Title: **Improving the CReSIS Data Access System by Visualization of Flight Paths in Greenland**

Project Member: Morgan Sonnenschein, Center for Remote Sensing of Ice Sheets
Project Mentor: Dr. Swapan Chakrabarti
Email: msonnens@macalester.edu

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The current data access system for CReSIS is not ideal. On the CReSIS website, data are organized and can be accessed according to the date the data were collected but not by the location or flight path in which the data were collected. This can pose a problem for researchers who want to access data according to those locations because there is not necessarily a pattern in their locations on a day to day basis. The goal of this project is to create a new system of data access which allows the user to view data from the CReSIS website by selecting a flight line or area of interest from a map of Greenland.

One approach to solving this problem is to use the coordinates contained in the online data files to draw a flight path using a mapping program. An example of such software with the added advantage of high accessibility is Google Earth. In order to draw the flight paths in Google Earth, the coordinates of the path must be moved into KML files; this is one of several file types recognized by Google Earth. In researching possible platforms for the project, it was discovered that an unknown person converted some of these coordinates to KML in 2006. This further encouraged the use of Google Earth as the software for the project. Using the examples generated by this individual as a template, a function was written in MATLAB to rearrange data from a Microsoft Excel file and to write it to a text file with a .kml extension. The function also creates another file simultaneously with the unique heading of the file containing the flight path coordinates.

When the user has correctly formatted the KML file after running the function, the file may be opened in Google Earth and show a flight path. Though the coordinates of the drawn flight path are not exactly precise, they are acceptable in regard to their purpose. That is, a user can see where the flight path runs and may select it even though the path is not quite as precise as the original coordinates from the CReSIS website.

In order to aid the eventual user in selecting a path, the paths are colored according to the day they were flown. Within that coloring scheme, the individual sections of flights flown during that day are colored slightly differently to reflect the similar segmentation of the online data files.

The user is able to access the online data via a URL link inserted into the description of any path in Google Earth. This URL is defined by the person creating the KML file that draws the line. To avoid confusion, every line description contains a URL directing the user to the initial way of accessing data by day and not by path.

While much of the project has been completed and has limited functionality, there is still progress to be made in making it fully accessible to either CReSIS staff or the public. One aspect of the project needing completion is the method of selecting an area in order to reveal any flight paths within the selection perimeter. Currently, KML files and flight paths are being created that both draw a line in Google Earth and contain a URL in the description. Ultimately, the KML files initially created by the unknown individual will need to be "retrofitted" with a URL link and different colors. While there still is much to be done regarding the project's completion, at the current point one can predict that the project will ultimately be a successful endeavor.