Spying on the Ancient World: Archaeological Applications of Declassified US Intelligence Satellite Photography in the Near East

Introduction: Space-Based Archaeology

The primary goals of archaeological research are to document variations in the material remains of past societies, to reconstruct their social, political, and economic structures, and to understand how and why they evolved through time. Excavation, the most recognized archaeological data collection method, is an intensive process which recovers a large but spatially restricted amount of data, and is therefore suitable for investigating small scale social phenomena. Some important aspects of ancient society, however, are understandable only on a regional scale; for example, the evolution of settlement patterns, human-environmental interactions, and land use. For research addressing these issues, a correspondingly more spatially extensive method is necessary. Archaeologically informative patterns at the regional scale are extremely difficult to perceive from a ground based perspective. Thus, archaeologists have relied on a combination of fieldwalking and remote sensing, to reconstruct ancient landscapes. In many parts of the world, newly independent nationalist states have not made aerial photographs available to foreign researchers. This situation has been especially true of many modern Middle Eastern states. For such “denied” regions, the availability of newly declassified American intelligence imagery has been productive (Fowler 2004). This poster uses four case studies from three regions of the Middle East to illustrate how these images can be used to reconstruct past settlement and land use (Fig. 1).

The CORONA Mission and its Declassification

CORONA was the United States' first intelligence satellite program, which was originally designed to give American military planners an estimate of Soviet nuclear missile capabilities (Fig. 2). In thirteen years of operation (1959-1972), it produced over 800,000 images which covered 557 million square miles, the equivalent of the entire land surface of the earth almost ten times over (Fig. 3; Day, Logsdon, and Latsis 1998; McDonald 1997). During its existence, the program used an evolving set of cameras. The earliest (KH-1) produced photographs with a ground resolution of 40 ft. The last two cameras, used on KH-4A and KH-4B programs, had a highest resolution of 9 ft and 6 ft, respectively. Because the CORONA satellites carried film cameras, rather than digital sensors as is the current standard, the film had to be physically returned to earth via parachutes, where it was collected out of the air by military planes. The photographs from the CORONA program were declassified by executive order on 23 February 1995 and can now be previewed and ordered via the United States Geological Survey (USGS) website at http://earthexplorer.usgs.gov.