

Machine Learning for Sea Ice Monitoring from Satellites

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Ice Change Detection in Greenland

Motivation

□ Motivation

- Monitoring ice regions on the coast of Greenland

□ Problem

- No labeled data
- Lack of robust ways to quantify changes

□ Data set

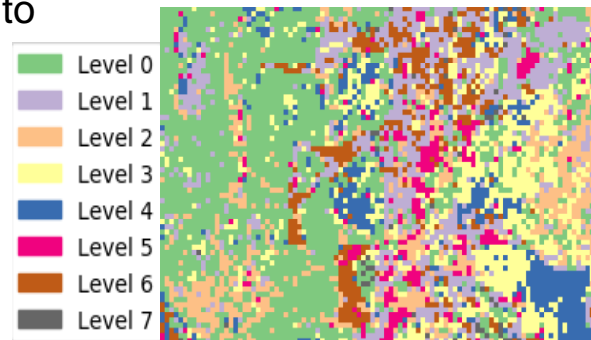
- Sentinel-1 C-band
- Belgica Bank in Greenland
- April–Dec. 2018

□ Challenge

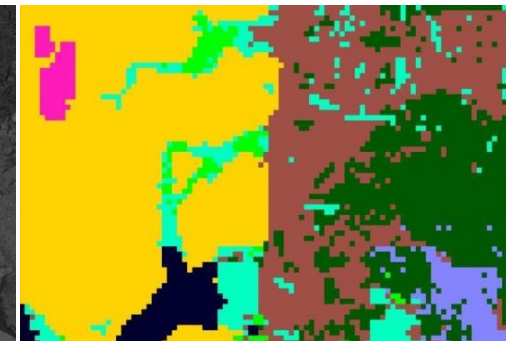
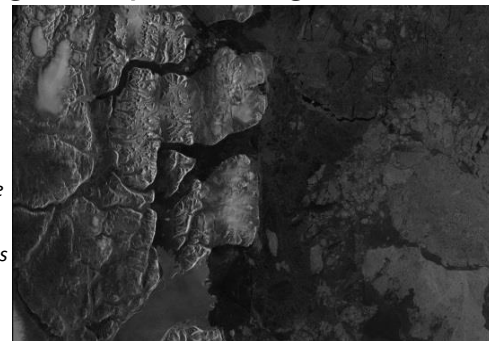
- Separation of different semantic polar classes
- Finding an insightful and automatic method for change detection

Approach

- Active learning
- Representation learning
- Variational inference and auto-encoders



Changes - April to August



Classification map

Results

