



Installing a Motus Tower



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Background

The Motus Wildlife Tracking System (Motus) serves as a global, cooperative research network employing automated radio telemetry to support the study and preservation of migratory animals' ecology and conservation. Birds Canada spearheads Motus in conjunction with allied researchers and organizations, fostering research and educational initiatives.

Motivation

Studying the migratory behaviors of diverse bird species holds immense ecological importance. It offers vital insights to conservationists, aiding in habitat protection and preservation strategies. In the context of rapid climate change, tracking migration provides a way to assess its impact on wildlife adaptation. These observations deepen our understanding of the intricate relationship between migration patterns and changing global climates, guiding effective conservation and climate adaptation efforts.

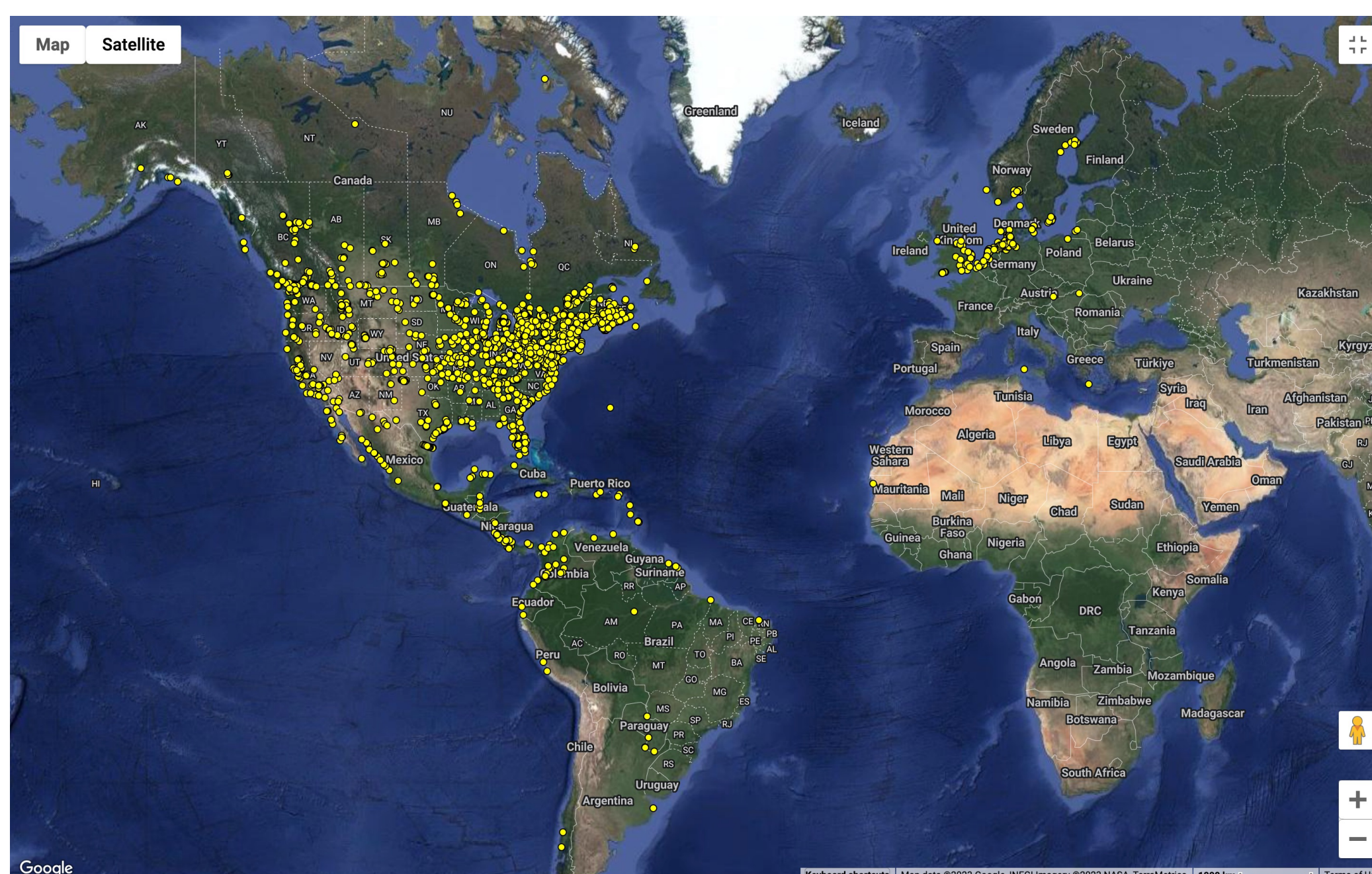


Image 1: Map of all Motus Stations in the world

Methods & Research

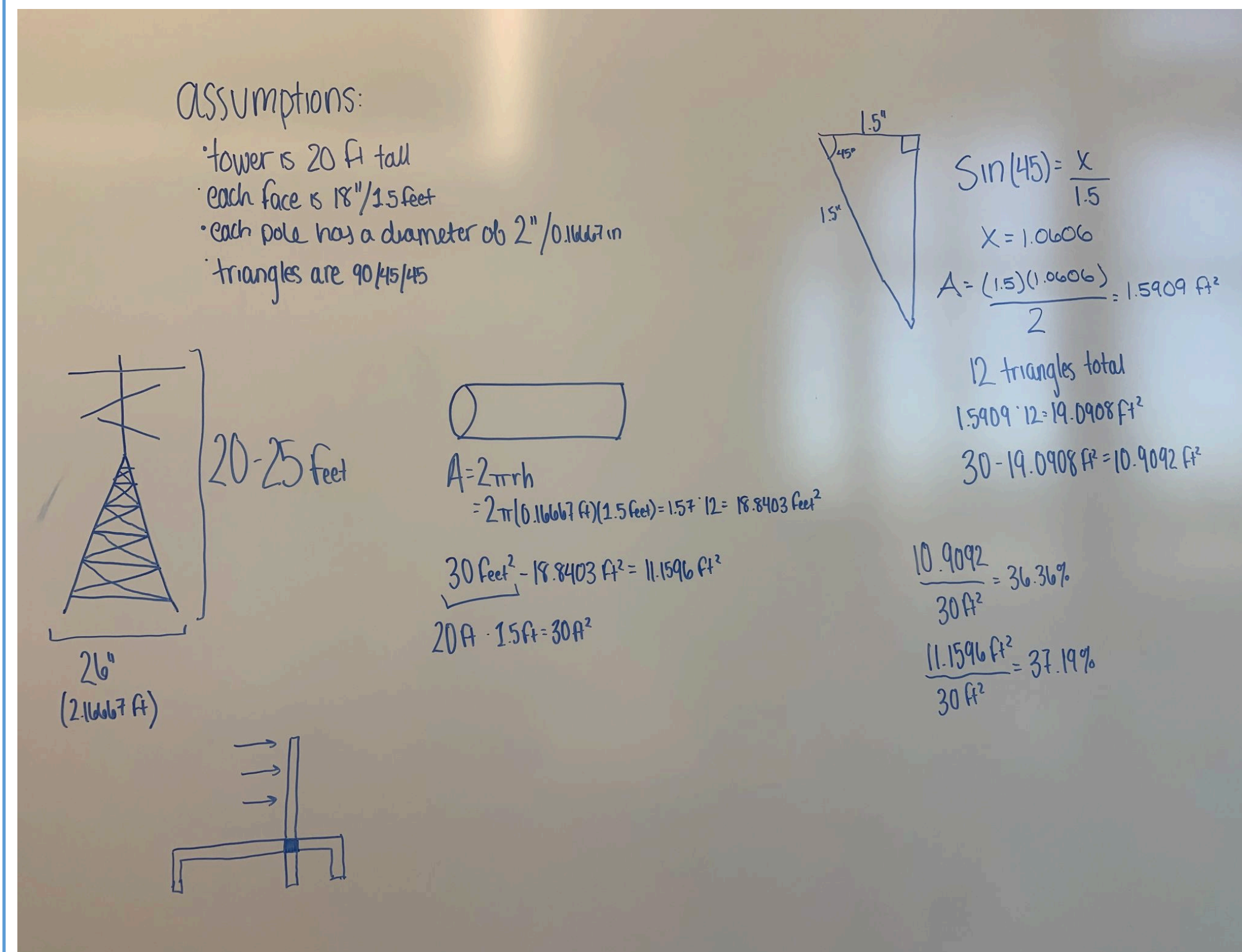


Image 2: Calculations done for deciding which tower design (pole or lattice) is sturdiest. Ultimately the decision was made to go through with a lattice design as it provides the most surface area and was tested to be the sturdiest.

The first thing that had to be done is research into whether the tower should be a pole or lattice design. To do that, a few things had to be done. First, a dataset of wind patterns had to be found for the Oregon coast to accurately determine wind stress on the tower. Second, online simulations had to be done to determine what the wind stress would do to the tower.

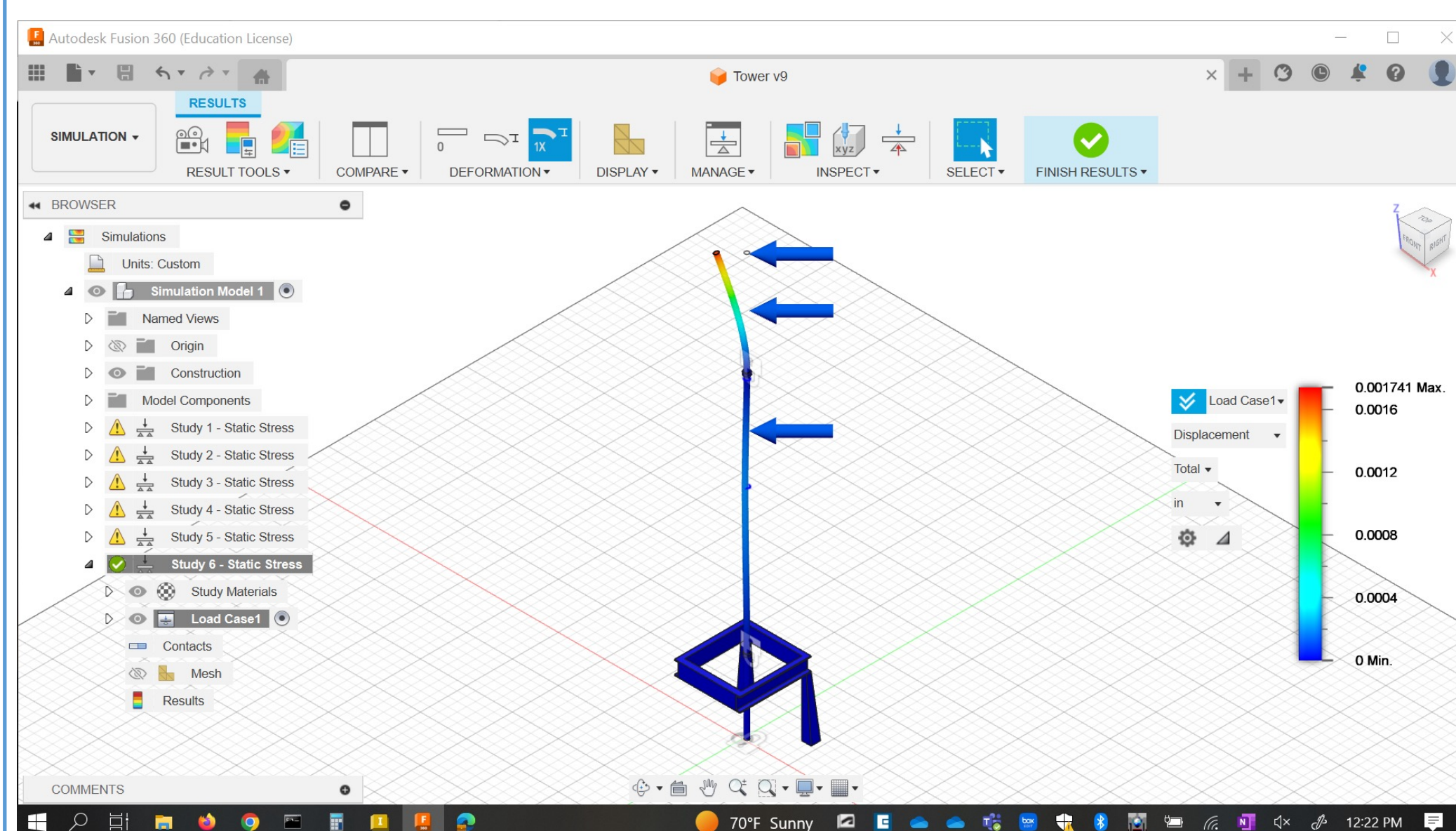


Image 3: Simulations ran on Fusion360 to simulate real-life wind data affects on pole tower. The wind data was taken from Astoria, OR for the year 2022

Installation of Cape Meares Tower



Image 4: Installation of the Cape Meares Antennas



Image 5: Finished Motus tower in Cape Meares

Results

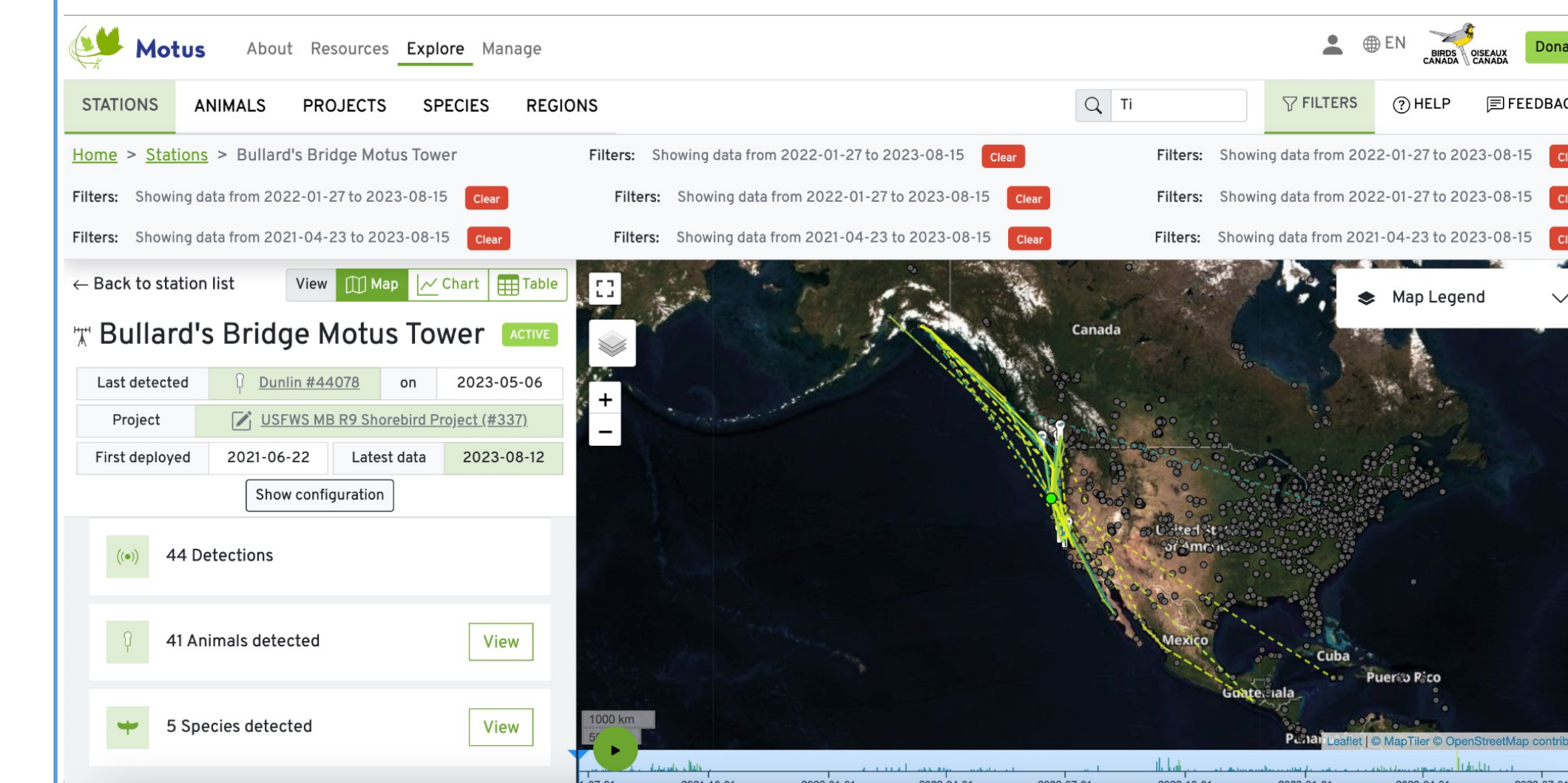


Image 6: Results of tracking tagged birds with a Motus tower

Motus is a global research network that focuses on collaboration to help track different bird species using automated radio telemetry. With over 3500+ towers all over the world, on every continent except Antarctica, it can track bird species to every part of the globe. Once a bird tag is detected by the tower, it is tracked through towers placed throughout the area, and, thus, migratory patterns can be analyzed. Above is an example of what the data looks like once collected. It also allows a play-by-play of where the bird travelled based on the date the receivers received the tag transmission.

