Gateway Antarctica

Project Brief

## Company

Gateway Antarctica is the Centre for Antarctic Studies and Studies and Research at the University of Canterbury. The centre plays a leading role in national and international Antarctic research projects. This includes areas such as Antarctica’s role in climate change, engineering in extreme environments. The centre is a force point for Antarctic study, attracting national and international participation in collaborative research, analysis, learning and networking.

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## Students

Shun Li is a student enrolled in Master of Applied Data Science. Currently, He has completed all basic courses required in this program and is participating in a project in Gateway Antarctica.

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# Project Summary

## Overview

Atmospheric reanalyses are optimal estimates of atmospheric state based on a combination of model output and a wide of observations.

This project will examine whether the various atmospheric reanalyses available are consistent around the world by using pattern classification algorithms, which are applied to near-surface horizontal wind fields from the present day back to 1900.

## Objectives

The key goal for this project is to answer the following question:

Can atmospheric reanalyses accurately characterise the atmospheric state in the poorly observed Antarctic region before the advent of satellite observations?

## Research questions

Identification of the quality of reanalyses around the Earth: Are they worst in Antarctic?

## Business outcomes

[Specific business outcomes]

## Requirements

This project is suitable for students with a good working knowledge of Python, interested in working with large complex datasets(100GG), and a curiosity about atmospheric science and the climate system. Also, an interest in using advanced data analytic tools , such as the Self-Organizing Map technique, would be benefical.

## Additional

[Any additional information or context such as student experience or preliminary analysis]