mph

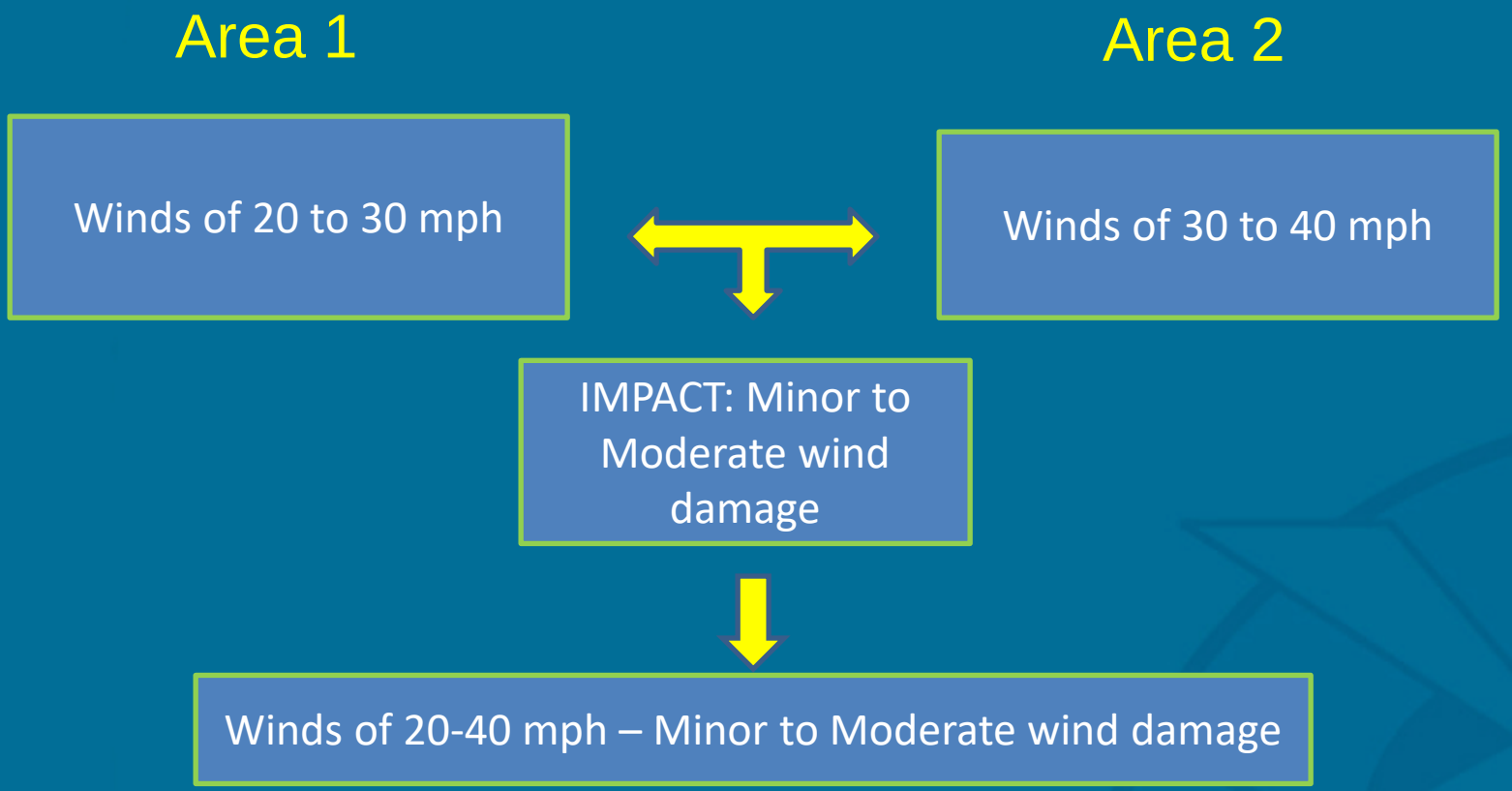
Determining Thresholds

- Ask
- Participate
- Anticipate
- Coordinate

Operational Significance

Operational significance can be defined where similar protective and precautionary actions will be necessary based on the impact of meteorological events.

Operational Significance Example



Operational Significance

- Use to avoid thin slicing.
- Use to avoid broad brushing.
- Use to avoid over-briefing (operational cycles).
- Use to temper condition ranges.
- Use to focus on the what, not the why.

Operational Cycles

Planning Cycles

- What are the customer planning cycles?
  - When (how often) is IAP written/updated.
- What determines planning cycles?
- Stay in phase with planning cycles.
  - Briefings, emails, conference calls.
- Flash updates (briefings) outside of PC should ONLY be for significant changes.
- Their planning cycles = their decision cycles.

Example:

- NHC operational cycle is every 6 hrs.
- EMs in your region are running Alpha/Bravo shifts, doing one IAP per day with mid-day update.

- *You sent out an email to EMs stating you'll do a briefing every 4 hrs.*

Impact Based Decision Support
It's all about decision points

- What is the customer role?
  - What is the difference between state, local, federal?
- What is the customers planning cycle?
  - What are temporal and spatial needs?
- What is operationally significant? (thresholds)
  - What matters, and what doesn't?

Takeaway Concepts

- Inherently, thresholds from outside sources
- Use thresholds to temper forecasts/briefings
- Avoid Thin Slicing (Operational Significance)
- Pay attention to customer planning (Operational Cycles)

EM Briefings: Content Matters

Communicate Message

Or…

How to effectively communicate complex information in a few minutes

Andy Devanas
NWS Key West

These are Guidelines, Suggestions

Based on 30 years in Meteorology/Emergency Management

YOU might do things differently – that's okay

Objectives

- Define Briefing
- Pre-season(storm) coordination
- Basic briefing structure
- Briefing content
- Briefing performance

Briefing Blueprint

Briefing Structure

- Start and finish with important points

Briefing Content

- Focus on the what, and not the why

Briefing Clarity (performance)

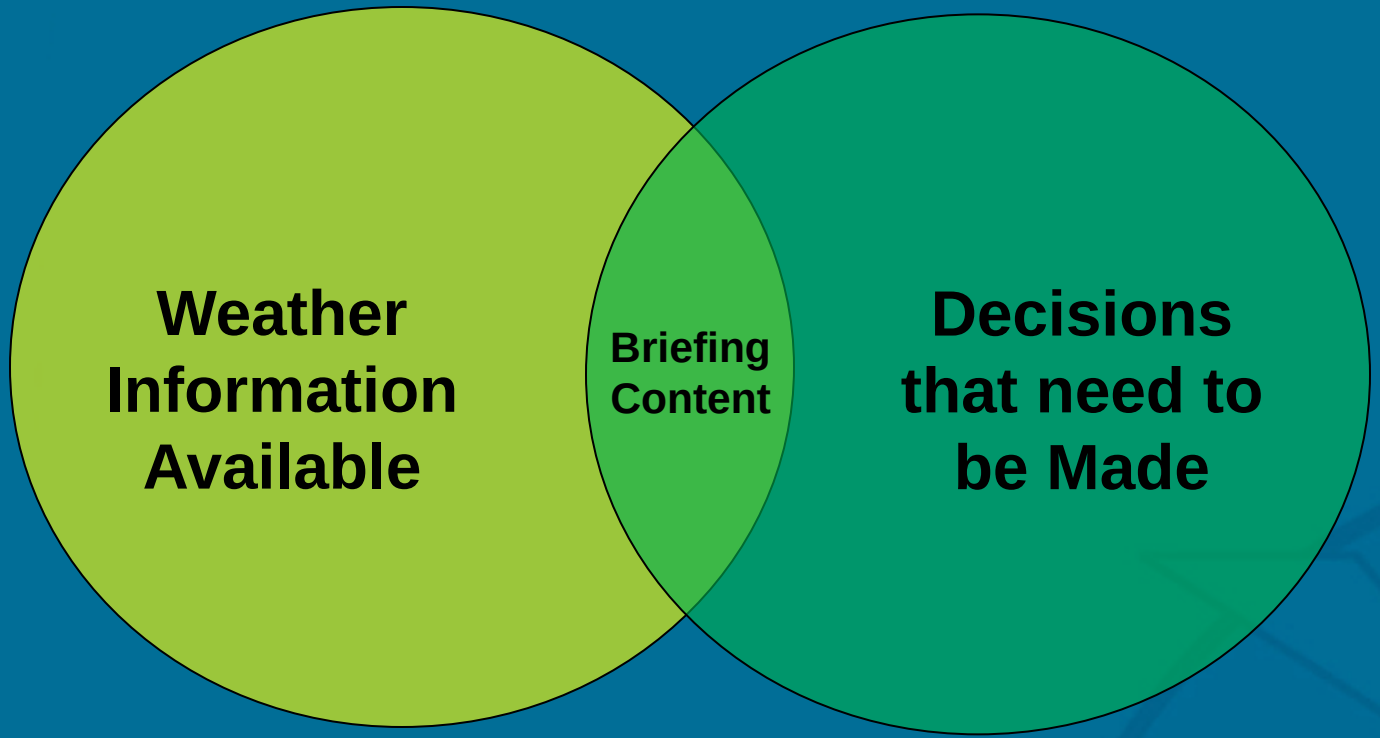
- Speak customer's language

WHAT IS A BRIEFING?

WHAT IS A BRIEFING?

- Type of meeting or presentation where *information basically flows in one direction*
- General purpose is to give information or instructions to someone (individual or group)
- Not a debate, discussion, or show, not an exchange of ideas
- Do answer all questions

So Much Weather Information, So Little Time During a Briefing… So *what* do we talk about?



Briefing Length

Perception Gap

Survey Question: How long should a meteorology briefing take? (before questions)

Meteorologists: 10-15 mins

Decision Makers: 2-3 mins

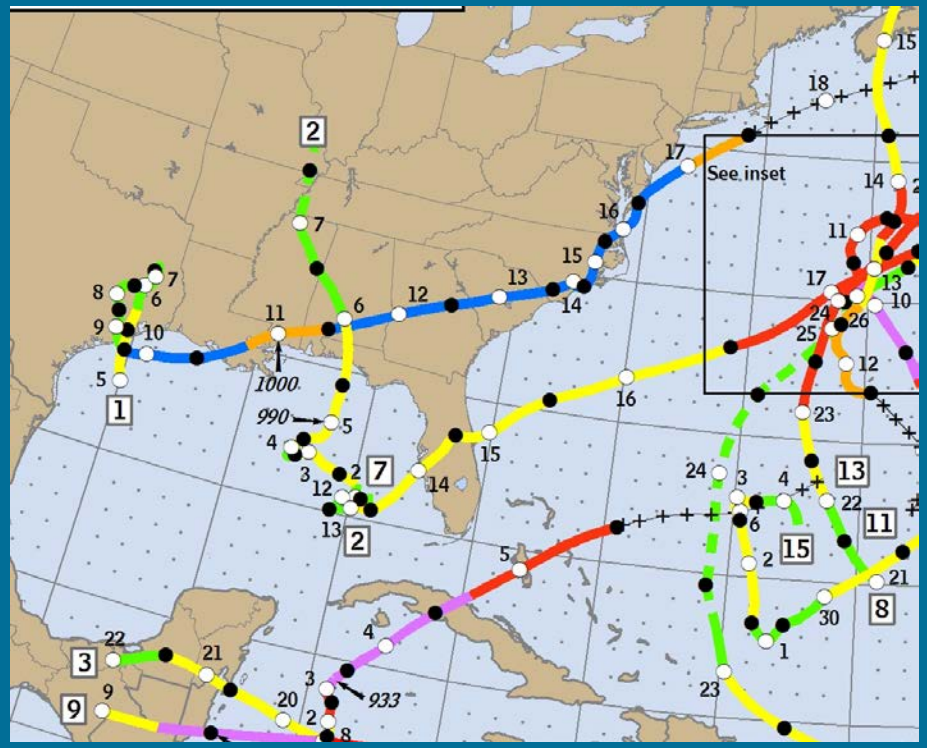
BRIEFING PREPAREDNESS…

Know your customer…

What are customer needs, and how do they differ?

- Emergency manager
  - Increased level of spatial and temporal detail
  - Increased level of uncertainty communicated
- Media (Radio vs. Television vs. Newspaper)
  - Focus on talking points (message YOU want to get across)
  - Less spatial and temporal detail
  - More protective action discussion/recommendation (general)
  - Less uncertainty communicated
  - Likely your briefing (interview) will be edited before release

Why not Analogs?



Allison – June 2001
Barry - August 2001

Both near 9-10” of rainfall

BRIEFING STRUCTURE…

The End!

Briefing Structure

All briefings should be designed to answer these questions:

- What is it…
- What is it going to do…
- When is it going to get here…
- When is it going to be over…
- What is your confidence this will occur…

Briefing Structure

Must Know

- Introduction
- 3-5 Points
- Must Remember

Support Material

- The what, where, and when
- Confidence

Summarize Must Know

- Restate must know points
- Focus questions

Always begin and end with what you want remembered

BRIEFING CONTENT…

Briefing Content

- You will have more information than you can, or should, brief.
- Prioritize information.
- State what they need to know, no more.
- Focus on the what, not the why.
- Tailored for targeted customer base.
  - Water managers vs. EM/civil defense

Briefing Content

- Careful with worst case scenario (reasonable).
- Respect operational significance.
- Respect operational cycles.
- If everything's a threat, nothing's a threat.
- Limit text.
- Use implicit terms of uncertainty, not explicit.

…Worst Case…

THERE IS POTENTIAL FOR 4 TO 8 FEET OF SURGE ACROSS WESTERN…

IN A WORST CASE SCENARIO...WATER LEVELS OF 10 TO 11 FT ABOVE MSL ARE POSSIBLE.

Charts, Graphs, and Maps

Explain what it is

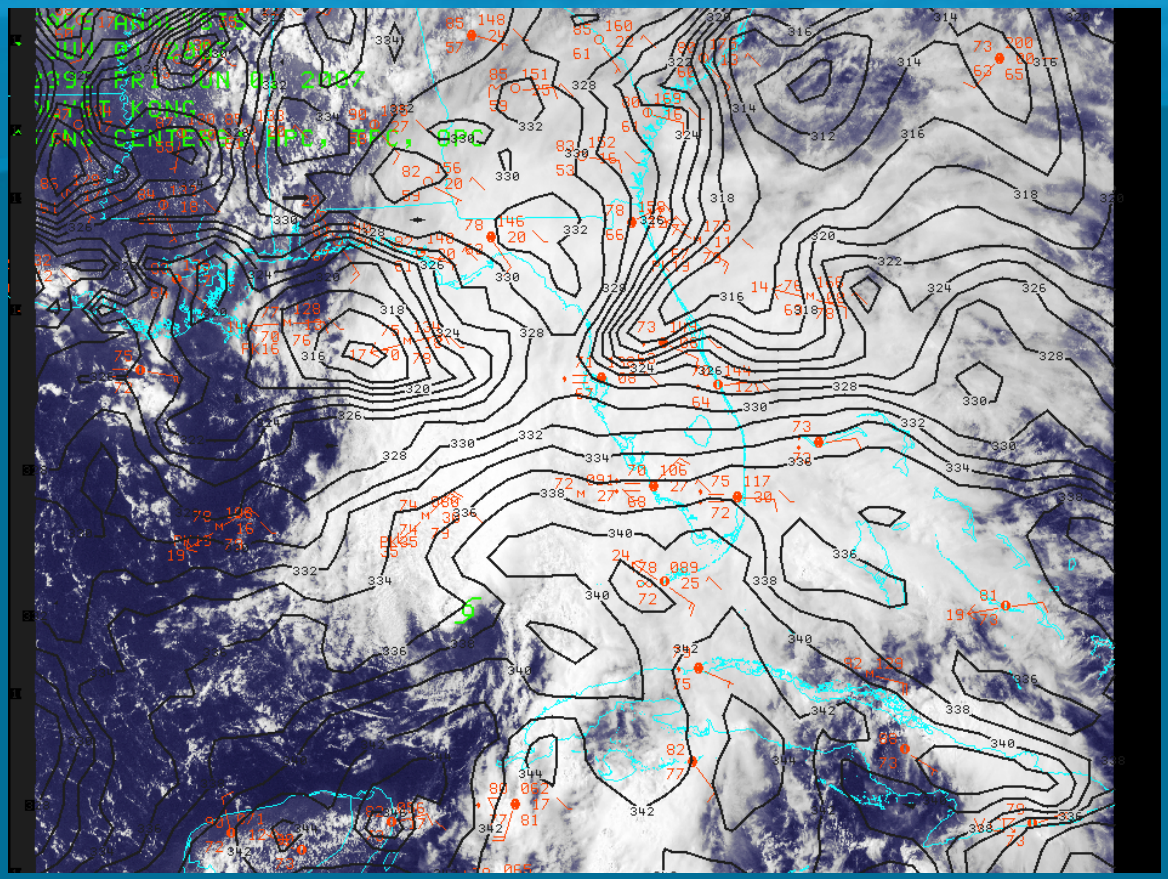
- Ordinate, abscissa, plot, symbols

Briefly describe region

- Point out a frame of reference

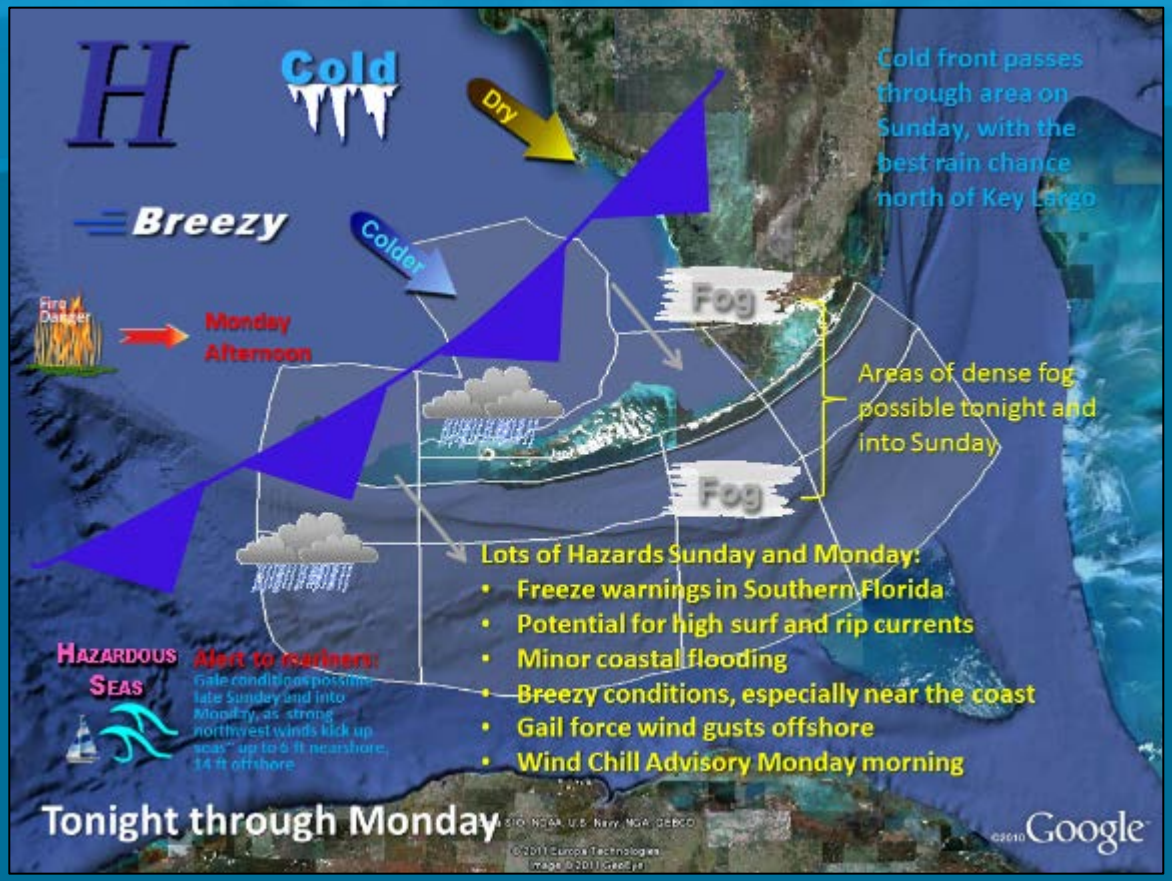
Reduce Noise

- If not discussed, don't include



Where's Waldo?

Point out reference points, explain what is on graphic…

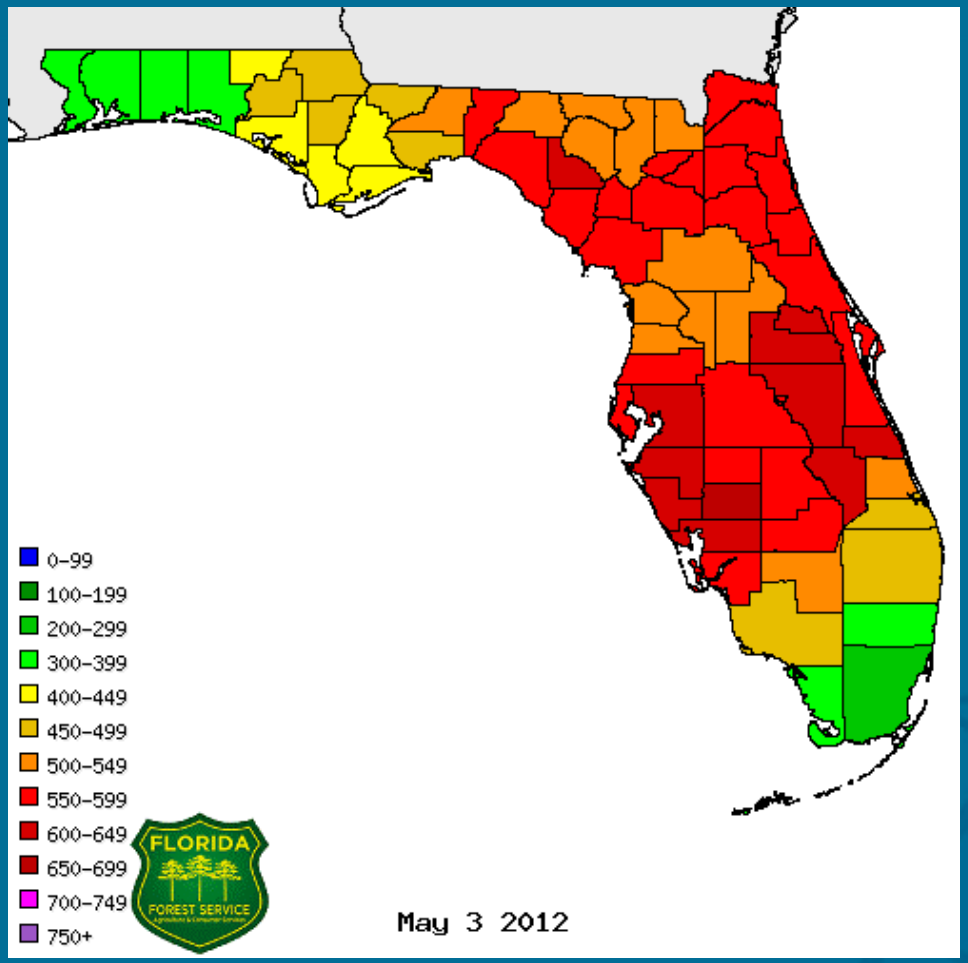


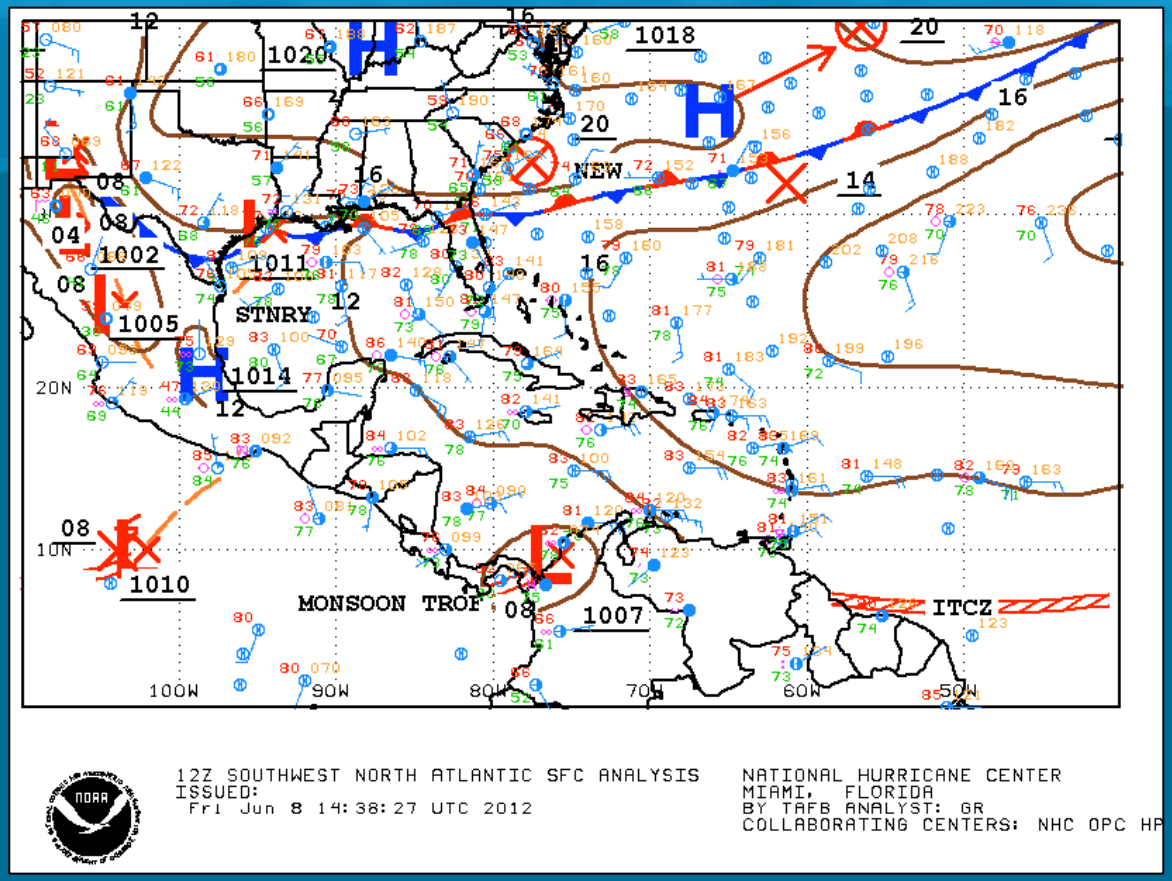
Use of Arrows

Meteorologists use arrows to show motion

Everyone else in the free world uses arrows to point at things

Red Is Bad
(keep it simple works)

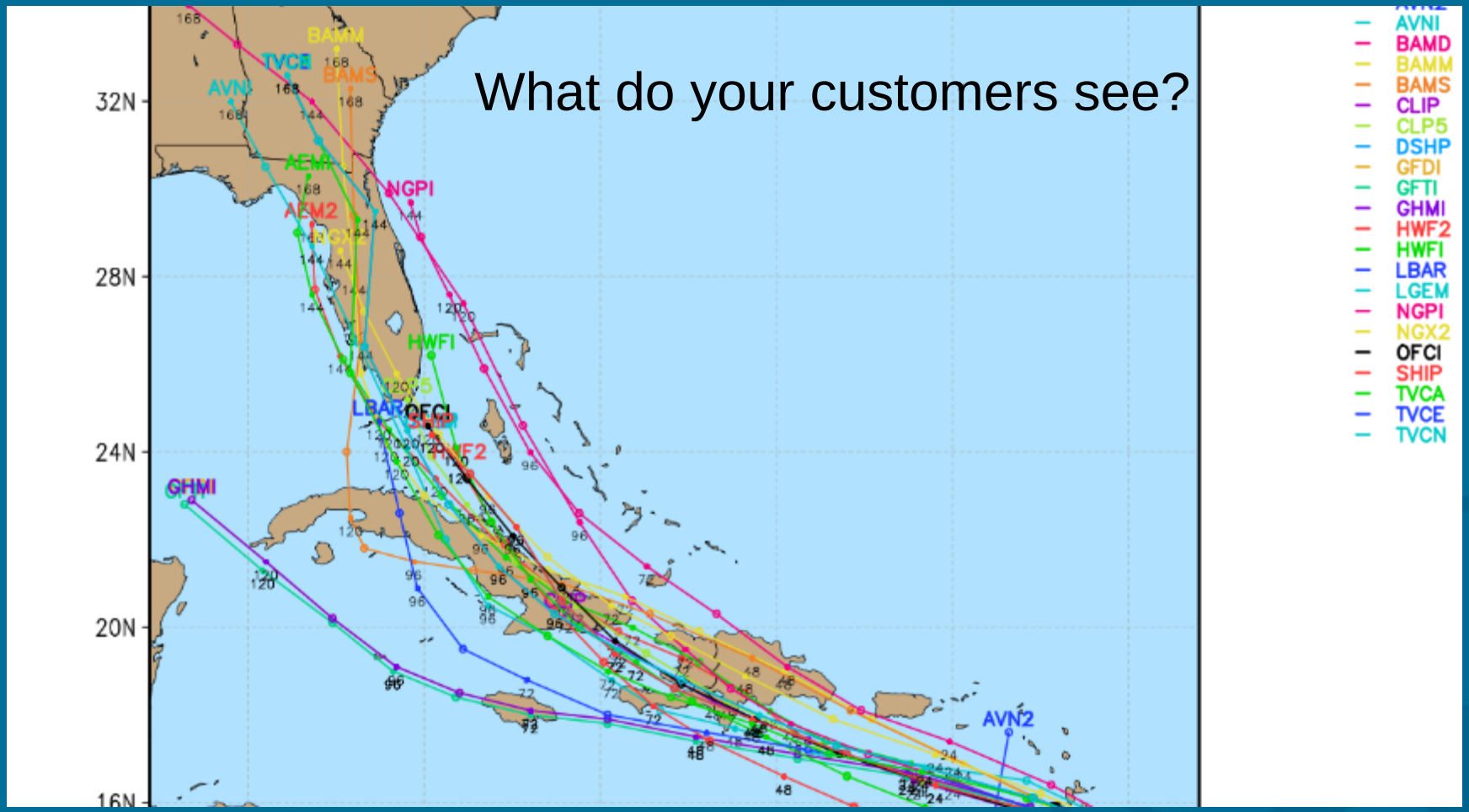




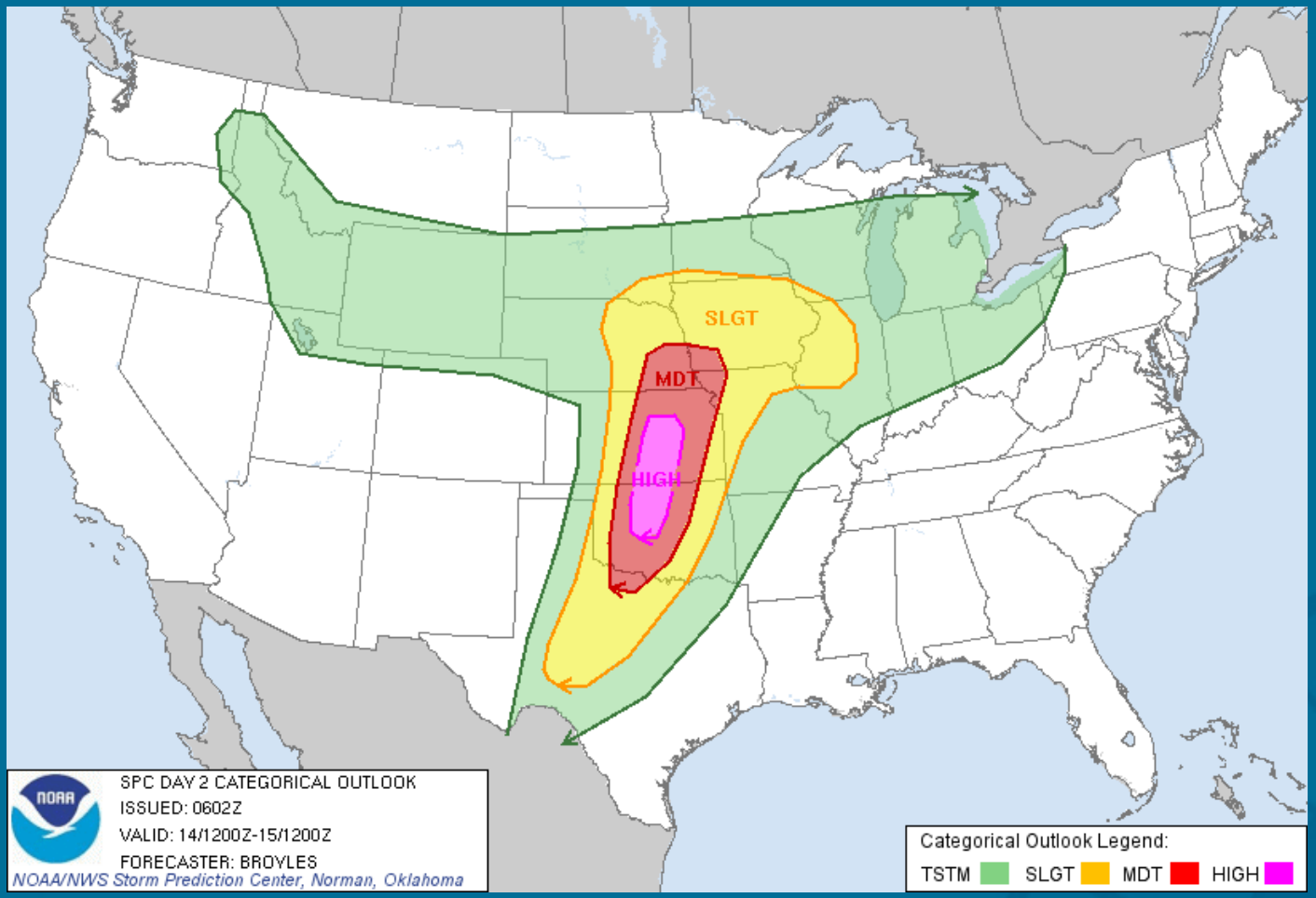
Meteorological Symbols

Only use with other meteorologists

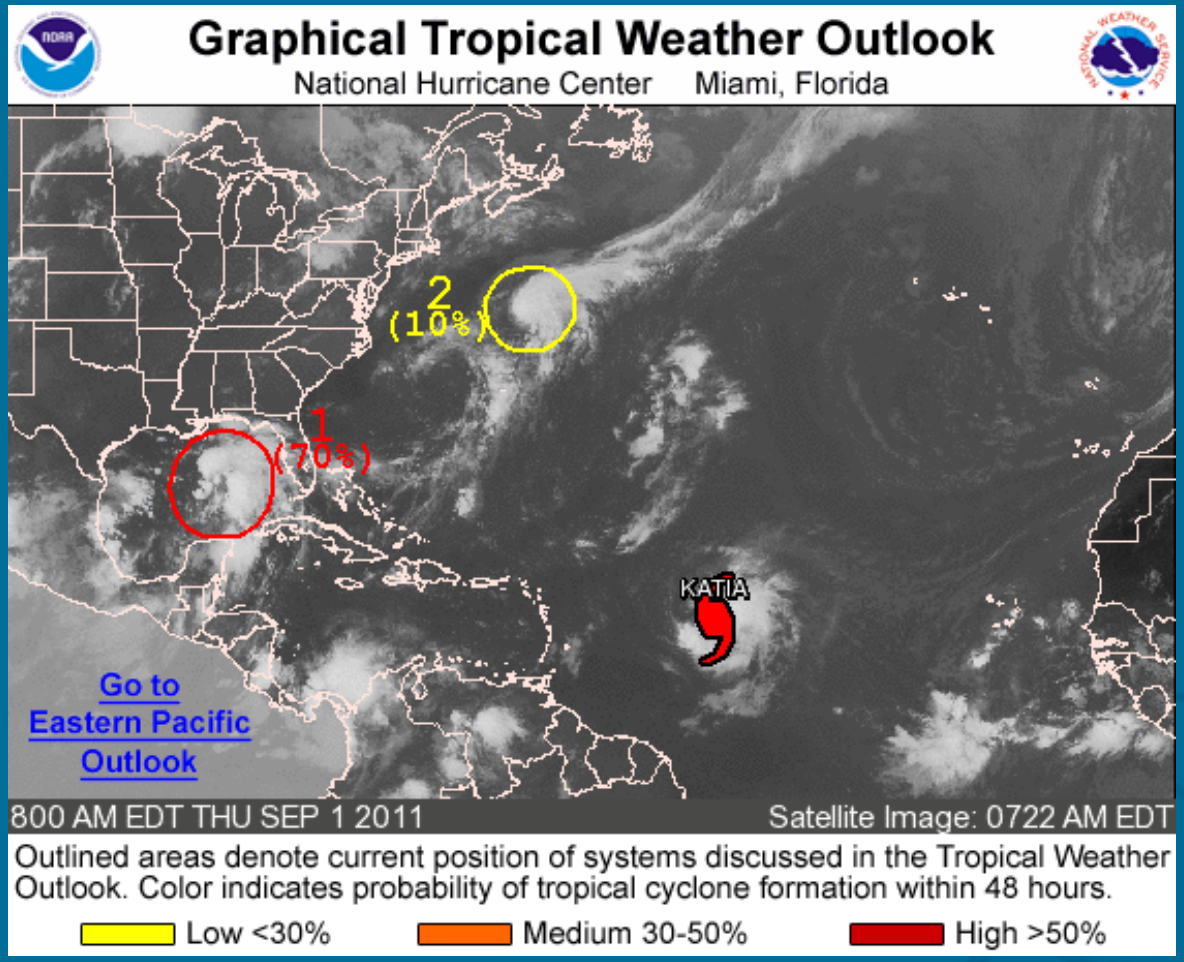
Graphics Content



The What, Not the Why!



Graphical Tropical Weather Outlook



BRIEFING PERFORMANCE…

Briefing Clarity

- Do not bury the lead
- Be nice and concise
- Sell what you have to say
- Be confident, calm, and assertive
- Speak like the audience is taking notes
- Anticipate questions and responses
- If you don’t have anything to say, don’t say it

Words Matter

Speak their language, not ours

- Words we don't say…
  - Vorticity, Helicity, Buoyancy, MEOW…
- Words we shouldn't say, but do…
  - Dewpoint, Trough, Ridge, Low, High…
- Words we should never say, but do…
  - **Eyewall replacement, well developed center**

Always be professional…

- Don’t be folksy, funny, critical, condescending, or sarcastic… (especially with media)
  - **None of these things translate well**
  - **Could lead to misunderstanding**
  - **Could distract from message**
  - **Be polite and try to stay on message**
- Be Patient…
  - **Your customer does not know what you know – and can become frustrated easily.**
  - **If the customer does not understand it is your challenge to explain in a manner the customer will understand.**

Things to Remember

- You are the expert. You are the authority.
  - The customer depends on what you say – and will take action.
- Prepare for your briefing.
  - Have bullet points or outline ready.
  - Do not use prepared text for a briefing. It will sound like you are reading.
  - Consider a one page executive summary you can handout/email
- Don’t forget the four essentials (what, where, when, conf)
- Again - be brief (thus the name).
  - Remember, they are likely receiving many briefings
  - The briefing will drive others actions.
- ***This is not about you –*** you are but one piece of information

Things to Remember

- Become experts in coordinated information
  - Network and coordinate with customers
  - Find their needs and concerns – brief accordingly
  - Understand and speak their language
- Stay within your expertise and authority
  - You are there to support decision, not make it
  - You are not Emergency Management Experts
  - You are not Social Science Experts
  - You are not Media Experts

“Tell me what I need to know, when I need to know it”

Skip Dugger, FDEM retired

…And

“Don’t tell me what you don’t know or unsure of. Tell me what you DO know and we’ll start from there.”

Gene Kranz
Flight Director
Apollo 13

Uncertainty

- Uncertainty is a part of meteorology
  - But shouldn't dominate the message
- Can be expressed in several ways:
  - Verbal expressions
    - Not very precise (implicit, not explicit)
  - Confidence range
    - Or range of values; spread increases as uncertainty increases (start conservatively)
  - Probability forecasts
    - Interpretation much easier; allows user to set thresholds

Benefits to communicating uncertainty

- Assist people in making more effective decisions
- Helps manage user expectations
- Promotes user confidence
- Reflects the state of the science

WMO Suggested Terminology

Terminology	Likelihood of the occurrence/outcome
Extremely Likely	> 99%
Very Likely	90 – 99%
Likely	70 – 89%
Probable – more likely than not	55 – 69%
Equally likely as not	45 – 54%
Possible – less likely than not	30 – 44%
Unlikely	10 – 29%
Very unlikely	1 – 9%
Extremely unlikely	< 1%

How do you build trust?

- Not by outlining why you could be wrong
- But by giving a range of possibilities
  - Here is our best estimate / what we do know
  - Here is what you should be planning for-- plausible (reasonable) worst case/alternate scenarios

Takeaway Points

- Briefings are to communicate information
- Briefings should be brief
- Keep within briefing structure
- Keep content simple to understand (graphics)
- Prioritize information
  - Be mindful of operational significance
  - Be mindful of planning cycles
- Be nice and concise