— University of Mosul —
College of Petroleum & Mining Engineering

Structural geology

Lecture …(one.)….

Ammar Akgburi

Petroleum Reservoir Engineering Department

Email: ammar.ali@uomosul.edu.iq

LECTURE CONTENTS

- Objectives of structural geology
- What is the structure
- When it develop
- Under what physical conditions did it form

In general, the first question must be answered first. it is essential to determine the shape and size of rock bodies. Geological field work is indispensable,to many such investigations, and it is this fact that distinguishes وmost phase of geology from other sciences. Because the correct location of outcrops is of the utmost importance ,accurate maps are essential. Field (direct)observations of deformed rocks and their structures represent the most direct and important source of information on how rocks deform, and objective observations and careful descriptions of naturally deformed rocks are the key to understanding natural deformation laboratory investigations are supplementary, means to attain this primary objective. Indirect observations of geologic structures by means of various remote sensing methods, including satellite data and seismic surveying, are becoming increasingly important in our mapping and description of structures and tectonic deformation

A second objective (When did it develop) of structural geologist is to relative the structure to some chronology. One phase of this study is to determine the sequence in which the structural features developed .for example ,he may found an anticline. a fault and a dyke. What are their relative ages? The structural geologist is interested not only in the sequence of events in the area in whiche is studying but he also wants to fit them into the geological history of the whole earth. this can be done by paleontological methods or by radiogenic dating. A third objective (under what physical condition did it form?)of structural geologist is to determine the physical process that produced the observed structure. What was the temperature and pressure at the time of the structural feature formed, and what was the stress distribution? - Experiments performed in the laboratory give us valuable knowledge of how various physical conditions, including stress field, boundary condition, temperature or the physical properties of the deforming material, relate to deformation. - Numerical models, where rock deformation is simulated on a computer, are also useful as they allow us to control the various parameters and properties that influence deformation