## Tips from Ted: Examining Your Data

We are often asked to review data by concerned customers who suspect an animal has disappeared or has begun to act differently. Many times they ask how we examine the data in such cases. While we are not experts on the species they are tracking or that animal's activities, we do observe a lot of data and have a great understanding of how our transmitters work. Here are a few basic steps we follow when analyzing datasets.

Graph the Data

Trying to determine the behavior of an animal can be difficult when reading the data directly from the messages or looking at a list. Plotting the data can often simplify the analysis process and help one to visualize the animal's actions.
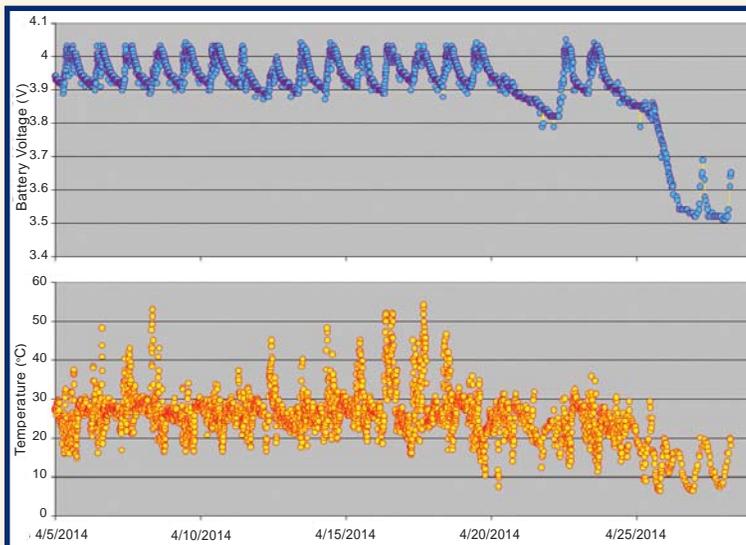

The above graph of sample data shows a period of "normal" temperature and battery voltage fluctuations, followed by a marked drop in battery voltage and temperature. Such a decline may be indicative of bird mortality or transmitter detachment, particularly if there is a concurrent lack of activity, as shown in the graph on the right.
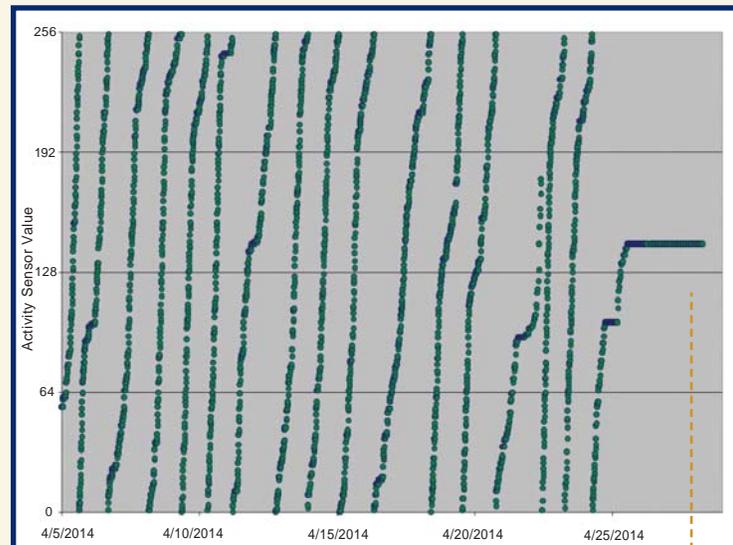
This plot of activity sensor data from one of our GSM/GPS transmitters clearly shows a change in behavior before messages stopped being received.

Plot Latitude & Longitude Through Time

Google Earth is a great tool for mapping your animals' locations and travels, but it can sometimes be difficult especially when working with the time slide bar. Graphing the latitude and longitude independently may give more insight into an animal's movements.
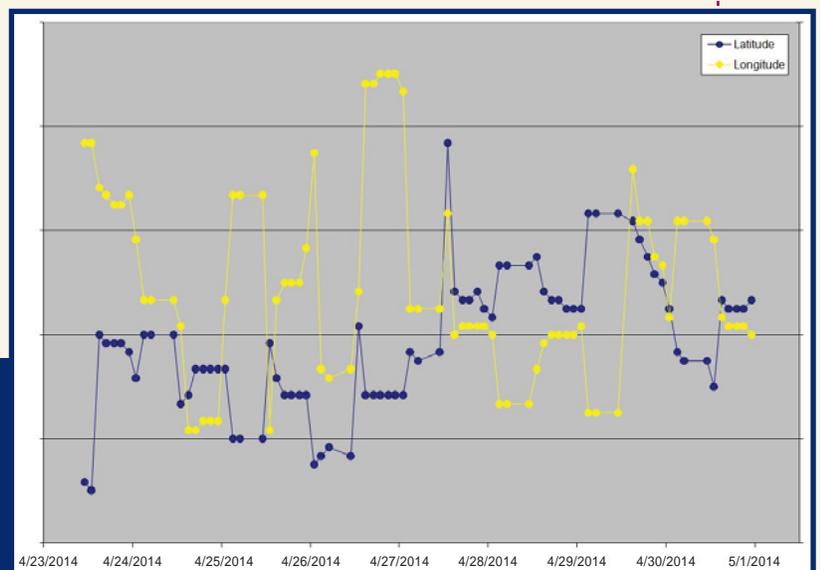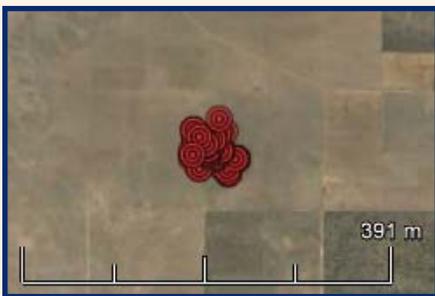
A customer was concerned that one of his GPS transmitters might be down (due to bird mortality or transmitter detachment) as the temperature and battery voltage had dropped for several days. A quick look at a graph of latitude and longitude data showed us that the locations were changing by distances greater than the margin of error for GPS; from this we could conclude the animal was still active.

Look at Your Entire Dataset

When asked to examine customer data we are often given only the last few days of received data. We try to make the best determination possible from the data we're given but misinterpretation may occur when there are few data to examine. Examining a full dataset allows us to detect trends, and gain insight into "normal" behavior for a particular animal and what represents a deviation from previous behavioral patterns.

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