

Introduction

1.1 Background

As far as the origin of the Department of Meteorology, which has a long history that runs as far back as to the 19th century, is concerned, it is important to note that systematic observation of the meteorological parameters in Sri Lanka started in 1867 under the Department of Survey. Later, in 1909, a separate institute named Colombo Observatory was established at the premises of where the present Department of Meteorology is situated. The Colombo Observatory was made an independent government department in 1948 with the main objective of providing weather and climate related services. At present, the Department of Meteorology functions as the government statutory body for providing meteorology and climatology related services under the purview of the Ministry of Disaster Management.

1.2 Vision

To become the centre of excellence with respect to weather and climate related services.

1.3 Mission

Provide services to the institutions in the public sector, private sector and the public pertaining to meteorology, aeronautical meteorology, marine meteorology, hydro – meteorology, agro- meteorology and climatology and limited astronomical services in keeping with national interests and international standards.

1.4 Services offered by the Department

- Provision of meteorological and climatological services to the public, and to the fields of agriculture, energy, fisheries, shipping, insurance and other interested fields.
- Creating awareness on bad weather conditions (cyclones, heavy rain, lightning, strong winds etc.,) and on tsunamis.
- Provision of meteorological services relating to aviation.
- Maintenance of climatological database.
- Provision of meteorological and climatological services and data for national development and research purposes.
- Encouraging studies and research in meteorology, climatology, climate change and allied subjects.
- Organizing awareness raising programmes to educate the public on themes related to weather, climate and climatic changes giving contribution to such programmes.
- Organizing educational and training programmes and workshops for interested parties including school children, policy and decision makers on mandated thematic areas.
- Contributing to exhibitions providing resource personnel and exhibits.
- Provision of specialized meteorological and climatological services on requests.
- Provision of limited services related to astronomy (the sun, the moon, planets and tides) and terrestrial magnetism.

1.5 Organizational Structure

The Director General of Meteorology acts as the head of the Department of Meteorology. This department consists of five key divisions that are administered by 05 Directors who act under the Director General and there are 23 sub- divisions that function under these five divisions.

In addition to the Head office, 22 regional meteorological stations, 38 automated meteorological observation stations, and 20 automated rain gauge stations function under the direct management of the Department to obtain data. Apart from that, with the assistance of various institutes, 35 agro – meteorological stations are operated for obtaining agro-meteorological data while 520 rain gauge stations are operated throughout the country for obtaining data related to rainfall.

1.6 Responsibilities of the key divisions.

Serial Number	Main Division	Sub Division	Responsibilities
01	Observation Networks and Instruments.	Instrument Division	Calibration and maintenance of traditional meteorological equipment, calibration and maintenance of automated meteorological equipment, calibration and maintenance of meteorological equipment upon requests from outside parties and assisting in carpentry and technical matters and in exhibitions.
		Electrical and Electronic Maintenance Division	Repair and maintenance of electrical and electronic equipment, maintenance of automated weather system and satellite data receiving system.
		Radar/ Radiosonde Division	Upper atmospheric observations, conservation of such data, conducting awareness programmes for visitors to the department.
		Regional Meteorological Stations	Carrying out 3 hourly surface meteorological observations and continuous weather monitoring. Carrying out 6 hours upper atmospheric observations (upper atmospheric observation centres)
02	Data processing and	Data Division	Quality control, processing and archival of data from self-recording meteorological equipment
		Climate Division	Coordination and management of regional stations, quality control and archival of meteorology data.
		Hydrometeorology Division	Coordination and monitoring of all rainfall stations, establish new rainfall stations, training of volunteer observers to measure rain, quality control and conservation and maintenance of equipment.
		Agro meteorology Division	Coordination of agro-meteorology network, and quality control and archival of agro-meteorological data

		Computer Division	Quality control and archival of meteorological data in computer formats, maintenance of a climate database, issuing of meteorological data to outside parties, maintaining the website of the Department and modernize it.
		Library	Maintaining the library
		Record Room	Preservation of paper based records of data and information
03.	Forecasting and Decision Support	National Meteorological and Early Warning Centre	Processing and analyzing of meteorological data, weather forecasting and dissemination, functioning as the national tsunami and weather hazard early warning centre
		Communication Division	Exchanging meteorological data / observations; dissemination of weather forecasts and early warnings
		Airport Meteorological Stations	Providing meteorological data / information in conformity with International Civil Aviation Organization (ICAO) and World Meteorological Organization (WMO) regulations to help for aviation meteorology.
04.	Research, Training and Development	Research Division	Conducting meteorological and climatological researches.
		Training Division	Training and conducting departmental examinations
		Centre for Climate Change Studies	Conducting climate change related work
05.	Administration and Finance	Establishment Division	Establishment related functions of the staff
		Finance Division	Finance related functions
		Procurement Division	Procurement, stores and supplying.
		Special Procurement Division	Overseas procurement related activities
		Transport Division	Maintenance of vehicles and transport related functions
		Construction Division	Coordination relating to building construction requirements of the Department and maintenance of building

02. Performance of the Data Processing and Archival Division

2.1 Meteorological Data Network

Department of Meteorology maintains a data network related to meteorological observations. Under this network, synoptic meteorological information, rainfall information and agro-meteorological information as well as information related to upper atmospheric observations are maintained as surface observation data. Apart from that, the Department also carries out the functions of maintaining, archiving and selling of such data.

2.1.1 Meteorological Observations

Meteorological data observed at the observation networks of the Department of Meteorology can be categorized as surface meteorological data and upper atmospheric meteorological data.

2.1.1.1 Surface Observations Data

Carrying out surface observations is one of the key functions of the Department of Meteorology. Based on the data that are collected through such observations, data related to synoptic meteorological information, rainfall data and agro-meteorological data are issued by the Department.

01.Synoptic Meteorological Information

Surface meteorological observations are made at the regional meteorological stations at 3 hourly intervals. Soon after the observations have been made, the data are coded and are immediately transmitted to the Communication Division at the headquarters in Colombo for feeding into the Global Telecommunication System (GTS) for international dissemination. Further, such meteorological data are used by the National Meteorological Centre in Colombo and the Airport Meteorological Stations for weather analyses.

During year 2018, island wide Surface Meteorological Network Stations of the Department of Meteorology have made 57,871 surface meteorological observations including observations on rainfall, pressure, temperature, humidity, wind, visibility, weather condition and types/extents of clouds. In addition to that, major weather parameters are also observed through self-recording instruments installed at meteorological stations. The number of pluviographs (rainfall), thermographs (temperature), hygrographs (humidity), barographs (surface pressure), sunshine cards (sunshine duration) and solar radiation cards issued during year 2018 are 6472,7146,7704,1012 and 3265 respectively.

02. Rainfall Data

The network of rain gauge stations established throughout the island for the purpose of observing rainfall data comprises of 514 rain gauge stations and out of this number, data are regularly received throughout the year from over 430 stations. These stations are maintained in collaboration with government and non-governmental institutions and voluntary observers as well. At these stations, the rainfall is measured daily at 0830 hours and the daily rainfall report is obtained by the department at the end of each month. Daily rainfall data from 215 stations selected from island-wide are obtained on a daily basis to be used for weather forecasting purposes. During year 2018, 13 new rain gauge stations were established. During the year 2018, 13 rain gauge stations were monitored and the volunteer workers in those stations were given training on how to take accurate measurements. 30 new rain gauges and 40 new measuring cups were issued in this year to obtain rain gauge data. This section involves in supplying guidelines to the outside parties who come to obtain rain reports and rainfall data, selecting appropriate stations for those parties, matching the certified rainfall reports with the original copies of the relevant station to confirm the accuracy.

03. Agro-meteorological information

The network of agro-meteorology stations functioning under the Department consists of 40 stations. At these stations, in addition to surface meteorological observations, measuring of soil temperature at different depths, minimum observed temperature on grass, evaporation rates and duration of sun shine hours, too, are carried out, and these observations are made at 08.30 a.m. and 03.30 p.m. every day. These data that are obtained by the Agro-meteorological Division of the Head Office in Colombo are subjected to quality control and then issued to interested parties, and the income the Department had generated through that in year 2018 was Rs. 562,848.00. In addition to that data to the tune of Rs. 56860.00 have been issued free of charge.

The data that are thus obtained and other meteorological data are analyzed and mapped, and issuing of an “agro-meteorological information statement” containing information on the possible changes of weather and agro-meteorological information was commenced in 2015. This is issued online every week. Further, 2 observations are made daily at the 40 meteorological stations that are functioning under the supervision of this Division and altogether, a total of 29,200 observations have been made. In addition to that, 02 and 03 October

2018 the officers were given the necessary training to monitor the Makandura and Matale agro meteorological centre. Further 08 university students from universities were given training from time to time.

2.1.1.2 Upper Atmospheric Observations

2.1.2 Quality Control and Archival of Data

The data received by the Headquarters in Colombo from the meteorological stations, agro-meteorological stations and rain gauge stations throughout the country are subjected to quality control at the Headquarters and if there is some doubt related to their accuracy, they are re-investigated and rectified prior to their archival.

2.1.3 Selling Meteorological Data

University students, school children, individuals and institutes that conduct various research studies, insurance companies and construction companies request for past meteorological data. Based on the amount of data requested, they are supplied within a period of between 01 – 07 days. Data with a limited financial value are provided to government institutes and to university students free of charge and data are issued as certified data and uncertified data.

In year 2018, 134 detailed weather reports and 1187 data reports have been supplied to outside parties while a total of 223 data reports have been issued free of charge. The department has been able to generate a revenue of Rs. 6,361,318.00 during the year by selling detailed meteorological reports and data reports to outside parties.

Income generated by selling data – 01.01.2018 – 31.12.2018

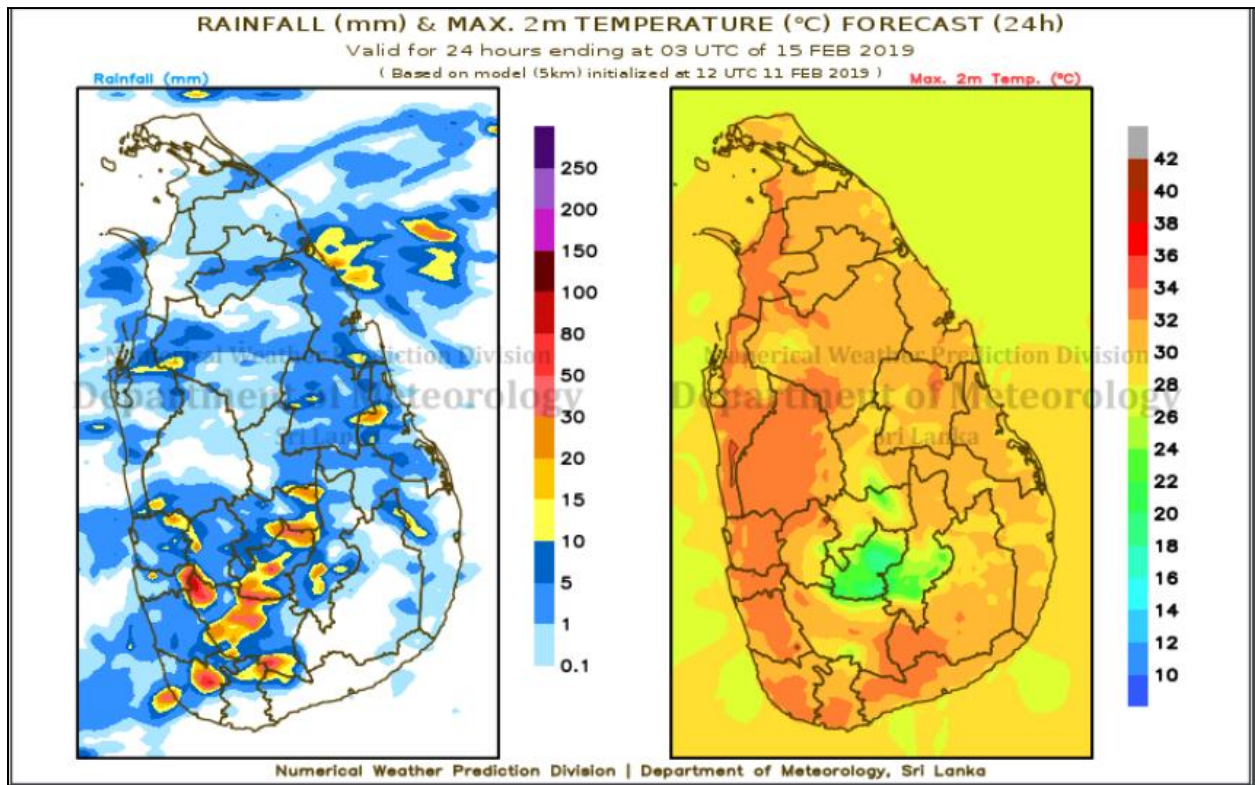
Branch	Amount (Rs)
Climatic	543,975.00
Data	9,000.00
Radar	53,420.00
Computer	4,858,470.00
National meteorological Centre	333,605.00
Agro- meteorology	562,848.00

03.Performance of the Forecasting and Decision Support Division

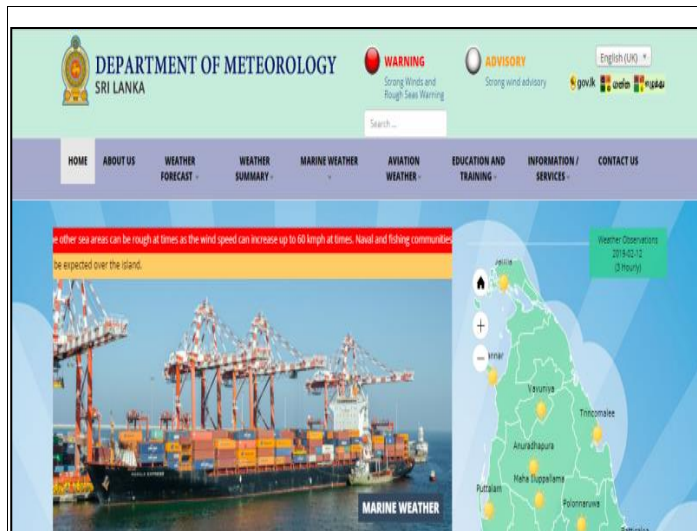
The main functions of the Forecasting and Decision Support Division are to provide information to the public, to various organizations and industries, to interested communities and to global meteorological observation networks, and the National Meteorological and Early Warning Centre, Communication Division and the Airport Meteorological Stations function under this Division.

3.1 Information provided to the public on daily basis

- National Meteorological Centre provides forecasts on weather conditions of the island at 05.30 a.m., 12.00 noon and at 04.00 p.m. and forecasts on rain, winds, and lightning in the sea area around the island for the next 24 hours is issued at 05.00 am and 12.00 noon through print and audio visual media routinely on daily basis.
- The number of weather forecasts issued during the year under review is 1,095. In addition, more than 13150 weather inquiries by the media were responded. The number of forecasts issued to multiday vessels including the private sector was 4033.
- Weather conditions of 10 major cities of the island are released to the print and audiovisual media and to the internet at 04.00 p.m. every day and 365 such reports were issued during the year.
- Daily weather forecasts including the weather forecasts for 9 days in advance are issued to the public through the web site of the department (www.meteo.gov.lk) and weather forecasts and warnings and the rainfall during the past 24 hours are given to the public through the face book of the department.
- Warnings on bad weather conditions are disseminated through the Disaster Management Centre, all electronic and print media and the web site of the department.



Weather forecasts on rainfall and temperature for 9 days are issued for the public through the web site of the department (www.meteo.gov.lk) and the relevant institute will be informed daily through e-mail.



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දෙපාර්තමේන්තු Face Book (Department of Meteorology) සමාජ වෙබ් අඩවිය

3.2 Information to global observation networks

Meteorological Communication Centre situated at the National Meteorological Centre collects meteorological information from the regional meteorological stations island-wide every 3-hours and transmits it to the Regional Meteorological Telecommunication Hub situated in New Delhi, India, to be transmitted to Regional Meteorological Centres and to the Global Meteorological Centres. This process continued throughout the year under review.

3.3 Information to various organizations, to various industries and to interested communities

In year 2016, the Department of Meteorology provided information to the police, hotels, commercial institutes and fishing communities on inquiries made by those parties. In addition to that, interviews were given to the media and certified weather reports were issued to them.

3.4 Provision of Aero-Meteorological Services for Aviation Services

Weather exerts an impact on the efficiency, safety, and regularity of aviation operations. As such, the Department of Meteorology maintains aerodrome meteorological offices at Katunayake, Mattala and Ratmalana airports for maintaining a continuous watch on weather conditions affecting flight operations.

3.4.1 Katunayake International Airport

Meteorological station at Katunayake International Airport provided to the flights that fly through the Colombo Flight Information Region and to flights that use the Katunayake International Airport 1460 Terminal Aerodrome Forecast (TAF) reports, 17162 half-hourly meteorological aerodrome reports (METAR), 618 weather warnings (SIGMET), 510 special observations (SPECI) and 26 aerodrome warnings. The Department also prepared 32,418 flight folders containing meteorological data, 730 area forecasts and 794 route forecasts for domestic flights.

3.4.2 Mattala International Airport

Details of information provided to the Mattala International Airport by Meteorological Station situated at the Airport in year 2018 are as follows:

- ❖ Terminal Aerodrome Forecast (TAF) - 1460,
- ❖ Half-hourly Meteorological Aerodrome Reports (METAR) -6570,
- ❖ Special Observations (SPECI) - 338
- ❖ Surface observations- 2920
- ❖ Warnings - 09
- ❖ Flight folders – 46

3.4.3 Ratmalana Airport

The key functions of this station are to provide meteorological information required for domestic flights and for Sri Lanka Air Force flight operations handled by this airport and to carry out the required daily meteorological observations. Accordingly, Half-hourly meteorological observations (METAR) – 4836, Special observations (SPECI) – 323 , Provision of surface pressure (QNH) = 63 were done in 2018.

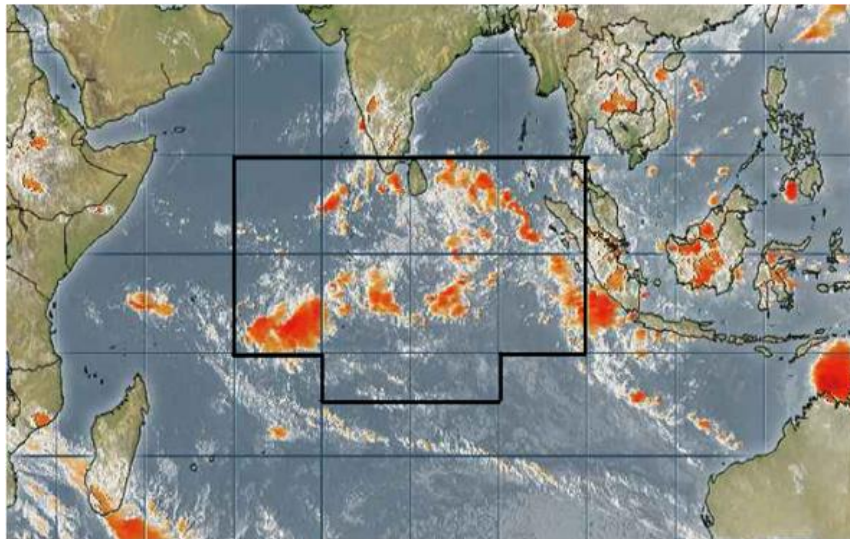
3.5 Provision of Meteorological Services for Marine Activities

3.5.1 Weather report of the sea area around the island for naval and fishing activities (Shipping Report)

Shipping reports on meteorological condition of the sea area around Sri Lanka are issued every day at 10.00 a.m. and 04.00 p.m. The total number of shipping reports issued in year 2018 was 4033.

3.5.2 Weather report on the area of international waters around Sri Lanka (Fleet Forecast)

Fleet forecasts are issued daily at 06.00 a.m. and 04.30p.m. and they contain information and the forecast about the weather, wind conditions and the state of the international waters given in figure below. The total number of Fleet Forecasts issued in the previous year was 730.



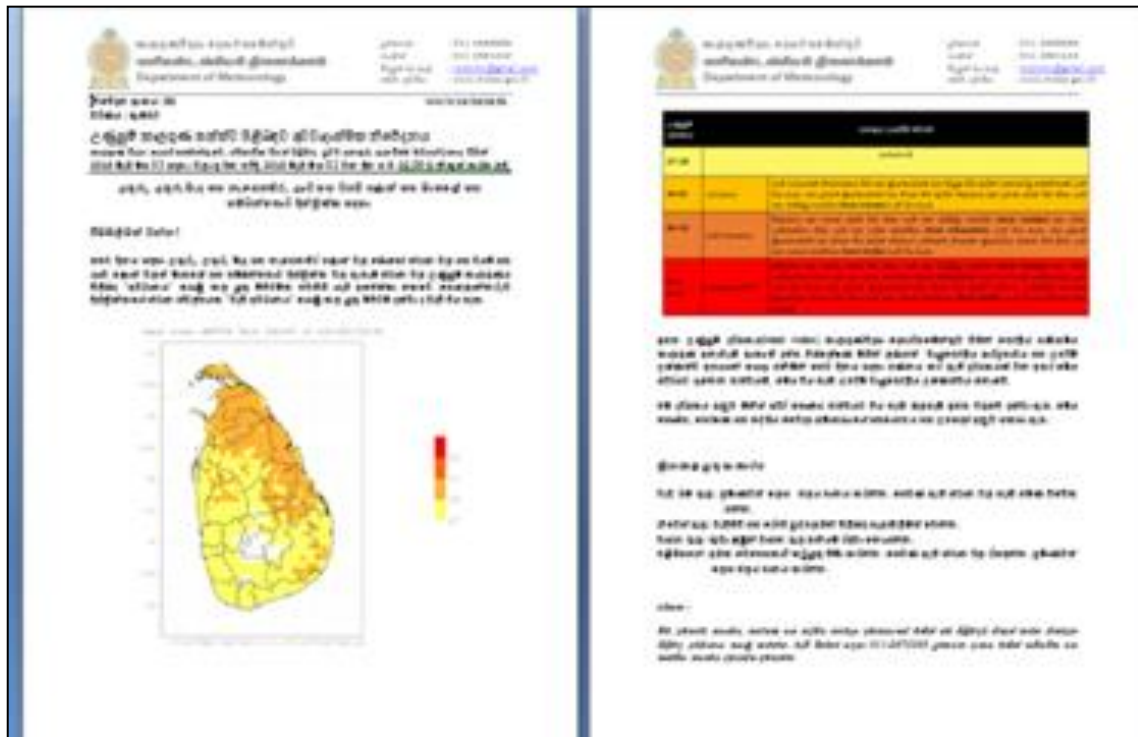
3.6 Issuing early warning and instructions on tsunami and bad weather conditions

3.6.1 Tsunami warnings

Early warnings are issued to the general public and to other relevant institutions in collaboration with institutions such as California Integrated Seismic Network (CISN), Tsunami service providers – TSP) in India, Indonesia and Australia. There was no tsunami danger in the previous year.

3.6.2 Issuing reports on bad weather conditions

When there is possibility of occurring weather conditions such as heavy rain, lightning, storms, cyclones and tornados, the print and audio visual media are immediately informed of it and the District Secretaries of the areas that can be affected, the Disaster Management Centre, signal divisions of the Police and the three armed forces, Presidential Secretariat, Prime Minister's office, Ministry of Fisheries, naval ships through Colombo radio, National Aquatic Resources Research Institute, Master Divers Coast Guard and all external meteorological offices and other relevant institutes as required are informed of through fax or e-mail. 258 bad weather reports have been issued in the previous year. These warnings are disseminated to the public through electronic and print media and web sites of the departments by the Disaster Management Centre. Timely early warnings were issued for “Gaja” and “Pethai” , two super cyclones that developed in the bay of Bengal and passed Sri Lanka in 2018. No deaths were reported from the fishermen and only few damages to the property were reported.



As instructed by the Ministry of Health, special forecasts are issued to the public on Heat Index from this year.

3.7 Providing limited astronomy related services

The times of the rise and set of the sun and the moon, the sun appearing directly above different locations in Sri Lanka, lighting up time, visibility of planets, appearance of the new moon, rising crescents of the moon and dawn and ending of Ramazan were calculated and information is provided to the relevant institutions. The service of a senior officer of the Department was provided for the Poya and Government Holiday Committee.

04. Performance of the Awareness Raising, Training, and Examinations Division

4.1 Educating the Public

Educating the public on the weather, meteorological hazards, and preparedness is a main function performed by the Department of Meteorology. The parties that are thus educated by the Department include public sector officials, schoolchildren, students of universities and higher educational institutes, officers of the security forces, farmer communities, and fishing communities. Organizing of awareness raising programmes and participation in such programmes are carried out by the Division as follows:

- Educating those come to visit the Head Office
- Conducting awareness raising programmes
- Participating in various programmes by the Department as resource persons for programmes conducted by external organizations.

4.1.1. Educating the visitors come to the Head Office

Schoolchildren, students of universities and higher education institutes and officers from the security services regularly pay visits to the department in order to obtain knowledge related to the activities of the Department. Such groups are educated by the Departmental staff by giving lectures on meteorology, climatology and meteorological hazards, and by providing them the opportunity for getting experiences on how observations are made.

Visitors to the Department in 2018

Serial No.	Group	No. of groups	No. of persons
01	Schoolchildren	281	31164
02	Members of security forces	12	349
03	Universities and Higher Education Institutes	19	889
04	Government, private and other organizations	26	683

4.1.2 Conducting awareness raising programmes for the public

Awareness raising programmes conducted by the department in 2018

District	Venue	No. of participants
Colombo	Moratuwa DSD – awareness programme for teachers	100
Kegalle	Sleek Banquet Hotel – awareness raising for reporters at regional level.	100
Trincomalee	Trincomalee DSD – Training of Trainers	100
Colombo	Ministry of Irrigation, water resource and disaster management – graduate trainees.	75
Matale	Matale DS's official quarters – training of reporters at regional level	75
Hambantota	Hambantota DS office – awareness raising for public officers and reporters at regional level.	
Kandy	Janora hills – awareness raising for reporters at regional level	60
Polonnaruwa	Thamankaduwa DSD – Joint awareness raising programme	100
Ratnapura	District level mock drill on landslides and floods	110
Galle	District level mock drill on landslides and floods	65
Kegalle	District level mock drill in landslides and floods	65
	Regional fishery harbours- promoting agro and fisheries investments.	100

4.1.3. Awareness raising programmes conducted upon the requests made by various external institutions

Serial No.	Date	Location
1	22.05.2018	Western Province Human Resources Development and Management Training Institute.
2	23.07.2018 03.08.2018	Department of Meteorology
3	06.08.2018	Wariyapola Wayamba Training Center
4	30.07.2018	Matugama Zonal Education Office
5	21.09.2018	Dharmaraja College – Kandy
6	24.09.2018	Southern Province Police on the job training institute – Galle Fort
7	21.12.2018	National Child Protection Authority

4.2 Conferences and workshops conducted

World Meteorological Day

World Meteorological Day was celebrated in grand scale by the Department of Meteorology on 24 March 2018 on the theme “**Weather – Ready, Climate – Smart**”. This programme was attended by school children, students of universities and higher educational institutes, and officials from various government and non-governmental institutes and officers of the security forces.

Monsoon Forum

Explanations are given to the relevant institutes, which are responsible for taking action on monsoon situations in a meeting organized at least 02 weeks prior to the Southwest and Northeast monsoon in order to explain the impending environmental situations. In this forum, the extended seasonal forecast for the monsoon based on the numerical model outputs together with other details including confidence levels are discussed giving the opportunity for stakeholder agencies to prepare for oncoming monsoon season.

4.3 Participation in meetings / trainings / conferences and workshops

4.3.1 Participation in meetings / trainings / conferences and workshops overseas

Serial No.	Name of the officer/ Designation	Meeting/ seminar/ scholarship/ training programme	Country	Duration
01	Mr. K. H. M. S Premalal Director General	Visit to the China Maritime Studies Institute	China	2018 January 23-27
02	Mr. M. M. P. Mendis Deputy Director	Visit to the China Maritime Studies Institute	China	2018 January 22-27
03	Mr. Nimal Ekanayaka Meteorologist	Visit to the China Maritime Studies Institute	China	2018 January 22-27
04	Mr. V. P. S Lokuhetti Meteorological officer	Visit to the China Maritime Studies Institute	China	2018 January 22-27
05	Mrs. Nadeeka Ranaweera Meteorologist	TCC seminar on seasonal forecast	Japan	2018 January 29 - February 3
06	Ms. Shiromanie Jayawardhana Deputy Director	De-escalation of climate change to calculate climate change losses.	Bangkok – Thailand	2018 February 19-20
07	Mrs. Nisha Hapuarachchi Research Assistant	De-escalation of climate change to calculate climate change losses.	Bangkok – Thailand	2018 February 19-20
08	Mr. Malika Wimalasooriya Director (covering)	WMO/JMO workshop – RA11 Quality Management on Surface Observations.	Japan	2018 March 19-23
09	Mr. T. M. Maheepala Meteorological officer	WMO/JMO workshop – RA11 Quality Management on Surface Observations.	Japan	2018 March 19-23
10	Mr. Malinda Millagoda Meteorologist	SAFFGS Training ,	America	2018 March 05-30
11	Mr. K. H. M. S Premalal Director General	IPCC Seminar,	France	2018 March 13-16
12	Mr. Ajith Wijemanna Director	Brief course on using geographical structures to study the responses of forests and eco systems to climatic changes.	India	2018 April 16-27
13	Mr. K. D. Sujeewa Meteorologist	12 th SASCOF workshop,	India	2018 April 12-22
14	Mr. K. H. M. S. Premalal Director General	Climatic- smart agricultural specialist services and advices and APN and SASRC meeting.,	India	2018 April 17-19
15	Mrs. Chathushka Premachandra Meteorologist	International training course on meteorological service and consumption of weather radars.	Korea	2018 April 30 – May 18
16	Mr. Chaminda Silva Meteorologist	Seminar to start the green forest cultivation in the silk zone - 2018	China	2018 May 9 - 2018 June 2
17	Mr. Anurasiri Meteorologist	Seminar to start the green forest cultivation in the silk zone - 2018	China	2018 May 9 - 2018 June 2
18	Mr. Darmapriya Meteorologist	Seminar to start the green forest cultivation in the silk zone - 2018	China	2018 May 9 - 2018 June 2
19	MR. L. A. D. B. Bandusena Meteorologist	Seminar on climatic change controllers for senior officers.	China	2018 May 25- June 7
20	Mr. Darshana Premathilaka Meteorologist	Seminar on climatic change controllers for senior officers.	China	2018 May 25- June 7
21	Mr. P. G. Yasarithna Meteorologist	Seminar on climatic change controllers for senior officers.	China	2018 May 25- June 7

22	Mr. K. D. Sujeewa Deputy Director	Meeting of specialists on creating artificial rains to generated hydropower with assistance from Thailand.	Thailand	2018 June 4-10
23	Mrs. Gayana Hendawitharana Meteorologist	Training programme on new operations to find maritime data inventions and services and using them.	India	2018 June 18-22
24	M. H. M. P. Mendis Deputy Director	ICG/IOTWMS 2 nd Integrated Intercessional Meetings and Trainings ,Hydrabad, India,26 June-14 July 2018	India	2018 June 26 – July 14
25	Mr. A. W. S. J. Kumara Meteorologist	Information and communication for meteorological services.	Korea	2018 June 18 - July 6
26	Mr. Malinda Miilangoda Meteorologist	4 th phase to guide emergency floods.	India	2018 June 4-8
27	Mr. Rex Fernando Meteorological officer	Basic training on meteorology.	Pakistan	2018 June 29 – September 1
28	Mr. G.D. Sanjeewa Meteorological officer	Basic training on meteorology.	Pakistan	2018 June 29 - September 1
29	Mrs. S. M. U. Bandara Meteorological officer	Basic training on meteorology.	Pakistan	2018 June 29 - September 1
30	Mr. Athula Karunanayaka Director	DPC Pacific island training on using 3 rd maritime observations and data use (DBCP-PI-3) and 5 th Asian Pacific region JCOMM marine equipment programme. (RMIC-AP-5),	China	2018 July 9-12
31	Mrs. Preethika Jayakody Meteorologist	Training Workshop on Asian Aviation Hazardous Weather Coordination,	China	2018 July 8-14
32	Mr. K. H. M. S. Premalal Director General	23 rd inter governmental meeting and science planning group meeting.	Thailand	2018 July 9-12
33	Mrs. A. R. Warnasooriya Director	Indian marine workshop ,	China	2018 July 18-20
34	Mrs. Nadeeka Ranaweera Meteorologist	Indian marine workshop	China	2018 July 18-20
35	Mr. K. H. M. S. Premalal Director General	Meeting on the decision of the government of Sri Lanka on implementing RIMES sub zone	Thailand	2018 July 20-22
36	Mr. Ajith Wijemanna Director	Meeting on the decision of the government of Sri Lanka on implementing RIMES sub zone.	Thailand	2018 July 20-22
37	Mr. T. M. Maheepala Meteorological officer	CRIP project ,	India	2018 July 16-27
38	Ms. Udeni Weerasinghe Meteorologist	OTGA-INCOIS training workshop: using marine meteorological data visualization (FERRET),	India	2018 August 27-31
39	Mrs. Chathushka Premachandra Meteorologist	Post graduate degree on meteorology,	Netherlands	2018- August 13 - 2020 September 1
40	Mr. Darshana Prematilaka Meteorologist	Post graduate degree on meteorology,	Korea	2018-August20 - 2020 February 1
41	Mr. Nimal Ekenayaka Meteorologist	Post graduate degree on meteorology,	China	2018- September 1- 2020 September 1
42	Mr. Malith Fernando Meteorologist	Post graduate degree on meteorology,	China	2018- September 1- 2020 September 1
43	Mr. J. Karunarathna Meteorologist	Empower meteorological services,	Japan	2018 September 26 - 2018 December 08

44	Ms. A. R. Warnasooriya Director	45 th seminar on tropical cyclones of WMO/ESCAP board.	Oman	2018 September 23-27
45	Mr. Athula Karunanayaka Director	Leadership and management programme for the senior managers serving in NMHS	Singapore	2018 September 10-14
46	Mr. M. M. P. Mendis Deputy Director	Asian hydro meteorological conference.	Switzerland	2018 September 18-20
47	Mr. K. H. M. S. Premalal Director General	48 th the IPCC on climatic changes.	Korea	2018 October 1-5
48	Mr. K. D. Sujeewa Deputy Director	RSMC Tokyo coordination training.	Japan	2018 October 15-26
49	Ms. I. M. S. P. Jayawardana Deputy Director	Workshop on disaster hazard reduction, adjusting to climate changes including the early warning systems and accelerated evaluations.	China	2018 October 22-23
50	Mrs. Sachintha Jayasekara Meteorologist	Improve the ability to use and analyzed meteorological satellite data.	Korea	2018 October 18 – November 17
51	Mr. Malika Wimalasooriya Director	9 th Seminar of Asian marine climatic satellite data users (AOMSUC-9) and related incidents.	Indonesia	2018 October 6-11
52	Mr. T. M. N. Pieris Meteorologist	48 th Chinese study tour and the seminar of marine climatic satellite data users in Shang Hai Cooperative institute FENGYUN-2	China	2018 September 23-29
53	Mr. Ajith Wijemanna Director	Foreign visit with the Minister.	France	2018 September 09-13
54	Mr. Malika Wimalasooriya Director	Foreign visit with the Minister.	France	2018 September 09-13
55	Mrs. Preethika Jayakody Meteorologist	Training Programme on RA11 workshop on WIGOS,	China	2018 November 06-08
56	Mrs. A. R. Warnasooriya Director	10 th RIMES board meeting,	Thailand	2018 November 12-14
57	MR. A. M. H. A. D. Alagiyawanna Research Assistant	TCC training session for monthly forecasts.	Japan	2018 November 12-16
58	Mr. Athula Karunanayaka Director General (covering)	3 rd Session of the control board of the Asian and Pacific centre on developing disaster information management.	Iran	2018 December 17-20
59	Mr. K. I. Pasquel Meteorologist	Training programme of CMA cyclone forecasters on Tropical cyclone analysis and forecasting.	China	2018 December 10-19

4.3.2 Local training

Officers who participated in training programmes conducted by external institutes.

Serial No.	Institute	No. of officers trained
1	Sri Lanka Institute of Development Administration	11
2	Ministry of Public Administration and Management	13
3	Ministry of Disaster Management	15
4	Department of National Archives	01
5	Department of Official Languages	05
6	Skills Development Fund	01

4.3.3 Conducting Training Programmes for Officers by the Department

- Training course on electronic technology (03 months)
- Official language Tamil language study training course.

4.4 Continuous Education and Training Programme for meteorologists and Meteorology Observers in Sri Lanka Technological (CET)

Phase I	From 15.08.2018 – 17.08.2018 – Irrigation Training Institute, Galgamuwa
Phase II	From 20.0f.2019 – 22.02.2019 – Irrigation Training Institute, Galgamuwa

4.5 Training programme (Theoretical and Practical) for the officers newly recruited to the post of Meteorological Observer of Sri Lanka Technological Service.

1. 10.08.2017 group (24 officers)

Two year training from 10.08.2017 to 09.08.2019.

4.6 Departmental examinations and efficiency bar examinations

The following Departmental examinations and efficiency bar examinations were held in two phases for the officers employed at the Department coordinating with the internal examination section of the department. Accordingly, 23 officers appeared for those examinations and all those officers passed the examinations.

Serial No.	Name of the Examination	Date of the examination	No. of candidates
1.	Primary grade – Efficiency Bar Examination for Meteorological assistant/ mason/ carpenter.	19.07.2018	04
2.	First departmental examination for meteorological observer Grade II.	04.07.2018	05
3.	First departmental examination for meteorological observer Grade III.	07.2018	05
4.	Departmental examination at the end of the grade Meteorological observer (training).	03.07.2018	05

05. Performance of the Equipment Division

5.1 Equipment Division.

Main functions of the equipment division

Equipment division of the Meteorological Department consists of 5 sub sections.

1. Operation Division
2. Laboratory
3. Carpentry Division
4. Mechanical Division
5. Book binding Division

Under this section the following activities take place.

1. Installing, maintaining, calibrating and revising numbers in the equipment yard and the equipment in the Colombo head office and in 22 outside meteorological centres.
2. Carrying out maintenance, number revision and calibration in 37 automatic meteorological offices.
3. According to the requests made by the outside institutions and from the department itself calibrate, rectify and install traditional and automatic meteorological equipment inside the labs or in the field.
4. Provide technical support and assistant to establish new meteorological stations.
5. Provide necessary advice to collect correct data.
6. Provide the quantity and the specifications necessary to purchase all the meteorological data locally or internationally and quality check of the equipment so purchased.
7. Provide necessary equipment and technical advice to the agro meteorological stations.
8. Represent the department in exhibitions, provide exhibits, and train the relevant persons to contribute for exhibitions.
9. Raise awareness among outside parties on installing, maintaining, data collecting, equipment calibrating and number revising.
10. The carpentry and mechanical divisions under Equipment Division carry out the maintenances in the head office and outside offices, the functions that should be performed by those sections and the book binding division make all the books and files needed by the department.

5.1.1 Activities performed by the Equipment Division in 2018

1. Calibration, repairing, manufacturing and issuing equipment.

Serial No.	Type of equipment	Calibration	Repair	Production	Issuing	Issuing of Calibration certificates/ transformation charts
1.	Mercury barometer	13			01	11
2.	Electronic barometer	10				09
3.	Aneroid barometer	06				06
4.	Thermometer	182			11	11
5.	Electronic thermometer	10				10
6.	anemometer					
7.	Wind direction indicator					
8.	Compass	03				03
9.	Self- recording thermometer	14	14	03		
10.	Self-recording hygrometer	19	01	13		
11.	Self-recording rainguage	15	08	13		
12.	Self-recording barometer	06	0	0		
13.	Self – recording radiometer					
14.	Evaporation tanks					01
15.	Rain gauge	03				
16.	Measuring cup					
17.	Stevenson screen		04	05	01	
18.	Anemometer columns			03	01	
19.	Supporting column			09	03	
20.	Anemometer ladder			0	01	
21.	Thermometer safety cage			03		
22.	Stevenson columns			8	8	

2. Training of officers

200 officers were trained.

Field	Number
Training of meteorological observation communication officers	14

3. Monitoring and maintenances of meteorological centres

Field	Number
External meteorology centres	27
External Agro meteorology centres	04
a. AWS centres	43

4. Special Programmes

Activity	Amount
Supply exhibits for school exhibitions	26
Use of traditional equipment sets and compare data obtained through AWS and traditional equipment.	01

Conduct large scale exhibitions	01
Book binding	306
Files	186
Training of students for special degree training programmes	02
Checking and calibration of equipment in Colombo harbor and marine ship.	✓
Contribution made to check the comparative humidity and temperature in the “ <i>dhatu vandana</i> ” programme at Temple Trees.	✓
Check the land to construct new meteorological office in Mulative	✓
Calibration of equipment in the Medical Faculty in Colombo University	✓
Conduct a meteorological exhibition in the University of Colombo.	✓

06. Electrical Engineering Division

6.1 The main functions of the Electronic Engineering Division in 2018

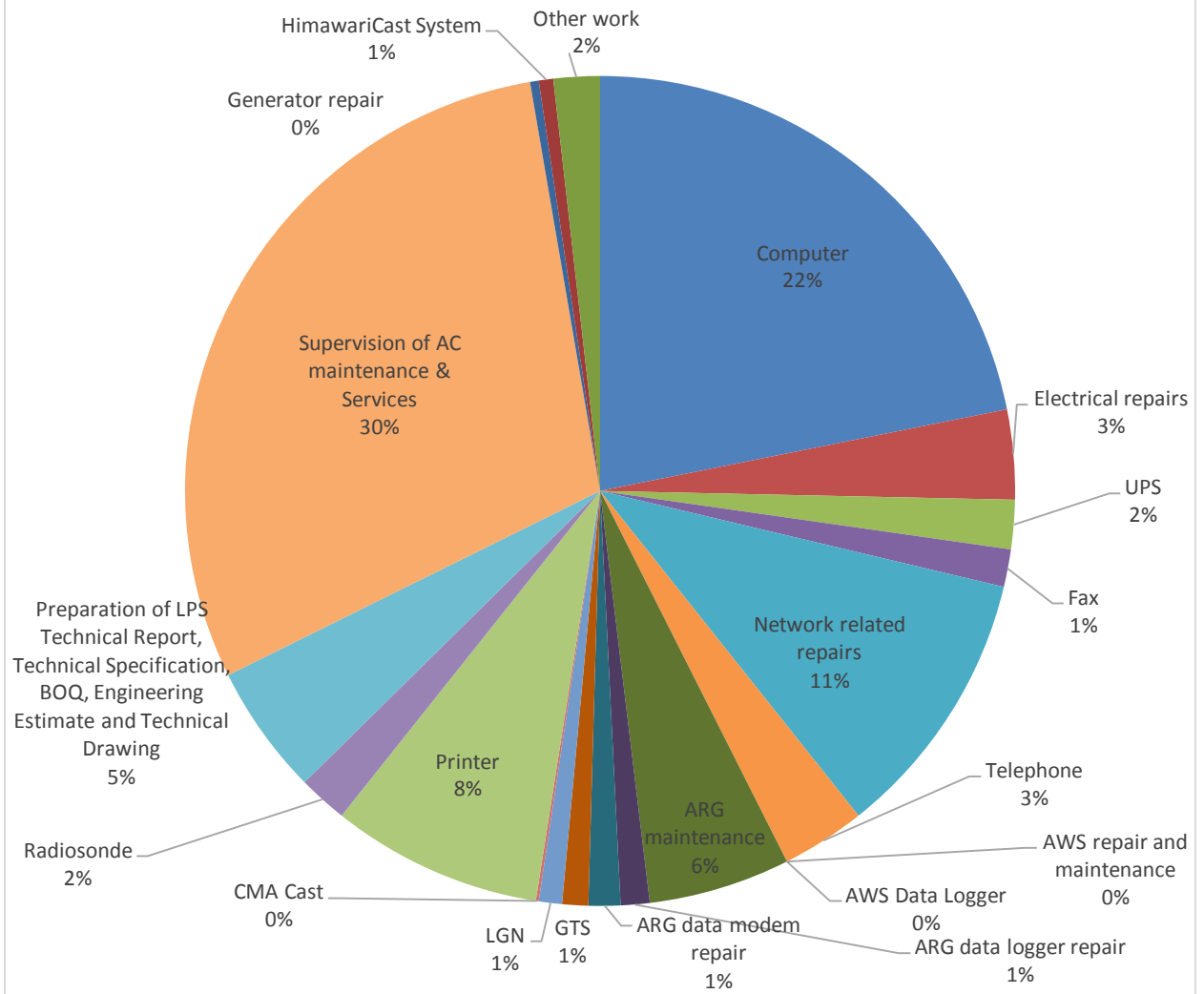
The functions of the electronic and engineering division are as follows.

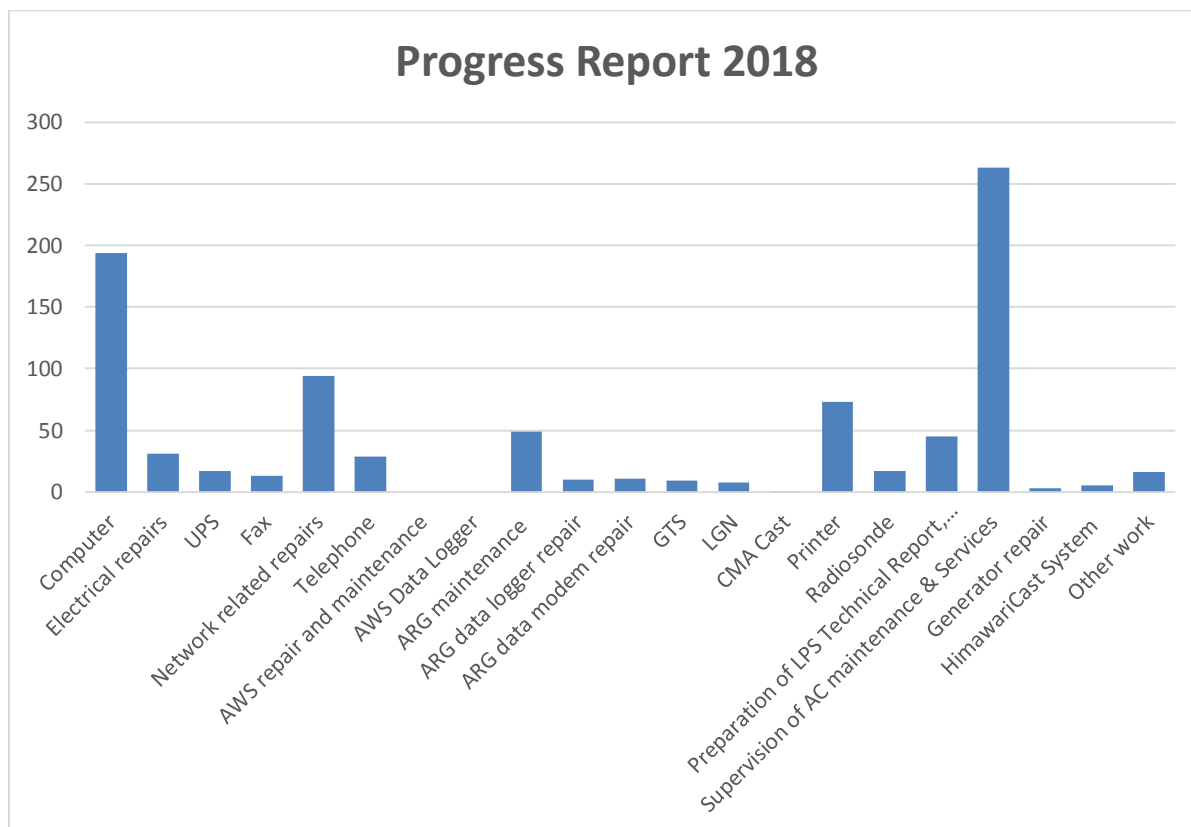
- Repairing and maintaining the equipment and systems based on electronics and information technology and establishing new electronic and information technology systems.
- Repairing and maintaining the electricity supply system of the Department.
- Provide advice on lightning safety measures for other government institutions.
- Participate in technical evaluation activities in the government institutions.
- Implement human resource development programmes for the officers in electronic engineering division and in other divisions of the department.
- Further the preventive maintenance for the following systems and equipment should be carried out. Automatic rain gauge system network, Global Telecommunication System, Computer Network of the department, LGN system, Power Generator, CMACAST system, HIMAWARICAST system, satellite tracking system, electric system of the department, computers and related appliances, Radiosonde system, telephone system of the department (PABX) Hydrogen generating equipment are among them. In this year maintenance of AWS were stopped by order of the Director General.

1. Details about repairs and maintenance

Number	Details	Repair and maintenance carried out
1	Computer	194
2	Electrical repairs	31
3	UPS	17
4	Fax	13
5	Network related repairs	94
6	Telephone	29
7	AWS repair and maintenance	0
8	AWS Data Logger	0
9	ARG maintenance	49
10	ARG data logger repair	10
11	ARG data modem repair	11
12	GTS	9
13	CMA Cast	1
14	LGN	8
15	Printer	73
16	Radiosonde	17
17	Preparation of LPS Technical Report, Technical Specification, BOQ, Engineering Estimate and Technical Drawing	45
18	Supervision for AC maintenance & Services	263
19	Generator repair	3
20	HimawariCast System	5
21	Other work	16
	Total	888

Progress Report 2018





2. Other technical functions

- Repair the electronic control cards of the automatic rain gauge system(PCB level)
- Prepare MODEM for ARGS using appliances purchased from the local market and recreating and restoring at firmware level.
- Creating antennas for ARGS.
- Monitor the maintenance of ACs.
- Participate in the monitoring/ observing tasks in the 1st phase of installing 100 rain gauges in the programme to install 400 rain gauges.
- Supply of electricity to the audit section, stores and record room.
- Generate hydrogen needed to send the radiosonde balloon for 3 days a week to carry out observations in the air and perform technical activities related to that balloon.
- Repair the technical appliances in the meteorological offices in the Katunayaka and Mattala international airport premises.
- Re install the ARGS fixed in the Thalawakela Tea factory premises in another place in the same premises.
- Repair the radiosonde receiver.
- Restore data cables and electric cables in the server room.
- Restore the battery charger of the electricity generator.
- Repair the sound system for the auditorium and the conference hall.
- Prepare specifications and plans for the proposed sound system in the auditorium of the Ministry of Disaster Management.

- Provide the electricity to install the multimedia equipment in the office of the Director General.
- Install a new automatic control system for the pump house.

3. Technical advice

3.1 Lightning conductors.

Preparing tender documents, technical reports, B.O.Q , technical specifications and advice on lightening conductor systems for the following institutions. Technical valuations were done for certain institutions.

- Arthur C. Clark Centre (Matara Kamburugamuwa, Lanka Bell tower)
- Anuradhapura DSD.
- Atomic Energy Authority – Gamma centre, Biygama.
- Botanical garden – Awissawella.
- Base hospital – Balangoda
- Crime Investigation Department Headquarters.
- Department of probationary and child care- Detention house for young people, Makola
- Department of probationary and child care – Certified national school- Makola
- Department of probationary and child care – girls’ detention house, Kadawatha
- Department of probationary and child care – Prajapathie government children’s home, Panadura
- Department of probationary and child care –certified girl’s school, Ranmutugala
- Divisional Secretariat Division –Akmeemana
- Divisional Secretariat Division – Veliwitiya, Divitura
- Divisional Secretariat Division- Habaraduwa
- Divisional Secretariat Division - Hikkaduwa
- Divisional Secretariat Division - Neluwa
- Divisional Secretariat Division- Niyagama
- Divisional Secretariat Division- Thawalama
- Divisional Secretariat Division- Gonapeenuwala
- Divisional Secretariat Division- Yakkalamulla
- Ayurvedic medicine faculty – Rajagiriya - girls’ hostel
- Ministry of Home Affairs - Independence day 2018
- Police communication division – Mirihana
- National Museum.
- NAQDA aquatic garden exhibition
- Bellwood aesthetic institution – National Youth Council
- Police crime report division
- Police Hospital - Narahenpita
- Tourist Bungalow – Police school
- President’s House – Colombo 07
- State intelligence service
- Sri Lanka Radio Corporation – Colombo 07

- STF – Colombo headquarters
- STF – Horana Camp
- STF – Gampola
- Terrorist investigation division – Epitamulla
- Department of Wild life – Kawudulla
- Department of Wild life – Minneriya

3.2. Other services

Consultancies have been provided for the following institutes on preparing tender documents, technical reports, B.O.Q and technical specifications.

- Peradeniya Botanical Garden (CCTV camera system)
- National Building Research Organization (Simple Alarm Rainguage System)
- National Building Research Organization (Work station computers)
- Ministry of Disaster Management (Public Addressing System)
- Department of Valuation (Computers and UPS)
- Disaster Management Center (Emergency display system)
- Sri Lanka Institute of Development Administration Radio Frequency Identification System (RFID)

4. Training / Human Resource Development

No local or foreign training were given

07. Performance of the Research and Development Division

7.1 Research and development activities have been conducted through the following fields.

- Verification of the observed rainfall in Sri Lanka using 12 climatic structure to find out the appropriate climatic structure to forecast rainfalls in Sri Lanka.
- The study of the impact of El-Nino Southern Oscillation - ENSO , ENSO Modoki and Indian Ocean Dipole on the drought situation in selected rainfall centres using the Standardized precipitation index.
- Studying the impact of Indian Ocean Dipole- IOD on Sri Lanka's monthly rainfall.
- Study of Madden Julian Oscillation using GLD360 data on having lightning during the inter monsoon periods in 2015 and 2016 .
- Extreme weather condition indicators prepared by world meteorological organization to prepare maps on Sri Lanka about risk and vulnerability under the project "Updating Climate Change Vulnerability Assessment and Piloting Climate Risk Screening for Mainstreaming Climate Change Adaptation into National Development Activities" which is implemented by the Ministry of Mahaweli Development and Environment and prepare maps by calculating relevant indicators using observed data and projected data.
- Preparation of projected climatic data on seasonal and annual basis to create maps on risk and vulnerability according to the future climatic changes and analyze observed data in Sri Lanka for the last 30 years using a software and preparation of a report on extreme weather conditions for the 3rd National Communication conducted by the United Nations Framework Convention on Climate Change.

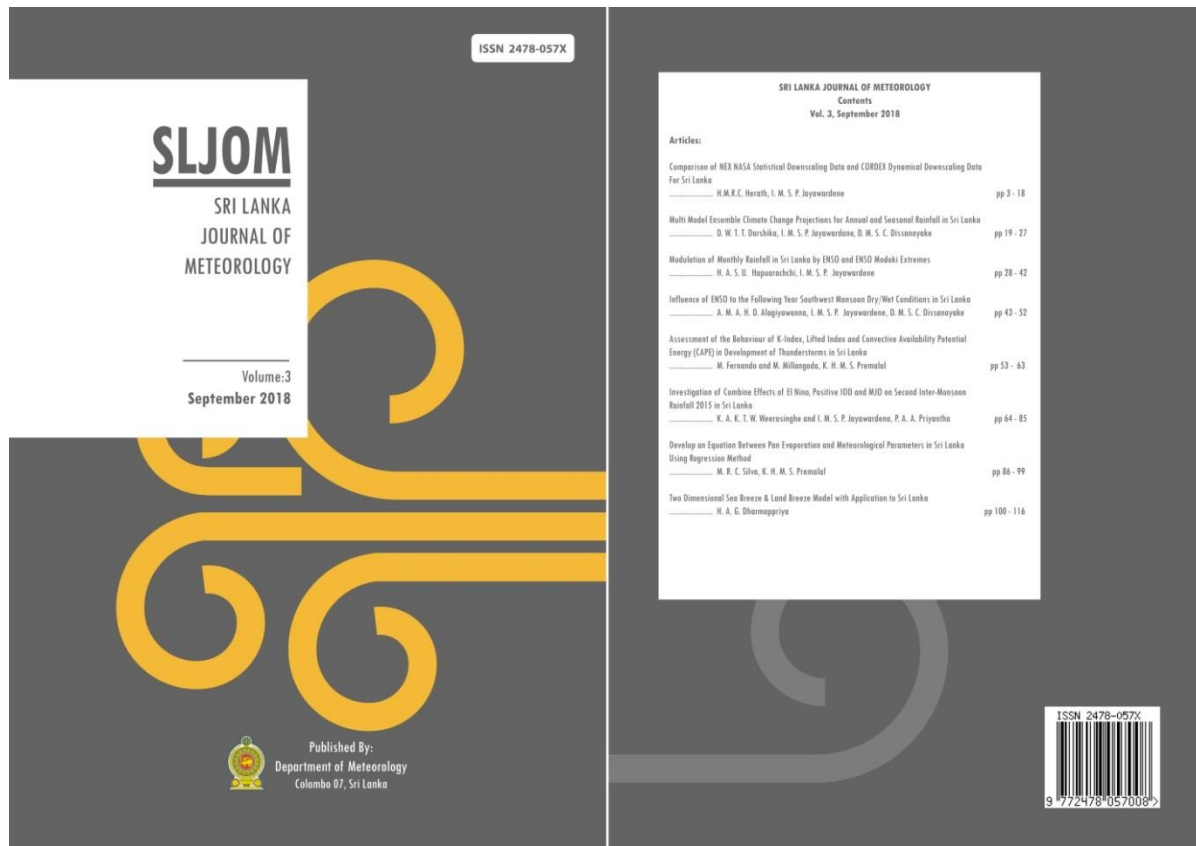
7.2 Regular duties carry out by Research and Development Section and the Centre for Climate Change Studies.

- Drought Observation Paper – Observe drought condition using Standardized precipitation index and mapping. Observe the drought condition for 12 months respectively and periods 1,2,3,4,5,6,9 and mapping the drought conditions for those periods.
- Create temperature predictions monthly and quarterly using global climatic framework maps and CPT, FOCUS, ITACS software.
- Verify monthly rainfall forecasts using the observed meteorological data in meteorological centres.

Research Publications

- Herath, H.M.R.C. and I.M.S.P. Jayawardena : 2017 Evaluation Of Downscaled Cmp5 Climate Models To Select The Best Models To Develop Future Climate Scenarios For Sri Lanka *Proceedings of the International Conference on Climate Change*, Vol. 1, 2017, pp. 36-50 online DOI: <https://doi.org/10.17501/iccc.2017.1204>
- **Jayawardena, I.M. Shiromani Priyanthika**, Wheeler M C, Sumathipala, W.L. and Basnayake, B.R.S.B. 2018 Impacts of the Madden–Julian Oscillation (MJO) on Rainfall in Sri Lanka *Sixth Symposium on the Madden-Julian Oscillation and Sub-Seasonal Monsoon Variability American Meteorological Society Annual Meeting* Austin TX USA 2018.
- Jayawardena, IM Shiromani Priyanthika, DWT Thanuja Darshika, and HM Roshan C. Herath. 2018 ; "Recent Trends in Climate Extreme Indices over Sri Lanka." *American Journal of Climate Change* 7: 586-599.
- **Volume 3 of the Sri Lanka Journal of Meteorology (SLJoM Vol 3) published by the Department of Meteorology in September 2018.**
 - Herath ,H.M.R.C and Jayawardene ,I. M. S. P. 2018: Comparison of NEX NASA Statistical Downscaling Data and CORDEX Dynamical Downscaling Data For Sri Lanka , *Sri Lanka Journal of Meteorology* , 3 ,3-18
 - Darshika , D. W. T. T., Jayawardana ,I. M. S. P and Dissanayake ,D. M. S. C 2018:Multi Model Ensemble Climate Change Projections for Annual and Seasonal Rainfall in Sri Lanka , *Sri Lanka Journal of Meteorology* , 3 ,19-27
 - Hapuarachchi, H. A. S. U. and Jayawardene. I. M. S. P 2018: Modulation of Monthly Rainfall in Sri Lanka by ENSO and ENSO Modoki Extremes , *Sri Lanka Journal of Meteorology* , 3 ,28-42
 - Alagiyawanna ,A. M. A. H. D. and. Jayawardene , I. M. S. P, Dissanayake ,D. M. S. C. 2018:Influence of ENSO to the Following Year Southwest Monsoon Dry/Wet Conditions in Sri Lanka , *Sri Lanka Journal of Meteorology* , 3 ,43-52
 - Fernando,M and Millangoda, M , Premalal ,K. H. M. S 2018:..Assessment of the Behaviour of K-Index, Lifted Index and Convective Availability Potential Energy (CAPE) in Development of Thunderstorms in Sri Lanka, *Sri Lanka Journal of Meteorology* , 3 ,53-63
 - Weerasinghe ,K. A. K. T. W. and. Jayawardena ,I. M. S. P., Priyantha ,P. A. A 2018: Investigation of Combine Effects of El Nino, Positive IOD and MJO on Second Inter-Monsoon Rainfall 2015 in Sri Lanka , *Sri Lanka Journal of Meteorology* , 3 ,64-85

- Silva, M.R.C., Premalal, K. H. M. S 2018: Develop an Equation Between Pan Evaporation and Meteorological Parameters in Sri Lanka Using Regression Method, *Sri Lanka Journal of Meteorology*, 3, 86-99
- Dharmappriya, H. A. G 2018: Two-Dimensional Sea Breeze & Land Breeze Model with Application to Sri Lanka, *Sri Lanka Journal of Meteorology*, 3, 100-116.



8. Performance of the Administration and Finance Division

8.1 Administration Division

8.1.1 Staff

The approved cadre of the Department as at 31.12.2018 was 460 and the actual cadre was 373. Accordingly, there were 87 vacant positions as follows:

Position	No. of vacancies
Director General	01
Director	04
Deputy Director	02
Meteorologist	03
Internal Auditor	01
Civil Engineer	01
Administrative Officer	01
Senior Meteorological Communication Officer	02
Senior Meteorological Officer	14
Senior Telecommunication and Radar Mechanical Officer	01
Translator	02
Research Assistant (Library)	01
Development Officer	07
Meteorological Officer/ Observer	29
Librarian	01
State Management Assistant	01
Information Technology Assistant	01
Assistant Data Controller	01
Driver	02
Mechanic	01
KKS	07
Meteorological Assistant	04
Total	87

8.1.2 Recruitments/ Filling vacancies

The following vacancies were filled in 2018.

Position	No. of Vacancies
Director (Administration and Finance)	1
State Management Assistant	3
Telecommunication and Radar officer	4
Meteorological Assistant	21
Driver	3

8.1.3. Retirements/ Resignations/ Releases/ Vacations of post/ Deaths

In 2018, 13 officers were retired, three were released from the service, 1 officer resigned and one officer died.

8.1.4 Construction work

Serial No.	Details of the completed work
1	Repair all the toilets/ bathrooms in the southern end of the three storey building of the Head Office.
2	Minor repairs in toilets/ bathrooms and water pumps adjacent tobuilding.
3	Repair and paint the walls adjacent to the Directors' rooms inbuilding.
4	Repair the roof of the dining hall and rest rooms.
5	Repair the rest rooms and bathrooms in the head officer and paint the walls and the ceiling.
6	Repair the drainage system and the pavement at the factory of the Equipment Division.
7	Repair the water pumps in the Equipment Division and provide a new water connection.
8	Repair the toilets/ bathrooms and water pipes in Nuwara Eliya tourist bungalow.
9	Construct a net surrounding the equipment square in the Hambantota office.
10	Repair the Batticaloe office and the bathrooms.
11	Repair the drainage system and the pavement at Galle office.
12	Erect a fence surrounding the land belongs to the Ratnapura Office and repair the drainage system and the pavement of the office.

8.2 Finance Division

8.2.1 Income

Revenue Account2018

Head: 304

Programme: 02

Project No. : 01

Revenue Code	Revenue Code Title	Revenue2018		Description
		Estimate (Rs.)	Actual (Rs.)	
20.02.01.01	Return on Government Assets Government building rentals	500,000.00	771,736.96	Rental for the official residence of the Director General and the officers in-charge in outside offices.
20.02.02.99	Interest - Other	1,500,000.00	1,185,680.05	Interest – Government Officers’ Advance „B” account
20.03.02.99	Sales Proceeds and Charges - Administration fee - Sundry	6,000,000.00	7,427,039.93	Income received through issuing of data and reports to various fields: Eg- universities, contractors etc.
20.03.99.00	Sales Proceeds and Charges - Other receipt	900,000.00	406,795.00	From school visits, issuing reports for schools, tender registration fees, lectures and workshops, reserving of the auditorium, selling of books, and reserving of Nuwara Eliya Circuit Bungalow
Total		8,900,000.00	9,705,879.84	

8.2.2 Expenditure

Provisions for 2018 - Recurrent expenditure (Rs.)

Head: 304

Programme: 02

Project No: 01

Category	Project - 01		%	Description
	Provision Rs.	Actual Cost Rs.		
Personnel emoluments	221,060,000	216,053,762	98	Salaries & Wages, Overtime & Holiday Payments and Other Allowances.
Travelling	2,260,000	2,257,316	100	Domestic travelling, Foreign travelling, Foreign meetings and Conferences
Supplies	12,735,000	12,405,707	97	Purchasing of meteorological balloons, radiosonde, sunshine cards, stationery, and office requirements. Fuel and lubricating oils Food, diets and uniforms
Maintenance expenditure	4,350,000	4,243,341	98	Expenditure for maintenance of vehicles, plant and machinery, and maintenance of buildings.
Services	43,695,000	43,069,257	99	Transport services, postal and telecommunication services, electricity and water, assessment taxes and lease rental, security and janitorial services, and other services
Transfers	8,700,000	8,241,523	95	Contribution Fees for World Meteorological Organization and two other foreign organizations and property loan interest for public servants.
Total expenditure	292,800,000	286,270,906	98	

Provisions for 2018 - Capital Expenditure (Rs.)

Head : 304

Programme : 02

Project No : 01

Expenditure code	Expenditure title	Net provisions 2018 Rs.	Actual Cost 2018 Rs.	%	Description
	Total	355,000,000	74,495,923	21	
	<u>Capital assets Rehabilitation and improvements</u>	12,200,000	8,867,755	73	
2001	Buildings and structures	12,200,000	8,867,755	73	Improvements done to the head office building and repair other meteorological offices.
	<u>Capital Assets Acquisitions</u>	106,800,000	32,304,505	30	
2102	Furniture and office equipment	18,800,000	17,796,933	95	
2103	Plant and machinery	87,500,000	14,184,586	16	Meteorological equipment
2105	Lands and land improvements	500,000	322,986	65	Tasks related to construction of the safety fence in Ratnapura Meteorological Office and improving the lands in Polonnaruwa and Anuradhapura Meteorological offices.
	<u>Capacity building</u>				
2401	Staff training	6,000,000	5,994,733	100	Local and foreign training programmes for Staff Officers, and Technical and Nontechnical Officers
		6,000,000	5,994,733	100	

2509	<u>Other capital expenditure</u>	230,000,000	27,328,930	12	Purchasing of spare parts for automated meteorological system.
	Other	30,000,000	25,131,815	84	Tax payments for the vehicle transferred from JAICA.
		200,000,000	2,197,115	1	

Summary of Advance Accounts - 2018

Head: 304

Programme : 02

Project No: 01

Item	Estimate 2018 Rs.	Actual 2018 Rs.
Government Officers Advance Account		
Maximum limit of expenditure	12,000,000	9,175,679.00
Minimum limit of receipts	8,000,000	10,456,641.88
Maximum limit of debit balance	70,000,000	28,481,353.49