Analyzing Panama Water Resources using radar topography and GPS

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Overview
Creating a watershed model using Shuttle Radar Topography Mission digital elevation models and GPS provides valuable information about environmental factors that influence water quality in rural communities.

Bermejo Watershed

Key Findings
Watershed analysis of a community’s aquifer is vital for maintaining quality drinking water because it enables the identification of:
• Possible contaminants located within the watershed
• Treatment options based on proximity to contaminants and land cover features
• Elevation differences that could account for temperature and pressure fluctuation
• Stream networks that could allow for additional water sources to be tapped

Explanation
The Bermejo watershed model was created using GPS waypoints and a 30m SRTM DEM. Because of the low resolution of the DEM, the original GPS point taken at the aquifer yielded only a 30x30m watershed. Additional pourpoints were created at nearby branches of the area’s stream network to expand the model. Two GPS points of low intensity development and deforestation fell within the model, indicating possible sources of contamination.

Impact
The identification of watersheds is critical to understanding the different variables that can affect the quality of a community’s drinking water. With the extent of each watershed clearly defined, it is possible to identify points where runoff could introduce potential contaminants into the community’s water source.

Acknowledgements
Dr. Rob Griffin, Dave Cook, Eric Anderson – Department of Atmospheric Science
Dr. Gonzalo Pulido, Zvia Danon, Christina Tedman, Conrado de Leon – CATHALAC
Kelly Hodgskins, Daryl Ann Winstead, Megan Carter, Brian O’Neill, Rebeca Chalker, Nick Davis