



THE MAUREEN AND  
MIKE MANSFIELD FOUNDATION



**ICHARM**

International Centre for Water Hazard and Risk Management  
under the auspices of UNESCO

*“How are the weather agencies of Japan and the United States evolving in the face of increasing natural disasters”*

Ian Morrison  
Mansfield Fellow  
National Weather Service  
National Oceanic and Atmospheric Administration



THE MAUREEN AND  
MIKE MANSFIELD FOUNDATION

*Connecting People and Ideas to Advance Mutual Interests in U.S.-Asia Relations*

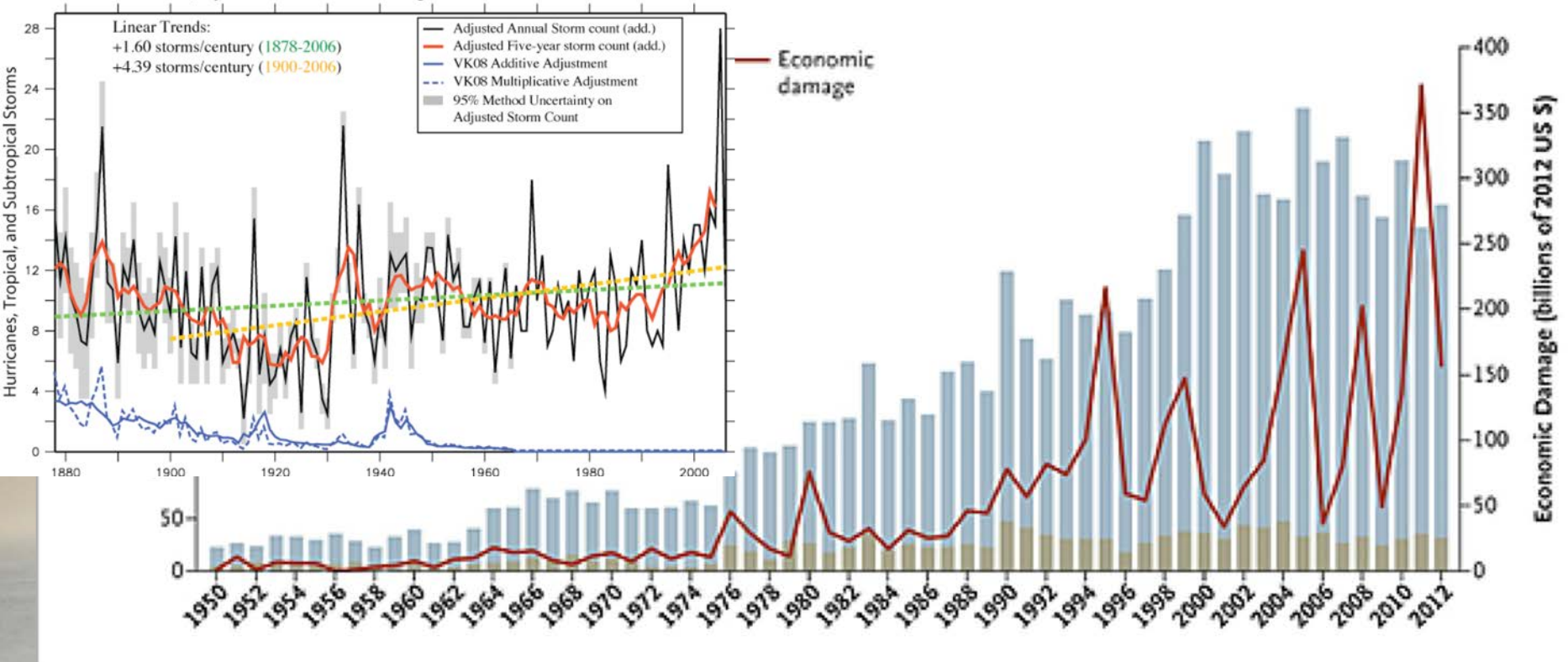
## 23rd Class of Mansfield Fellows

- 9 US Federal Government Employees
- One year in Japan. July 2018 - June 2019
- Working with Japanese Gov Agencies, Private Industry and a National Diet Member
- After the year, Fellows are resources for both the U.S. and Japan.
- Bridging the language and cultural gap between nations to understand differences, overcome challenges, and resolve issues.



# Increasing National Disasters due to increasing Flooding

Atlantic HURDAT Storms (Adjusted for Estimated Missing Storms) 1878-2006



*“The number of instances of **heavy rain has increased**, as well as the amount of precipitation. The frequency of short-period strong rain in which over 50 milliliters falls in the space of an hour has **increased by 1.4 times** since 30 years ago. Global warming lies behind it.” - Toshihiko Hashida, head of the Japan Meteorological Agency*

# What are the Weather and Hydrological Agencies doing to Combat Increasing Natural Disasters?

Common Goals:

- Education & Preparation
- Communication
- Improve the Science



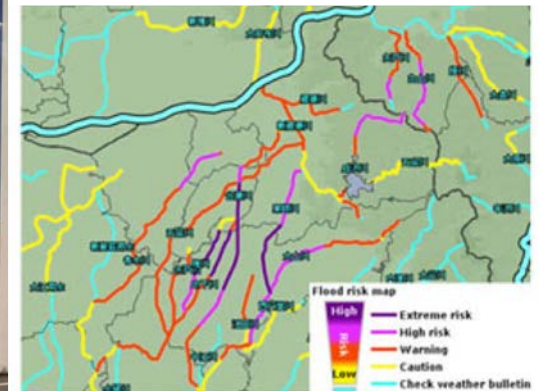
## Communication System for Early Warning and Evacuation Order to the People at Risk



# What are the Weather and Hydrological Agencies doing to Combat Increasing Natural Disasters?

## Common Goals:

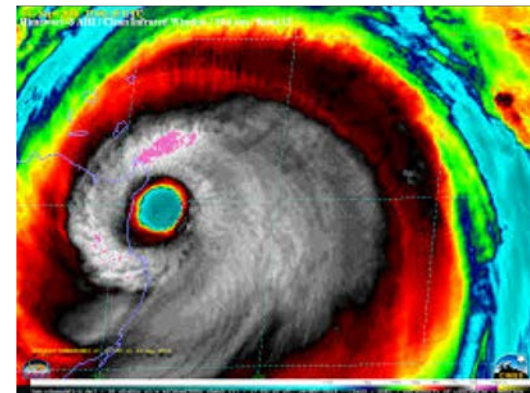
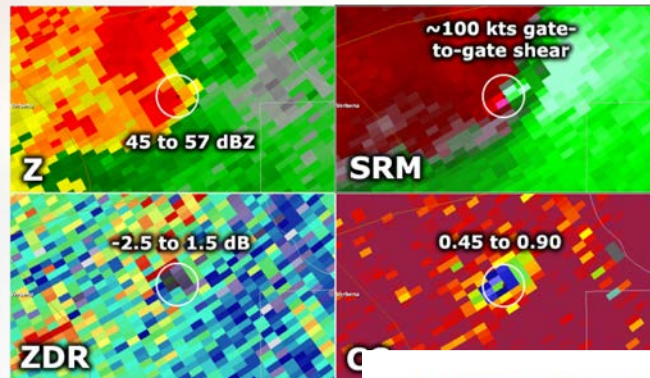
- Education & Preparation - readying communities for extreme weather, water, and climate events. The devastating impacts of extreme events can be reduced by taking advanced action.



# What are the Weather and Hydrological Agencies doing to Combat Increasing Natural Disasters?

## Common Goals:

- Improve the Science - New observation platforms from Satellite, radar, automated radiosonde launchers, weather model improvements - all combine to make more accurate forecasts of extreme events and more lead time for evac.

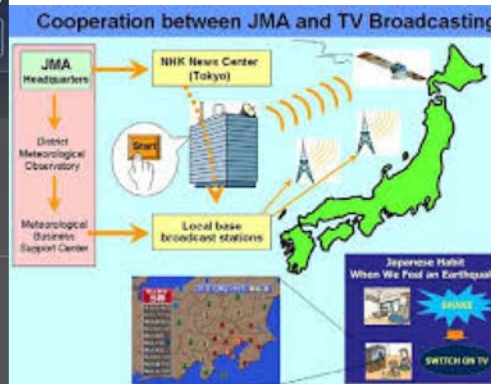


The Deepening  
of  
Disaster Science

# What are the Weather and Hydrological Agencies doing to Combat Increasing Natural Disasters?

## Common Goals:

- Evolving Communication - provide forecast information in a way that better supports emergency managers, first responders, government officials, businesses and the public. Help to make fast, smart decisions to save lives and property and enhance livelihoods.



# What are the Weather and Hydrological Agencies doing to Combat Increasing Natural Disasters?

## Common Goals:

- Social Research
  - How do we get people to evacuate when a threat is imminent?

*“There’s a recognition that what’s going on in people’s minds is as important as us getting the models right.” - Jennifer Marlon, environmental scientist, Yale University*

*“At least 200 people have been killed and millions have been evacuated from areas affected by landslides in western Japan.”*



# What have been the results so far?

## Impact-Based Decision Support Services (IDSS) at work

*2013 Snowstorm*



*2016 Snowstorm*



### *2017 Louisiana Tornado Outbreak*

*Accurate Warnings  
Strong Relationships with EM's  
Years of training*

***Results: 0 Deaths!!***

# What have been the results so far?

## Realizing the Full Value of Forecasts: Connecting Forecasts to Critical Decisions

**Generating  
forecasts  
and warnings**



**Forecast advice within a  
decision environment**  
*"Impact-based Decision Support Services"*



**Realizing Intrinsic  
Value and  
Mission Success**



**Develop  
relationships and  
know partner  
needs**



**Provide the best  
hydrological and  
meteorological  
forecasting**

**Explain  
uncertainty**



**Embed  
when  
needed**



**Support partner  
decision making  
before, during, and  
after events**



**Build trust**

# NWS Incident Meteorologist

- National Weather Service Incident Meteorologists (IMETs) are typically sent to remote locations in support of wildfires, national public events, and hazardous material incidents.
- During wildfire season, or when other incidents require localized weather information, IMETs can in a moment's notice, pack their bags, and quickly deploy to an incident command site.
- Once onsite, IMETs are key members of the incident command team and provide continuous meteorological support for the duration of the incident.
- IMETs help fire control specialists from federal, state and local agencies by interpreting weather information, assessing its impact on the fire, and helping develop strategies to best fight the fires, while keeping both firefighters and the general public safe.



# The job no longer ends with forecasts and warnings



*“First, it should be understood that forecasts possess no intrinsic value. They acquire value through their ability to influence the decisions made by users of the forecasts.”*

**Education, Preparation, Communication, Science**

Questions?

Arigatougozaimasu!

