

CHAPTER (5)

CONCLUSIONS AND RECOMMENDATIONS

5.1 CONCLUSIONS

The use of data from satellite images for finding oil indicators has been developed over the last 50 years. The utilization of satellite images in oil exploration provides significant advantage over other corresponding exploration techniques, Satellite sensors are able to acquire panchromatic and multi-spectral images with high spectral and spatial resolution, enables expertise to accurately detect objects that indicates oil accumulation existence over large areas.

In this research, a study involving the analysis of different projects that used satellite images for finding oil has been carried out. Several data analysis steps were conducted to determine the main factors that affect the use of satellite images for this purpose, ranks are given to factors for the assessment of the probability of oil existence.

The study involved also an investigation for a questionnaire that has been sent for different oil companies to get their opinions and background about the research topic through the answer of different questions, feedback was collected and analyzed, pie charts was created for the results.

Finally an interface was developed to help the user selecting suitable satellite images according to different project conditions, and to provide a guide for the selection of suitable areas for concession in reconnaissance stage. According to the analysis of the results obtained from different cases and people feedbacks, the following conclusions can be drawn:

1- Satellite images usage could be extended to cover large areas with different topographic and environmental conditions (Sea-Deserts-Forests-Rugged terrains ...etc.).

2- Finding oil from space could be performed with or without the aid of seismic data, so seismic data may be used as auxiliary data for satellites in reconnaissance stage (over 85% of oil accumulations have surface signatures).

3- There are specific types of satellite images effective for each environmental and topographic condition.

4- The use of Multi Temporal and Multi source satellites increase the probability of oil existence, this is useful for change detection.

5- Different surface oil signatures that have subsurface oil accumulations could be discriminated from oil leakage and pollutions in desert and water areas using satellite images data.

6- Different spectrum areas have different reflectance with objects that indicates the existence of oil.

7- The Landsat series of satellites are commonly used for all purposes oil exploration.

8- For oil exploration in sea/ocean projects, it is preferred to use SAR for finding oil indicators.

9- About 98% of oil companies exploration techniques in Egypt are based upon the use of seismic data, questionnaire feedback were promising that satellite images might be used for exploration purposes.

5.2 RECOMMENDATIONS

The technology is in continuous progress through the capabilities of obtaining oil indicators using satellite images. It is recommended to investigate the following topics:

1- Using data from satellite images in the stage of reconnaissance in the exploration process.

2-study the detailed statistical weight of the parameters that affects the use of satellite images for oil exploration.

3-The potential of using Landsat and SAR data for oil exploration in specific topographic condition.

4- Develop smart oil exploration Software to recover more options for getting more advanced results about oil existence probability according the study of conditions.

5- Study of interpretation methods corresponding to the use each type of satellites.

6- Study detailed cost differences between the use of satellite images for oil exploration and other common methods in each phase.