# A NEW PERSPECTIVE ON HITTITE ROCK RELIEFS[1]

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This article proposes the use of GIS (Geographical Information System) combined with an examination of Hittite texts and an iconographical analysis in order to build a new method for discovering the function of Hittite rock reliefs in the mountainous regions of Turkey (Fig. 1). Hittite rock reliefs can be found in the open on rock faces and they are often accompanied by a Luwian hieroglyphic inscription. Apart from the monumental reliefs of Yazılıkaya, little information on Hittite rock reliefs has been published. The studied reliefs are published in short articles primarily describing their inscriptions, while in-depth studies reviewing all known Hittite rock reliefs are rare. The most recent study, written by Kay Kohlmeyer, dates from 1983. Recently there has been renewed interest in the monumental rock reliefs at Gavurkalesı (Lumsden 2002) and Eflatun Pınar (Emre 2002). Although much new information has been gathered on these monuments, it is still uncertain what the functions of the Hittite rock reliefs were during the time of their construction (1350-1200 B.C.).

Most scholars agree that these depictions primarily served a ceremonial purpose (e.g. Kohlmeyer 1983, 106, Macqueen 2001, 112). These assertions are based mainly on iconographical research, sometimes backed up by evidence from Hittite texts. Although these scholars studied the available sources thoroughly, no verifiable hypothesis about the function of the reliefs has been created. As a result, little progress has been made in the interpretation of the Hittite rock reliefs during the last 40 years.

This article presents a multi-disciplinary method of research that provides a legitimate theory for the purpose of Hittite rock reliefs. Firstly, the available archaeological and iconographical data on the Hittite rock reliefs are put forward. Secondly, the use of a GIS to provide additional data on the position of the reliefs in the landscape is described. Thirdly, three Hittite terms that can be applied to the rock reliefs will be examined. The identification of archaeological remains with ancient texts has always been problematic, but by using the information acquired with the GIS, a link between Hittite texts and archaeology can be proposed. Finally, a verifiable theory explaining the function of the Hittite rock reliefs will be presented. Because it is impossible to discuss all rock reliefs in detail, this case-study will examine a small area containing four reliefs.

[1] This study was based on my MA-thesis (Stokkel 2003). In this thesis an overview of all currently known rock reliefs was presented. In addition, an extensive theoretical framework, that could not be published here, was incorporated.

## Description of Four Hittite Rock Reliefs

The case area lies southeast of Kayseri, in the province of Cappadocia. The reliefs chosen for this study are Fıraktın, Taşcı, İmamkulu and Hanyeri (Fig. 1).

*Fıraktın*

The Fıraktın relief is found 1.8 metres up a 7-metre high rock wall on the eastern side of the Zamantı Su river valley (Fig. 2). It is 3 metres wide and 1 metre high (Kohlmeyer 1983, 69). A creek, the Kara Su, runs in front of the relief. Above the relief on the horizontal rock platform at least two man made holes, called cup-marks, can be found (Ussishkin 1975, 86).

Near the relief a Hittite settlement was found on Fıraktın höyük (Özgüç 1955, 301) and in other parts of the valley more remains of Hittite settlement have been discovered (Kohlmeyer 1983, 68).

The scene can be divided into two sections. The left section shows a man making a libation before an altar behind which another man is standing facing him. The torsos of both men are portrayed *en face* but their legs and head are pictured *en profil*. Both men wear a short skirt, Hittite shoes with their typical upturned toes and on their heads a pointed crown. One horn is attached to each of the headdresses. Both men carry a sword with a sickle shaped handle on their belt.

The difference between the two men can be found in the items that they are carrying. The left figure carries a curled staff in his right hand and a triangular object in his left. Many scholars identify this triangular object as: "a symbol of welfare" (see Kohlmeyer 1983, 69). The right man carries a bow in his left hand and is making the libation with his right.

From the inscription, located in front of the right man, it becomes clear that the great king Hattušili is depicted (Kohlmeyer 1983, 72). The inscription in front of the left person is usually translated with "God", but other readings exist (van den Hout 1995, 555 n. 44).

While it is notable that the right section does not appear quite finished, it shows a similar motif. A person wearing a long dress is making a libation in front of an altar behind which a sitting person is depicted. Because of their clothing it is thought that both characters represent women. Both women are completely portrayed *en profil* and are wearing pointed headdresses and shoes with upturned toes.

The female making the libation holds her free hand in front of her mouth, which is considered to be a sign of adoration. The female behind the altar is sitting on a square throne and carries two items. In one hand she clutches a triangular "symbol of welfare" and in the other she holds a bowl-shaped object (Kohlmeyer 1983, 70).

The inscription identifies the sitting woman as the goddess Hepat and the standing female as Hattušili's wife; the great queen Puduhepa (Kohlmeyer 1983, 71). To the right of the relief another inscription was found. It reads: "Daughter of the land Kizzuwatna, loved by the gods" (Kohlmeyer 1983, 72, Hawkins 2000, 39 n. 12).

*Taşcı*

The reliefs of Taşcı are also situated in the Zamantı Su River Valley, next to a tributary river called the Döküksuyu. Two separate reliefs were found here, Taşcı A and Taşcı B (Fig. 3a, 3b). Above Taşcı A a hole was found that incorporates a 1-metre wide shaft. This shaft can be followed to a depth of 2 metres. Kohlmeyer argues that it used to run all the way down to the groundwater level (Kohlmeyer 1983, 80). The relief Taşcı A measures 3 metres wide and 1.25 metres high. Three anthropomorphic figures are depicted and surrounded by hieroglyphs although erosion has significantly damaged the depiction. Because the bottom of the relief is now buried under ground, the original height of the figures is unknown. Nowadays the middle figure reaches a height of 0.8 metres. All persons are facing right and at least two of them are holding their hand before their mouth as a greeting sign.

The first two persons were probably depicted wearing a small headdress called *lupanni* in the Hittite texts (van den Hout 1993, 11). Kohlmeyer argues that horns were attached to the headdresses, but they do not occur in his drawing. The headdress of the last person in line is better preserved. Kohlmeyer thinks that a piece of cloth is attached to the back of the little cap this figure is wearing, which resembles a Hittite female headdress (Kohlmeyer 1983, 75).

The translation of the hieroglyphic inscriptions is difficult because it is uncertain how to allocate the signs to the different persons (Hawkins 2000, 39 n. 13). However, parts of the inscription have been translated (see Kohlmeyer 1983, 77, Hawkins 2000, 39 n. 13).

The relief Taşcı B can be found just above the water, 100 metres downstream of Taşcı A. Similar to Taşcı A, a groove surrounds the depicted figures. The relief shows a 0.8 metre high relief of a man facing right. He is dressed in a long robe and on his head a *lupanni* can be seen. These clothes can perhaps be interpreted as ceremonial garments. Although Kohlmeyer states that a horn was attached to the *lupanni*, it is not visible on his drawing of the relief (Kohlmeyer 1983, 79). The figure holds both hands in front of his body. One hand makes a greeting sign and the other carries a triangular "symbol of welfare". Next to the depiction an inscription was found. Steinherr tried to translate the symbols and came up with: "I am (*x-li-na?*)" and "*Tà-má/e-ta*" (Steinherr 1975, 313-314). Hawkins does not agree with this reading and argues that this inscription remains unreadable (Hawkins 2000, 39 n. 13).

Discussion exists about the date of creation of the two reliefs, because there are iconographical differences between them. For example, the shoulder of the figure of Taşcı B differs from the shoulders of the figures of Taşcı A (Kohlmeyer 1983, 78). However, the similarities between the two reliefs are more striking. Both reliefs are evenly measured and the technique used to create the figures is the same (Emre 2002, 226). It is therefore safe to assume both reliefs are contemporary with each other.

Many theories exist on who were depicted in the reliefs. Bossert asserts that they are Hittite princes (Bossert 1942, 57), while Steinherr suggests that relief depict the brother of king Suppiluliumma, Zida and his son Hutubiyanza (Steinherr 1975). Kohlmeyer argues that the figures depicted are mere priests (Kohlmeyer 1983, 80). At this time, however, no one theory is widely accepted over another.

*Hanyeri*

The Hanyeri relief can be found on the east side of the Bey Dağ mountain range in the Gezbel pass between the Bey Dağ and the Alaylıdağ. In 1977 twelve springs were present near the relief. No settlements were found in the direct surroundings (Kohlmeyer 1983, 86).

The Hanyeri relief was made 4 metres above ground level on a natural rock face and consists of three sections (Fig. 4). The left section measures 1.65 metres and shows a bull standing on two other figures. His front legs are standing on the back of a Hittite Mountain God. This figure has one hand in front of his mouth and the other in front of his chest. His lower body represents a mountain, and his horned headdress points to his divine origin (Kohlmeyer 1983, 87-88). The back legs of the bull are standing on a more controversial object. Bossert thought this object represented a second Mountain God (Bossert 1954, 130), but later, when Kohlmeyer looked at the rock this part of the relief was so weathered the shape looked more like an altar (Kohlmeyer 1983, 87). According to Emre only a mountain-like shape can be distinguished (Emre 2002, 226). The inscriptions found near these figures tell us that the bull represents the mountain king Sarumma. The right Mountain God represents the holy mountain named: "Sword God" (Hawkins 2000, 39 n. 15).

The middle section consists of a man measuring 2.05 metres and an inscription. The man faces left and seems to be dressed in warrior clothing. He carries a sword in his belt, a bow over his left shoulder and a spear in his right hand. The man wears the typical Hittite shoes with the upturned toes and on his head he wears the *lupanni*. Kohlmeyer argues that the headdress incorporated a horn, but again this is not visible in his drawing of the relief. The inscription written between the spear and the man's head names prince Kuwalanamuwa, a high official in the Hittite Empire during the reign of Mursili II (Kohlmeyer 1983, 89).

The right section of the Hanyeri relief consists of an inscription with the name "Tarhuntami/Tarhuntapiyami the prince", written twice (Hawkins 2000, 39 n. 15).

Why Kuwalanamuwa and Tarhuntami placed their names next to a divine scene is not difficult to imagine. By depicting themselves next to the gods they showed their special relation to these beings. This not only pleased the gods, but also made clear to the public that Kuwalanamuwa and Tarhuntami were a force to be reckoned with.

*İmamkulu*

The İmamkulu relief is located near the Hanyeri relief on the westside of the Bey Dağ. The relief was made on a large boulder situated on a terrace. No Hittite settlement was found in the immediate vicinity. On the rock a surface of 3.3 by 2.4 metre was prepared. A complex scene was created on it that can be divided into three sections (Fig. 5). The middle section shows three men, depicted with the head of a lion, carrying three Mountain Gods. These figures differ from other Hittite Mountain Gods like the one visible on the Hanyeri relief. On the İmamkulu relief the feet of the Mountain Gods are visible and they carry a sword in their belt. In addition, the protrusions that are visible on the body of the Hanyeri Mountain God cannot be distinguished in the İmamkulu relief. Therefore not all scholars identify these figures with Mountain Gods (Von Oppenheim

1936-1937, 341). These mountain shaped figures support a chariot pulled by a bull. A male figure is controlling the vehicle with one leg in the chariot and the other behind it. He wears a horned crown and raises a mace behind his head. The inscription, situated in front of his head, identifies the figure as: "Storm God of Heaven". In front of the chariot a strange shape can be distinguished. Some scholars believe that a bird is depicted (Kohlmeyer 1983, 84), while others suggest a flying sun disk was meant here (Gelb 1939, 30).

The right section of the relief shows a figure standing on top of a horizontal bar flanked by ten protrusions. Most scholars agree that this shape represents a tree (Gelb 1939, 30, Kohlmeyer 1983, 83, Rossner 1984, 69), but Delaporte thought it was a four-legged animal with big ears (Delaporte 1935, 145). The figure standing on top of the tree is very controversial. Some scholars argue that the figure represents a genius carrying a staff (Delaporte 1935, 163), but Kohlmeyer argues that the creators of the relief depicted a woman with an open coat (Kohlmeyer 1983, 83).

The left section of the relief shows an armed man, who carries a bow and a spear and on his head a *lupanni* can be distinguished. The inscription in front of him reads: "Kuwalanamuwa the prince" (Hawkins 2000, 39 n. 14).

The İmamkulu relief appears to be a strange collection of figures, which is why J. Börker Klähn searched for an explanation for the depiction (Börker Klähn 1977, 71). She states that three of the depicted figures can be traced back to the Ašertu myth. It is possible that the İmamkulu relief functioned as a marker to give the depicted intangible myth a tangible location.

The similarities between İmamkulu and Hanyeri are striking. Both show Kuwalanamuwa in combination with divine creatures.

*Summary and Interpretation*

When looking at the descriptions of the reliefs presented above, several differences and similarities between the monuments can be identified. The Fıraktın relief shows the king and queen sacrificing before their divine counterparts in what is obviously a ceremonial scene. The cup-marks found in the vicinity of the reliefs can be recognised as installations needed for the relief to function as a ceremonial focus (Ussishkin 1975). The procession of figures and the man in the long robe carrying a "symbol of welfare" depicted on the reliefs of Taşcı, also fit well with the idea of a ceremonial depiction, a view supported by the pit that was found near the Taşcı A relief.

The scenes found on the Hanyeri relief and the İmamkulu relief are different from the other two reliefs. Not only are these reliefs twice as big as the ceremonial reliefs, but the reliefs are also remarkably similar. Both depictions show two motifs; an armed man and a divine scene of a god carried by lesser deities. The armed man faces the divine scene on both occasions. It is easy to imagine that these depictions instilled awe on the onlookers. Not only is the depicted man fully armed but he is also on good terms with the gods. In other words, he is a man to be reckoned with. It is safe to assume that local rulers used a depiction such as this to make clear they were in charge of this land.

When interpreting the iconographical data presented above, it seems that the four reliefs of this case-study can be placed in two main categories each with a different

primary function. The reliefs of Taşcı and Fıraktın could have been used as a ceremonial focus and İmamkulu and Hanyeri might have served a more propagandistic purpose, functioning as a claim on the land. In order to adequately test my interpretation of the reliefs, some assumptions have to be made. For instance, the reliefs functioning as a land claim must have had some specific features to function properly. Since it needed to reach as many people as possible it had to be highly visible, especially from places where its target public was present. It is likely that an important part of the target public were travellers who had to be reminded whose lands they were travelling through and convinced not to come with hostile intent. This implies that the relief had to be visible from the road along which most people travelled.

Conversely, the ceremonial reliefs required a different position in the landscape. To avoid unwanted visits and contamination by foreigners they were required to be invisible from the main roads.

**Geographical Information System**

To test the interpretation of the different reliefs, additional data on the surroundings of the reliefs is required. A way to acquire this new data is by using a GIS,[2]. a computer program that can answer complex questions about the landscape.

For the purpose of this article two main questions need to be asked.

1. Are the two reliefs that functioned as a land marker visible from a larger area than the ceremonial reliefs?
2. Are the land claim reliefs plainly visible from the main roads while the ceremonial reliefs remain well hidden from travellers?

Because the visibility of the reliefs is primarily reduced by differences in height of the landscape, an elevation map of the area forms the basis for answering these questions. In the case-study an elevation map with a scale of 1:200.000 was used. On this map an area of 25 by 53 kilometres was selected in which the four reliefs of the case-study could be found. This area was magnified considerably to improve the visibility of the elevation lines.

The magnified map was subsequently digitalized in AutoCAD 14. Not every elevation line could be digitised so a selection had to be made to create a complete and detailed view of the area. 7,237 points were digitised.

To make this digital data usable in a GIS, a Digital Elevation Model (D.E.M.) has to be created. Surfer (version 8) was used to create a grid map out of the irregular point map from AutoCAD. In order to do this, the digitised points needed to be interpolated. In this study the *Kriging* interpolation technique was used. The result of the interpolation is an accurate and usable D.E.M.

An important decision that must be made when interpolating a point map is the size of the grid. When high resolution (little squares) is chosen, Surfer creates many fictive values. This results in a D.E.M. that has strange characteristics that do not represent reality. When a low resolution is chosen, some of the imported values are not

[2] On the use of GIS in archaeology, see Lock and Stančič 1995, Gillings and Wheatley 2002.

used. This results in a D.E.M. that shows a rough relief that cannot be used for detailed research. The grid used for this study consisted of 100 by 100 square metre cells which resulted in an actual representation of the original relief with enough detail to make small-scale analysis possible (Fig. 6).

The D.E.M. was then exported to a third computer program called Idrisi (version 32). Idrisi is a grid based GIS. It was developed to compare and combine existing map material to generate new information. In this research two analysis techniques in Idrisi were utilized; *Viewshed* and *Pathway*. The *Viewshed* analysis can calculate from which cells a certain point in a landscape is visible. The visibility of a relief depends on the size of the object. In this article we assume that a relief measuring approximately 3 $m^2$ is visible over a distance of 1.5 kilometres and a relief measuring 6 $m^2$ is visible over a distance of 3 kilometres.

After calculating the *viewsheds* from the different relief locations it became clear that İmamkulu and Hanyeri had a larger *viewshed* than Taşcı and Fıraktın (Fig. 7). In other words, the land claim reliefs have a larger visibility than the ceremonial reliefs. Because Hittite road maps are not available, a special technique was utilized to reconstruct the original roads. This was done using the *Pathway* option in Idrisi. The *Pathway* technique makes it possible to calculate least effort roads through a landscape. In the area that was chosen for the case-study, important roads must have been present. The Gezbel pass, that is visible on the right of the D.E.M., was an important passage to reach more southerly lands like Syria.

It is assumed that all the main roads lead through the Gezbel pass in this area. To make optimal use of the pass it is assumed that the Hittites wanted to reach the pass from as many sides as possible. When looking at the map created in Surfer it is obvious that three passages lead around the mountains, out of the case area (Fig. 6). These passages lie north, south and northwest. It is likely that the main roads made use of these depressions in the landscape.

To use the *Pathway* function, a series of different maps needed to be created. First a friction map, that shows the effort that is needed to get from one cell to another, must be generated. This map is based on the D.E.M.. The heights presented in the D.E.M. are transferred to elevation angles that create friction. The friction map is the basis of a cost map, which is a map that shows the amount of effort that is needed to move around the landscape from a starting point. A second map which is needed to create a Cost map, pinpoints the starting point of the route.

Two options are available in Idrisi to create a Cost map; *cost push* and *cost grow*. The first function calculates the distance a person can reach with the same amount of effort from the starting point. The second function calculates the effort that is needed to move between neighbouring cells. This function is very usable for calculating roads, as it takes into account that a route takes less effort when first climbing a hill and than gently walking down, rather than avoiding the mountain and walking a long way around it. This results in three different roads through the case-study landscape.

When overlaying the *viewsheds* calculated earlier, it becomes clear that the reliefs of İmamkulu and Hanyeri are both visible from a main road. The reliefs of Taşcı and

Fıraktın are located close to a road but are invisible when looking from it (Fig. 8). This supports the interpretation stated above.

## Texts

In the Hittite cuneiform texts, three terms occur that may refer to the rock reliefs[3]. They mention the function and appearance of certain objects which can easily be identified as rock reliefs. A study of these terms can improve our understanding of the function of the reliefs. The summary that will be presented below can also form the basis for research on the identification of the reliefs with Hittite tems.

### *Hista-, Hesta-*

The word *hista* or *hesta* is often accompanied by the determinative É. This means that the Hittites saw the *hesta* as an architectural structure. Sometimes the determinative D also exists with this word. This could point to the existence of a *hesta* god or to a cult of the *hesta* house (Popko 1978, 36), while Haas and Wäfler think that other gods could also be meant here (Haas and Wäfler 1977, 90) Other scholars think the *hesta* building was unique (Otten 1955, 390).

Some characteristics of a *hesta* house can be determined from the Hittite texts. Firstly, a *hesta* house could incorporate at least one gatehouse (e.g. Haas and Wäfler 1977, 104, Puhvel 1991, 319: KBo XXV 30 12 (Neu 1980, 75)). Secondly, a well was positioned near the entrance of a *hesta* house (Haas and Wäfler 1977, 104, Puhvel 1991, 320: KUB XXX 32 I 14 (Singer 1984, 680)). Thirdly, the building included several separated spaces (Haas and Wäfler 1977, 106).

Also information about the location of a *hesta* house can be gleaned from the texts. The *hesta* house escaped destruction when Hattuša was burned down (Goetze 1940, 22: KBo VI 28 Vs. 14-15), which means that the *hesta* house was located within the distance to be threatened by the fire but far enough to escape destruction. Therefore most scholars think that the *hesta* house was situated outside the city walls. However, it remains possible the *hesta* house was located in a part of Hattuša that escaped the fire, because a burned layer that covered the whole city was never found.

The *hesta* house must have been an impressive and important place because it needed personnel and a priest to function properly (Haas and Wäfler 1977, 92-95). The most important task of the priest and the men of the *hesta* was to make sacrifices and to perform ceremonies for the gods (Otten 1955, 391: IBoT III (Çiğ and Kızılyay 1954), Haas and Wäfler 1977, 97-104). These ceremonies took place at festivals that were held at the *hesta* house (Haas and Wäfler 1977, 95-97), like the New Year festival or *purulli* festival (Haas and Wäfler 1977, 95: KBo II 5 Rs. III 38-47). This festival was a tribute to Lelwani, the goddess of the underworld. It is possible the *hesta* house also functioned as the last resting place for the dead king. It is thought the *hesta* house and the É.NA$_4$, or stone house, were one and the same building (Güterbock 1953, 75-76, Puhvel 1991, 322).

[3] The term ŠU.AN can also refer to a monument (Sturtevant and Bechtel 1935, 71, Ünal 1974, 65, n. 94, Otten 1981, p 11, 111, van den Hout 1997, 201). However, because of its rarity this term was not incorporated in the main text.

*Hekur*

The next Hittite term that we will discuss here is *hekur*. Puhvel describes this word as: "rock sanctuary or acropolis" (Puhvel 1991, 287). *Hekur* is always accompanied by the determinative $NA_4$; this means that the *hekur* was an object of stone. Sometimes the phrase $NA_4$.*hekur*.SAG.UŠ was used, this can be translated as: "Eternal Peak"(Güterbock 1967, 79).

A $NA_4$.*hekur* was a cult building for a god (Puhvel 1991, 287: KBo XIII 176, 9) or a deceased king, who became a god after his demise (Güterbock 1976, 78: KBo XII 38 II 17).

The $NA_4$.*hekur* had his own personnel. Some needed only one woman to handle the daily affairs while others needed a greater staff (Puhvel 1991, 288: KUB XXVII 13 IV 13-1).

The staff had two duties. First, they needed to supervise the monument and its estate. Second they assisted in the festivities that took place at the $NA_4$.*hekur*. A $NA_4$.*hekur* could own land and riches; a text mentions the donation by the queen of all the land from a deceased king to the $NA_4$.*hekur* (Singer 2002, 75: KUB XIV 4 II 3-5). The riches that people donated to the $NA_4$.*hekur* were placed before an image of some kind (Ünal1978, 59: KUB XXII 70 Vs. 19-20, 26).

Again it is thought that the E.$NA_4$ was incorporated in the $NA_4$.*hekur*. Van den Hout argues that every E.$NA_4$ was a $NA_4$.*hekur*, but not every $NA_4$.*hekur* was an E.$NA_4$ (Van den Hout 2002, 87). It is therefore possible a dead king was placed to rest in a $NA_4$.*hekur* after his cremation.

A refuge for the local population and troops was a less obvious attested function of the $NA_4$.*hekur* (e.g. Goetze 1933, 181: KBo II 5 Vs. I 12). We can therefore assume that the $NA_4$.hekur was built on a defendable location. This assertion can be supported by a text that describes the $NA_4$.*hekur* of *Kurunta*, a Hittite prince. The monument was built on a rock that was steep on every side, except for one side on which an access road was built (Houwink ten Cate 1966, 181-182: KBo XIV 20 II 10-13).

*Huwaši*

An expression that is often being associated with the rock reliefs is $NA_4$.*huwaši* or $NA_4$.ZI.KIN. Puhvel describes the $NA_4$.*huwaši* as follows: "Stone or wood pillar, occasionally with metal (silver, iron) serving as outdoors or sheltered cult object, or as boundary marker" (Puhvel 1991, 438). The *huwaši* was often made of stone ($NA_4$), but other materials were also used. Wooden (GIŠ) *huwaši* are attested (e.g. Darga 1969, 11 n. 6: KUB X 90 Rs. 1), and sometimes the determinative KUBABBAR was used. This means the *huwaši* was made of, or could be decorated with a precious metal (Darga 1969, 11 n. 6: KBo II 1 Vs. II 12).

The *huwaši* stone was used in the cult of the Hittite gods. Some gods obtained a temple while a *huwaši* rock was given to other gods (Darga 1969, 12: KUB XXXVIII 12 Rs. III 23).

The *huwaši* rock of the Storm God played an important role in the KI.LAM festival. Scholars used to think the *huwaši* rock was entered during the festival (Singer 1983, 79: KUB II 3 II 32-35), but currently they are not certain; it is thought the king

entered a building that contained the *huwaši* rock and not the *huwaši* rock itself (Güterbock and Hoffner 1997, 27-28).

The function of the *huwaši* rock is partially known. During ceremonies statues of Hittite gods were placed next to the *huwaši* rock and sacrifices were made before them (e.g. Darga 1969, 13: KBo II 7 Rs. 19-20). The *huwaši* rock had to be visited often, not just during ceremonies (von Schuler 1957, 47: KUB XXXI 88 III 5). The *huwaši* rocks were located outside the settlements (Darga 1969, 13: KBo XI 10 III 33-34); nature was sacred for the Hittites, especially mountains, springs and forests (Laroche 1949, 12-13). It is easy to imagine why the Hittites placed the *huwaši* rocks in this sacred land. It is possible that the divine power, which was present in the surroundings, was represented by the *huwaši* rock. In this way, a focus for the cult of the natural environment was created.

Some information about the exact measurements and form of the *huwaši* rock is presented in the Hittite texts. It is thought the *huwaši* rock was decorated with reliefs (Popko 1978, 124: KBo II 1 I 33). Sometimes the *huwaši* rock had to be raised to make offerings possible (von Schuler 1957, 46: KUB XXXI 88 III 1). Some of the *huwaši* rocks must have been small enough to be portable; a text mentions the *huwaši* rock of the Storm God being placed upon an altar (Darga 1969, 14: KUB XXXV 133 I 16). A different view on *huwaši* rocks is presented in the bronze tablet found in Hattuša (Otten 1988, 13). In this text the cultic role of the *huwaši* rock is unimportant. Instead the *huwaši* rock functions solely as a border marker.

Archaeologists have not been able to make a definite identification of the *huwaši* rocks, but two plausible possibilities are proposed. Researchers working at Kuşaklı-Sarissa claim they found a *huwaši* sanctuary near the city (Müller-Karpe 2002, 189). Two large boulders that were found near a 48 by 45 metre building are identified as the *huwaši* rock. Next to the building a large basin was found. The identification is based on a text that mentions a *huwaši* rock located in the vicinity of the city (Müller-Karpe 2002, 189). It is possible that the architectural complex was a holy place that incorporated many sanctuaries, including a *huwaši* rock. An identification of the *huwaši* rock as a stele is the second possibility, put forward by Darga (1969) and Haas (1994, 507-508), because texts speak of portable objects that can be placed on altars. In particular, the stele found in Karahöyük is thought to be a *huwaši* rock (Darga 1969, 16).

In this article a division in the *huwaši* rocks is proposed; some *huwaši* rocks functioned primarily as ceremonial places while other functioned primarily as a land marker, used to label a particular estate. The ceremonial *huwaši* rock was sometimes portable and could have been decorated with precious metal. These rocks were located in holy surroundings and were used to perform ceremonies to honour the gods. The land claim *huwaši* rock, on the other hand, was never portable and it is very likely they were located on a visible location in the landscape.

If the characteristics of the reliefs, based on the iconographical data and the GIS analysis, are compared with the description of the Hittite terms, then their similarities are remarkable. I therefore propose that the reliefs of Fıraktın and Taşcı were ceremonial *huwaši* rocks, and the reliefs of İmamkulu and Hanyeri were land marking *huwaši* rocks. Additional research is needed to investigate this statement further.

**Classification and Hypothesis – A Conclusion**

Classification of the reliefs is not a new concept. In his 1983 publication, Kohlmeyer distinguished the rock reliefs by their depicted motif and divided them into two groups. The first group of reliefs showed only gods (Yazılıkaya, Gavurkalesi, Eflatun Pınar and Akpınar), whereas the second group of reliefs showed humans that were sometimes accompanied by gods (Hanyeri, Tasçı, Fıraktın, Karabel B, Hamide, İmamkulu and Sirkeli).

Kohlmeyer argued that the first group had a religious or magical function and could be identified as *huwaši* rocks. He argued that the second group had also a cultic function but was distinguished by its geographical location. He states that the reliefs in the second group could be recognized as ŠU.AN (Kohlmeyer 1983, 107 n. 1007). Apart from being difficult to test, an imperfection in Kohlmeyer's classification may be the direct correlation he assumed between motif and function. By looking at the depicted motif he wanted to discover the function of the reliefs. However, different motifs can have the same function.

This statement that different motifs can have the same function can be supported through the use of semiotic theory (van Zoest 1978). Scholars who support this school look at depictions as *sign* bearers. A sign is sent by a *sender* and is received by a *recipient*. It is possible to identify the sign as the *message* of the sign bearer. One sign bearer can carry multiple messages, intended and unintended. For instance, a notice reading: "private road" can send the intended message: "keep away from my property". However, some people may receive a different message. A poor man passing the sign may receive an unintended message telling him: "I have my own road, and you do not". Also, multiple sign bearers can carry one message. For instance, a notice reading: "no entry" can be easily replaced by a one reading "private road". The texts (or motifs) of the two signs are different but the intended message is the same: "keep away from my property".

This could also be the case with the Hittite rock reliefs. Different motifs (sign bearers) could be used to send the same message. A direct connection between function and motif need not apply. If the depicted motifs are not suitable to determination of the function of the reliefs, other sources must be found to classify them. In this article information gathered from the iconographical analysis, the GIS analysis and the Hittite texts form the basis of the classification. Through the use of readily available iconographical and archaeological data a division between the four reliefs was made. Some monuments were primarily built as a ceremonial stone, whereas others primarily functioned as land markers. This assumption was based on the size of the reliefs, the presence or absence of installations and the depicted motifs. This interpretation was further supported by GIS data. Looking at the size of the Viewshed and the presence of roads within this line of sight the proposed distinction was checked. The ceremonial places were invisible from the roads wile the land markers lay practically next to the roads.

After an examination of the Hittite texts, two functions of the *huwaši* rock were identified; i.e. ceremonial places and land markers. I stated that the reliefs located in our case area could fit the profile of a *huwaši* rock.

Concluding, the Hittite rock reliefs of the case-study can be placed in two categories:

1. Reliefs that functioned primarily as ceremonial rocks (Taşcı and Fıraktın). These reliefs display a ceremonial scene, were not visible from the main roads and can be identified with ceremonial *huwaši* rocks.
2. Reliefs that functioned primarily as land markers (Hanyeri and İmamkulu). These reliefs show a propagandistic scene, were plainly visible from the main roads and can be identified with land marking *huwaši* rocks.

**Further Research**

Additional research is required to broaden the theory presented in this article. Firstly, this reseach should include onsite surveys in the direct surroundings of the reliefs. Only then will it be possible to associate the scenes with features of the landscape such as vegetation, waterways, ancient settlements or other nearby architecture. Secondly, as mentioned before, additional research into the identification of the reliefs with the Hittite term *huwaši* rock is necessary. Thirdly, better geographical data is needed to make detailed GIS use possible.

Visibility is always an important aspect when constructing a monument. The monument is created to send a message to a target public and it is therefore necessary that the monument is clearly visible to the target public. The small-scale use of a GIS, as illustrated in this article, is a useful tool to exploit this point of view.

This research will also be important for the development of a methodology for researching areas with similar features in archaeology. Other rock reliefs like Hamide, Sirkeli, Keben, Hatıp, Karabel and Akpınar could also be analysed. This research makes it possible to test the hypothetical classification of the reliefs proposed in this article. More elaborate rock reliefs like Eflatun Pınar, Yazılıkaya and Gavurkalesi can also profit from this method. It is possible to examine from which locations the monuments can be observed. This gives us information about the target public of these monuments. Perhaps then these monuments can be identified with the Hittite terms described above, as is proposed in Gavurkalesi (see Bittel 1976, 114) and Yazılıkaya (see Gurney 1977).

The method presented in this article is also useful when dealing with monuments situated within the walls of ancient cities. For example, Nişantepe located on the Südburg of Hattuša is thought to be the centre of the upper city (Neve 1993, 22). It was located on the intersection of the axis drawn from the three main gates of the upper city (Neve 1993, Abb. 44). The assumed central position of Nişantepe could easily be tested using a GIS.

As I have tried to illustrate, the small-scale use of a GIS in archaeology can provide us with new data on long existing objects. This new information can be used to fill some gaps in our knowledge of ancient societies, especially when it is combined with data provided by iconography, excavations, surveys and ancient texts.

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Fig. 1. Map of Turkey showing the location of all currently known Hittite rock reliefs.

Fig. 2. Drawing of the relief of Fıraktın and the inscription (Kohlmeyer 1983, Fig. 24, Fig. 25 and 26b).

Fig. 3a. Drawing of the Tasçı A relief and the inscription (Kohlmeyer 1983, Fig. 29 and Fig. 30).

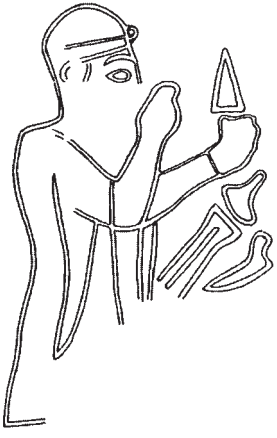

Fig. 3b. Drawing of the Tasçı B relief (Kohlmeyer 1983, Fig. 32).

Fig. 4. Drawing of the Hanyeri relief (Kohlmeyer 1983, Fig. 36).

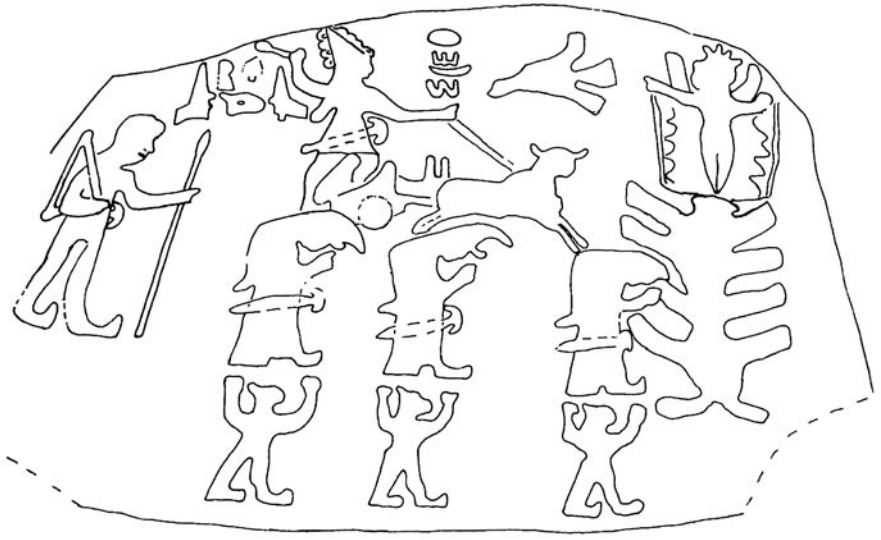

Fig. 5. Drawing of the İmamkulu relief (Kohlmeyer 1983, Fig. 33).

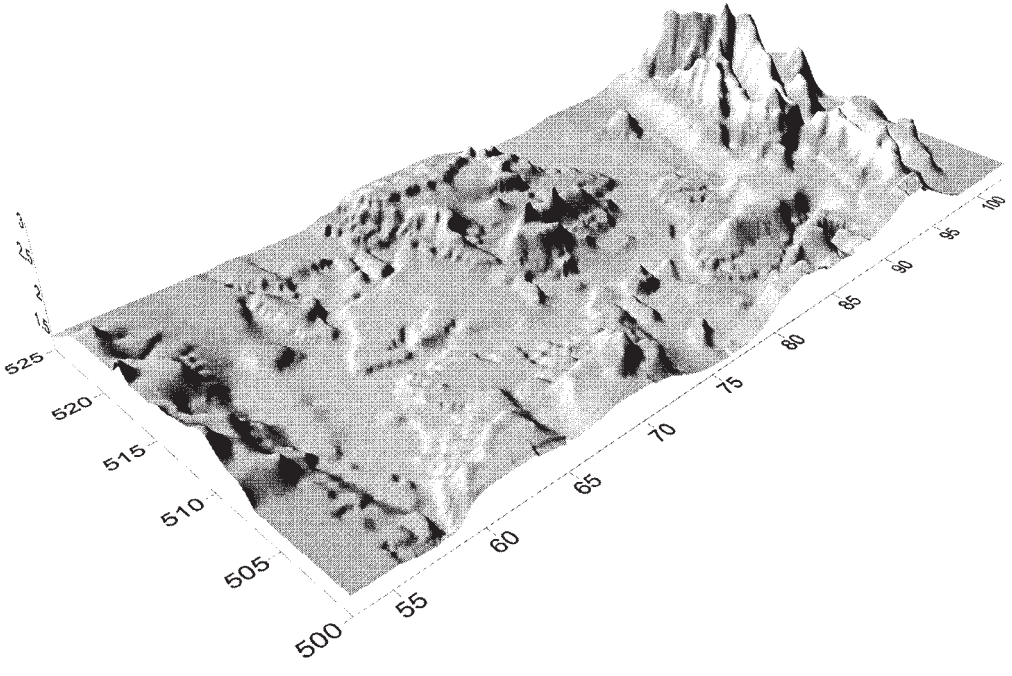


Fig. 6. Digital Elevation Model of the research area.

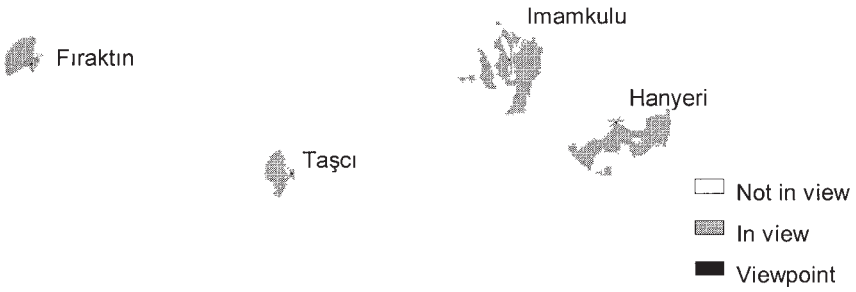


Fig. 7. Map showing the viewsheds of the reliefs.


Fig. 8. Map showing the calculated roads and the viewsheds of the reliefs.