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FlowTracker Used in Palenque Hydro-Archaeology Project Chiapas, Mexico

Contributed by: Pennsylvania State University professor Dr. Christopher Duffy and PhD Candidate, Kirk French.

Synopsis: Ancient ruins serve as the backdrop for this study on how a "modern" Mayan culture may have altered the region's natural water cycle.

Set in the foothills of the Tumbalá mountains of Chiapas Mexico, the ancient Maya site of Palenque is situated on a ledge overlooking the swampy plains that stretches northward all the way to the Gulf coast.

The Palenque Hydro-Archaeology Project (PHAP) is moving forward in its search for a better understanding of the site's hydrology. PhD Candidate, Kirk French, and his professor from Pennsylvania State University, Dr. Christopher Duffy, arrived at Palenque in early May, with goals to explore Palenque's watershed and scout locations for the installation of more stream sensors. Additionally, the team wished to test the viability of using SonTek/YSI FlowTracker Hand-held ADV on Palenque's many waterways.

As a hydrologist in the Civil Engineering Department at Penn State, Duffy has ongoing projects in the southwestern U.S. and on the Susquehanna River in Pennsylvania. He is interested in testing his model for human impacts on hydrological processes at Palenque and believes the Maya of Palenque modified their landscape to such a degree that it possibly altered the area's hydrological cycle.



Although the site of Palenque originated at about 100 BC, it did not become a major population with importance in the Maya culture until 600 AD. Rulers during this period lead the construction of what is considered by historians the first sophisticated urban-water delivery system. Underneath the palace and through a long, corbel-vaulted tunnel, a stream ran through carrying a constant supply of running water. Flowing water through a monumental structure like that has been deemed a feat of engineering genius.

French and Duffy accomplished their goals and have since returned to Pennsylvania where they have analyzed the data gathered from the streams and weather station.

According to Duffy, the FlowTracker proved to be ideal for this study due to its portability, accuracy and efficiency in taking many measurements along stream profiles for assessing losing and gaining channel reaches. He says with this information the team is now able to construct a water and energy budget for the site and a weather station has been installed and now they are able to locate the stream gauge.

For more information on this application note, or the FlowTracker, email SonTek® at inquiry@sontek.com.

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