

# ALASKAN ARCHAEOLOGICAL ADVENTURES IN DIGITAL TERRAIN ANALYSIS

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Sarah here. I am just getting this post in right at the last minute (so mind my grammar) but I thought I'd contribute and support this day because Jess is one of my dearest friends and I couldn't have survived my M.Sc. in Archaeological Computing at Southampton without her! Anyway I will stop being gushy and tell you a bit about what I have been working on up here in ALASKA!

A client of ours last year asked for an "archaeological probability model" to assess the potential for discovering cultural resources within a proposed 2000 foot wide by 116 mile road through the Northern Brooks Range and North Slope of Alaska (way above the Arctic Circle). I will not go into the debates about predictive modeling in this blog but as you may know these models have definite pros and cons. This model was to accompany approximately 65 days of archaeological survey field work in the summer of 2010 (we are just now getting funding to continue this summer). This road is being proposed through a remote area where the Alaska Natives still rely heavily on caribou and seasonal fishing trips (for those of you who are familiar with Lewis Binford's work, god rest his soul, he studied the Nunamiut or Inland Eskimo quite intensively and this project is within their traditional territory). The road is being designed to open up oil and gas fields (sigh).

So I decided to get in contact with a college of mine in Alberta, Canada who is well versed in archaeological predictive/potential modeling. He has been using available high resolution DEMs (digital terrain models) produced by Light Detecting and Ranging (LiDAR) elevation data to perform digital terrain analysis and multi-criteria analysis to construct archaeological potential (suitability) models. So I decided to give it a shot seeing as we had a LiDAR DEM!

To accomplish this task, I utilized terrain analysis (LandSerf©) to highlight two types of landforms with a higher potential for the presence of archaeological sites. These two landforms are level areas near terrain breaks (such as terrace breaks-in-slope), and ridges. I selected these landforms because they are

consistent with observations concerning site location made by archaeologists in northern Alaska. I then ranked the archaeological potential of these landforms based on proximity to higher order streams (fish bearing rivers are the highest) using a multi-criteria analysis (IDRISI©).

So now I am working on a field survey plan to test the model this summer. I am not nearly done and there is a chance the helicopter is going to be ready to take us out there next week! Oh boy, I'd better get after it!



