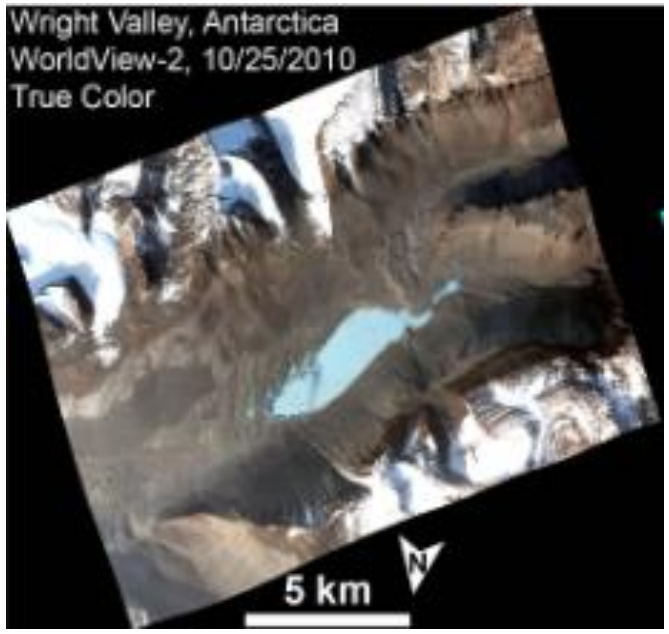
Glacies Indicium

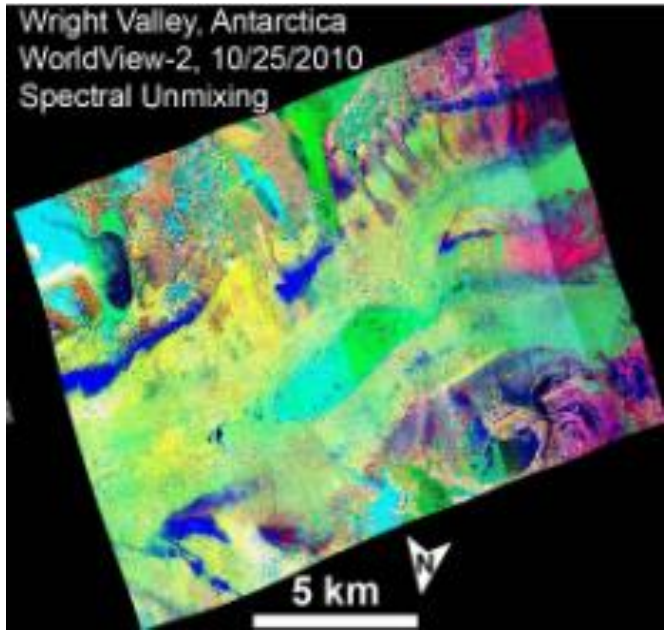
Partnered with

Project ICEBERG

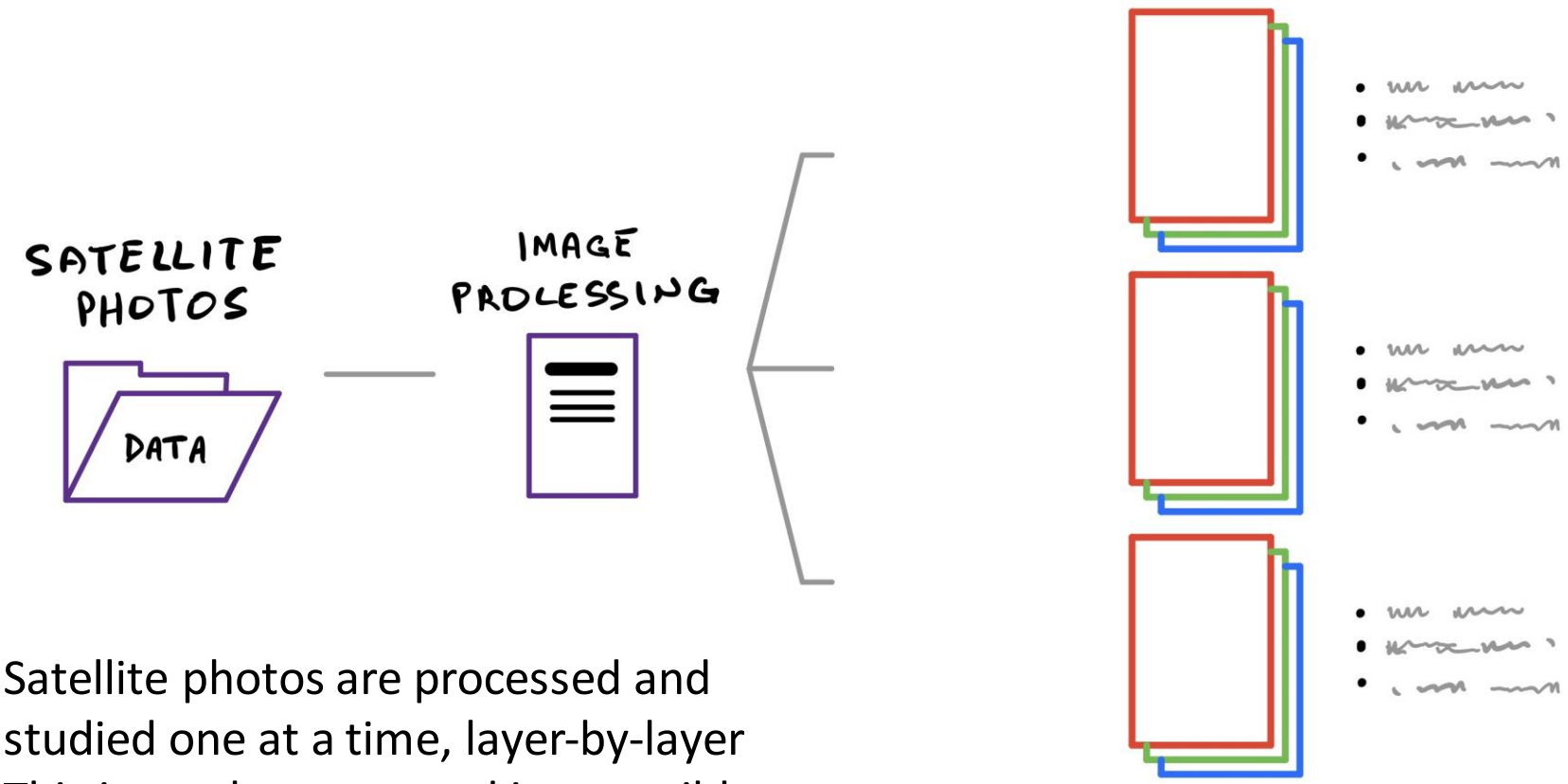
Optimizing Visualization of Remote Sensing Data in Antarctica

- Web-based GUI interface
- Visualizing large raster/GeoTIFF datasets
- Query tool to extract images based on geological properties



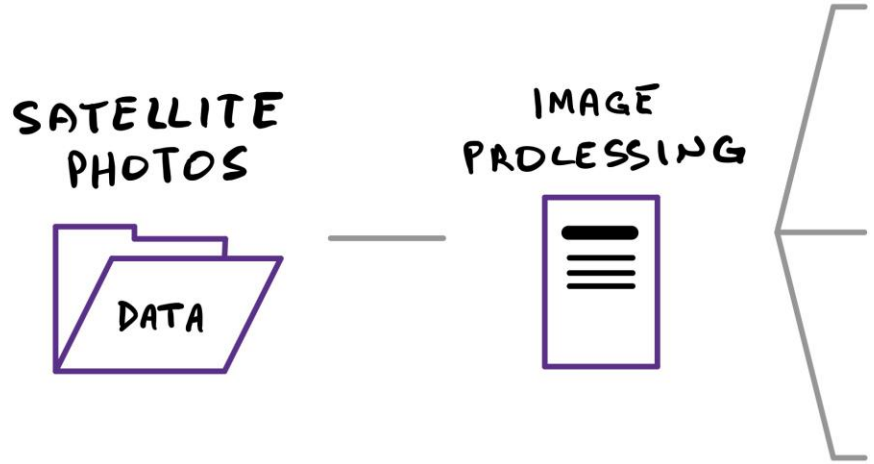


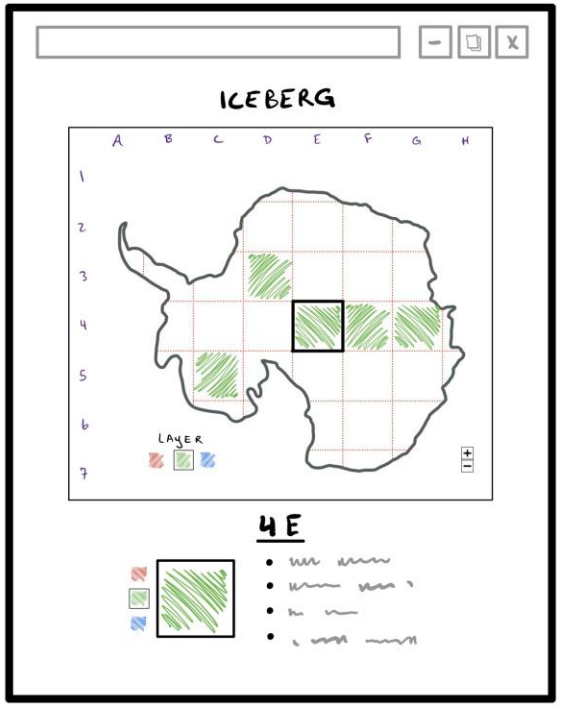
Analyzing One Image At A Time



- Satellite photos are processed and studied one at a time, layer-by-layer
- This is cumbersome and inaccessible
- With ~65,000 separate photos, it's hard to see the big picture

Interacting With The Whole Dataset





- Web-based map of Antarctica overlayed with all the photos
- Wavelength layers can be toggled
- Interaction with the data layers across large, definable areas

What & Why?

What?

- Easy-to-use web application
  - Interpolates the satellite photos onto an interactive map of Antarctica
- Displays filterable data across user-defined areas
- Makes imagery and data subsets available for export

Why?

- Facilitate study of large- and small-scale Antarctic geology
- Give the larger scientific community access to the data
- Make Antarctic geological phenomena easier to observe and understand

- Our Goal:
  - Compress and display large scale versions of the image to the right
  - Let scientists filter and export custom organized data subsets for their own research
  - The below wavelengths and parameters will be searchable through our GUI interface
    - Band 5,3,2 = RGB values respectively

```
Band 01: B1 reflectance (0.427 um)
Band 02: B2 reflectance (0.478 um)
Band 03: B3 reflectance (0.546 um)
Band 04: B4 reflectance (0.608 um)
Band 05: B5 reflectance (0.659 um)
Band 06: B6 reflectance (0.724 um)
Band 07: B7 reflectance (0.831 um)
Band 08: B8 reflectance (0.908 um)
Band 09: Shadow Parameter
Band 10: Snow/Ice Parameter
Band 11: Snow Parameter
Band 12: Unmixing, Mafic Dolerite
Band 13: Unmixing, Granite 01
Band 14: Unmixing, Regular Dolerite
Band 15: Unmixing, Sandstone
Band 16: Unmixing, Granite 02
Band 17: Unmixing, Blue Ice
Band 18: Unmixing, RMS Error
```