

# Mass Communications During Major Threats

COMUNICACIONES MASIVAS DURANTE  
AMENAZAS MAYORES

Bryan Norcross

13<sup>th</sup> International Hurricane Seminar

Merida, Mexico

March 5, 2018

# Communications Challenges

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- **Uncertainty** (la incertidumbre)
- **Odds** (las probabilidades)
- **Risk** (el riesgo)

# Communications Challenges

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- **Uncertainty** (plausible alternatives?)
- **Odds**
- **Risk**

# Communications Challenges

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# Communications Challenges

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- **Uncertainty** (plausible alternatives?)
- **Odds** (worst case odds are usually low)
- **Risk** (worst case risk is often very high)

# Communications Challenges

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- **Uncertainty**
- **Odds**
- **Risk**
- **Signal and Noise** (señal y ruido)

→ **Lead to a Go/No Go Decision**



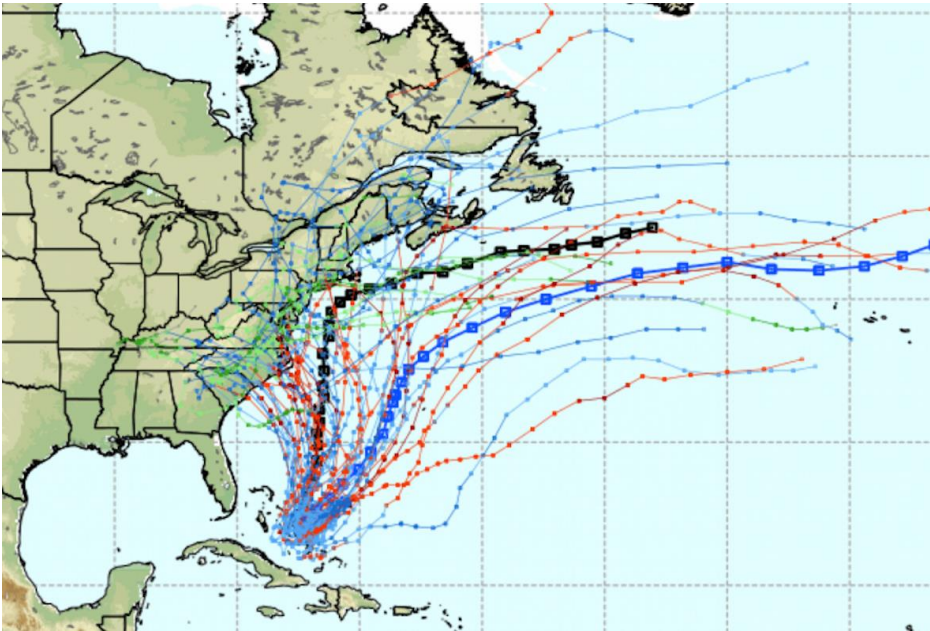
# Uncertainty (Hay alternativas plausibles?)

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Joaquin

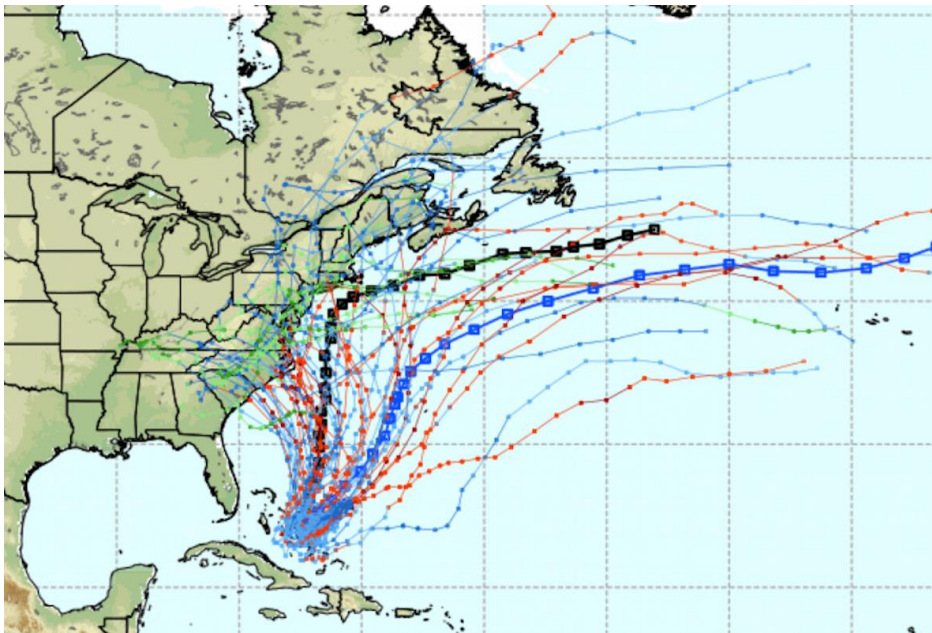




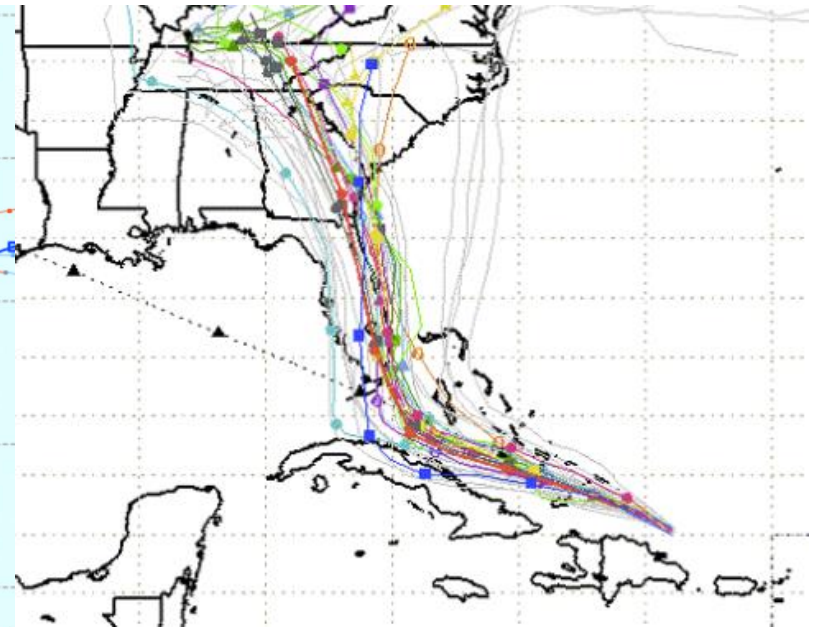
# Uncertainty (Hay alternativas plausibles?)

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## Joaquin



## Irma



# The Equation of Risk

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$$\text{ODDS} \times \text{CONSEQUENCES} = \text{RISK}$$



How likely  
is something  
really bad?



The bad  
things that  
can happen.

# Rule of Communicating RISK

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If the RISK is **unusually** HIGH,

The message must be  
**unusually** strong.



# Risk Communication

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First question:

Is the risk **unusually** HIGH?

Second question:

**Who** makes the call?

Who decides if the risk is high enough for action?

# The Probabilistic Paradox

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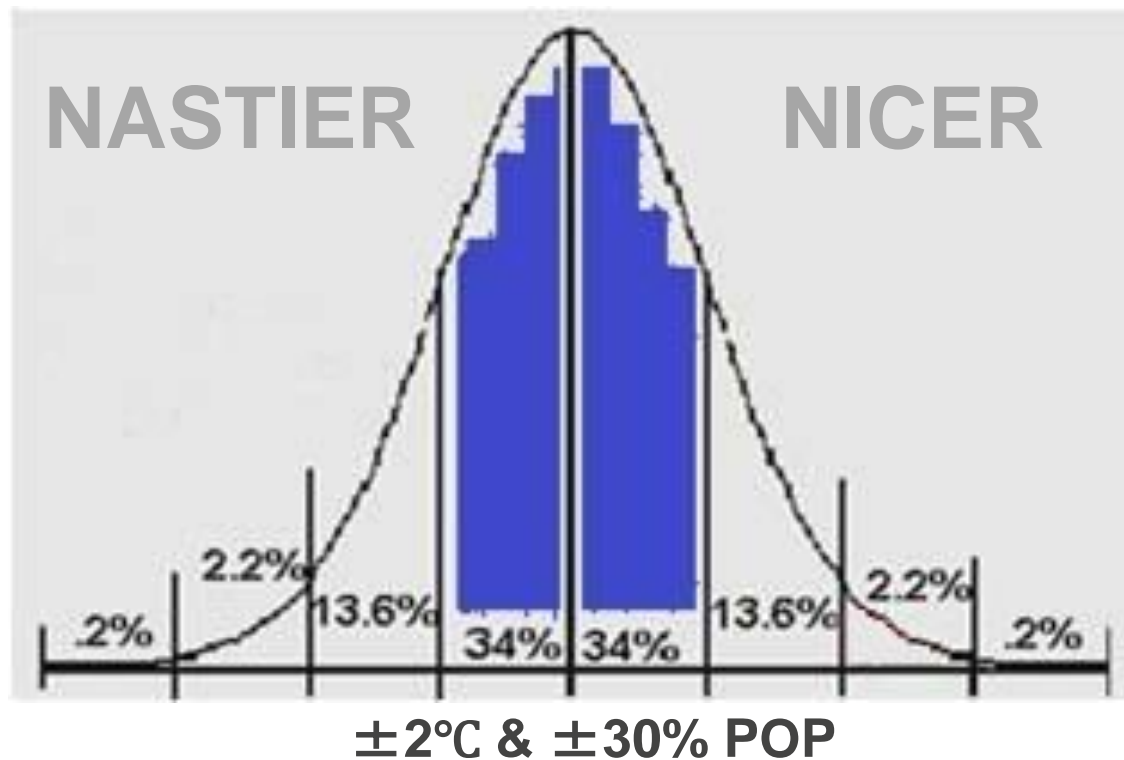
**Daily Weather Forecast**

**vs.**

**Extreme Event Forecast**

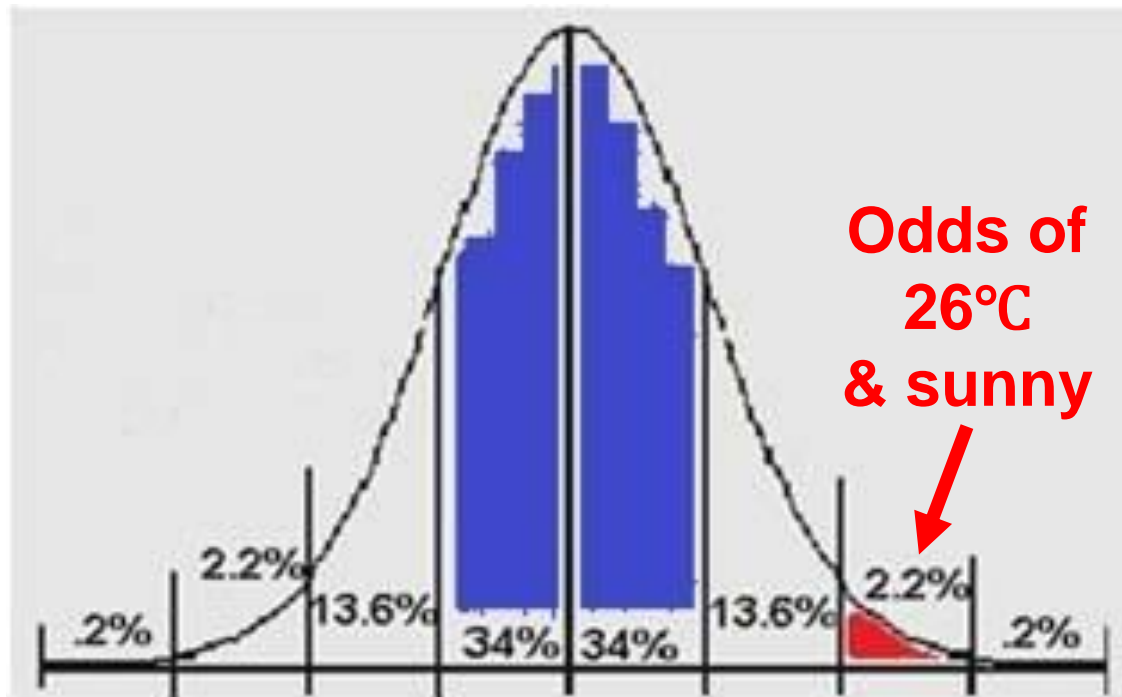
# Daily Weather Forecast

Forecast: 21°C with 70% Chance of Rain



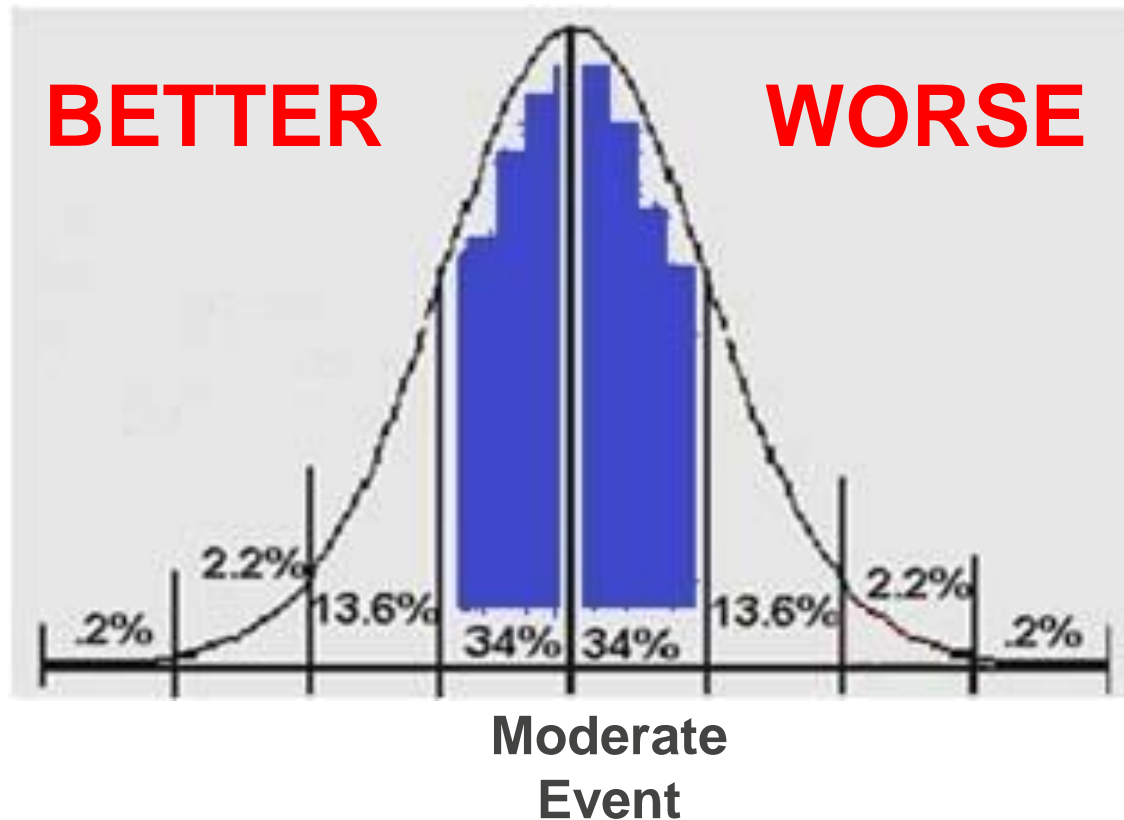
# Daily Weather Forecast

Forecast: 21°C with 70% Chance of Rain



# EXTREME EVENT Forecast

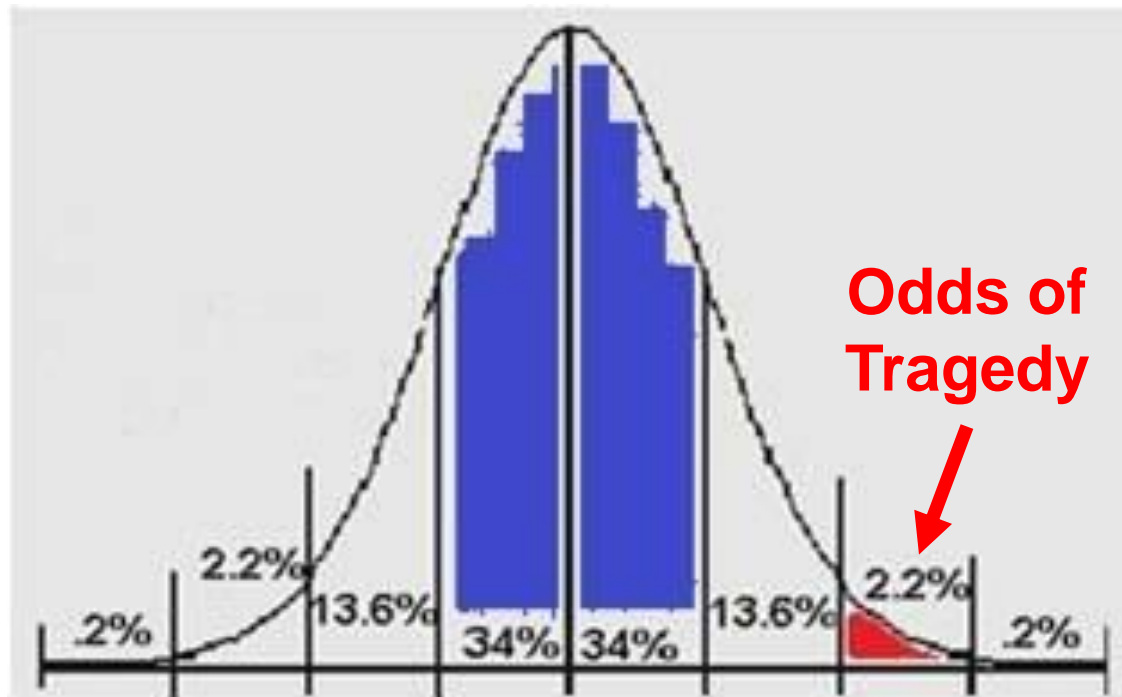
Forecast: A Manageable Event





# EXTREME EVENT Forecast

Impact at a specific location



# Daily Weather Forecast

Communicating with probabilities is adequate.



# Extreme Event Forecast

Communicating with probabilities does NOT provide sufficient knowledge for go/no-go decision.

A deterministic action statement is required.

Se requiere una declaración de acción determinista

**Who decides?**

ODDS & CONSEQUENCES

# Know the Consequences

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**Sepa las Consecuencias**

**2 ROADS NORTH**

**Metro Miami  
5.6 MILLION**

# 2 ROADS NORTH

# Metro Miami

## 5.6 MILLION

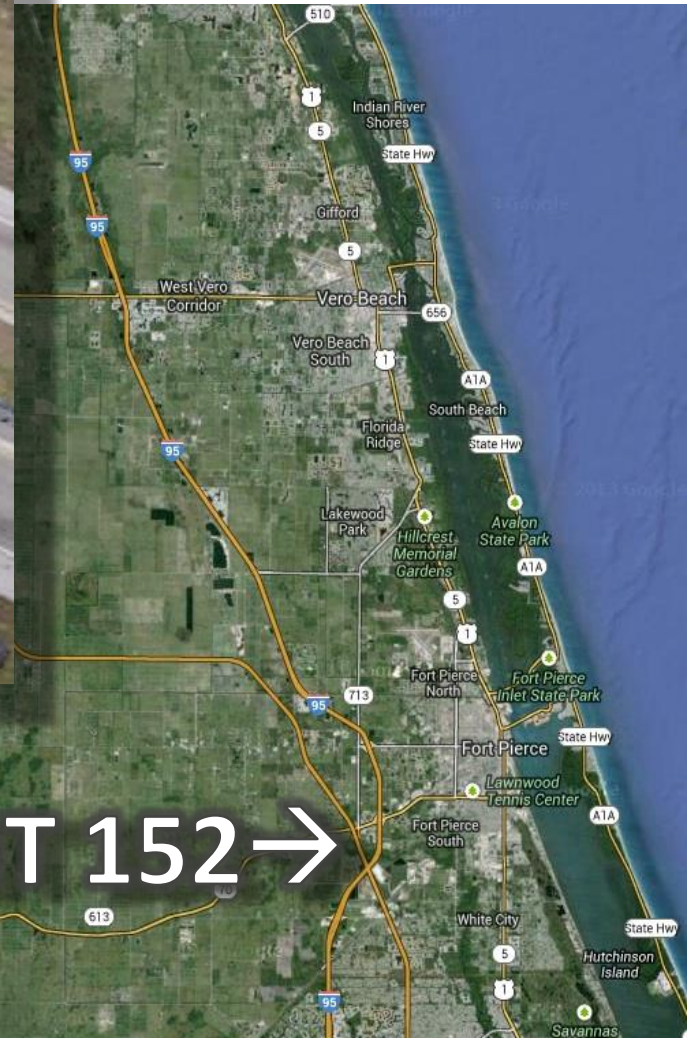


# Florida Turnpike – South of Orlando





# Accident During Evacuation





# How Many People?

**DISTANCE:**

**28 MI/45 KM**

**AVERAGE CAR:**

**15 FT/4.6 METERS**

**BETWEEN CARS:**

**6 FT/2 METERS**

**PER CAR:**

**3 PEOPLE**

**LANES:**

**2 (NO SHOULDER)**

**NO CONTRAFLOW**



# The Math

CARS PER KM: ~156

LENGTH OF ROAD: X 45

PEOPLE PER CAR: X 3

LANES: X 2

TOTAL PEOPLE: **42,000**



# SOLUTIONS



# Framework for Successful Communications

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## 1. Communications Timetable

Horario de comunicación que la publica sabe

## 2. Communications Philosophy

Filosofía de la comunicación

## 3. Unambiguous Language

Lenguaje que no es ambiguo

## 4. Unambiguous Message Format

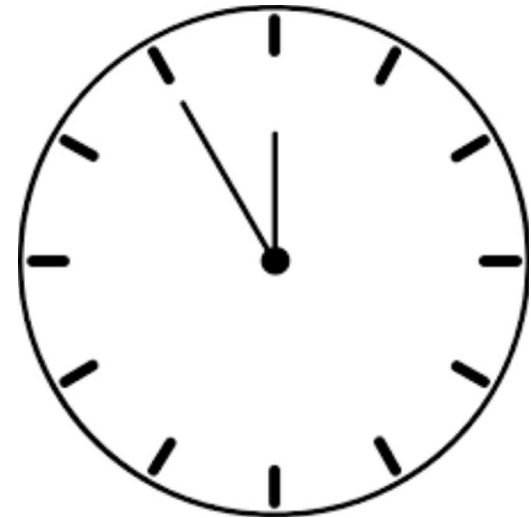
Formato de mensajes que no es ambiguo



# Communications Timetable

## *The Elements*

Su	Mo	Tu	We	Th	Fr	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30



# Communications Framework

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Allow sufficient time for  
***MENTAL*** preparation



As well as  
***PHYSICAL*** preparation

# Communications Framework

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1. Schedule for residents...  
...not the government



# Communications Framework

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1. Schedule for residents...  
...not the government
2. NO information leads to confusion



# Communications Framework

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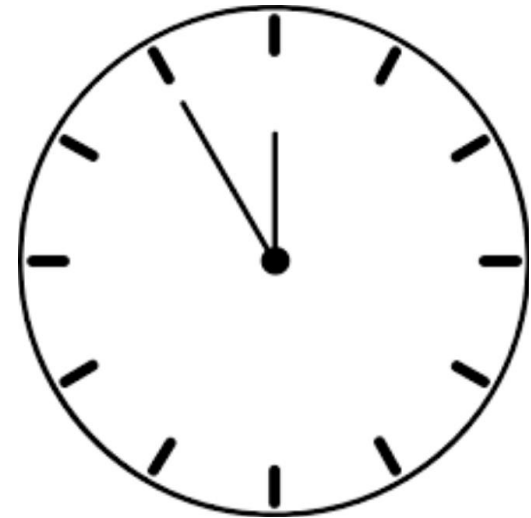
1. Schedule for residents...  
...not the government
2. NO information leads to confusion
3. Increased confidence  
from reliable schedule



# Timetable Example

## *Hurricane Sandy 2012*

Su	Mo	Tu	We	Th	Fr	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
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# Communications Timetable

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Mon-Wed: Threat is **POSSIBLE**

Thursday: Action is an **INCREASING POSSIBILITY**

Friday: Action is **LIKELY IF NO CHANGES**

Saturday: Event is **LIKELY** to occur

Sunday: Event is **IMMINENT**

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# Communications Philosophy

*Unspoken messaging*



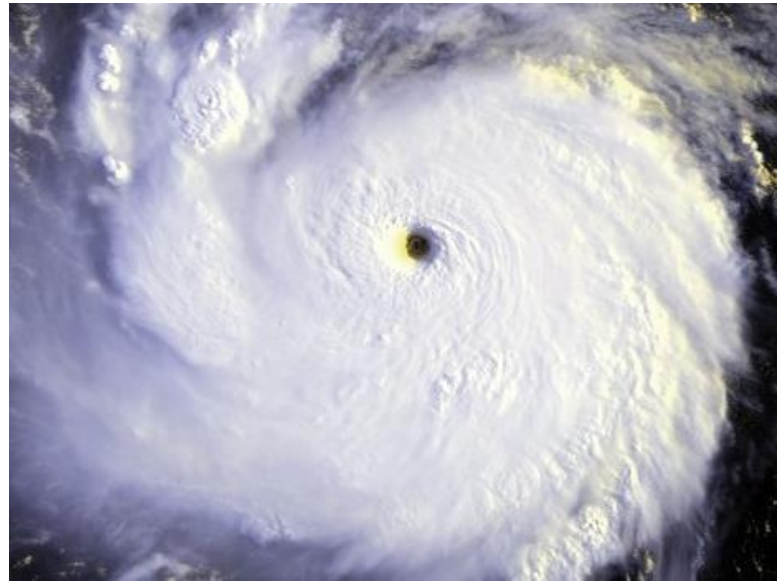
# Communications Philosophy

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1. *How to* **begin discussion of threat.**
2. *How to* **raise awareness without alarm.**
3. *How to* **end hopeful period.**
4. *How to* **give tangible guidance.**
5. *How to* **lead by example.**

# **How to Lead by Example**

*Hurricane Andrew 1992*



# Example: Hurricane Andrew - 1992

We evacuated our  
studio as an example to  
viewers and listeners



# Unambiguous Language

*Words matter*



# Unambiguous Language

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1. Do words have common-language meanings other than the official weather-alert meaning?

**\* Key words have common-language meaning which is different from weather-alert meaning.**

**WARNING**  
**WATCH**  
**ADVISORY**

**TROPICAL STORM**  
**TROPICAL CYCLONE**  
**MAJOR HURRICANE**

Example: “**WARNING**” has no intrinsic sense of urgency.



# Unambiguous Language

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1. Do words have common-language meanings other than the weather-alert meaning?
2. Can there be confusion caused by using the same alert words for various weather types?

Advisory = Bulletin [Hurricane Advisory]

Advisory = Low-level Warning [Winter Weather Advisory]

# Unambiguous Language

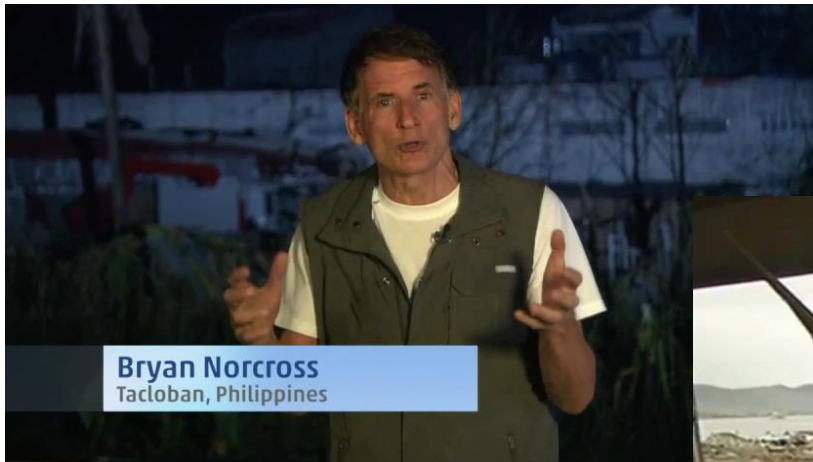
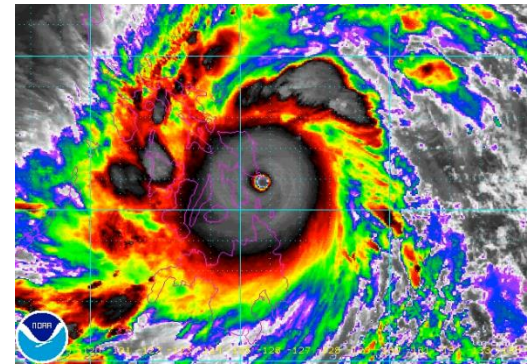
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1. Do words have common-language meanings other than the weather-alert meaning?
2. Can there be confusion caused by using the same alert words for various weather types?
3. How do you distinguish the daily threat from an extreme event beyond anyone's experience?

# Example:

## Philippines – Super Typhoon Haiyan

They use “Signals”  
From 1 to 4



# Unambiguous Message Format

*The medium is the...*



# Unambiguous Message Format

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**\* The medium (format) is the message.**



Marshall McLuhan  
1964

# Unambiguous Communications Delivery System

## \* The medium (format) is the message.

### Hurricane IRMA Discussion

ZCZC MIATCDAT1 ALL  
TTAA00 KNHC DDHHMM

Irma Discussion Number 35  
National Hurricane Center Miami FL AL112017  
Fri Thu Sep 07 2017

Irma continues to have an impressive satellite  
signature with a very distinct eye. There is not much more to add  
to current intensity except that numerous data from the Air  
Force reconnaissance plane indicate that the winds remain at 150

Comment along the future  
to maintain most of its  
strength are likely due to ey  
to predict. There are n  
a powerful major hurri  
g for Florida or its adj  
in the wind shear and th  
l weakening.

### Hurricane IRMA Forecast Advisory

ZCZC MIAPWSAT1 ALL  
TTAA00 KNHC DDHHMM

HURRICANE IRMA WIND SPEED PROBABILITIES NUMBER 31  
NWS NATIONAL HURRICANE CENTER MIAMI FL AL112017  
2100 UTC WED SEP 06 2017

AT 2100Z THE CENTER OF HURRICANE IRMA WAS LOCATED NEAR LATITUDE 18.8  
NORTH...LONGITUDE 65.4 WEST WITH MAXIMUM SUSTAINED WINDS NEAR 160  
KTS...185 MPH...295 KM/H.

Z INDICATES COORDINATED UNIVERSAL TIME (GREENWICH)  
ATLANTIC STANDARD TIME (AST)...SUBTRACT 4 HOURS FROM Z TIME  
EASTERN DAYLIGHT TIME (EDT)...SUBTRACT 4 HOURS FROM Z TIME  
CENTRAL DAYLIGHT TIME (CDT)...SUBTRACT 5 HOURS FROM Z TIME

WIND SPEED PROBABILITY TABLE FOR SPECIFIC LOCATIONS

CHANCES OF SUSTAINED (1-MINUTE AVERAGE) WIND SPEEDS OF AT LEAST  
...34 KT (39 MPH... 63 KM/H)...  
...50 KT (58 MPH... 93 KM/H)...  
...64 KT (74 MPH...119 KM/H)...  
FOR LOCATIONS AND TIME PERIODS DURING THE NEXT 5 DAYS

### Hurricane IRMA Public Advisory

ZCZC MIATCPAT1 ALL  
TTAA00 KNHC DDHHMM

BULLETIN  
Hurricane Irma Advisory Number 35  
NWS National Hurricane Center Miami FL AL112017  
500 PM EDT Thu Sep 07 2017

...EXTREMELY DANGEROUS HURRICANE IRMA VERY NEAR THE TURKS AND  
CAICOS ISLANDS AND HEADING FOR THE BAHAMAS...  
...HURRICANE CONDITIONS ARE EXPECTED ALONG PORTIONS OF THE NORTH  
COAST OF CUBA...

SUMMARY OF 500 PM EDT...2100 UTC...INFORMATION

-----  
LOCATION...20.9N 71.1W  
ABOUT 40 MI...65 KM S OF GRAND TURK ISLAND  
ABOUT 135 MI...220 KM E OF GREAT INAGUA ISLAND  
MAXIMUM SUSTAINED WINDS...175 MPH...280 KM/H  
PRESENT MOVEMENT...WNW OR 285 DEGREES AT 16 MPH...26 KM/H  
MINIMUM CENTRAL PRESSURE...922 MB...27.23 INCHES

WATCHES AND WARNINGS

-----  
CHANGES WITH THIS ADVISORY:

# Unambiguous Communications Delivery System

\* The medium (format) is the message.

## Hurricane IRMA Discussion

### Hurricane IRMA

ZCZC MIATCPAT1 ALL  
TTAA00 KNHC DDHMM

BULLETIN  
Hurricane Irma Advisory Number  
NWS National Hurricane Center  
500 PM EDT Thu Sep 07 2017

...EXTREMELY DANGEROUS HURRICANE  
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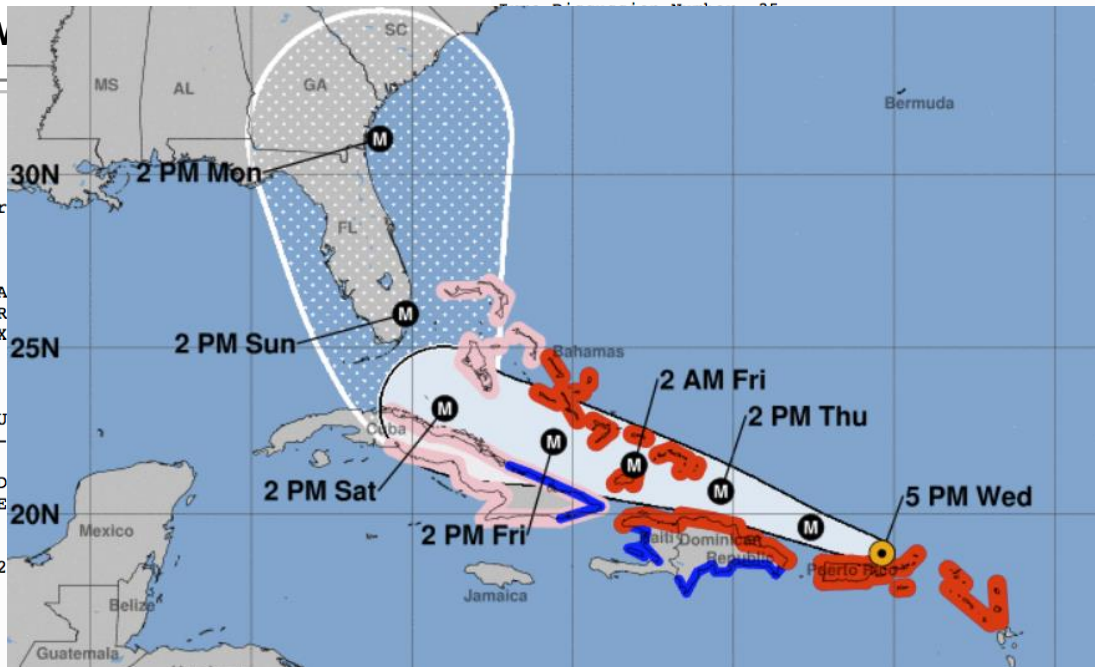
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ABOUT 40 MI...65 KM S OF GRAND  
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MAXIMUM SUSTAINED WINDS...175  
PRESENT MOVEMENT...WNW OR 285  
MINIMUM CENTRAL PRESSURE...922

WATCHES AND WARNINGS

CHANGES WITH THIS ADVISORY:

ZCZC MIATCDAT1 ALL  
TTAA00 KNHC DDHMM



### t Advisory

BER 31  
AL112017

LOCATED NEAR LATITUDE 18.8  
SUSTAINED WINDS NEAR 160

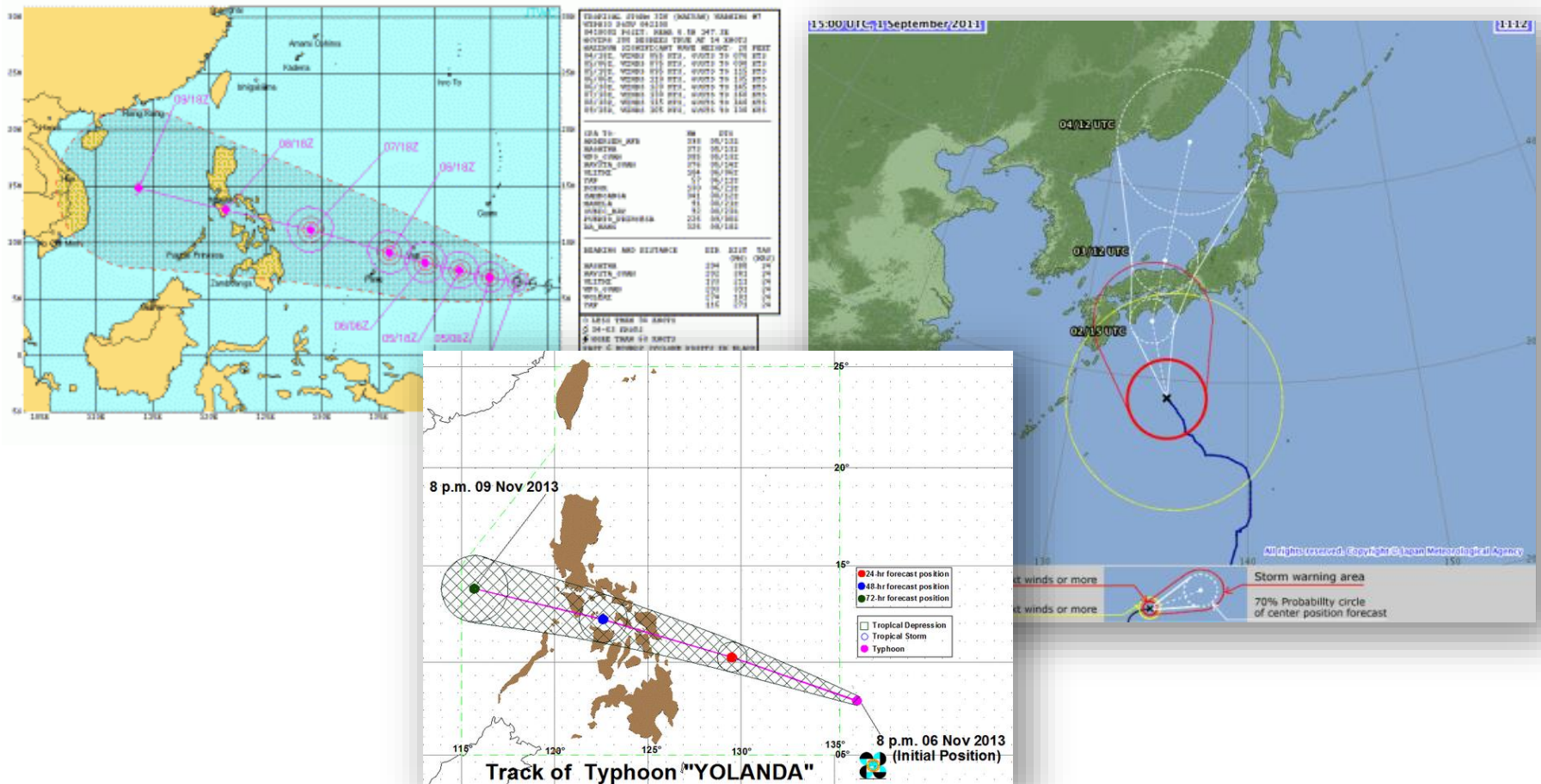
ENWICH)  
4 HOURS FROM Z TIME  
4 HOURS FROM Z TIME  
5 HOURS FROM Z TIME

LOCATIONS  
ID SPEEDS OF AT LEAST

TEXT 5 DAYS



# \* The medium (format) is the message.

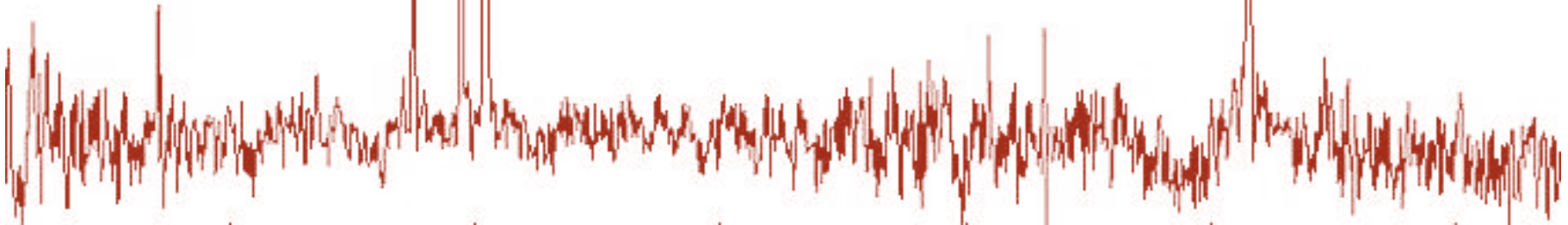
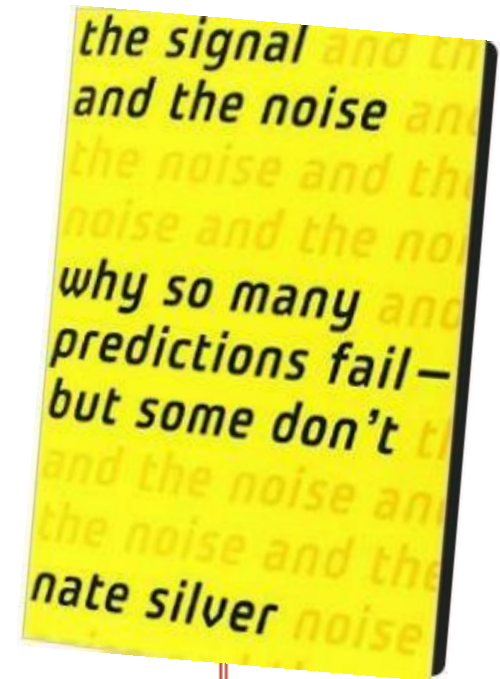




# The Signal and The Noise

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- How to make the message stand out from the noise?
- Too much information equals more noise
- Precision is the enemy of accuracy



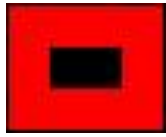
# The Bottom Line

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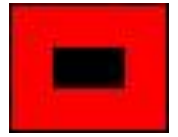
In the end a decision  
has to be made...



...to go or not to go.

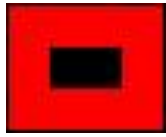


# For the Next Hurricane



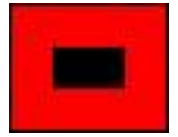
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## What's Better & Worse



# Things That Are BETTER

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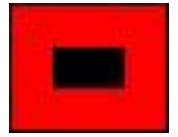


- ☒ Government organization
- ☒ Intra-government communications
- ☒ New buildings are stronger
- ☒ Track forecasts are much better



# Things That Are WORSE

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- ☑ Too much confidence in the forecast
- ☑ People don't have portable radios
- ☑ People don't have real landline phones
- ☑ There are few battery TV's in digital age
- ☑ Media is smaller and less capable
- ☑ Few credible voices in society

# Thank you.

## Bryan Norcross

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