

CHAPTER I

INTRODUCTION

1.1. Background

Hydrology is the science that encompasses of the occurrence distribution movement and property of the earth and their relationship with environment within each phase of the hydrologic cycle. The water cycle, or the hydrologic cycle, is a continuous process by which water is purified by evaporation and transported from the earth surface (including the oceans. All of the physical, chemical and biological processes involving water as it travels its various paths in the atmosphere, over and beneath the earth surface and through growing plants, are of interest to those who study the hydrologic cycle. There are many pathways the waters may take in its continuous cycle of falling as rain falls and snow falling and returning to the atmosphere. It may be captured for millions of years in polar ice caps it may follow to rivers and finally to the sea. It may flow to rivers and finally to the sea. It may soak into the soil to be to be evaporating directly from the soil surface as it dries or be transpired by growing plants. It may percolate through the soil to ground water reservoirs (aquifers) to be stored or it may flow to wells or springs or back to streams by seepage. The cycles for water may be short, or it may take millions of years, people tap the waters cycles for their own uses. Water is diverted temporarily from one part of the cycle by pumping it from the ground or drawing it from a river or lake. It is the used for variety of activates such as households, businesses and industries. For the irrigation of farms and parklands, And for production of electric power. After use water returned to another part of the cycle perhaps discharged downstream or allowed to soak into the ground .used water normally is lower quality, even after treatment which often poses a problem for downstream users. In the advent of global warming, there are increased concerns regarding extreme weather events. As elsewhere across the globe, South Asian

countries have been observing an increase in occurrence of extreme climate events in recent decades. Many researchers have found evidences of increasing extreme weather events such as heat waves, cold waves, floods, droughts and severe cyclones over the past few decades. Extreme rainfall events can have severe impacts on people's life. An investigation of extreme rainfalls by the scientific community in any country serves several purposes such as: the estimation of extreme rainfalls for design purposes; the assessment of the rarity of observed rainfalls; and, comparison of methods to estimate design rainfalls. This study also focuses the last purpose and a detailed regionalized study is practically useful for the planners and other users.

1.2. Research Problem

- A. Finding the fitting distribution probability of the daily rainfall.
- B. To calculate the standard deviation (SD), mean, median and skewness from secondary data.
- C. Testing the goodness of fit
- D. Identification of best fit probability distribution

1.3. Research Objective

The objectives of this research are:

- A. To calculate the mean from the stations in Karanganyar Region by using Hydrologic analysis and design 1989.
- B. To calculate the standard deviation from the stations in Karanganyar Region by using Hydrologic analysis and design 1989.
- C. To calculate the standard deviation from the stations in Karanganyar Region by using Hydrologic analysis and design 1989
- D. To find the fitting distribution for all the data by using Aprob_41 (Analysis probability).

1.4. Research Contribution

The contributions of the research are:

- A. Theoretically, it applies knowledge particularly related to rainfall analysis.
- B. To provide information and material inputs on related institutions used as a raw material to evaluate the current situation.
- C. To support a data for any similar research.
- D. Giving data about the water level and stability for building.

1.5. Research Limitation

- 1. The research limited to the existed data that went back to twenty years.
- 2. The obtained data from secondary data is the amount of rainfall every day.
- 3. The data collected at Sven stations along karaganyar region.
- 4. The method used in this research by Aprob_41(Analysis probability)..

1.6. Originality of Research

As far as the author knows, this research has not been conducted before. However, similar researches have been done around the world and what this research all about is to contribute to and support similar researches.