

**FIELD TRIP TO IMD SOHRA, EAST KHASI HILLS DISTRICT,  
MEGHALAYA**

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***Submitted by:***

Tracy Oinam, Balakyrkhu Muktieh, Daiamonlang Lyngkhei, Daphibiang Jalong, Dawanbet Shullai, Emika Lynshiang, Ibahunshisha Kharsati, Ibanhunsha Jyrwa, Manisha Sarma, Mebanrilin Lyngkhei, Merihun Thabah, Moon Bahar Mazumdar, Rihok Mukhim, Rosaleen Lyngdoh Pyngrope, Aibandari Marbaniang and Sophia Lyngdoh Nonglait.

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We are deeply grateful to the staff of IMD Sohra for their wavering support and encouragement. Their guidance has been instrumental in shaping our academic journey. We also extend our appreciation to our teachers, lab-assistant for their advice and mentorship. Their expertise and insights have significantly enriched our understanding of the subject matter.

We would also like to extend our sincere thanks to all our friends, juniors for their companionship and support throughout the field trip. Their enthusiasm and shared experiences enriched the journey and made it truly memorable.

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## **INTRODUCTION**

On the 30<sup>th</sup> March 2024, the department of Physics organized a field trip to IMD Sohra East Khasi Hills District, Meghalaya. The purpose of this field trip is to enhance learning to new environments and exposing to potential career paths or areas of interest.

It was a sunny morning around 8:30am, all gathered together in the college campus. We started our journey around 9:00am and stopped at Myllem for breakfast and continued our journey, and then reached our destination at around 12:00am. The staff of the IMD welcomed us, then after an introductory speech was delivered by one of them. During the seminar, we learned many new things. It helped us a lot to understand about weather forecast in various sectors and we also got to know many instruments used in meteorological science and atmospheric science.

Along the way, we visited Eco park which is 5 km away from IMD and we had our lunch in the park. The park was a mesmerising sight to behold. As we entered the Eco park, a sense of tranquility envelops us. On our way back home we stopped at Myllem and we had tea and snacks. Around 6:00pm we reached the college campus and departed to our own places.

During the period of the trip, the weather was quite pleasant. We enjoyed the trip as we embark on our journey to the captivating Eco park, our expedition is fuelled by a shared curiosity and passion for understanding the delicate balance of nature.

### *Our Objectives include:*

1. Gain insights into the latest advancements in weather forecasting technologies.
2. Understand the significance of accurate weather predictions for various sectors.
3. Explore the role of meteorological data in climate research and environmental monitoring

## **IMD Sohra**

Before embarking on our field trip to the Indian meteorological Department (IMD), we were filled with anticipation and curiosity. We looked forward to gaining first hand insight into the working of this renowned institution and its role in weather forecasting for the nation.

Upon the arrival at the IMD, we were warmly welcomed by the staff who would be guiding us throughout the visit. The first thing that struck us was the impressive array of equipment scattered throughout the facility from state of the art weather radars to intricate instruments measuring atmospheric variables, it was evident that the IMD spared no expense in staying at the forefront of meteorological research.

One of the highlights of the trip was the demonstration of how weather forecasts are generated. We were enlightened at the process of collecting data from various sources, such as satellites and weather stations, and using sophisticated computer models to predict future weather patterns. Witnessing the precision and complexity involved in this process was truly eye opening and deepened our appreciation for the science of meteorology.

Another aspect of the IMD that left a lasting impression on us was the expertise and dedication of the staff. They patiently answered our questions and shared their wealth of knowledge by providing valuable insights into the challenges and advancements in the field of meteorology.

As we toured the facility, we couldn't help but marvel at the importance of the work being done at the IMD. From issuing weather warnings to providing crucial data impact of their efforts on society cannot be overstated.

Reflecting on the experience, we gained a newfound understanding of the critical role that meteorology plays in our daily lives. The field trip to Indian meteorological Department not only broadened our knowledge but also inspired us to pursue a passion for studying the intricacies of the atmosphere.

## **DESCRIPTION OF THE APPARATUS**

### ***1. Rain Gauge:-***



A rain gauge is a meteorological instrument to measure the precipitating rain in a given amount of time per unit area. The instrument consists of a collection container which is placed in an open area. The precipitation is measured in terms of the height of the precipitated water accumulated in the container per given time and is expressed in millimetres.

### ***Uses of Rain Gauge***

A rain gauge is an instrument used to measure the amount of rainfall, usually consisting of a water bearer, a water storage cylinder and a water storage bottle. The rain gauge is an important tool used by meteorologists and hydrologists to measure the amount of precipitation in an area over a period of time and is very important for weather forecasting, flood control, and agricultural irrigation.

## 2. Anemometer



An anemometer is an instrument that measures wind speed and wind pressure. Anemometer are important tools for meteorologist who study weather patterns.

### Uses of anemometer

Anemometer are used at almost all weather stations, from the frigid Arctic to warm equatorial regions. Wind speed helps indicate a change a weather patterns such as an approaching storm, which is important for pilots,engineers and climatologists.

### **3. Sunshine recorder:**



A device in which a glass sphere concentrates the Sun's rays on to a calibrated paper where the resulting burns register the time and duration of sunshine. The instrument must be pre-set for a given latitude. This type of recorder has been in use since about 1880.

#### **Uses:**

It is designed to measure the duration of visible sunshine for one day and uses the intensity of the Sun's rays to burn a trace on to a recording card. The instrument measures only the duration of sunshine, for intensity measurement we would require a solarimeter.



4. **Wind vane:**



A wind vane is a device that measures the direction of the wind. The wind vane is usually combined with the anemometer. Wind direction is the direction from which is blowing.

**Uses:**

A wind vane is used to predict the intensity of storms. It is used in disaster management to protect people from strong winds. Helps to predict the weather reports.

5. ***Thermograph:***



A thermograph is an instrument that records air temperature continuously on graphing paper. It usually consists of a cylinder made to revolve once each week by means of a clock working inside. A sheet of graph paper is fastened on the outside.

6. Pan evaporation:



Pan evaporation is a weather measurement system that integrates several climatic conditions including rainfall, humidity, solar-radiation wind temperature and drought dispersion. The system distinguishes the rate of evaporation based on the weather factor.

Uses:

An evaporation pan holds the water used during the process. The observer notes the quantity of water at certain weather conditions and notes the change in the quantity. Pans occurs in different sizes and shapes, the most occur common being circular and square.

7. **Radar:**



Weather Radar (also known as Doppler weather radar) is an instrument that sends pulses of electromagnetic energy into the atmosphere to find precipitation, determine its motion and intensity, and identify the precipitation type such as rain, snow or hail.

**Uses:**

Radar as electromagnetic sensor is used for detecting, locating, tracking and recognizing objects of various kinds at considerable distances. It operates by transmitting electromagnetic energy toward objects, commonly referred to as targets, and observing the echoes returned from them.

## **Conclusion:**

In summary, our field visit to IMD provided a comprehensive understanding of the intricate processes involved in weather forecasting and monitoring. Through engaging presentations, interactions, demonstrations and discussions with meteorological experts, we gained first hand insights into the advanced technologies and methodologies utilized in weather prediction. This experience not only deepened our appreciation for the complexity of meteorological science but also highlighted the crucial role of accurate weather forecasts in various sectors. Furthermore, witnessing the dedication and expertise of the meteorologists at the department inspired us to pursue further studies and careers in the field of atmospheric science. Overall, the field trip was an enlightening and enriching experience, contributing significantly to our academic and professional growth in the realm of meteorology.

## **Learning outcomes:**

1. Understanding meteorological process: We can observe firsthand information how meteorologists collect, analyze, and interpret data to forecast weather patterns and understand climate phenomena.
2. We can understand meteorological instruments and their functions.

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