

Classic Maya Escape Patterns, El Salvador

Overview

Modern day El Salvador is rife with volcanic activity. Ancient times were no different, but the Maya inhabitants did not have the advance warning technology available to modern day citizens. The exploration of how the early Mesoamericans of the area realized and escaped the danger of volcanic fallout is important to the study of social cooperation and the effect of the transference of one population onto another.



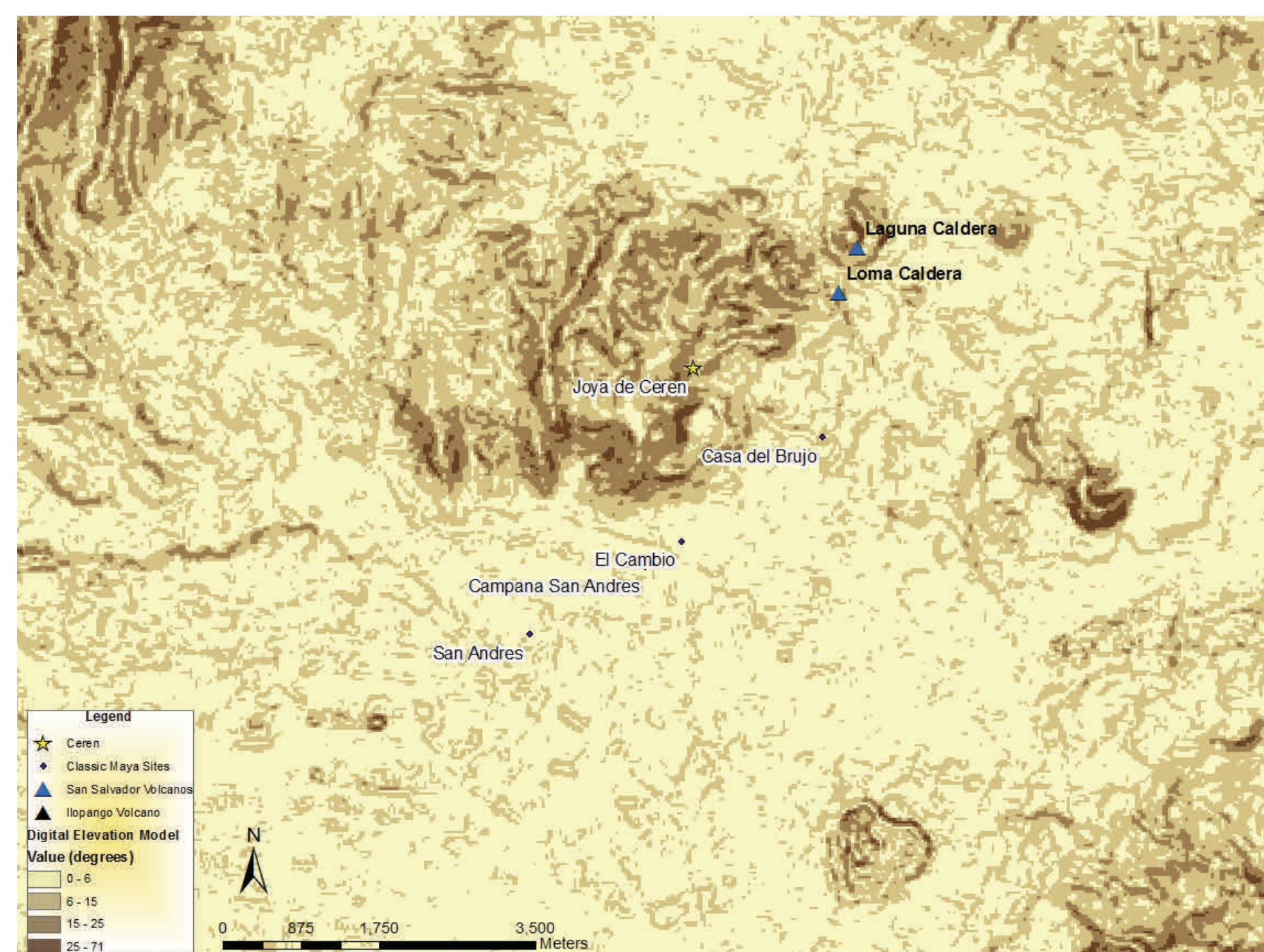
Joya de Cerén ruins. Image courtesy of UNESCO World Heritage

Determining Fallout Patterns and Assessing Relocation Possibilities

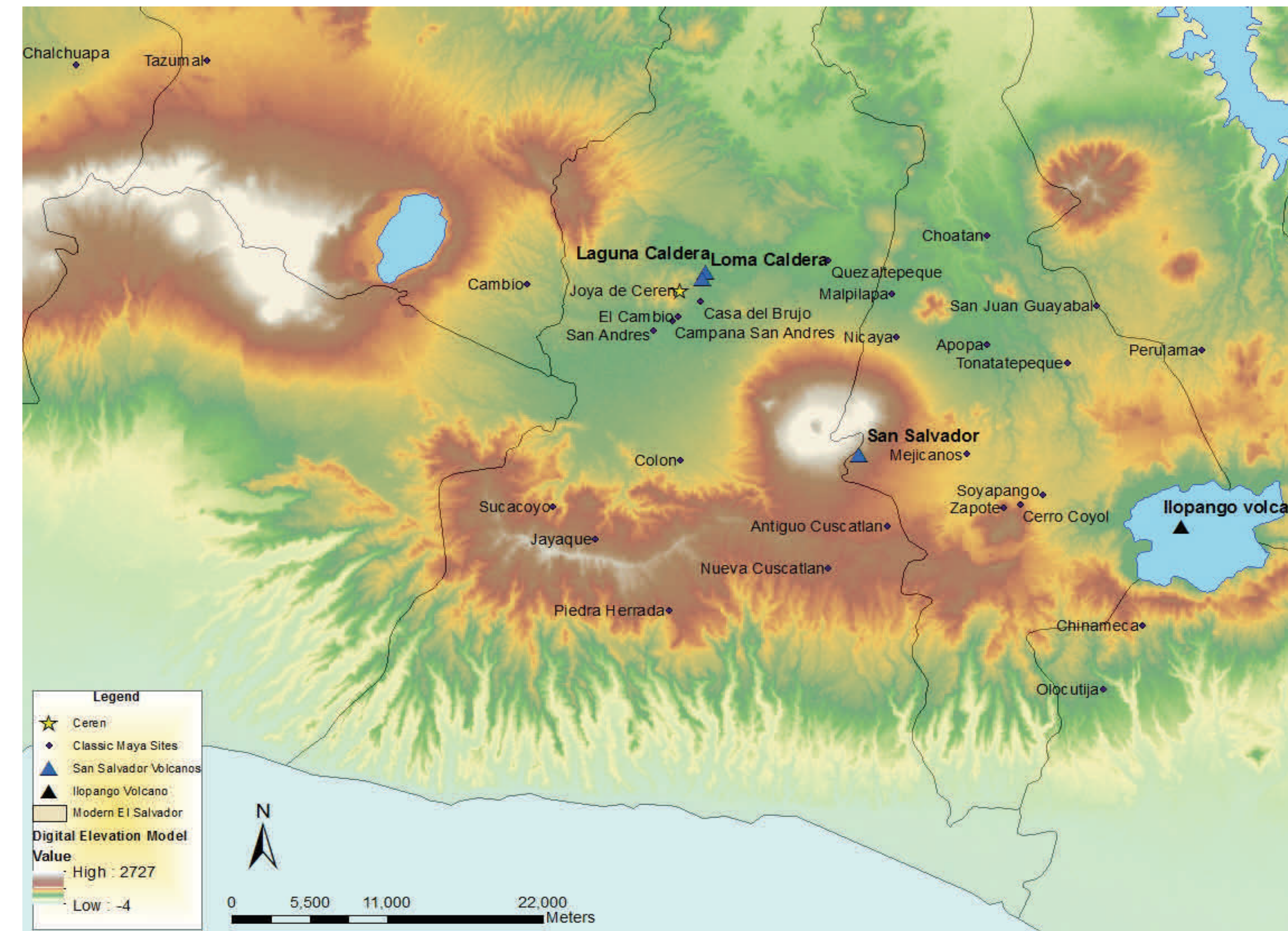
This analysis began by using a digital elevation model and displaying the inherent slope to show that Joya de Cerén is located in an area of high elevation. In order to have escaped the volcanic debris with as little notice as they had, the residents had to run south, away from the eruption which (according to the trend function displayed to the right) blew in a southerly direction, and down towards the lower elevations and more gradual slopes.

Using the image below, the path which would have taken the least amount of effort heads southeast towards Casa del Brujo and then southwest towards El Cambio and San Andres where the volcanic fallout was negligible.

The two options the fleeing residents had for resettlement locations were to assimilate into a pre-existing site or to create a new site on their own or in combination with other refugees.



Joya de Cerén Refugees



Cerén Background

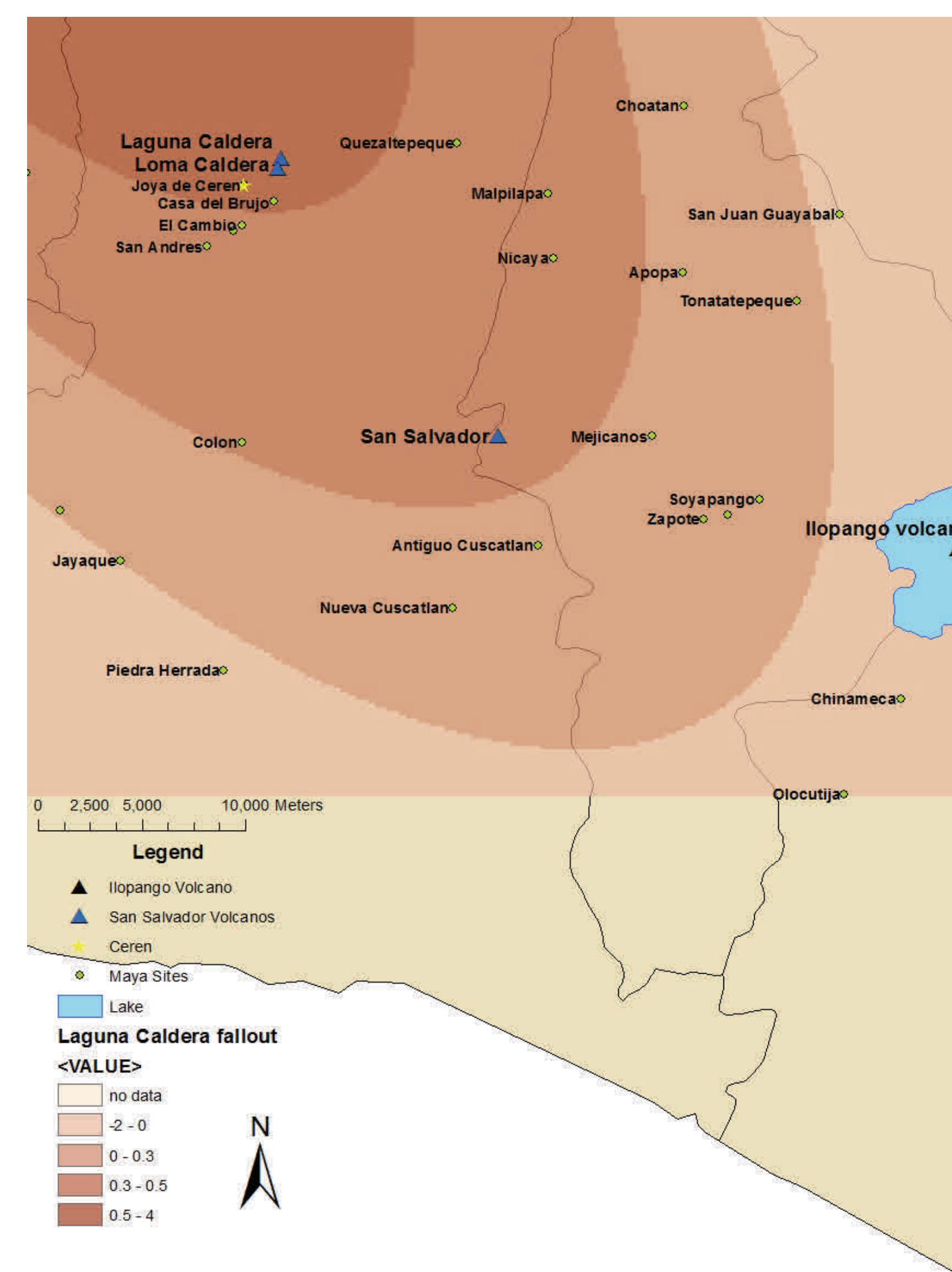
The Ilopango and Laguna Caldera or Loma Caldera (a debated point) volcanic eruptions buried the Classic Maya site of Joya de Cerén during the third (or early fifth) and the late fifth centuries AD, respectively. While the Ilopango eruption affected an enormous area (10,000 km² buried by more than 50 cm and 3,000 km² buried by more than one meter), the Loma or Laguna Caldera eruption covered only 20 km², a manageable distance to study.

This second eruption in around AD590 served to preserve Joya de Cerén in the accompanying ash and tephra layers exactly as the fleeing inhabitants had left it. In 1976, a bull-

dozer broke through the more than four meters of debris covering the site. Two years later, archaeologist Payson Sheets began excavations.

The excavation record includes the myriad objects found at the site, proof of ancient daily life activities including organic materials like food. Such information is irreplaceable in the study of Classic Maya and suggests the incredibly short amount of time the residents had to flee; however, no information has surfaced as to where the population of Cerén (as well as other contemporary populations driven out of their settlements by the eruption) went.

Laguna/Loma Caldera Fallout AD 600



Site	Laguna Tephra (m)	Ilopango Tephra (m)
Joya de Cerén	4	1
Casa del Brujo	.72	1
Campana San Andres	.1	1
San Andres	.1	1
El Cambio	.2	1

Implications

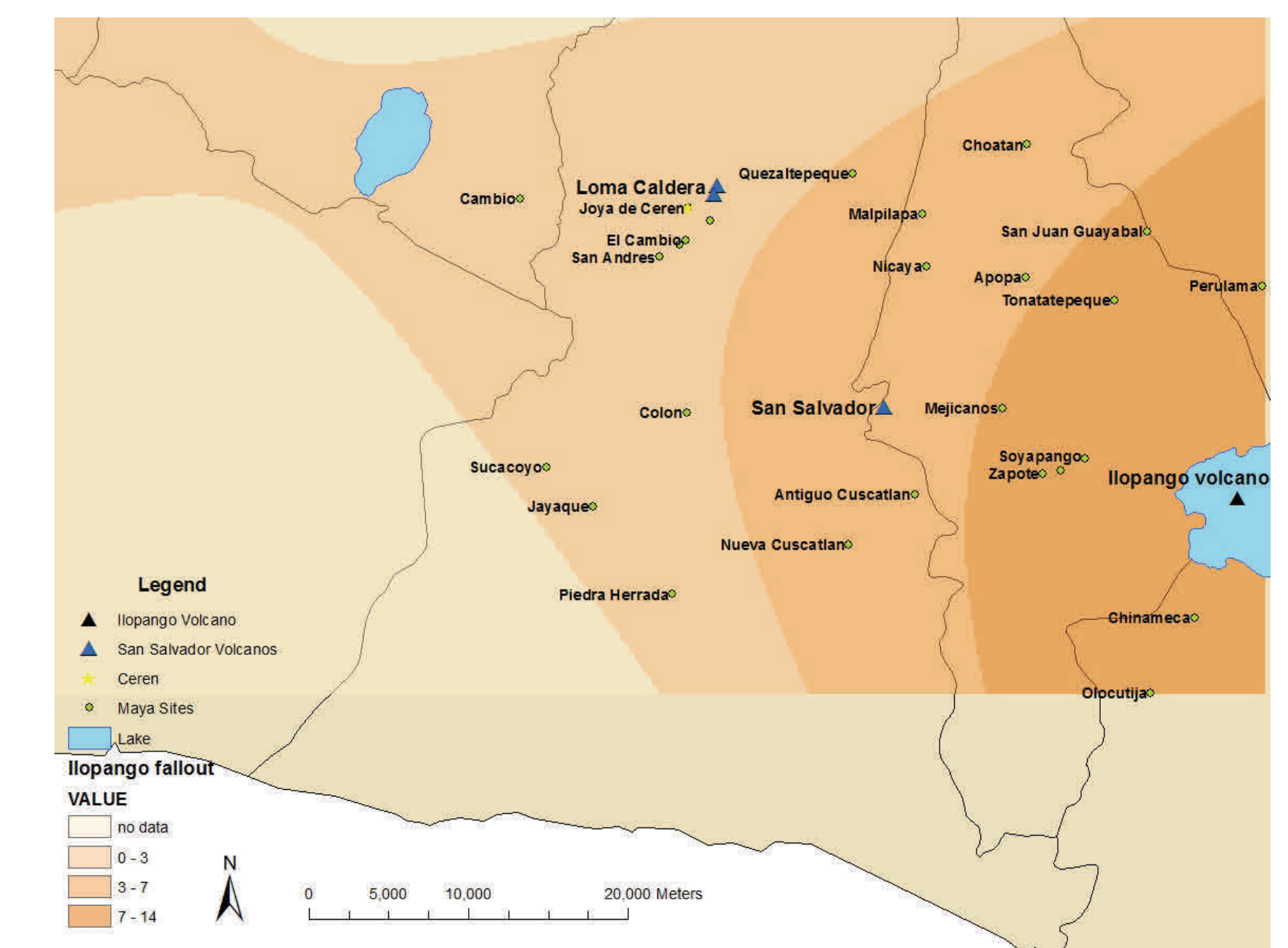
Further research is required in order to successfully complete the analysis of the escape route taken by the Cerén inhabitants. Preliminary data suggests two options.

Should the residents have chosen to relocate in a pre-existing settlement, San Andres is likely the site they chose. San Andres escaped the fallout except maybe for light airfall and is close

enough to Cerén (around 3km) that the residents could have reached it with small children and elders.

Should the residents have chosen to resettle in an entirely new location, they likely would have chosen a high elevation because the main source of potable water was collections of

Ilopango Fallout AD 300/400



rain and intermittent streams. The mountain range behind Colon (visible in top center image) may have served them well, though it is around 25 km away.

GIS Data Sources: Digital Elevation model, Terra ASTER satellite, SRTM elevation model, Google Earth data, mayagis.smv.org (Dr. Clifford T. Brown and Dr. Walter R. T. Witschey), GfK Macon

All maps projected in WGS 1984 UTM Zone 16N (originally based off of Geographic Coordinates), units are in meters

Image Sources: UNESCO World Heritage website

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Course: GIS 101 Spring 2012
Production Date: 4 May 2012