



EGU2020-20225: Implementation of an Impact-based Forecast System in Barbados

Paul A. Kucera

UCAR/COMET

Boulder, Colorado USA

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What does it mean to implement Impact-Based Forecasting (IBF)?

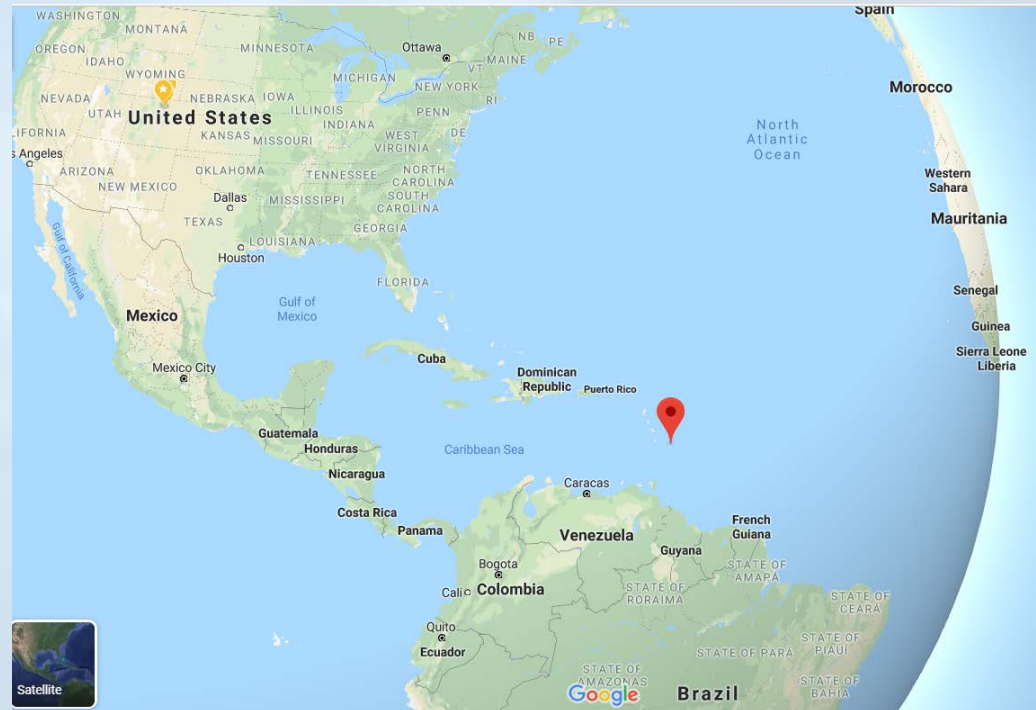
Impact-Based Forecasting:

- Adapt weather forecasting to include potential impacts
- Communicate impacts clearly to help stakeholders make smart decisions
- Engage local partners to inform communities of potential impacts to society



Barbados Impact-Based Forecasting (IBF) Project

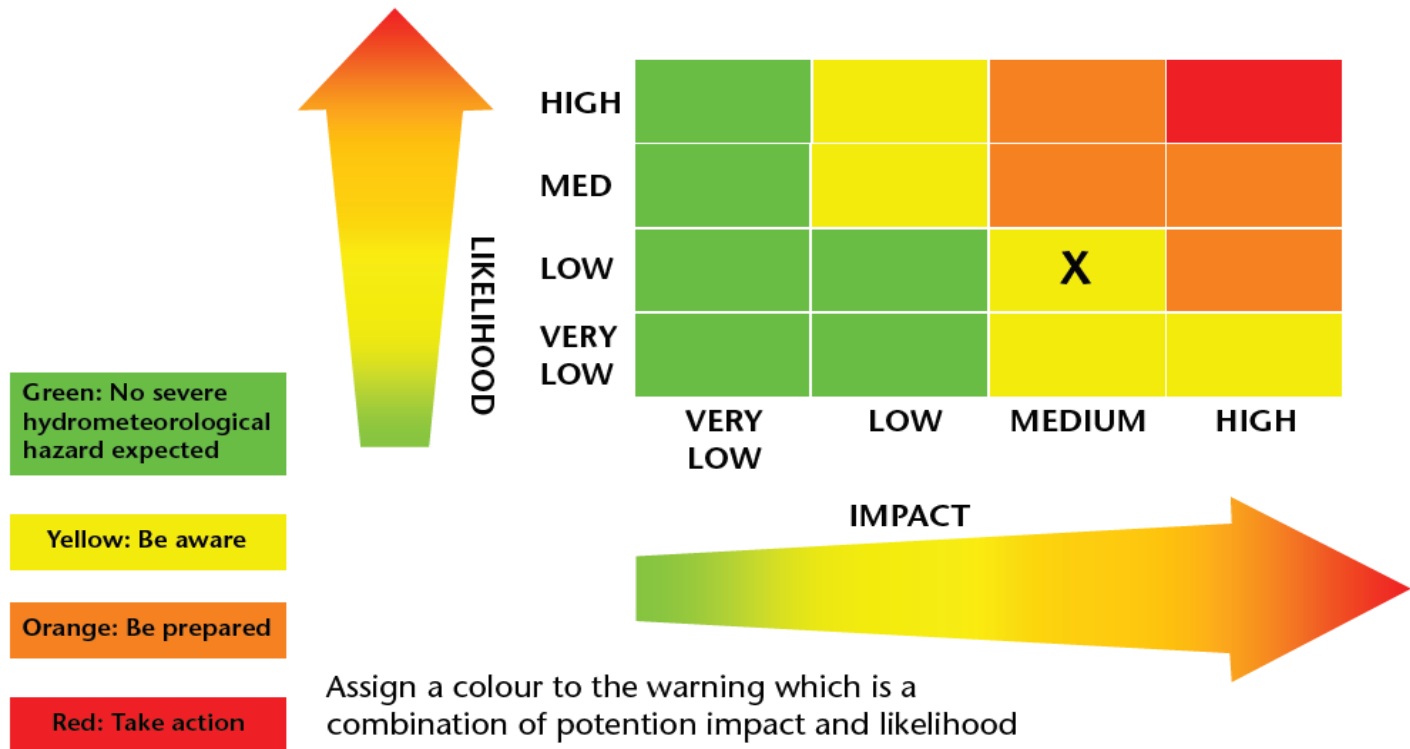
- **The island of Barbados is implementing an IBF system to warn on impacts including:**
 - High winds
 - Severe convection
 - Heavy rainfall events
 - Tropical cyclones
 - Drought



Implementing an IBF Risk Matrix into standard operating procedures

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WMO GUIDELINES ON MULTI-HAZARD IMPACT-BASED FORECAST AND WARNING SERVICES



(Source: Met Office, United Kingdom)

Figure 2. Risk matrix

Example Impact - Heavy Rainfall

	Minimal Impacts	Moderate Impacts	Significant Impacts	Severe Impacts
Transportation	<p>Wet roads and higher likelihood of accidents</p> <p>Localized disruption to traffic</p> <p>Limited impact to traffic signals</p>	<p>Localized pooling and flooding of roads</p> <p>Occasional accidents and associated disruptions; increased travel times</p> <p>Occasional traffic signal outage/flashing and traffic congestion</p> <p>Minor public transportation disruptions</p>	<p>Localized flooding and damage of roads with significant delays and disruption to traffic</p> <p>Accidents and associated Disruptions; increased travel times</p> <p>Frequent traffic signal outage/flashing; significant traffic congestion</p> <p>Significant disruptions to public transportations</p>	<p>Widespread flooding and damage of roads with dangerous driving conditions</p> <p>Multiple accidents and associated disruptions; increased travel times</p> <p>Most traffic signal outage/flashing – major traffic delays, accidents at intersections</p> <p>Most public transportation delayed or not operational</p>
Schools	<p>Minor disruption of school activities</p>	<p>Localized disruption of school activities</p>	<p>Regional closure of schools</p>	<p>All schools closed</p>
Landslides	<p>Isolated land slippage</p>	<p>Localized land slippage – limited debris flow on roads</p>	<p>Localized land slippage resulting in road closures and property damage – significant debris flow (rocks and trees)</p>	<p>Land slippage resulting in road closures and property damage and communities cut off</p>

Response

Very Low Risk: No Action	Medium Risk: Be Aware	Medium Risk: Be Prepared	High Risk: Take Action
<p>Monitor for changing weather conditions</p>	<p>Stay out of flood waters</p> <p>Evaluate inventory of emergency supplies (food, water, medical supplies); prepare to restock supplies at the beginning of season</p> <p>Be aware of localized flooding of roads and properties in [...locations...]. Impacts include occasional accidents, associated disruptions, increased travel times, land slippages could block roads.</p> <p>Be aware for possible traffic delays due to signal outages</p> <p>Be aware for possible delays in public transportation</p> <p>Be aware for possible localized flooding water course over flood prone areas</p> <p>Be aware for prepare for possible school closure</p>	<p>Stay out of flood waters</p> <p>Check emergency supplies, purchase additional supplies if needed, fill gas tanks, etc.</p> <p>Be prepared for localized flooding of roads and properties in [...locations...]. Impacts include accidents, associated disruptions, increased travel times, land slippages could block roads.</p> <p>Prepare for traffic delays due to signal outages</p> <p>Prepare for possible delays or cancellation of public transportation routes</p> <p>Prepare for localized flooding in low-lying, flood prone areas</p> <p>Prepare for localized land slippage, debris flow and possible road closures</p> <p>Ensure drains are cleared.</p>	<p>Stay out of flood waters</p> <p>Prepare to use emergency supplies, acquire additional supplies if possible, fill gas tanks, preposition food and emergency supplies for post Event</p> <p>Avoid walking or driving through moving water</p> <p>Seek safer/higher ground if in [...locations...].</p> <p>Monitor for changing weather conditions</p> <p>Call emergency services if Impacted.</p> <p>Stay off roads especially in flood prone areas, streets with traffic signals, or areas with frequent land slippage/landslides</p> <p>Plan to shelter in place in non-flood areas or take public</p>

Barbados Impact-Based Forecasting (IBF) Summary

- **Barbados has implemented an IBF system using the following methodology:**
 - Identifying the hazards, impacts, risks through stakeholder workshops
 - Developing new standard operating procedures
 - Adapting forecasting tools
 - Training of stakeholders
 - Testing and evaluation of the IBF system
 - Public outreach
- **The system was expected to be operational in June 2020***

*Pre-Covid-19