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Abstract

The sanctuaries on mountain peaks along the Apennine Chain were very common for the Italic people. One of them is the sanctuary on the Monte Torre Maggiore, 1120 m height over the plain occupied by Terni, the ancient Interamna Nahars. The earliest worship place of this site was probably of 500 BC, but today we can see the remains of two monumental temples of the third and second centuries BC. Here we discuss the link of the site to the observation of the sky. We will point out the peculiar orientation of the monuments along moonrise on a minor lunar standstill. A link to the sunrise on the summer solstice is also present.

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Abstract: The sanctuaries on mountain peaks along the Apennine Chain were very common for the Italic people. One of them is the sanctuary on the Monte Torre Maggiore, 1120 m height over the plain occupied by Terni, the ancient Interamna Nahars. The earliest worship place of this site was probably of 500 BC, but today we can see the remains of two monumental temples of the third and second centuries BC. Here we discuss the link of the site to the observation of the sky. We will point out the peculiar orientation of the monuments along moonrise on a minor lunar standstill. A link to the sunrise on the summer solstice is also present.

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As told in [1], sanctuaries on mountain peaks along the Apennine Chain were very common for the Italic people. A high density of such sites is found in Umbria. An emblematic site of them is the sanctuary on the Monte Torre Maggiore, over the plain occupied by Terni, the ancient Interamna Nahars. The earliest frequentation of the site was of the 500 BC, but today we can see the remains of two monumental temples of the third and second centuries BC.

Open-air worship sites had been, as in the case of Monte Torre Maggiore, frequently replaced by monumental structures. This evolution of such Italic sites in a monumental fashion is intimately associated with the complex processes of Romanization [1]. In the case of Monte Torre Maggiore, the original votive deposit was discovered under the pronaos (the colonnaded porch) of one of the monumental temples [1].

Monte Torre Maggiore is in the chain of Martani mountains [2]. It was in a strategic position, used since the prehistoric, on the north-south route along the ridge of the Italian peninsula, and on the route moving from the Spoleto valley to that of Acquasparta, in East-West direction. Then, at an altitude of 1120 meters above sea level, it stands, since the sixth century BC, the highest worship place of Umbria. About it, a number of settlements gravitated, settlements of the Umru. This is the oldest name found in written texts by which the Umbrians were called [2]. In particular, the local people were the Naharki of Interamna, i.e. the Umbrian people of the Nera River (Nahar). With the Roman domination in the third century BC and the opening of a new road, the Flaminia, dating back to 220 BC, the settlements on the mountain were abandoned and population moved to the valley, founding the new city of Carsulae [2].

Today, the access to Torre Maggiore shrine – the name of which derives from Terra Majura or Ara Major – is still through the original doorway, made of a huge monolith of limestone [2]. At the center of the complex, we find the remains of the podium of the main temple, the oldest one, oriented, approximately, along the east-west axis (Figure 1). The temple is preceded by a votive deposit, in which the archaeologists found schematic human figurines made of bronze. All around, there were the shelters for pilgrims, the laboratories for the production of ceramics and votive offerings, and some other service areas [2]. A second temple was laid, more or less perpendicularly to the first temple. The present remains date to the Republican age (from the third to the first century BC) [2].

The origin of the sanctuary could be linked to the presence of a cave on the western slope of the mountain. The animism of the primitive religion of the local people led to the birth of some cults associated with a number of natural places, such as rivers, springs, caves and mountains [2].

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However, when the site became a monumental site, Roman deities were worshipped there, including Mars and Jupiter. These deities were connected also to atmospheric phenomena, to the time and then with the sky [2]. The main temple of the sanctuary was probably dedicated to Mars, the Italic rural god of fertility. He was a peaceful god, a healer and protector of people, guardian of fields and borders [2]. Only later, Mars was linked to the Greek Ares, becoming the Roman god, characterized as a warrior. Some of the Mars attributes, the thunder and lightning, were associated with Jupiter [2].

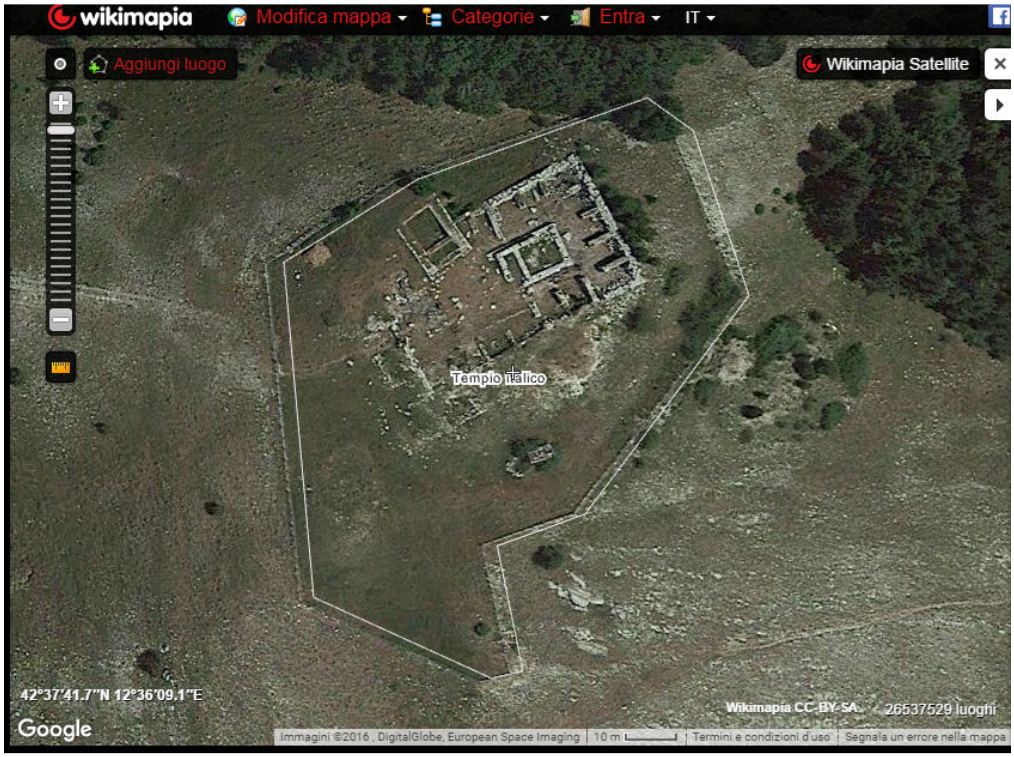

Figure 1: The site of Monte Torre Maggiore as seen in Wikimapia.

Claudia Giontella considered the shrine as auguraculum, i.e. a place where auspices had been obtained by observing the flight of the birds. According this interpretation, the part of the sky visible from the Monte was a classic "Celestial Temple" of Umbrians (Verfale), as defined by Giacomo Devoto [2,3]. Therefore, in origin, there was no masonry construction. Originally, it did not exist, apart from an altar or a pit for offerings; it was an ideal place for divination, to observe and interprete the flight of birds, by the Arsfertor on the highest point, while the Aruspex at the Ara Minor began the sacrificial rite [2].

As told in [2], in “prossimità del solstizio d’estate, nella notte del 24 giugno, la costellazione dell’Orsa Maggiore cade a perpendicolo sulla cima del Torre Maggiore, che rispetto al ciclo delle stagioni segnalava l’affermarsi dell’estate e dava inizio ai rituali propiziatori di fertilità, così importanti per l’antica civiltà umbra, basata essenzialmente sull’agricoltura e sulla pastorizia. Da questo santuario principale, tramite l’accensione di un grande fuoco, si trasmetteva il segnale del passaggio di stagione a tutta la Bassa Umbria e alla vicina Sabina, tramite gli altri santuari minori posti sulle alture circostanti, come quello di monte San Pancrazio a Calvi. Il panorama spazia infatti a 360° dalla valle spoletina, alla catena dei monti Martani, alle colline verso Todi e Amelia, alla conca ternana, fino ai monti Sabini e oltre.”

It is very interesting the link of the Ursa Major constellation to the site that we find in the Reference 2. Let us consider the software Stellarium [4], and simulate the summer night of 516 BC, 22 June. Here in the following Figure 2, the sky due North.

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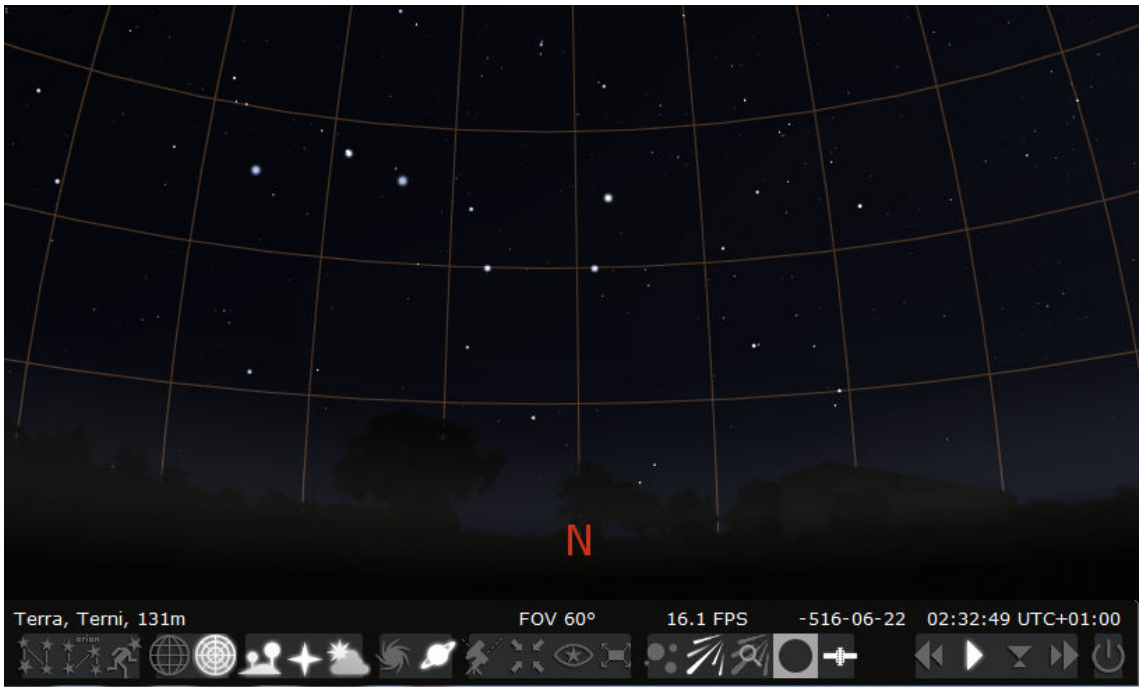

Figure 2: Here the summer sky, due North, as simulated by means of Stellarium on 516 BC.

The position of the Ursa Major constellation is remarkable.
We are used to see the sky due North, with the Polaris, that is the Alpha Ursae Minoris (α Ursae Minoris), as the North Star or Pole Star, having therefore a prominent role in the sky. This happens because, today, Polaris is very close to the north celestial pole, making it the current northern pole star. Polaris is a multiple star, comprising the main star (Polaris Aa, a yellow supergiant) in orbit with a smaller companion (Polaris Ab); the pair orbits with Polaris B (discovered in 1780 by William Herschel) [5]. However, due to the axial precession of the Earth, about 500 BC, the Polaris was not the northern polar star. Then, he was not so important.
However, the position of the Ursa Major was remarkable.

Figure 3: The sky due South seen from Terni about 500 BC.

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We can use Stellarium again to see the sky due South, about 500 BC (Figure 3). The sky of the winter nights was really beautiful, full of bright stars. Among them we see Sirius and Aldebaran, the Orion constellation and, closer to the horizon, the Cross, with Alpha-Crucis (this constellation, that today is no more visible from our latitudes, was quite important in the past [6,7]). It is therefore possible a link of the place of Monte Torre Maggiore to an "astronomical" observation of the sky too, to observe the sky due South.
To see how the horizon is about Monte Torre Maggiore, we can use Google Earth. For instance, in the Figure 4, we have the horizon due North and South. We can also evidence the elevation profile, as given in the Figure 5.

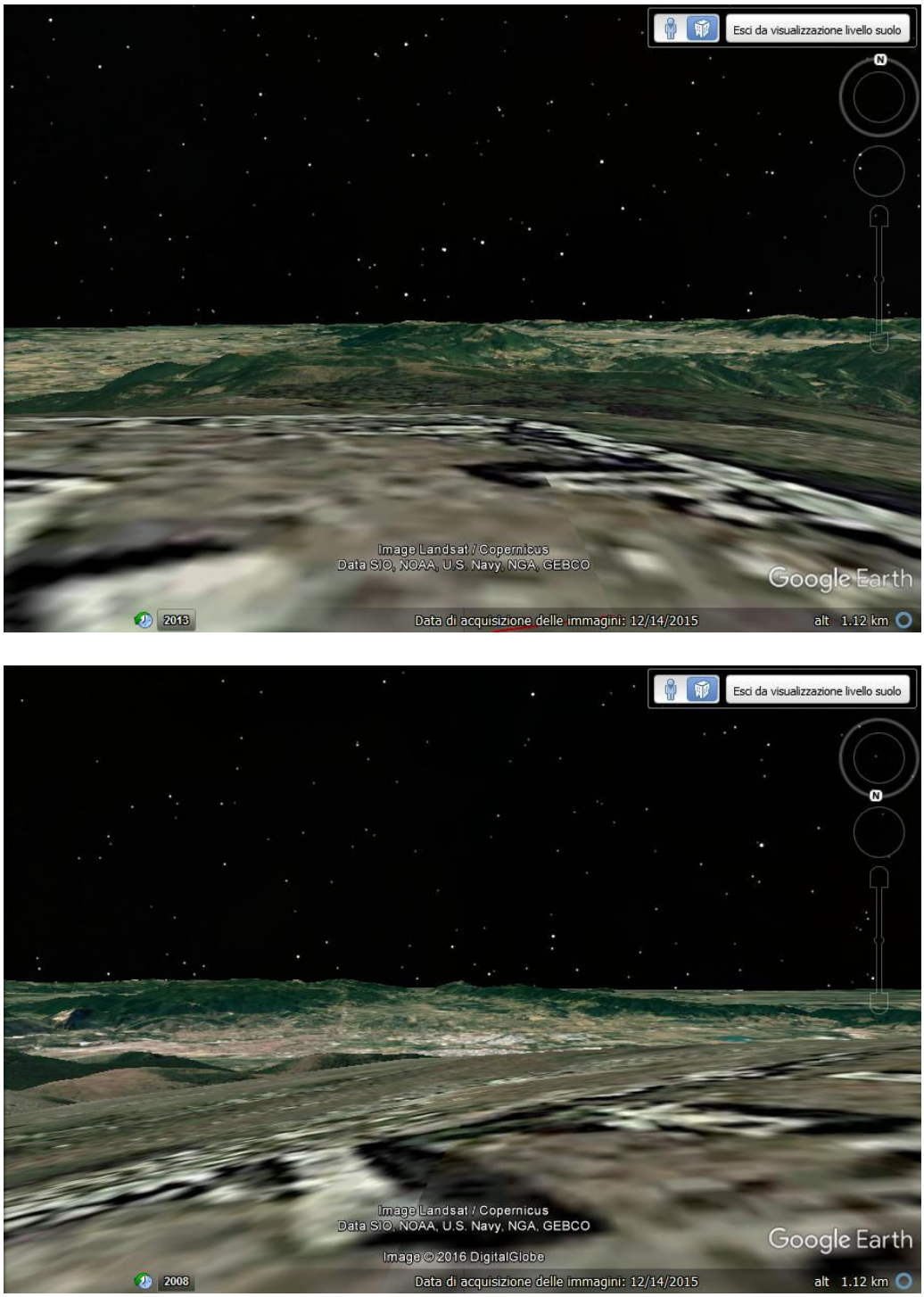

Figure 4: The horizon about Monte Torre Maggiore, due North and due South (Courtesy: Google Earth).

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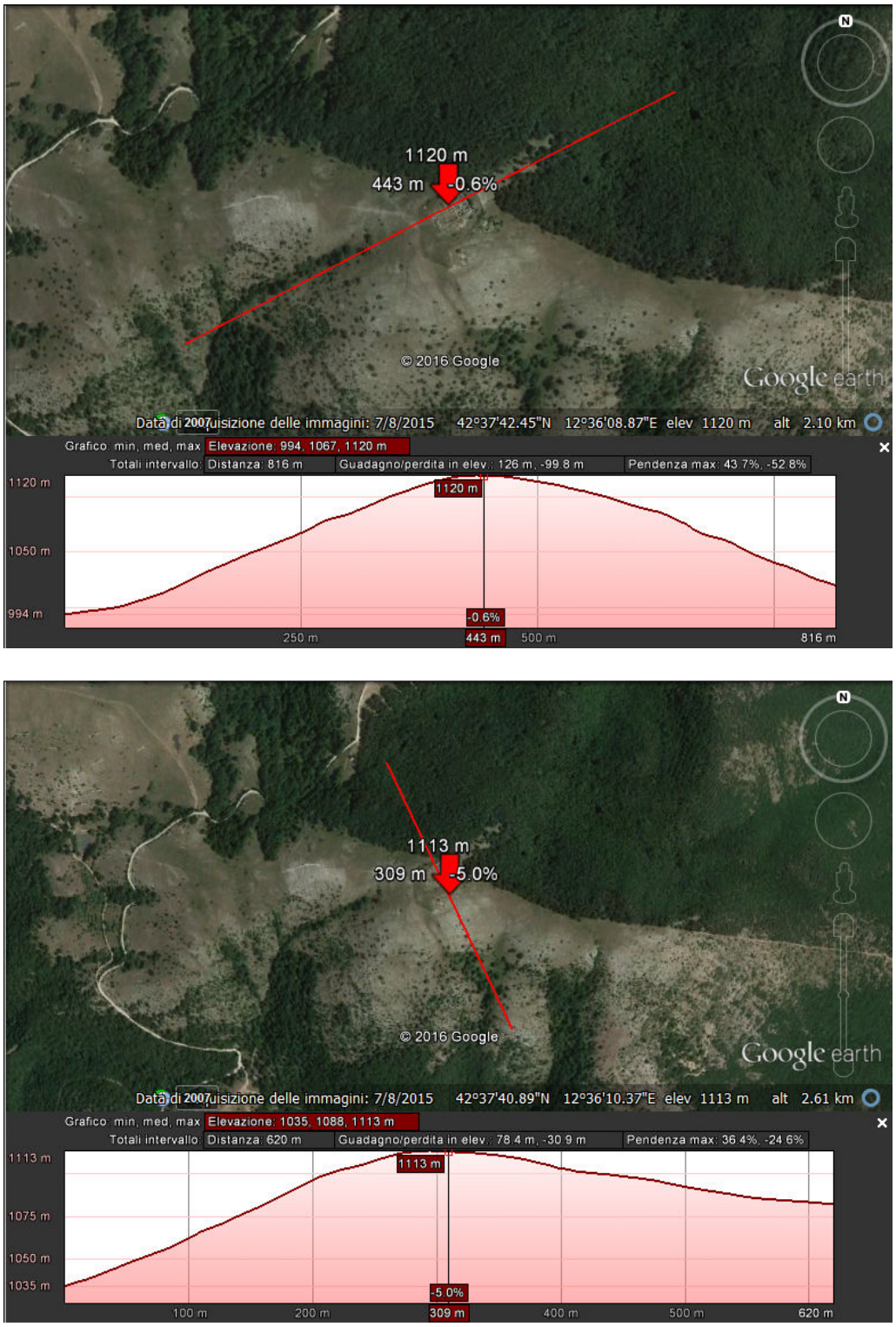

Figure 5: Elevation profile shown by Google Earth.

When the Romans occupied the site, they built the temples, the remains of which we see today. The Romans, following the Etruscan Discipline, used to orient the planning of castra and towns according to the sky [8-11]. In fact, the foundation of a new site, of any nature it was, started from a "templum", the representation on the ground of the sky. The templum was, according to [8,9], oriented along the sunrise direction. Therefore, we have several Roman sites having such solar orientation. However, the sites have different orientations, because different are the directions of the sunrise during the year (some of the Roman towns are oriented to sunrise on solstices [12-15]; it

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is necessary to stress that sunrise and sunset are not substantially influenced by the precession of the Earth [16]). The site of Monte Torre Maggiore had probably a solar orientation too. As we can see from the simulation obtained by means of the Photographer's Ephemeris, the southern side of the smaller temple has a solar orientation along the sunrise on the summer solstice (Figure 6). Therefore, the larger temple could have been oriented to the sunrise on a day of the end of July or of the beginning of May. However, there is another possibility, related to the Moon.

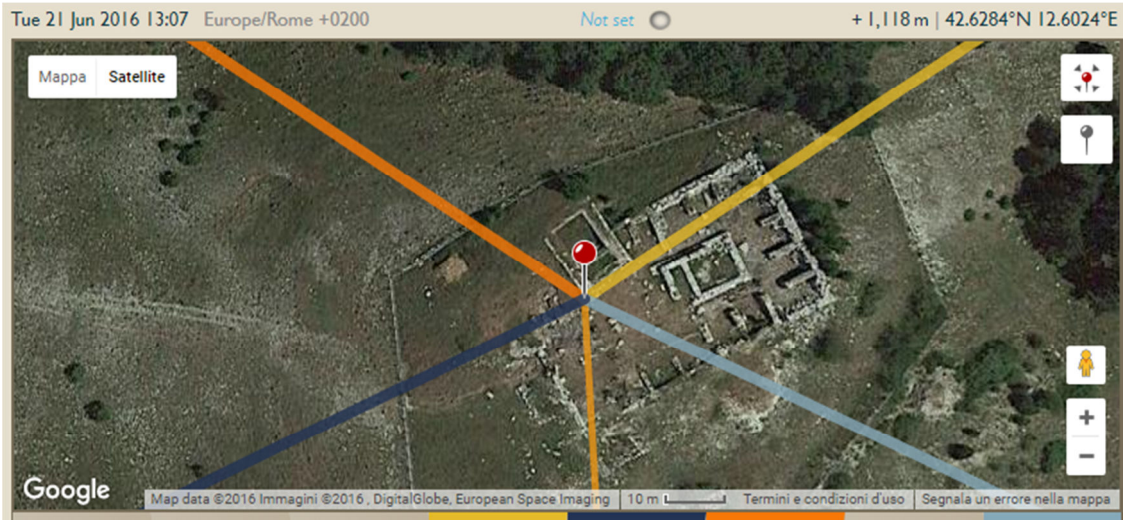

Figure 6: The yellow and orange lines are the sunrise and sunset on the summer solstice at Monte Torre Maggiore (Courtesy: Photographer's Ephemeris). The blue lines correspond to the moonrise and moonset.

It is necessary to remark a fact that could be relevant for the site that we are discussing. The original Roman calendar is believed to have been a lunar calendar, which may have been based on one of the Greek lunar calendars. After, according to Livy, a new calendar was introduced, the Numa's calendar, that was lunisolar with lunar months and several intercalary months spread over nineteen years so that the Sun returned in the twentieth year to the same position it had in the first year. (Livy, History of Rome 1.19) [17]. The Moon was therefore important, and in fact, many Roman sites exist which are linked to the moonrise and moonset on lunar standstills, as we have shown in several papers (see for instance [18] and references therein). Then, let us use again the Photographer's Ephemeris, for the site of Monte Torre Maggiore.

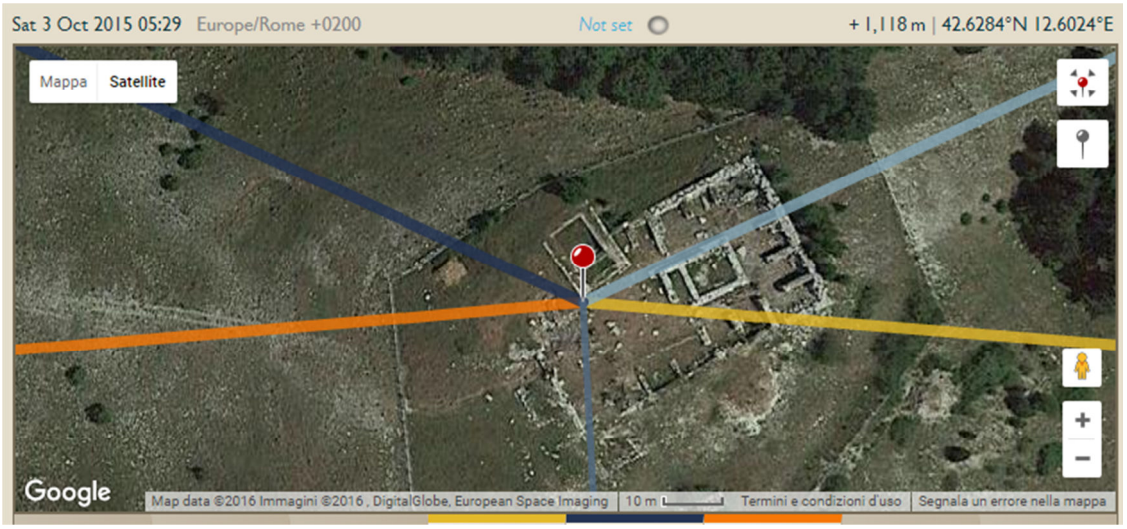

Figure 7: The moonrise (pale blue line) on a minor lunar standstill. The yellow and orange lines are the sunrise and sunset.

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In the Figure 7 we see that the major temple was oriented along the moonrise on a minor lunar standstill [19]. Then it seems that the Romans had linked the site to the Moon and the Sun, besides being it a worship place of the sky. It was probably made for showing how they were able of controlling the time, though their lunisolar calendar.

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[19] The moon has an apparent behavior, which is more complex than that of the sun. We have that the sunrise direction oscillates between the two solstitial positions during a year, whereas the moon does the same during a nodal period (about 27 days). Moreover, the moon has a period – the lunar standstill period (18.613 years) – on which the values of the extremal directions (standstills) are changing. In this manner there are major and minor standstills. More at Wikipedia, https://en.wikipedia.org/wiki/Lunar_standstill

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