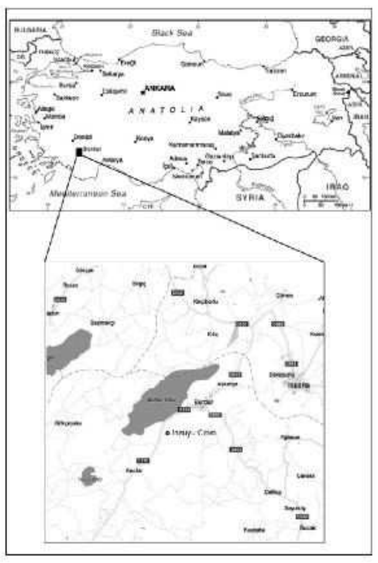
RE-MAPPING OF INSUYU CAVE (BURDUR - WESTERN TURKEY)

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Introduction

The scientific exploration of İnsuyu Cave, 13 km from Burdur, near the main road, on the outskirts of Sarpguney Hill (1606 m), occurred in 1952 when Dr. Temuçin Aygen was informed. Aygen; having realised the importance of the cave after his first investigation, excited attention of the authorities, and performed a second and comprehensive research in Insuyu Cave in 1953.

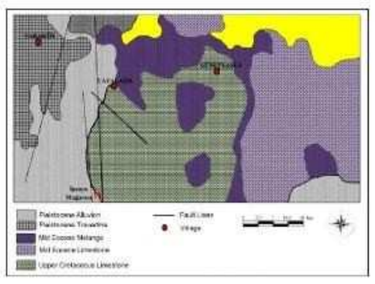


Aygen wrote in his book "Turkiye Magaralari" (Caves of Turkey) that, before opening of the artificial tunnel which provides touristic entry now, it was rather hard to enter the cave from the natural entrance. Besides, the natural opening was completely submerged during spring when the amount of water increased. Insuyu Cave was opened as the first touristic cave of Turkey in 1966.

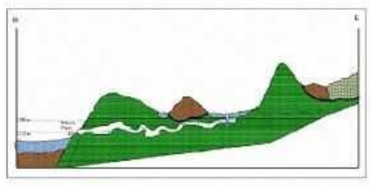
Biospeleologic research by Paolo Marcello Brignoli in the years 1968, 1971, 1972, 1973 and 1978 and a research for bat species by Friederike Spitzenberger in 1973 were also carried on in the cave.

Geology and Hydrogeology of Insuyu Cave

It is clear that the formation of Insuyu Cave is multiphase. Distribution of dry galleries to the sub-branches and erosion formations which could be observed on ceilings and walls in these parts can caused only by high flow water indicates that these galleries which are dry for today have been developed under submerged conditions.



The cave probably transformed from saturated into half-saturated conditions in the process of time. During this process, subterranean streams and branches, which had a high flow speed and turbulance, were also effective in erosion. Insuyu Cave was probably discharging much more amount of water than observed now.



Facing the morphology of "key hole" in some narrowing parts of the tributaries, being semi-saturated following the primary waterlogged development period and stream erosions are other evidences of the secondary development phase. In these parts, spoon formations on the high parts of the walls and ceilings show that the stream rises from time to time providing the galleries completely filling with water. The presence of the formations such as soda tube, stalactites are sufficient evidences that the erosion by subsurface stream loses its effect within the time by reducing in time. These deposits are the products of the latest development phase which has been influential up to now.

It is inferred from all those visual data that the development process of Insuyu Cave has at least 5 different phases:

1) "The primary gallery formation period" in submerged conditions.
2) "Active stream period" when semi-saturated conditions and subsurface stream system are influential together with the decline in subsurface water level.
3) "Passive dry period" when the secondary deposits are developed on spoon formations.
4) "Water-level rise period" which causes the mentioned deposits to be in drawn condition in some parts of the cave.
5) "Water-level subsidence period" which also continues today.

The blocks falling from the ceiling that is faced intensively in most parts of the cave show that tectonic movements are not only influential in development of the cave but, also in destruction through natural processes. The parent rock, forming the walls in some parts, is extremely diffusable due to the fact that the corresponding blocks are intensively influenced by the shear through the fault scarp which is notable in development.

Maps of Insuyu Cave

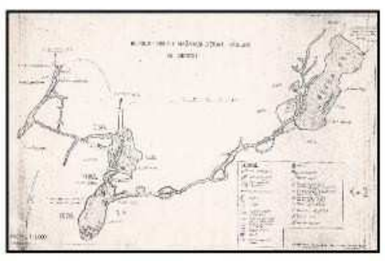
The first detailed map of Insuyu Cave was drawn in 1968. Only main galleries and some major branches were stated on this 1/1000 scaled map and neither of the small galleries were shown. But a narrow passage, which provides a pass towards the non-touristic part and located in the northeast of 'Buyuk Gol' (Big Lake), was shown on this map. Nevertheless, this passage, which had not been studied for long years, was first passed in 1993. In the report by the the research team who investigated this part first, the cave was said to continue with several galleries from that part on and to have many lakes behind, "Umut Lake" (Lake of Hope) which was their first lake to find and to give its name. The first map of this part of the cave drawn in 1993 was rather insufficient. After some years following this first exploration, MADAG (ODTU Cave Diving and Research Group) and BUMAK (Bogazici Univ. Cave Research Club) began to research and map those newly discovered galleries underwater and surface via common activities. A detailed map of this, non-touristic part was completed in 2006.

On the other hand; the modification map for the touristic part which was prepared in 1997 and the maps re-drawn in 2007 of the same part were also rather insufficient.

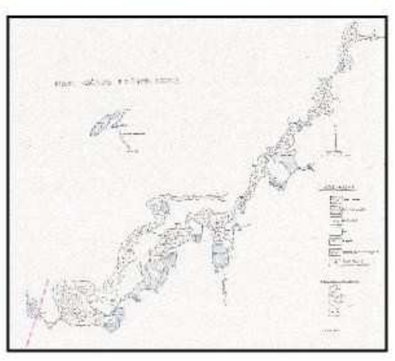
OBRUK Cave Research Group who realised the deficiencies in those maps started a project in 2011 in order to provide an accurate mapping of Insuyu Cave as much as possible. 8 survey trips were performed during this project and a new map of the cave with 8.350 meters lenght was drawn. That length nearly doubles all the previous surveys.

During these researches, all galleries in touristic parts of Insuyu Cave were measured, and three new lakes were discovered which had not been known before.

Additionally, a new water gallery and a huge chamber following that gallery were also found in the second part of the cave. OBRUK's research and survey still continues in the cave.





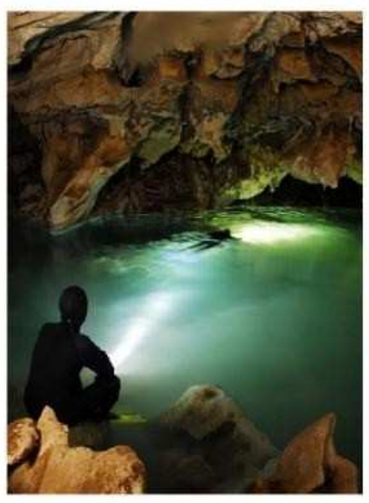




Various old maps of Insuyu Cave















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INSUYU CAVE
Burdur - Turkey

Length 8.350 m
Rev. May 2013

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Nm

0 10 20 30 40 50 60 m



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