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THE PROBLEM

A computational study of the community structure of phytoplankton over a large geographical area

IT IS IMPORTANT TO UNDERSTAND PHYTOPLANKTON BECAUSE

O₂

They produce half the world's oxygen content



They are the base of the marine food chain



They indicate the health of an aquatic ecosystem

3 minute windows



PCA

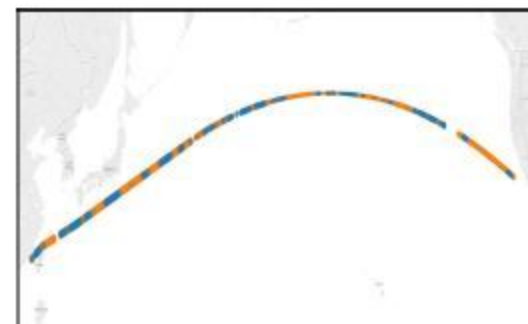
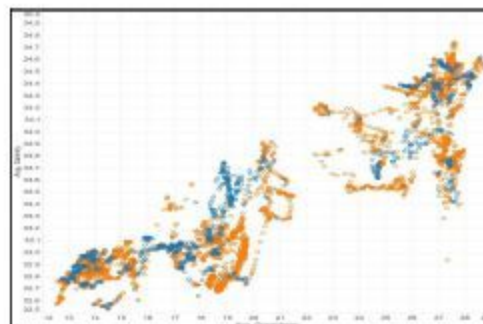


Clustering



Plot

Myria



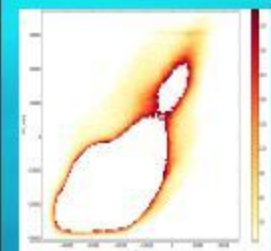
Flow cytometer performs multiparametric analysis on a given unit of seawater using the following parameters:

1. Forward Scatter
2. Phycoerythrin Fluorescence
3. Chlorophyll Fluorescence

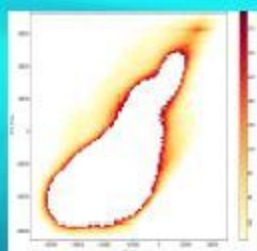
RESULTS

Through Principal Component Analysis, we conclude that the data can be divided into two clusters

The clusters of phytoplankton become relatively sparse with an increase in temperature and salinity



Variation of Forward Scatter with Chlorophyll Fluorescence in the first of the two observed clusters



Variation of Forward Scatter with Chlorophyll Fluorescence in the second of the two observed clusters