
Karstifiable rocks
(potential karst aquifer)
Continuous carbonate rocks
Discontinuous carbonate rocks
WOKAM database;
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POLAND
CZECHIA
SLOVAKIA
HUNGARY
ROMANIA
CROATIA
SERBIA
Občasny pramen
Vrchovište
Jergaly
Periodicka Vyvieracka
Limbasska Vyvieracka
- MIKAS
- NIKAS
Slovakian
NIKAS springs :
1 - Bobrovec
2 - Brestovská vyvieračka
3 - Buzgó
4 - Čertova skala
5 - Čierna vyvieračka
6 - Čierno II
7 - Dechtické pramenisko
8 - Drienovecká vyvieračka
9 - Harmanecký Veľký tunel
10-Hlavný prameň
11-Hlbokô
12-Kráter
13-Lazce
14-Malý kráter
15-Podhrad
16-Vyvieračka v Prosieckej dol
17-Vyvieranie
0
115
230
Km
N
S
E
W

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
Slovakia 	1. **Yergaly**	N 48,864294° E 19,192822° Z = 711 m asl Veľká Fatra Mts. / Starohorské vrchy Mts. Donovaly, Hron River basin	141/382/1315 Tapped for potable water supply of the city Banska Bistrica. This is an excellent example of successfully completed karst aquifer regulation project. In spring area four large-diameter exploitation wells were drilled to a depth of 44 to 50 m. They ensure delivery of stable water quantity to the consumers.	***H, A, E, S, Ec*** *The catchment area consists of limestones and dolomites of the Middle and Late Triassic of the Fatricum (Križňa nappe) and Tatricum (cover enevelope) tectonic units. The surface area is approx. 25 km^2, but still not fully delineated.* *The use of this ascending spring was designed to ensure a permanent withdrawal of 250 l/s by combined use of static reserves and dynamic inflow of karst groundwater compared to the original minimum of 141 l/s. During high water stages, the static component is naturally replenished. The technical regime of use was designed in three phases: (a) when the spring yield is above 250 l/s, gravity withdrawal, (b) when the yield drops below 250 l/s, withdrawal by artificial suction siphon to a drawdown of 5 m, (c) in critical periods of yield decline, withdrawal by submersible pumps to a drawdown of 19 m (Kullman, 1990). However, such a case of water withdrawal has not occurred since 1993. Kullman et al. (2007) however state that the combined use of static reserves and the dynamic component of groundwater circulation in the case of the Jergaly spring, despite extremely dry years, has demonstrated high efficiency of exploitation of karst-fissure waters in this form.* *Water is excellent quality and only chlorination is applied. However, source is under threat of nearby growing recreational and ski centre Donovaly.*	Peter Malik, Anton Auxt
	2. **Limbašská vyvieračka**	N 48,294947° E 17,169319° Z = 337 m asl Malé Karpaty Mts. Limbach	0/32/424 The spring is not captured and exploited	***H, S, A, Ec*** *Limbašská vyvieračka is a barrier, ascending spring issuing from Triassic carbonates. In the past, several authors have contributed to the naming of this occasional spring by the name Estavella, with the idea that the karst abyss has the function of a spring during high water levels and the function of a sink during low water levels. Under the terminologically misleading name Estavella, it is an example of underground river piracy, when waters from the Stupavský potok Stream transfer to another basin Račí potok Stream in the east, which eco system is maintaining. The Prepadlé swallow hole is situated 116 m higher than the Limbašská vyvieračka spring, and is 2.75 km away. The connection between the*	Peter Malik, Eva Malíková

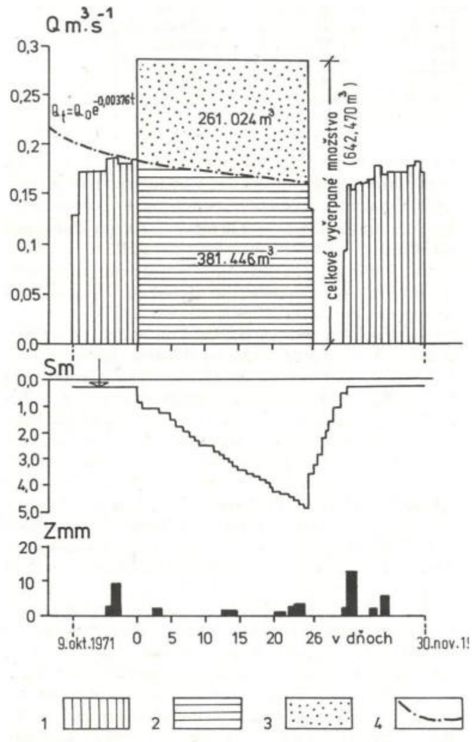
				ponor and the spring waters was documented by a fluorescein tracing test. The spring is located inside Protected Landscape Area of Malé Karpaty Mts.	
	3. **Občasný prameň**	N 48,88893° E 20,3493° Z = 941 m asl Slovenský raj Mts., Havrania Skala Mt., Stratena	0/12/ 1230 Not tapped. Ebb and flow (intermittent) spring	***H, S, A, Ec*** *The Občasný prameň spring („Occasional spring" in translation) is one of the two intermittent springs in West Carpathians, issuing from Middle – Late Triassic limestones. It is an pulsing intermittent spring with sudden changes in discharge caused by inner hydraulic within the groundwater circulation system. Given the fluctuation in yield from 0 to 45.6 l/s with longer periods without groundwater outflow. The spring is active mainly in the second quarter of the year (March – June) as a result of increased rainfall. In the summer and autumn its activity is sporadic, and the spring totally disappears during winter months. The spring as a strange natural phenomenon was first described in a publication by Erwin Helm (1860), a later article by Dionýz Štúr from 1867 was an attempt to explain its strange behaviour.*	Peter Malik
	4. **Periodická vyvieračka**	N 48,689517° E 19,904743° Z = 460 m asl Muránska planina Plateau / Tisovec Karst, Rimava River basin	6 / 21 / 87 The spring has been captured by the waterworks since 1963 and, together with groundwater of another nearby Teplica karst spring, is used to supply drinking water to the town of Tisovec.	***H, S, A, Ec, E*** *This ebb and flow spring is the second spring of that kind in West Carpathians (together with Obšasny pramen). It drains (Late Triassic limestones of the Muráň nappe. The intermittent pulsation of Periodická vyvieračka (Periodic Spring) near Tisovec and abrupt changes in its yield are hydraulically caused by pressure changes during flow processes in both water-filled and air-filled cave spaces. The Periodická vyvieračka spring has three outlets: one permanent and two periodic. Groundwater flows continuously from the permanent outlet with a discharge of around 6 l/s the time of spring's total minimum yield. The first (I.) and second (II.) periodic spring outlets are active only at the time of flow outburst. Outlet II. starts its activity with the onset of yield approximately 2 minutes after outlet I. the Periodická vyvieračka spring is located on the edge of the area of European importance SKUEV0282 Tisovský kras and on the edge of the protection zone of the Muránska planina National Park.*	Peter Malik
	5. **Vrchovište**	N48,843633° E18,247127° Z = 267 m asl Strážovské vrchy Mts.,	72 / 237 /1982 The karst spring was captured by building a spring trap/chamber situated directly above a large	***A, H, E, S, Ec*** *The most abundant the group of karst springs emerging on the Slatina spring line located at the edge of karst aquifer formed in Middle – Late Triassic limestones. The Vrchovište spring waterworks intake facility is considered to be one of the top architectural and*	Erika Kováčová

		Bebrava Stream, Nitra River basin	groundwater outlet, which previously was creating a lake flowing through an open channel into the nearby Bebrava stream.	*construction works of its time (the 1960s), with an emphasis on the complexity of the design and implementation of architecture in the sense of fine art. It was captured in 1968 and has been used since 1976. It is supplying the districts of Bánovce nad Bebravou, Partizánske and Nitra with drinking water. Important archaeological site in nearby located Dúpna diera cave.*	

MIKAS – Jergaly spring

The building of the Jergaly spring waterworks intake facility (Photo: Iveta Zvarová)

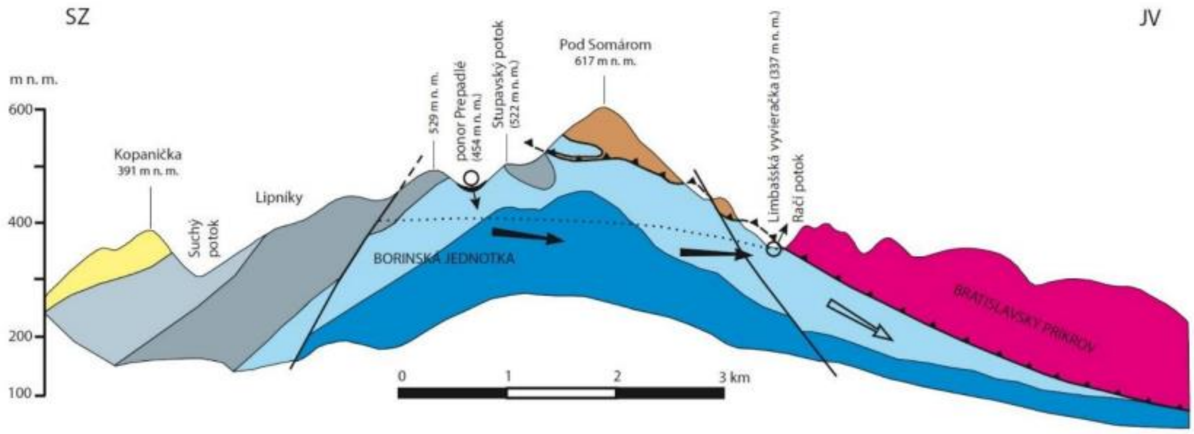
The interior of the Jergaly spring waterworks intake facility (Photo: Anton Auxt)



The principle of combined exploitation of static and dynamic groundwater sources of the Jergaly spring and their separation using the recession curve during pumping test in 1971. Source: Eugen Kullman (1990). Legend: 1. Spring yield, 2. Pumped an-mount corresponding to natural discharge, 3. Pumped amount corresponding with static water reserves, 4. Groundwater depletion curve

Ecological outflow of karst waters of the Jergaly spring not used for water purposes. Photo: Anton Auxt

MIKAS – Limbašská vyvieračka

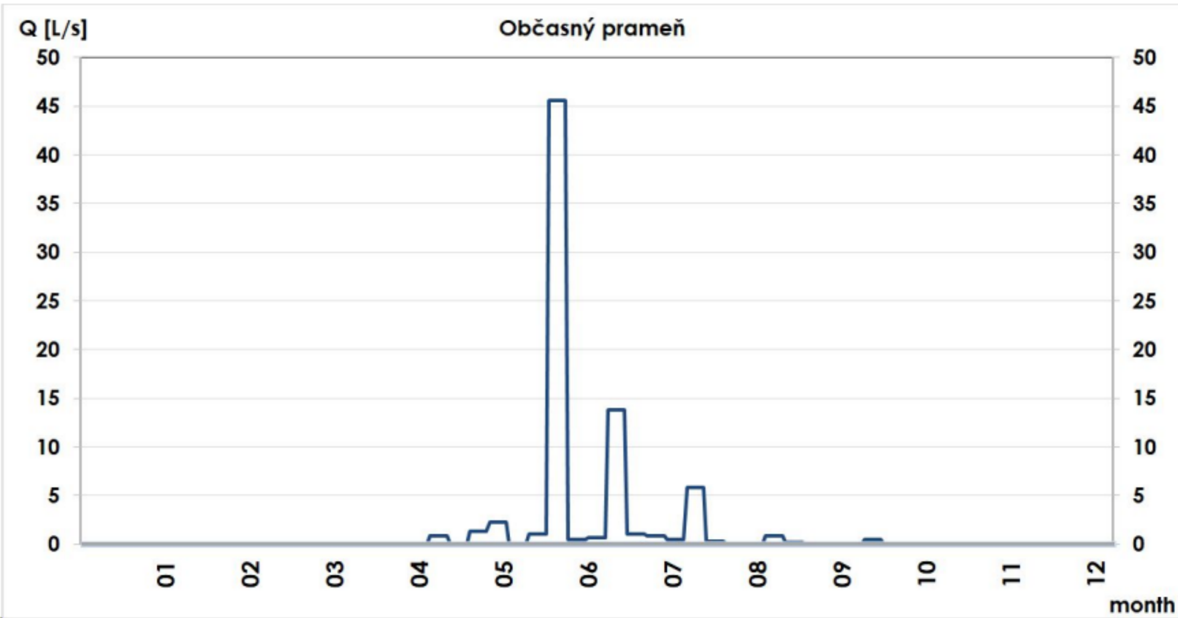


Schematic cross section between Prepadle ponor (swallow hole) and Limbašská vyvieračka. The carbonate rocks units are in grey and blue colors (Courtesy of State Geol. Inst. "Dyoniza Štura"of Slovak Republic – Manuscript material)

Prepadlé swallow hole in the upper part of the Stupavský potok (left) and Limbašská vyvieračka in high water period (Photos: www.mapy.cz (left), and Eva Malíková (right))

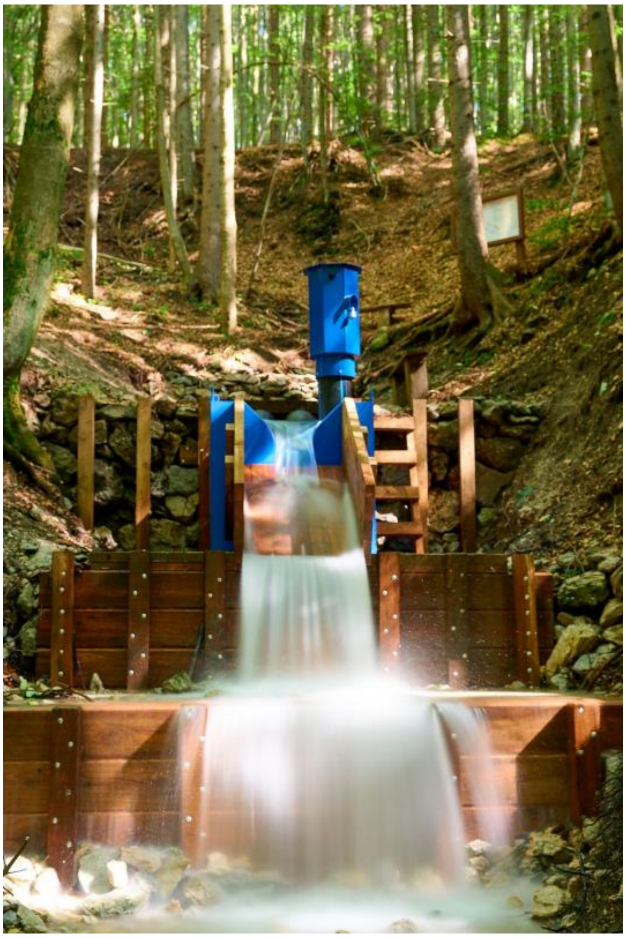
MIKAS - Občasný prameň



Summarized average yields of the Občasný prameň spring under the Havrania skala Mt. during individual weeks during the hydrological year 1995, normal scale, based on SHMI data. Author: Peter Malík

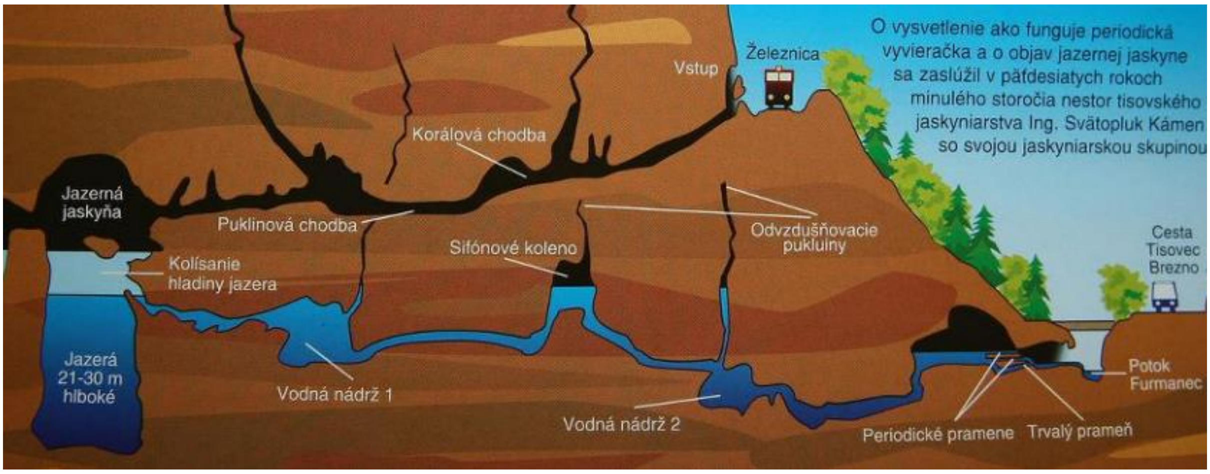
Občasný prameň spring under the Havrania skala Mt. with an old Slovak Hidromet. Service (SHMÚ) gauging object - detail. Photo: Marcel Wolf / www.mapy.cz

Občasný prameň spring under the Havrania skala Mt. after the reconstruction of gauging object in June 2023. Photo: Ján Gavurník



Občasný prameň spring under the Havrania skala Mt. during active outflow outburst. Photo: Ján Griglák / www.mapy.cz

MIKAS - Periodická vyvieračka spring



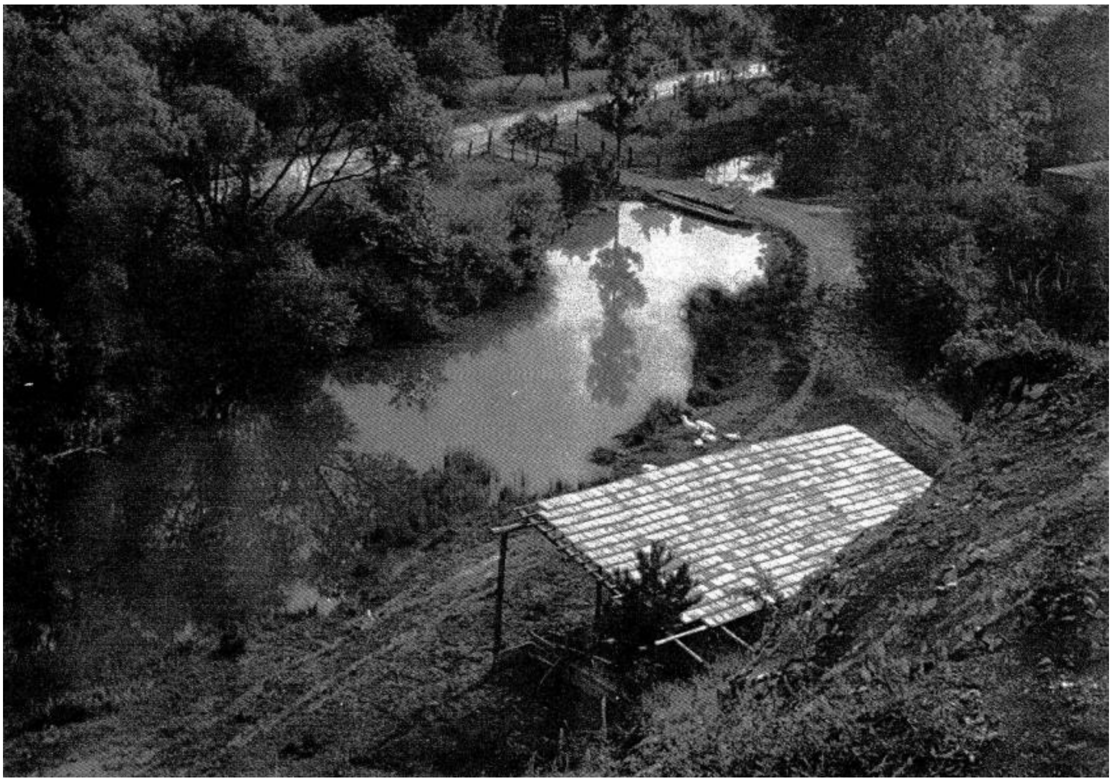
Traditional hydrodynamic scheme diagram of the Periodická vyvieračka spring near Tisovec compiled according to the concept of S. Kámen.

The building of the waterworks intake facility of the Periodická vyvieračka spring near Tisovec. Photo:Jozef Fabo.

Outlet with the basic discharge of the Periodická vyvieračka spring near Tisovec. Photo: Peter Malík.

The level of one of the lakes of the Jazerná jaskyňa Cave connected to the Periodická vyvieračka spring near Tisovec. Photo: Dušan Hutka.

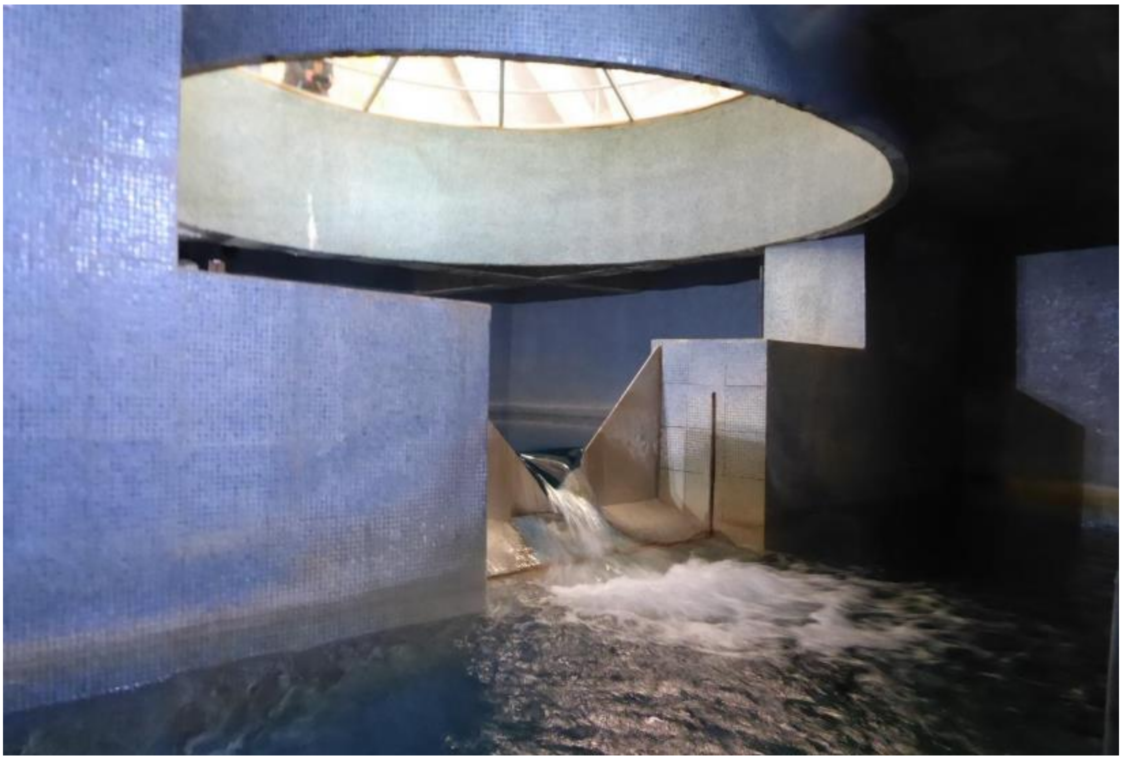
MIKAS – Vrchovište



The surroundings of the karst spring Vrchovište in Slatinka nad Bebravou before building up its waterworks intake facility, circa 1960. Photo: archive of Západoslovenská vodárenská spoločnosť, a.s. waterworks.

General view of the Vrchovište spring waterworks intake facility in Slatinka nad Bebravou. Photo: archive of Západoslovenská vodárenská spoločnosť, a.s. waterworks.

Interior of the hall of the Vrchovište spring waterworks intake facility in Slatinka nad Bebravou.
Photo: Peter Malík.



Thomson's culvert gauge in the Vrchovište spring waterworks intake facility (SHMÚ object no. 1095).
Photo: Peter Malík.