



Adaptation Through Better Hazard Warnings: Aims of HIWeather

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Early Warnings as an Adaptation Mechanism



Resilience through adaptation

RISK

Climate Change (P)

Population (E)

Inequality (V)

Migration (V)

Dependency (V)

RESILIENCE

Understanding

Communities

Preparedness

Access to early warning systems, risk information and assessments

Safe, Resilient, Sustainable
Communities





HIWeather overview

Scope defined by a set of hazards...



Urban Flood:

Reducing mortality, morbidity, damage and disruption from flood inundation by intense rain, out-of-bank river flow, coastal wave & surge overtopping and from consequent urban landslides.

Disruptive Winter Weather:

Reducing mortality, morbidity, damage and disruption from snow, ice and fog to transport, power & communications infrastructure.



Wildfire:

Reducing mortality, morbidity, damage and disruption from wildfires & their smoke.

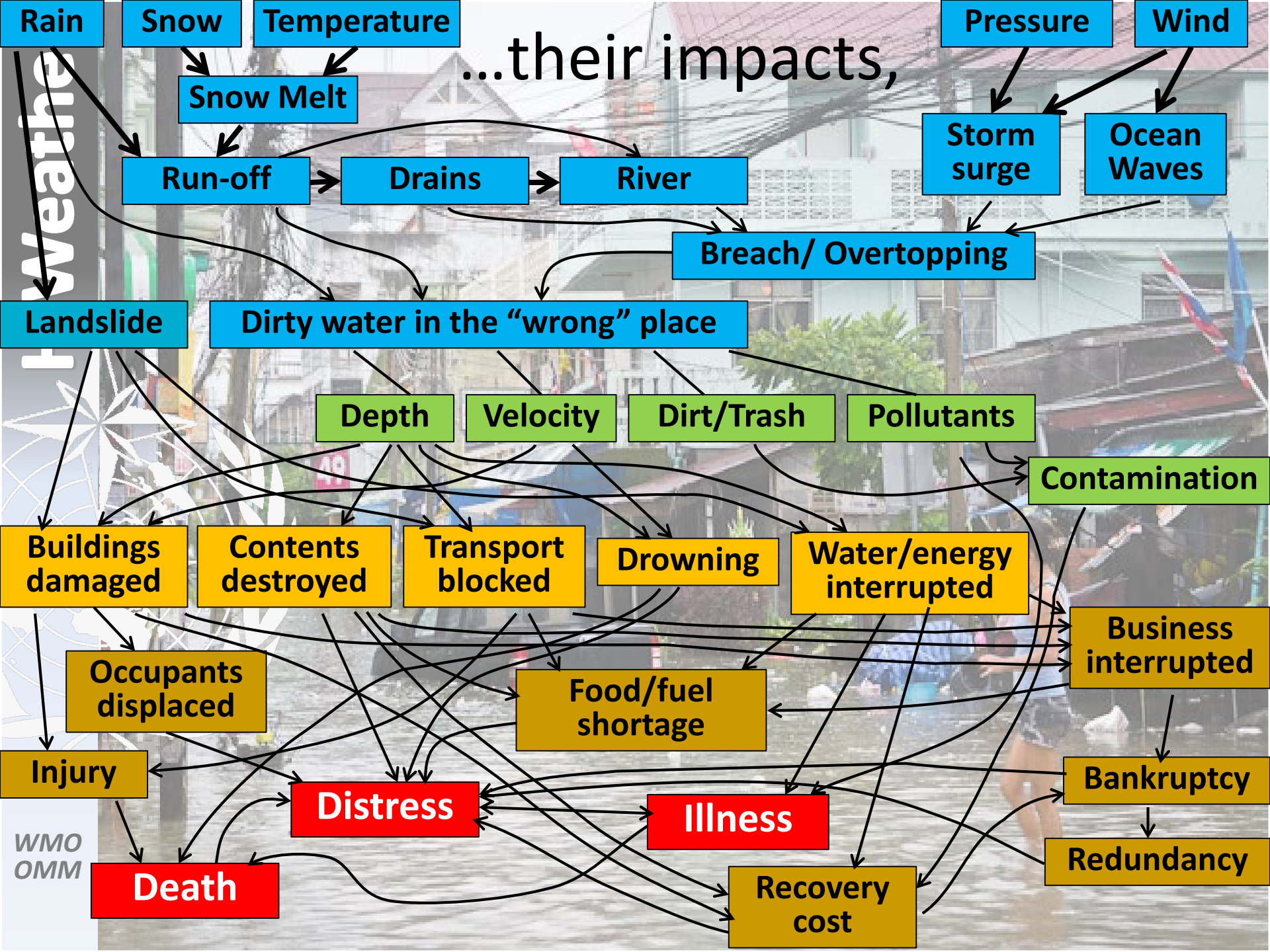
Urban Heat Waves & Air Pollution:

Reducing mortality, morbidity and disruption from extreme heat & pollution in the megacities of the developing and newly developed world.



Extreme Local Wind:

Reducing mortality, morbidity, damage and disruption from wind & wind blown debris in tropical & extra-tropical cyclones, downslope windstorms & convective storms, including tornadoes.



...decision makers

National Government
City/District Authorities
Emergency Managers
Fire & Rescue
Voluntary Response Sector
Infrastructure operators
Water, Energy, Telecomms operations managers
Public Services operations managers
Hospital & Ambulance operations managers
Land/Marine/Air Transport operations managers
Public event organisers
Sport organisers
Insurance Companies
Businesses
News Media
Public
...

Overview



Specific &
Technical



General

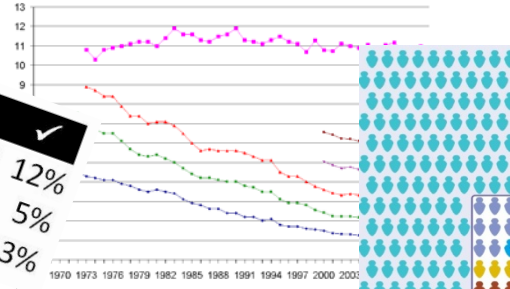
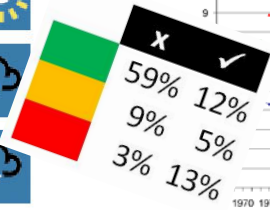
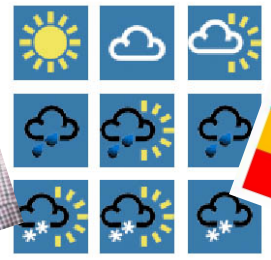
...who take mitigation actions,

Lead Time (major river & coast floods)													
-14d	-10d	-7d	-5d	-3d	-2d	-1d	-12h	0h	+12h	+1d	+5d	+14d	
Lead Time (flash floods)													
-5d	-3d	-2d	-1d	-12h	-6h	-3h	-1h	0h	+3h	+1d	+5d	+14d	
Routine & Enhanced Forecasting													
	Enhanced Monitoring												
		Flood Advisory Teleconferences											
		Staff Preparedness											
		Public Flood Awareness											
Empty Water Storage													
	Enhanced Maintenance												
		Temporary Defences											
		Controls											
Response Staff Deployment													
		Flood Warnings											
		Evacuation											
						Rescue							
										Refurbishment & Rebuilding			

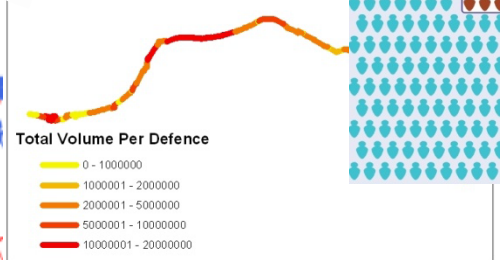
Key	
Ready: Monitoring & Planning	
Set: Preparation	
Go: Warning & Action	
Technical: On-site activities	



...the information they want



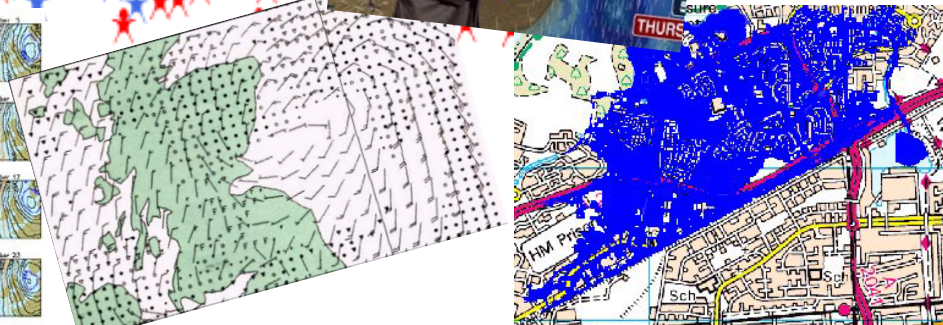
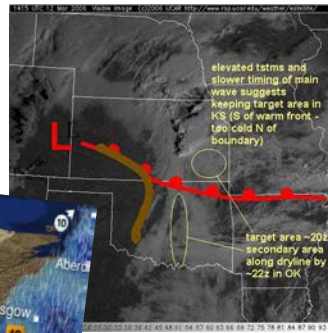
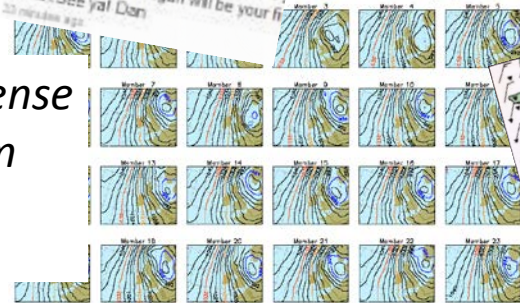
The Gulf coast of Florida
Outlook for days 3-5



A 10% chance of a shower



20% prob of intense rain within 30km between 1-2pm tomorrow



...and how it reaches them

Critical user

Trusted Advisor

Bespoke Briefing Pack

Supporting Products

General user

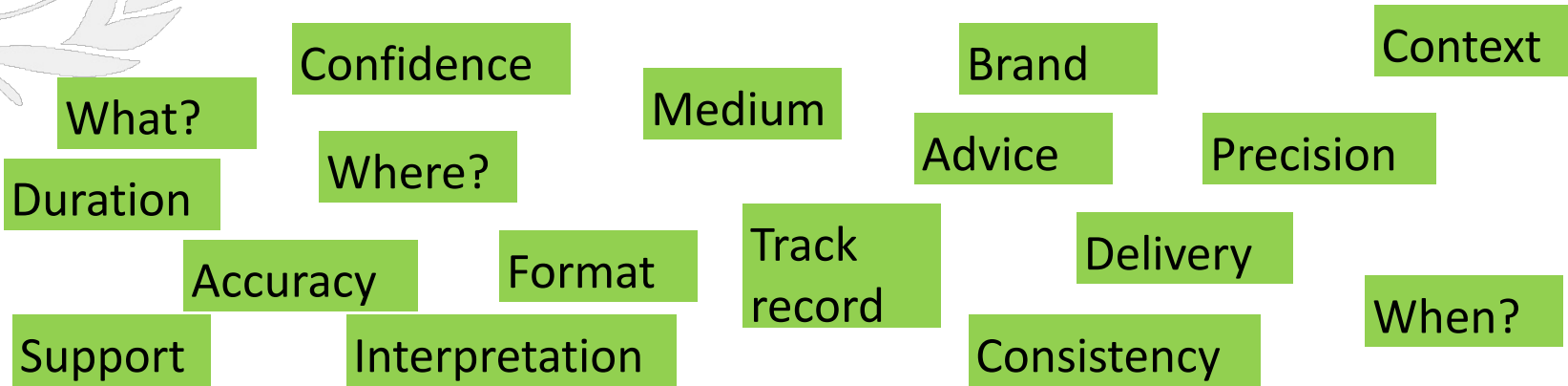
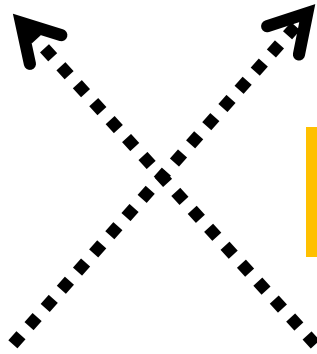
Trusted Products

Multiple Formats

Multiple Media

Multiple Sources

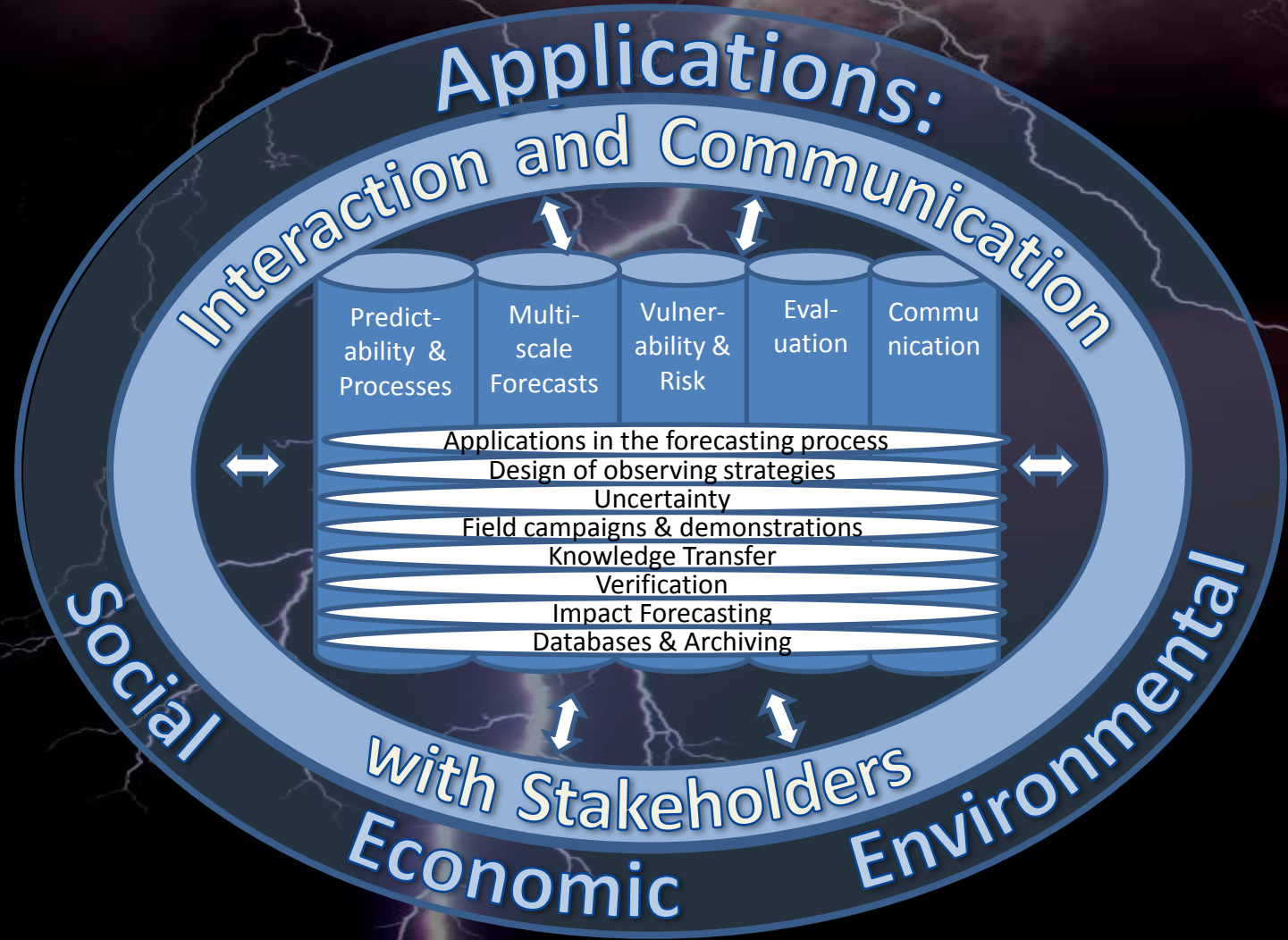
Supporting Products



Obstacles to effective mitigation...

- **not received** when, where & by whom required: media, format, lead time, preparedness
- **not understood**: format, content, language
- **not containing** required information: operational thresholds, impact information, vulnerability information, operational status, resolution
- **not believed**: track record, convergence, supporting evidence, confidence indication, training
- **not accurate**: model, initialisation, uncertainty model, coupling of hazard and impact models, resolution, observations, verification

...addressed by research in...





HIWeather

Areas of Mutual Interest



**WMO
OMM**

Research Links

- Processes & predictability: improving our models, supporting model interpretation
- Common hazards: understanding and modelling the impact chain
- Communication & response: understanding how people react to warnings and what can be done to help them make the right decisions
- Common stakeholders: NHMSs, emergency managers

HIWeather

Promote Co-Operative International Research

*to achieve a Dramatic Increase
in Resilience to High Impact Weather,
worldwide,*

*through Improving Forecasts for
timescales of minutes to two weeks,*

and Enhancing their Communication & Utility,

in Social, Economic & Environmental Applications

