

## ***CHAPTER ONE***

### **INTRODUCTION**

Maps are so important to serve our live , maps were used at ancient centuries by different cultures and get many improvements up to digital stages.

However Greeks had the major impact on the map developing. In the sixteen century the first modern atlas had been created , and back then it was called the Threaten Orbis Terrarum. However atlas was considered the most outstanding achievement in the map history, because it was the first time where the longitude and the latitude crossed at the right angle .

Nowadays we have two types of maps the planimetric (thematic) maps that shows the only horizontal position of objects , and on the other hand we have the topographic maps that shows the elevation in addition to horizontal position.

Today we have various methods to produce maps and because of the development in surveying technologies, several mathematical models were created to represent the shape of the earth. Different nations and agencies are using different datums in the way they fit with their areas.

The verity in map datums and map projection may cause some confusion and errors if the cartographer or users did not have the enough knowledge when they dealing with maps .As the Sudan 1:100,000 maps were produced using Clarke 1880(map datum) and TM (projection) .

The aim of this research is to compare the effect of changing map datum or projection on measured map distances and to evaluate these effects.

This research consist of six chapters ,including this introductory chapter, history of maps were discussed in chapter two, in chapter three map datums are concerned , chapter four discusses map projection, the tests and results shown in chapter five, chapter six is the conclusions and recommendations.