How the Project will be implemented

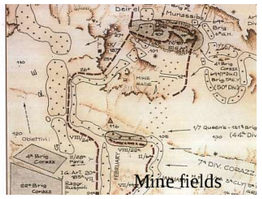
Defensive positions on the top of the flat surface of Naqb Rala, inside the area occupied by Folgore parachutists. The excavation is partially buried by eolian sands.

The El Alamein Project will allow the reconnaissance of defensive artefacts and man-made positions - recognisable at the time of the El Alamein battle - with today preserved emplacements, still visible on remotely-taken images. An accurate onsite survey will follow, with the aim of creating a photographic data bank, which will be integrated by geodetic Gps topographical plotting, by geomorphologic and geologic information, by studies on sedimentation processes, and by prospecting activities which shall help in locating possible artefacts and burial sites.

Documented expected results

Project documented results will be as follows:

1) Assembly of a specific bibliography concerning the El Alamein battles and the war in North Africa;
2) Acquisition of satellite images and aerial photographs of the time;
3) Creation of a GIS embedding project documentation, geo-referencing documents and data analysis;
4) Creation of a GIS referenced Geographic Data Bank, containing recent pictures, videos and any other documentation;
5) Preparation of specific field survey reports (geologic-geophysics data, investigations, observations);
6) Publishing of scientific articles and works in dedicated journals;
7) Publishing of general articles in various media;
8) Presentation of the results to scientific seminaries, cultural meetings, conferences and other events;
9) Preparation, printing and publishing of a comprehensive book, to include a vast selection of pictures, graphics and maps, as a detailed description and analysis of the results achieved;
10) Realisation of DVDs, based on cartographic visualisation software, and annexed data bank; and
11) Realisation of a Web site, which will permit free access and consultation of the assembled data.



Mine fields

The italian Sacrary

Italian tanks in action

Anti tank mine

M13/40

The allied attack on 23rd October 1942
(Paolo Caccia Dominioni)

THE EL ALAMEIN PROJECT

Project for the Preservation of the El Alamein Battlefield (Egypt, 1942)

Geographycal Information System for documenting and restoring sites of historical interest by means of Remote Sensing Technologies and Terrestrial Geophysics Techniques

Purpose of the project

Preserving the El Alamein battlefield area by the creation of a geographical database aimed at the historic, cultural and tourist exploitation of the sites in agreement with the Egyptian authorities.

Trenches and man holes at Nabq Rala
(Quickbird satellite image -
© Google Earth)

Reasons for the Project

The desert stretches between El Alamein and the El Qattara Depression, even being today a restricted access military area, have been affected in recent years by an ever increasing tourist presence, due to international resorts development of the El Alamein coastal areas. At the same time, oil prospecting activities have resulted in the spreading of new tracks, trenches and artefacts which have concerned, and in part modified, the most peculiar sites of the El Alamein battlefield (Ruweisat, Mitteriya, Deir El Munassib, Naqb Rala, Haret el Himeimat, Menaquir El Daba), together with the El Alamein built-up area and almost all of the sites along the coast and close to the littoral.

As a consequence, there is urgent the need to survey and document these areas before that transformation imposed over the territory shall result in the disappearing of such remarkable historical war remains. This project, therefore, will have two fundamental benefits: the setting-up of a detailed and complete database and the creation of a cognitive framework for establishing development guidelines aimed at a controlled tourist exploitation of the old battlefield.

University of Padova Department of Geography "G. Morandini"
via del Santo, 26 35123 Padova - Italy +39-049-8274085 - fax +39-049-8274099
www.geogr.unipd.it aldino.bondesan@unipd.it

University of Padova Department of Geography "G. Morandini"
via del Santo, 26 35123 Padova - Italy +39-049-8274085 - fax +39-049-8274099
www.geogr.unipd.it aldino.bondesan@unipd.it

Historical background

In 1942, between the end of June and the beginning of November, a series of battles and war actions took place in the Egyptian Desert (namely, Western Desert), near the location known as El Alamein. Those were four months of enraged fighting which turned the tides of the Second World War, putting an end to the Axis dream of invading Egypt and then reach the vital oilfields of Iraq and Iran. That location was not selected by chance: in that area, the desert narrows to a passage of only 60 km, which is restricted by the Mediterranean Sea in the north and by the inaccessible Qattara Depression in the south; at the time, a railway and a coastal road connected the area to Alexandria, which was the main British logistic base, approx. 100 km to the East.

The first battle of El Alamein began on July 1st, when Gen. Rommel, approaching the area after the retreat of the British VIII Army from Gazala on the west, and even aware of the critical situation in materiel and troops of his Panzerarmee, pushed forward attacking British defensive strongholds near El Alamein, while the two DAK armoured division and the Italian XX Corp tried to break and outflank enemy resistance on Ruweisat Ridge and Bab el Qattara to the south. However, the British troops, under the command of Gen. Auchinleck, fighted back, and after almost four weeks of attacks and counter-attacks, the battle faded away without winners.

On August 31st, Rommel did start a second attempt to break enemy defences (known also as the Battle of Halam Halfa), with the main push carried by Italian and German armoured divisions, trying again to swing south of British lines. Gen. Montgomery (who had replaced Gen. Auchinleck as commander-in-chief of the British VIII Army) reaction was immediate, and a strong battle ensued for the rest of the day, without one side prevailing on the other. On the following days, the fight continued, but went on more and more fragmented in several sectors of the battlefield; finally, British strong reaction, lack of results (and of fuel), and also an uncertain view of the situation, forced Rommel to call over the attack, and withdraw to the starting positions. The second battle of El Alamein was Rommel's last chance as - although very short in time - ended-up with important losses and the weakening of the Axis forces.

The third, and final, El Alamein battle began at 20.40 on October 23rd when the awaited British offensive started. After 12 days of hard fighting Montgomery's VIII Army broke into Rommel's defences, and the Axis troops began a long and difficult retreat which finally ended-up in Tunisia, in May 1943. During the battle, which lasted until November 4th, and the next few days, about 30,000 Italian and German prisoners were captured, while, as a whole, the Axis had 9,000 men killed or missed and 15,000 wounded. On the British side, Montgomery's VIII Army losses accounted for 13,560 killed, missed, or wounded men.


Italian anti-tank position


Anti-tank mines today


El-Qattara, 1942


Fort Menton


Himeimat today

Institutions and Senior Researchers

The project is managed by an institutional group which, in his initial form, includes:

- The Padua University, Department of Geography; and
- The Trieste National Institute for Oceanography and Geophysics (INOGS).

Other institutions may participate to the project during its implementation. Within the above structure, project activities and operations will be managed by a co-ordination working group of Senior Professors and Researchers, with specific experience in *Military Geography* and *Geology of War*.

The research project

Initially, a Geographic Information System (GIS) will be set-up, and a cartographic base, as derived from high-precision satellite images, together with all of the available cartographic documentation, will be loaded as a background reference. Next, original aerial photographs, as taken from reconnaissance military aircrafts, will be over-imposed to that reference, allowing comparison of defensive artefacts and man-made positions - recognisable at the time of the El Alamein battle - with today preserved emplacements, still visible on remotely-taken images. Maps and pictures will be procured by ad-hoc agreements with national and international authorities, military museums and documentation centres. Available wartime witness's accounts will be linked and referenced to the maps.

An accurate onsite survey will follow, with the aim of creating a photographic data bank, which will be integrated by geodetic Gps topographical plotting, by geomorphologic and geologic information, by studies on sedimentation processes, and by prospecting activities which shall help in locating possible artefacts and burial sites. A close collaboration with the National Institute for Oceanography and Geophysics (Trieste's Experimental Geophysics Observatory) will allow for the on-field use of the most advanced geophysics instruments (terrestrial geo-radar and magnetometers) with which to explore ground surface horizons and reveal aeolic fillings of defensive positions.

The project will be preceded by a pilot study in the El Taqa - Naqb Rala – Qaret el Himeimat area.

The research group

Prof. Aldino Bondesan
Professor in Geomorphology, Geologist, University of Padova(Italy)

Dr. Roberto Francese
Geophysician and Senior Researcher at INOGS

Dr. Daniele Moretto
Expert in Military History and in Desert Environment

Dr. Lamberto Fabbrucci
Geologist, Expert in Military History

Dr. Nicola Petrella
Geologist, Expert in Military History

Dr. Lorenzo Facco
Topographer, GIS Expert

Dr. Giorgio Cinti, retired NATO Officer, Expert in Military History

Patrizia Bosio
Secretary of the Project

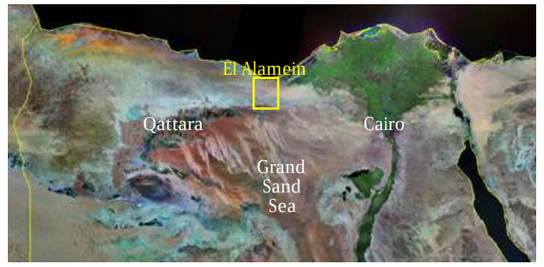
Project implementation milestones

a. GEOGRAPHICAL INFORMATION SYSTEM: build-up of a GIS which shall include:

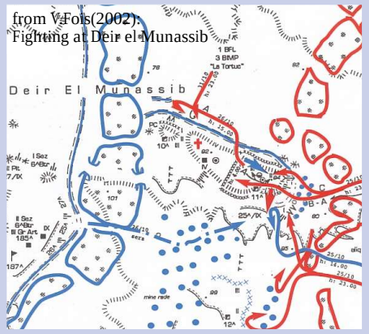
i. 1942 Aerial Photographs (provided by Italian, British, German, American, French, Australian and New-Zealand military authorities; Aerofototeca Nazionale, Istituto Luce; Istituto Geografico Militare; Padua University Geography Department, Map and Aerial Photo Library; Keele University (UK) Aerial Photo Library; RAF Archives; Imperial War Museum Archives, etc.);
ii. 2007 Quickbird Images, both panchromatic and multi- spectral, to be specifically acquired;
iii. Identification, drafting and cataloguing of today's recognisable positions, and of those visible in 1942 (by creating, with ArcGIS®, a geo-morphologic map, and by arranging in categories those evidences identifiable by satellite: trenches, individual digs, artillery positions, command posts, tracks, etc.);
iv. Geo-referenced maps of the battle (to be derived from the vast and considerable historic and technical literature on the subject); and
v. Gps positioning of ground reference points (to be determined with precision instrumentation).

b. BURIED POSITIONS LOCALISATION:

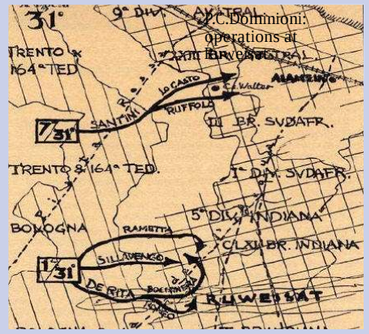
i. Buried positions search and identification (by tele-survey and multi-spectral analysis of Quickbird images);
ii. Direct land reconnaissance and inspections; topographic and geologic-geo-morphologic surveys;
iii. Geo-physic investigation of buried positions (by using geo-radar, proton magnetometer and, in case, other measurement techniques as geo-electrical tomography, electro-magnetic surveys, etc.);
iv. Sites archaeological excavations (and, if necessary, human remains exhumation by forensic archaeology techniques, with local and military authorities involvement, and cross-checking of wartime witness's accounts);
v. Geo-referenced multi-media documentation (photographs, videos, and films and pictures of the time).



The frontline of El Alamein extends between Qattara Depression and Mediterranean coastline



from V.Fois(2002): Fighting at Deir el-Munassib



C.te Bolmironi: operations at

University of Padova Department of Geography "G. Morandini"
via del Santo, 26 35123 Padova - Italy +39-049-8274085 - fax +39-049-8274099
www.geogr.unipd.it aldino.bondesan@unipd.it

University of Padova Department of Geography "G. Morandini"
via del Santo, 26 35123 Padova - Italy +39-049-8274085 - fax +39-049-8274099
www.geogr.unipd.it aldino.bondesan@unipd.it