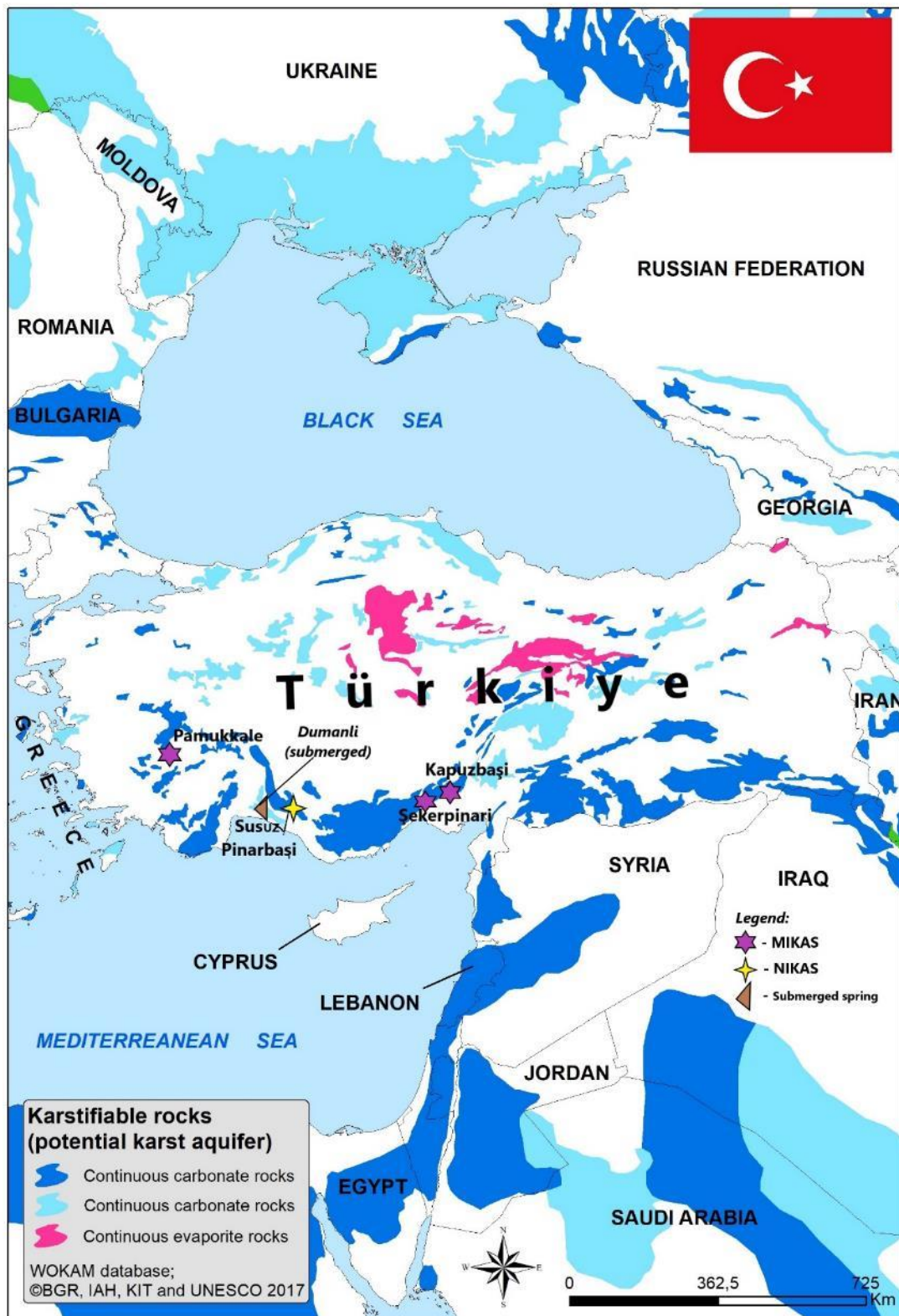




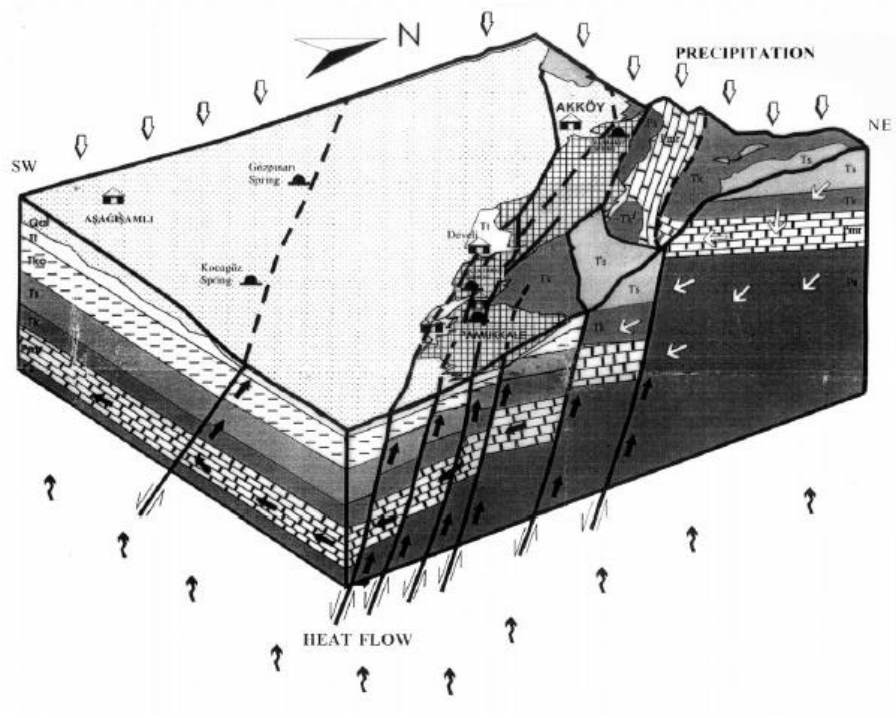
Country	MIKAS springs	Coordinates / Nearby City	Spring discharge (Q in l/s,min/av/max) / tapped or not	Criteria* in order / Main justification */ H-historic, A-aesthetic, S-scientific, E-Economic, Ec-ecologic	Data collected by
Türkiye 	1. Pamukkale (thermal springs)	37°55'17.31"N 29° 7'25.05"E Z=285 m asl Aegean Region / Denizli	- / 20 / - Not utilized to prevent deterioration of travertine terraces; Deeper geothermal water (from drilled wells) is used by several nearby resorts	H, A, E, S <i>Pamukkale is an extraordinary natural formation where calcareous waters cascade from a height of approximately 100 m, creating terraces that resemble a sparkling fairy-tale castle made of cotton or snow. Indeed, the name Pamukkale means "cotton castle" in Turkish. The travertine terraces and thermal springs of Pamukkale are inscribed on the UNESCO World Heritage List. Immediately adjacent to the terraces lies the ancient Greco-Roman city of Hierapolis, whose well-preserved theatre, necropolis, and bath complexes constitute some of the most frequently visited cultural–historical attractions in Türkiye. The hot springs that actively feed the Pamukkale travertine system are strictly protected and are not directly exploited by nearby thermal hotels in order to preserve the delicate carbonate precipitation processes responsible for forming the iconic white terraces. Instead, tourism facilities extract geothermal fluids from deeper reservoir units through controlled wells. This management strategy is intended to prevent reductions in discharge, temperature, and calcium–carbonate saturation, which could otherwise halt travertine formation or lead to its surface darkening.</i>	Mehmet Çelik, Süleyman Selim Çalli
	2. Kapuzbaşı	37.770° 35.396° Z = 770 m asl Kayseri, Konya Closed Basin	1000 / 5000 / 25000 Not tapped and its water used only in downstream area.	A, S, E <i>The spring drains Jurassic limestone aquifer partly covered by Cretaceous ophiolites. The spring has an aesthetic view, and high tourism potential. The system is scientifically important. Kapuzbaşı spring water flows towards Adana, merges with Zamantı stream which is a branch of Seyhan River. Seyhan River is flowing towards the Mediterranean Sea, and there are a sequence of surface water dams, which are used for several purposes e.g. electrical power production and agricultural irrigation. The discharge of Kapuzbaşı spring has been monitored since 2007.</i>	Süleyman Selim Çalli
	3. Şekerpinari	37°28'5.97"N 34°51'47.09"E EZ = 825 m asl Adnana, Seyhan River basin	0 / 2720 / 32000 Tapped out. Water is bottling for famous Turkish brand.	E, S, H, A <i>Some portion of the spring water is being used for drinking water supply. At the downstream side of the spring, the spring water is being bottled, and distributed to the country-wide market (Hayatt). The spring water has an economic value for the country. The spring is located at a very important</i>	Süleyman Selim Çalli

				geographical position in which the historical trade-roads are available. There are historical bridges near the spring. The discharge location is also an aesthetic view, and captures the attention of the tourists. The spring's siphons was dived in 2003 by S. Milanović and D. Vučković and numerous blind fishes was found in deep submerged channels.	
	Dumanli spring			Note: Dumanlı spring in Manavgat River basin (36°54'46.66"N; 31°32'2.54"E) is one of the biggest springs of the world ($Q_{min} = 26,000$ l/s; $Q_{av.} = 50,000$ l/s; $Q_{max} = 100,000$ l/s) Unfortunately, the spring has been submerged since 1984 and is now under the reservoir of Oymapınar Dam.	

MIKAS – Pamukkale



(A) Aerial photograph of the PGF and the location of springs and travertines (from Kele et al., 2011), (B) Terrace slope (image from www.pamukkale.gov.tr), self-built channel, proximal-slope and cascade travertines, (C) Self-built channel, distal slope and fissure-ridge travertines (Figure is taken from Alçiçek et al. 2019)



3-D conceptual model of the geothermal system of Pamukkale (from Şimsek et al. 2000)



Pamukkale travertines at the sunset (Photo is obtained from <https://www.kulturportali.gov.tr/turkiye/denizli/gezilecek yer/pamukkale-hierapolis-antik-kenti>)

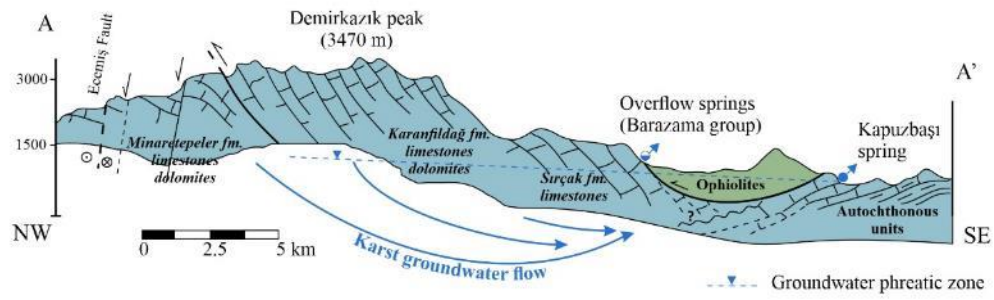


Pamukkale travertines and numerous tourists above them (photo Z.Stevanović)

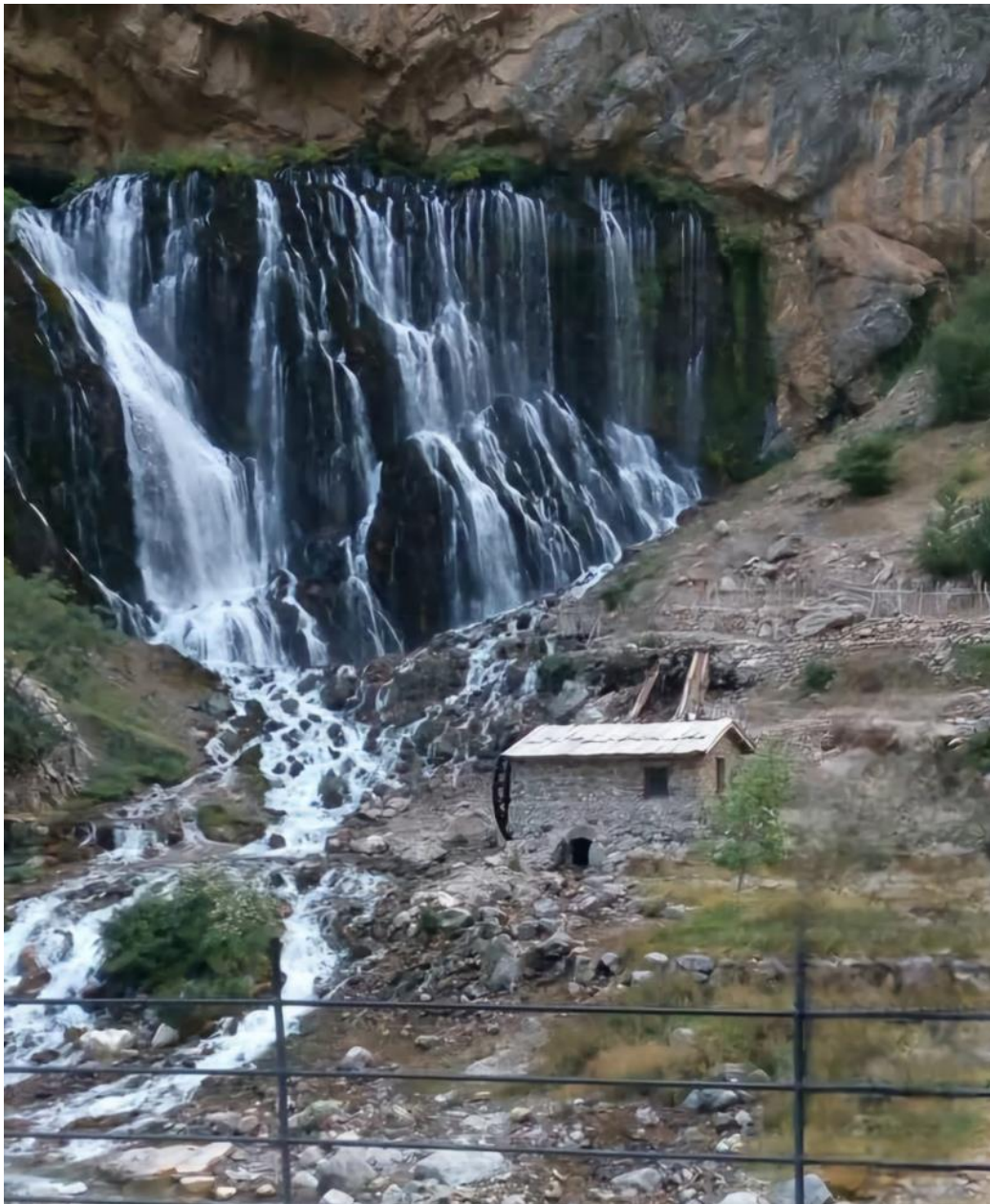


Hierapolis amphitheatre (on the terrace above Pamukkale) (photo Z.Stevanović)

MIKAS – Kapuzbaşı



The cross-section of Kapuzbaşı (from Çallı (2025) (preprint)).

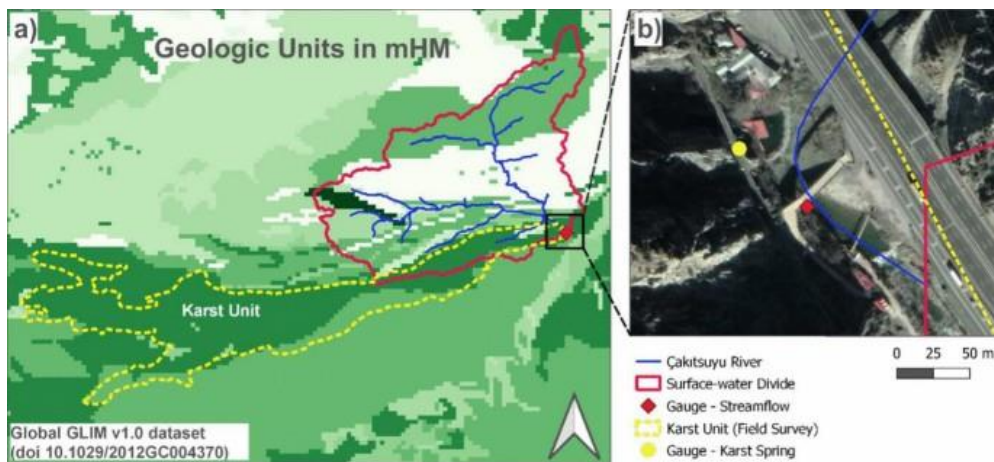


The Kapuzbaşı spring waterfall (photo was taken in 2017 by Uğur Akdeniz)

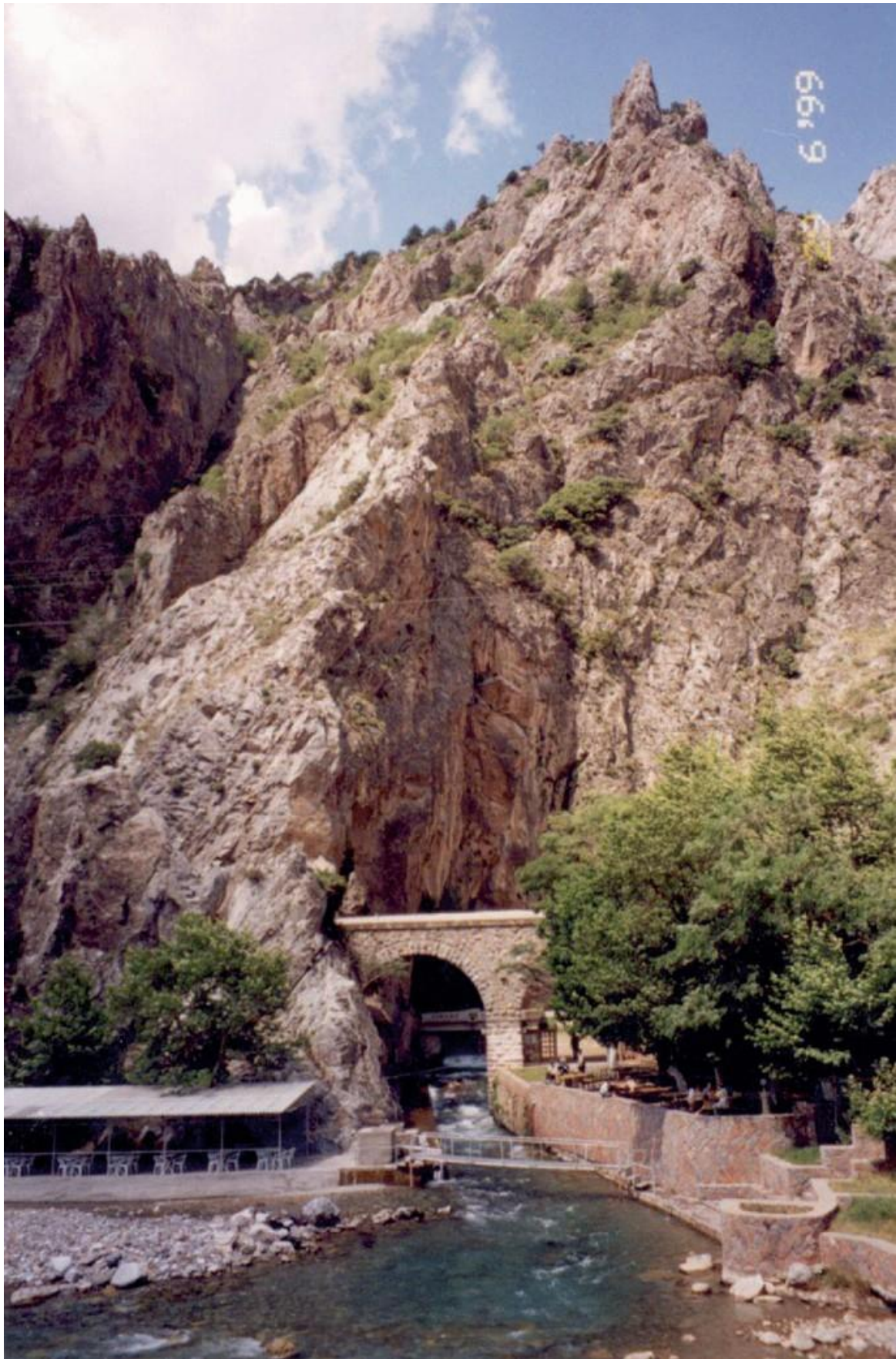


The Kapuzbaşı spring and Zamanti gorge downstream (photo was taken in 2017 by Uğur Akdeniz)

MIKAS – Şekerpınarı



Map: (a) Karst aquifer boundaries of the Şekerpınarı karst spring according to Global GLIM v1.0 dataset, and (b) the discharge location of the karst spring (Kacar et al 2025).



The discharge of the Şekerpınarı karst spring (from Günay 2022).



Dumanli spring before impoundment by the Oymapinar reservoir (courtesy of G. Günay)