

# Project: icepyx4gedi

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## Accomplishments

Folks enjoyed *pair programming & whiteboard collaboration*

Identified areas in *icepyx* & *earthaccess* that can be updated to support improved data access

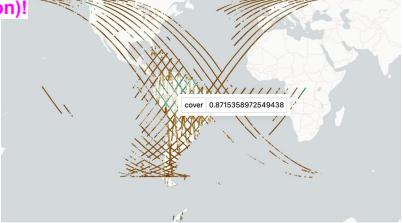


## Overview

**GEDI** and **ICESat-2** data are **HUGE** and nested data structures can be daunting. We hope to lower these barriers of entry with *icepyx*!

y: 0 ns, total: 25.6 ms

3 million GEDI & ICESat-2 points visualized with lonboard in <1 second (after 1 min of data generation)!



A screenshot of a Trello board titled "@icepyx4gedi\_proj". It has three columns: "Todo" (7 items), "In Progress" (5 items), and "Done" (4 items). The "Todo" column includes items like "Testing of icepyx GEDI L2b search integration" and "Testing of icepyx GEDI L2b data access integration". The "In Progress" column includes items like "Read-in or translate GEDI L2b data to geoparquet" and "Search integration into icepyx". The "Done" column includes items like "Determine spatial and temporal domain for development" and "Visualize GEDI L2b and ATL08 using lonboard".



## Contributions to icepyx

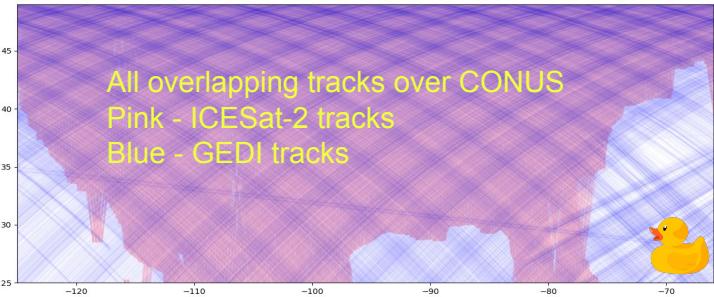
- branches and PRs opened
- issue resolution in progress
- Efficient loading of ICESat-2 and GEDI data using H5Coro!

```
# Read GEDI using H5Coro + xarray
h5obj = h5coro.H5Coro(path[0], driver='mem', mem_size=1000000000,
                      create_new=True, version=False,
                      credentials=(3, cred), multi_process=False)
variables = ('EGEN001/golocation/l1c_lowres',
            'REANN001/golocation/l1c_lowres',
            'REANN001/cover')

data = h5obj.read_datasets(variables, block=True, enable_attributes=False)

# Convert to datasetry
xr_cover_coro = xr.Dataset(data['REANN001/cover'],
                           coords={'lat': data['REANN001/golocation/l1c_lowres'].lon[(0:(x)].data['REANN001/golocation/l1c_lowres'].lat],
                           dims = ['x'])
```

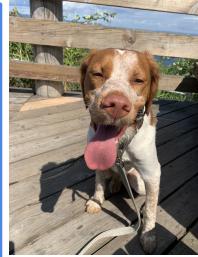
824 ms ± 55.1 ms per loop (mean ± std. dev. of 7 runs, 1 loop each)



All overlapping tracks over CONUS  
Pink - ICESat-2 tracks  
Blue - GEDI tracks

## Future Plans

- transition to CryoCloud Slack (more persistent, includes other contributors)
- *earthaccess* hacktime topic: *icepyx*
- Pangeo hackweek (Saturday after AGU)



## ICECat-3



Laser altimepurr