Early Human-Environment Interactions in the Maya Lowlands, Archaeological and Paleoenvironmental explorations at Dos Aguadas and Holmul, Peten, Guatemala

Summary report

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Monumental 'mask' sculpture, Late Preclassic period (80-20 BCE),Structure 1-1st, Dos Aguadas, Peten, Guatemala
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2012 SEASON REPORT

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Introduction

The 2012 field season of the Holmul Archaeological Project investigated the ancient Maya sites of Holmul and Dos Aguadas in northeastern Peten, Guatemala to elucidate important changes that took place in the southern Maya Lowlands at two specific junctures. Specifically:

1) The beginning of ceremonial architecture with E-Group plazas in the Middle Preclassic period (800 BCE) and subsequently with temple-pyramids in the Late Preclassic period 350 BCE.

2) the yet unexplained abandonment of many ceremonial centers in two separate transitions: the end of the Preclassic period (200-400 CE) and the end of the Classic period (900 CE)

The field work began on March 18 and ended on June 2, followed by laboratory analysis in the project lab house (Casa K'an) in Antigua Guatemala during the months of June and July. Approximately 90 people participated in the project, including Guatemalan students and professionals, foreign volunteers (from US and France), and hired laborers, drivers and cooks (aprox. 70) from the nearby town of Melchor de Mencos, Peten. Initially, the base of operations was the Holmul camp. In May, a second camp was set up at Dos Aguadas to help cut the cost of a long daily commute through a difficult road.

The target area, centered on the ancient sites of Cival and Holmul, is located between Tikal, to the west, and Belize to the east, in one of the least studied parts of Peten (Figures 1-2). This is an area in which some of the earliest evidence of cultural complexity in the lowlands has been found. The results of the 2012 season, summarized below, significantly advance our understanding of the beginning of Maya civilization, and leave behind tangible resources to develop the local eco-tourism industry to benefit economically local communities.

Dos Aguadas is a medium-size ceremonial center located on the escarpment that encloses the Holmul river basin on three sides, south, west and north. To the west, it borders the large Bajo de Santa Fe wetland, whose drainage originates near Tikal (Figure 2).

Holmul is a large city atop a ridge surrounded by wetlands in the center of a basin of the Holmul river (Figure 2).

The ceremonial center is composed by three major ceremonial complexes, Groups I, II, and III .
Group II has been the focus of the 2012 season because in this location the earliest architecture and ceramics in the lowlands had been found during previous campaigns. (see 2000-2009 reports at http://www.bu.edu/holmul/reports)

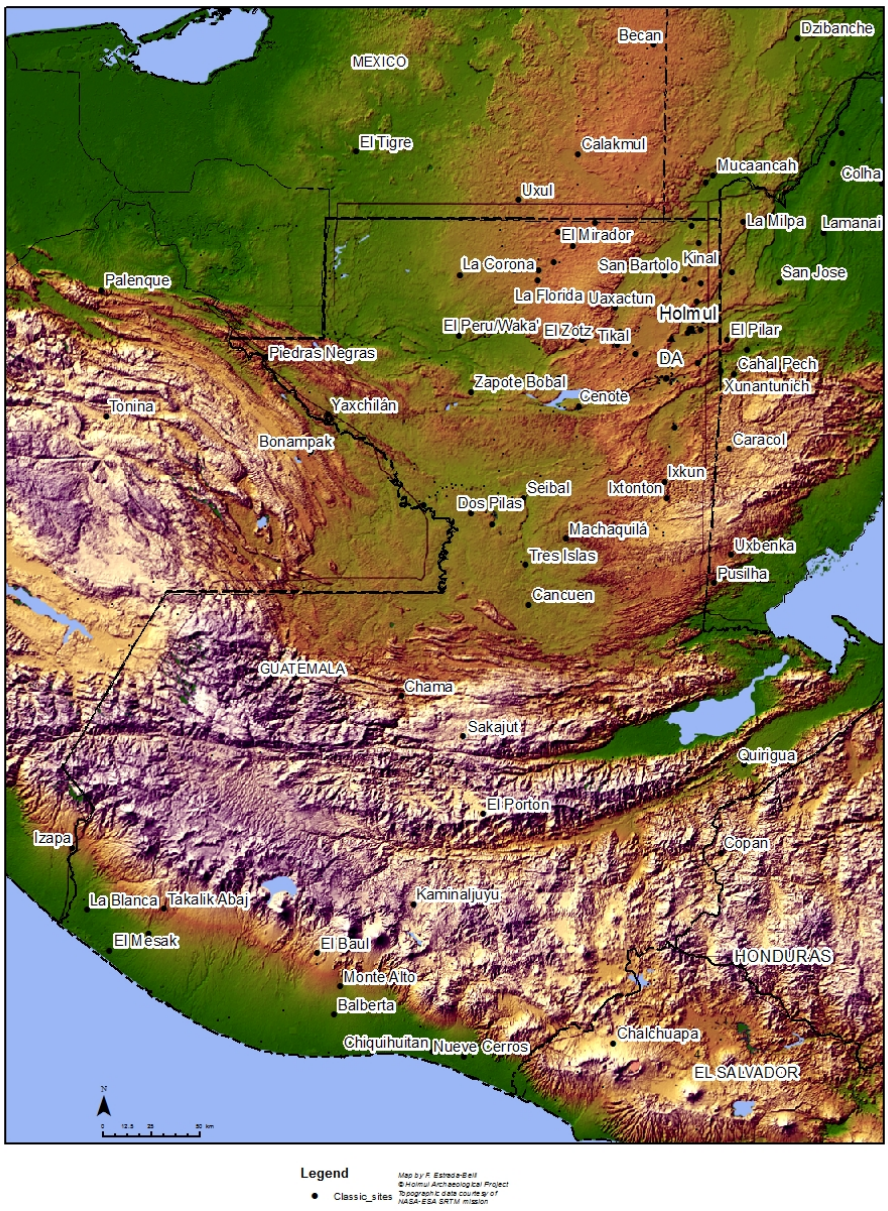

Figure 1. Map of Guatemala showing location of Holmul and surrounding sites.

Dos Aguadas

Excavations at the center of Dos Aguadas were complemented by a study of human-environment dynamics during the site's occupation (ca. 400 BC to AD 1000). Mapping of residential units was carried out by crews guided by handheld GPS and enhanced LANDSAT imagery (Figures 2, 9-11). More than 200 house-groups of different sizes and configurations were mapped along a 7 km stretch of upland around the site of Dos Aguadas. Most of these date to the Late Preclassic period, which is the period of major occupation at Dos Aguadas center. Three major house groups located several kilometers from Dos Aguadas, probably represent elite palaces of the rural zone. This feature suggests de-centralized organization of rural residences in cantons or wards around elite groups. It was previously associated with Classic period suburban organization and only since this project's work at Cival (in 2008) and now at Dos Aguadas has it been confirmed as a feature of Preclassic settlement.

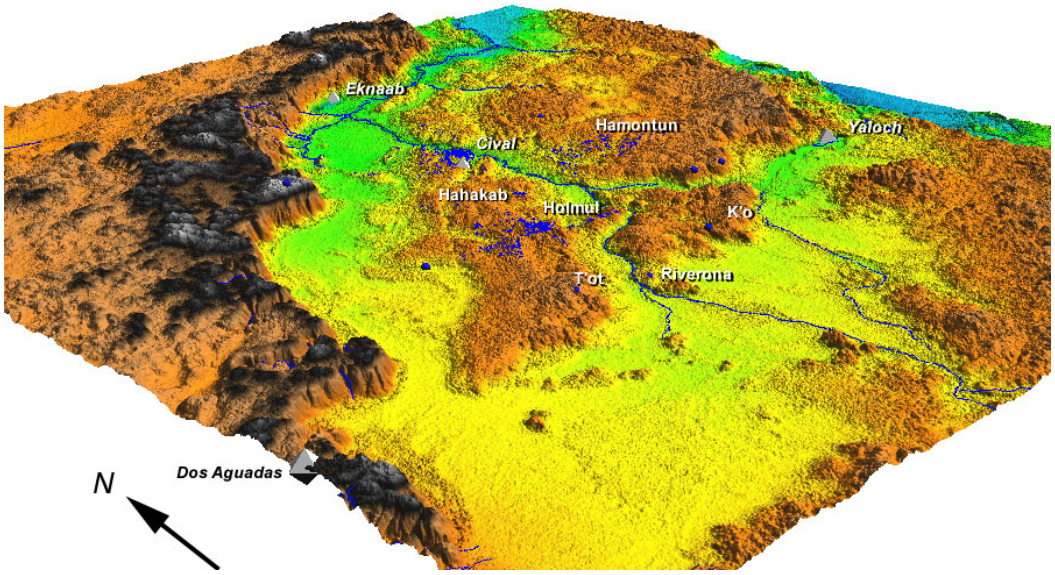

Figure2. Relief map showing location of Dos Aguadas, Holmul, Cival and other Holmul region sites. Scale varies in this perspective. Holmul-Dos Aguadas distance is 13 km.

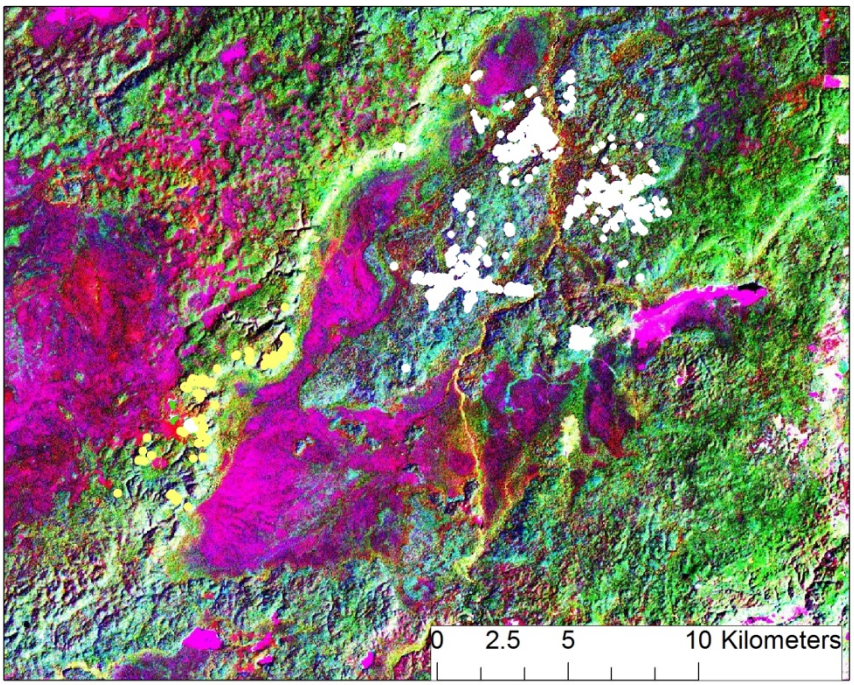

Figure 3. Enhanced LANDSAT image (2001, bands 742) showing wetlands in magenta, high forest in green to blue, previously mapped settlement in white (Holmul, Cival, Hamontun zones), and Dos Aguadas settlement zones mapped in 2012 in yellow.

Figure 4. Sediment collection at center of Aguada Chaka'. Dr. David Wahl (left) and Dr. Lysanna Anderson (right), USGS.

Lake sediments were collected at Aguada Chaka' (adjacent to the Dos Aguadas plaza) by David Wahl and Lysanna Anderson (USGS Menlo Park, CA) (Figure 4). The analysis of these samples now underway will document the timing and rate of deforestation, climatic change and any other environmental disturbances during the period of human occupation, particularly the periods leading up to the Preclassic and Classic periods site abandonment (ca. AD 150 and AD 1000 respectively). These data will clarify questions of climate change and human impact on the environment raised by recent research in this region and elsewhere in the Lowlands (see 2011 National Science Foundation report online at http://bu.edu/holmul/reports/).

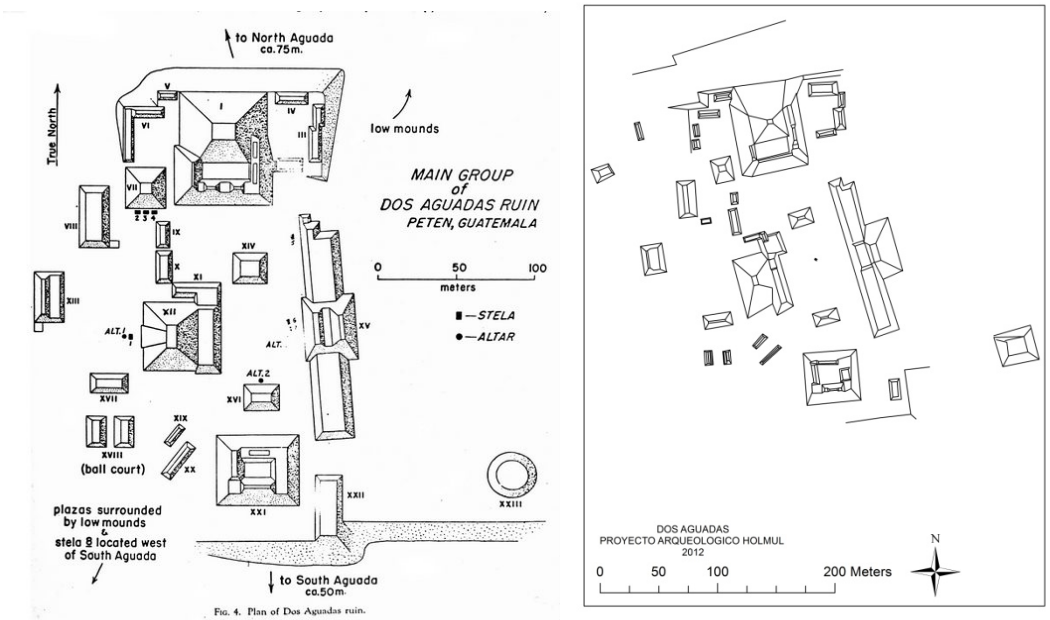

Figure 5. Maps of Dos Aguadas. Left: Bullard (1960), Right: Holmul Project 2012

The Dos Aguadas monumental center features an E Group-type plaza, with a western pyramid and long eastern structure (Building XV, Figure 5). Its main axis (centerline) is oriented to the sunrise on the day of the sun's zenith (May 10/Aug. 3). An orientation previously associated with both the ritual tzolkin and haab calendars and also indirectly related to Long Count cycles (Estrada-Belli 2011). Excavations showed that this plaza (and by extension the site) were first laid out in the Late Preclassic period and share many similarities with the region's largest Preclassic center, Cival. The E-Group structure was renovated at least three times before undergoing a major reorganization in the Classic period (Figure 6). At that time, an offering of polychrome plates containing the remains of an infant was placed in its stairway (Figure 7). Teotihuacan-style masonry panels along the facade also obliterated earlier masks/religious imagery (Figures 8).

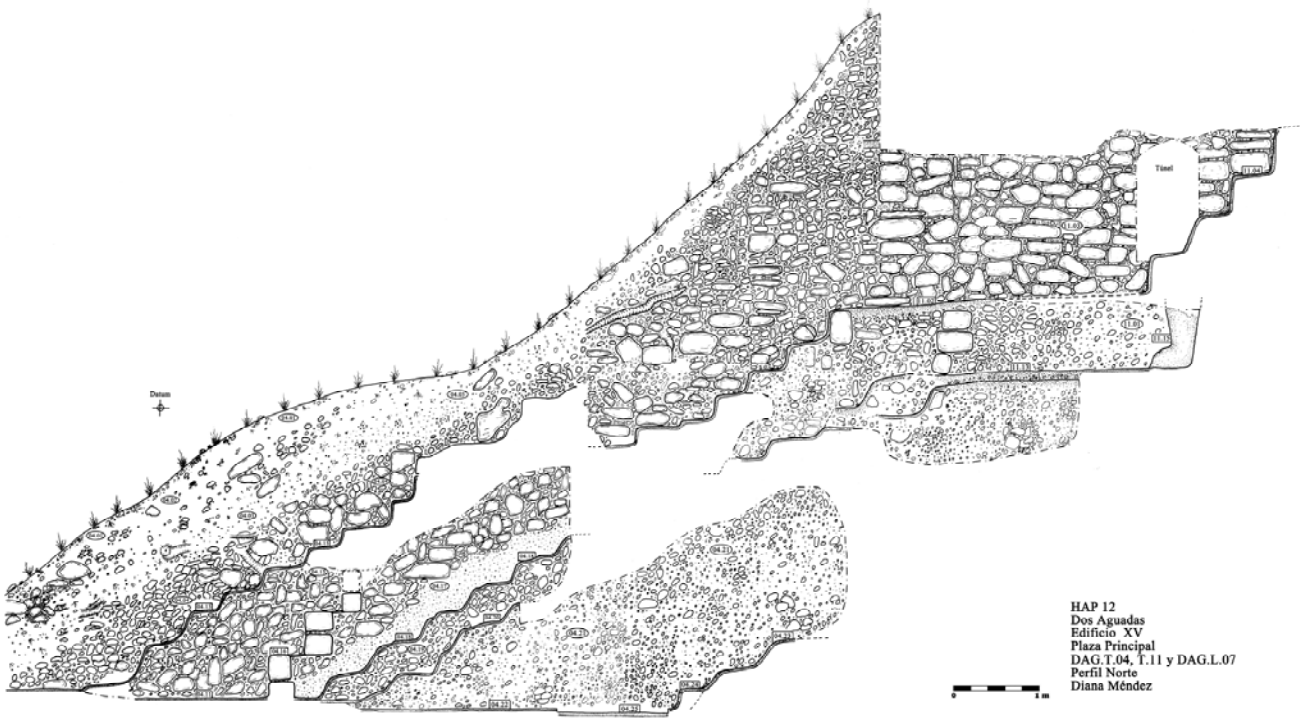

Figure 6. Profile of excavated central section of Building XV in the E-Group plaza, Dos Aguadas.

Figure 7. Offering of two Dos Arroyos polychrome basal flange bowls containing the remains of a child, Building XV centerline. Early Classic (ca. AD 300-400)

Figure 8. Sloping recessed trablero (panel) wall damaged by looters and covering earlier, now lost, mask sculpture on the north side of Building XV Late Preclassic façade.

In the Late Classic period (ca. AD 700), a palace was built atop the eastern structure of the E-Group (Building XV) changing the function of the complex from purely ritual to residential/administrative (Figure 9). In the Terminal Classic period (ca. AD 800), as the site became mostly abandoned, an elite bench in the innermost room of this building was ritually re-cast and used as a "fire shrine". Within it, were piles of broken and heavily burned plates, bowls and jars mixed with bones of children and of miscellaneous fauna. This type of ritual activity is consistent with rejuvenation rituals in time of crisis, as documented elsewhere at lowland sites (Hammond and Bobo, 1994). A superficial offering was also found in connection with a plain stela monument to the west of the E-Group plaza containing 15 chert eccentrics and polychrome plates. Five other monument fragments were found set in the topsoil of the main plazas. The erection of plain and sometimes incomplete stone monuments at Dos Aguadas is consistent with post-abandonment rejuvenation rituals.

Figure 9. Interior of Building XV Late Classic rooms and shrine (background).

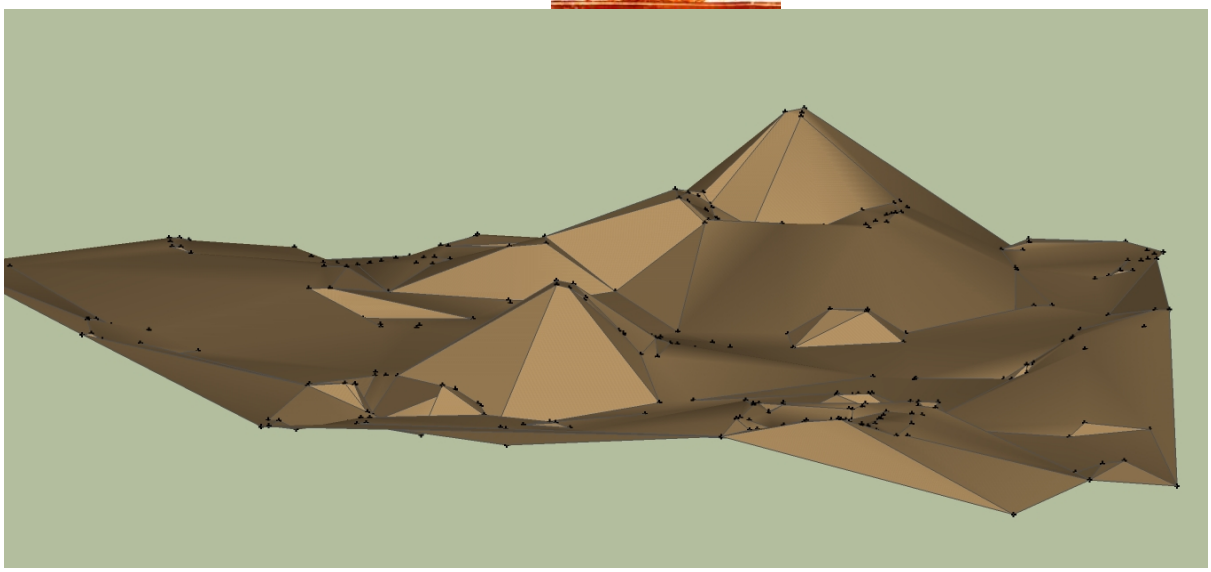

Figure 10. Virtual view of Dos Aguadas buildings from the south. Structure 1 is visible in the background.

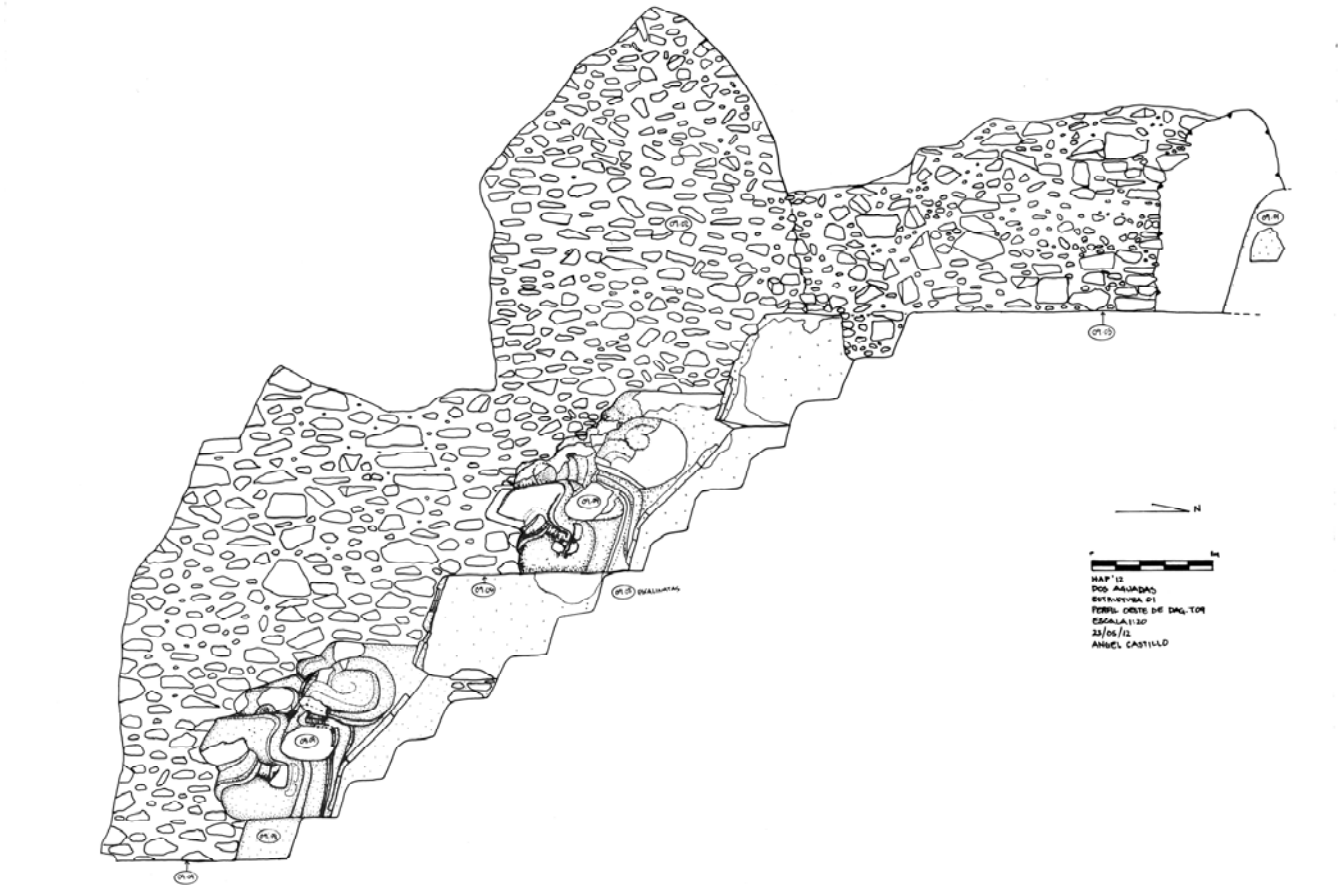

Figure 11. East profile drawing of investigated section of Structure 1, phase 1 (80-20 BC)

Dos Aguadas tallest structure, Pyramid 1, was investigated by rescuing architectural information from a

massive looters' trench (Figures 10-11). This feature bisected at least five construction stages within its core. Associated with the earliest version of the pyramid were two large high-relief mask sculptures. They depict a zoomorphic head representing an early version of the Rain God Chak. (Figures 12-13). Identifying attributes include scrolls and droplet motifs above eyes and nose as well as shell-shaped ears and "skyband" motifs above the heads. No examples of Chak 'masks' had been found previously on the façade of Preclassic pyramids. This discovery provides crucial information to the meanings associated with early Maya pyramid buildings and with the kind of rituals performed upon them. In this case, the main pyramid was likely associated with rain rituals whereas the E-Group plaza was most likely used for calendar rituals (solar and agricultural cycles). Two charcoal samples extracted from the plaster lining the sculpture returned C-14 dates ranging between 175 and 20 BCE. The most likely estimated age of construction of the monument is 80-20 BC[1].

Figure 12. Monumental mask of rain deity (Chak) adorning first phase of Structure 1 (Dos Aguadas). Most likely date: 80-20 BC. Photo: Jesus Lopez

[1] Sample DAG.T.09.04.13.01a (Beta 338042) C^{14} age: 2040 +/- 30 BP, 1-sigma ranges: Cal BC 90 to 80, Cal BC 50 to 30, Cal BC 30 to 20, Cal BC 10 Cal AD 0; 2-sigma ranges (95%): Cal BC 160 to 130, Cal BC 110 to Cal AD 20.
Sample DA.T.09.04.13.01b (USGS, WW9275) C^{14} age 2090 +/- 25 BP, 2 sigma ranges: Cal BC 175-40.

Figure 13. Rendering of excavated masks adorning upper and lower terraces of north side of central stairway. Structure 1, Dos Aguadas. Artwork: Steve Radzi

Holmul

An additional goal of the 2012 season was to investigate the onset of pyramid architecture and monumental sculpture in the Late Preclassic period (350 BC—AD 200) by exploring the specific areas of Group II at Holmul. Previously, the lowlands' earliest examples of pyramid architecture had been found within the core of three of the five mounds in this group (Building B, N and F, Figure 30). Reconstructing the complete layout and iconography of the early buildings can provide a rare opportunity to understand such an early complex's function and meaning. The excavations in Group II at Holmul were successful in documenting the following:

1) the original layout of the complex was a Triadic Group featuring Preclassic temples-pyramids under Buildings A and C. Under the mound of the Late Classic period version of Building A, a well-preserved temple pyramid was located facing west. (Figure 14)
2) a single interment of an elite individual with a single vessel as offering but elaborate jade inlays and other dental decorations, were laid under the stairway of Building A-1st around AD 600 (Figure 15)
3) an Early Classic period (ca. AD 500-600) dedicatory cache of a vessel depicting the Jester God, symbol of royal power, nine obsidian eccentrics and other ritual objects (a jade emblem and stingray spines), were placed under the stairway to Building A-1st . (Figures 16-17)
4) a tomb containing the remains of an adult individual with 28 vessels and a wooden mask as funerary offerings, were laid in Building A-1st around AD 600. This individual exhibited elaborate dental jade inlays and filing (Figure 27). This interment can be interpreted as that of a ruler of Holmul who lived approximately during the sixth century of our era. Questions remain regarding his identity and the function of this structure prior to his burial, particularly during the Preclassic period. (Figures 18-27)

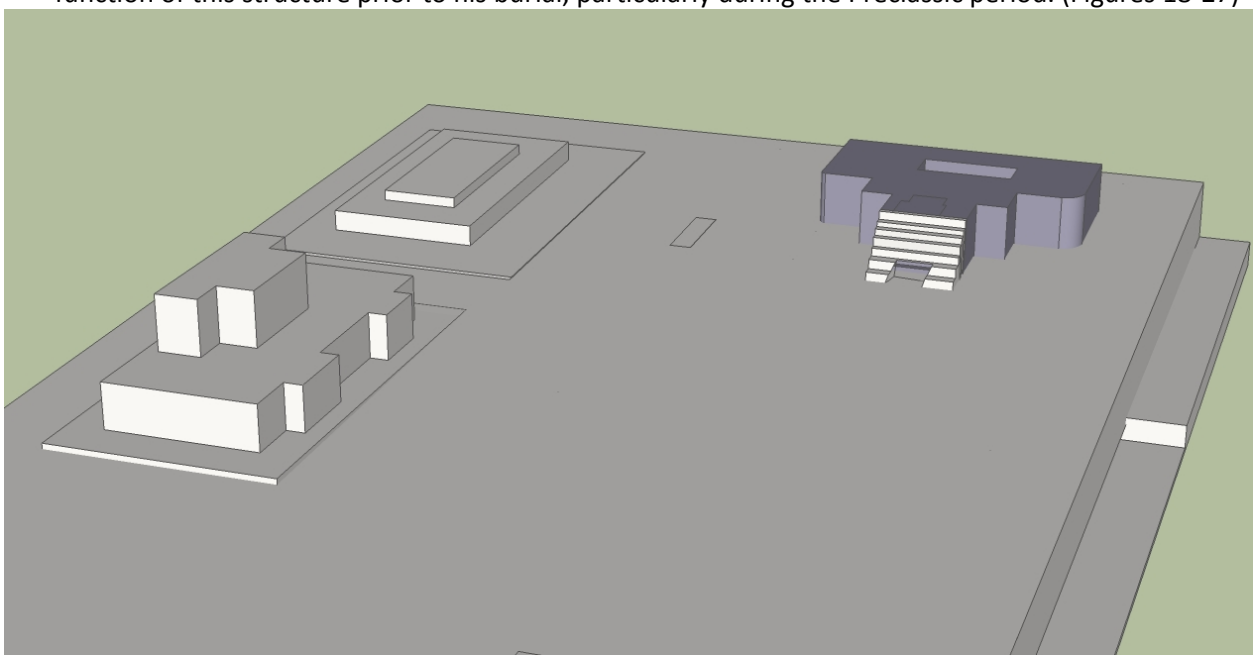

Figure 14. Rendering of Group II platform at Holmul with Building A –first on right. Buildings F and B are on the left. The stairway of Building A was added ca. AD 300-500.

Figure 15. Burial under stairway of Building A-1st. Ca. AD 600.

Figure 16. Early Classic Orange cache vessels from Building A-1st depicting “Jester god” symbol of royal authority. Photo by Jesus Lopez

Figure 17. View of contents of cache vessel, including 9 obsidian eccentrics. Photo by Jesus Lopez

Figure 18. Two of 9 obsidian eccentrics from Building A-1st dedicatory cache (Early Classic). Length ca. 12 cm. Photo by Jesus Lopez

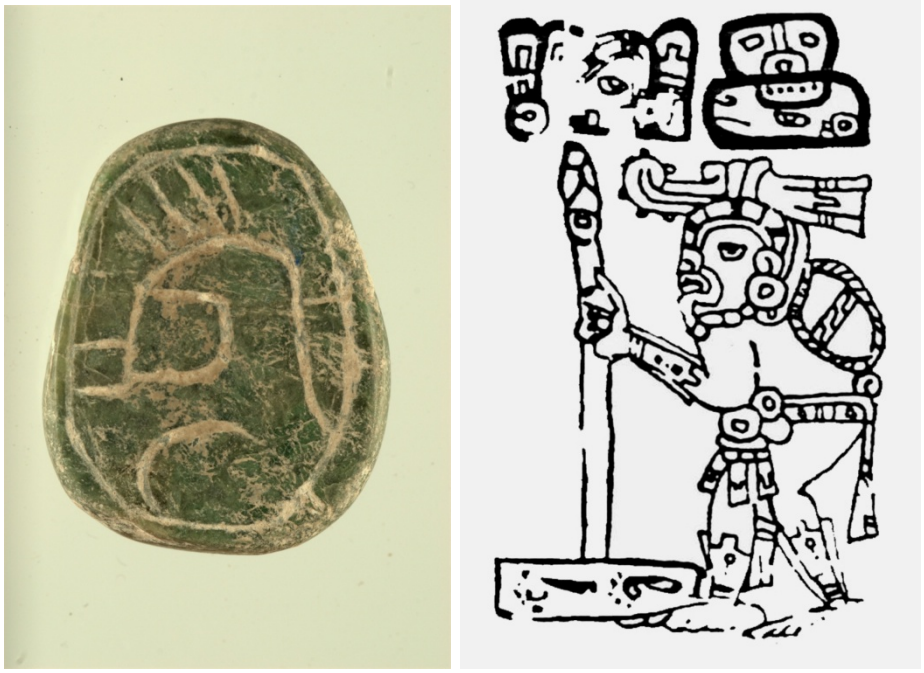

Figure 19. Small incised jade jewel depicting God C symbol from Building A (Early Classic). Photo by Jesus Lopez. cache and full-figure image of God C from Madrid codex (Late Postclassic).

Figure 20. View of interior of burial in Building A-1st as it was first opened.

Figure 21. View of interred body and burial offerings, including 28 vessels, 1 spondylus shell and a perisheable mask with jade earflares. Ca. AD 600. Photo by Jesus Lopez.

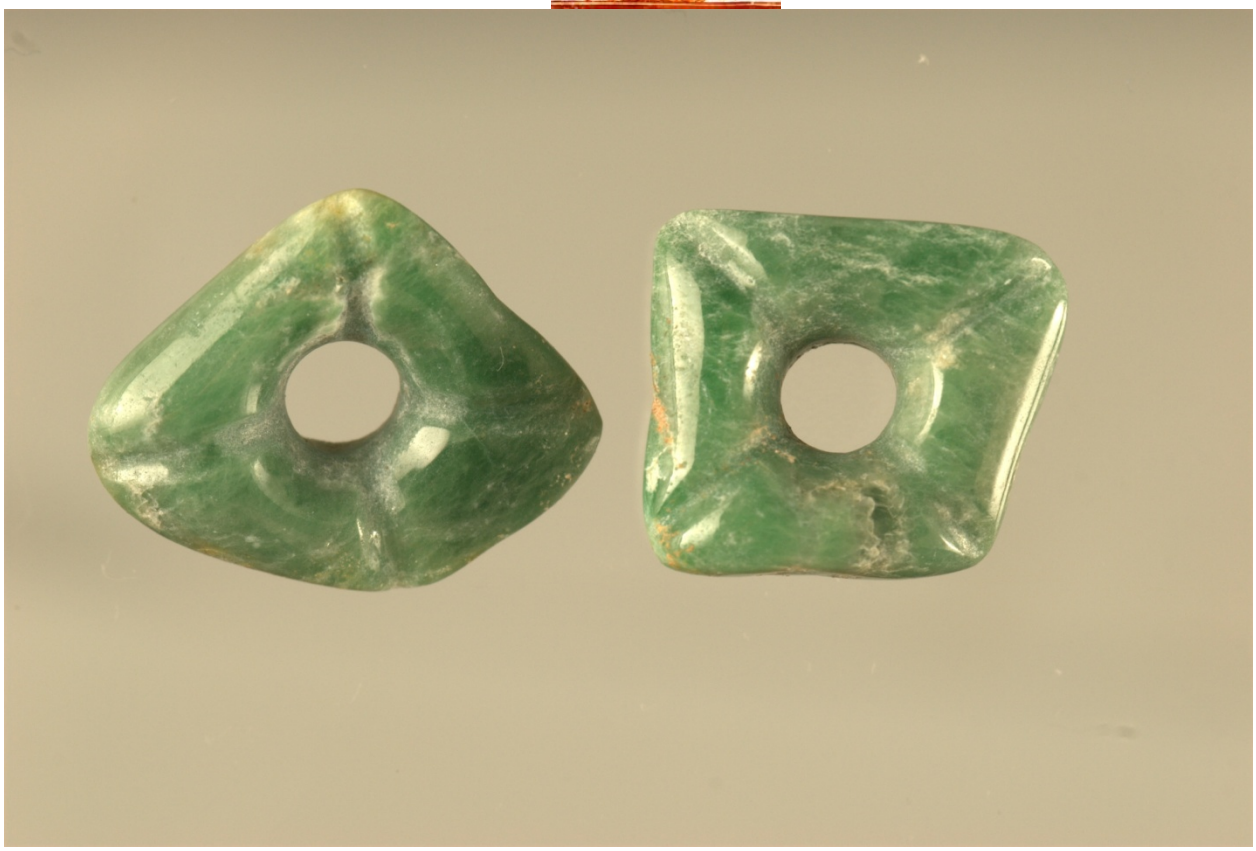

Figure 22. Miniature jade earflares from perishable mask found on the chest of the interred in Building A-1st. Photo by Jesus Lopez

Figure 23. One of nine polychrome bowls decorated by artist 1 with waterlily motif. Photo by Jesus Lopez

Figure 24. One of nine polychrome bowls decorated by artista 2 with waterlily motif. Photo by Jesus Lopez

Figure25. Two of nine bowls from set n. 3 of vessel offerings in Building A-1st burial. Photo by Jesus Lopez

Figure 26. Polychrome spouted tripop plate depicting the aged god of the underworld (God N) emerging from shell under waterlily. Photo by Jesus Lopez

Figure 27. Two inlaid teeth from Building A-1st burial. Photo by Jesus Lopez

On the opposite side of Group II, the excavation of Building C unearthed an east facing temple-pyramid, similar

in appearance and contemporary to the other four earliest buildings in the complex (Buildings A, B, N and F), also dating to the Late Preclassic period. While much of the temple building remains unexcavated, a painted block was found among the rubble of its stairway depicting two facing individuals and suggesting that the building was once elaborately decorated by mural paintings (Figures 28-29).

Figure 28. View of northeastern corner on stairway of Building C-1st.

Figure 29. Painted profiles of two facing individuals on a stone block found in the fill of Building C-1st, probably originally part of a masonry building standing atop the pyramidal platform.

Excavations have been planned for 2013 (Figure 30) to complete the information on the iconographic meaning of this Preclassic complex by exploring Buildings C and A futher. This information will provide rare glimpses of the worldview and ritual activities associated with the earlier public buildings in the Maya Lowlands at a time in which many aspects of the civilization were being refined (the Late Preclassic period).

The 2012 season also saw the final stage of conservation of Building B, one of the earliest standing structures in the Maya Lowlands dating to ca. AD 150 . Having been left exposed to the elements for some 100 years since Raymond Merwin's of Harvard University excavation, it required consolidation of walls and roof to avoid collapse. The structure is now protected by a new thatch roof, its walls consolidated and its inner room's vault reconstructed to insure the integrity of the entire edifice.

Visitors will be able to observe the early style of stucco carving still decorating the outer walls of this open-air structure. At the same time, visitors can enter its inner core by way of a consolidated tunnel to observe the monumental mask of the pyramid's earliest version (the aged god). It is hoped that this building will continue to attract visitors at the site stimulating the local economy through sustainable tourism practices. Melchor de Mencos, the town nearest to Holmul, has 20,000 inhabitants and one of Guatemala's highest unemployement rates.

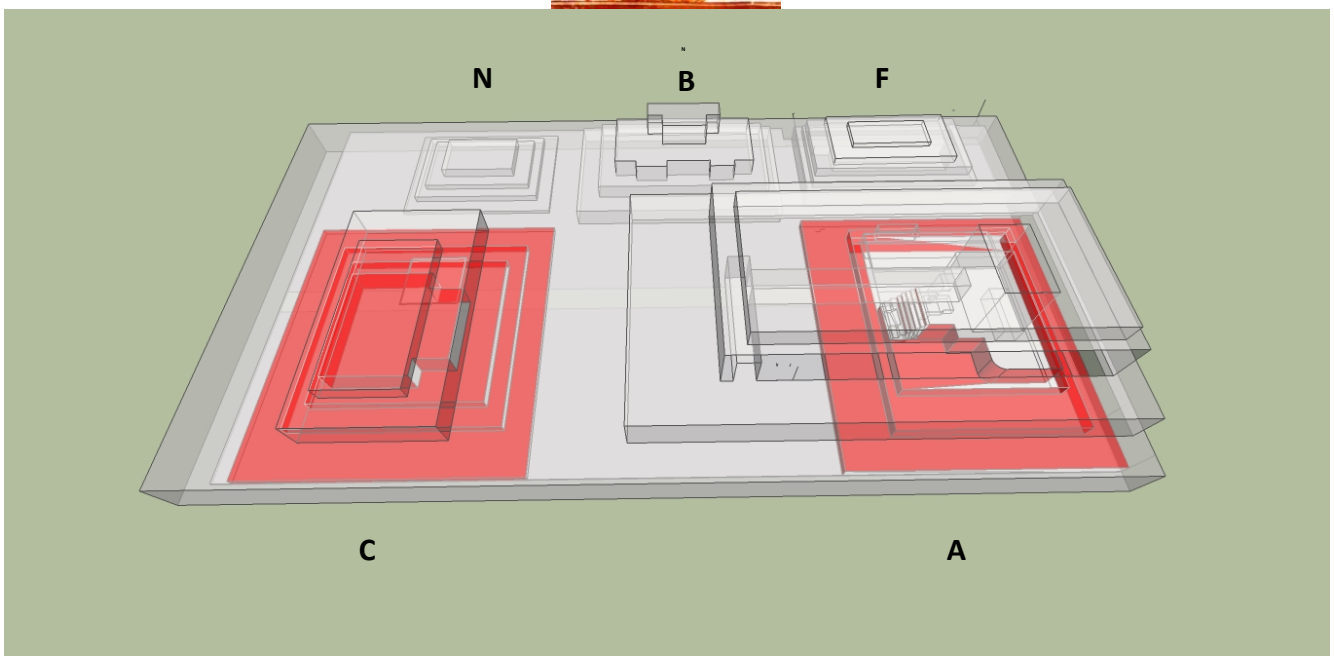

Figure 30. Rendering of Group II at Holmul showing underlying structures (in red) investigated in 2012.

Summary of findings:

The 2012 field season of the Holmul Archaeological project investigated two ancient Maya sites, Holmul and Dos Aguadas. Research questions focused on the function and meaning of early Maya pyramids and on human-environment dynamics at Maya sites. Analysis of environmental data from Lake Yaloch completed in 2010 shows marked deforestation by 3000 BP and stable low forest pollen level until 1000 BP, when the sites were abandoned. Those data also showed less fire activity during the Preclassic than during the Classic period. A pattern we attribute not to climate change but to changing agricultural practices (Estrada-Belli and Wahl 2010). These data do not support the hypothesis that increased population and construction activity, particularly construction of monumental buildings (i.e. the conspicuous consumption of resources) caused higher levels of deforestation or related significant environmental disturbances. A new sediment core collected at Dos Aguadas will provide data from a separate settlement zone to corroborate the patterns observed in the Yaloch sample.

Archaeological excavations at Dos Aguadas uncovered the first known representation of the rain deity (Chak) on a Preclassic pyramid. This find adds a significant new element to reject the previous theory that Preclassic pyramids were simply sacred mountains or other mythological 'places', suggesting instead that they were 1) man-made representations of deities, or 2) inhabited by deities themselves, or both. These hypotheses would better account for the lack of burials of any kind within large pyramids in the early period (Late Preclassic 300 BC AD 150). The new Chak portraits also add a new element to the pantheon of deities associated with Preclassic Maya pyramidal structures, with the Sun god and the Sun God of the Underworld being the other two deities previously securely identified on pyramid facades.

Preliminary data from excavations in Group II at Holmul documented the earliest Triadic complex layout so far documented in the region (ca. 350 BC). Sculptures and painted art associated with these structures show that pyramids in a complex may have been dedicated to different deities probably linked by cosmological themes. Remains of a mural depicting two life-size human figures were found in Building C-1st dating to ca. 350 BC suggesting that additional pieces of the mural that once decorated the buildings interior may lie within its rubble yet undetected. Additional mural fragments will add invaluable information about the function and

meaning of the edifice as well as of early Maya art as a whole.

The discovery of a Late Classic tomb and an early Classic offering in Building A raises many questions about the changes that took place in function and meaning within this complex in Maya society as a whole after the Preclassic period. Existing data suggest that the site of Holmul underwent major political and architectural re-organization linked to shifting alliances with Tikal and Naranjo kingdoms during the Early and Late Classic periods (Estrada-Belli 2011, Estrada-Belli et al. 2009,).

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