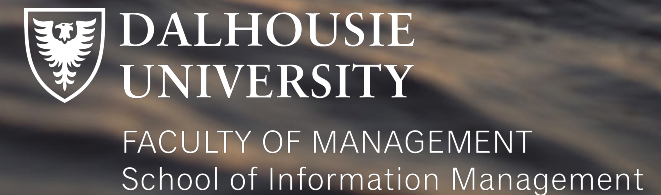


Where in the World is Ocean Carbon Data?

**Mike Smit, Matthew Garvin,
Guillaume Durand, Anya Waite**



**We can all agree that ocean-based CDR
needs good ocean observation data, yes?**





What data does the scientific community rely on?

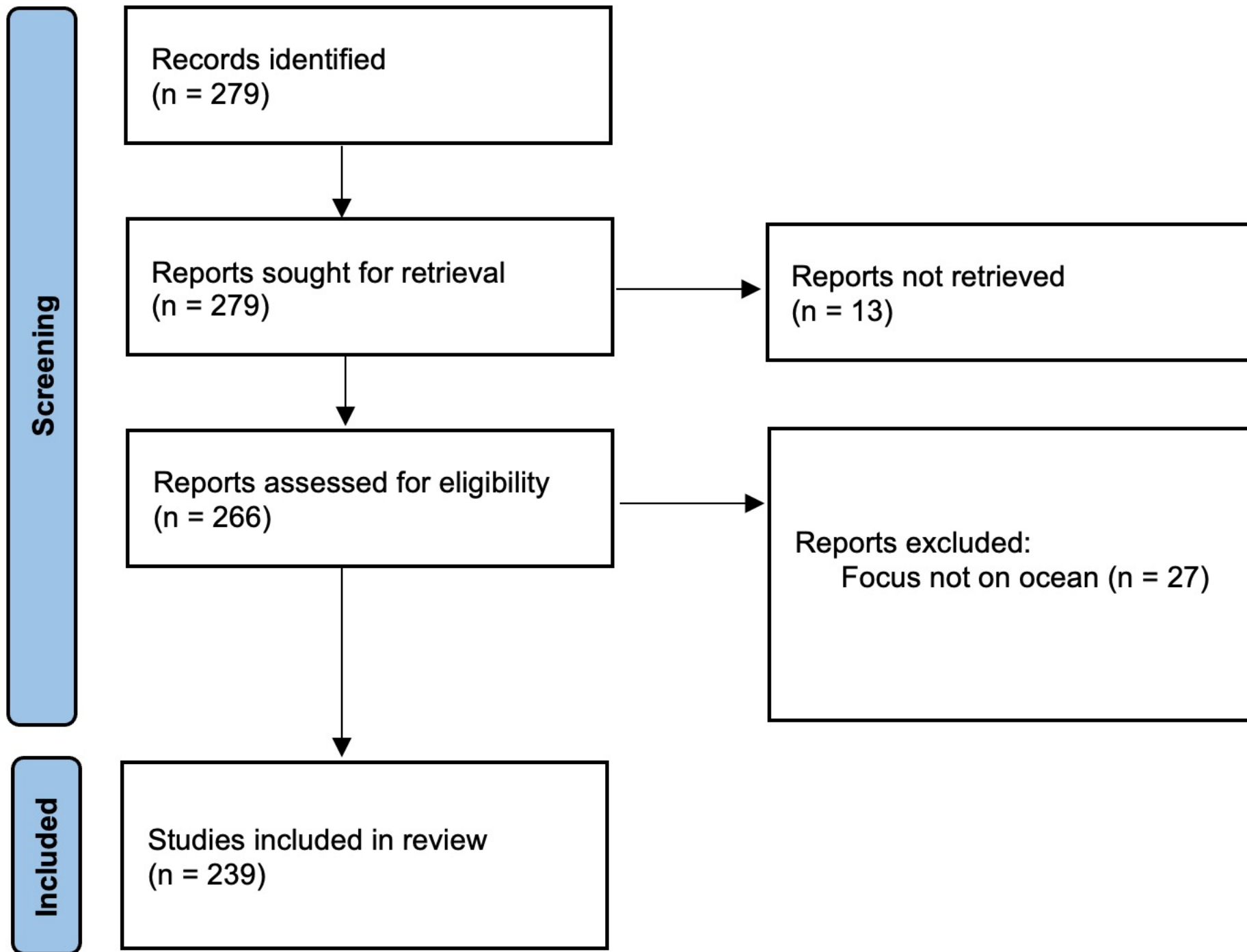
- Step 1: What publications use observation data relevant to the carbon cycle from the North Atlantic Ocean (past 10 years)?



Advanced search

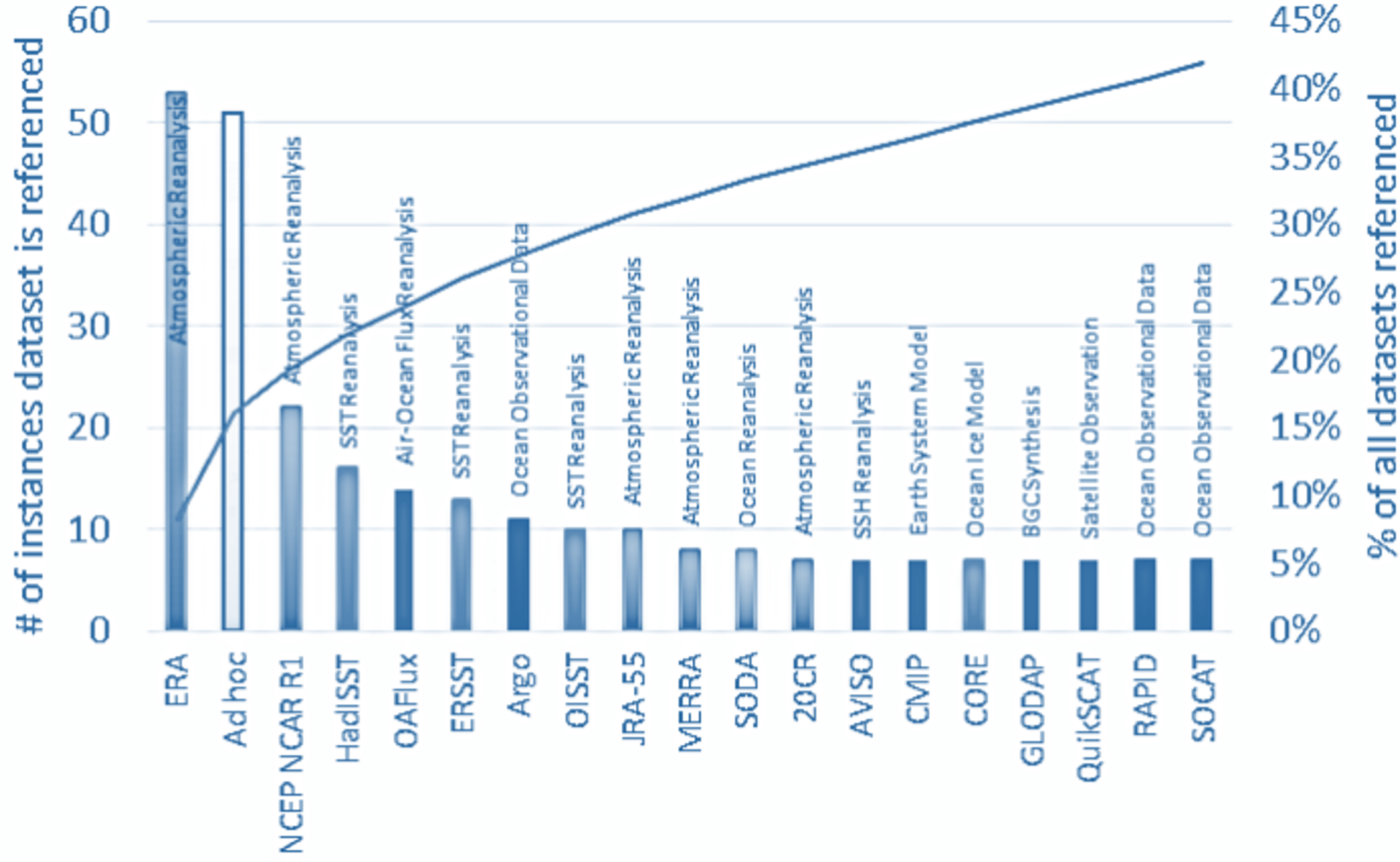
[< Basic Search](#) Advanced[Search tips ?](#)[Enter query string](#)














```
(( ( KEY ( "Atlantic Ocean (North)" OR "North Atlantic" OR "North Atlantic Ocean" OR "Labrador Sea" ) ) AND (
TITLE-ABS-KEY ( ( carbon PRE/0 dioxide ) OR ( atmospheric PRE/0 co2 ) OR ( anthropogenic PRE/0 co2 ) OR (
dissolved PRE/0 ( oxygen OR "O2" ) ) OR ( stable PRE/0 carbon PRE/0 isotope ) OR ( inorganic PRE/0 carbon ) OR
( isotope W/2 "13C" ) OR ( "carbon-13" PRE/0 isotope ) OR ( dissolved PRE/0 inorganic PRE/0 carbon ) OR ( partial
PRE/0 pressure PRE/1 "CO2" ) OR ( "pCO2" ) OR ( carbon PRE/0 dioxide PRE/0 partial PRE/0 pressure ) OR "fCO2"
OR ( fugacity PRE/1 carbon PRE/0 dioxide ) OR ( surface PRE/2 stress ) OR ( wind PRE/1 stress ) OR ( vector PRE/0
stress ) OR ( heat PRE/0 flux ) OR ( ( carbon OR "CO2" ) PRE/0 ( flux* OR sink* OR flow* OR system OR cycle ) )
OR ( dissolved PRE/0 carbon ) OR ( carbonate OR bicarbonate ) ) AND ( ( atmospheric PRE/0 pressure ) OR ( air
PRE/0 pressure ) OR ( barometric PRE/0 pressure ) OR ( sea PRE/0 level PRE/0 pressure ) OR ( atmospheric PRE/0
humidity ) OR ( wind PRE/0 velocity ) OR ( wind PRE/0 speed ) OR ( vector PRE/0 wind ) OR ( surface PRE/0 ocean
PRE/0 "CO2" PRE/0 atlas ) OR "SOCAT" OR ( air PRE/0 temperature ) OR ( sea PRE/0 surface PRE/0 temperature )
) OR acidification OR acidity OR "pH" OR alkalinity OR "Hydrogen-Ion Concentration" ) OR ( ocean PRE/0 albedo
) OR ( sea PRE/0 water PRE/0 temperature ) ) AND ( dataset OR ( data PRE/0 set ) ) ) AND ( LIMIT-TO ( PUBYEAR ,
2022 ) OR LIMIT-TO ( PUBYEAR , 2021 ) OR LIMIT-TO ( PUBYEAR , 2020 ) OR LIMIT-TO ( PUBYEAR , 2019 ) OR
LIMIT-TO ( PUBYEAR , 2018 ) OR LIMIT-TO ( PUBYEAR , 2017 ) OR LIMIT-TO ( PUBYEAR , 2016 ) OR LIMIT-TO (
PUBYEAR , 2015 ) OR LIMIT-TO ( PUBYEAR , 2014 ) OR LIMIT-TO ( PUBYEAR , 2013 ) OR LIMIT-TO ( PUBYEAR ,
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"Paleoceanography" ) OR EXCLUDE ( EXACTKEYWORD , "Paleoenvironment" ) OR EXCLUDE ( EXACTKEYWORD ,
"Paleotemperature" ) OR EXCLUDE ( EXACTKEYWORD , "Late Pliocene" ) OR EXCLUDE ( EXACTKEYWORD ,
"Mid-pleistocene Transition (MPT)" ) OR EXCLUDE ( EXACTKEYWORD , "Pliocene" ) OR EXCLUDE (
EXACTKEYWORD , "Miocene" ) )
```



- 281 unique identifiable datasets.
 - Not counting data used only for that paper



▼  raw data	Today at 3:10 PM
 Data Cleaned final	Mar 24, 2011 at 8:08 PM
 Data Cleaned final FINAL	Apr 16, 2011 at 12:46 AM
 Data Cleaned FINAL FINAL FINAL	Aug 3, 2011 at 3:47 PM
 Data Cleaned REAL final_ms_August	Sep 19, 2011 at 4:23 PM
 Data Used for Experiments I think	Apr 16, 2011 at 12:46 AM
 experiment 1 output results	Mar 23, 2011 at 2:49 AM
 experiment 2??? output results	Mar 23, 2011 at 2:49 AM
 experiment 4 and 5 output results_keep	Mar 23, 2011 at 2:49 AM
 I HATE SCIENCE SO MUCH.rdata	Mar 24, 2011 at 8:05 PM
 IMPORTANT config details	Mar 24, 2011 at 8:08 PM
 let R burn in fire for all eternity.xlsx	Mar 23, 2011 at 2:49 AM
 Updated CV Aug 2011.docx	Nov 7, 2019 at 11:21 PM
 results.xml	Mar 26, 2011 at 1:23 AM

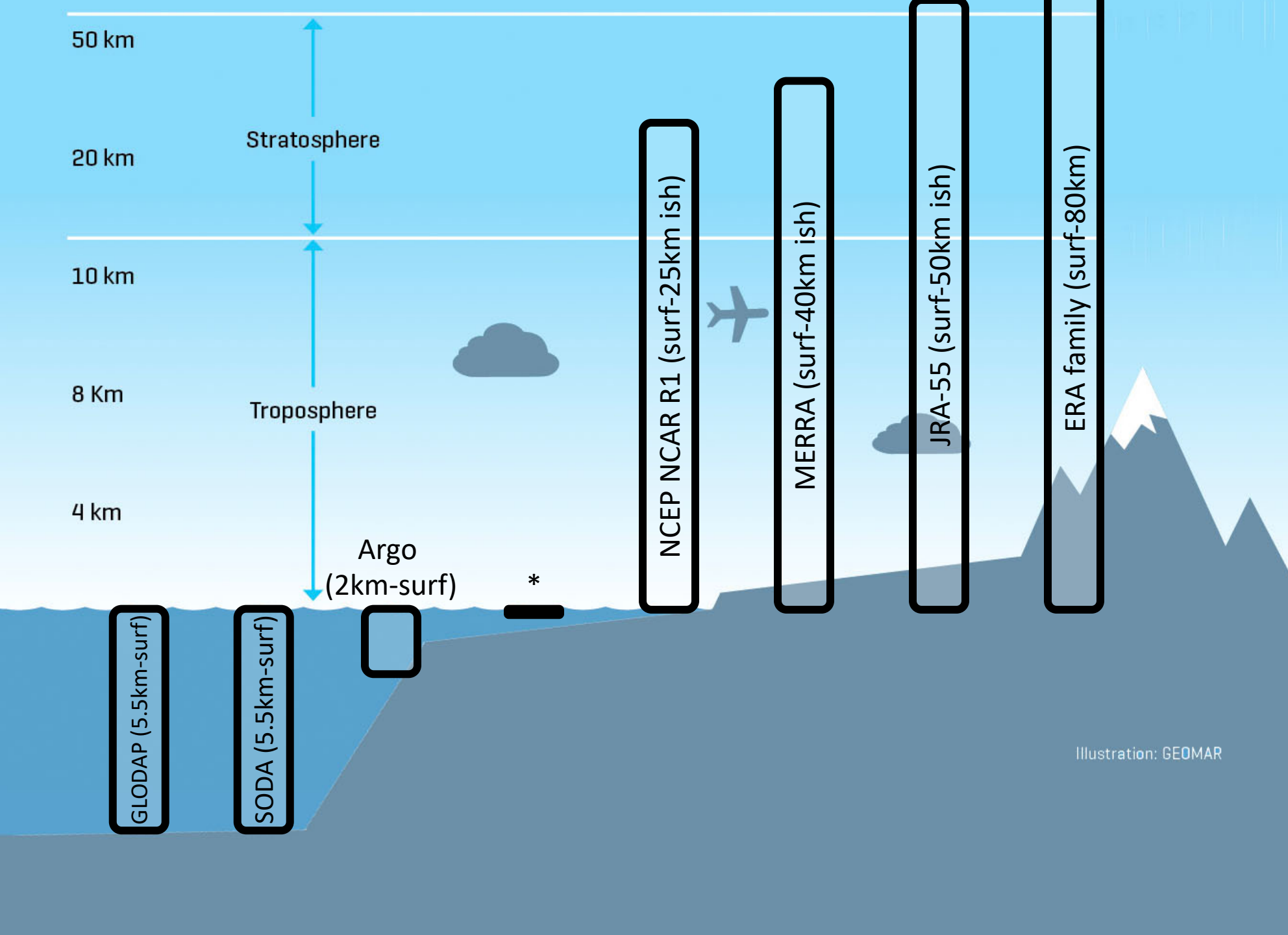
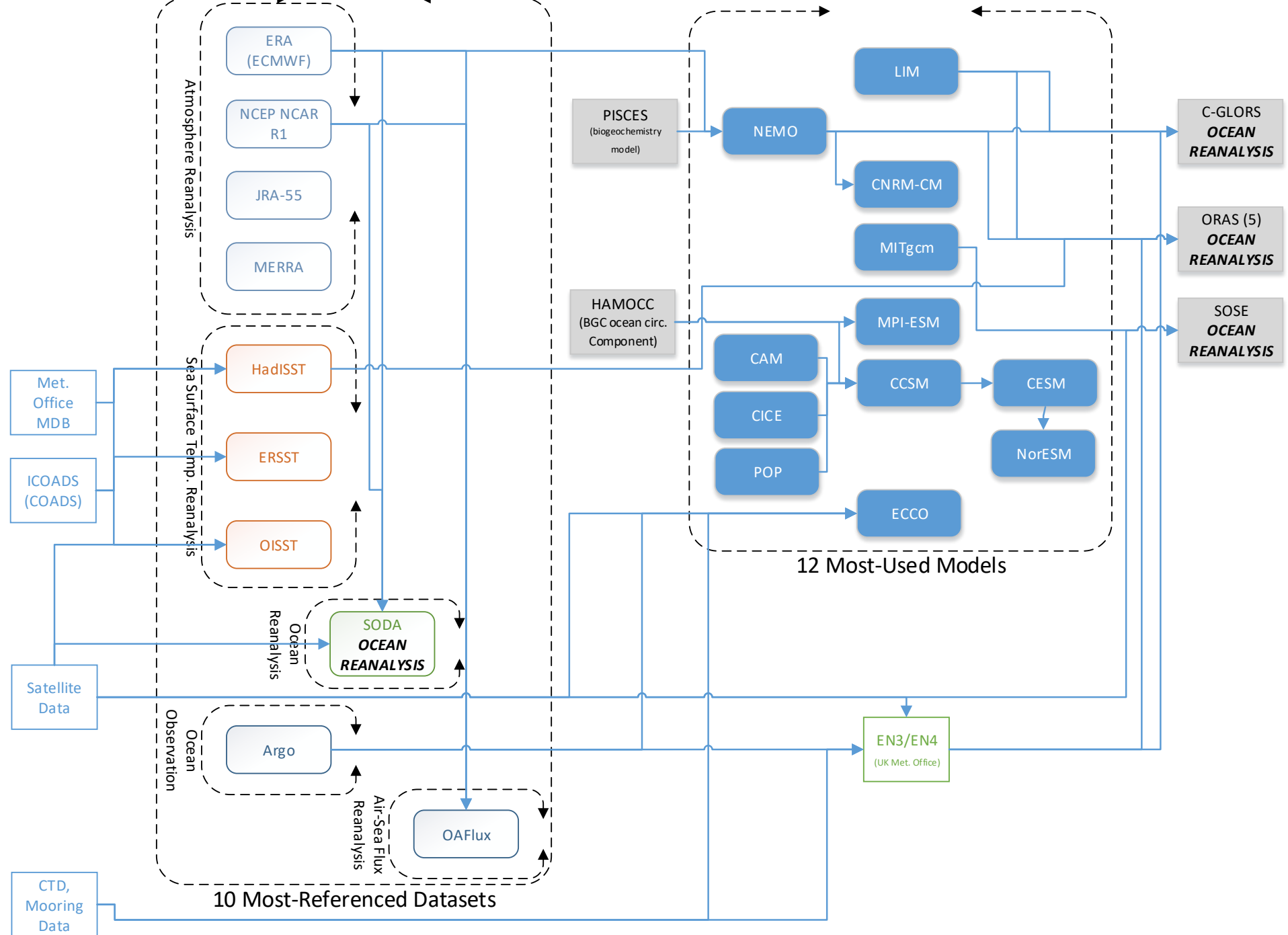
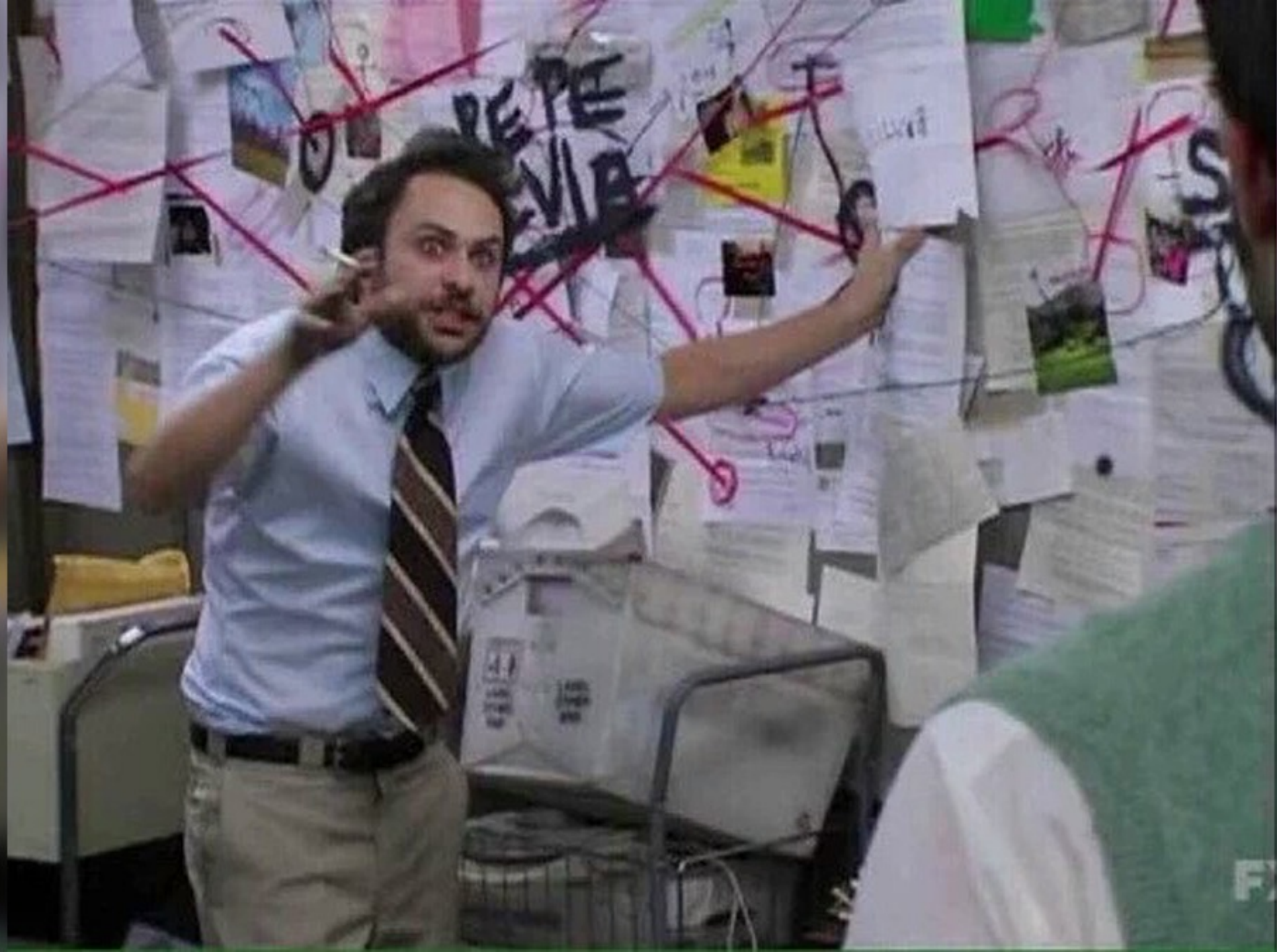


Illustration: GEOMAR

* Sea surface datasets include OAFlux, HadISST, ERSST, OISST, SOCAT







We're not done yet...

- Now looking for data “in the wild” (in a repository but not a paper)
- Talking to people with more expertise about the “why”
 - Would you like to be one of them?

But I have some early thoughts...

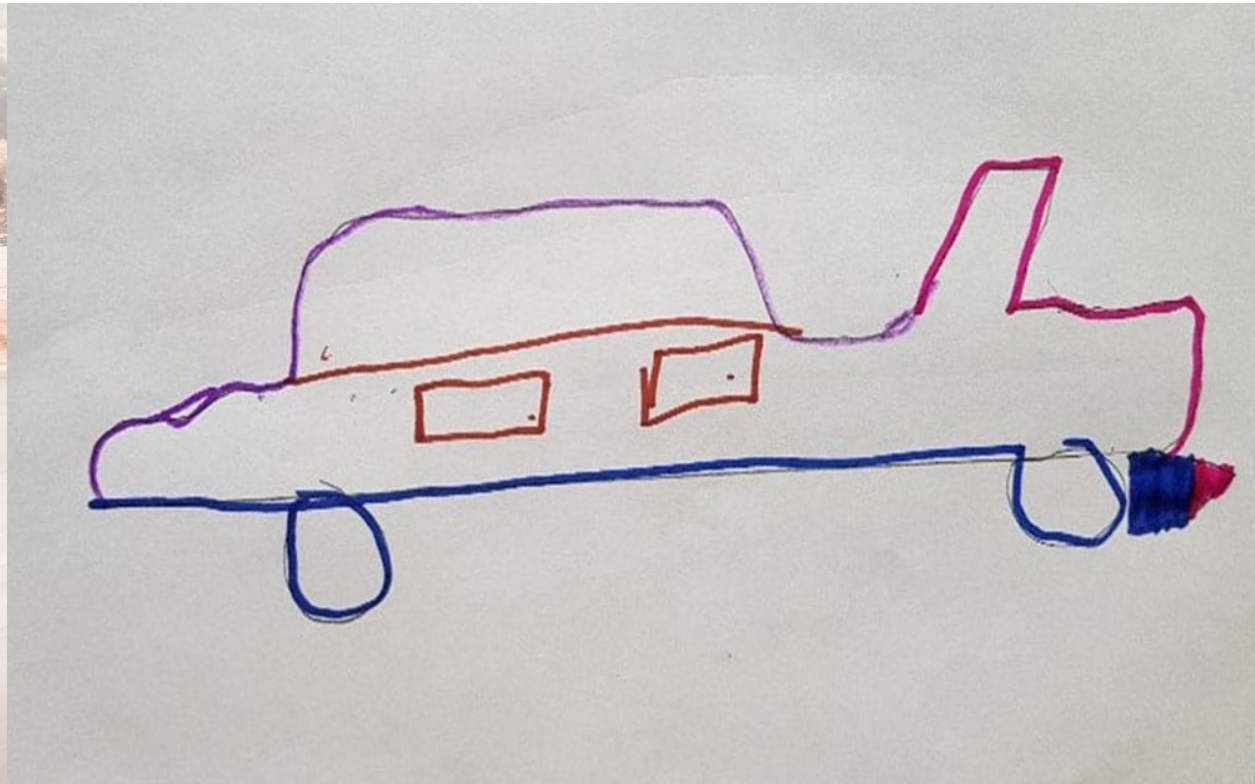
- ... on the implications for ocean data systems in the context of ocean CDR.

Co-opetition.

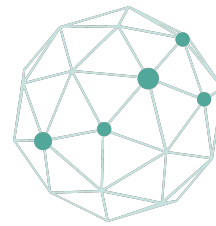
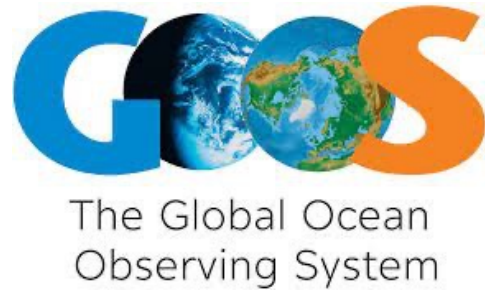




Standards: don't let the perfect be the enemy of the good.



This is a slide about



CIOOS
CANADIAN INTEGRATED
OCEAN OBSERVING SYSTEM

.... and the other under-resourced individuals and organizations that work to make open data widely available for public good.



Data Trusts

For when open data just isn't possible.





Go Big

North Atlantic Carbon
Observatory

Transform Climate Action
transformclimateaction.ca



 **Thank you!**



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Pêches et Océans Canada



Social Sciences and
Humanities Research
Council of Canada

Conseil de recherches
en sciences humaines
du Canada

Canada 

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