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1. Geographical Study of Weather Instrument and its Application

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Abstracts

Atmosphere is gasses layer which is surrounded by the earth globe. It is consist by the different kinds of gasses, dust particle and the water vapor. This atmosphere can be study by the weather and climate. Weather is ongoing condition of the local atmosphere. It is change time to time. Climate is long and average condition of the weather element. Weather most effecting element on the human activity. For the purpose of measuring intensity, it is necessary to study the weather element and its instrument. These instruments are simple mechanism. Temperate is measured by the instrument as thermometer and rain is measured by the rain gaze. The instruments are the barometer, wind vane, hygrometer, sunsrometer, evapometer. Though these are the simple instrument but these are most important in the agriculture, transportation, environmental planning and weather forecasting. Now a day there is number of the technology as computer and mechanical engineering which had made more accuracy and efficiency of these weather instruments.

Introduction

Man was aware about the nature from his evolution was started. Environment is one of active factor which has made the evolution of the human being. Man has known about the dynamic condition of weather in natural environment. He had made try to made observation of the nature on his own observation, but it has the limitation. That's why he uses some simple machine and its mechanism. This instrument has more capacity than human observation. In the modern period, these weather instruments have more accuracy than the old period instrument. These instruments are auto type instrument. It also records the ongoing weather data. Weather data is most useful in the weather forecasting. In the regional planning weather data plays the important role. The other activity as research, agriculture, transportation, urban planning, settlement construction, forestry and environmental issues weather data is necessary. Some time

there is natural hazards as the cyclone, drought and flood. Intensity of this hazard is representing with the help of weather instrument and its records. Generally thermometer, barometer, hygrometer, anemometer, pyrometer and rain gauge are most applicable weather instrument.

1. Thermometer: This is a simple instrument, which is useful for measurement of the temperature of air and other element in the environment. Mostly thermometer is closed in glass tube in which mercury is fitted. As a simple physics, this mercury is expanding or the contract as the temperature is going to the changes. This instrument is developed by Galileo Galilei in 1593. There are two unit measuring method for the temperature as the Celsius and Fahrenheit. This is most applied weather instrument to take temperature of environment, solid, liquid, and gasses element in the nature. It is useful in the medical and industrial purpose.

2. Barometer: This instrument is useful for measuring atmospheric pressure. This pressure is developed due to the weight of gasses, water vapor and dust particle. Solar radiation is also effecting on the pressure. Due to the unequal distribution of temperature there is high pressure and low pressure location that's why wind is formed. Hence atmospheric pressure is an indicator of the weather. Due to the effect of solar radiation, there is low atmospheric pressure on the equatorial region. Average atmospheric pressure is 1013.25 Mb. Evangelista Torricelli was first natural scientist who constructs the barometer in 1643. Mostly mercury is used for construction of the barometer. Simple thermometer and fortin barometer are most common applicable for the overall atmospheric pressure study. Barometer is applicable for the weather forecasting. It also useful for industrial activity and construct the instrument altimeter.

3. Hygrometer: Hygrometer, instrument used in meteorological science to measure amount of water or vapor in the air. This instrument is also known as Psychrometer. Humidity is the amount of vapor in the atmosphere. When wet and dry bulb thermometer is use for measurement the humidity is known as psychrometer. Humidity is express by percentage, gram and consider area also. Hygrometer instrument is useful in weather forecasting, in the industrial activity and in a agriculture practices.

4. Anemometer: An anemometer is an instrument that useful for measures wind speed and wind pressure. This instrument indicates the weather pattern also. The first description of an anemometer was given by Leon Battista Albert in 1450. In the cup anemometer, there are hemispherical cups are mounted on horizontal arms of this instrument. The speed of rotation of the hemispherical cups indicates the speed of wind in the environment. There is speedometer is

fitted at the bottom of this instrument which gives the record of wind speed. This instrument is applied in the number of human activity and the environmental activity. It is useful for the measurement of wind speed, direction and velocity. In the wind energy sector, it indicates quality of wind speed. For the justification of environmental problems and hazard also.

5. Pyranometer: This instrument is useful for the measurement of solar radiation and its intensity. This instrument is useful for to study the agricultural activity, environmental issues, health study, the biotic activity and solar energy plant.

6. Rain gauge: Rain gauge is simple instrument is used by meteorologists and hydrologist to gather and measure the amount of precipitation over an area. This is open place weather instrument. Amount of rainfall is measure in the unit of millimeter, centimeter and inch also. There are following application of the rain gauge as measuring the rain in that geographical region. Rain fall is effecting on the forest and vegetation in that area. For the forecasting further agriculture and economic activity in that region. It will be help for the potential conditions for the flooding in the river basin area. It is possible to put the hundreds of year's rainfall data by this rain gauge instrument.

7. Other Weather Instrument: metrological engineer had develop some other special kind of weather instrument as it need based. For example, maximum thermometer, minimum thermometer. Dry bulb thermometer. Aneroid barometer, hair hygrometer, hygrograph, thermograph, barograph, evapometer, compound barograph and thermograph etc. These instruments are used for special kinds of the need in the different sector.

8. Weather Station: It is combined facility with instrument and equipment for measuring atmospheric condition to study the weather and climate. It take the data of temperature, atmospheric pressure, humidity, wind speed, wind direction, precipitation, evaporation, sunlight intensity and ground surface temperature. This data is useful for weather forecasting and other economic activity. Now a day this weather station is becomes the automatic by application of satellite. It takes the accurate reading and record with computer software technology. World meteorological organization (WMO) has established number of weather station all over the world. These weather stations are made record of equatorial, polar, desert, mountain, and ocean region. In India, it has good history of weather station. It is controlled by Indian Meteorological department since 1875. This organization also gives training for young meteorologist how

handles the weather instrument and take the data of weather condition. It also made the weather forecasting in India.

Conclusion

hence weather is most dynamic condition of the local atmosphere. It is necessary to make the record of it. Weather forecasting technology which is applicable for the number of economic and environmental activity. Now a day, in these global climatic changes, these weather instruments are applicable to put the record and measure the intensity. History of climatic data indicate how there is global climate is change. Weather instrument is applied for to control the natural hazard as cyclone, heavy rainfall, and drought. These instruments have scope in the agricultural activity. In case of air and the navigation transportation these are most necessary. In the modern period of the digital technology, these instruments are more accurate to take the weather data time to time. That's why accuracy of the weather forecasting is more accurate than the past period.

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