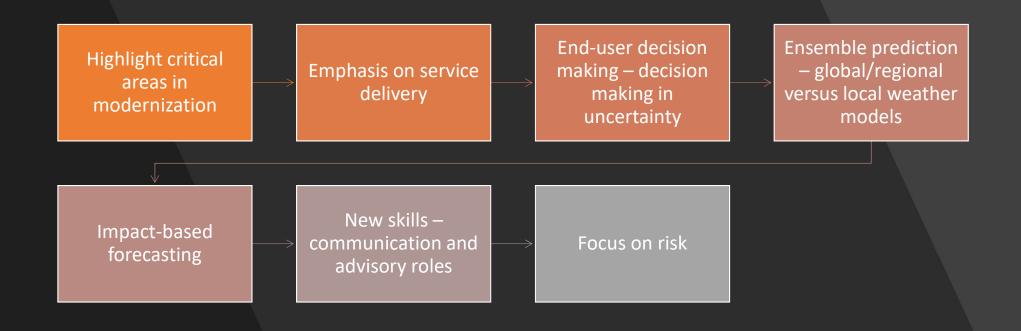
GFDRR Training Exercise

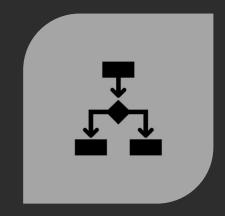
Purpose



What are we doing?



A REAL-WORLD HAZARDOUS SITUATION TO DEMONSTRATE END-TO-END FORECASTING, WARNING AND RESPONSE PROCESS



AUDIENCE ARE THE DECISION-MAKERS

The scene

NMHS

DMC - civil protection

Dam Operators

Fishing Community leaders

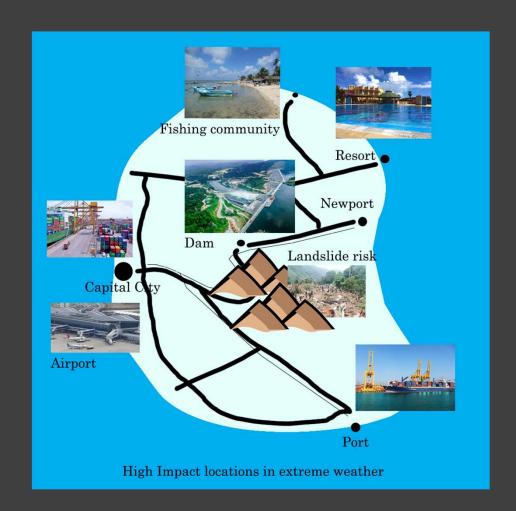
Mountain community

Public transport - Road and Rail Operators

Port Operators

Airport operators

Resort managers



Dam Operators

- The dams in the north of the country are normally maintained at about 95% capacity due to risk of long-term agricultural drought, which is often manifest towards the end of the growing season.
- At these water levels, it takes a minimum of three days to draw down the stored water to avoid emergency release of water during a heavy rain event.
- Emergency release of water causes extensive downstream flooding and will result in crop losses if this occurs at the beginning of the rice growing season.
- Standard operating procedures are to retain water in the dams

Community Leaders

- The vulnerability of all communities has been mapped and its community leaders are well prepared to take action. The communities most vulnerable to flooding and/or landslides are accessible by single lane roads and bridges, which cross minor tributaries of the rivers.
- Not everyone has access to public transport or private vehicles.
- Evacuation of these communities to flood and landslide protected sites takes a minimum of twenty-four hours, longer in the case of the elderly and infirm.
- Public transport can be requisitioned with sufficient notice to the operators.

Public Transport – Road and Rail Operators

- There are extensive road and rail networks, which connect all of the island's communities.
 Public transport consists primarily of buses and passenger trains.
- Both road and rail and the infrastructure that supports them is easily disrupted by relatively minor floods and in the central highlands by landslides.
- If the road or rail network is used to evacuate people, it must be done before any flooding occurs. With advanced warning, civil protection will close the most vulnerable roads to reduce the risk of casualties.

Port and Airport Operators

- The port authority operates a large number of heavy lift cranes in its container port. These cranes are vulnerable to lightning strikes and high winds. It is important to maximize the up-time of the port operations, while tolerating no harm to crane operators and other port workers. This also affects ship scheduling.
- Similarly, the airports are vulnerable to weather extremes. Minimizing delays without compromising safety is essential. Alternate airports are two-hours flying time from island. Therefore, all despatchers need timely information to manage on route delays.
- This is normally handled by a private weather service provider, which is dependent on actions taken by the local airport authority, which in turn depends on the national weather service to provide forecasts.

Fishing Community Leaders

- Fishing communities in the past have been devastated by severe weather with many fishers losing their lives at sea. However, since their livelihoods depend on daily fishing, they are reluctant to stay ashore even when they receive a severe weather forecast.
- Community leaders are encouraged to contact fishers to communicate warnings to minimize the threat their lives. Since most fishers set out in the middle of the night and they have no means of communicating while at sea, forecasts must be early enough to inform them while still ashore.
- Work still needs to be done to provide a safety net for this community.

Resort Managers

- The resort can accommodate 5000 people and is planned to be fully occupied. Transporting people to and from the resort depends on road transport.
- The resort can provide low vulnerability shelter for up to 2000 people and food for the same for up to 4 days in the event that supplies are cut off.
- The majority of tourists will arrive on package holidays over a two-day period.

Civil Protection Officials

- Civil protection requires early alerting of potential threats and identification of the key areas likely to be impacted.
- The aim is to preposition first-responders, support early evacuation of people and to be positioned ready to respond early to a potential disaster.

The team



Alice – weather forecaster



Haleh – public weather service advisor



David – DMC manager

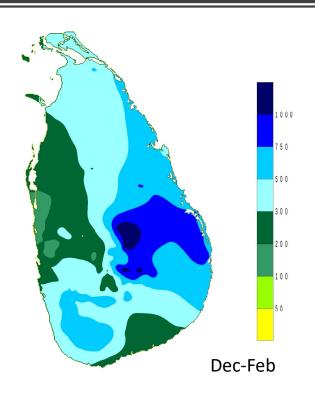


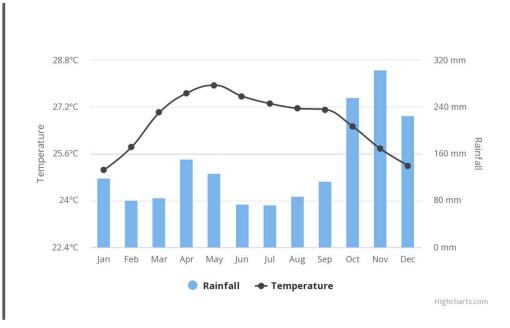
Everyone – Decision makers

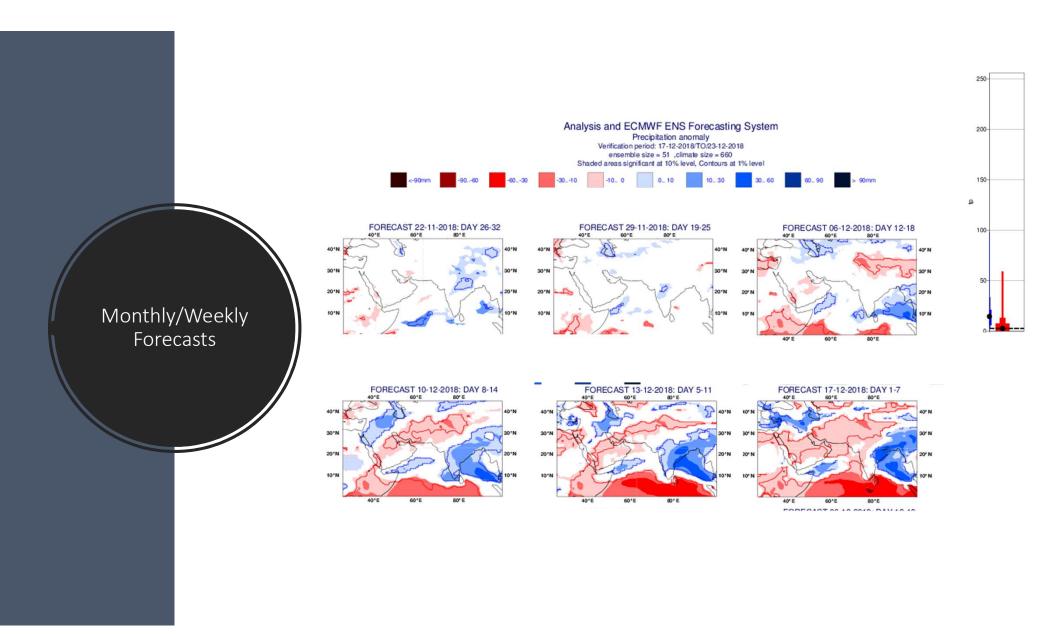


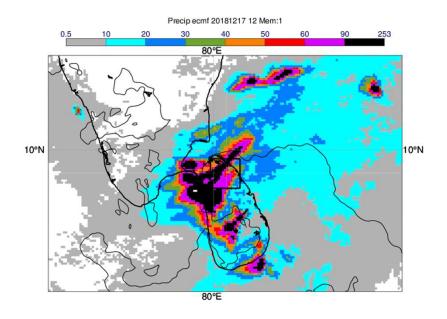
The weather discussion

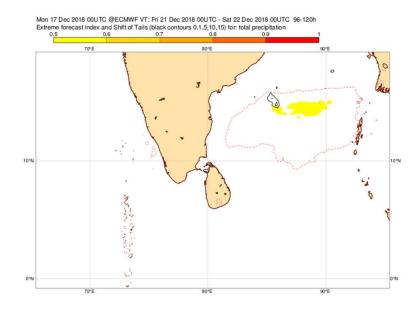
Climatology



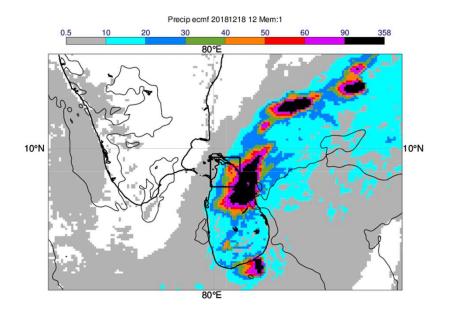


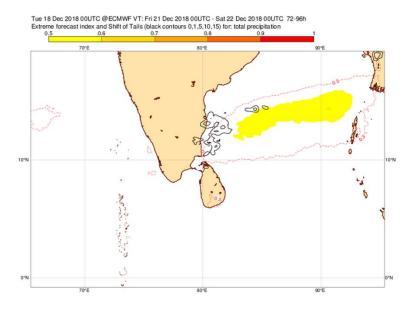






24-hour accumulated precipitation valid 21-22 Dec 2018 (+120h)





24-hour accumulated precipitation valid 21-22 Dec 2018 (+96h)

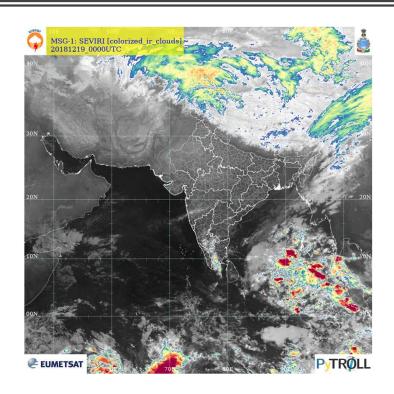
Impact analysis and decision support

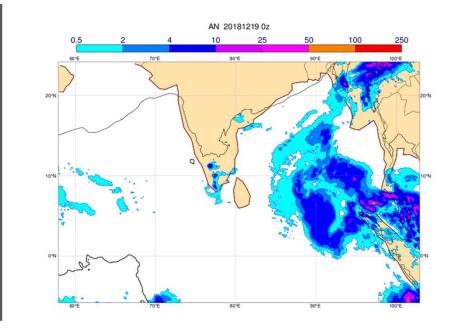
Take action to communicate and engage with users

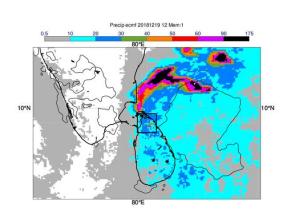
Warning
Matrix

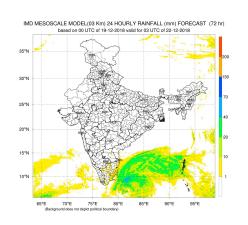
Likelihood	High				
	Medium				
	Low				
	Very low				
		Very low	Low	Medium	High
	Impact				

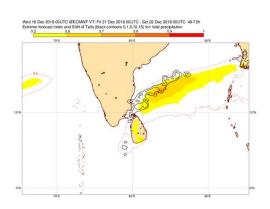
Monitoring: 19 Dec at 00 UTC





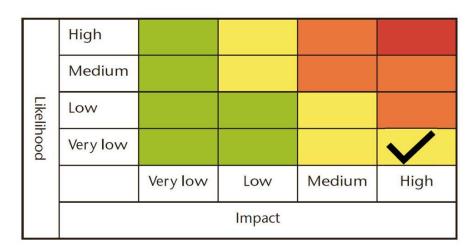






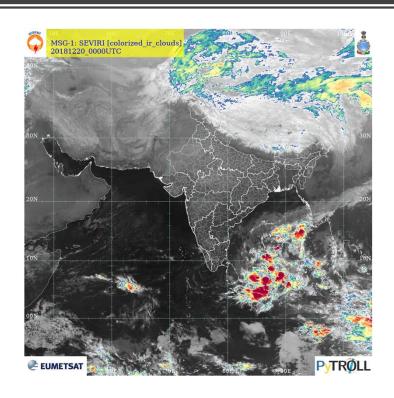
24-hour accumulated precipitation valid 21-22 Dec 2018 (+72h)

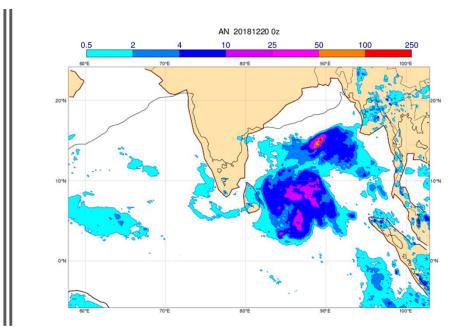


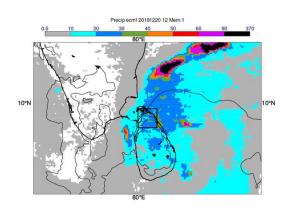


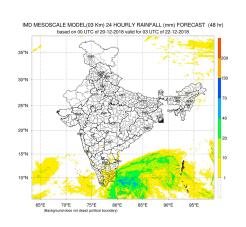
Warning Matrix

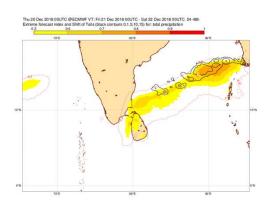
Monitoring: 20 Dec at 00 UTC





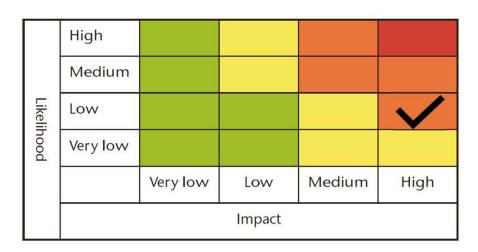






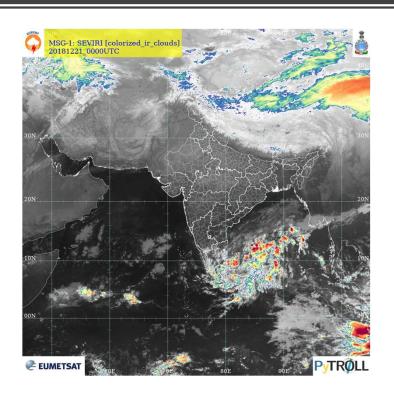
24-hour accumulated precipitation valid 21-22 Dec 2018 (+48h)

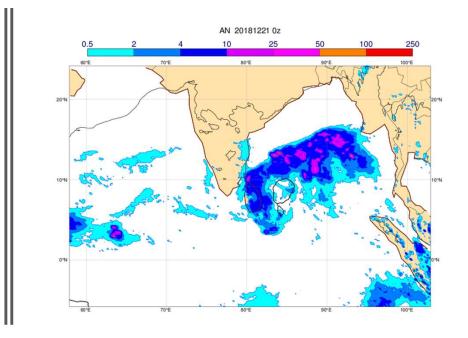


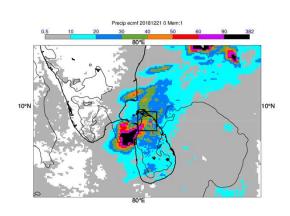


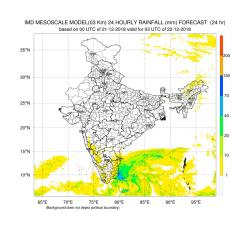
Warning Matrix

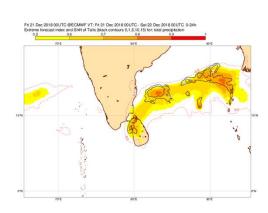
Monitoring: 21 Dec at 00 UTC





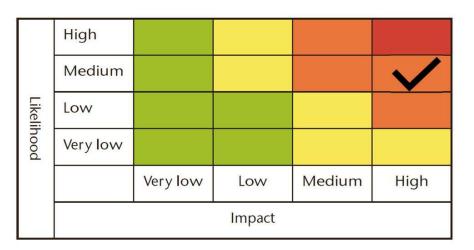






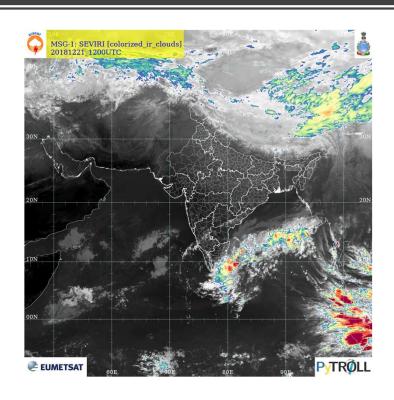
24-hour accumulated precipitation valid 21-22 Dec 2018 (+24h)

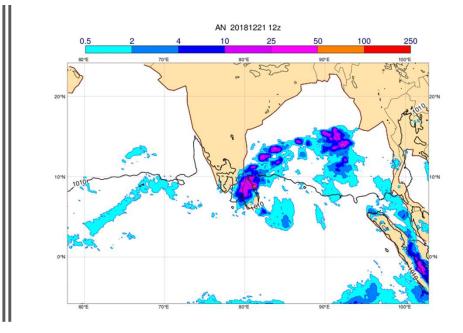




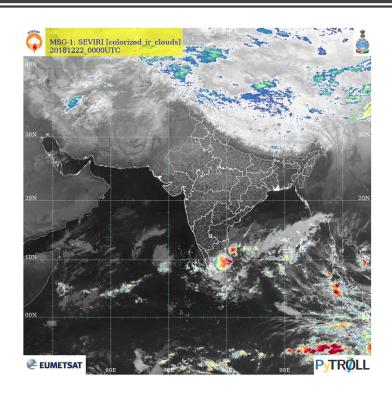
Warning Matrix

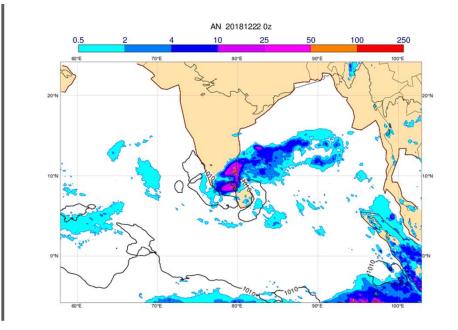
Monitoring: 21 Dec at 12 UTC

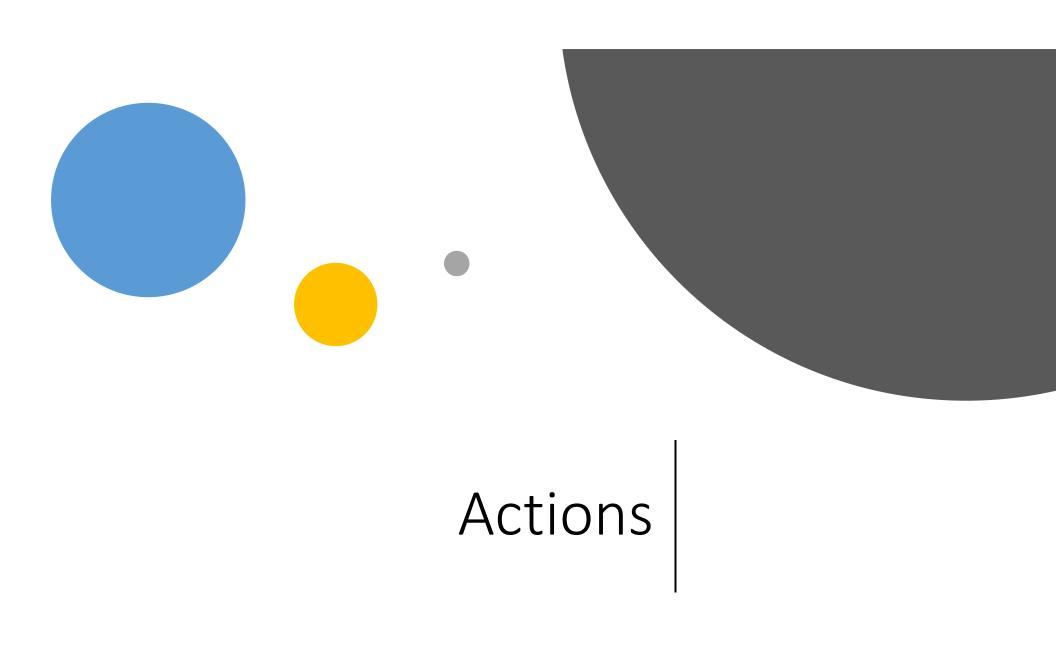




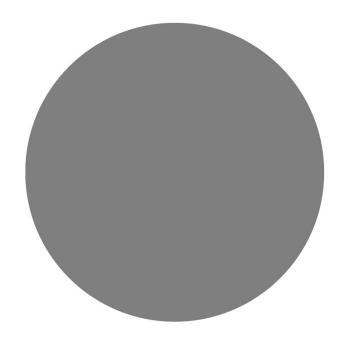
Monitoring: 22 Dec at 00 UTC







Reflections



The Official Weather Forecast at noon on 21 Dec 2018

"Showery condition is expected to enhance over the island (particularly during 21st and 22nd), especially in the Northern, North central and Eastern provinces due to the low level atmospheric disturbance in the vicinity of Sri Lanka."

"Showers or thundershowers will occur at times in the Eastern, Northern, North central, Uva and Central provinces and in Hambanthota and Puttalam districts."

"Showers or thundershowers will occur elsewhere particularly after 2.00p.m."

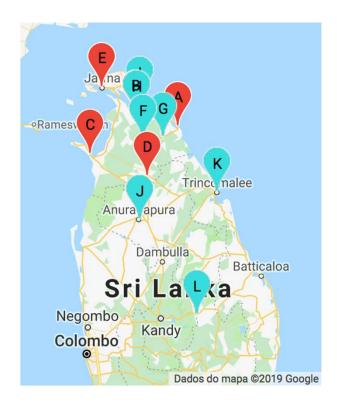
"Fairly heavy falls about 75mm can be expected at some places over the island, particularly in the Eastern, Northern, North central, Uva and Central provinces and in Hambanthota and Puttalam districts."

"Misty conditions can be expected at some places in the island during the morning."

"There may be temporary localized strong winds during thundershowers.

General public is kindly requested to take adequate precautions to minimize damages caused by lightning activity."

- F Maankulam, Mullaitivu district Rainfall level **365.1 mm** in 24 hours
- G Oddusddan Rainfall level **302.1 mm** in 24 hours
- H Kilinochchi Rainfall level 237.3 mm in 24 hours
- I Elephant Pass, Pachchilapalli, Sri Lanka Rainfall level **220.2 mm** in 24 hours
- J Anuradhapura Rainfall level **201.2 mm** in 24 hours
- K Trincomalee Rainfall level 95.7 mm in 24 hours
- L Mahiyanganaya Rainfall level **117.6 mm** in 24 hours



Rainfall observations - 21-22 December 2018

Fundamentals





Use available global and regional model products and guidance rather than develop national limited area models



Ensemble prediction systems should replace deterministic modelling systems



Standard operating procedures should be maintained – updated and tested



Critical national observations are those that impact the performance of global and regional models



Changing mind sets --- applying social science



Interagency cooperation