Physical data

Total length: 811 m
Vertical range (VR): 97 m (-75; +22)

Description

The karst spring is located on the left side of the Gârda Seacă valley, in the hamlet of Dobreștilor creek, at the base of a 30 m high vertical wall, and at an altitude of 770 m (according to other data, 766 m). The entrance is a wide arch, 8 m wide and 2 m high. Immediately at its base, the sump lake (Fig. 2) begins, 15 m long at its datum plane and with a maximum width of 8 m. Above it a maze of phreatic origin runs, consisting of loops, shafts, and parallel chimneys. Its main structure is a 22 m high chimney, which is filled with large blocks at +22 m. At +20 m elevation there is the upper entrance, a tiny, 2 m long opening in the vertical wall (Fig. 3). Back to the entrance portal, to the left there is the so-called Peștera Seacă (Dry Cave) of the Spring from Coteț Dobreștilor, which is a side gallery of this spring system, since it is clearly below the entrance portal. In the “Atlas of caves in the Apuseni Mountains, Arieșul Mare basin” (Onac et al., 2010) it is stated that the northern side gallery would be a separate cave, known by the name "Peștera Seacă de la Izbucul de la Coteț Dobreștilor" (the Dry Cave from Coteț Dobreștilor), which is false. The 520 m long sump (Fig. 4) is generally wide, with many descending and then ascending loops. At 100 m from the entrance, it descends to -45 m, then climbs sharply into the same large, sunken shaft to -19 m and then descends in steps to -75 m, the point of maximum depth. From here it ascends at first in a 30° slope and then in a near horizontal profile. At 520 m from the entrance to the sump lake, one emerges into an airy room about 20 m long and 3-4 m high, closed all around. The water, however, comes from deep, between large limestone blocks (Vălenaș, 2022).

Geology, geomorphology, and genesis

The cavity develops in Ladinian (Triassic) limestones, and its genesis is epiphreatic. Bogdan Onac (Onac et al., 2010) in the "Atlas of Caves in the Apuseni Mountains, Arieșul Mare Basin", writes that all the caves (the Hoanca Apei Cave, the Șesuri Pit, the Spring from Cotețul Dobreștilor, etc.) on the left side of Gârda Seacă downstream of Moara lui Filea develop in upper Jurassic limestones. The statement is based on a study carried out together with Ioan I. Bucur (Bucur et Onac, 2000) in the Scărișoara Glacier Cave, which revealed that the cave develops not in Triassic limestones but in Upper Jurassic ones. Therefore, Bogdan Onac extrapolated this result, which was strictly concerning the limestones of the Scărișoara Glacier Cave, over a wider area, without however carrying out a detailed geological mapping. Thus, he is in contradiction with the geological map of Romania, the Poiana Horea sheet (Bleahu et al., 1980). However, it is not the role of the present paper to decide by whom the lithological age of the limestones in the area was correctly indicated. The Izbucul from Cotețul Dobrestilor is part of the southern sector of the Bihor Unit. In this area, sedimentation continued in the Terminal Triassic, unlike the northern sectors, where a post-Ladinian erosional episode occurs, and the rest of the stratigraphic terms are missing (verbal communication from Vlad Codrea, 2023).

Of course, we have a limited picture of this network so far because we do not know how the entrance sump continues, let alone what develops after it. What is certain is that sump No. 1 (Fig. 5) shows an alternation of drowned wells and phreatic loops. Anyway, the entrance sump is so far unique in the Bihor Mountains, due to its great length, only after 520 m does it come to the surface, in a modest, aerated room, yet closed everywhere. The entrance chimney, which reaches +22 m, was the old resurgence (thus still a drowned well initially), and the sudden deepening of the Gârda Seacă Valley in the upper Pleistocene has activated the present entrance, which is located 22 m lower.

Hydrogeology

The Cotețul Dobreștilor Spring drains mainly the Ocoale closed basin, more precisely the most distant loss of water in this basin. A fluorescein staining carried out in 1964 by Teodor Rusu and Gheorghe Racoviță demonstrated this drainage, with an aerial length of 2,500 m and a gradient of 402 m, or 477 m if the depth of 75 m of the first sump in the Spring from Cotețul Dobreștilor is considered. Two water marks carried out by Iancu Orășeanu in 2002-2003 in the upper basin of the Ordâncușa Valley, in the areas of Moara lui Ivan and Hărnășești creek respectively, showed a relationship between these losses and the Spring from Cotețul Dobreștilor. The aerial length of these drainages is 2,900 m and 2,770 m respectively (Orășeanu 2020). The average flow of the Spring from Cotețul Dobreștilor is 274.7 l/s (Orășeanu 2020), and its water temperature is 7.6 °C.

References

Bleahu, M., Dimitrescu, R., Bordea, S., Bordea, J., Mantea, G. 1980 - Harta geologică a României, Foaia Poiana Horea. Ed. IGG.

Bucur, I. I., Onac, B. 2000 - New data concerning the age of Mesozoic limestone from Scărișoara (Bihor Mountains). *Studia Universitas Babeș-Bolyai, Geologia* **45** (2): 13-20.

Damm. P., Lascu, V., Ciubotărescu, C. 1999 - Condiționarea tectonică și hidrogeologică a sistemelor carstice din Platoul Ocoale (Munții Bihor). *Speomond* **4**: 14-18.

Goran, C. 1982 - Catalogul sistematic al peșterilor din România. CNEFS-FRTA-CCSS, 496 pp.

Onac, B., Racoviță, G., Brad, T. 2010 - Atlasul peșterilor din Munții Apuseni, bazinul Arieșului Mare. Ed. Todesco, 96 pp.

Orășeanu, I. 2020 - Hidrogeologia carstului din Munții Apuseni, ediția a II-a. Ed. Belvedere, 349 pp.

Păroiu, F., Vălenaș, L.1981 - Scufundări autonome în bazinul văii Gârda (Munții Bihor). *Bul. Inform. CCSS* **5**: 42-51.

Vălenaș, L. 2022 – Peșterile Munților Bihor, ed. Clubului de Speologie “Z”, 264 pp.

Vălenaș, L., Bleahu, M., Brijan, P., Halasi, G. 1977 - Inventarul speologic al Munților Bihor, *Nymphaea* **5:** 209-335.

Vălenaş, L., Halasi, G., Czako, L. 1982 - La morphologie et la hydrologie des conduits submergés de Bassin de la Vallée Gârda (Monts Bihor), *Nymphaea* **10**: 183 -194.

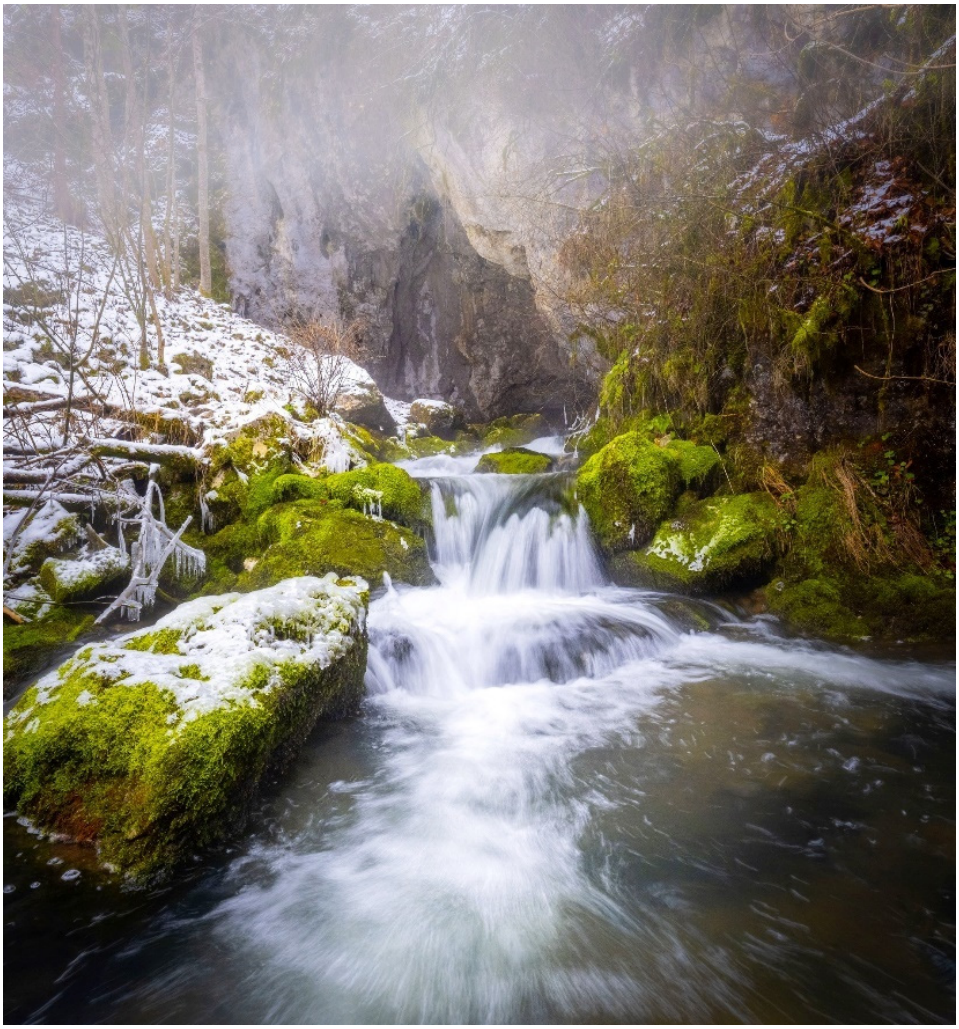

Fig. 1. The spring from Coteţul Dobreștilor at high water, photo by Dan Moldovan, November 2022.

Fig. 2. The spring from Coteț ul Dobreștilor, entrance lake, photo by Liviu Vălenaș, October 2020.

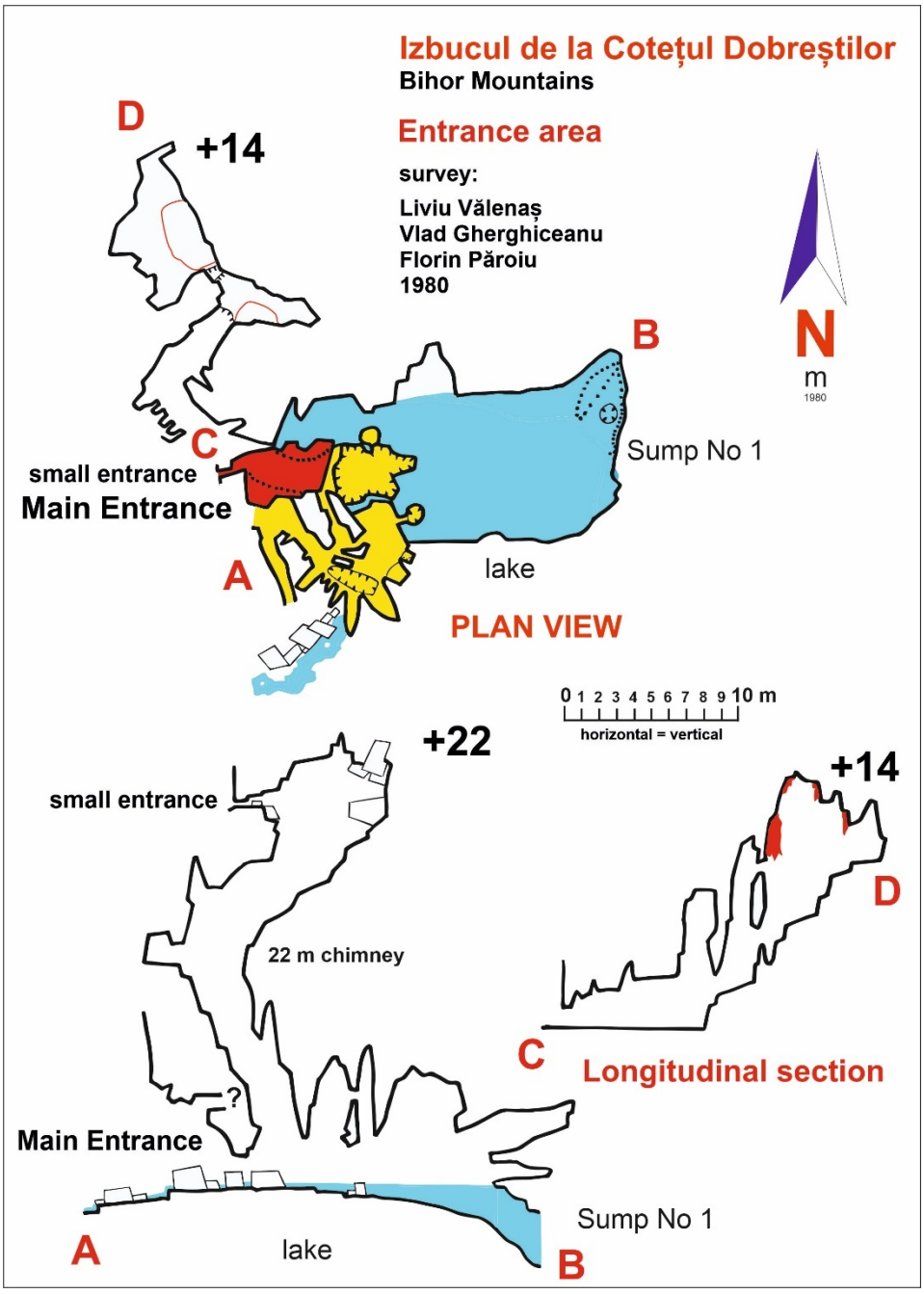

Fig. 3. The spring from Coteţul Dobreştilor, entrance area, section and plan, cartography by Liviu Vălenaș.

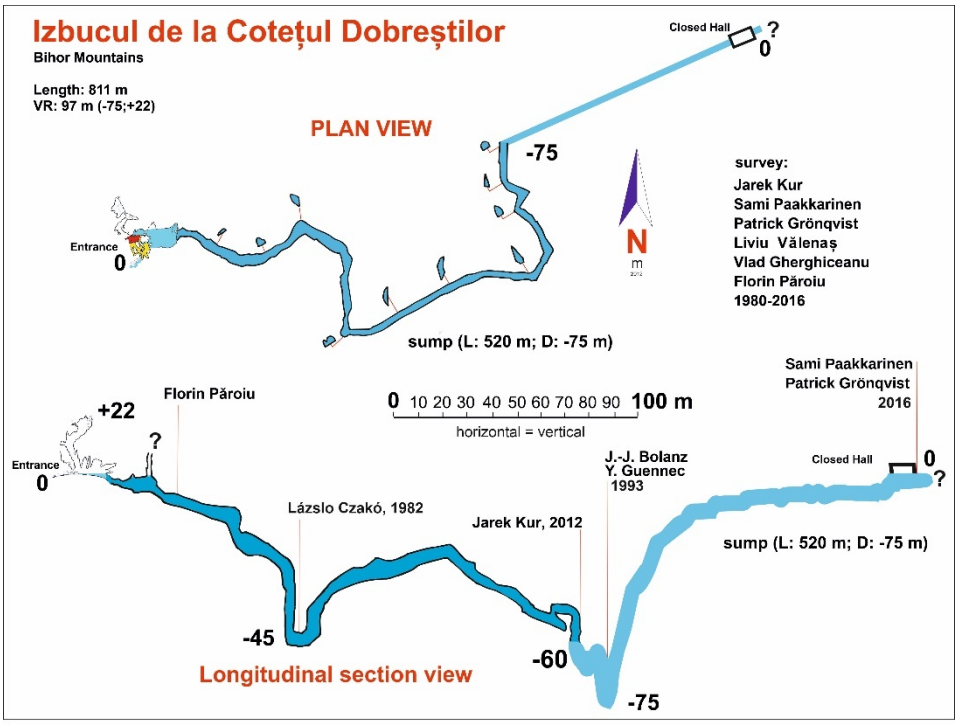

Fig. 4. The spring from Coteţul Dobreştilor, longitudinal section and plan, surveyed by Jarek Kur, Sami Paakkarinen and Liviu Vălenaș, 1980-2016.

Fig. 5. The spring from Coteţul Dobreştilor, view from the sump, depth -45 m, photo by Adrian Pereț, 2016.