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# Estimating resiliency gains from agricultural terracing in the ancient Maya polity of Caracol

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## Résumé

Like a forensic scientist interpreting fingerprints and blood splatter patterns to reveal the timeline associated with the struggle and resistance associated with a crime scene, landscape archaeologists analyze the configuration and chronology of settlement features to document the story arc of societies. As new prospecting tools become available, new data types help flesh out details to more fully understand the innovations civilizations used to overcome challenges that are often a result of environmental drivers. One example of an ancient landscape-scale innovation is the widespread application of agricultural terraces across the Maya civilization in Mesoamerica. The development of these vast, geo-intensive, hillside modifications corresponds to a series of droughts prior to the abandonment of numerous polities. Only recently, with the advances in LiDAR (Light Detection and Ranging) technology have archaeologists been able to visualize and quantify the extent of these earthworks across large city-states. Environmental modeling (e.g., hydrologic, sediment transport, and agricultural production) allows us to determine the soil retention and water holding capacity of these systems to project the increases in resiliency/ longevity brought about by these topographic alterations. Using the example from Caracol, the largest archaeological site in Belize, we are able to estimate the contribution that terrace construction had on soil and water management for this society of nearly 150,000 inhabitants.

**Mots-Clés:** Agricultural terracing, Landuse change, LiDAR, Maya, Soil and water management

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