

Product solution for: Archeological Site Looting



A valuable tool to monitor archeological site looting

A recent Virginia Commonwealth University survey of nearly 15,000 field archaeologists confirmed that looting at archaeological sites is a worldwide problem. The survey found that looting occurred in 87% of the 118 countries included in the study. With enforcement agency resources tightening and an increase in global unrest nearly all respondents reported an experience with looting in their field studies.

Archaeological sites are threatened

Across the globe, archaeological sites are threatened by urbanization, deforestation, neglect, and looting. Among the archaeological community, it is commonly postulated that the looting of art and antiquities is the world's third largest contributor to insurgency and criminal activity. Currently, there are no globally accepted methods to detect, monitor and track site looting patterns.

Creating a repeatable methodology

As part of a pilot project to create a repeatable methodology to monitor site looting, Dr. Sarah Parcak, Associate Professor of Anthropology at the University of Alabama at Birmingham, deployed satellite imagery along with GIS analysis at the Egyptian pyramid fields of el Lisht and el Hibeh, two significant archaeological sites south of Cairo.

“Looting is a very sophisticated crime conducted in large part by professional criminals that know exactly what they are looking for,” Dr. Parcak explains. “I was convinced that satellite imagery is an ideal tool to track looting patterns, given that looting is commonly characterized by the digging of many small shallow pits that high-resolution imagery could easily identify, track, and monitor over time.”

A cost-effective approach

High-resolution imagery helps differentiate between soil, vegetation and moisture variances, indicating the presence of mud brick and other features of archaeological sites. Dr. Parcak theorized that satellite data could be useful in identifying and tracking looting on a global scale.

Company information

Dr. Sarah Parcak, a pioneer in the new field of satellite archaeology, serves as the founding director of the Laboratory for Global Observation at the University of Alabama at Birmingham, where she is an Associate Professor in the Department of Anthropology. She is also the CEO of SpectralGlobe technologies, a company which specializes in using remote sensing technologies to provide innovative landscape solutions.



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2010



2012 (LOOTING HOLES IN THE GROUND)

“Satellite imagery, with its ability to capture data over time, and the availability of archived imagery for historical comparison, clearly gives us a best-practices approach to monitor site looting around the world. Looking ahead, with the help of the worldwide archaeological community reporting their looting incidents through crowdsourcing sites, for example, we will have the ability to turn this skyrocketing problem around.”

DR. SARAH PARCAK, CEO, SPECTRALGLOBE TECHNOLOGIES

DigitalGlobe image archive critical

Shortly after the Egyptian revolution of 2011 and the ensuing unrest, news of increased looting incidents at archaeological sites across the country began to emerge. With funding from National Geographic, Dr. Parcak acquired imagery of the el Lisht and el Hibeh sites captured in 2009 and 2010, and a second group of images captured in the months following the revolution. The images were enhanced, processed and imported into ArcGIS to draw polygons around each identified looting pit.

“WorldView-2 imagery allowed us to quantify the total area of looting and examine patterns of looting over time,” Dr. Parcak says. “Unfortunately we found a 400 to 500% increase since the events of 2011.”

A global solution

Given the success of the project in Egypt, Dr. Parcak hopes to create a process and methodology that can be replicated at sites across the globe.

Challenge

Create a cost-effective, repeatable methodology to detect, track and prevent the looting of archaeological sites around the world, an occurrence that is growing exponentially.

Solution

High-resolution satellite imagery was obtained from two archaeological sites in Egypt over several years before and after the Egyptian revolution, to track the effects the uprising had on looting patterns.

Results

The imagery quantified the areas of looting while further analysis revealed patterns of looting over time. The result was a repeatable methodology that can be replicated at sites across the globe.

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