MAIRANG PRESBYTERIAN SCIENCE COLLEGE, MAIRANG

Eastern West Khasi Hills District, Meghalaya-793120

FIELD TRIP REPORT

ON 23-03-2022

TOPIC-GEOMAGNETISM OF THE EARTH

Reported by,

Group 1(Physics Honours)

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ACKNOWLEDGEMENT

We would like to take this opportunity to express our sincere gratitude to our Physics Department Teachers for giving us the wonderful opportunity to go on a field study and providing vital support and encouragement throughout this trip.

Secondly, we would like to thank our Principal Shri. R.Thangkhiew and Mairang Presbyterian Science College for providing us the facilities required to complete this trip.

Lastly, we are so thankful for each other as fellow classmates both seniors and juniors who have willingly helped each other with this field study with our best of ability.

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INTRODUCTION

On 23-March-2022, 12 students with our physics teachers went for a trip to Shillong Geophysical Research Centre (SGRC), Regional Centre of Indian Institute of Geomagnetism (IIG), with an aim to visit the autonomous institute under the department of science and technology. We arrive there at 10.00 AM. We planned to visit the institute and their consequences regarding Geomagnetism and Meteorology to get some knowledge and observation about the magnetic fields and seismology. We were pleased by the research team members from that Institute and on this aim we got lecture classes. After the lecture

classes, we have light refreshment and then we proceed with some activities of the field study.

OBJECTIVE

The objective of this trip was to get to know the Institute in more detail in terms of their research operation and to get more knowledge about Geomagnetism and Meteorology.

FIELD STUDY

A. Name of the Institute-

Shillong Geophysical Research Centre (SGRC) Regional Centre of Indian Institute of Geomagnetism (IIG).

B. About the Institute-

SGRC (1975) of Indian Institute of Geomagnetism (IIG) was established to cover a large gap in the distribution of magnetic observatories and also to study the fine structure of local time variations of ionospheric current systems and to monitor the tectonic and geomagnetic changes occurring across the Dauki fault. It became a regional centre in 2015.

C. Objective of the institute-

The IIG has taken a new initiative in establishing the SGRC as its third regional centre. The focus of research at this newly formed Centre at Shillong would be on

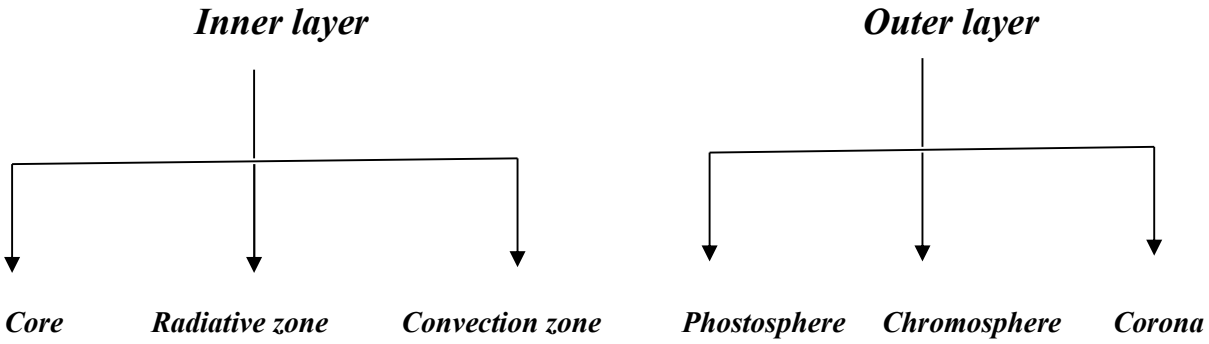
deciphering the pre and co seismic signatures in various atmospheric regions over the North East India using a variety of observational techniques aided by numerical modeling tools. SGRC is functioning from Wilton Hall estate, a picturesque location in upper Shillong in Meghalaya. The geographic coordinates of SGRC are 25.57^0N and 91.88^0E.

D. Observation -

we were guided by the research team by host (Srinivas Nayak) who explained in detail about the institutional research for Geomagnetism, Sun's and Earth's magnetic field and their interaction. During the lecture the lecture classes, we jotted down some notes and communicates with each other by asking some questions from this class we got the following observation-

1) The Sun's structure:

- ***Classification of the Sun***



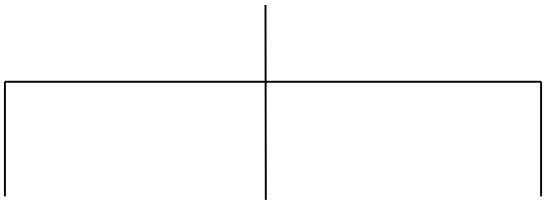
- ***Sun's flares***
- ***Sun's spots***
- ***Solar wind***

2) Sun-Earth interaction

3) Earth

- ***Earth's magnetic shield (magnetosphere)***
- ***Earth's magnetism***
- ***Components of Earth's magnetic field***
  - ***i. Magnetic declination***
  - ***ii. Magnetic inclination***
  - ***iii. Horizontal component of Earth's magnetic field***

- **Internal structure**



Core ***Mantle*** ***Earth's crust***

- ***Layer of Earth's Atmosphere***
- ***Earth's dynamic***

After the lecture classes, we have the field observations such as to observed the instruments used by the research centre and got some ideas about their functions. These instruments include – GPS, Atmospheric Electric Field Mill (AEFM), Induction Coil Magnetometer (ICM), DIM, etc.

GPS

AEFM

ICM

DIM

CONCLUSION

Our trip ended about 2.00.PM. It can be concluded that the trip went successfully. From this trip, we learned something new and beneficial for us. It was a well recommended trip especially for Physics student in order to gain more knowledge about the science.