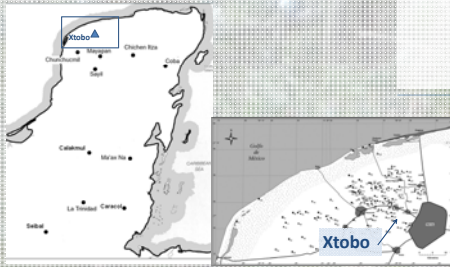




# Geochemical Soil Analysis of a Possible Preclassic Marketplace and Other Features at Xtobo, Yucatan, Mexico

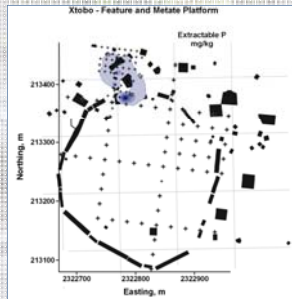
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## Preclassic Xtobo

The Preclassic (1000 BCE to CE 200) site of Xtobo was one of more than 140 archaeological sites recently cataloged by the Proyecto Costa Maya in northwest Yucatan. Xtobo is one of the largest sites located near the center of this cluster of early ruins. It is the largest Preclassic site in the region with a ballcourt.

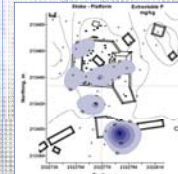
## Phosphate prospection for marketplace activities in the Circular Feature



## The Circular Feature

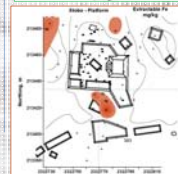
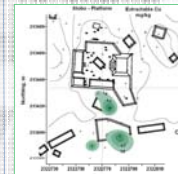
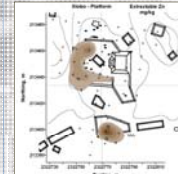
Low mounds were initially thought to be part of a raised causeway or sacbe, but complete mapping of the feature revealed its circular nature. It is completely atypical of Maya sacbeob. A single mound (Str. 304) was located within the 4-ha feature. In January 2008 surface samples were collected along cleared pathways 100 m apart. The sampling was too coarse to identify specific marketplace activities but high phosphorus concentrations in the soil at the north end suggests that a more detailed sampling of that portion of the feature should be considered.

## Geochemical analysis of ancient activities at the Metate Platform



## Ancient activities at Xtobo Platform 341

Raised platform 341 contains more than 30 large metates. Geochemical analyses of the soils and floors of the platform and surrounding area were conducted to determine the types of activities that may have occurred there. The background level of Mehlich extractable P was 5 mg/kg at Xtobo. Most of the platform samples were in excess of 20 mg/kg indicating that food preparation took place. P levels were also very high on structures 383 and 351. It is possible that food preparation, distribution and consumption associated with ritual feasting or that marketplace activities took place at the north end of the Circular Feature.



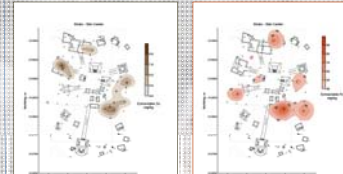
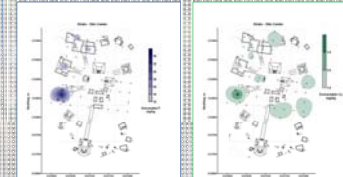
## Was the enigmatic circular feature at Xtobo an ancient Marketplace?

Maya Marketplace attributes include:

1. Location of the urban center at trade routes and artifactual evidence of trade.
2. Designated open space for a marketplace adjacent to transportation arteries
3. Proximity to public structures (e.g. palace, acropolis, ballcourt or sweatbath structures)
4. Specific areas of trade for different classes of goods and post holes or stone alignments to denote assignment of market spaces or kiosks
5. Regular patterns in the chemical concentrations of P and metallic ions aligned with pathways (low concentrations), areas of foodstuff distribution (high levels of P), and the marketing of workshop or craft materials (high levels of metal ions).

The Circular Feature at Xtobo meets attributes 1 through 3 above. Additional lines of evidence would be required if the marketplace hypothesis is to be supported.

## Geochemical analysis of ancient activities at the Xtobo Plaza



## Ancient activities at Xtobo Plaza

Five sacbes radiate from the central plaza to monumental architecture. The radial plan is quite unusual for the Preclassic period. Maya sites are generally aligned on a single axis. The three structures at the north of the plaza appear to be residential and the floors contain P at more than twice the background level. Structure 14 is the only pyramid located outside the plaza. High concentrations of P, Cu, Fe and other heavy metals suggest both that both feasting and use of mineral pigments were associated with ancient rituals at the pyramid.

## Metate Platform

## Circular feature

## Ballcourt

## The ruins of Xtobo

The reconstruction map of Xtobo includes: The Metate Platform (Str. 341) with more than 30 large grinding stones; The 4-hectare Circular Feature; and the plaza with its elite residences, pyramidal and triadic structures, and Ballcourt.