

*State of conservation:* The temple of Dandara, along with the temple of Horus in Edfu, is the best preserved of all ancient Egyptian temples. The decorations on the walls, including the astronomical texts and calendars, are well preserved, and all survive in situ apart from the circular Zodiac (which is excellently preserved in Paris) and some of the divine images which were looted in the Christian and early Islamic periods. The celestial diagram on the ceiling of the hypostyle hall, including the second Zodiac, has been recently restored to recreate its original livid colours.

*Context and environment:* The Dandara complex is located close to the River Nile in its western flood plain. Little remains of the other temples or the village that would have surrounded the sacred enclosure in ancient times.

*Archaeological/historical/heritage research:* The Institut Français d'Archéologie Orientale (IFAO) has been conducting excavations, restoration, and documentation work at Dandara for several decades. The astronomical context of Dandara is relatively well understood, unlike other similar Egyptian temples.

*Main threats or potential threats to the site:* The temples on site are well protected and the structure of the buildings is robust; hence there are no immediate direct threats to the site. However, while the temple and surrounding park are currently located within agricultural fields, the expanding city of Qena and its network of roads and streets are slowly approaching the area of the temple. The local landscape may change dramatically in the next few years and this question will need specific attention.

*Management:* There is little activity at the site apart from the restoration teams (when present) and the site seems to have had no special management plan up until now.

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## Case Study 8.4: The pyramids of Giza and related buildings, Egypt

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### Presentation and analysis of the site

*Geographical position:* The pyramids of Giza are located on a limestone plateau by the edge of irrigated lands at the apex of the delta of the River Nile, in the province of Giza, Egypt.

*Location:* Latitude 29° 58' 40" N, longitude 31° 8' 5" E. Elevation 60m above mean sea level.

*General description:* The Giza plateau is a necropolis containing the tombs of several kings and queens of the fourth Dynasty and their families. It was also considered a sacred site and a sanctuary, and cult practices were performed there for dozens of generations, especially in the Sphinx area and in the temple of Isis, Lady of the Pyramids.

*Inventory of the remains:* The World Heritage Site comprises the large pyramids of three kings of the fourth Dynasty; their related valley temples, upper temples, and causeways; the Sphinx and its temples; and the necropolis of the royal family and the nobles laid out to a Hippodamian (grid) plan. These tombs include texts with festival lists.

*History of the site:* The plateau of Giza was selected by Khufu (Keops in ancient sources) (c. 2550 BC), second pharaoh of the fourth Dynasty, as his resting place. His burial enclosure included a large pyramid, a large family necropolis and possibly the Sphinx. This part of the

necropolis was completed by his son Khafre, who added several monuments and completed the second pyramid. Menkaure, Khafre's son, constructed the third pyramid and associated monuments at a later date. The entire period of construction lasted for some 80 years. The last major monumental construction on the Giza plateau was the step pyramid of Queen Khentkaus, forebear of the kings of the fifth Dynasty.

*Cultural and symbolic dimension:* The three main Giza pyramids are orientated to the cardinal directions with extraordinary precision. For such huge monuments, this could only have been achieved by astronomical observation, possibly of 'imperishable stars' such as Meskhetyu (Ursa Major) revolving around the north celestial pole. The design of the pyramid of Khufu also includes a series of symbolic alignments in the ventilation channels emanating from two chambers in the interior of the pyramid. As a consequence of the general cardinal grid of the necropolis, the Sphinx, a personification of the god Horus at the horizon (at least from the New Kingdom onwards), faces the equinoctial rising sun. The general pattern of the necropolis also encapsulates a series of additional topographic and astronomical alignments that create a cosmic landscape, reflecting ancient Egyptian world-view.

*Authenticity and integrity:* Excavated during the 19th and 20th centuries, the monuments have not been extensively reconstructed and the site is remarkably pristine considering that it is 4500 years old. However, on-site conservation work is essential, and this sometimes brings surprises, such as the recent discovery of Khufu's satellite pyramid.

*Generalities:* The academic literature concerning the pyramids of Giza is very large, but there is also a huge 'fringe' literature and non-specialists do not always find it easy to distinguish between the two.

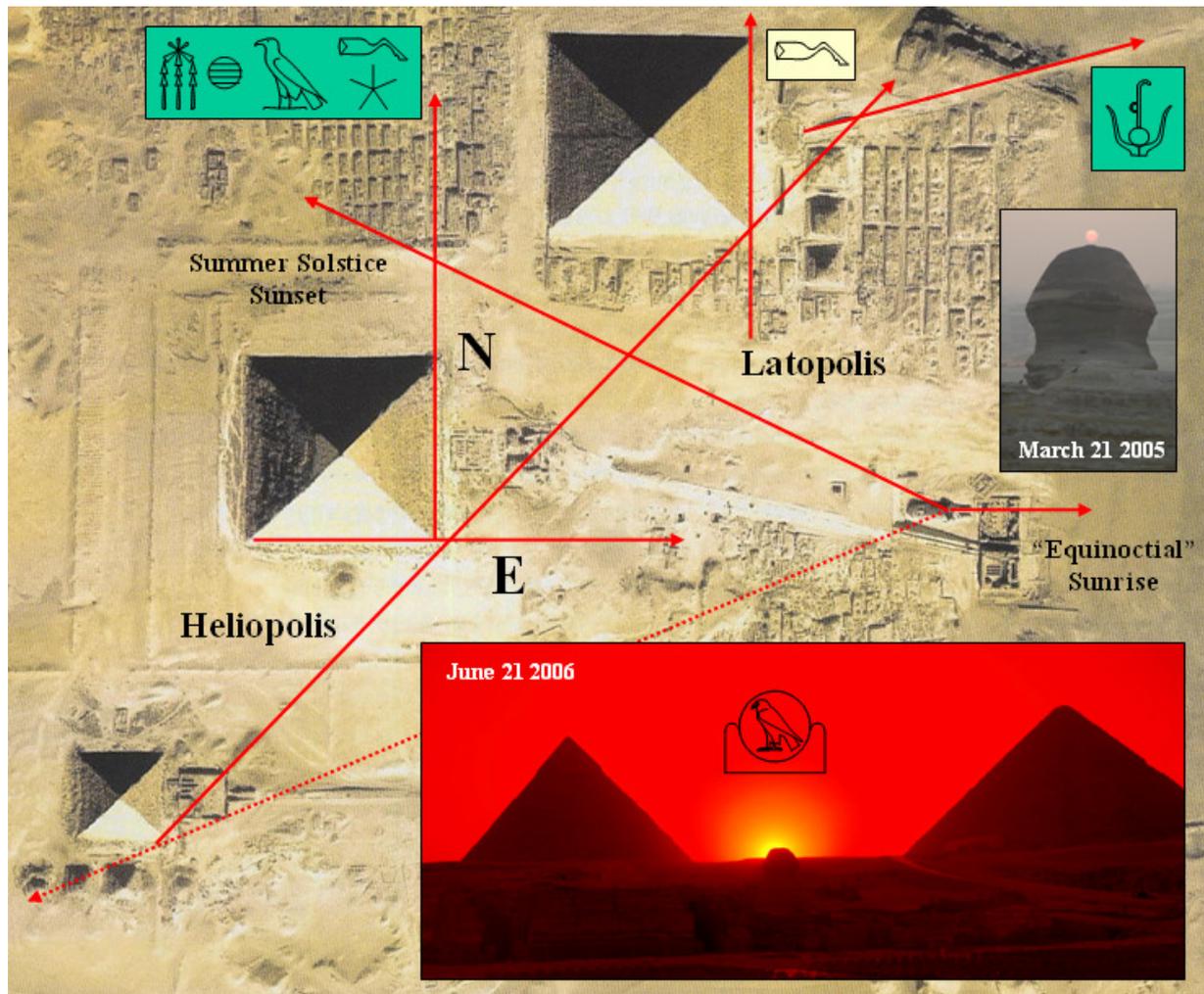
## **Present site management**

*Present use:* The Giza pyramids represent one of the most important tourist attractions in the world. As the only surviving example of the Seven Wonders of antiquity, million of people visit the site every year. It has been recognised on the World Heritage List since 1979, under criteria (i), (iii) and (vi), as part of 'Memphis and its Necropolis—the Pyramid Fields from Giza to Dahshur' (World Heritage Site no. 86). The presence of such a huge number of visitors and a range of tourist pursuits alters the former perception of authenticity and creates persistent management problems. The SCA, and the Egyptian authorities in general, are making efforts to restore the site to a more pristine ambience.

*Protection:* The SCA own and administer the site in the name of the Egyptian government. Tourist police have a strong presence for security reasons. As a consequence of Giza being inscribed on the World Heritage List, the Egyptian government give it the highest protection level. The buffer zone is the desert itself and the whole precinct is now fenced to protect the site from the rapid expansion of Cairo urban area which has already reached the foot of the plateau on the eastern and northern sides.

*State of conservation:* Considering the age of the Giza monuments, they are well preserved. The SCA continually monitor their state of conservation as a specific action of the management plan for a World Heritage Site. A long spell of restoration work at the Sphinx has now been completed, with excellent results. Excavations are under way in the area of the worker's village and its related cemetery.

*Context and environment:* The Giza necropolis forms part of the huge necropolis of Memphis, the capital of Egypt during the Old Kingdom. The field extends from Abu Rowash, the site of the pyramid of King Djedefre, eldest son of Khufu, to Meidum, where Khufu's father Snefru built one of his pyramids. Several dozen pyramids and their related monuments were built in



**Fig. 8.4.1.** Schematic diagram showing various astronomical and topographic relationships between the different monuments erected in the Giza Plateau, in particular the Sphinx and the pyramids, and certain elements of the celestial and terrestrial 'geography'. Graphic © Juan Belmonte

the desert plateaux overlooking the cultivated land on the west bank of the Nile Valley. The pyramids of the third and fourth Dynasties are mute. However, the architecturally unimpressive pyramids of the sixth and late fifth Dynasties contain, among the decorations in their burial chambers, the astronomically related Pyramid Texts.

*Archaeological/historical/heritage research:* The site continues to provide an extremely productive focus for archaeological research. New discoveries are often presented to the public and published in selective journals. However, several questions, including the precise date of the monuments, remain a matter of debate. Many issues relating to astronomy remain hotly debated. Heritage research on site is mandatory as the Giza monuments and necropolis form part of an existing World Heritage Site.

*Main threats or potential threats to the site:* The main immediate threat to the site is the millions of visitors that it sustains every year. Some protective measures have been taken: for example, the burial chambers of the kings are closed on a rotating basis in order better to preserve them from the effects of excess humidity. The largest potential threat to the site is the expansion of the metropolitan area of Cairo, which now encloses the Giza Plateau on the eastern, northern and western sides.

*Management:* The Giza pyramids are managed by the SCA in the context of the global management plan for World Heritage Site no. 86. However, the interpretation of the site could be improved.