**جامعة عين شمس**

**كمية الآداب – قسم الجغرافية**

**جيومورفولوجية حوض وادي سردود في اليمن**

**باستخدام الاستشعار عن بعد ونظم المعلومات الجغرافية**

رسالة مقدمة لنيل درجة الدكتوراه في الجغرافيا الطبيعية

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**Abstract**

Surdud Valley Basin is located in the center of North West Highlands of Yemen between latitudes 15 57- 15 35 North and longitudes 42 46 - 43 58 East, , its area is about 3145.8 km 2 and the length of the basin is 126 km. The basin is bounded by the Red Sea from the West, the Siham Valley Basin in the South, the Al-Jawf Valley Basin in the East and the Moore Valley in the North. It is covered with rocks of different ages which most of them are rocks related to the Tertiary that represent 56% of basin area, the wide spread of faults in the basin because it is highly affected by the Red Sea Movement, the number of cracks is 399 cracks with a total length of1797 km, the west north – east south cracks led to form the basin, rocks are very affected by joints as well.

The basin is dominated by semi-dry climate; the rain falls during the summer and autumn seasons and it reaches the maximum rate in August 68.1 mm, the temperature increases on coastal plain and decreases inwards on highlands, that leads to the formation of frost during winter season. The rate of wind speed in the basin generally is medium. The vegetation cover helps soil cohesion and this cover increases on highlands near the Sea because of humidity, most parts of the basin are covered with residual soil but the flood soil appears on sedimentary benches and in Tihama Plain, this soil is low in salinity and is considered as arable soil.

The morphomtric analyses of the drainage network showed that the basin generally tends to elongation that means that there is possibility of existence of underground water. The basin to the ninth order and it is formed of 91102 streams with length total 25448km..

Slopes of the basin are mainly of low angle, They are dominated by the west north direction, the segments tend to concavity, step like slopes are very popular , landslides takes place very frequently and it is more on the sand rocks particularly on the highlands.

Studying the surface landforms in the basin showed the domination of structural forms this because the basin is affected by the events that the Red Sea witnessed along its formation period. So that Hills, ridges, faulted valleys, gorges, rocky benches and volcanic forms spread, and it have been found that the basin exposed to uplifting movements and volcanic eruptions along successive periods. The last one of these periods was at the beginning of the Holocene. The volcanoes are still active and this is confirmed by the existing dry springs in the basin. Regarding the erosion forms, They are represented in drainage network, isolated hills, Peaks and pediment (rocky plains) which appear at the bottom and the top of mountains. For the sedimentary forms that cover Tihama plain are represented by Alluvial fan, Playa and sand dunes and they hasve different shapes and sizes. The Sabkha and marine terraces which appear on the plain they are mixed valley sediments, marine, and wind sediments. The sedimentary forms which appear below the highlands on the sides of valley streams are represented by sedimentary benches and Alluvial fans used for cultivation. The minor forms spread in the basin, these forms were formed by weathering such as weathering pits, caves, desert tables, mass disintegration, fragmentation, exfoliation and slope debris, and the weathering encouraged the landslide to take place.

The basin passed many stages along its formation periods but the Tertiary was the most important period of its formation which gave it its current form with slight changes during the Quaternary. Although of that most of them were results of external agents, the formation of the basin is of a structural origin.