

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
Austria 	1. Fürstenbrunner Quelle	N 47° 44' 20" E 12° 59' 39" Z = 595 m asl Salzburg	105 / 870 / 31250 Tapped for water supply (artificial recharge)	<b>E, H, S, A, Ec</b> <i>As early as the 15th century, water from the spring was brought daily to the royal princely court in Salzburg city on horseback. In 1874 water from Fürstenbrunn was directly piped to Salzburg. Since 1990 Fürstenquelle water artificially recharges the porous groundwater aquifer (residence time about 60 days) of the well field of Glanegg. Linked with cave system of Untersberg massif.</i>	Lukas Plan, Ralf Benischke
	2. Kläfferquellen (Kläffer spring)	N 47° 38' 53" E 15° 08' 35" Z= 651–746 m asl Mariazell	460 / 5380 / 48800 Tapped for Vienna city water supply	<b>E, A, S, H, Ec</b> <i>The Kläfferquellen are the most important springs for the 2<sup>nd</sup> Vienna Water Main which was finished in 1910. Especially during snowmelt impressive amounts of water emerge out of a slope in an amphitheatre-like setting. The entire catchment is water protection area.</i>	Lukas Plan, Ralf Benischke
	3. Pießling-Ursprung	N 44° 16' 34" E 14° 41' 33" Z = 757 m asl Rossleithen, Windischgarsten	46 / 2185 / 41218 Tapped for potable water supply, used for generating electricity	<b>H, S, E, A, Ec</b> <i>The vauculian type spring, the largest at the northern margin of the Northern Calcareous Alps. It is used since 16th century for scythe production. It has high economic significance as a source for electric power production and drinking water supply. The spring is outlet of a large cave system. The outlet site, a very scenic spot, is easily accessible for tourists. The rich fauna in outlet area and stream.</i>	Ralf Benischke, Lukas Plan
	4. Kaiserbrunnen	N 47° 44' 09" E 15° 47' 36" Z = 530 m asl Schneeberg, Reichenau an der Rax	164 / 665 / 2319 Tapped for Vienna city water supply	<b>H, E, A, S, Ec</b> <i>Spring has great historical importance as supplying Austrian capital Vienna (today ca. 2 Mio. inhabitants) with potable water since 1873 from distance of 170 km (1st Vienna Water Main). Springwater is of high quality. An impressive building and engineering masterpiece for the 19 Ct. has been constructed around the spring to tap the water. Spring and water museum can be visited on guided tours. The catchment area is a water protection area accessible by cableway.</i>	Lukas Plan, Ralf Benischke

## MIKAS - Fürstenbrunner Quelle



*The Fürstenbrunner Quelle with parts of the tap building on July 24th, 2017 (Photo: D. Fließner)*



*The stream in the Fürstenbrunner Quellschleife cave during a flood on June 1st, 2013 (Photo: Landesverein für Höhlenkunde in Salzburg)*

## MIKAS - Kläfferquellen (Kläffer spring)



*Oblique downward view on the outlets of the Kläfferquellen on Mai 9th, 2017 with an overall discharge during snowmelt of  $14 \text{ m}^3/\text{s}$  (part of it is into the underground tapping gallery; with in the foreground 350 m; drone photo L. Plan)*



*Part of the surface water during snow melt on May 24<sup>th</sup>, 2010 (Photo: L. Plan)*

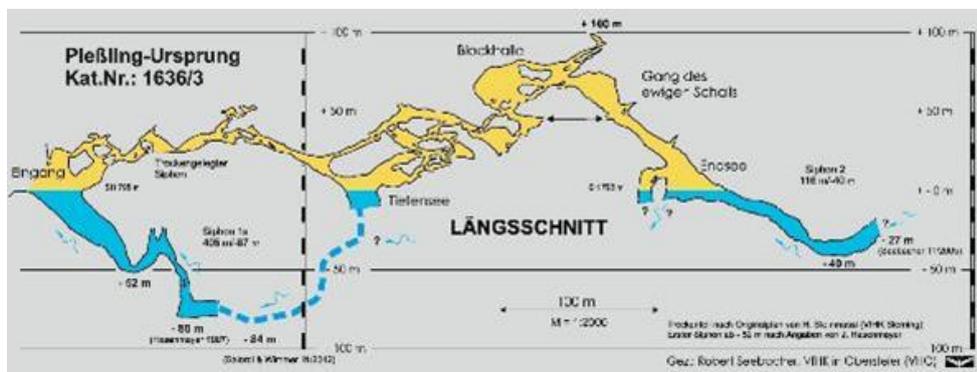


Overview of the plateau catchment area with many dolines. Aflenzer Staritzen in the foreground; Hochschwab summit (2277 m a.s.l.) in the centre (View to the west; drone photo L. Plan)

### MIKAS - Pießling-Ursprung



Pießling-Ursprung at medium water situation, outlet with dammed pond, in the rear access to the cave (left; Photo: R. Benischke). Spring at high water situation (right; Photo: H. Steinmaßl).



Longitudinal section of Pießling-Ursprung with siphon and overlain cave passages (drawing: R. Seebacher; cave data: H. Steinmaßl)

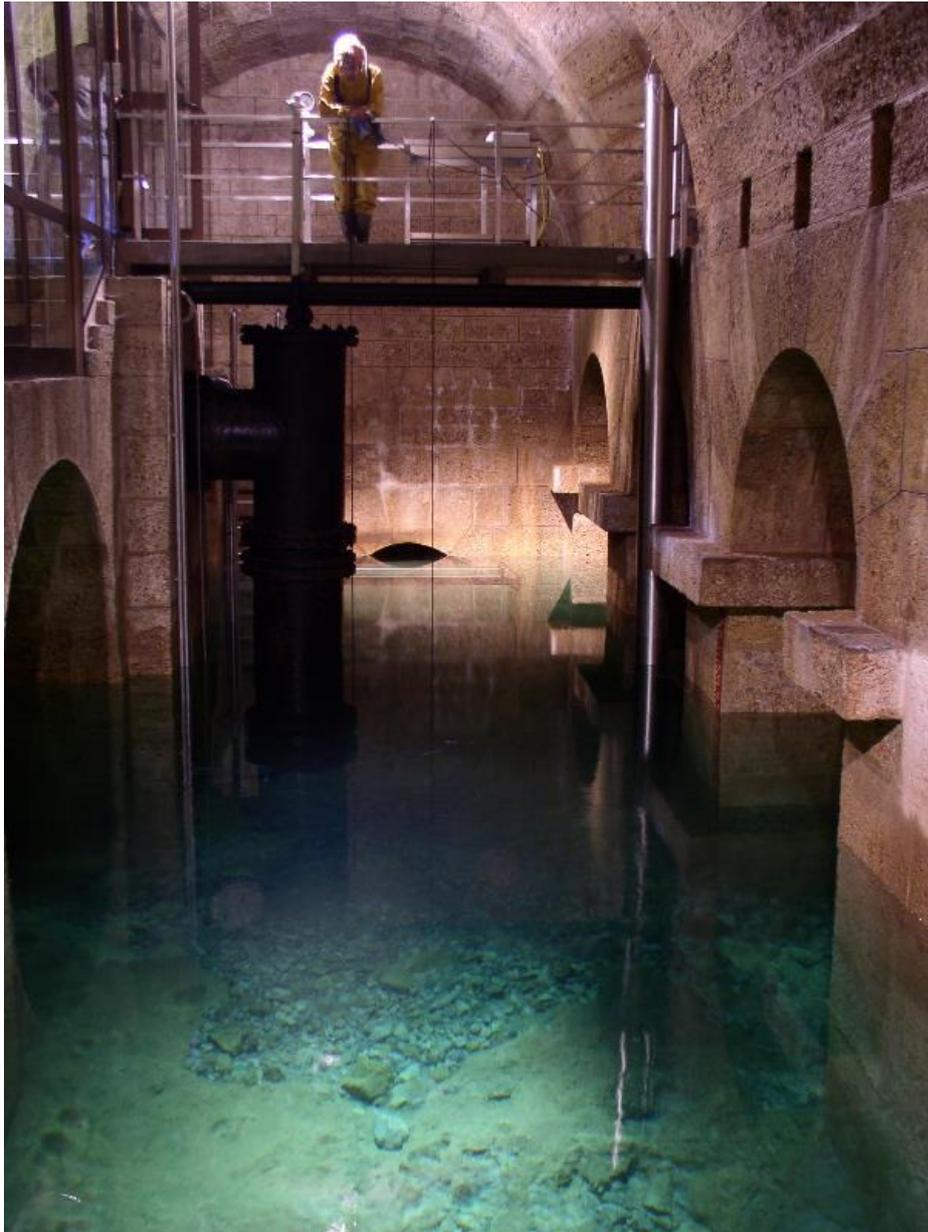
## MIKAS - Kaiserbrunnen



*Spring capture building at Kaiserbrunn (Photo: L. Plan)*



*Drawing sketch of the Kaiserbrunn intake with landscape of Rax Mt. foothills (courtesy of Kaiserbrunn museum)*



*Interior the spring capture building of Kaiserbrunnen (Photo: L. Plan)*