

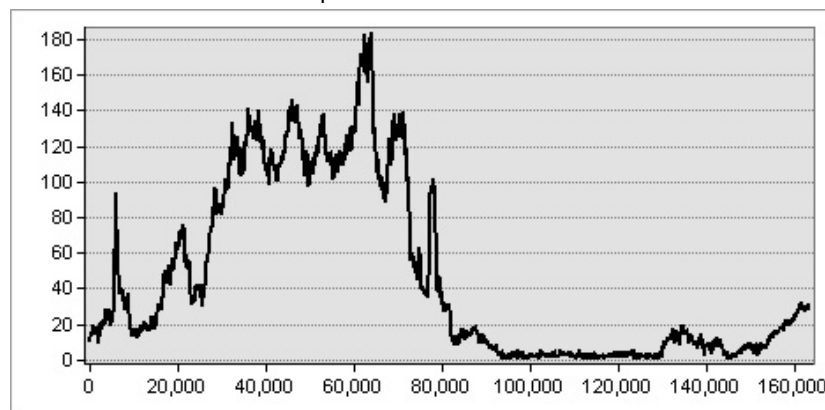
Bridging the Darien Gap with Cost Path Analysis

By Shane Clement

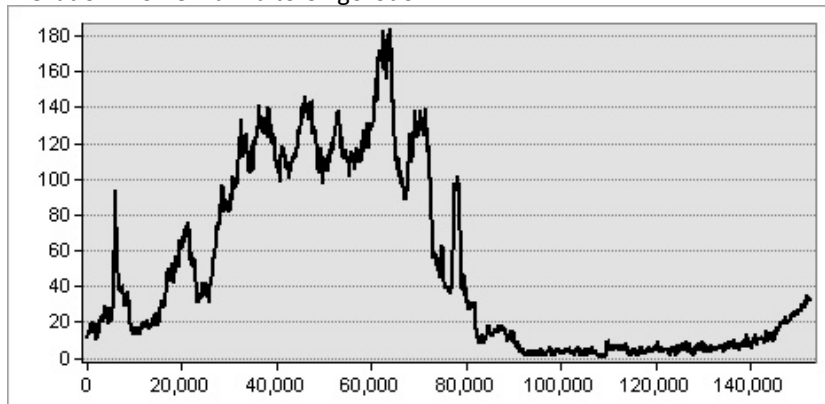
The Darien Gap is a geographic region on the border of Panama and Columbia that is characterized by marshlands and mountainous rainforests. The hostile terrain is home to two national parks, a UNESCO World Heritage Site, indigenous tribes, and criminal activity that has prevented an approximately 100km stretch of the Pan-American Highway to bridge the gap. Crossing through the Darien Gap is notoriously dangerous considering the inhospitable animals, plants, climate, and the FARC (Revolutionary Armed Forces of Columbia). Since traversing the land is challenging, the main mode of transportation are canoes called piraguas. Constructing a road to provide a safe passage to connect the two countries has been considered but abandoned in previous years mainly due to the serious environmental and safety concerns.

The data for this analysis was collected from the U.S.G.S. Earth Explorer website and considers the cost distance based on the slope terrain and large water features. The origin point is in Yaviza, Panama which is the endpoint for the Trans-Darien Highway. Two destination points, the towns of Apartado and Chigorodo in Columbia, are the connection points to Yaviza. The map shows the two least-cost paths to cross the Darien Gap from the origin point to the destination points. The graphs show to elevation profile for each of the least cost paths.

Elevation Profile: Yaviza to Apartado



Elevation Profile: Yaviza to Chigorodo



This incomplete analysis fails to account for several other factors that are cost-drivers to roadbuilding through the Darien Gap. The cost of travel over the surface not only includes slope terrain and large water features but should also include other factors such as endangering animal and plant species, land coverage, soil types, future deforestation, and flood zones. Applying additional environmental and geological features would change the cost distance formula and therefore, may change the results presented in this analysis.

Sources:

[10 Things that can Kill You in The Darién Gap | The Manual](#)

[Darién Gap - Wikipedia](#)

[Silent Darien: The gap in the world's longest road - BBC News](#)

Darien Gap Cost Path Analysis

