

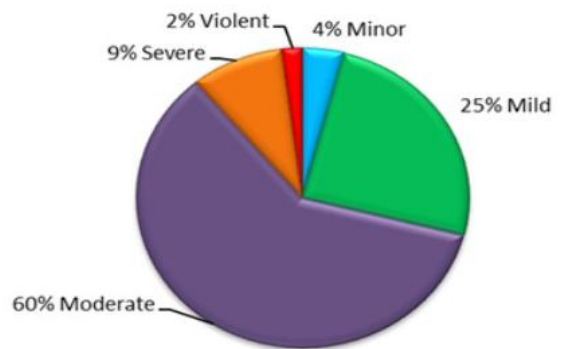
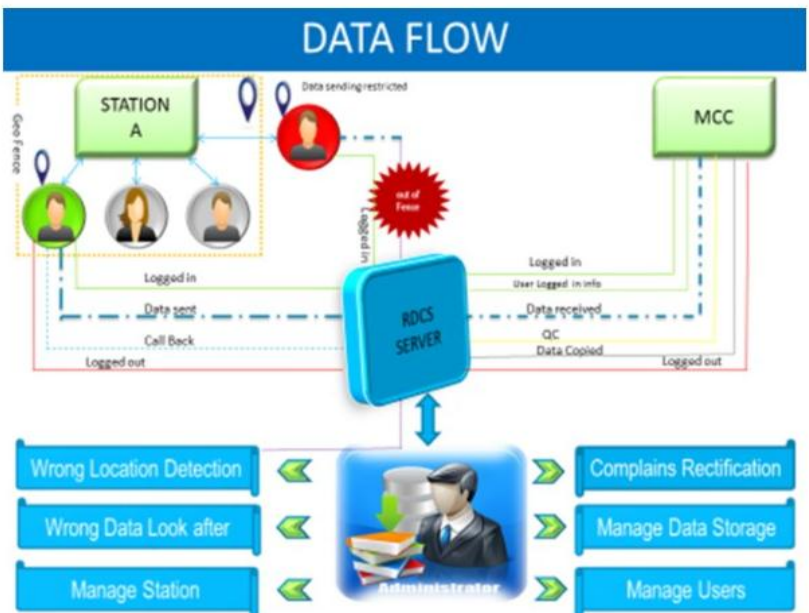


RMC LAHORE TIMES

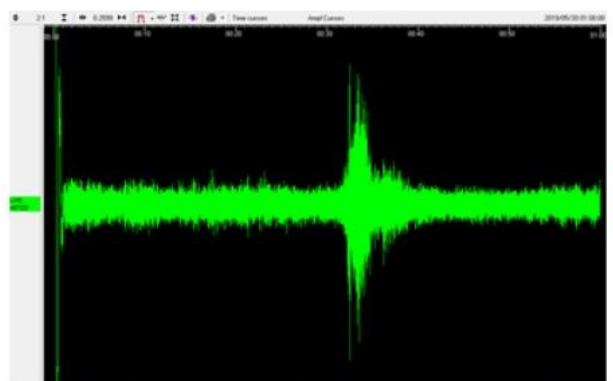
Pakistan Meteorological Department

HIGHLIGHTS

- Regional Data Collection & Management System (RDMS) has been launched at 11 stations of Punjab and AJK.
- Highest Max. Temp 49.0°C at Rahim Yar Khan on 02-06-2019.
- Lowest Min. Temp 5.5°C at Rawalakot on 19-04-2019.
- Highest Rainfall 43.2mm at Lahore City on 17-04-2019
- Highest Windspeed 80 knots at Lahore A/P on 20-06-2019.
- Total 37 local Seismic events recorded at Lahore Station.



Quarterly Seismicity



4.9Mw Hindu Kush Region, AFG

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Preface

The basic objective of this publication is to highlight the quarterly activities carried out at Regional Meteorological Centre (RMC) Lahore. RMC is part of Pakistan Meteorological Department (PMD) headed by the Director, responsible for administrative, financial and technical control of all units of PMD in Punjab and Azad Jammu & Kashmir region. The region is very important and vulnerable for all natural disasters due to its geographical & geological features. The socio-economic activities in this region are heavily depended on meteorological parameters. All the meteorological parameters which are recorded at different units of PMD are then computerized at Regional Climate Data Processing Section at RMC after quality checks for the public, researchers, developers, economists, government and private agencies for the development, land reforms, agricultural sector, urban planning and all fields of life.

In meteorology, the human skill development is very important for accurate weather parameter reporting. This can be achieved by developing a healthy, hygienic and up to date environment to all staff at all units which has been insured at all units.

I acknowledge the efforts of all the officers & officials at respective stations and units for their contribution to maintain the observation up to the mark of World Meteorological Organization (WMO) standards. It is the result of this same spirit that our officials has come up with a new innovation in the techniques for the better data processing and handling. Hence, upgrading the system for a bright and better future of Pakistan in the field of meteorology.

Muhammad Ajmal Shad
Director
RMC Lahore
042-99205591

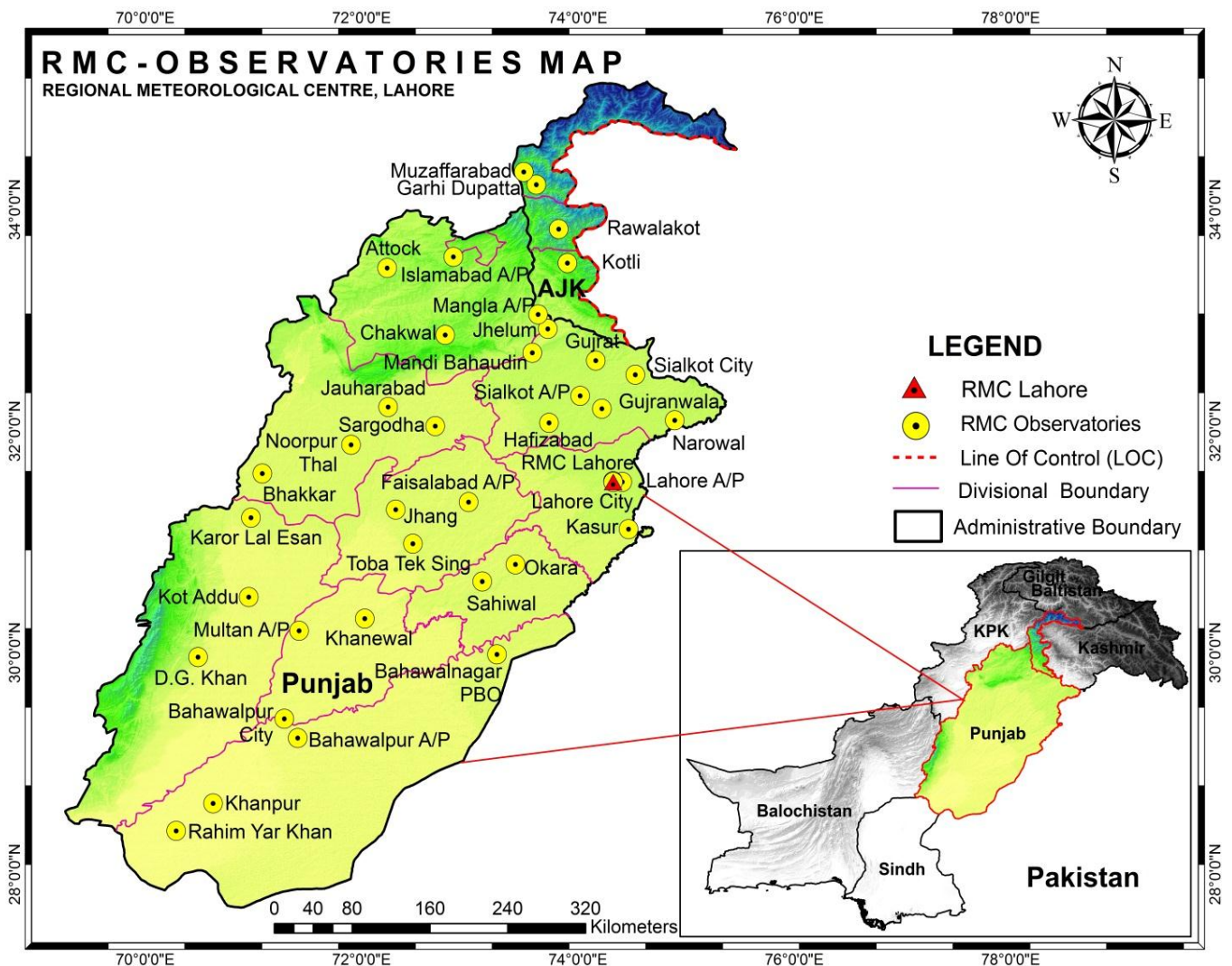
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Summary

RMC Lahore has the administrative, financial and technical control in Punjab and Azad Jammu & Kashmir. The region is very important for the prosperity of Pakistan due to geological features. The water availability in the Pakistan is heavily depends on the rainfall in the region. The role of RMC for timely dissemination of precise forecast, accurate & quality data and advisories to public and stake holders are of prime importance.

Quality data & prompt dissemination of this data to other units, forecasting centres are the back bone to run different forecasting models. RMC regional data collection centre ensures the timely collection & dissemination of quality data to all.



Improved Working Environment at Met Observatories

Establishment of Meteorological Observatory in Rajanpur & Cotton Research Institute (CCRI) Multan is under process. CCRI observatory can be used as alternate for PBO, Multan. 08 Met Observatories repair/ installation work has been carried out during this quarter. Accordingly the requisite work was carried on the following stations, keeping in view the budget provision:-

Sr. No	Station Name	Brief Description of Work
01	Met Observatory, Attock	A set of Soil Thermometers has been installed, allotted WMO No. 41567, observational work started from dawn to dusk and in operational round the clock, furniture (i.e. revolving chair, table along with 06 chairs) provided.
02	RMC Lahore	White Wash (inner & outer boundary wall) of office, supply of 02 water dispensers at Ground and 1 st Floor. Minor repair of water tanks.
03	PBO Jhelum	All the repair work of Incharge room, inspector room, observational room, gas room and white wash of these rooms and trimming of trees due to which observational work was being affected.
04	Met. Office, Multan	Provision of photocopier machine, jet laser printer, water dispenser, maintenance of vehicles.
05	Met Observatory, Gujranwala	Provision of 06 chairs and paint of enclosure.
06	PBO, Muzaffarabad	Installation of Stevenson Screen, Ordinary Rain gauge, Wind vane Anemometer, started observational work from 0000Z to 1200Z which was suspended since 2015 due to shifting of city office to Aeromet.
07	Aeromet Observatory, Muzaffarabad	Installation of evaporation tank.

08	Met. Observatory, Garhi Dupatta	Installation of evaporation tank.
09	Met Observatory Bahawalpur City	Repairing of electric motor and bore of water, paint of Met. Instruments as well as enclosure.
10	Met Observatory Narowal	Paint of Met. Instruments as well as enclosure.

Observational work suspended from 2015 at PBO Muzaffarabad has been restored. Correspondence to shift of Met. Observatory Kotli near Barali dam away from high rise building is under process, also the installation of soil thermometers at different observatories is under consideration depending on the availability of supply from central Met store, Karachi.

Details of Repair/Reconstruction Work Required at RMC Lahore And Met Observatories Under RMC

Sr. No	Station Name	Required work
01	RMC Lahore	Approval of construction of 08 Cat-v, family lodges and hostel accommodation has been accorded in 2008 and PC-1 has also been submitted but the construction work has not been started so far due to non-availability of fund. There is a need for allocation/release of fund for the said work.
02	Met Observatory Mandi Bahauddin	Repair work of Incharge room, observational room and white wash of building, paint of Met. Instruments as well as enclosure, shifting of main gate.
03	Met Observatory Bahawalpur City	White wash of building

04	Met Observatory Layyah	Provision of furniture/ Almirah
05	Met Observatory Attock	White wash of building and Provision of furniture/Steel Almirah
06	Met Observatory Narowal	Provision of furniture/Steel Almirah
07	Met Observatory Kot Addu	Water bore, provision of electric motor and furniture/Steel Almirah

The condition of infrastructure is very poor and require major investment for construction. Coordinated and progressive efforts are requested that would help contribute in projecting positive image of PMD.

Director RMC Visits

1. Director RMC & Mr. Sajjid Hussain Met. Assistant (Inspector of Observatories) visited Multan & D.G. Khan to attend the meeting in CCRI & D.C.
2. Director RMC & Mr. Sajjid Hussain Met. Assistant (Inspector of Observatories) visited PBO Sargodha for general inspection.
3. Director RMC & Mr. Sajjid Hussain Met. Assistant (Inspector of Observatories) visited PBO Jhelum & Aero Met Observatory Mangla to discuss matter with Commandant Mangla Airport.
4. Director RMC & Mr. Sajjid Hussain Met. Assistant (Inspector of Observatories) visited Met Office Multan for general inspection.

Staff on Trainings

PMD Training/ Course	Name & Designation	Duration
81 Th (BIP-MT) PRE- MET	<ul style="list-style-type: none"> • Mr. Abdul Manan, Met. Asst. • Mr. Abid Hussain, Met. Asst. 	w.e.f 06-05-2019 (18 weeks)

Transfer/Joining Within Region

1. Mr. Arshad Muhammad, Asst. Meteorologist assumed the charge of the post at M.O. Sialkot dated 22-04-19 on a/c of his transfer from M.O. Faisalabad.
2. Mr. Mahmood Ahmad, Sub. Engineer submitted joining report dated 22-04-2019 on a/c of his transfer from M.O. Lahore to M.O. Multan.
3. Mr. Muhammad Amjad, Sr. Observer submitted joining report dated 23-04-2019 on a/c of his transfer from RMC, Karachi to Met. Obsy, Layyah.
4. Mr. Ahmad Abdul Malik, Sr. Observer submitted joining report dated 29-04-2019 on a/c of his transfer from Met. Obsy, Bahawalpur to Met. Obsy, Attock.
5. Mr. Imtiaz Ali, Sr. Observer submitted joining report on 24-06-19 on a/c of his transfer from M.O. Lahore to M.O. Faisalabad.
6. Mr. Muhammad Amjad, Met. Assistant submitted joining report on 17-05-19 on a/c of his transfer from Met. Obsy, Sargodha to M.O. Faisalabad.
7. Mr. Shahid Hafeez Akhtar, Sr. Observer submitted joining report on 06-05-2019 on a/c of his transfer from PBO, Khanpur to M.O. Multan.

Joinings on Transfer

1. Mr. Zahoor Ahmad Met. Assistant submitted joining report dated 15-04-2019 on a/c of his transfer from DMO, Hyderabad to Met. Obsy, T.T. Singh.
2. Mr. Muhamamd Rehan, Sr. Observer submitted joining report dated 29-04-2019 on a/c of his transfer from PBO, Nawabshah to PBO, Khanpur.
3. Mr. Muhamamd Rashid, Mech. G-II submitted joining report dated 24-04-2019 on a/c of his transfer from Met. HQ. Islamabad to M.O. Faisalabad.
4. Mr. Adeel Masih, Sweeper submitted joining report dated 29-04-2019 on a/c of his transfer from RMC, Gilgit to PBO, Jhelum.
5. Mr. Zohaib Saeed, Met. Assistant submitted joining report on 22-03-2019 on a/c of his transfer from CDPC, Karachi to RMC, Lahore.

Departures on Transfer

1. Mr. Ijaz Ahmad, Dy. Director, M.O. Lahore relinquished the charge of post dated 26-04-19 on a/c of his transfer to RMC, Peshawar.
2. Mr. Malik Rizwan Akbar, Admin Officer, RMC, Lahore relinquished the charge of post dated 22-04-19 on a/c of his transfer to Met. HQ. Islamabad.
3. Mr. Allah Bakhsh, Sweeper submitted departure report on 07-05-19 on a/c of his transfer from Met.Obsy, Bahawalpur to WSR, R.Y. Khan.

4. Mr. Gulzar Hussain, Chowkidar submitted joining report on 06-05-2019 on a/c of his transfer from Camp. Office, Karachi to M.O. Faisalabad.
5. Mr. Zia-ur-Rehman, N.Q submitted joining report on 16-05-2019 on a/c of his transfer from FFD, Lahore to M.O. Sialkot.

Joinings on Promotion

1. Mr. Muhammad Abbas, Asst. Meteorologist submitted joining report on 31-05-19 at RMC, Lahore on a/c of his promotion as Meteorologist.
2. Mr. Shahid Pervez, Sr. Observer submitted joining report on 30-05-19 as Met. Assistant on a/c of his promotion-cum-transfer from M.O. Faisalabad to PBO, Bahawalnagar.
3. Mr. Muhammad Haseeb, Observer submitted joining report on 31-05-19 as Sr. Observer on a/c of his promotion at Met. Obsy, Kotli.

Departures on Promotion

1. Mr. Muhammad Ismail, Radio Mechanic submitted departure report on 30-05-19 on a/c of his promotion-cum-transfer to Met. HQ. Islamabad from M.O. Multan.

Joinings on New Appointment

1. Mr. Muhammad Kamran submitted his joining report dated 01-04-2019 on a/c of his appointment as Met. Assistant at Met. Obsy, Kotli.

Retirements

1. Mr. Pervez Hadayat, Asst. Programmer, RMC, Lahore retired from Govt. Service w.e.f 12-05-19 at the age of superannuation.

Resignations

1. The resignation of Mr. Saeed Raza, Observer, Met. Obsy, Khanewal has been accepted w.e.f 01-04-2019 by the competent authority i.e. D.G. PMD.

Obituary

1. Mr. Arshad Mahmood, Asst. Meteorologist, M.O. Sialkot expired on 30-04-2019.
2. Mr. Sohaib Ahad Sandhela, Sr. Observer, Met. Obsy, Hafizabad expired on 27-05-2019

Seismic Activity

Particulars of Station

Sr. No.	Station	Symbol	Latitude °N	Longitude °E	Height (a.s.l.) in meters	Equipment Installed	Remarks
01.	LAHORE	Lhr	31.5500	74.3300	210	D.S.E	Short Period

The Seismic Monitoring Centre Lahore is working round the clock to record and monitor seismic activities all over the world, especially Pakistan, South-Asia and neighboring countries.

During the months from April to June 2019, total numbers of events recorded by Sensor at Seismic Monitoring Centre Lahore are 270. The frequency analysis based on magnitude of events depicts that 10 events are in Minor (3.0-3.9), 67 events are of mild magnitude (4.0-4.9) range, 162 events of moderate magnitude (5.0-5.9) and 26 events of severe magnitude (6.0-6.9). 05 events of violent magnitude (7.0-7.9) are reported during April to June, 2019 as depicted in the Fig.01

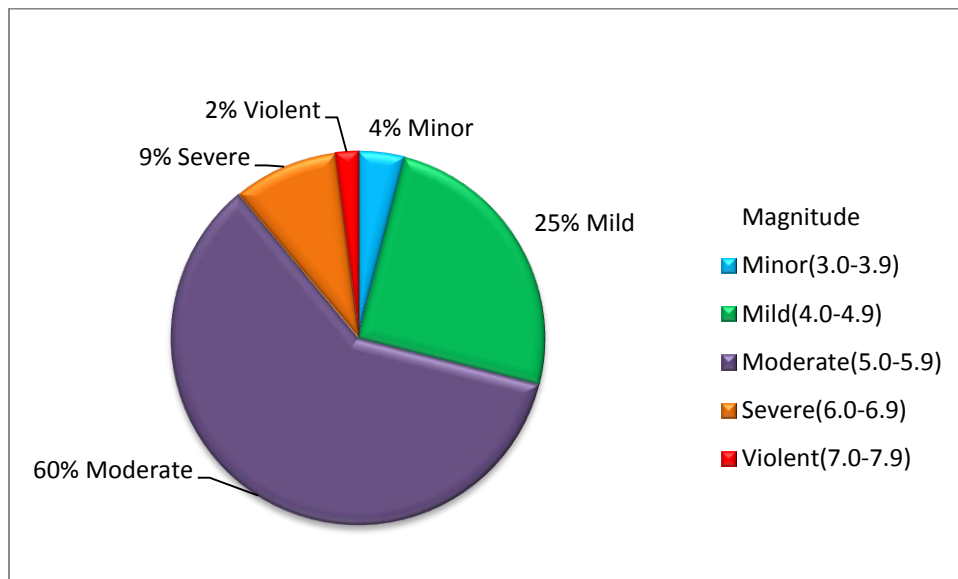


Figure 01: shows the number of events in %age recorded during April to June, 2019 for different categories of severity.

Focal Depth

The frequency analysis based on focal depth of Seismic events during April to June, 2019 was carried out. The analysis depicts that the frequency of Shallow focal depth (0-70 km) seismic events was maximum with 171 numbers. Shallow focal depth earthquakes are also known as crustal earthquakes. The Intermediate focal depth (70-300 km) seismic events were 84 numbers and 15 number of deep focal depth (300-700 km) seismic events recorded by PMD Seismic network at Lahore Seismic Station.

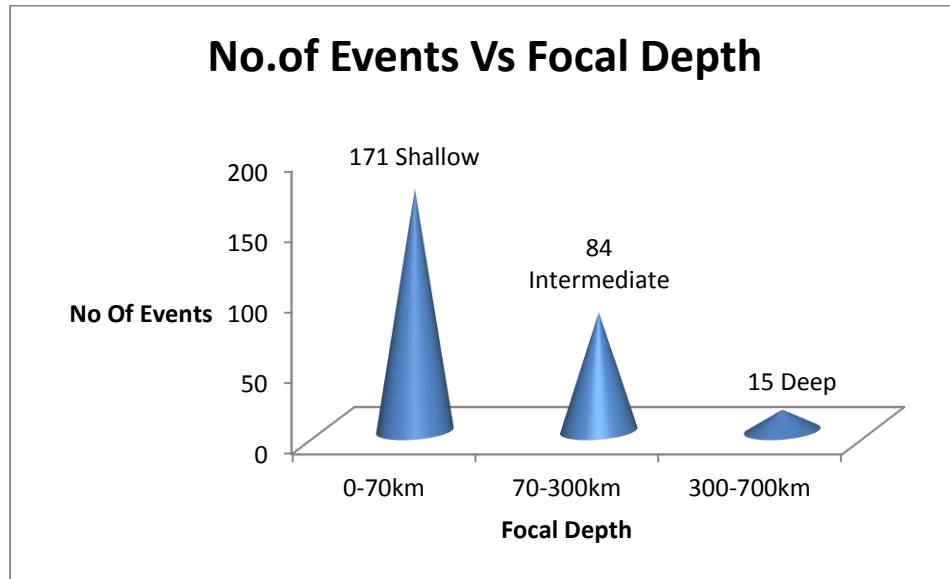
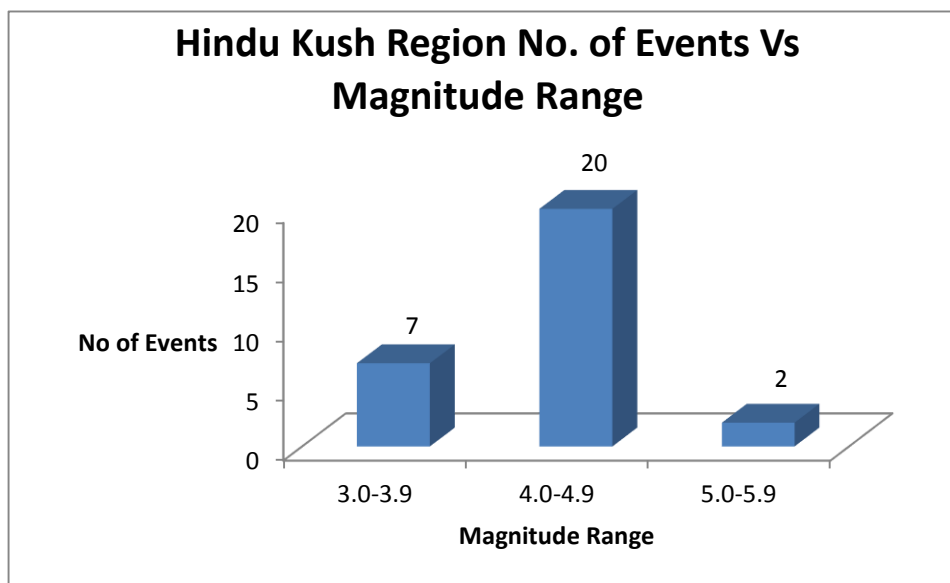


Figure 02: shows the number of events vs. Focal Depth recorded during April to June, 2019 for different categories of severity.

Seismicity of the Hindu Kush Himalaya Region

The Hindu Kush Himalaya region is the most vulnerable area for the Seismic activities due to continuous movement of Indian plate toward Eurasian plate resulting a movement of approximately 3mm/year which make it hazardous for seismic activities. Due to this major earthquake in the regions i.e. Pakistan, Afghanistan, Bangladesh, China, Nepal, India, Myanmar, Bhutan occurs periodically. The seismic activity during April to June-2019 has been plotted in the graph.



April-2019

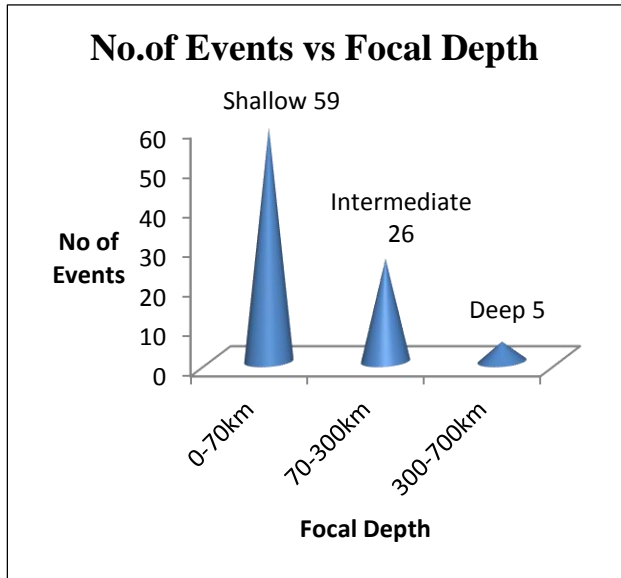
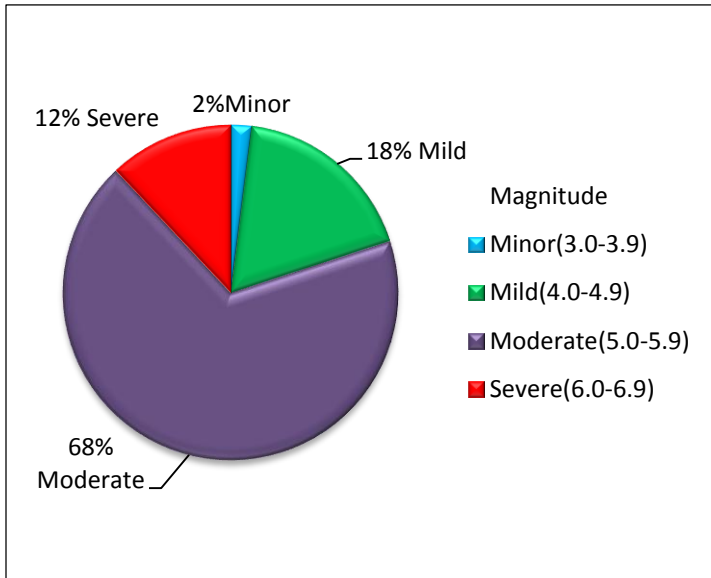


Figure 1(i): shows the number of events in %age recorded during the month of April, 2019 for different categories of severity.

Figure 02(i): shows the number of events vs. Focal Depth recorded during April, 2019 for different categories of severity.



May-2019

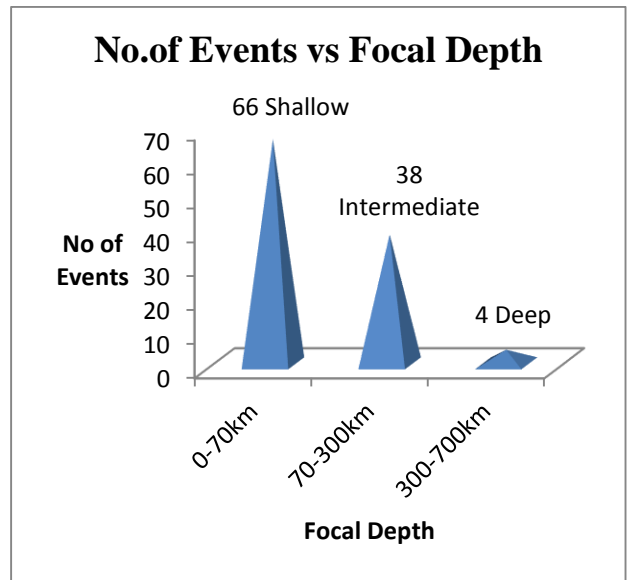
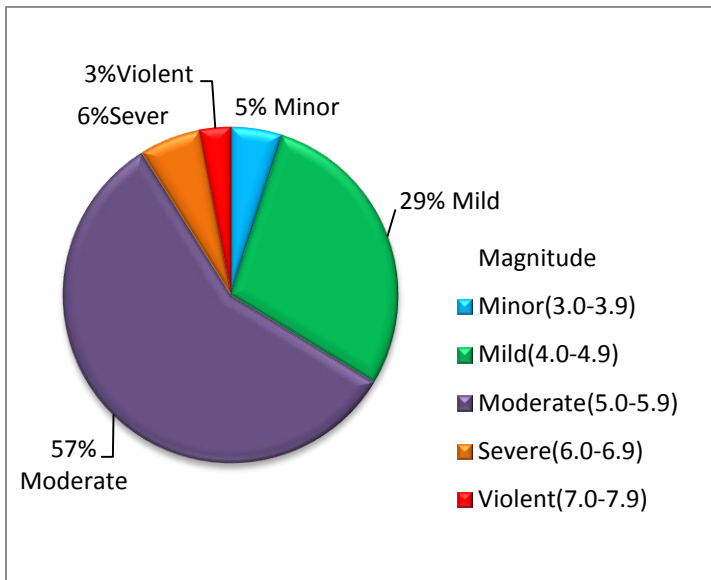
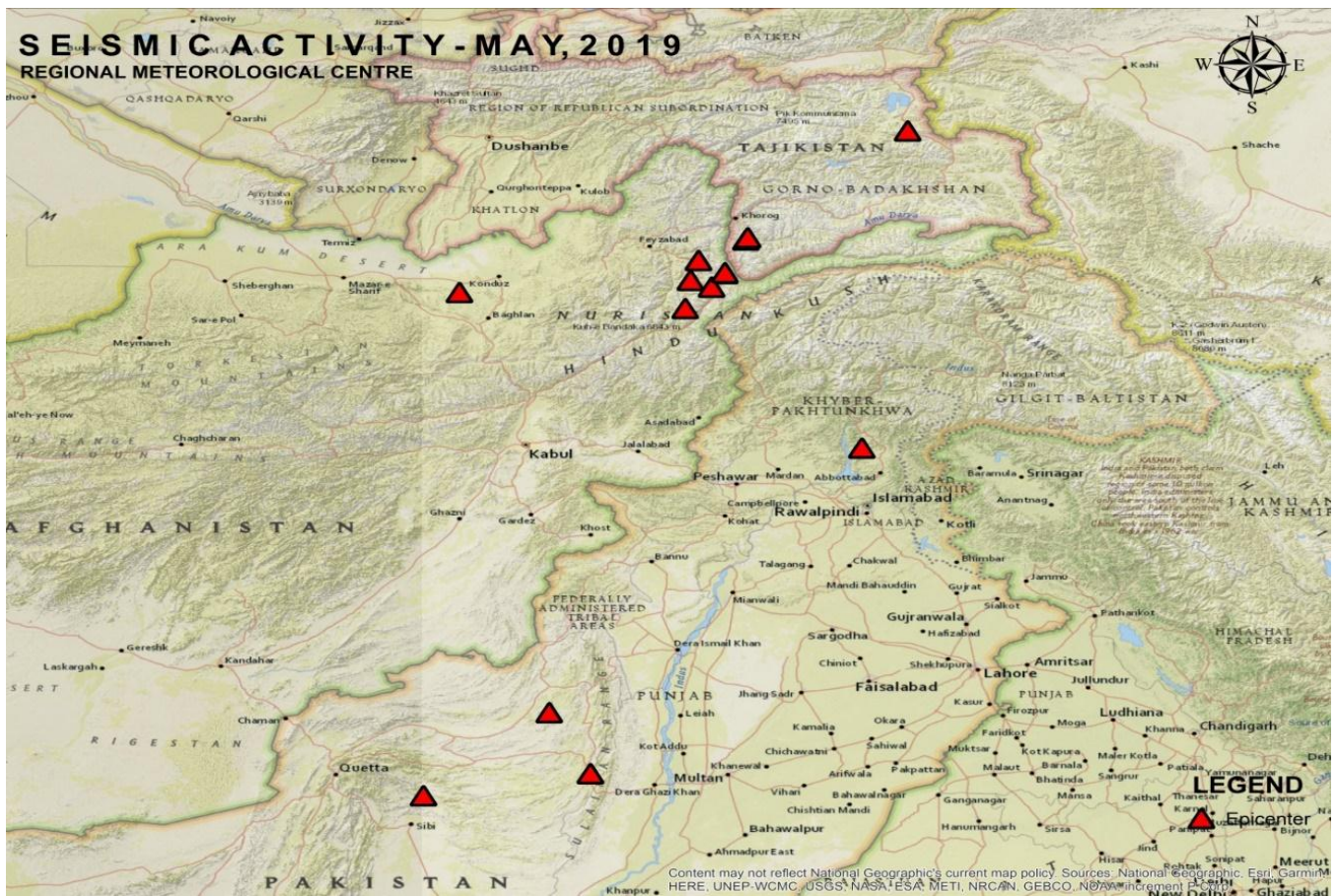


Figure 1(ii): shows the number of events in %age recorded during the month of May, 2019 for different categories of severity.

Figure 02(ii): shows the number of events vs. Focal Depth recorded during May, 2019 for different categories of severity.



June-2019

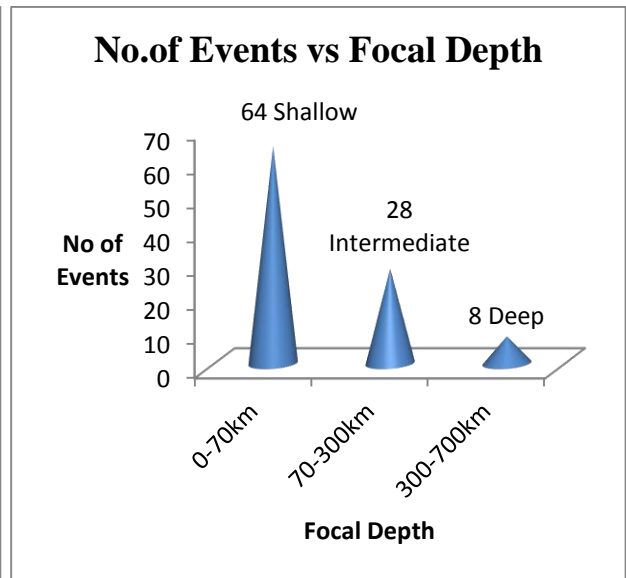
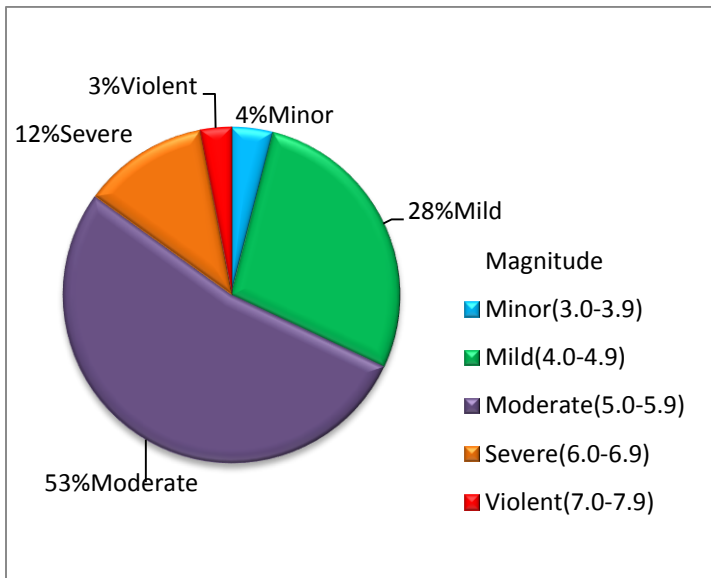
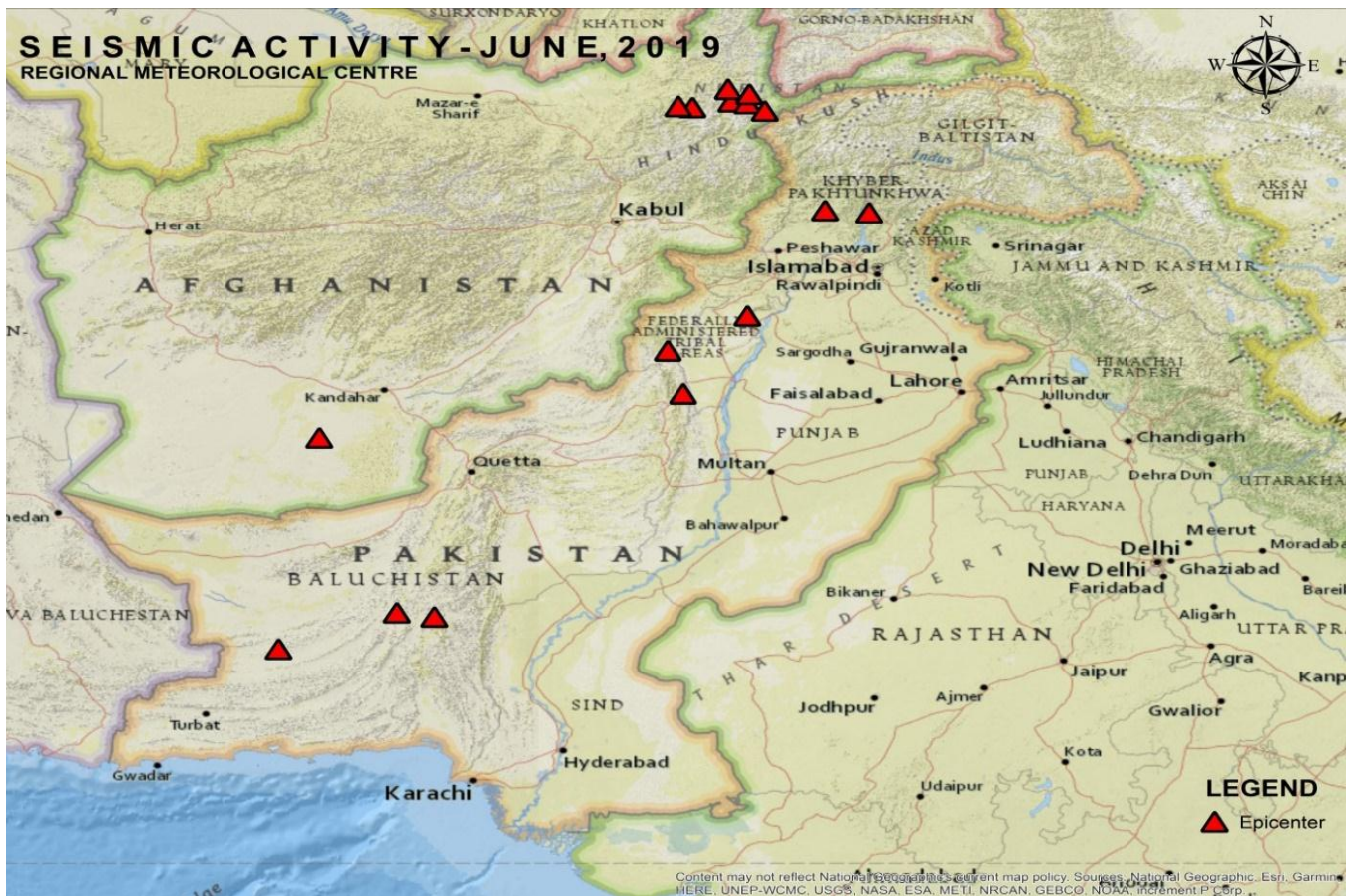


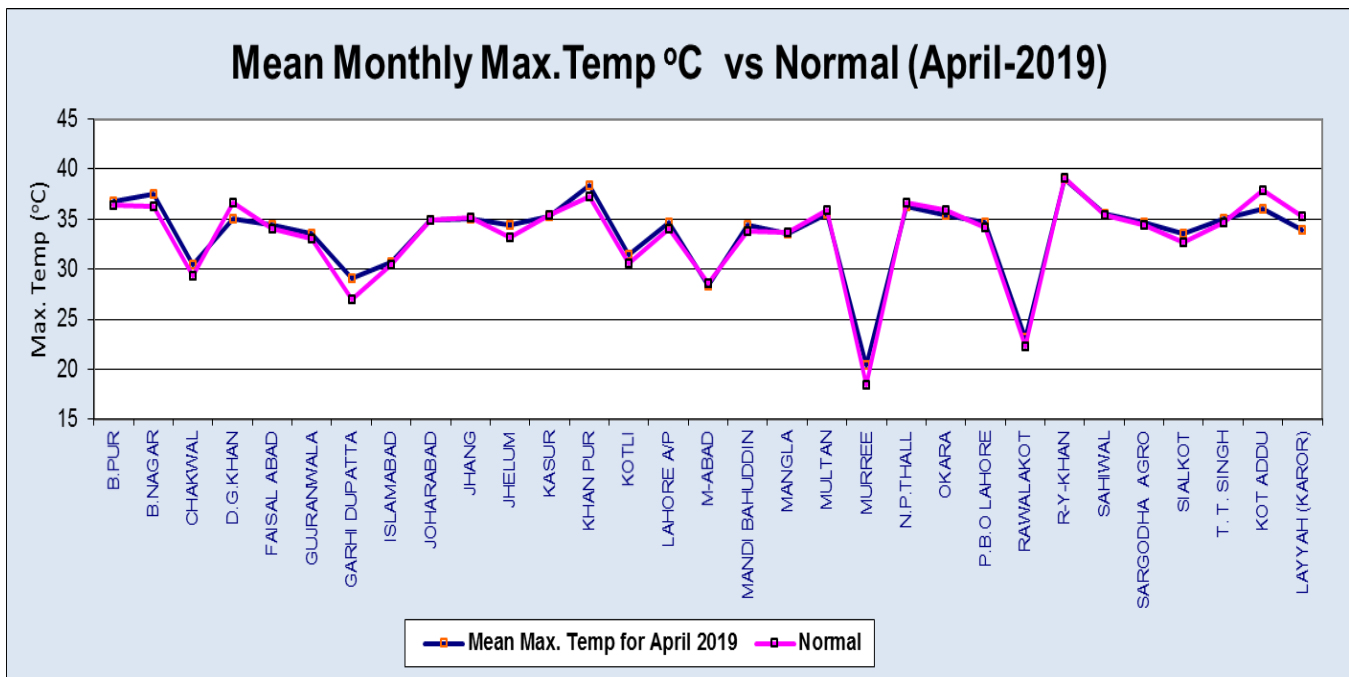
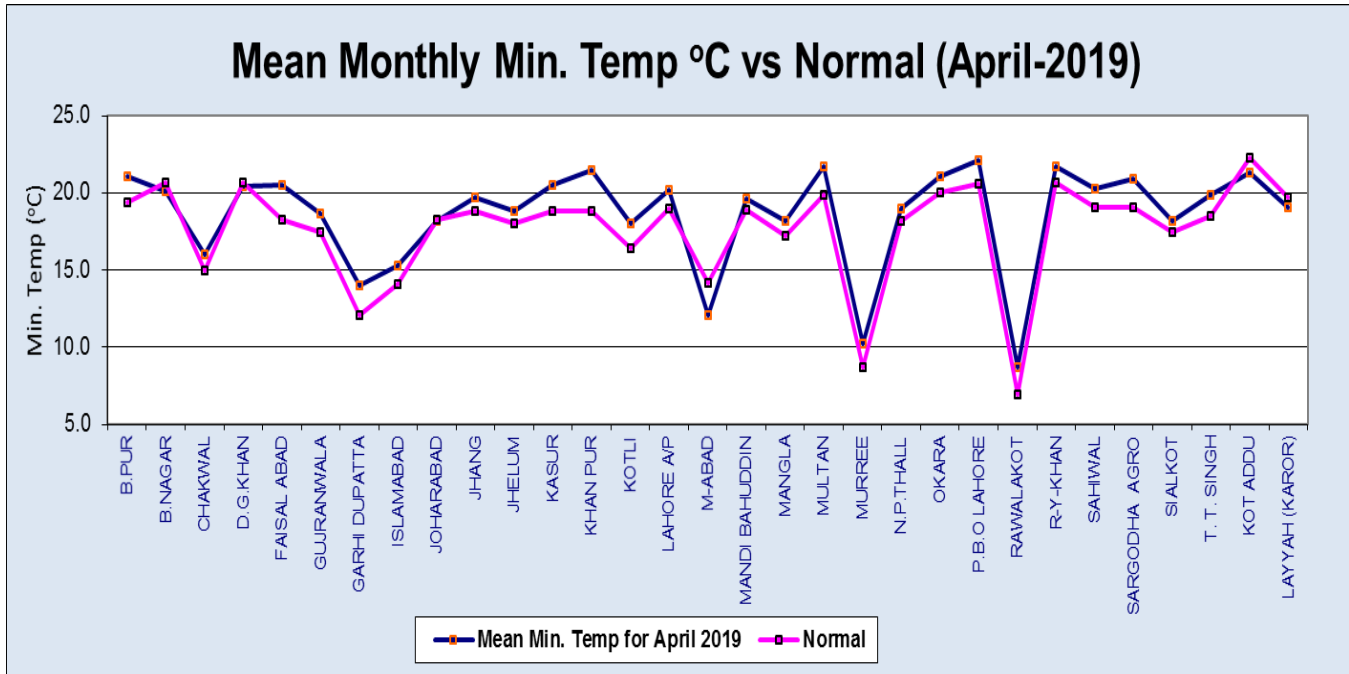
Figure 1(iii): shows the number of events in %age recorded during the month of June, 2019 for different categories of severity.

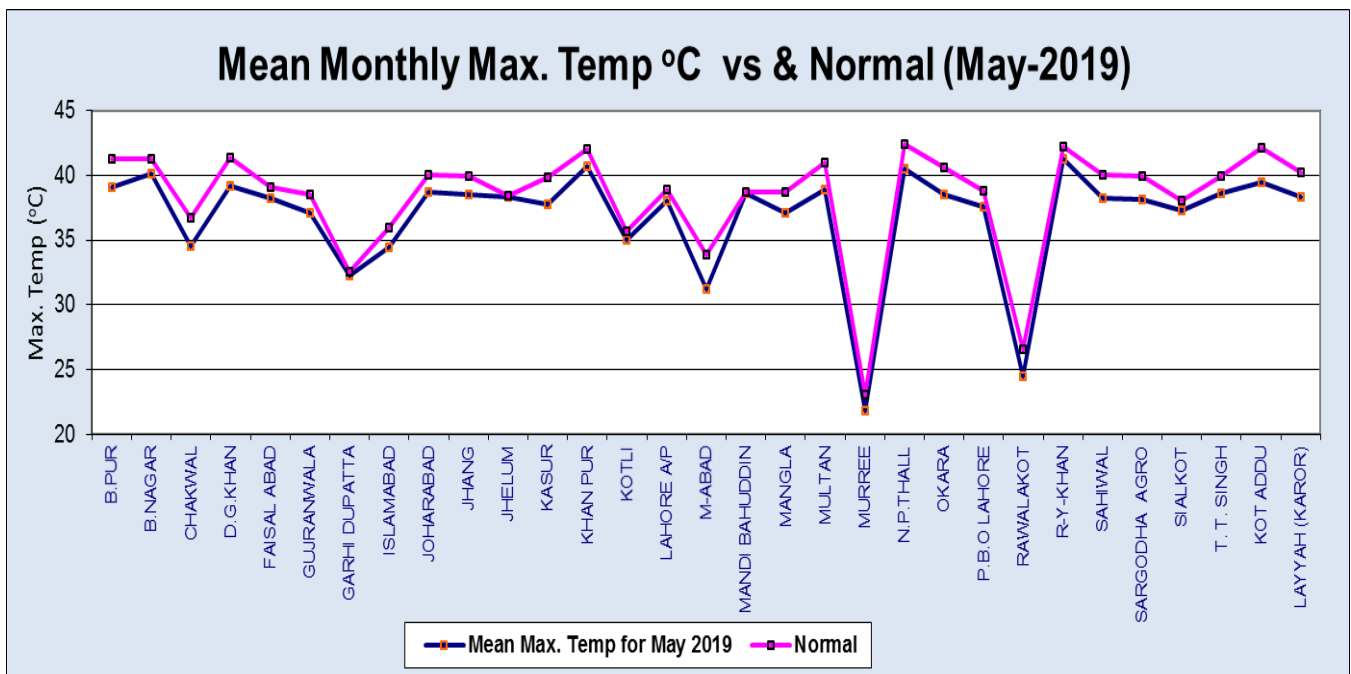
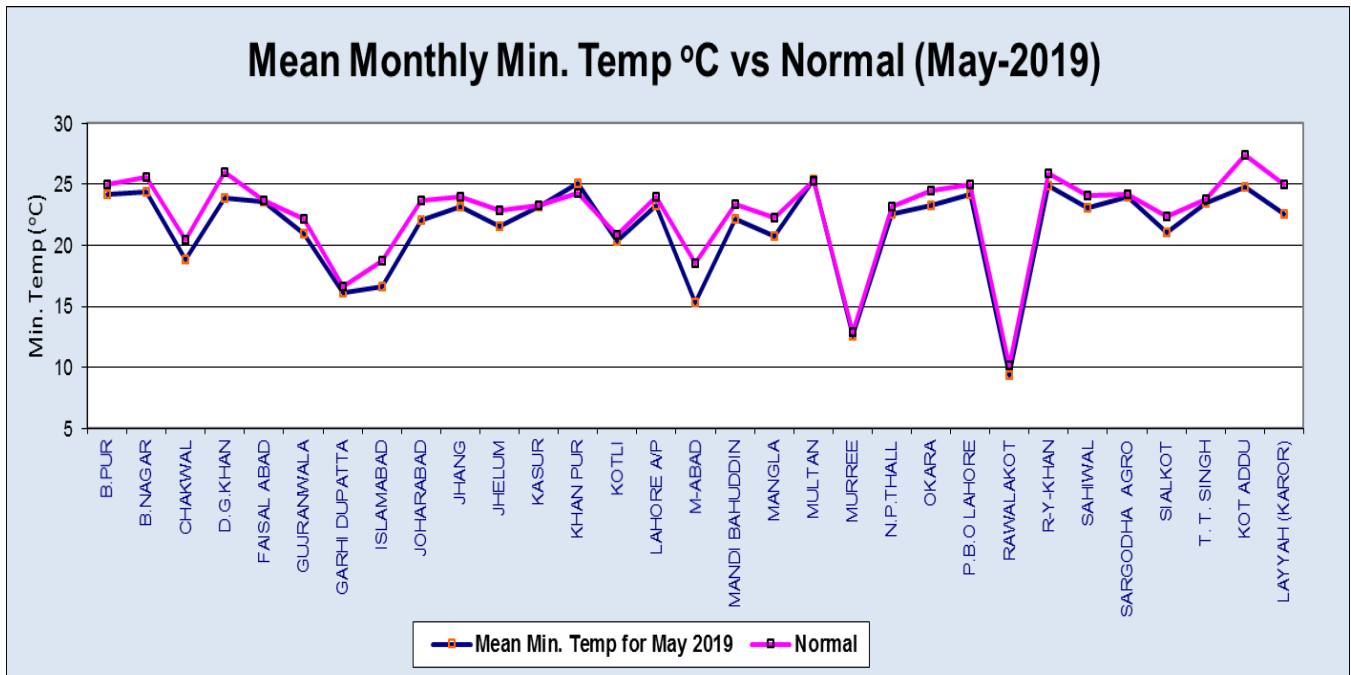
Figure 02(iii): shows the number of events vs. Focal Depth recorded during June, 2019 for different categories of severity.

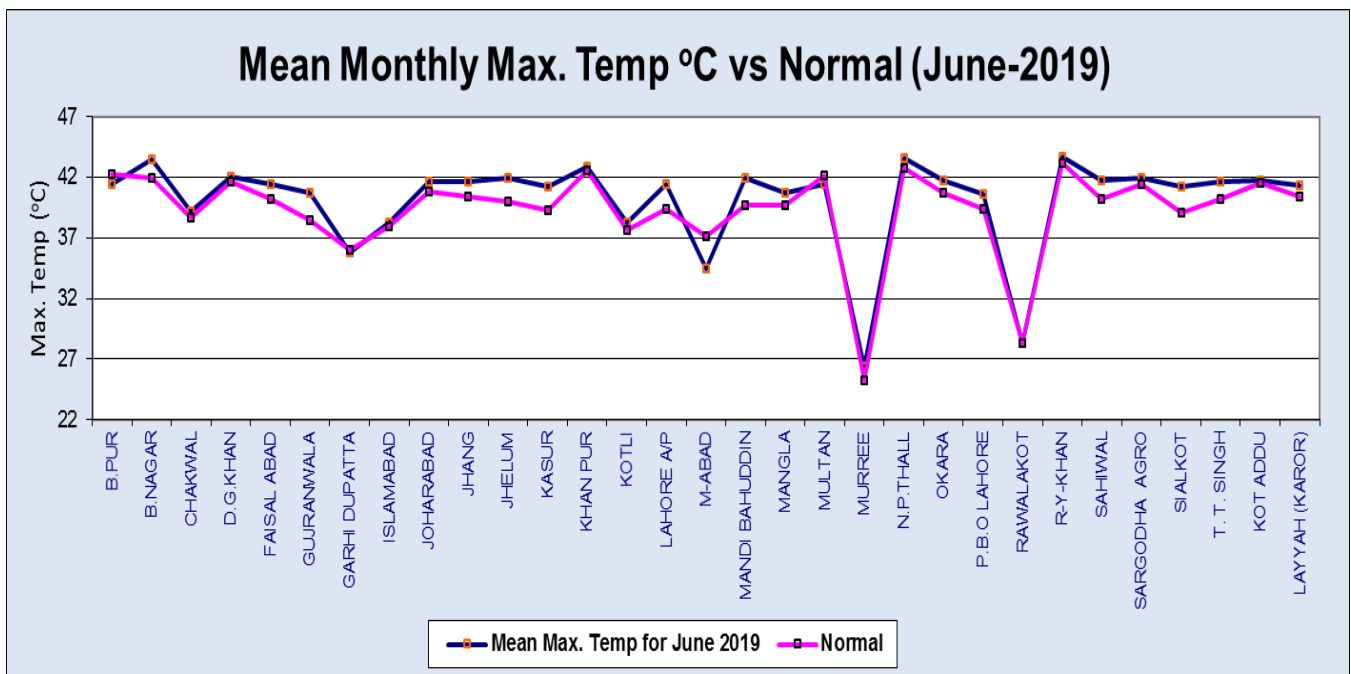
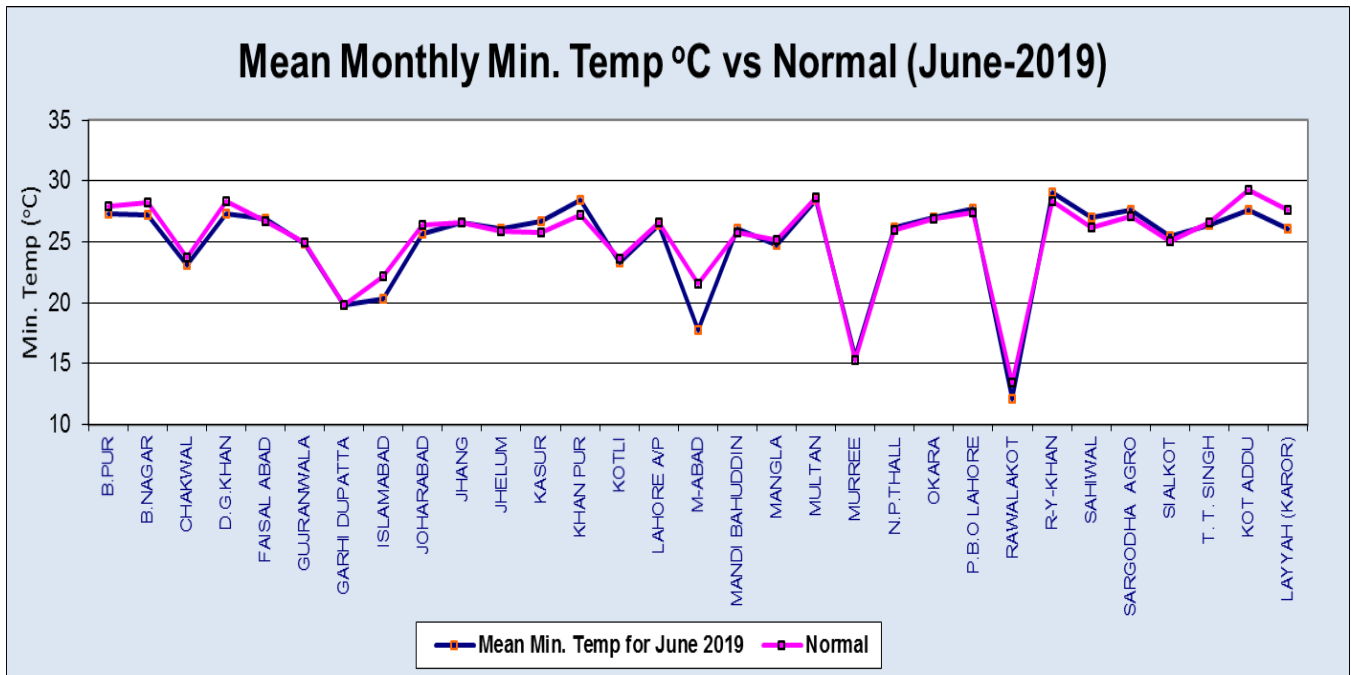


Climatology of the Region

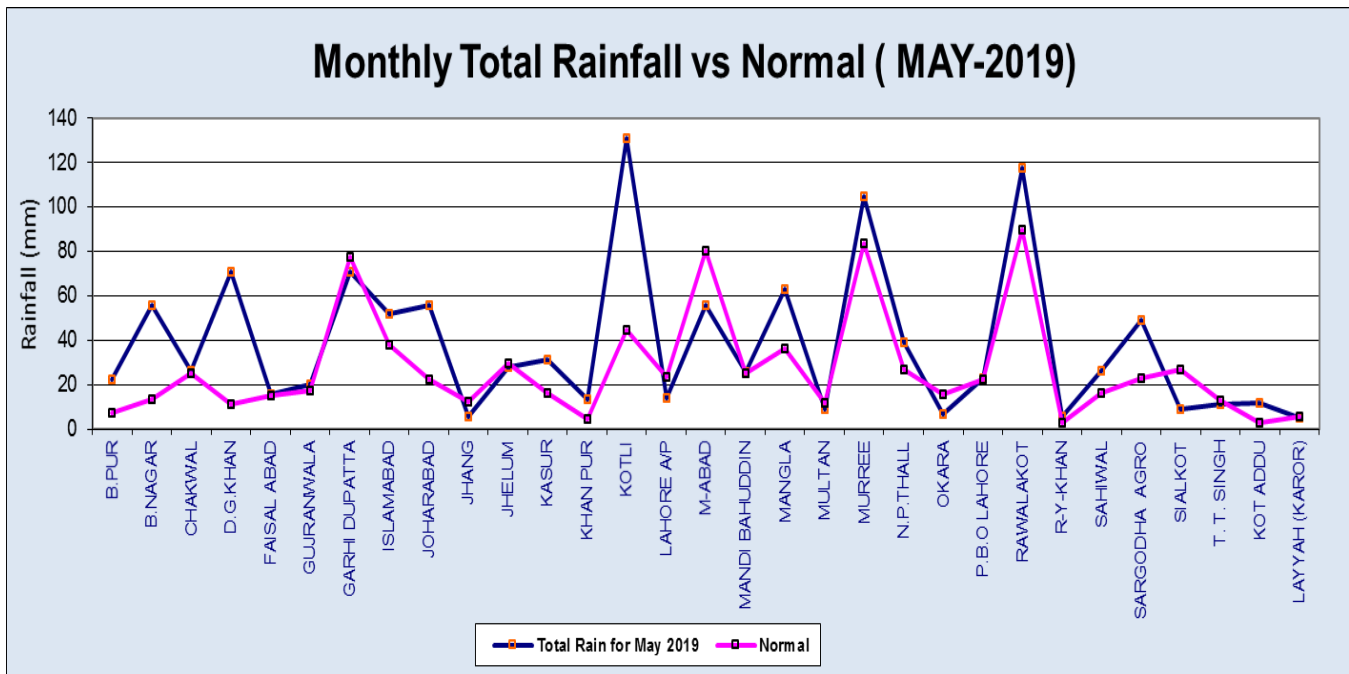
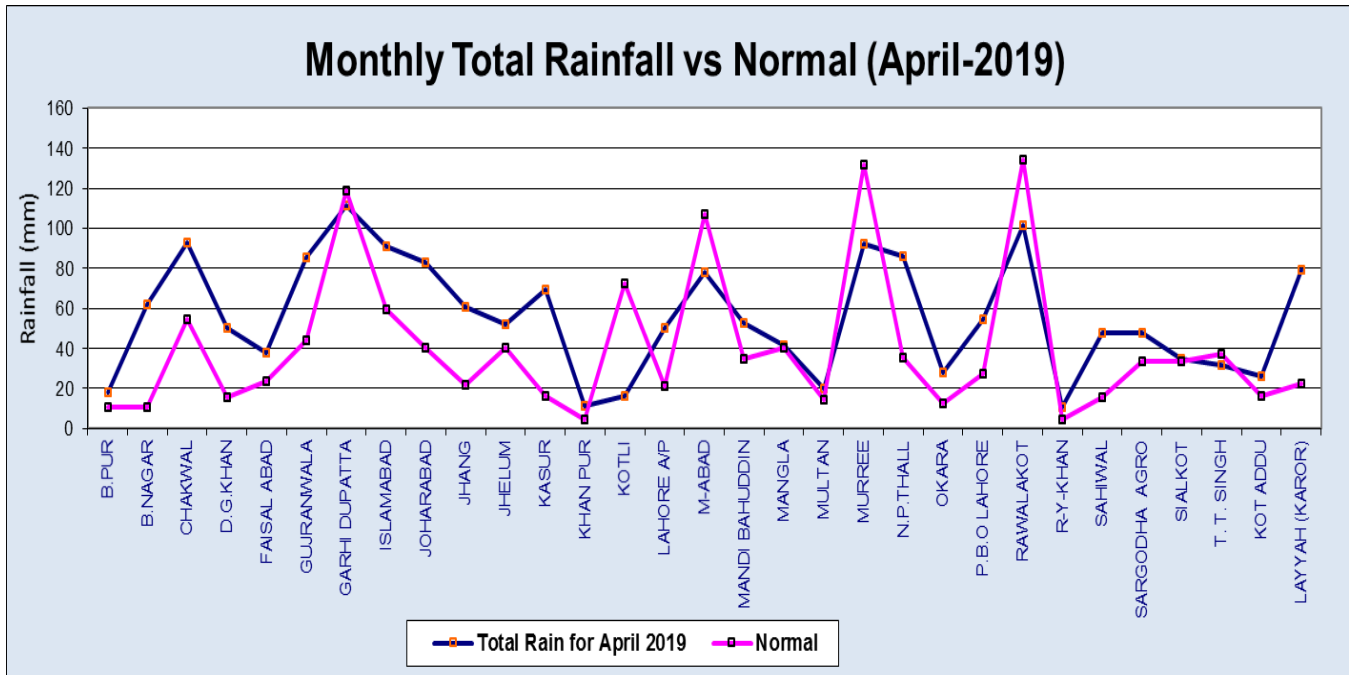
Temperatures

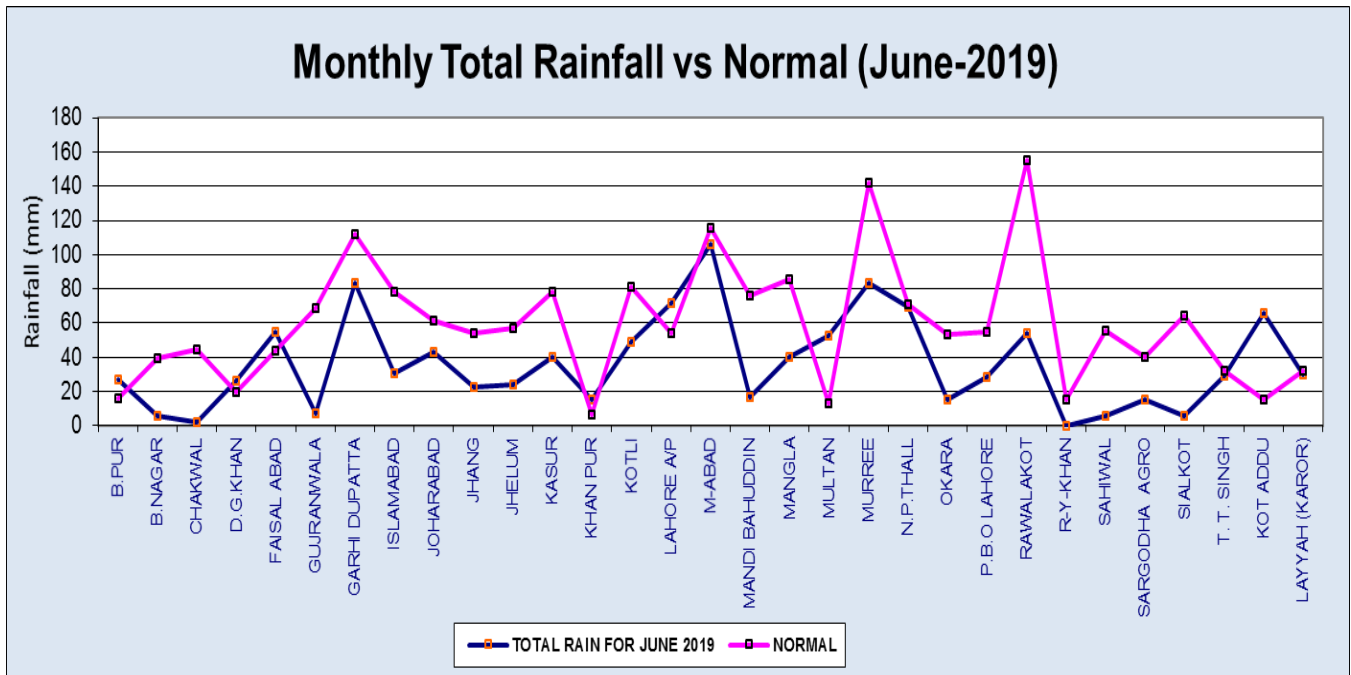




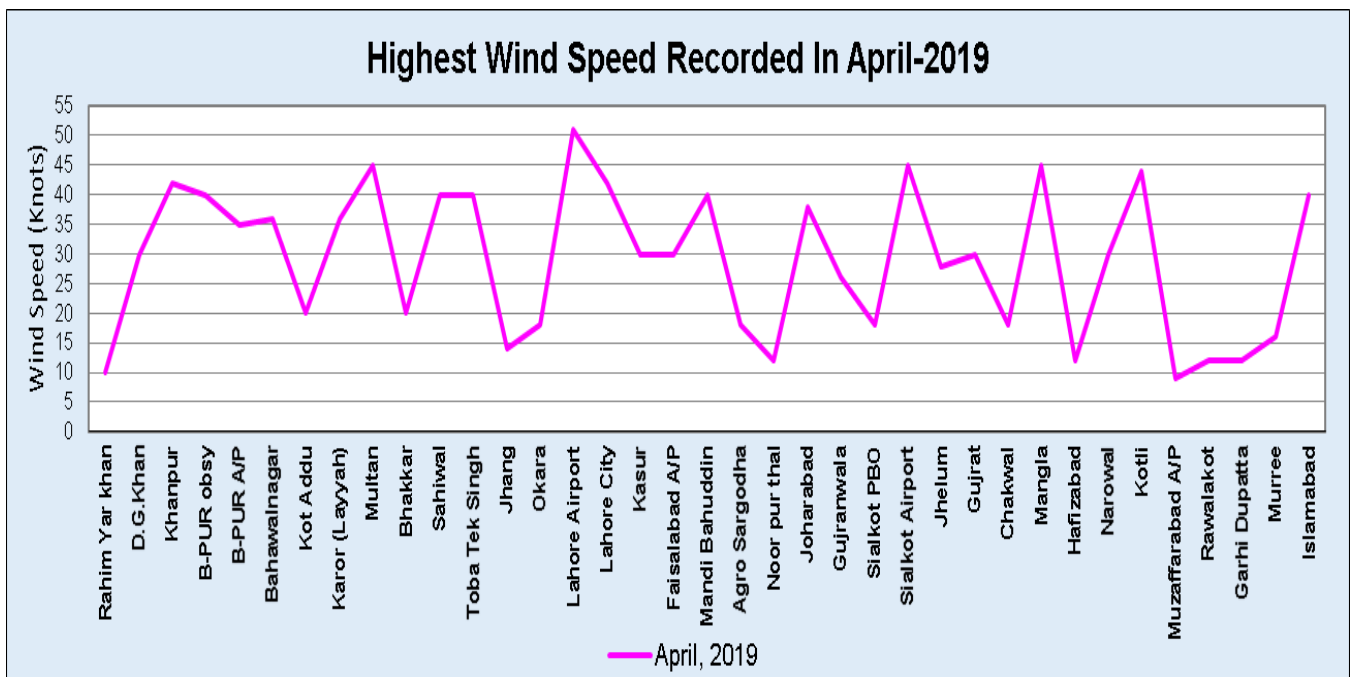


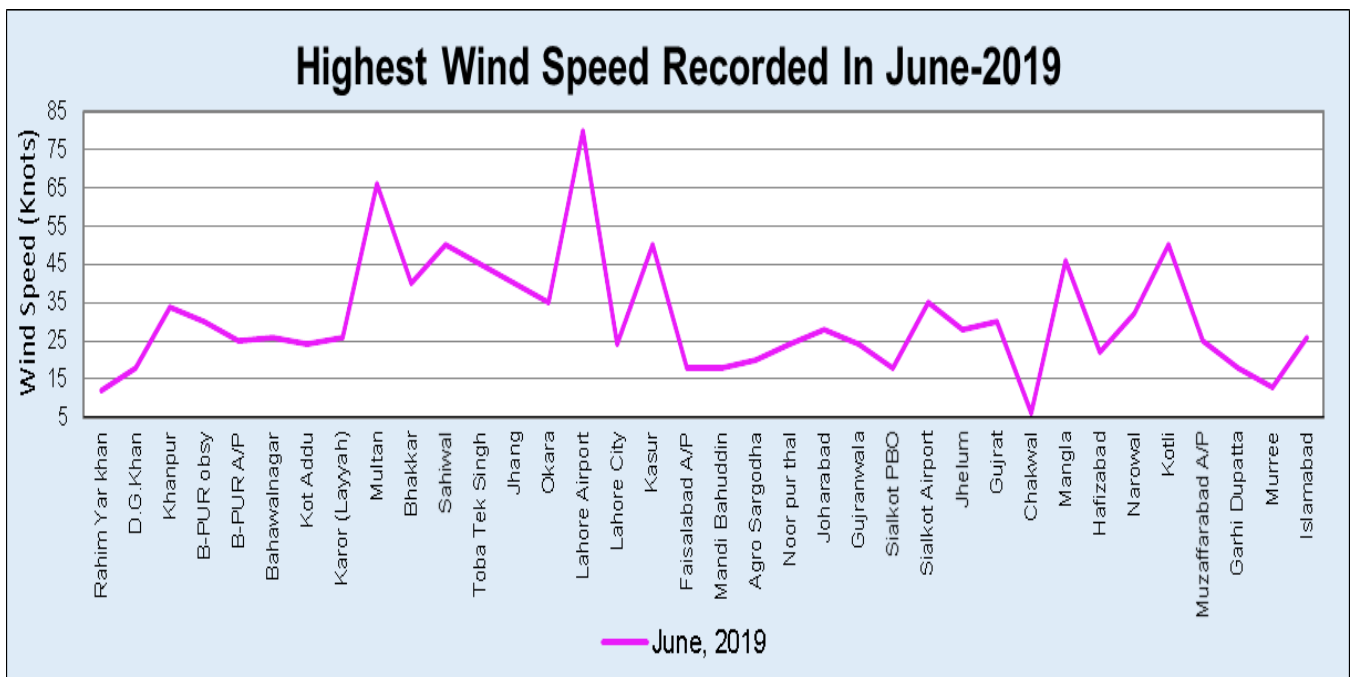
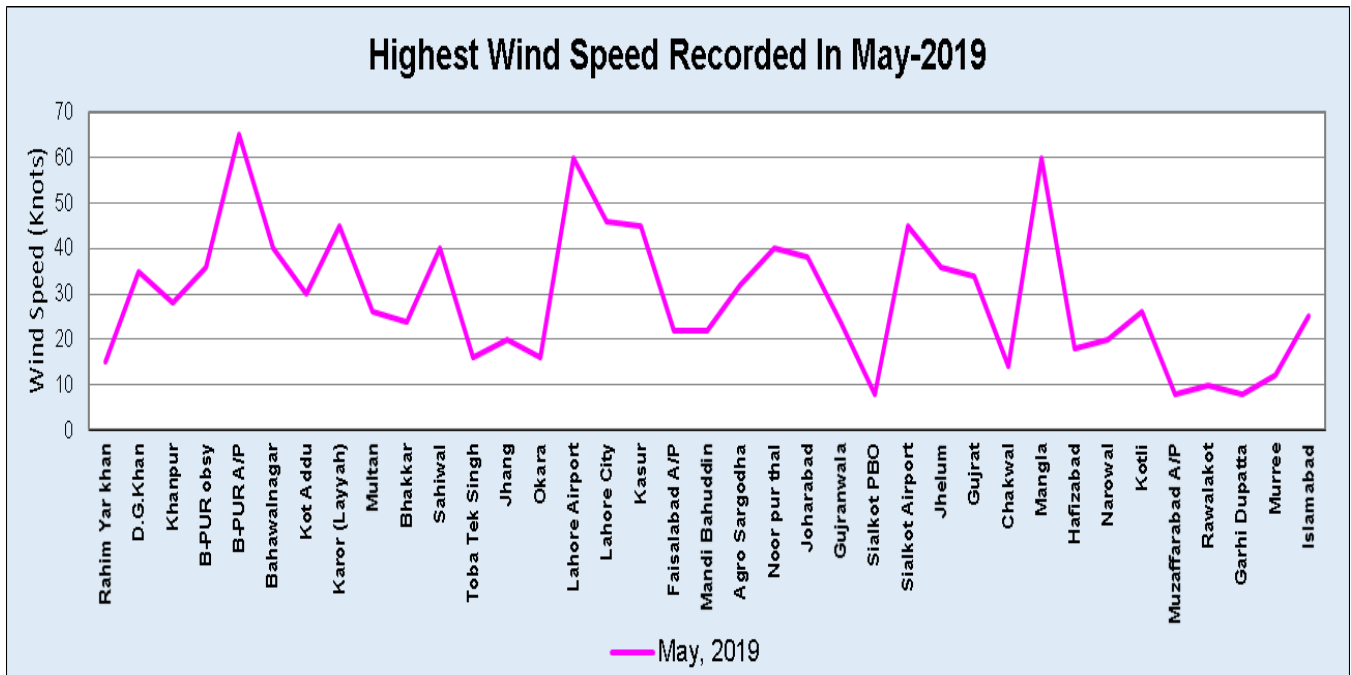
Precipitation





Wind Speed





Regional Data Collection System (RDACS)

Regional Meteorological Centres are responsible to collect and manage Meteorological data of all observatories under their respective regions. There are five major types of Meteorological products that are being received at their respective time intervals.

1. Metar
2. Synop
3. Tafor
4. Pilot
5. Pocket Register

In the past, RMC's had adopted following communication mediums for data communication between Main Communication Center (A Section which is responsible to collect data from observatories and upload to website) and Observatories.

1. Tele printers
2. Radio communication (SSB)
3. Landline
4. Telephone

Currently observatories are sending data via SMS and following flaws are observed.

1. No User Information
2. No Location information and confirmation
3. User can send Bogus Data
4. No feedback for reception of Data
5. No Read Status

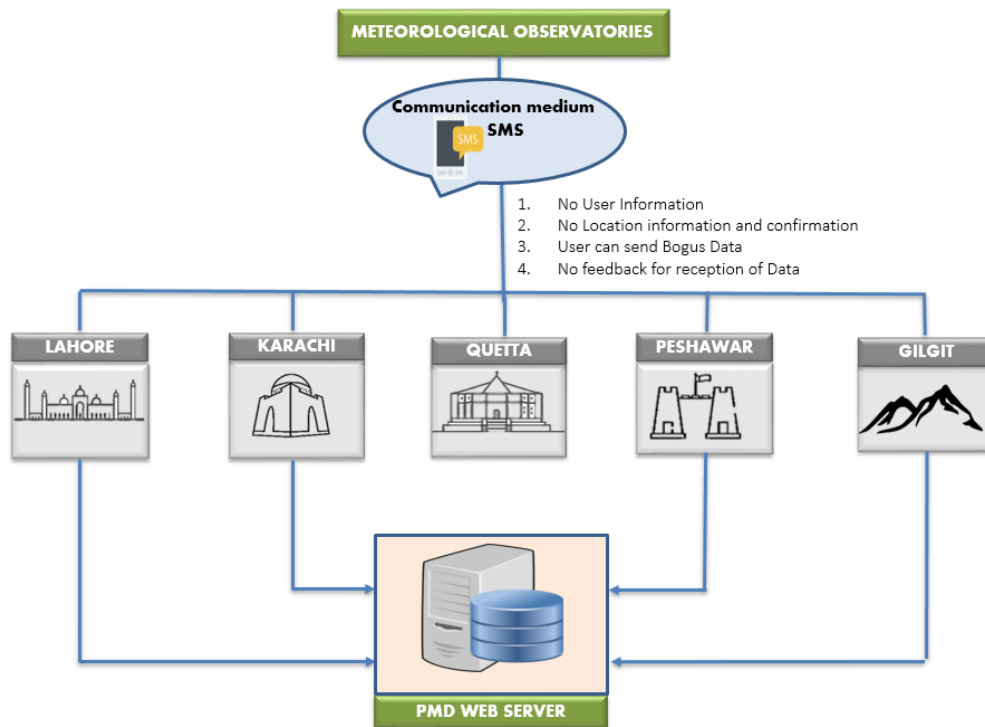
Objectives

The upgradation of Communication System and Data Management is based on the following major objectives.

1. Centralize Database Management System

The major objective is to develop a centralize Database Management system for all Regional Meteorological Centres to

- Manage Stations Information
- Manage Users Information
- Manage Meteorological data
- Log all Users Activities



2. Authenticate User Location

The second objective is to authenticate the location of the user which is detected and verified by the RDCS server.

3. Quality Assurance and Quality Control

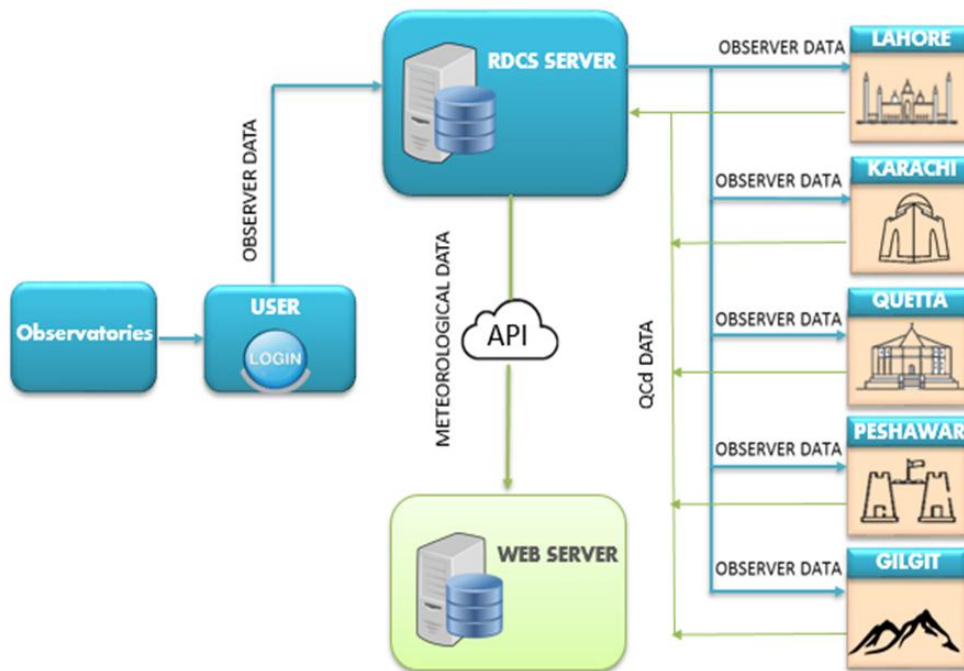
A centralized validation process to fix all inconsistencies and anomalies and Missing / Unknown entries in the data. After quality assurance RDCS will enable a centralize quality control process to improve Incompleteness, Accuracy, threshold values and group validation.

4. System Administrator

System administrators are responsible to monitor overall operation, daily data management, upkeep and configuration of tablets (Android Devices) installed at observatories, troubleshooting, and planning for new installation.

5. Communication Device

A communication device (Laptop/ Computer/ Tablet/ Mobile) is required for uploading data to server via internet. The best option is tablet, which includes a full-fledge computer system, low power consumption, screen size, portability, battery life with GPS sensor to get location of users.



RDCS (Regional Data Collection System)

Taking into consideration all the above drawbacks in communication systems, Regional Meteorological Centre Lahore has upgraded its communication system and developed web-based integrated system “Regional Data Collection System (RDCS) to collect and manage all types of Meteorological data Products.

Regional Data Collection System (RDCS) is has following modules.

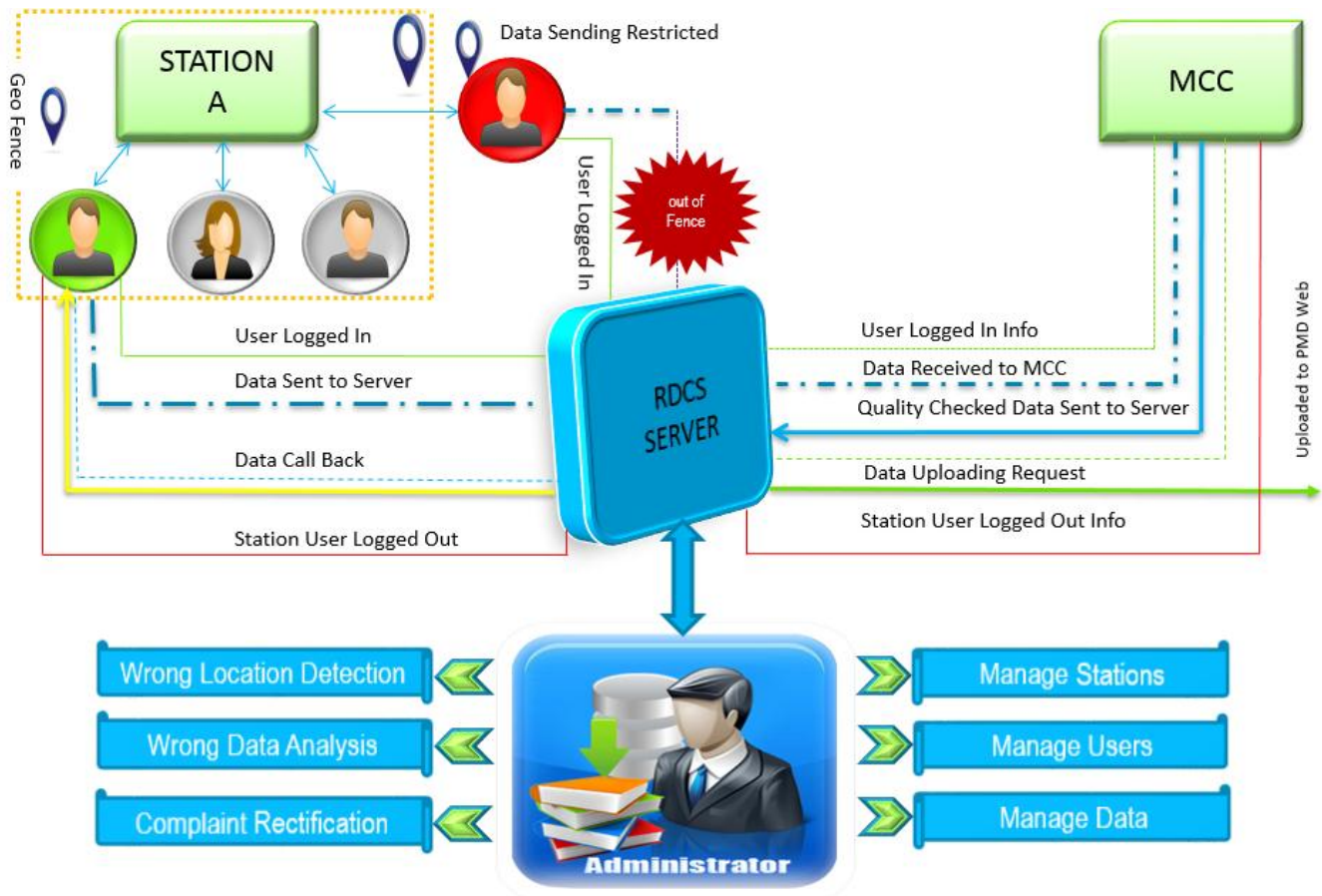
1. Geo Location
2. Stations Management System (SMS)
3. Users Management System (UMS)
4. Manage Stations Data
5. User Login/Logout Logs
6. MCC Portal
7. Observatory Users Portal

Workflow

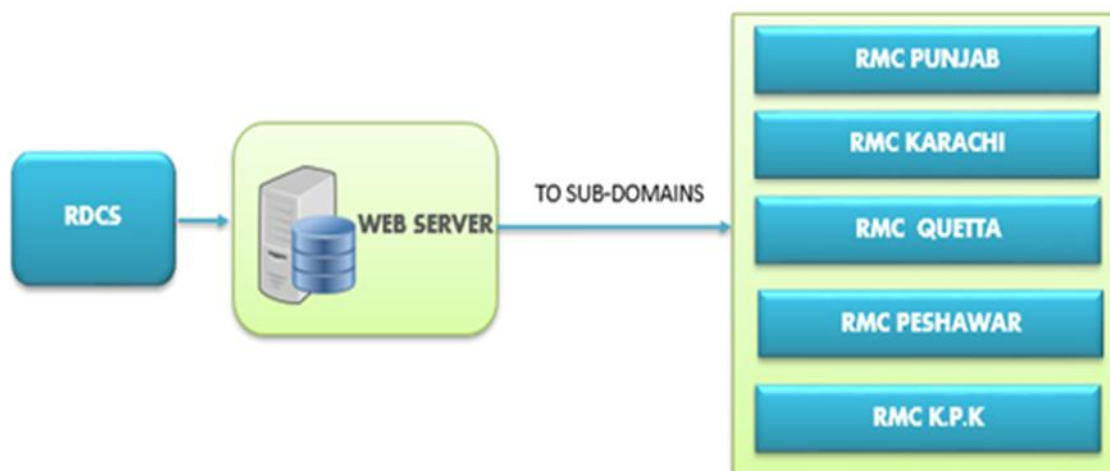
This software has three major user’s types. After authentication user will be redirected to its respective domains.

1. Once observatory user is logged-in, user will be able to send data to MCC after location authentication.
2. MCC users can perform quality assurance and quality control processes.
3. Admin User can manage stations, manage users, wrong location alerts, and meteorological data and generate report on the basis of analysis.

RDACS WORK FLOW



When all processes are completed then all sub-domains of Regional Meteorological Centres will get final data for public view.



Gallery

Met observatory Bahawalpur



Met observatory Gujranwala



Met observatory Narowal



Visit by Traffic Police Wardens

