CANARIAS ARQUEOLÓGICA | 2021 | vol. 22 | 101-120 | ISSN: 1888-4059

ENVIRONMENTAL STUDY ON GUANCHE MUMMY CAVES

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GARCÍA-MORALES, M.; ROSARIO-ADRIÁN, M.C.; RUFINO-GARCÍA, R.; BENITO-MATEO, C. AND GONZÁLEZ-GINOVÉS, L. (2021). Environmental study on Guanche mummy caves. *Canarias Arqueológica*, 22: 101-120. http://doi.org/10.31939/canarq/2021.22.11

Abstract. This paper discusses the monitoring of air temperature and relative humidity in six Guanche burial caves and their correlation with the local climate trends, this is undertaken in order to find out if the conditions inside the caves facilitated natural desiccation or the preservation of the bodies.

Keywords. Guanche. Mummy. Caves. Burial. Environment.

1. INTRODUCTION

The Spaniards conquerors chronicled that the ancient inhabitants of Tenerife, the so called Guanches, laid out their dead under the sun for several days while they were washed and anointed with fat and herbs until they dried off. Then they were wrapped up in goat's leathers and placed into caves. Hardly any of these mummified bodies have been preserved to the present day, most of them, just only exist in the accounts written by the conquerors and the travelers to the Canary Islands. As a result it is difficult to determine if these bodies were mummified intentionally or were preserved due to the special environmental conditions in the burial caves. This research have arisen from the need to connect the bioanthropological studies on Guanche mummified remains to some of their funerary and religious cultural practices that are still not quite understood. In addition to this, it is currently thought these cultural practices, which are heavily permeated by several narratives and accounts written from the European Conquest to the present, should be reexamined if an accurate deeper knowledge on these practices is actively pursued. This approach has been taken by other researchers not only in Tenerife (Méndez, 2014; Pou *et al*., 2015; Arnay *et al*., 2017) but also in Gran Canaria (Alberto *et al*., 2008; 2009-2010; 2016, Delgado *et al*., 2017), which is rendering significant results.

Our study tackled those issues by measuring some environmental parameters inside selected burial caves and correlating them to evidences of mummification. It was aimed to find out to what extend the environment inside the burial caves might determine the preservation, either as mummies or skeletons, of the death bodies and to identify which environmental agents either facilitated or interfered with their mummification. It was also aimed to ascertain how the funerary practices might have joined forces with the environmental agents to decelerate and in some cases to halt the decomposition of the corpses.

2. THE SURVEYED CAVES

The selection of the burial caves included in this research was determined by two factors. First, the main Guanche necropolis has experienced countless incidents since they were discovered along the 18th to 20th centuries. This has led to the dispersion, and eventual loss, of evidence and to their historical decontextualization. Second, their identification according to the historical accounts and archaeological reports, their localization on the ground and their access turned out to be a rather difficult task, which was not always successful and reduced our initial more ambitious sampling to only six caves (Fig. 1).

The caves of Llano de Maja and El Salitre in Las Cañadas were excavated from the 40s to the 60s (Álvarez & Diego, 1947; Diego, 1965) but were already known

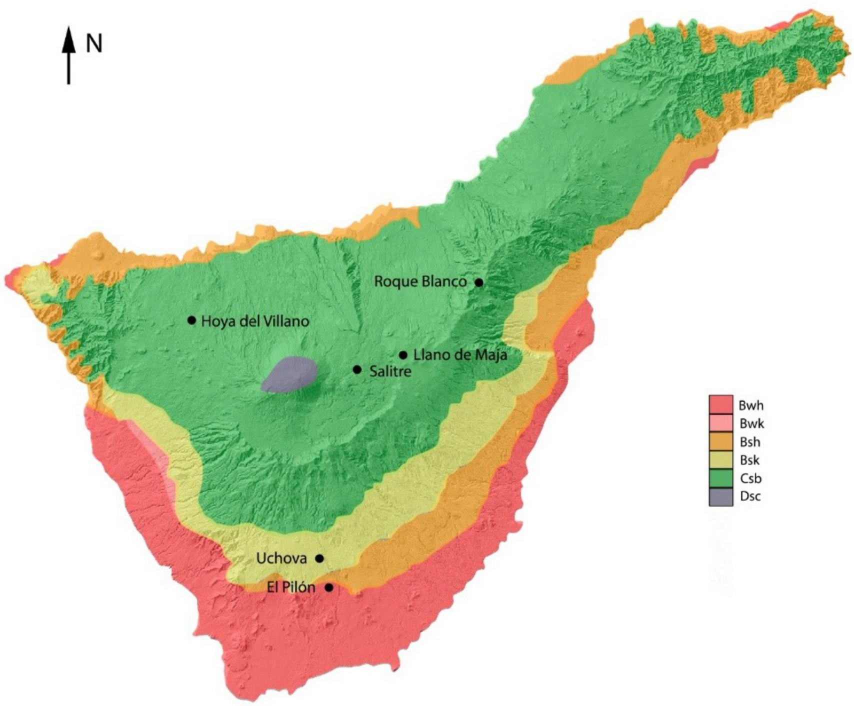

Fig. 1. Location of the studied caves on the climatic zone map of Tenerife (Map made by the author using the Climate Atlas of the Archipelagos of The Canary Islands, Madeira and Azores: 2012).

and mentioned in the literature since before (Benítez, 1909-1916). They are both located over 2.200 meters altitude, on the NE side of the peak of Teide mountain, approximately four kilometres distant from each other, located on an temperate zone (Csb in the classification Köppen-Geiger[1]) that experiences cold winters, dry warm summers and precipitations ranging from 400 mm to 500 mm. Las Cañadas is cover by a summit community of endemic plants such as the Teide white broom (*Spartocytisus supranubius*).

[1] We followed the classification Köppen-Geiger used on *Climate Atlas of the Archipelagos of the Canary Islands, Madeira and Azores,* 2012.

The Llano de Maja cave is a large volcanic bubble formed inside a basaltic lava flow. The interior can be accessed from the east through a gap entrance, but it also has three more gaps which open on the top side. The cave has a high ceiling, and its oval ground spreads onto two levels, the lower one where the dead were laid out. The cave has thermonatrite salt deposits all around (Arnay *et al*., 2017: 150). Despite the site being plundered in the thirties, forty five individuals[2] were retrieved later by Diego Cuscoy (1965:48). It is not clear from his reports if there were mummified individuals among them, although he wrote that the cave might have housed some of them since there were remains of their leather wrappings on the site (Diego, 1965: 35-36, 42-43, 50). Ceramic, bone and stone objects belonging to the individual grave goods, were found in the cave but the attention of the investigator was drawn to two dog craniums, one of which was mummified.

The Salitre cave is a large fissure on a trachyphonolytic flow opened to the north site whose interior is shaped into two vaults at different levels. Its name allude to the abundant salt crystallizations on their walls, which had already been reported on by Karl von Fritsch in the late 19th century (Benítez 1909-1916: 38, 99) and have also been identified as thermonatrite salt (Arnay *et al*., 2017: 149-150).

The exact number of individuals buried inside is unknown because the cave was repeatedly plundered and only a few bones were deposited in the Museo Arqueológico de Tenerife. However it is thought it housed «dozens of corpses, many of them mummified, covered with goat skin» (Arnay *et al*., 2017: 149). It is just the abundant organic remains such as animal skins and wooden splints found associated to ceramic fragments and lithic implements, which raised suspicions that also several corpses might be found well preserved.

The radiocarbon dating points to Llano de Maja having been used as burial site earlier (10th-11th century AD) than Salitre (12th-13th century AD) (Arnay *et al*., 2011: 888; 2017: 150; Pou *et al*., 2015: 308).

Roque Blanco is located at an altitude of 1970 meters on the northern slope of the dorsal mountain range axis. It is a small volcanic tube, almost a shaft, opened in a basaltic lava outcrop which is nowadays encircle by pine trees (*Pinus canarien-*

2 The remains this MNI is based are not registered in their total numbers in the Museo Arqueológico de Tenerife inventory

sis) planted in the 50s together with white brooms (*Spartocytisus supranubius*). It is also within the same temperate zone as Llano de Maja and Salitre. Its north orientated entrance was sealed with stone blocks. Inside this burial site there were two adults and a child placed near the entrance, on a floor made of stone slabs and covered with pine needle. They all were showing some degree of mummification. The dry bones of other three adults were found in a secondary position, stacked at the bottom. Fragments of their leather shrouds were scattered all around. They were buried with a few stone and bone objects (Diego *et al*., 1960). The earliest radiocarbon data for this site has to be taken cautiously, since the series obtained ranked from the 7th-8th century and again to the 10th-15th century (Aufderheide *et al*., 1995: 122; Del Arco *et al*., 1997: 74; Mederos *et al*., 2017: 35-36).

The Hoya del Villano burial cave was accidentally unearthed during the clearing works undertaken into a forest of pine and faya trees (*Pinus canariensis & Myrica faya*), and heather *(Erica arborea*) located on the NW side of the island, in a temperate climatic zone (Csb in the classification Köppen-Geiger) with an annual rainfall over 600 mm. It is a rather narrow volcanic tube formed inside a trachybasaltic lava flow at 1,025 meters altitude, which can be accessed from a small entrance facing the NE. The tube only contained the skeletonized bones of a 30 to 39 year old man. His bioanthropological study revealed he suffered from several bones injuries and pathologies related to them, which led researchers to believe he was involved in some violent conflict (Martín *et al*., 2008). The high number of injuries reported on this individual makes him an uncommon find. The radiocarbon data for this burial is 10th-11th century[3].

Uchova cave (890 mamsl) and the small El Pilón cavity (550 mamsl) completed this survey. They are both found at a distance of 3 km from each other in the ravine of Tafetana, which is located in the San Miguel municipal district on the south side of the island. They were formed by the basaltic flows which emerge on its slopes. Uchova cave is located close to where the ravine emerges, on an arid zone with fresh winters and little precipitation (Bsk in the classification Köppen-Geiger), and El Pilon cave futher down on a rather arid zone (Bwh) characterized by warm summers and a scarce annual precipitation (100-300 mm). The

[3] BP 990 $\pm$ 25. Cal. 7.0 (2σ) CAL AD 992-1051 (95%). Laboratory of the Centro Nacional de Aceleradores, Sevilla.

bottom of the ravine is covered by a hydrophytic vegetation, while its slopes and surroundings are covered by Sabina (*Juniperus phoenicea*) and palm trees (*Phoenix canariensis*) and xerophytic plants. The Uchova entrance is orientated to the west and El Pilón to the northwest. In Uchova, abundant salt deposits were observed on the walls.

The necropolis of Uchova was discovered in 1933. In a few days the cave was looted by hundreds of peoples from the nearby villages. Only a small quantity of that stolen materials could be recovered, which allowed a posterior reconstruction of the burial site in the fifties. At that time it was estimated that there have been fifty five corpses deposited in the cave. Six of them were found to have evidence of mummification (L. Diego, 1952: 404-411), which corroborated the reports that appeared on the island newspapers on this find. Today a new bioantropological examination of those remains revealed that seventy individuals at least were buried in this cave from 7th to 10th century AD (*Nuevas fechas*, 1993: 103; González *et al*., 1995: 30; Del Arco *et al*., 1997: 76). The MNI was estimated from mandibles, since none of the craniums were recovered (Martín & Delgado, 2011: 206). Only 4.9% of this seventy individuals had some mummified tissue left (Estévez, 2004: 54-56; 121). Just a few clay beads and leather fragments, a bone awl, a ceramic pot, a wooden vessel and torches could be recovered back from the looting.

El Pilón is just a slit chosen as the grave of a four year old child who died in the 15th century AD[4]. It was accidentally discovered in 1962 by a hunter (Diego, 1965: 23-32). The child had been lied down with his limbs in anatomical connexion on a bed mainly made of drago leaves which had what looked like pine resin balls (Diego, 1965: 29-30). There were none funerary objects associated to it. The child was in poor conservation state, although some tissue were still preserved. What is more, his shroud was better preserved which allowed the researchers to determine it was made of several goat leathers stitched together and tightly tied to the corpse with thin leather straps from his ankles to his head. This sack-like shroud was tied down with a knot over the head.

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[4] 446 ± 33, cal. 1410-1490 AD according to the last dating given in the Extraordinary World Congress on Mummy Studies' presentation: *Discovering the already discovered. Dating of four Guanche mummies using* ^{14}C. (Sánchez *et al*.). A previous dating (Del Arco *et al*., 1997: 76) yielded a wider interval: 795 ± 165, cal. 937-1442 AD.

CANARIAS ARQUEOLÓGICA | 2021 | vol. 22 | 101-120 | ISSN: 1888-4059

3. GENERAL TRENDS OF TENERIFE CLIMATE

Tenerife climate is strongly affected by trade winds and a temperature inversion occurring around 1000 meters altitude[5], which generates an almost permanent ring of clouds clinging to the northern slopes. This ring contributes to moderate the temperatures and, as it is loaded with humidity, to the growth of a subtropical forest that in the past covered all the northern slopes between 500-1500 meters altitude (Arco-Aguilar, 2006; Arco-Aguilar & Rodríguez, 2018). The coast and the southern slopes have a warmer and drier climate since they are free from the influence of the refreshing trade winds. As a resort, the island enjoys a quite stable temperate weather only interrupted by the passage of Atlantic storms and the interferences of southeast winds from Sahara desert (Marzol & Mayer, 2012). This temperance of the climate was already noted and accounted for by travellers and naturalist during the 19th century (Viera y Clavijo, 1866-1869; Barker-Webb & Berthelot, 1836-1850; Verneau, 1891).

There are no paleoclimate studies for Tenerife, so it is unknown to what extend the current climate general trends determined its weather in the past. However, studies on the distribution of its forests and their exploitation by the guanches at the time of the Conquest (García, 1989) indicates the occurrence of both high humidity and moderate temperatures on the northern slopes and a more arid climate on the south.

4. METHODOLOGY USED FOR MONITORING THE TEMPERATURE AND THE RELATIVE HUMIDITY

The methodology used for monitoring the Guanche burial caves selected for this study was grounded on the many environmental studies conducted in heritage caves and tombs to find out the impact of visitors on their otherwise fragile ecosystems (Maekawa, 1993; Herráez *et al*., 1994; Mackay, 2004). Although these studies were focused on estimating carrying capacities and develop management plans, they provided important information on the indicators to be monitored and the methods to be applied.

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[5] The altitude, at which this temperature inversion is produced, can change depending on the season.

In order to define more precisely the monitoring methodology and to test the available sensors a one month pilot survey was carried out both in a cave in Las Cañadas (El Salitre) and in a more accessible artificial cave in Fasnia. The Tinytag plus model TGP 4500 sensor[6] was used to that purpose because it can register temperature from -25 to +80ºC, relative humidity from 0 to 100%, and also the dew point. The sensors were hung inside an open plastic container, which allowed to place them close to the floor but isolated from it.

Furthermore, the entrance of the artificial cave was blocked. We sought to reproduce the original layout of the burials inside the caves as they were described on chronicles and some archaeological reports. From the obtained data it was clear that blocking the entrance made a difference.

The data registered inside the selected burial caves had to be compared with those from the meteorological stations located in the surroundings, to find out to what extend caves shielded from unstable or extreme weather. Therefore the accurate correlation of data from both the sensors installed inside the caves and the meteorological stations was fundamental. It was determined that there were negligible differences- less than 0.5ºC T and 1% RH -among the sensors positioned in the caves of Las Cañadas and the meteorological station of Izaña[7]. On the contrary there were correlation errors varying from 1º to 2º C between the sensors installed inside the other caves and the closest AgroCabildo meteorological station[8], which resulted in differences in relative humidity over 6% (Table 1).

Once tested we placed one sensor per cave, at around the middle section, raised a few cm from the floor and near- but far away enough -from the walls to prevent them from being affected by seasonal or occasional dripping water. Only in the undersized El Pilón cave was the sensor placed close to the entrance due

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6 This model is particularly suitable for monitoring harsh outdoors conditions such as those existing in wildlife habitats. Moreover, it is sold already calibrated to the standard points of 0- 30ºC of temperature and 20 - 80% of relative humidity at 25ºC.

7 This station belongs to Izaña Atmospheric Research Center, AEMET Meteorological State Agency, Spain. http://izana.aemet.es/. The data obtained from its meteorological station were compared with those of Roque Blanco, El Salitre y Llano de Maja burial caves.

8 AgroCabildo is a meteorological stations network operated by the local government (Servicio Técnico de Agricultura y Desarrollo Rural, Cabildo Insular de Tenerife) to give support to the local farmers http://www.agrocabildo.org/agrometeorologia_estaciones.asp. Data obtained from their PINAL, SMIG and CUBO stations were compared with those from Uchova, El Pilón and Hoya del Villano.

Table 1. Showing the meteorological stations used to connect outdoor and indoor data and the correlation error between them and the cave sensors.

Burial cave	Altitude	Weather Station	Altitude	Correlation Error
El Salitre	2244	AEMET Izaña	2367	–
Llano de Maja	2298			
Roque Blanco	1970			
Hoya del Villano	1025	AgroCabildo CUBO	804	1,6°C
Uchova	890	AgroCabildo PINAL	850	1.8°C
El Pilón	550	AgroCabildo SMIG	505	0.9°C

to the risk of landslides. We placed two sensors in Roque Blanco, one by the entrance, where there were found the quite well preserved mummified remains of three individuals, and another one at the bottom of the cave, where there were the dry bones of three others. Moreover, this cave which was discovered in 1955 yielded a more accurate description of the corpses' deposition (Diego Cuscoy, 1960), which justified a closer attention.

In order to reveal seasonal trends the monitoring took place throughout 2017. Conversely, problems in gaining access to the Roque Blanco cave caused data breaks in the registration, which led to a new monitoring from March 2019 to February 2020.

The entrances of the El Salitre and El Pilón caves were left open because of technical and ecological reasons, whereas the other caves were just blocked for half a year. The later allowed for comparison between temperature and relative humidity before and after blocking the entrance with a shade cloth of high density polyethylene. This blockage aimed to reproduce a similar effect to the one obtained by closing the entrance with stones, which impeded the access to the interior of external elements such as animals, rain, vegetal debris but still allowed some air circulation.

5. RESULTS

The temperatures obtained in each cave throughout 2017 were significantly different, but they all fell into the range expected for the climate zone they belonged to (Fig. 1). So the two burial caves in Las Cañadas had mean temperatures around 4°C in the coolest months from January to March and below 12 °C from July to October, the warmest. Here the minimum temperatures never went down 0° C (February) and the maximum were lower than 20°C (July-August).

In the narrow tube-shape cave of Hoya del Villano, the mean temperatures were around 8°C in winter and 15°C in summer.

Temperatures registered inside the cave of Uchova and the cave – hardly a hollow – of El Pilón were much warmer although rather moderate. The annual mean temperature in Uchova was 15°C, whereas for El Pilón it reached 18°C. Both caves registered the minimum temperatures in winter (11°C in March) and the maximum in Spring (28° C in April). As it was anticipated, the caves on the north and central zone had a lower temperature than those in the south (Table 2).

In the cave of Roque Blanco the mean temperatures during the monitored period were around 6°C in the coolest months (January-April) and 12-13°C in the warmest (August-October), which followed the trend of the nearby caves in Las Cañadas. There was almost 1° to °C difference between the data from the sensor placed close to the entrance and the sensor placed to the bottom. Unsurprisingly, the shelter effect of the blockage increases towards the interior of the caves.

Table 2. Maximum, minimum and mean temperatures and the annual oscillation inside the caves compared with those of the nearest meteorological stations. The AgroCabildo data had to be calibrated since they had a calibration error. The Roque Blanco data came from sensor A, which was placed on the same location where the mummified remains were found.

TEMPERATURE °C (January-December 2017)									
Burial Cave	**Osc**	**Max**	**Min**	**Mean**	**Mean**	**Min**	**Max**	**Osc**	**Meteorological Station**
Uchova	18,6	30	11,4	16,2	19	7,8	29,9	22,1	AgroCabildo Pinal
El Pilón	16,5	27,9	11,4	18,6	19,5	10,3	30,1	19,8	AgroCabildo SMIG
El Salitre	18,5	19,1	0,6	8,1	11,6	–4,7	28,4	33,1	Izaña
Llano de Maja	14,3	15,4	1,1	7,3					
Hoya del Villano	13,5	18,4	4,9	12,1	13,5	7,2	26,9	19,7	AgroCabildo El Cubo
TEMPERATURE °C (March 2019-February 2020)									
Roque Blanco	11,8	15	3,2	9,4	11,2	–4,7	30,4		Izaña

CANARIAS ARQUEOLÓGICA | 2021 | vol. 22 | 101-120 | ISSN: 1888-4059

It should be noted that the temperatures inside these burial caves were on average 1°C to 4°C cooler than outside. This increment was more noticeable, about 4°C, in the largest caves as Uchova and Llano de Maja, whose entrances we blocked. Temperature inside Hoya del Villano was nearly the same as outside. Although the temperatures inside the caves are kept cooler than outside most of the time, they are also sheltered from reaching the lowest outside temperatures (Fig. 2). This shelter- effect is more remarkable when looking at the annual temperature oscillation (Table 2).

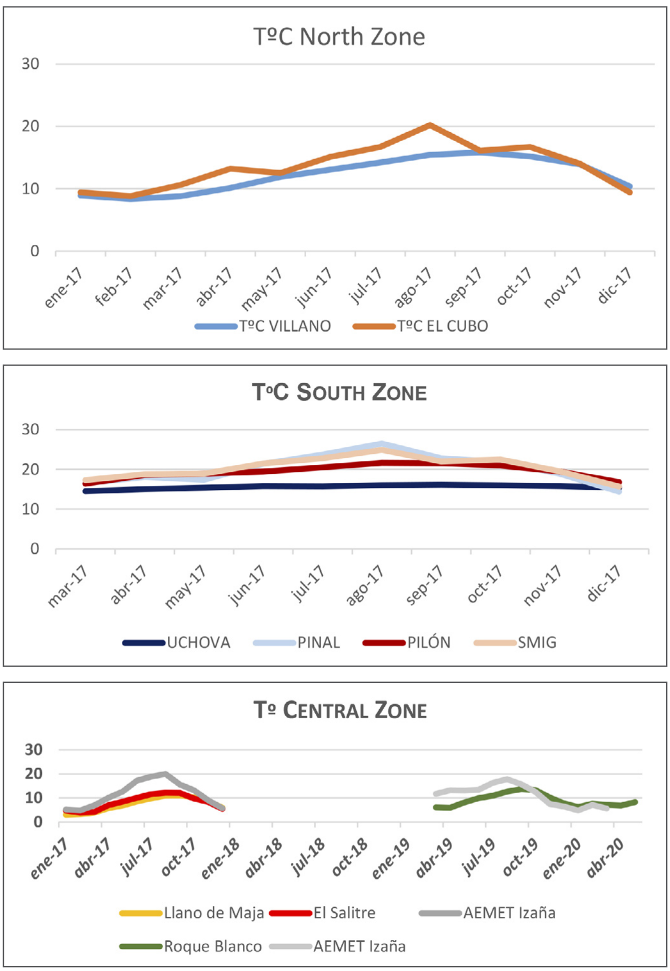

Fig. 2. Graphs showing the average temperature inside the caves and outdoor.

With respect to the mean relative humidity, it was over 65% in all the caves monitored during 2017 except for El Salitre, which was 52%. Hoya del Villano and Uchova registered the highest annual average of 99% and 82% respectively, while the central zone and El Pilón caves had the lowest between 52 - 72% (Table 3).

As regards Roque Blanco the mean relative humidity was 79% with monthly maximums that reached 100% in March and April and minimums around 31% in summer. It should be mention that 2017 and 2019 are among the driest and warmest years since 1965 to today (AEMET climatic reports from 2017, 2019 & 2020).

In summary the relative humidity inside the caves was on average 5% to 32% higher than outside the caves, being the highest levels registered in those whose entrance was closed as in Uchova, Hoya del Villano, Roque Blanco and Llano de Maja (Fig. 3).

Although both the temperature and the relative humidity inside the caves followed the climatic variations that occurred outside, the inertia inherent to such a closed climatic system eliminated extreme fluctuations and mitigated seasonal changes as well as provided a greater stability (Fig. 2-3). Nevertheless, daily and seasonal fluctuations in the relative humidity inside the caves are still broad and

Table 3. Maximum, minimum and mean relative humidity and the annual oscillation inside the caves compared with those of the nearest meteorological stations. The AgroCabildo data had to be calibrated since they had a calibration error. The Roque Blanco data came from sensor A, which was place on the same location where the mummified remains were found.

TEMPERATURE °C (January-December 2017)									
Burial Cave	**Osc**	**Max**	**Min**	**Mean**	**Mean**	**Min**	**Max**	**Osc**	**Meteorological Station**
Uchova	83,4	97,4	14	82,2	55,8	35,2	94,9	39,1	Pinal
El Pilón	86,7	97,4	10,7	66,1	60,8	37,9	95,4	57,5	SMIG
El Salitre		99	2,2	52,7	39,8	1	100		Izaña
Llano de Maja		86	19	71,9					
Hoya del Villano		100	64,3	99,4	78,5	78,3	99,5		El Cubo
TEMPERATURE °C (March 2019-February 2020)									
Roque Blanco		100	30,7	79,4	34,3	0	100		Izaña

abrupt. Examination of the standard deviations from monthly average temperatures showed that the temperature was kept quite stable inside the caves. This was especially in those whose entrances were blocked, where the standard deviations were lower than 1° C for most of the year. Contrary to the standard de-

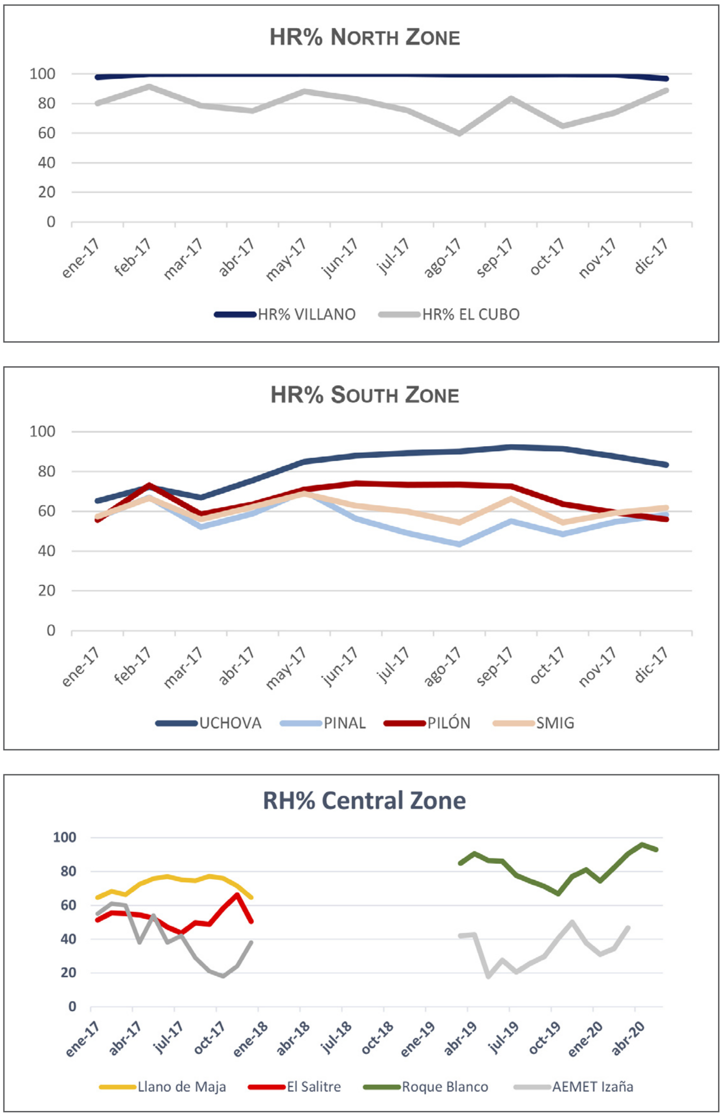

Fig. 3. Graphs showing the average relative humidity inside the caves and outdoor.

Table 4. Relative humidity and temperature standard deviations registered in the selected caves.

Burial cave	Mean RH%	Standev.	Mean T °C	Standev
Uchova	79,4	6	16,2	0,9
El Pilón	66,2	10,3	18,6	1,1
El Salitre	52,7	18,8	8,1	1,4
Llano de Maja	72	5,4	7,3	0,6
Hoya del Villano	99,4	1,5	12,2	0,6
Roque Blanco	79	9,4	9,5	0,7

viations in relative humidity were much higher in comparison with the temperature readings. They ranged from 7 to 18% on average (Table 4). Once again the lower standard deviations were registered in the caves whose entrances where blocked.

The effect of blocking the entrances can be also seem when comparing the relative humidity between the caves of Llano de Maja (blocked entrance) and El Salitre (unblocked entrance) during the driest and most stable period from July to October 2017 (Fig. 4). These two caves although morphologically somewhat different are only located about 4 km from each other.

Relative humidity data has also to be interpreted taking into consideration dew point readings. The dew point is the temperature that must reach the air –in this case the air inside the caves- so that condensation can start. The closer the dew point is to the air temperature the easier the air becomes saturated and starts condensation. The registered dew points indicated that the caves had a considerable condensation throughout the year and that this condensation was higher in the caves that had their entrances blocked (Table 5). These high levels might explain the abundant salt crystals seen both on naked eye and under the microscope on the museum collection of mummified remains.[9]

No doubt blockage of the entrances- even a non-airtight blockage such as those- affects the climatic behaviour of the studied caves because it alters their

[9] We are waiting for further analytical results in order to compare them with test salts already done in several caves.

otherwise natural air exchange rate, slowing it down significantly. In a big cave such as Uchova with an inner air flow leaking less than 1m/seg, this exchange rate had to last more than a couple of days. Calculating the accurate rate would be a rather complex task, not only because of the cave dimensions, but also the continuous input of fresh air through fissures and gaps which continually mix with the inside stagnant air. However, the assumption of a quite slow rate helps to explain why humidity was kept raised over 80% even in the summer months.

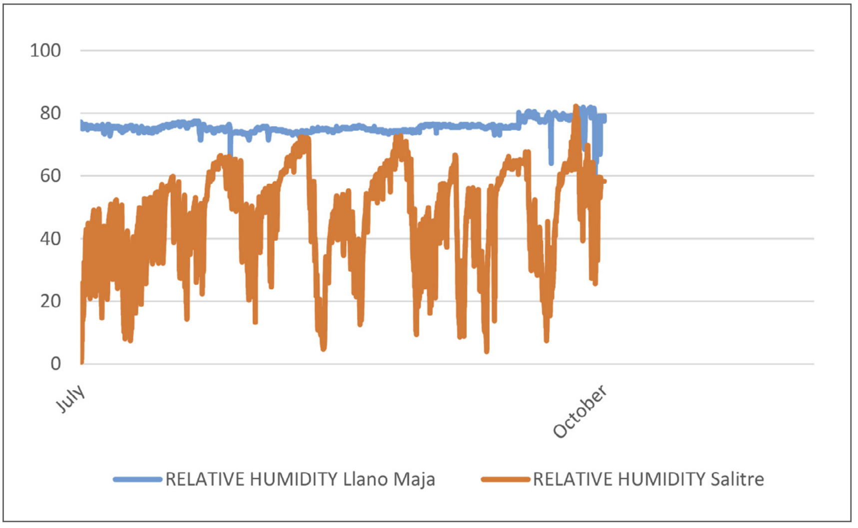

Fig. 4. Graph comparing the relative humidity in the caves of Llano Maja and El Salitre during the driest and most stable period from July to October 2017.

Table 5. Average temperatures and dew point registered in the selected caves.

Burial cave	Blocked entrance	Mean T °C	Mean dew point
Uchova	√	16,2	12,4
El Pilón		18,6	11,8
El Salitre		8,1	–2,2
Llano de Maja	√	7,3	2,5
Hoya del Villano	√	12,2	12,1
Roque Blanco	√	9,4	5,8

6. CONCLUSIONS

According to the literature on mummies (see among others the compilation by Aufderheide, 2003; Lynnerup,2007) the burial environment need to be very warm or cold, dry and well ventilated so natural mummification- or in other words dehydration of the tissues- can occur. That is not the case in the studied caves, whose slightly chilly, rather humid and poor ventilated climatic conditions, in particular when their entrance was blocked, are hardly favourable for either natural mummification or long term preservation of the mummies (Díaz-Martínez, 2012). Nevertheless some like those found in Roque Blanco endured to survive to the 20th century.

The autopsies done to the mummies in the Archaeological Museum of Tenerife and the abundant traces of necrophagous insects (Calliphoridae & Muscidae) found on the 90% of the collection points to a predominant natural mummification (Aufderheide, A. *et al*., 1995). In consequence, other agents had to concur into those burial caves along with the temperature and humidity, which explain that. A rather stable and moderate temperature had to help slowing down the cycle of necrophilic insects, but we think that the key factor could be the presence of salts in the highly humid air of the caves (Arnay et al., 2017, Prats-Muñoz et al., 2013; Lynnerup, 2007). The antiseptic, desiccant and buffering properties of many salts are well known (Díaz-Martínez, 2012). The cave salts diluted in the water vapour and in the water which leaks from the walls reached the corpses leather shrouds and permeated through them to the bodies, which hindered bacterial activity and might facilitate the tissues desiccation. Salt crystals can be seen sprinkled all over the desiccated tissues and their fragmented shrouds. Guanche funerary procedures such as clearing out the cave soil before the deposition (Diego, 1960 & 1965), wrapping the corpses tightly in goatskins and stuffing them with antiseptic plants[10] (Horne and Ireland, 1991; Ortega and Sánchez-Pinto, 1995) had to also facilitate the tissue preservation.

[10] In 2016 Sanchez-Pinto determined that the vegetal rest which slipped out from mummy NEC2 during its transport was *Neckera Intermedia* a moss endemic to the Macaronesia zone with dessicant and antiseptic properties.

ACKNOWLEDGEMENTS

We thank to A. Redondas Marrero (Izaña Atmospheric Research Centre, AEMET, The Meteorological State Agency, Spain) for providing the meteorological data from AEMET Izaña meteorological station.

We are also particularly grateful to V. Valencia Afonso, J.T. Macías Martín and D. Delgado Miranda for helping us to locate the burial caves, and to R. González Pérez and P. Pérez Darias for making to get them safer and blocking their entrances.

S. Pérez Cedrés thanks you for allowing us to use your artificial cave in Fasnia.

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