

ABSTRACT

The Geo-Aquifer project was developed by OSS to extend and to make operational the assets of the pilot experiments of ESA project AQUIFER to the whole North-Western Sahara Aquifer System (NWSAS) shared by Algeria, Libya and Tunisia.

The AQUIFER project originates from the TIGER programme of ESA (European Space Agency) which aims at valorising satellite data, especially those obtained from this Agency's ERS and ENVISAT images, for applications connected to the management and monitoring of water resources in Africa. The AQUIFER project is implemented by a consortium of European firms coordinated by the German company GAF. Its objectives are as follows:

- to provide assistance to the national authorities in charge of water with a view to a better use of satellite and geographic data in the management of aquifers shared by several countries;
- to boost and enhance the techniques of management of water resources in the countries concerned by the project;
- to build national capacity in matter of use of satellite and geographic data applied to aquifer management from a perspective of sustainability of the efforts made on the long term.

The AQUIFER project has developed methodologies on various pilot areas and zones of interest in the North-Western Sahara Aquifer System (SASS) related to:

- land cover/ land use maps, and recent changes map,
- Digital Ground Models on various scales,
- water abstraction estimates,
- basin-wide monitoring of vegetation,
- estimate of subsidence.

The GEO-AQUIFER project is conducted by the OSS and the institutions of the three countries based on a grant extended by the African Water Facility (administered by the African Development Bank), with ESA support

The project has 4 main objectives as follows:

- extension of the digital mapping of land use and surface water over the entire SASS-Djeffara basin (Algeria, Tunisia, Libya) and development of detailed land cover maps and land cover change maps in pilot zones;
- extension of the DGMs and derived products over the entire SASS-Djeffara basin;
- creation of a hydro-geographic model over the entire SASS-Djeffara basin, a virtual regional globe and a data dissemination tool;
- capacity building: training in the techniques of geo-scientific data production, management and exchange; support to research.

Through initiative TIGER and within the framework of GEOAQUIFER, the main objective is to show:

1. the obtained results and utility of satellite images to reduce the costs and time necessary to the studies
2. The availability of the reliable data
3. Facilitation of the updating and the periodic exchange of the data
4. Reinforcement of the exchanges and solidarity between technicians
5. Facilitation of the consultation for the shared resources