

Chapter – 3

Data and Their Collection

3.1 Introduction:

In this chapter, the types of data needed for the proposed study has been outlined first. Then, the source of needed data and the method of collecting data along with the scrutiny of data have been briefly discussed. Also, the underlying assumptions of the study along with the limitations of the study have been briefly discussed.

3.2 Types of Data Needed:

The two objectives, in broad, aimed in project are

(1) To determine the natural maximum and the natural minimum of temperature in the context of Assam.

and (2) To investigate whether the changes in temperature, in Assam, that are occurred is due to some unnatural cause or causes.

To achieve the first objective, data on

(1) the maximum temperature

and (2) the minimum temperature

at the locations covering Assam are needed.

3.3 Collection and Scrutiny the Data:

Below we briefly discuss the various sources of the data required in the study namely the data on the maximum temperature and of the minimum temperature at the locations covering Assam. Also, various aspects of collection and scrutiny of the required data have been briefly outlined along with it.

The sources of the required data on temperature are

1. the meteorological stations situated at the different places in Assam
2. Data Centre at the Office of the Indian Meteorological Department, Borjhar
3. Data Centre at the Office of the Indian Meteorological Department, Pune.

Indian Meteorological Department has 41 locations (called stations in meteorological terminology), out of which 5 locations are situated in Assam. These 5 locations are such that they more or less cover the state Assam. The names of the 5 stations with the corresponding indices (fixed by the Indian Meteorological Department) have been shown in **Table - 3.1**.

Table - 3.1

Index No.	Name of the Station
42314	DIBRUGARH / MOHANABARI
42404	DHUBRI
42410	GUWAHATI / BORJAR
42415	TEZPUR
42619	SILCHAR

Accordingly, these 5 stations have been selected for the study. In order to collect data on the characteristics mentioned above from these stations, the stations have been visited. Data on the same have been available in the stations for current period only. That is why the Data Centre of the Indian Meteorological Department at Pune has been visited for collecting more past data.

From the stations visited, the data on (1) the maximum temperature and (2) the minimum temperature have been picked up for the stations since 1969.

In the collection of data from these stations we had been supplied the prior information that the daily data suffer from inconsistency (undetectable and immeasurable) while monthly data are almost free from it. For this reasons, the raw data have been converted to monthly data. Thus, the classified data deals with

- (1) the highest maximum temperature occurred in month i.e. monthly maximum temperature
and (2) the lowest minimum temperature occurred in monthly i.e. monthly minimum temperature.

3.4 Assumptions Made in the Study:

Following are the assumptions made in the analysis of data under the study:

- (1) Facts and figures on
 - (i) the monthly maximum temperature
 - and (ii) the monthly minimum temperaturecollected from the 5 stations in Assam are free from methodological errors (i.e. errors due to machine/ tool having unknown defects and due to wrong handling of machine / tool). It has also been assumed that the facts and figures observed have been recorded correctly.
- (2) Data on the characteristics mentioned in (1) are free from inconsistency.
- (3) The effect of error is additive in nature.
- (4) Chance errors associated to the observations in each of the characteristics mentioned in (1) are independently and identically distributed normal variables with zero mean and a common unknown variance.

