INTRODUCTION TO AGRICULTURAL METEOROLOGY

Meteorology is defined as a branch of physics dealing with the lower atmosphere (Atmosphere is a deep blanket of gases surrounding the earth) with particular emphasis to the individual phenomenon. In other words it is concerned with the study of the characteristic and behavior of the atmosphere. It explains and analyses the changes of individual weather elements such as air pressure, temperature and humidity that are brought about due to the effect of insolation on the earth's surface. (Insolation refers to radiation from the sun received by earth's surface).

Agro meteorology is a science investigating the meteorological, climatologic and hydrologic conditions, which are significant for agriculture owing to their interaction with the objects and processes of agricultural production. In nutshell, it is a science dealing with climatic conditions, which is directly related to agriculture.

DIVISIONS OF METEOROLOGY

1. Dynamic Meteorology

It deals with the forces that create and maintain motion and the latest transformations associated therewith.

2. Physical Meteorology

It deals with pure physical nature such as radiation, heat, evaporation, condensation, precipitation, ice accretion (continuous coherence).

3. Climatology

Climatology refers to the study of weather patterns over time and space. It concerns with the integration of day-to-day weather over a period of time. It refers to the average 3 conditions of the weather. Climatology is made up of two Greek words, kilma + logos; kilma means slope of the earth, and logos means a discourse

or study. In brief, climatology is simultaneously an old and a new science. It is a statistical meteorology which determines the statistical relations, mean value normal, frequencies, variation distribution etc.

4. Synoptic meteorology

Its purpose is the analysis and forecasting of the weather phenomena. Thus synoptic meteorology comprises dynamic as well as physical meteorology and to a lesser extent climatology in order to obtain a synopsis of the state of atmosphere.

5. Aeronautical meteorology

It deals with application of meteorology to the problems of aviation.

6. Maritime meteorology

It is related to marine navigation.

7. Agricultural meteorology

It deals with application of meteorology to agriculture, soil conservation etc.

8. Hydrometeorology

It is concerned with meteorological problems relating to water supply, flood control, irrigation etc.

9. Medical meteorology

It deals with the influence of weather and climate on the human body.

10. Aerology

It is a branch of meteorology that is concerned with the conditions of the free atmosphere on the basis of direct observations.

METEORS AND ITS CLASSIFICATION

Meteors are defined as an atmospheric phenomenon, having a luminous appearance that travels through space as aerolites, fireballs, stars etc.

a. Aerial meteors **:** Wind, Tornado

b. Hydro or Aqueous meteors **:** Rain, hail, snow and dew

c. Litho meteors **:** Dust and smoke

d. Luminous meteors **:** Rainbow and halos (circle of light and sound luminous body around the sun or moon)

e. Igneous meteors **:** Lightening and shooting stars.

SCOPE OF AGRICULTURAL METEOROLOGY

Climatic factors alone affect the yield of crops to an extent of about 40%. In India the success of agriculture depends mainly on monsoon rains. Agricultural Meteorology is mainly concerned with microclimatology in which the influence of the shallow layer of atmosphere immediately above the surface is studied. Successful crop production depends not only upon the total seasonal rainfall but also on the proper distribution. The study of agricultural meteorology helps the farmers to know when the monsoon rain begins, its distribution etc. Apart from this the farmer will be able to know about the weather abnormalities and their destructive effect on crops.