

## Virtual Antarctica

Every year, people go to Antarctica during their summer months (December-February) to conduct research. These people fly into Antarctica, must be transported to the research station in Antarctica (McMurdo Station) and, eventually, must be transported back to the airport so they can fly home. All of this must be done in a way that is fuel efficient to lower costs, and time efficient to reduce the hours wasted in transport.

Lockheed Martin, in conjunction with the National Science Foundation (NSF), runs this process and attempts to make it as efficient as possible. However, it can be difficult for them to get information on the processes, and it can be challenging to project how a changing system might look in the future. Because of this, Lockheed Martin is seeking new ways to help make decisions on how to run the transit system.

Stevens Institute of Technology has recently started working with Lockheed Martin on what is called the Virtual Antarctica project. Through this project Stevens' personnel will be developing tools that will allow people at Lockheed Martin to gain a further understanding of the situation in Antarctica, which will allow them to make more informed decisions. Multiple aspects will be explored, including weather, roads, and this transit system. Stevens' personnel would also like the ability to use this project to demonstrate their ability to create models for potential future clients; this model should be visually appealing both to aid in user understanding and to make it possible for use as a demonstration tool.

To further the stakeholders' understanding of the transit system, it was decided that modeling and simulation be used. By making a model that accurately represents the current transit system, the team seeks to make it easier to project things such as how potential changes to the system will impact cost, how the system would react to a change, such as an increased number of people arriving in a given year, and to make a presentation tool that Stevens can use to demonstrate their capabilities to other potential stakeholders in the future.