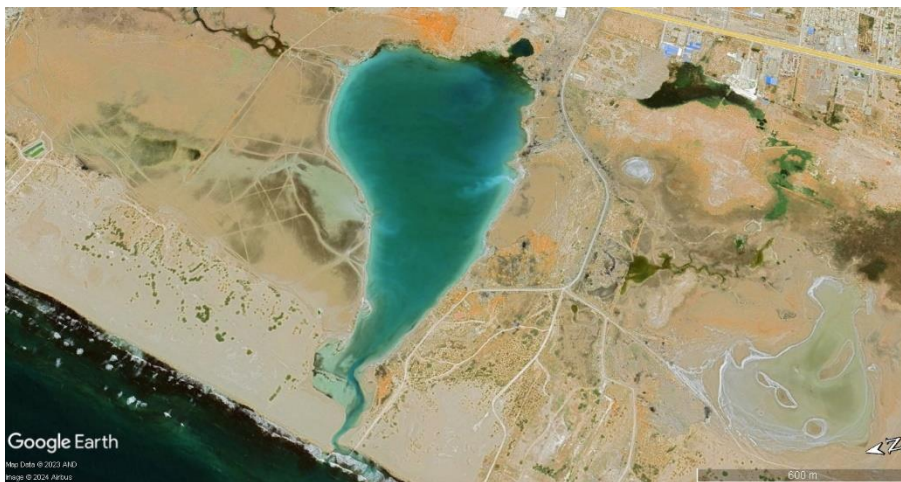


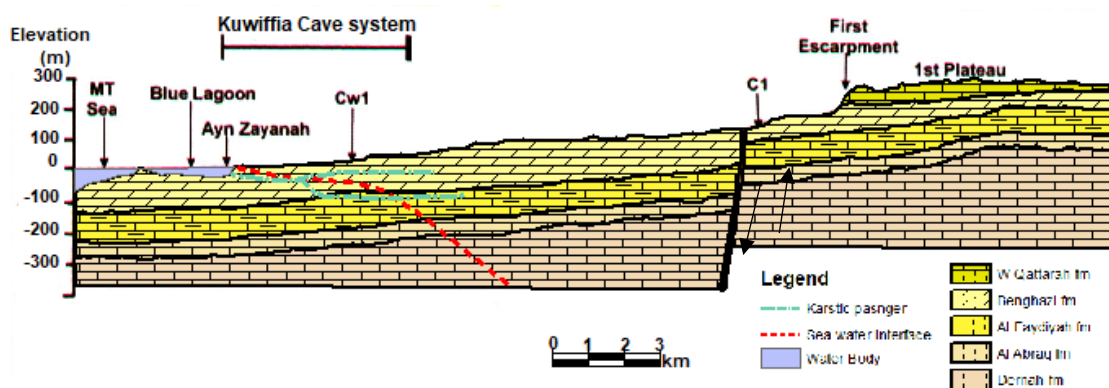


Country	MIKAS springs	Coordinates / Nearby City	Spring discharge (Q in l/s,min/av/max) / tapped or not	Criteria* in order / Main justification */ H-historic, A-aesthetic, S-scientific, E-Economic, Ec-ecologic	Data collected by
Libya 	1. Ain Zayanah	N 32°12'39.98" "E 20° 9'36.81 Z = 4 m asl Kuwiffia, Benghazi	3000/5000/6000 Tapped by gallery (Sidi Mansour) in the sixties of the last century for Benghazi	S, A, Ec, E, H <i>The Ain Zayanah is the largest karst spring in vicinity of Benghazi with catchment area of 4200 km². The main drainage point is close to the Mediterranean Sea and creates a blue lagoon of c. 0.6. km². The spring tapped by gallery (Sidi Mansour) in the sixties of the last century to prevent mixture with sea water but versus time and expanded utilization salinity increase. The spring water can be fresh or brackish depending on groundwater elevation, in some analyses Cl ion concentration reaches 7100 ppm. When the "black water" starts to increase due to urban development around the spring, in 1999, the government raised awareness about the spring and initiated an act against the contamination. The interface between salty water and fresh water enhanced the biodiversity in the region make it unique environment for many spices to live and grow here. The spring belongs to natural reserve area of Benghazi, and also visited by many citizens as picnic place.</i>	Belkasem Alkaryani
	2. Apollo spring (Ain Shahat)	N 32° 49' 22.46" E 21° 51' 8.97" Z = 562 m asl Shahat City, Aljabel Alakhdar	1.5/6/20 Not-tapped	H, A, E <i>Ain Apollo also known as Ayn Shahat is the spring located in UNESCO's Cyrene heritage site. The ancient city was established around this spring 630 BCE. Cyrene, the city situated at the top of the hill, was one of the most important Greek colonies in the region and played a significant role in the ancient Mediterranean world. The city considers one of the top Tourist destinations in the country and was tapped until 1981.</i>	Belkasem Alkaryani
	3. Ayn (Ain) Daboussiah	N 32°50'16.73" E 22°16'47.46" Z = 283 m asl Alqubah City, Aljabel Alakhdar	? / 180 / ? Partly tapped and used for potable water supply	A, E <i>Ayn Daboussia is the largest discharge spring in the region (north of Benghazi), and was previously used (till 1990's) for cities such Shahat, Albayda and Almarej. Nowadays it covers only the municipality of Al Qubah and its suburbs. The spring is located in forest, the discharged water carving in beneath rocks created very beautiful waterfall and pond. The waterfall is attracting the visitors from whole country, free access may cause pollution problem and there is a need to establish protection and fencing.</i>	Belkasem Alkaryani

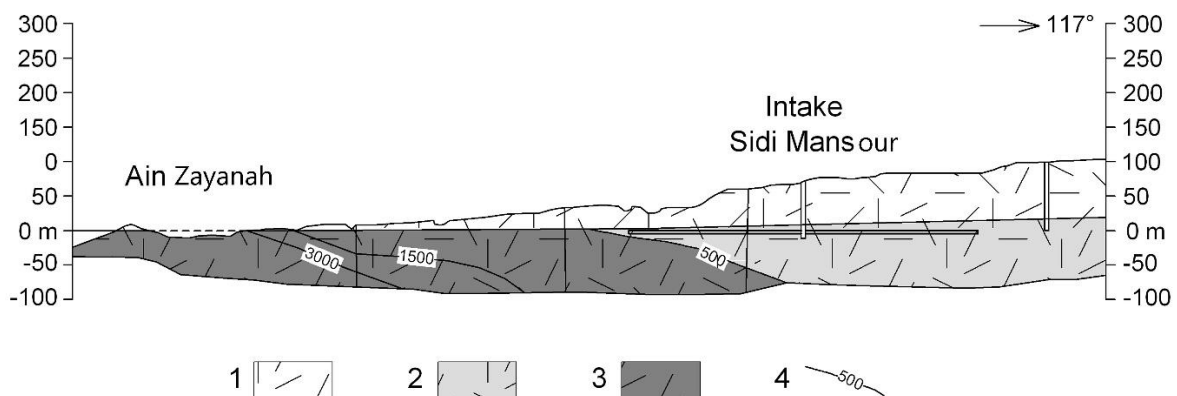
MIKAS – Ain Zayanah



Ain Zayanah spring & Blue lagoon from Google Earth.



Cross section after Guerre (1978) modified by Abdul Malik (2007)



Cross section of the Sidi Mansour (Jebel Akhdar) – Ain Zayanah (modified from Mijatović, 2006; published in Stevanović, 2010). Legend: 1. Unsaturated Eocene limestones; 2. Karstic Eocene aquifer with fresh water; 3. Karstic Eocene aquifer with brackish water; 4. Salinity iso lines, values in ppm.

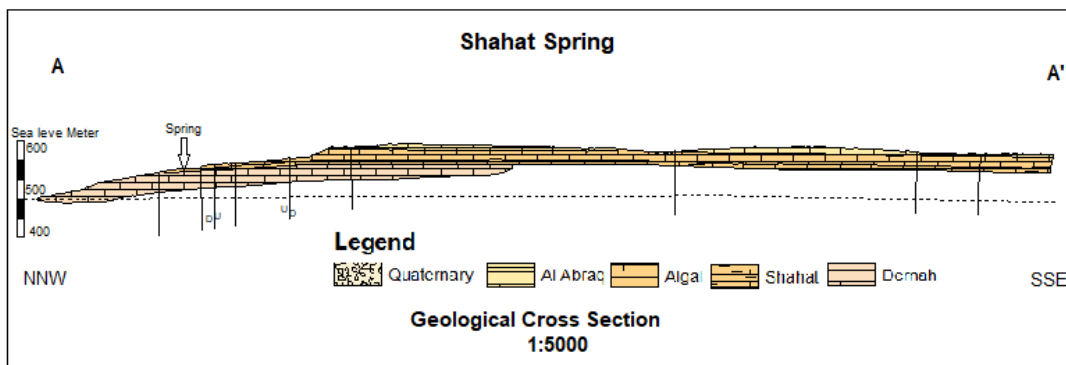


Ain Zayanah spring & Blue lagoon

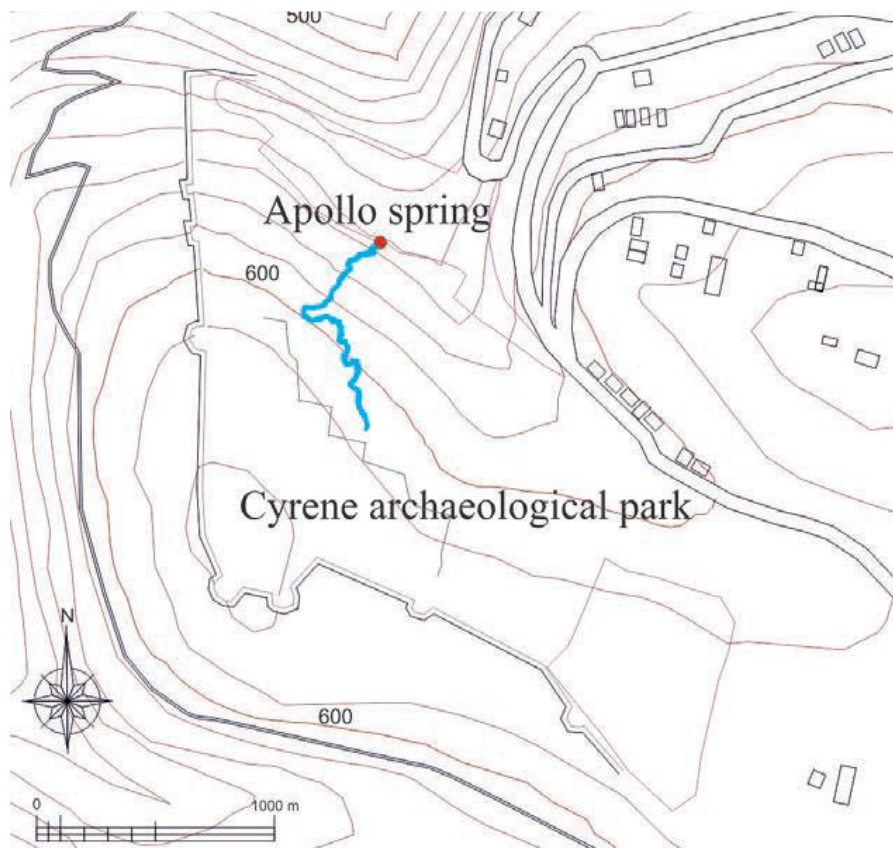
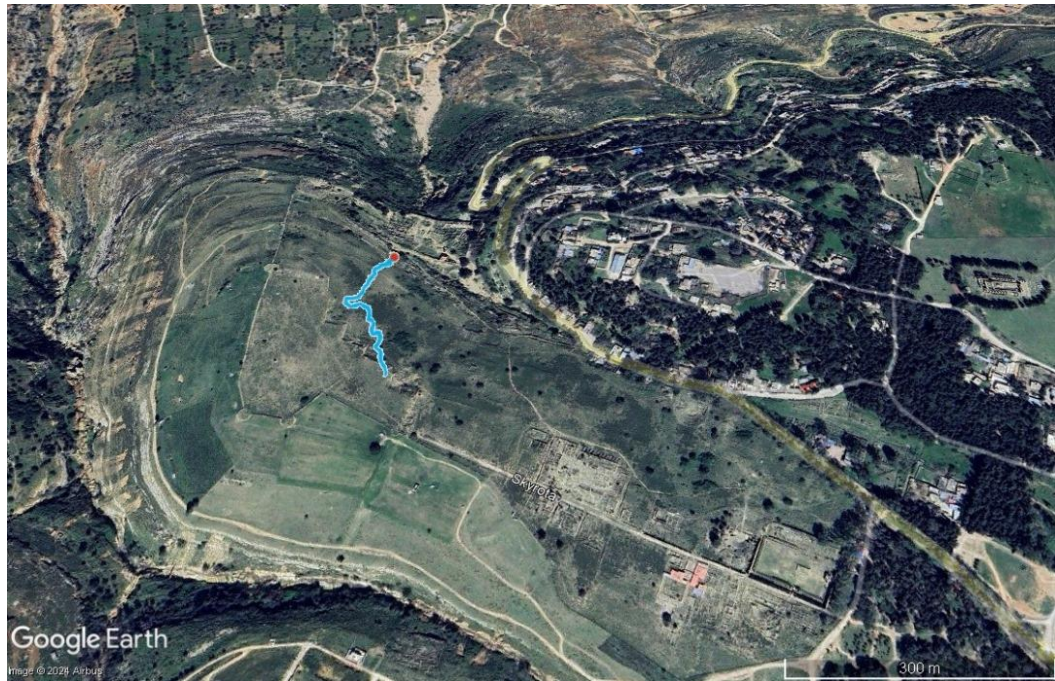


Ain Zayanah lagoon as recreational area

MIKAS - Apollo spring (Ain Shahat)



Cross section of the Apollo spring, updated after Hydrogeo 1992.

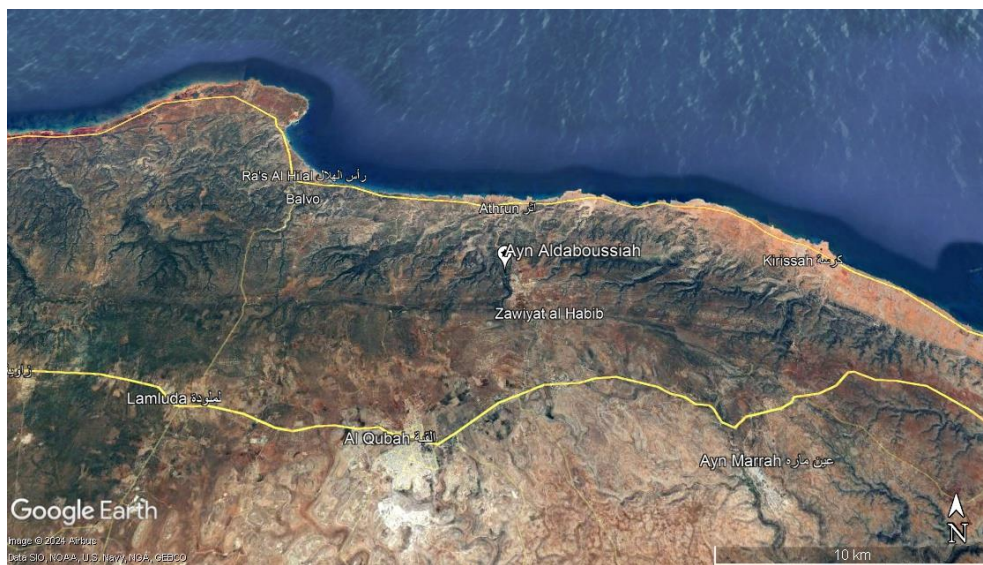


The Apollo at Google Earth map and sketch map of the Cyrene archaeological site



The Apollo spring outlet

MIKAS - Ayn Daboussiah



The spring location at Google Earth map



The pond of Ayn Daboussiah spring



The waterfall of Ayn Daboussiah spring



The waterfall of Ayn Daboussiah spring (detail)