

Department of Meteorology – Sri Lanka

Muditha Malika Wimalasuriya

Director – Meteorologist

met.malika@yahoo.com

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Jakarta, Indonesia / 11 October 2018

BMKG Headquarter

[1] Your country reports will be posted on the meeting's web page.

Abstract

Several years ago, we had NOAA HRPT receiving station. But, it had been stopped due to the technical faults of the receiving system. We had not only it but also INSAT receiving station and COMS receiving station. All are out of date now. Both INSAT and COMS systems were received as Indian and Korean grants.

CMA cast (FY) satellite receiving system which is able to get satellite product every 10 minutes was the most important satellite system for Sri Lanka because my country is nearly in the middle of the satellite image. But, unfortunately, that receiving system was also broken due to technical errors very recently.

Japanese Himawari is the only satellite receiving system that is being used nowadays. Even though, we can get satellite images every 10 minutes, Sri Lanka is at the left edge of the satellite image. Then the quality of the image is questionable.

Abstract

Other major satellite products that we explore everyday are Meteosat second generation (MSG) Eumetsat product images especially for precipitation estimates, Insat images (but always delay to update the website), ASCAT ocean vector motion wind data and precipitate water product issued by Naval Research Laboratory.

Satellite data and product requirements, training needs and infrastructure

At the moment, we don't have an exact future plan on this regard. But, I think, if we can establish NOAA HRPT receiving station with level 1b data. It may be more helpful to monitor the droughts that are falling on us frequently. CMA cast (FY) receiving station should be re-established soon. We need external support to fill our lack of knowledge of maintenance of receiving system and use of satellite data to assimilate the NWP (WRF) system and research purpose.

Major Duties of the Department

Collecting of Meteorological Data

Synoptic Observation

Upper Air Observation

Major Duties of the Department

Analysing of Meteorological Data

Prepare Meteorological Information, Weather Forecasts & Warnings for General Public, Media & Related Institutions.

Major Duties of the Department

Archiving of Meteorological Data

Department of Meteorology is the related agency to archive meteorological data in Sri Lanka for the country & the world and the next generation.

Information

Sun Rise, Sun Set, Moon Rise,
Moon Set, New Moon, Solar
Eclipse, Lunar Eclipse

Climate Data

Weather Forecasts

In general, two types of Weather forecasts are issued by the department.

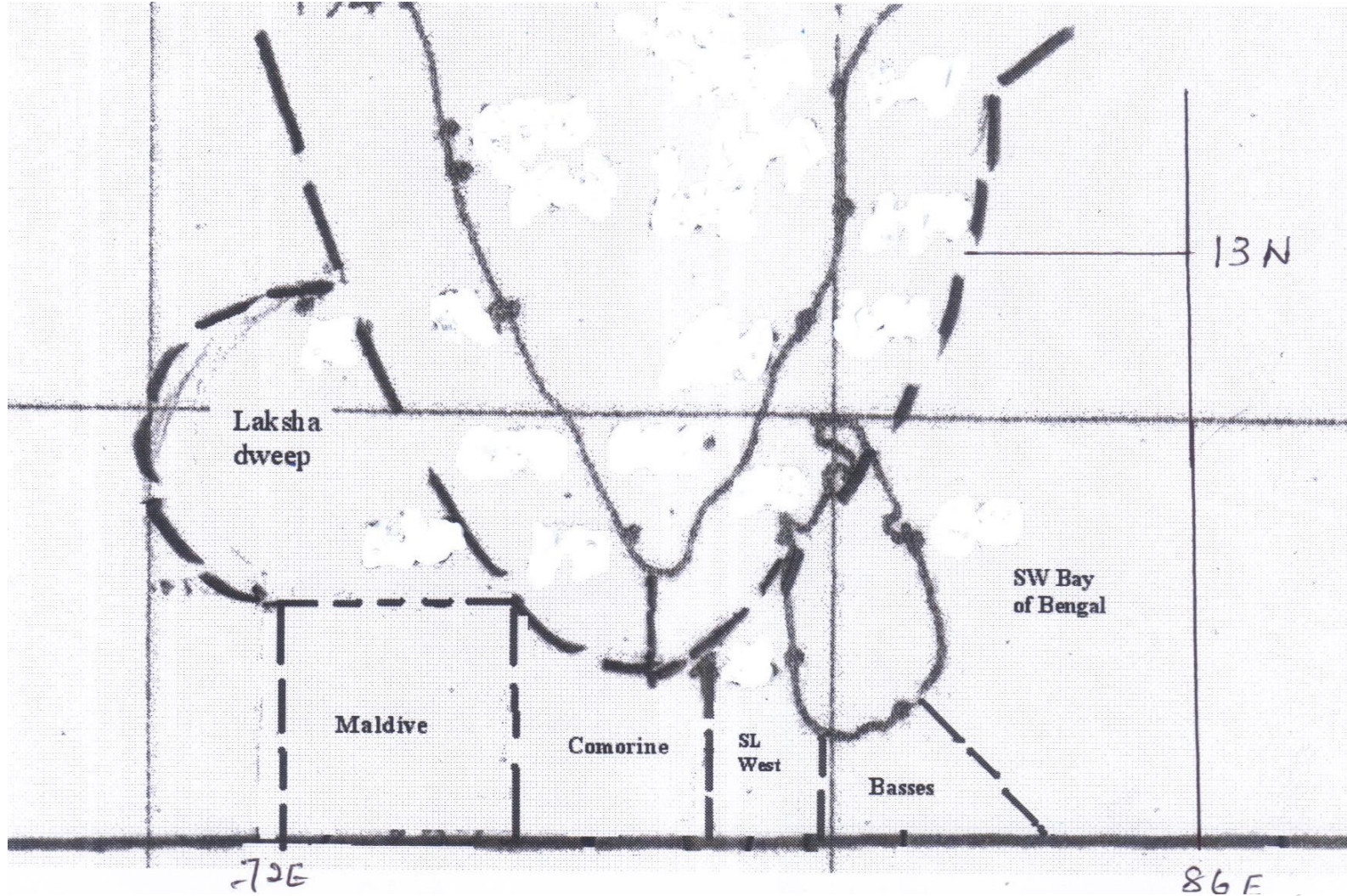
1. Short Range Forecasts

Public Weather Forecasts

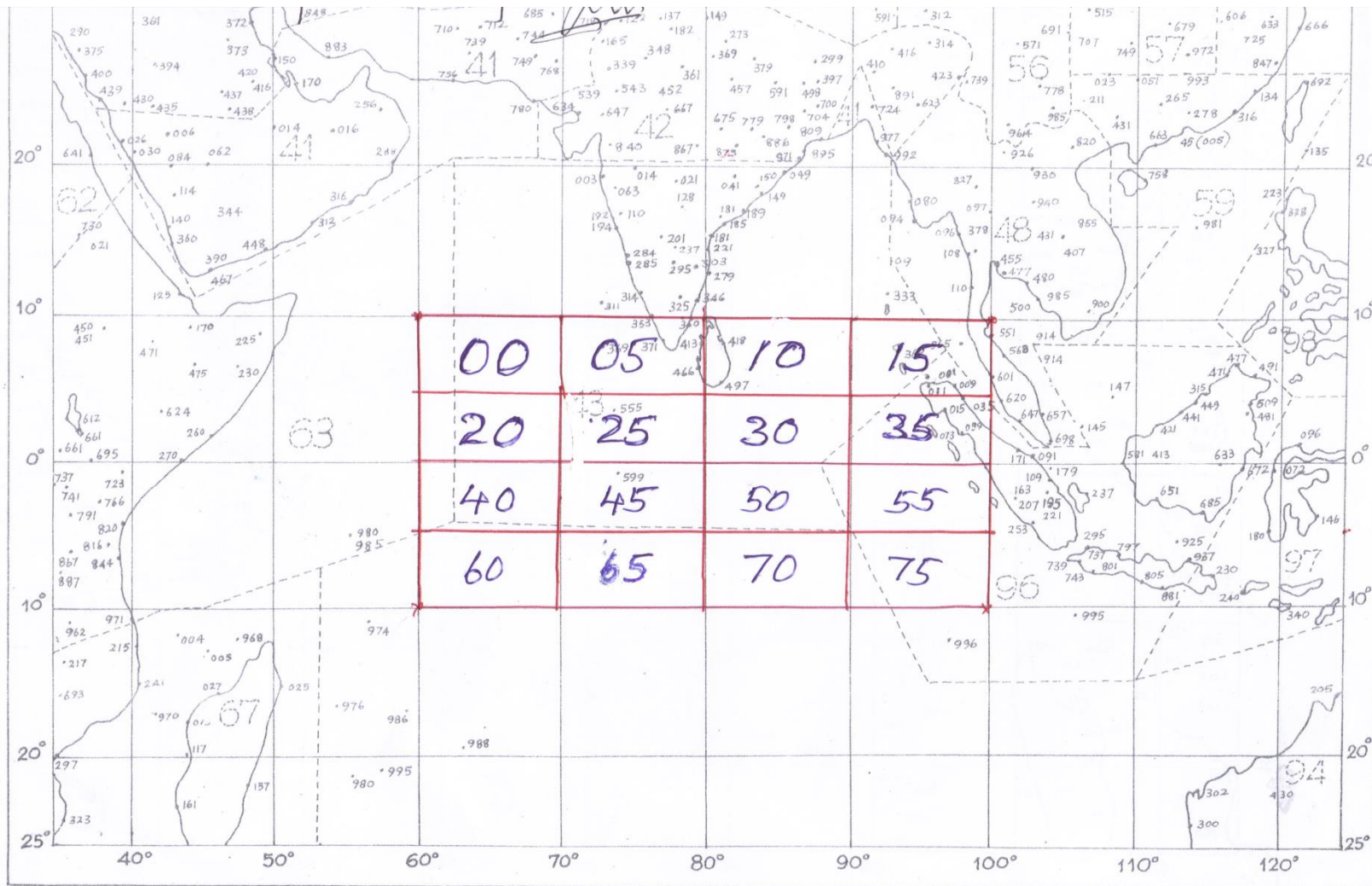
Sea area Forecasts

Aviation Weather Forecasts

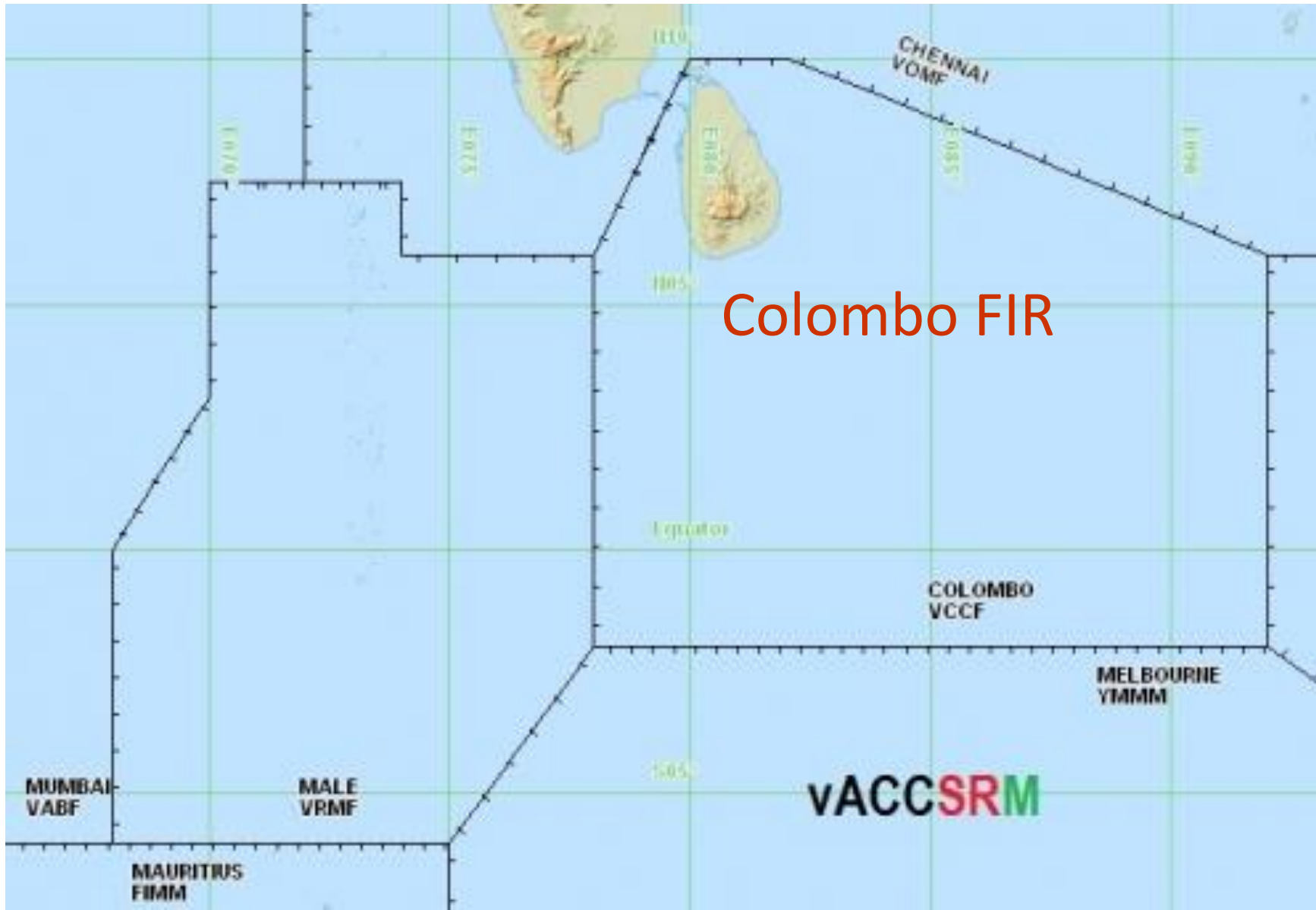
Responsible Region-shipping Report (forecast)



Responsible Region-Fleet forecast



Flight Information Region for Aviation



Weather Forecasts

In general, two types of Weather forecasts are issued by the department

2. Medium Range Forecasts

Especially about rainfall & drought for stakeholders and temperature

Weather Warnings

There are two types of Warnings

1. Weather Advisory

2. Weather Warnings

Weather Warnings

1. Strong Winds
2. Lightning & Thunder
3. Heavy Rainfall
4. Cyclonic Storms
5. Tsunami Warnings are also issuing although it is not a weather phenomenon

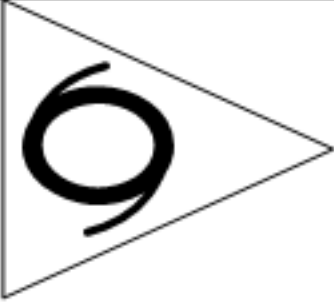



Strong winds





Land		Sea			
Wind speed	Buletin	Wind speed	Height of waves	Buletine	Colour
Average wind is >30 kmph and gusting >60 kmph	Alert/Advisory	Average wind is > 30 kmph and gusting > 60 kmph	>2m	Alert/Advisory	Amber
Average wind is >50 kmph and gusting >70 kmph	Warning	Average wind is > 70 kmph and gusting > 100 kmph	>4.5	Warning	Red
		Squall line Wind speed >70 kmph		Advisory	Amber

Tsunami





Magnitude of the EQ	Potential for Tsunami	Bulletin	<u>Colour</u>
<6.5	No Tsunami threat	Information	White
6.5< M<7.0	Tsunami possible within 100km of the epicenter	Information	White
7.0<M <7.5	Potential for destructive Tsunami within 100km of the epicenter .But <u>Sri-lanka</u> is not in the area	Watch	Amber
	Potential for destructive Tsunami within 100km of the epicenter .But <u>Sri-lanka</u> is in the area	Warning	red
7.6<M <7.8	Potential for destructive regional Tsunami .But <u>Sri-lanka</u> is not in the area	Information	White
	Potential for destructive regional Tsunami .But <u>Sri-lanka</u> is in the area	Warning	Red
7..8<M	Potential for destructive ocean wide Tsunami .But <u>Sri-lanka</u> is in the area	Warning	Red
	Mega Tsunami is expected with wave height>3m	Very Severe Tsunami warning	Brown

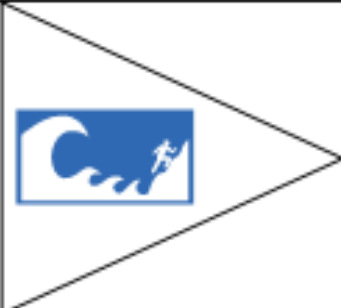



ALERT LEVELS - CYCLONE

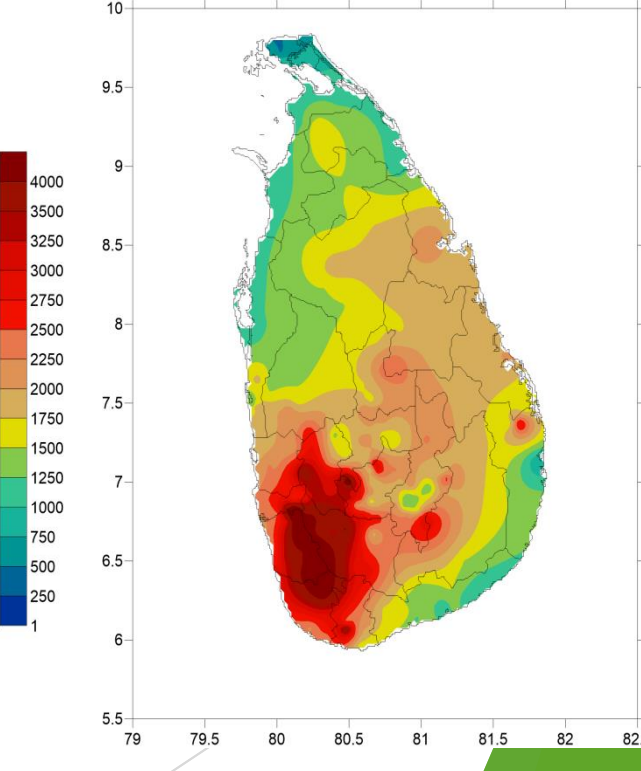
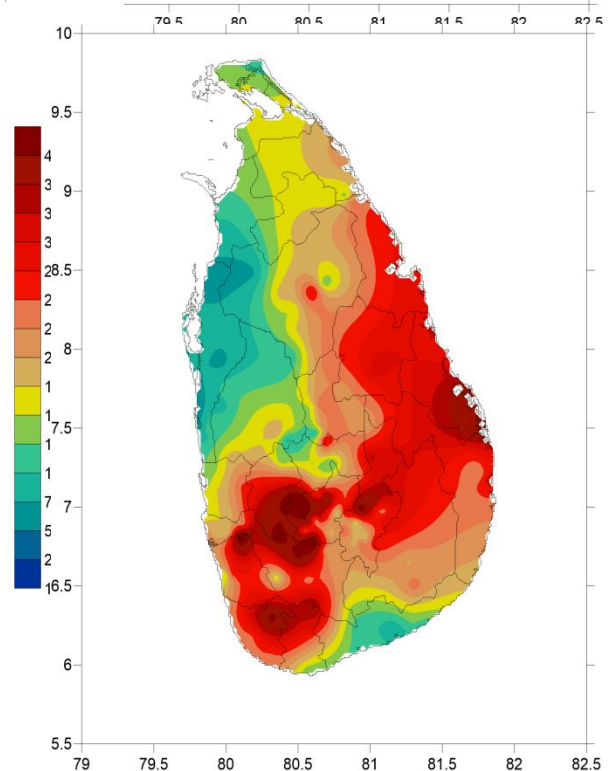
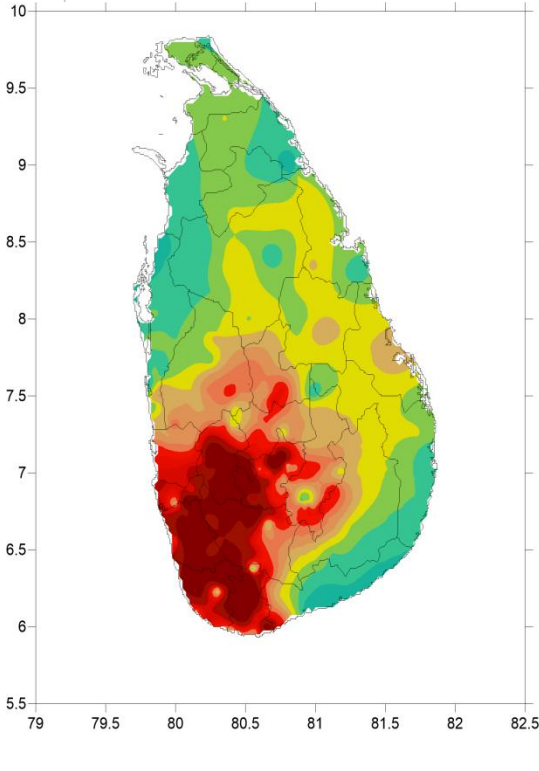
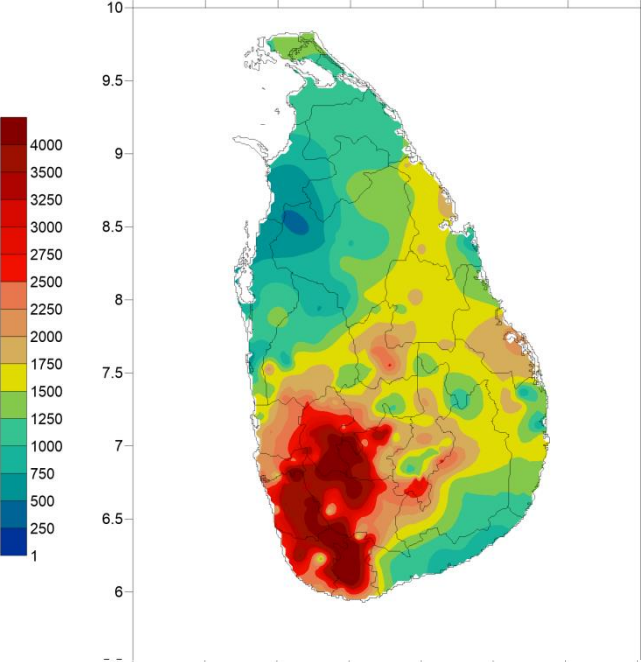
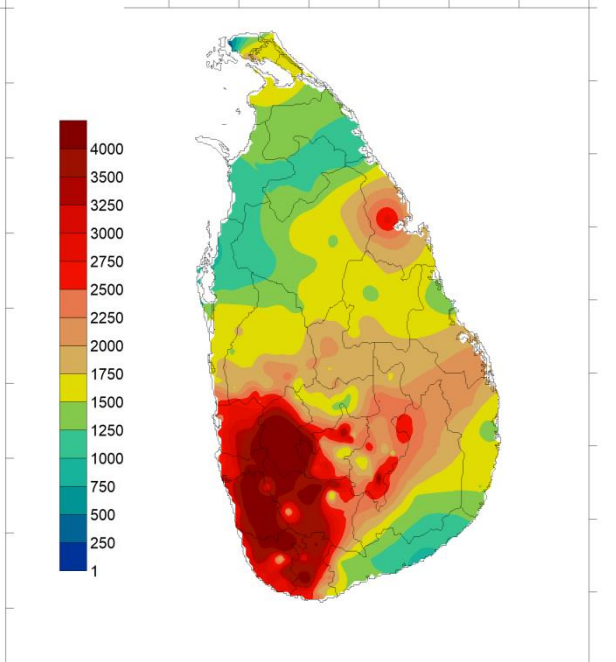
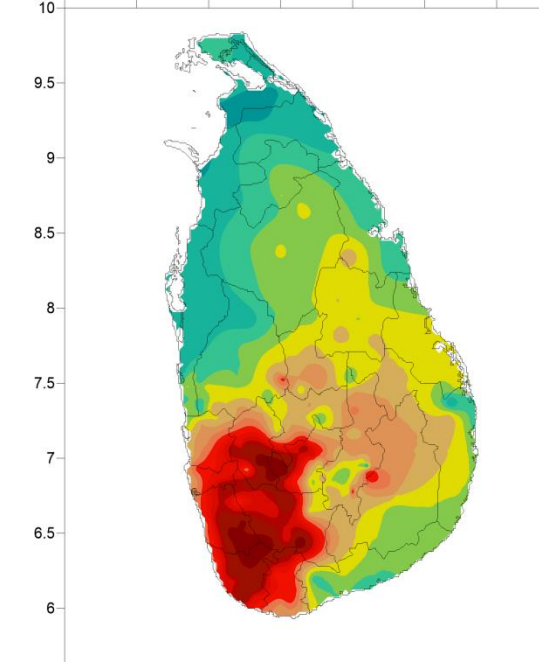
Sl. No	SIGN	ALERT STATUS	DESCRIPTION	ACTION REQUIRED
1		Information	Likely formation of a cyclonic storm ²	Information only and listen for regular weather updates
2		Alert	Cyclonic storm has formed and approaching ²	Be vigilant and listen for regular weather updates. Act according to the relevant official instructions Possible evacuation in high risk areas
3		Warning	Cyclonic storm making land fall	Possible evacuation in high risk areas and listen for regular weather updates. Act according to the relevant official instructions
4		Threat is over	Cyclonic storm threat is over	Cyclonic storm threat is over however, associated threats such as rainfall need to be monitored. Act according to the official instructions

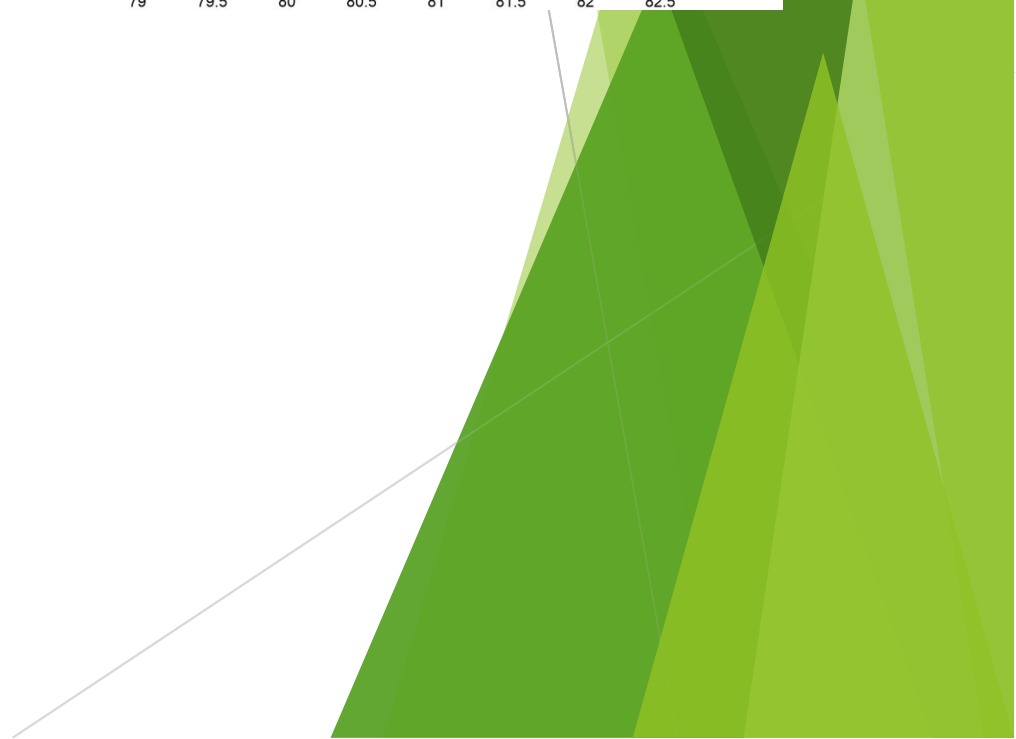
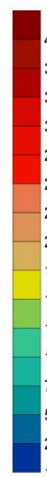
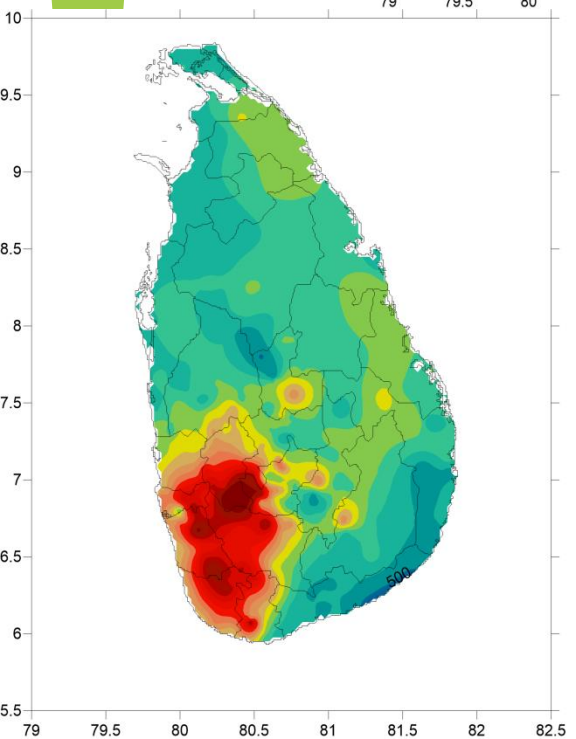
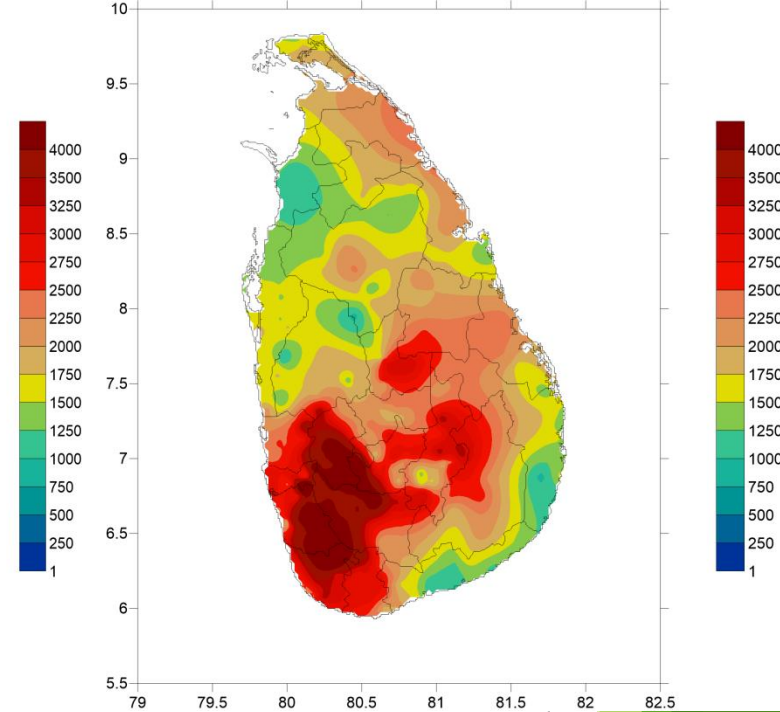
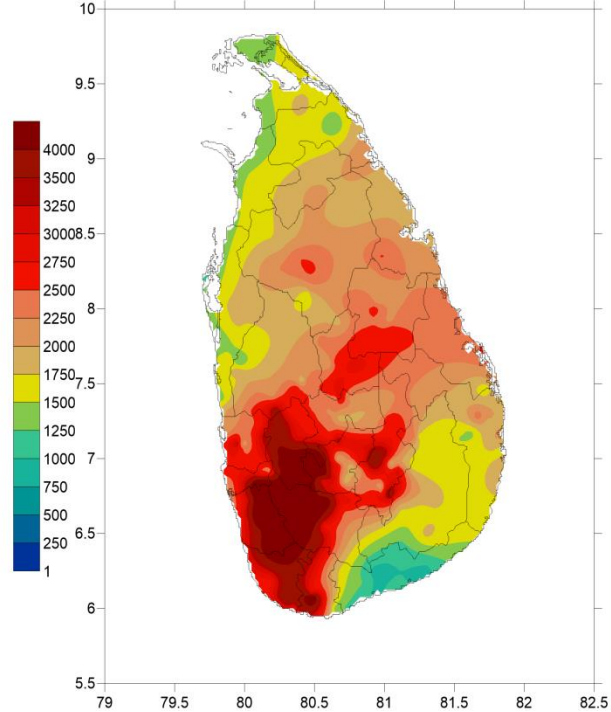
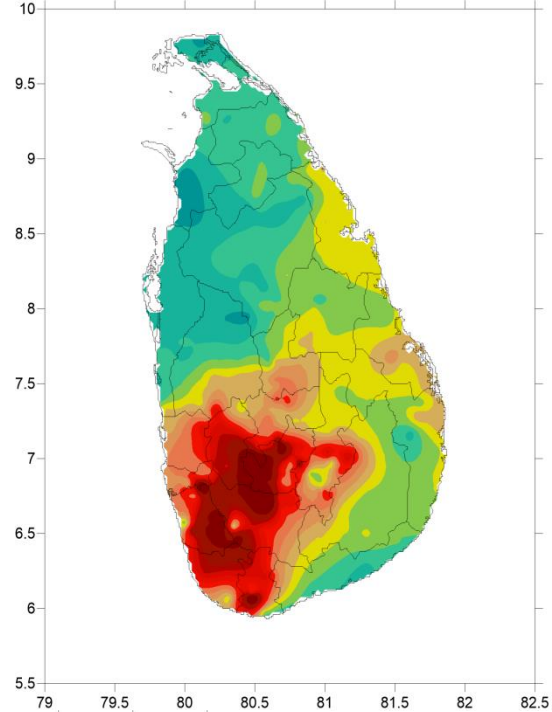
Sl. No	SIGN	ALERT STATUS	DESCRIPTION	ACTION REQUIRED
1		Information	Likelihood of Moderate Rainfall <100 mm	Effects of rainfall will vary from place to place according to local conditions. Act according to the relevant official instructions
2		Alert	Likelihood of Heavy Rainfall 100- 150 mm	Effects of rainfall will vary from place to place according to local conditions. Act according to the relevant official instructions
3		Warning	Likelihood of Very Heavy Rainfall > 150 mm	Effects of rainfall will vary from place to place according to local conditions. Act according to the relevant official instructions
4		Threat is over	Threat of heavy rainfall is over however light to moderate rainfall can be experienced ³	Effects of rainfall will vary from place to place according to local conditions. Act according to the relevant official instructions

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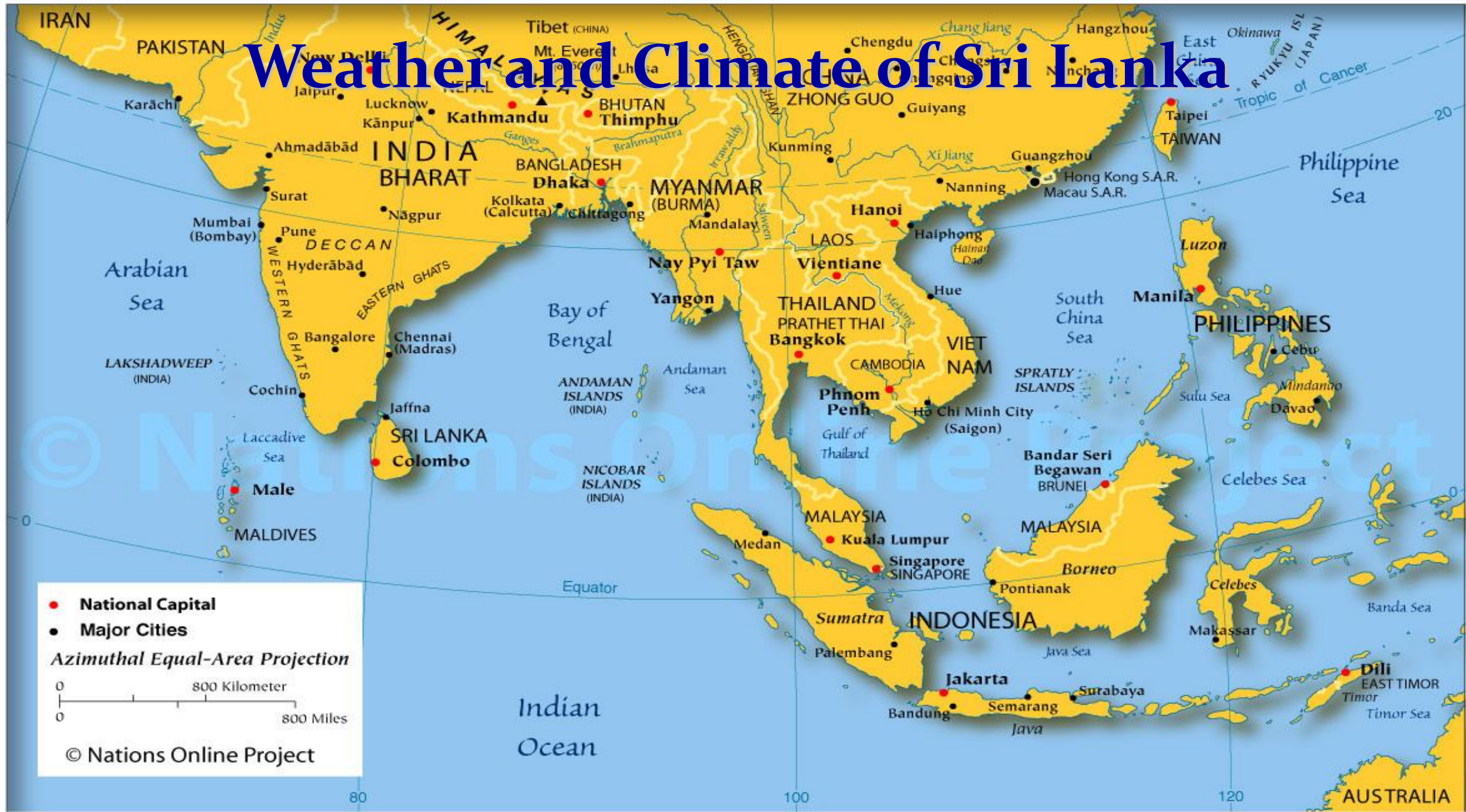
Sl. No	SIGN	ALERT STATUS	DESCRIPTION	ACTION REQUIRED
1		Information	Likelihood of isolated lightning activities Lightning is infrequent	Be cautious and take necessary precautions while indoor or outdoor
2		Alert	High possibility of scattered lightning activities Lightning is frequent	Be vigilant and take necessary precautions while indoor or outdoor
3		Warning	Very high possibility of severe widespread lightning activities Lightning is frequent and intense	Be vigilant and take necessary precautions while indoor or outdoor
4		Threat is over	Threat of severe lightning activities are over ⁴	Be cautious and take necessary precautions

Sl. No	SIGN	ALERT STATUS	DESCRIPTION	ACTION REQUIRED
1		Information	Major earthquake occurred	Information only, stay vigilant, listen to authorities and media updates
2		Watch	Tsunami may be generated.	Be vigilant and get ready for possible evacuation. Act according to the local authorities
3		Warning	Tsunami has been generated, Sri Lanka coast will be affected	Evacuate to safe areas. Act according to the local authorities
4		Threat is over	Tsunami threat is over ⁷	Act according to the local authorities.

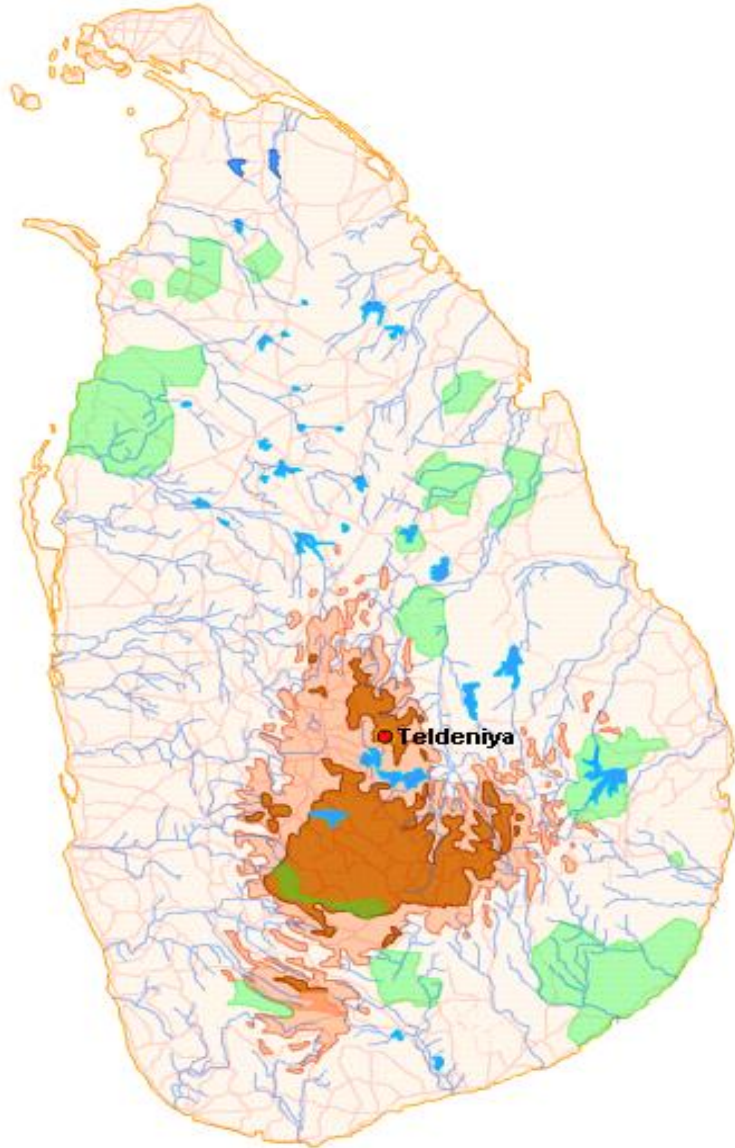




Weather and Climate of Sri Lanka

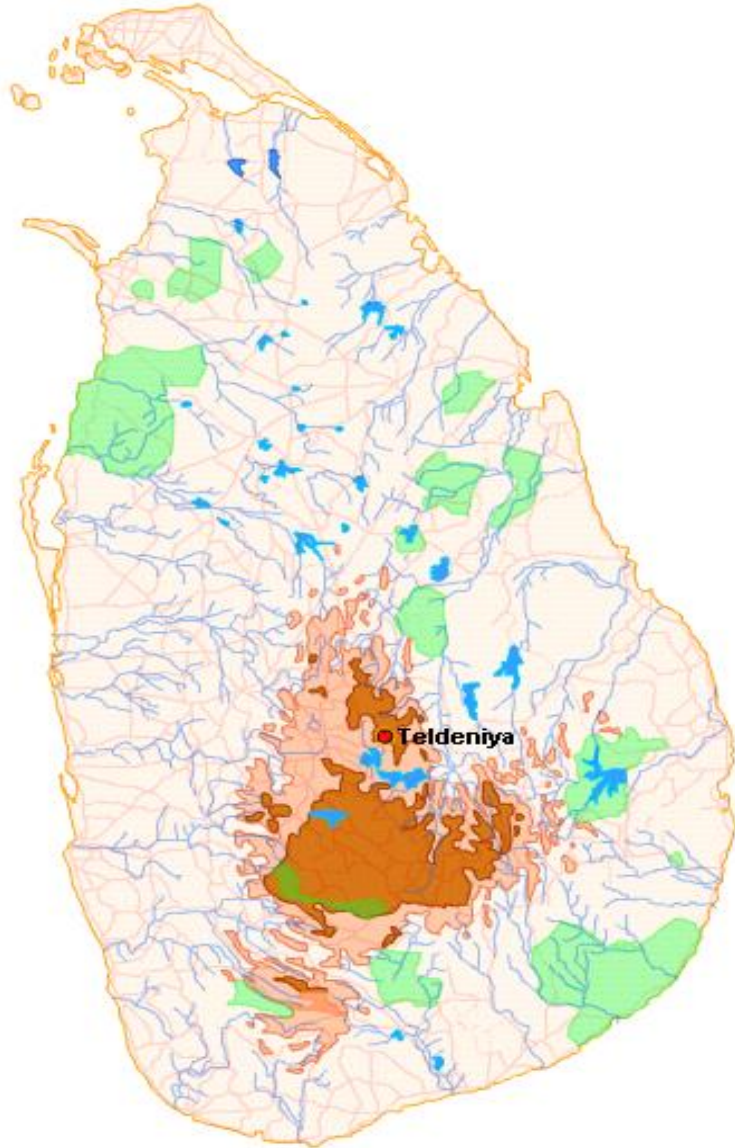


Weather and Climate of Sri Lanka



- **Between Lat. 05-10 °N and Long. 79-82 °E**
- **65600Sq Km Areal extent**
- **Central part of the country is the hilly area.**

Weather and Climate of Sri Lanka



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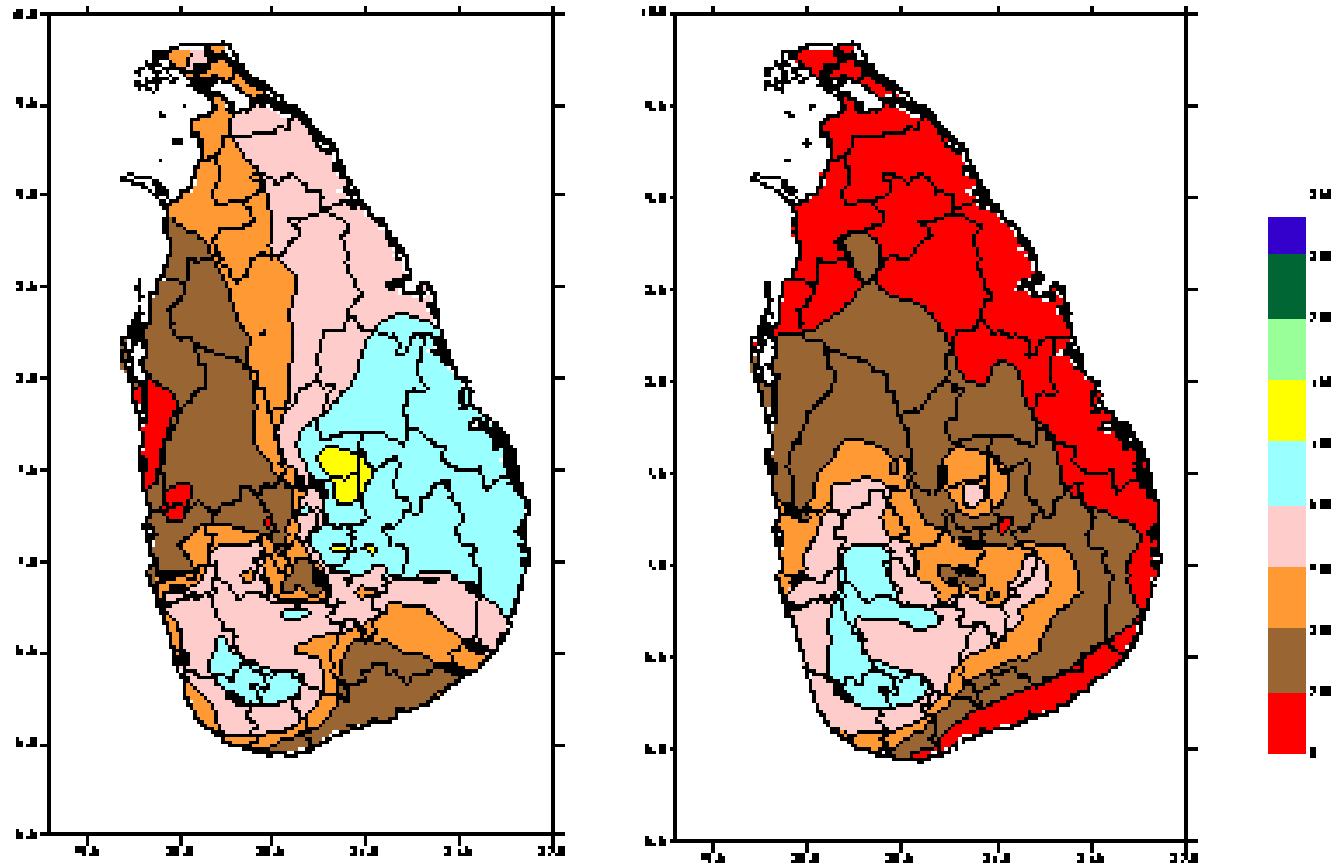
Weather and Climate of Sri Lanka

- **Monsoonal and inter monsoonal**
- **Summer monsoon or southwest monsoon**
- May to September
- **Winter monsoon or northeast monsoon**
- December to February
- **First inter monsoon - March to April**
- **Second inter monsoon - October to November**

Weather and Climate of Sri Lanka

North-east Monsoon

First Inter Monsoon



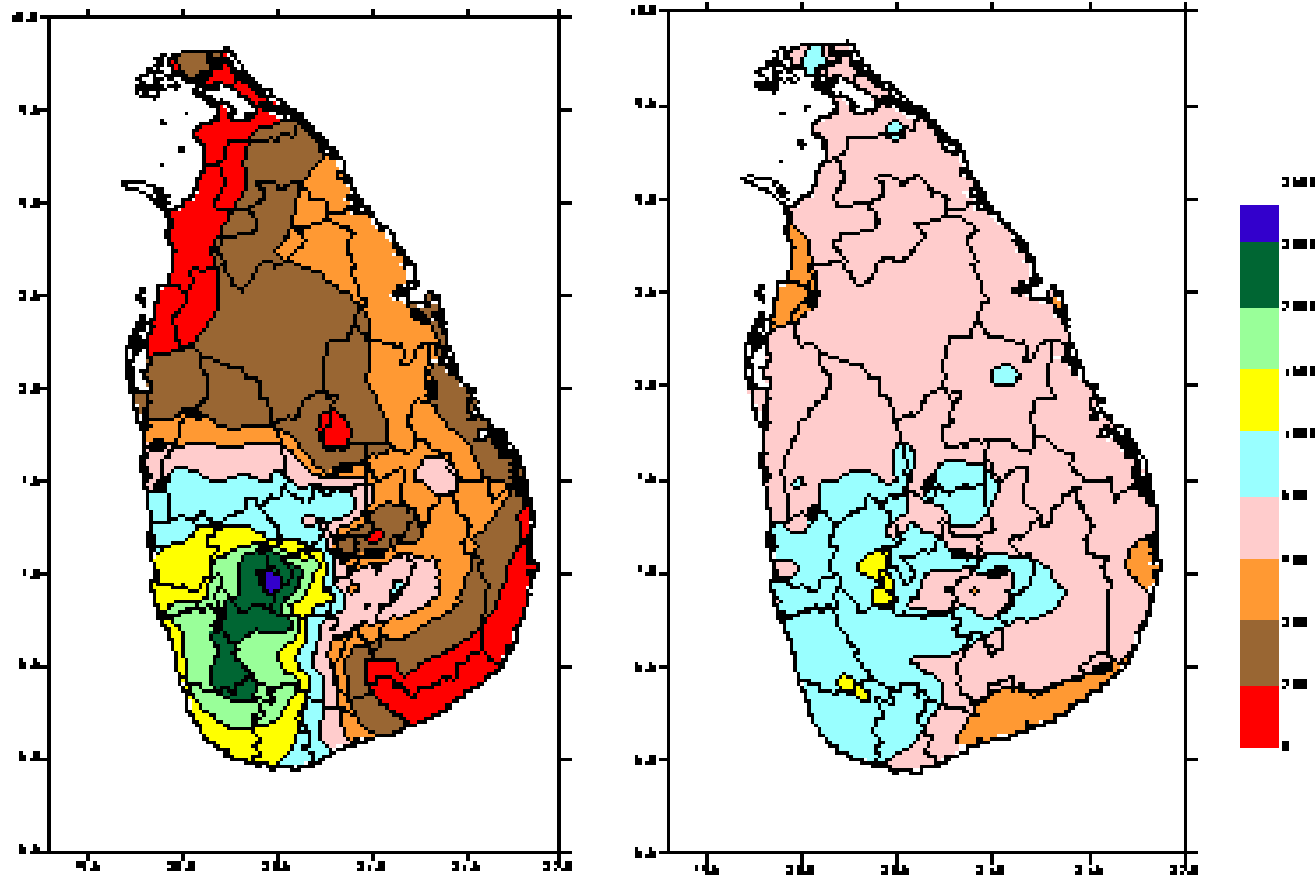
Seasonal Average Rainfall in mm

Spatial and Temporal Distribution of Rainfall

Weather and Climate of Sri Lanka

South-west Monsoon

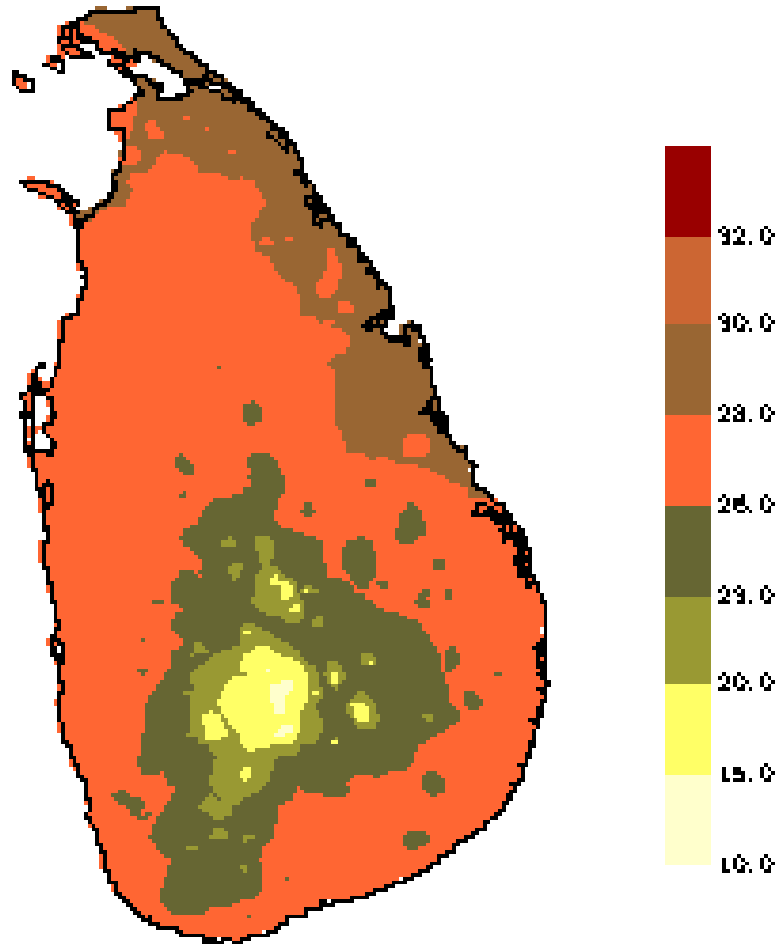
Second Inter Monsoon



Seasonal Average Rainfall in mm

Spatial and Temporal Distribution of Rainfall

Weather and Climate of Sri Lanka

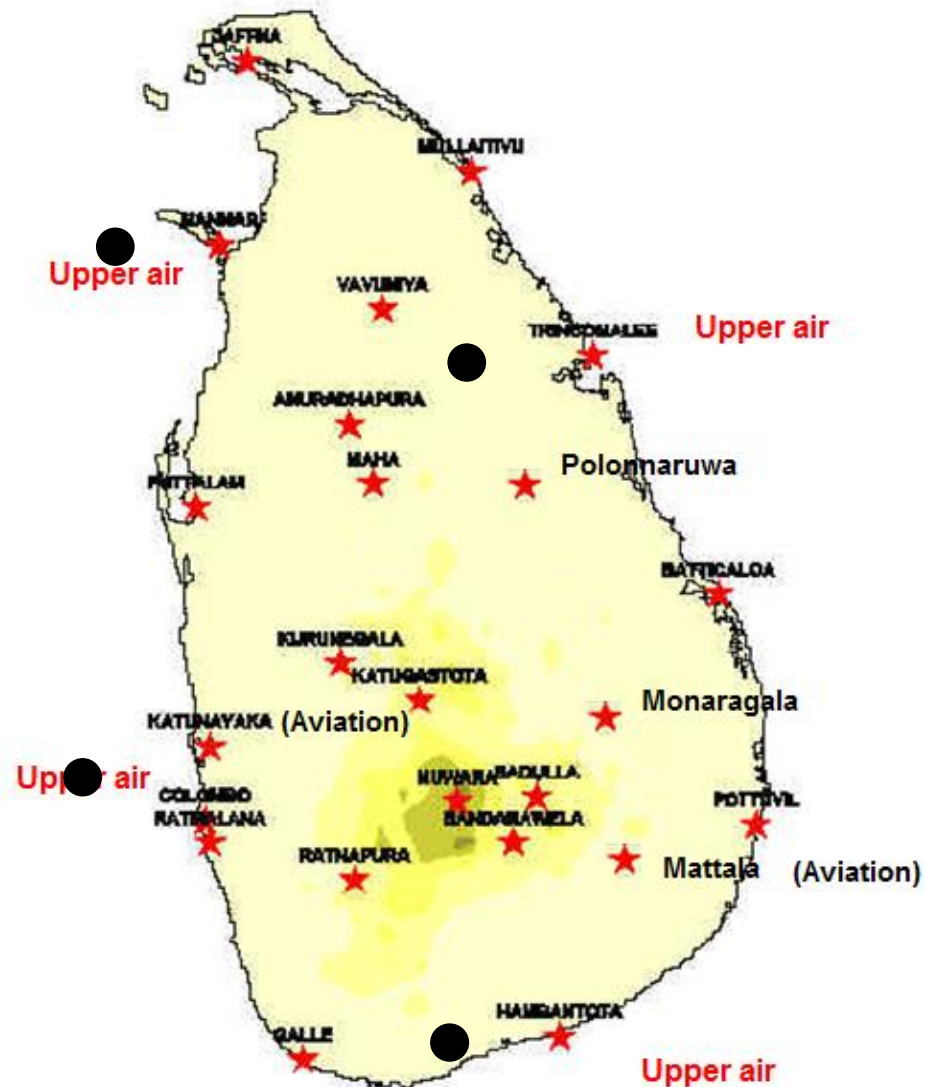


MEAN ANNUAL TEMPERATURE IN DEGREES CELSIUS

Spatial Distribution of Mean Annual Temperature

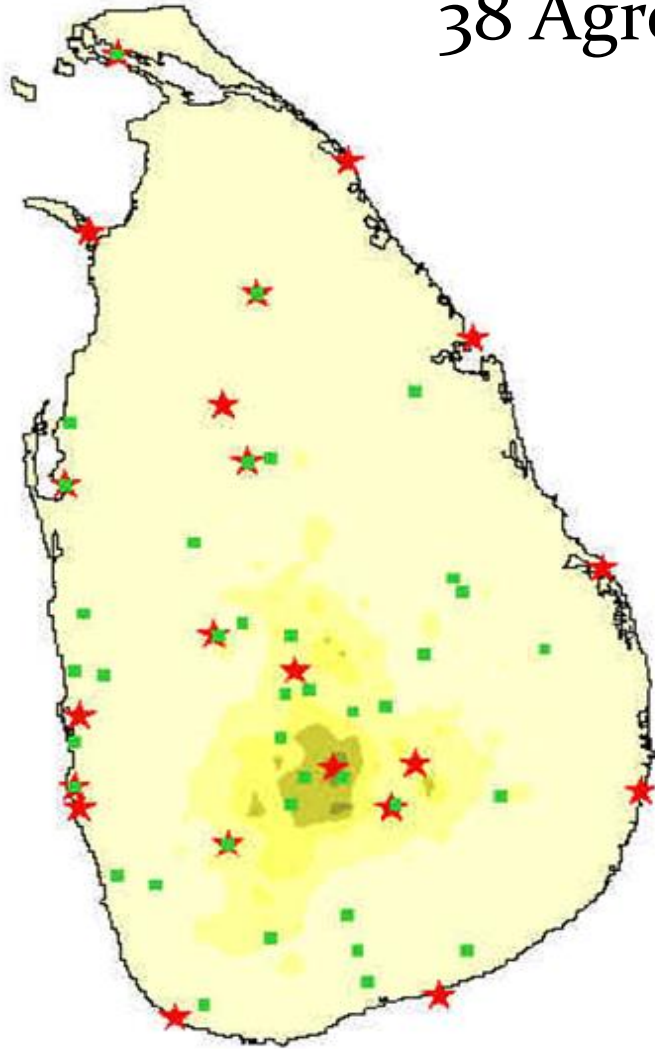
Weather Observation Network

23 Synoptic Stations
4 Pilot Balloon Stations
1 Radiosonde Station



Weather Observation Network

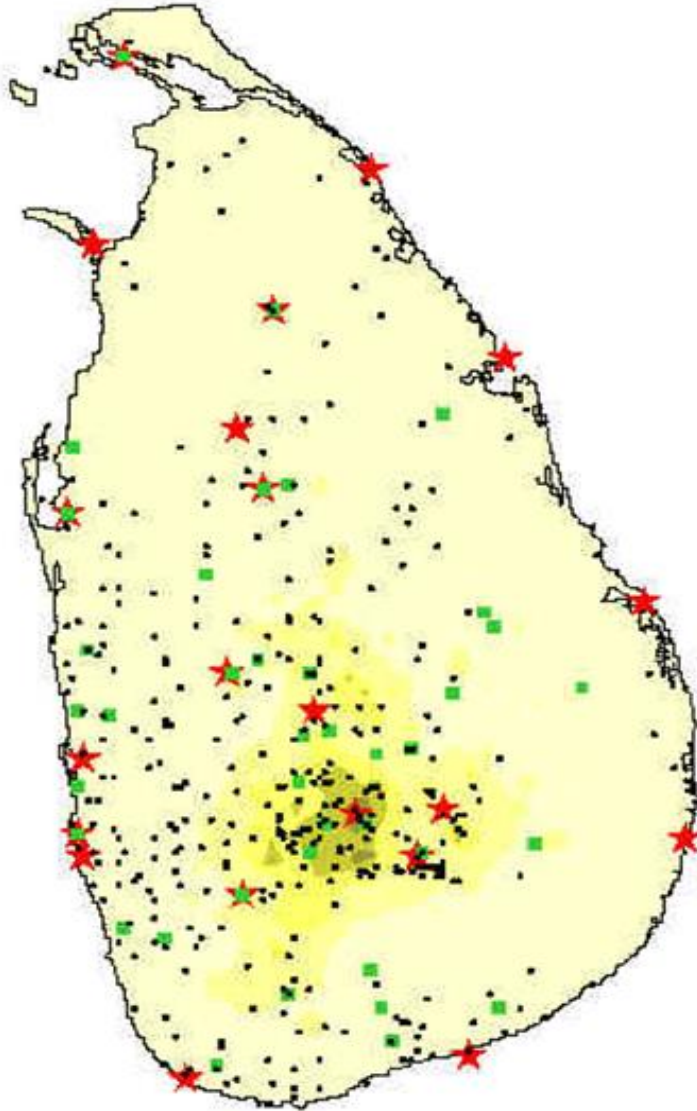
38 Agro- Meteorological Stations



- **Evaporation**
- **Sunshine hours**
- **Soil Temperature**
- **Radiation**



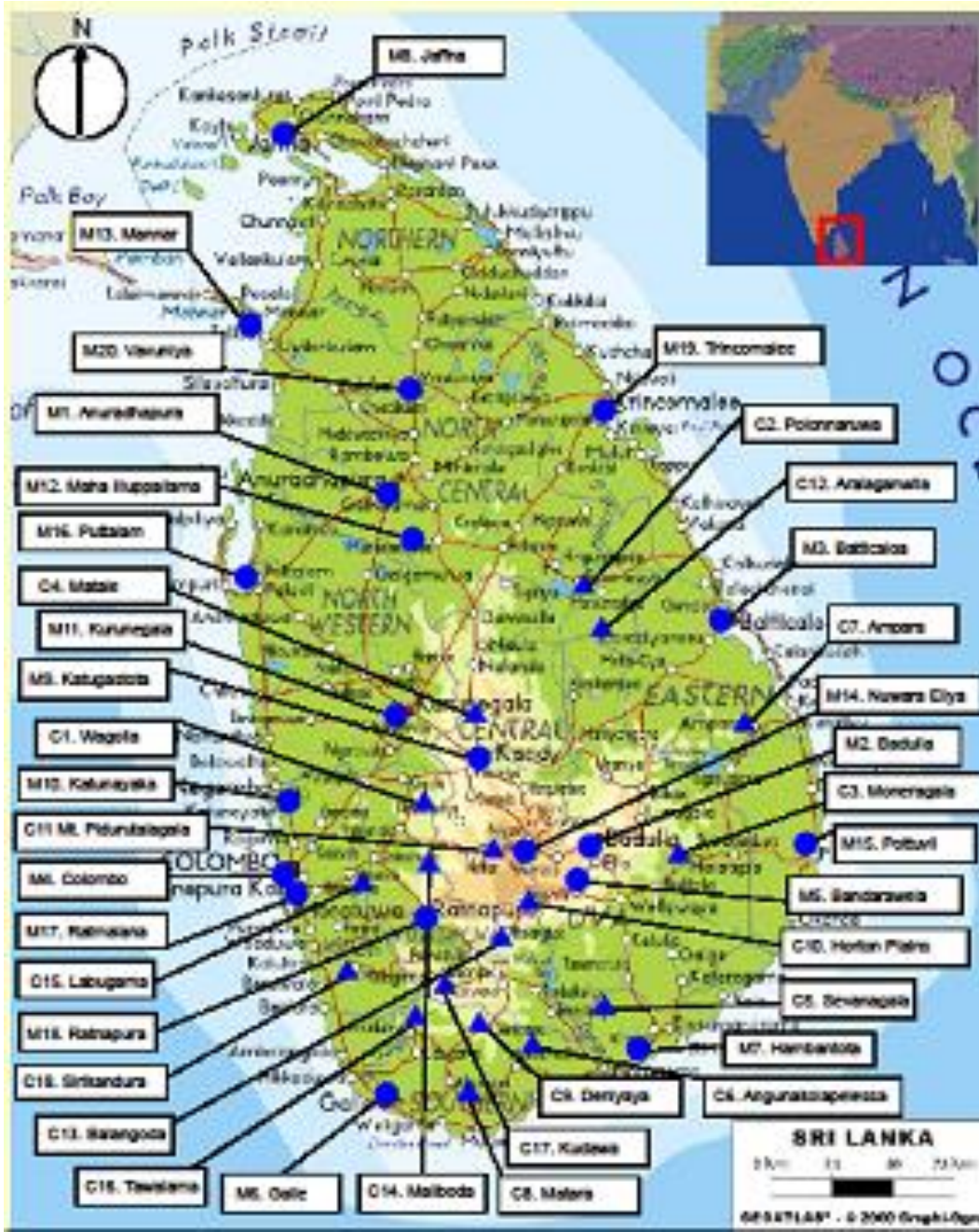
Weather Observation Network



Rain gauge Network
with 512 stations



Weather Observation Network



37 AWS are installed in 2009 under a JICA Project

21 – Synoptic Stations
16 – Collaborator Stations

Major recent rainfall-related disaster



- ◆ 15/05/2016
- ◆ Landslide
- ◆ Kegalle (Central hill area)
- ◆ Over 235 mm rainfall in 24 hour on 15th
- ◆ 4 people are killed, one is misplaced and no of affected families are 509

Major recent rainfall-related disaster



- ◆ 17/05/2016
- ◆ Landslide
- ◆ Kegalle (Central hill area)
- ◆ Over 250 mm rainfall in 24hour on 17th
- ◆ 14 people are killed, 2 are misplaced and 15 houses are fully damaged
- ◆ No of total affected people is 908

Major recent rainfall-related disaster



- ◆ Landslide
- ◆ 16/05/2016
- ◆ Kandy (Central hill area)
- ◆ Over 131mm rainfall in 24hours on 15th & over 95 mm on 16th
- ◆ 6 people are killed and houses are fully or partially damaged

Major recent rainfall-related disaster



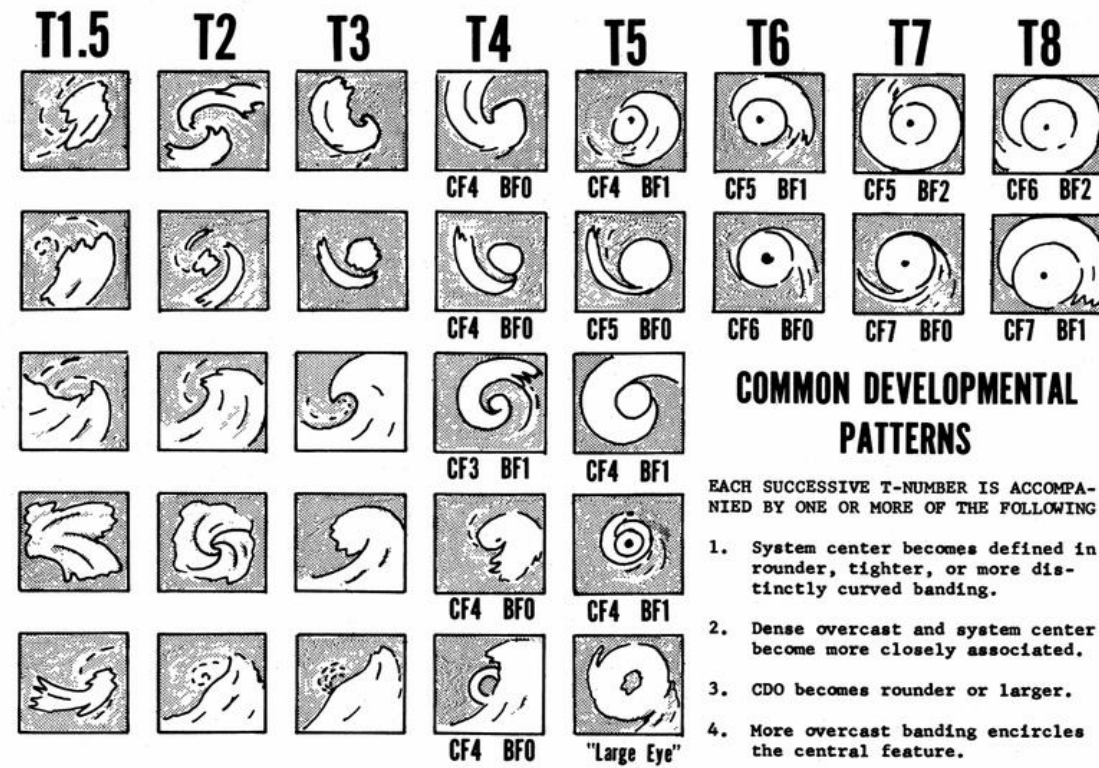
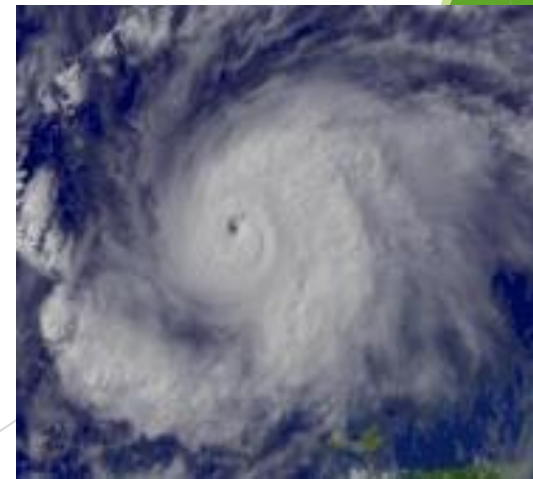
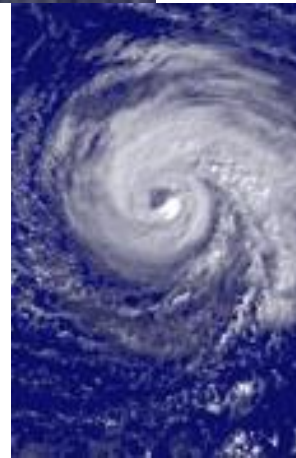
- 18/05/2016
- Floods
- Near Colombo (Western lowland)
- Over 190 mm rainfall in 24hour on 15th
- 5 people are killed, 21 houses are fully damaged and 74 partially damaged.
- No of Total affected people is 123727

Major recent rainfall-related disaster



- 18/05/2016
- Floods
- Gampaha (Western lowland)
- Over 158 mm rainfall in 24hour on 15th
- 8 people are killed, 11 houses are fully damaged and 43 partially damaged.
- No of Total affected people is 45935

We use Dovrak technic
and
Satellite images
to evaluate
the T number of a Tropical Strom





**Thanks for your
Attention!**