

# MAINTAINING THE ARGO BIBLIOGRAPHIES

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AST-21, Southampton, UK  
March 2020



UC San Diego



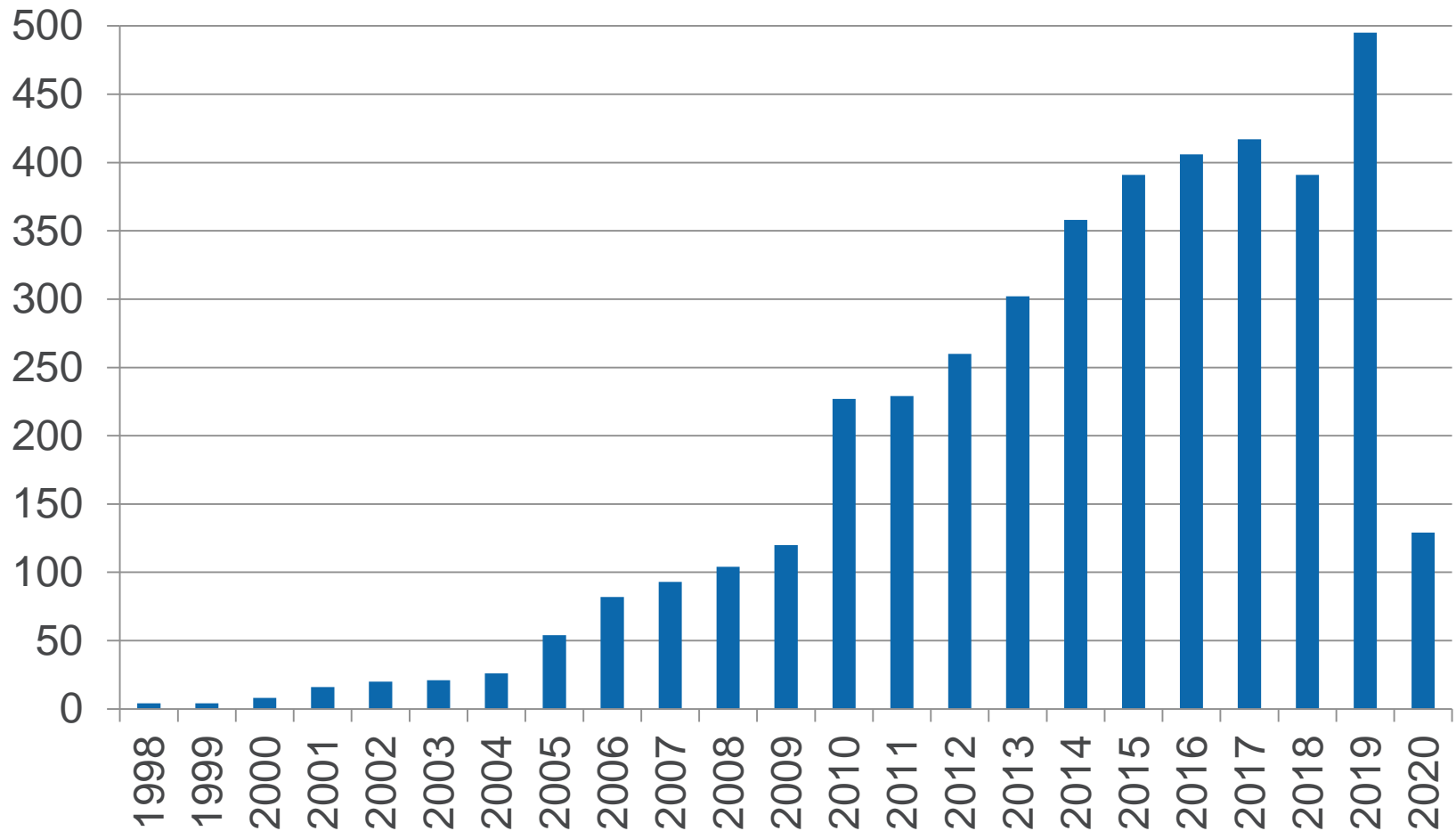
SCRIPPS INSTITUTION OF  
OCEANOGRAPHY

## UPDATES FOR THE PAST YEAR

- Trend in number of papers could be leveling off
- 55+ papers using Argo in OO'19 white papers
- Continued tracking statistics:
  - Data source moving away from GDACs & towards secondary sources
  - BGC and Deep Argo missions adding more papers and jnls
  - Argo DOI usage & acknowledgment continue to improve
  - New countries continue to publish papers
  - Argo PI as an author continues to trend down
- IFREMER bibliographic analysis
- Thesis citation list



# CURRENT STATUS OF ARGO BIBLIOGRAPHY

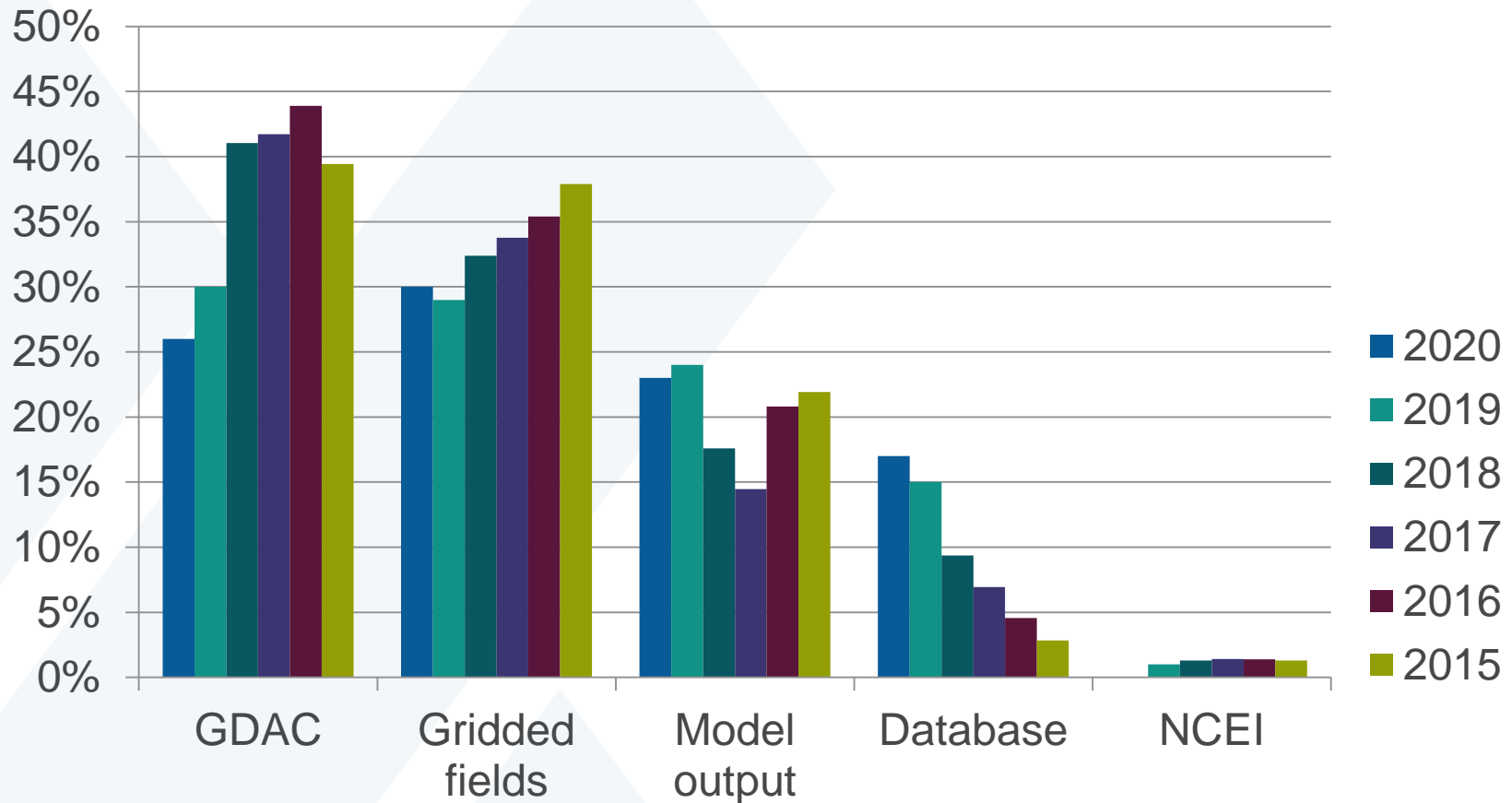


- ▶ Likely more papers using secondary Argo sources and no longer explicitly mention Argo, but still had a big jump in 2019 that is larger than just OO19 papers



# WHERE DO AUTHORS GET THEIR ARGO DATA?

Percentage of papers using data from listed source since 2015



- ▶ Increase in 'Database' as more sets of curated profiles are available
- ▶ Increase in 'Model output' this year (see next slides)
- ▶ Decrease in 'GDAC' and 'Gridded fields'



# SECONDARY DATA SOURCES



# MODEL OUTPUTS AS SECONDARY SOURCES



## GOADE OceanView Systems that assimilate Argo

BLUElink	CONCEPTS
ECCO	ECMWF
FOAM	HYCOM/NCODA
INDOFOS	Mercator Ocean
MFS	MOVE/MRI.com
NMEFC	RTOFS
TOPAZ	

- Worked with P. Oke to identify top papers from several of models listed to the left (GODAE does not keep their own bibliography)
- Ended up being very time consuming and not sure how valuable it is to Argo
  - Adding papers to bibliography now would artificially increase the numbers
  - Keeping a separate list of these papers is possible, but is not necessarily Argo's job
- Would then also consider other secondary sources of Argo data....

# MODEL OUTPUTS AS SECONDARY SOURCES



## GOADE OceanView Systems that assimilate Argo

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- Worked with P. Oke to identify top papers from several of models listed to the left (GODAE does not keep their own bibliography)
  - Ended up every time checking and not sure what the end result was in the end
  - Adding papers to the bibliography now could artificially increase the numbers
  - Keeping a separate list of these papers is possible, but not necessarily Argo's job
  - Would then also consider other secondary sources of Argo data....
- 
- Currently my database is set up to include these extra papers in the 'model' source of Argo data shown on previous slide which artificially inflates it. I can remove them.

# GRIDDED PRODUCTS AND DATABASES AS SECONDARY SOURCES

## Gridded Argo Products

ISAS15	CORA5
BOA-ARGO	CARS2009
IPRC	MOAA-GPV
MILA-GPV	EN4
MIMOC	RG climatology
Holte MLD	INCOIS
G-YoMaHa	ANDRO
AGVA	

## Argo Databases

EN4	IPRC
IFREMER for ISAS	MIT for ECCO
Holte MLD	YoMaHa
Chinese DAC	Others...

- Will try searching for papers based on a few Gridded Argo products and Argo databases either by paper citation or by name
- Can check how many actually mention Argo to see if it is worth tracking these products where Argo is a main source of data

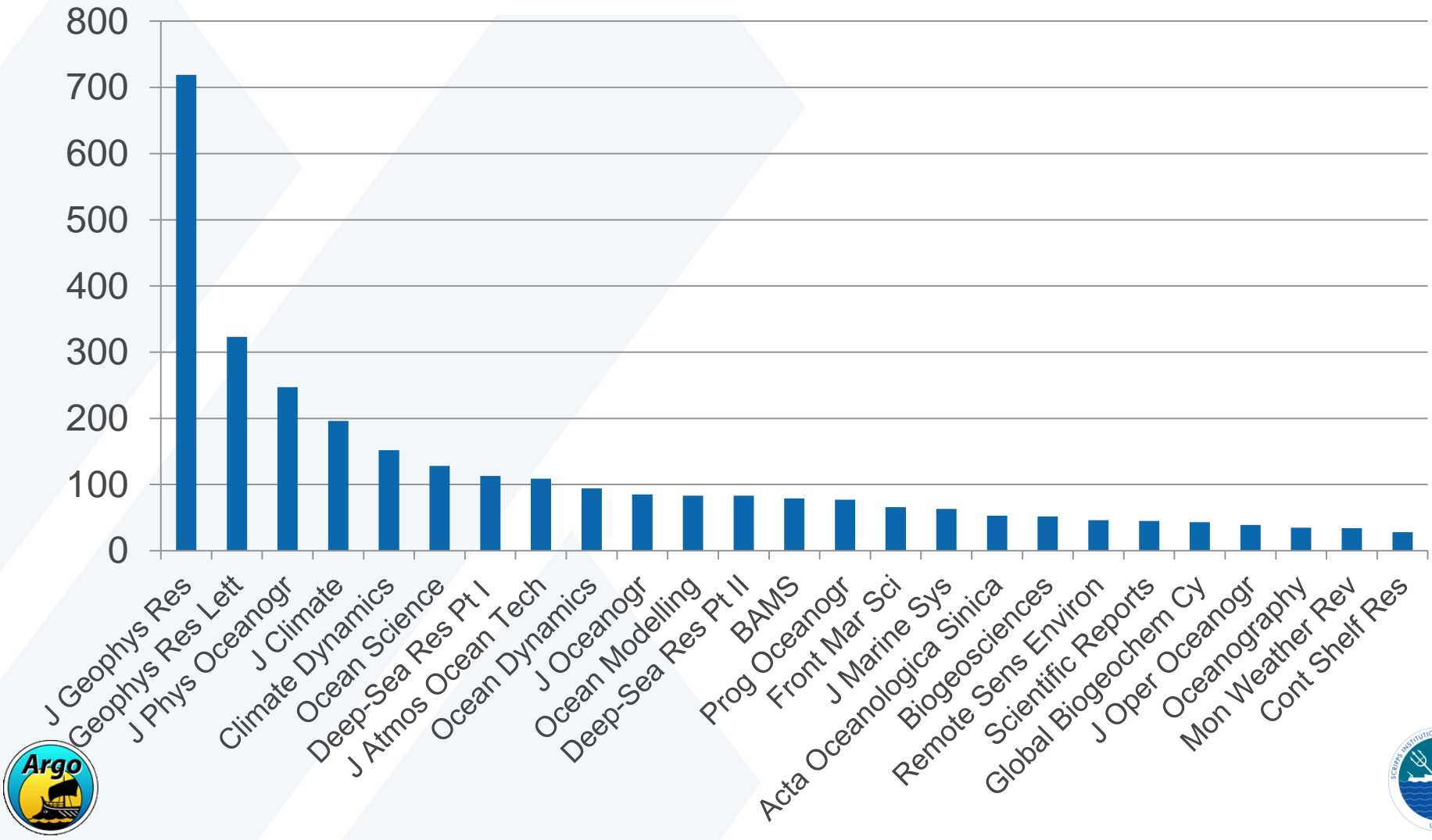
**MISSING PAPERS DUE TO NOT SEARCHING IN CORRECT JOURNALS?**



# WHAT JOURNALS DO ARGO PAPERS OCCUR IN?

- 17 articles in Nature
- 21 in Nature Geoscience

- 18 articles in Science
- 24 in Nature Climate Change



# AM I LOOKING IN ALL THE RIGHT JOURNALS?

- Currently search:
  - AGU
  - Elsevier
  - Springer
  - Taylor and Francis
  - Ocean Science
  - BioGeoSciences
  - Science
  - Nature
  - Google Scholar



Began searching these journals after feedback last year – **added 40 papers published in the past few years**

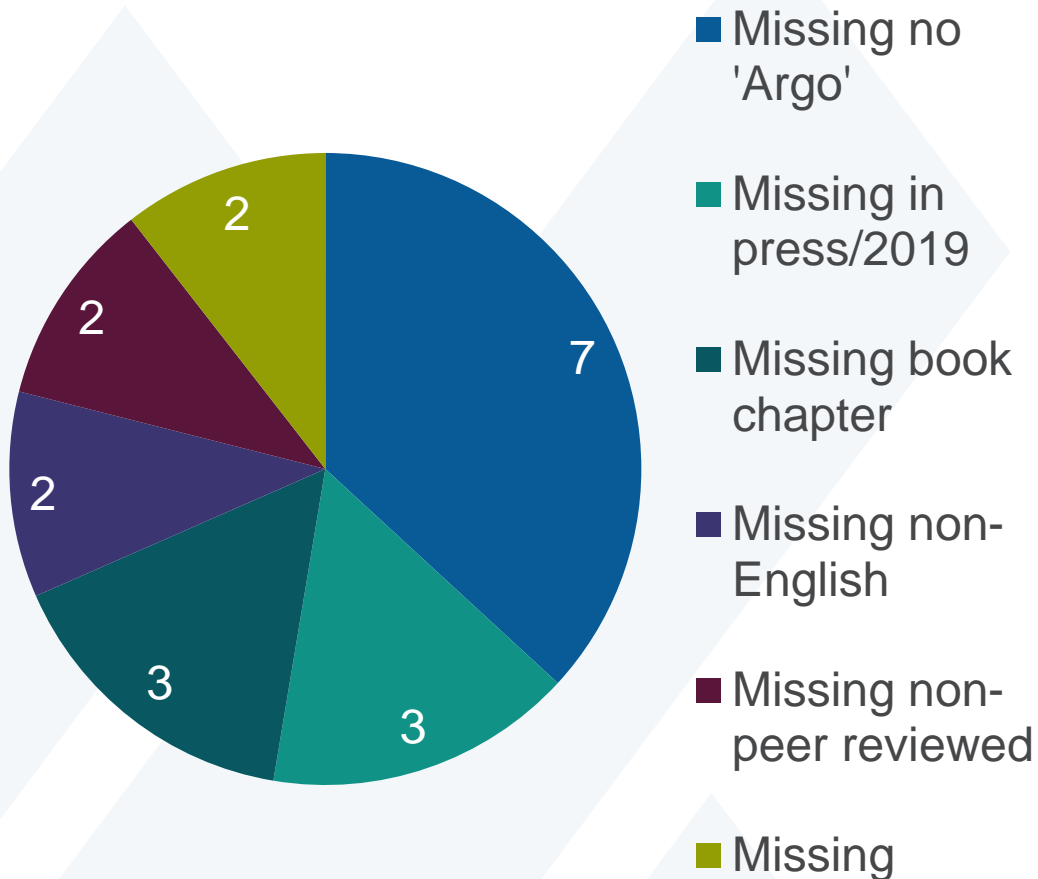
Will continue working with BGC-Argo / Argo extensions to make sure their journals are searched

## ELSEVIER ACCESS

- UC San Diego lost access to Elsevier in fall of 2019
- Still search Elsevier and keep track of papers I can't access
- Emailed all authors (~20) informing them of UC San Diego's lack of access and asked if Argo data was used in their publications
- 8 authors responded
- Could still use help getting access to these papers as access doesn't seem likely to change any time soon



# HOW WELL DO MY SEARCHES WORK?

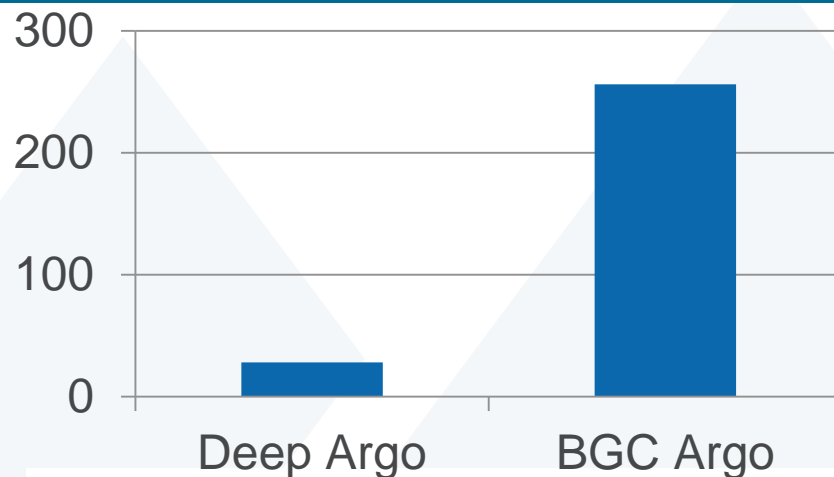


- Based on feedback from National Reports from Canada, China, Germany, India, Italy, Poland and South Africa
- Missing no 'Argo'
  - ARVOR-C (1)
  - BGC-sensor development?? (4)
  - Model output (1)
  - Not a notified Argo float (1)
- Missing
  - One in Ocean Science
  - One in NatGeoSci

# PAPERS BY ARGO MISSIONS



# ARGO MISSION PAPERS



- Identified by myself or experts
- Appear with symbol on bibliography
- Have separate bibliography pages

[http://www.argo.ucsd.edu/Bibliography\\_DeepArgo.html](http://www.argo.ucsd.edu/Bibliography_DeepArgo.html)

[http://www.argo.ucsd.edu/Bibliography\\_BGCArgo.html](http://www.argo.ucsd.edu/Bibliography_BGCArgo.html)

■ indicates BGC-Argo papers  
● indicates Deep Argo papers

BGC-Argo citation webpage  
Deep Argo citation webpage

2019 2018 2017 2016 2015 2014 2013 2012 2011 2010 2009 2008 2007 2006 2005 2004 2003 2002 2001 2000 1999 1998  
1997 1996 1995 1992 1991

2019 (11)

Bao, S., R. Zhang, H. Wang, H. Yan, Y. Yu, and J. Chen, 2019: Salinity Profile Estimation in the Pacific Ocean from Satellite Surface Salinity Observations. *Journal of Atmospheric and Oceanic Technology*, **36**, 53-68, <https://doi.org/10.1175/JTECH-D-17-0226.1>

Brakstad, A., K. Våge, L. Håvik, and G. W. K. Moore, 2019: Water Mass Transformation in the Greenland Sea during the Period 1986–2016. *Journal of Physical Oceanography*, **49**, 121-140, <https://doi.org/10.1175/JPO-D-17-0273.1>

Cancet, M., D. Griffin, M. Cahill, B. Chapron, J. Johannessen, and C. Donlon, 2019: Evaluation of GlobCurrent surface ocean current products: A case study in Australia. *Remote Sensing of Environment*, **220**, 71-93, <https://doi.org/10.1016/j.rse.2018.10.029>

Castillo-Trujillo, A. C., D. Partridge, B. Powell, and P. Flament, 2019: Vorticity Balance off the South Shore of Oahu, Hawaii, Derived by High-Frequency Radio Doppler Current Observations. *Journal of Physical Oceanography*, **49**, 211-225, <https://doi.org/10.1175/JPO-D-17-0270.1>

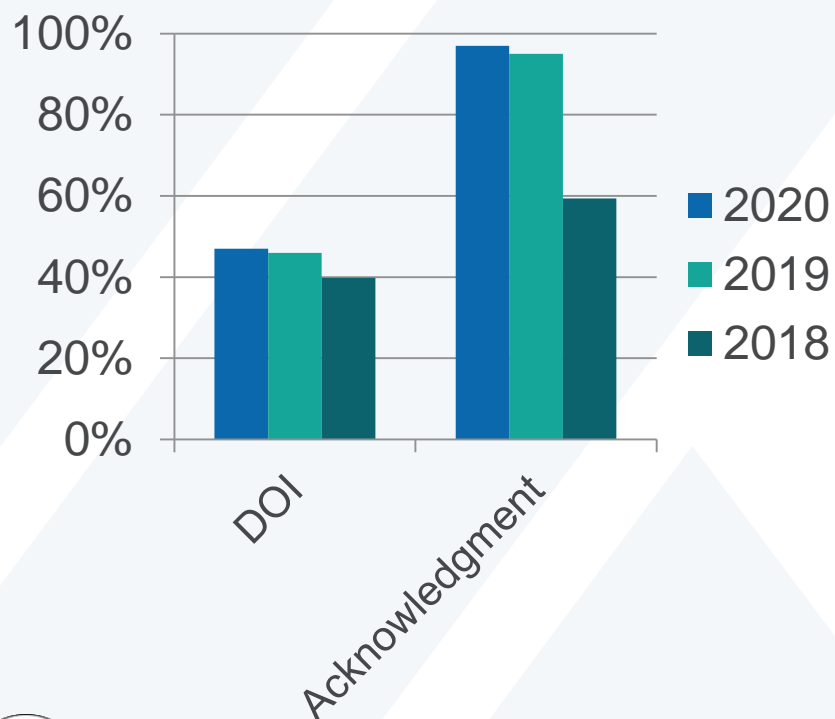
■ Cossarini, G., L. Mariotti, L. Feudale, A. Mignot, S. Salon, V. Taillandier, A. Teruzzi, and F. D'Ortenzio, 2019: Towards operational 3D-Var assimilation of chlorophyll Biogeochemical-Argo float data into a biogeochemical model of the Mediterranean Sea. *Ocean Modelling*, **133**, 112-128, <https://doi.org/10.1016/j.ocemod.2018.11.005>

# MORE BIBLIOGRAPHY STATISTICS

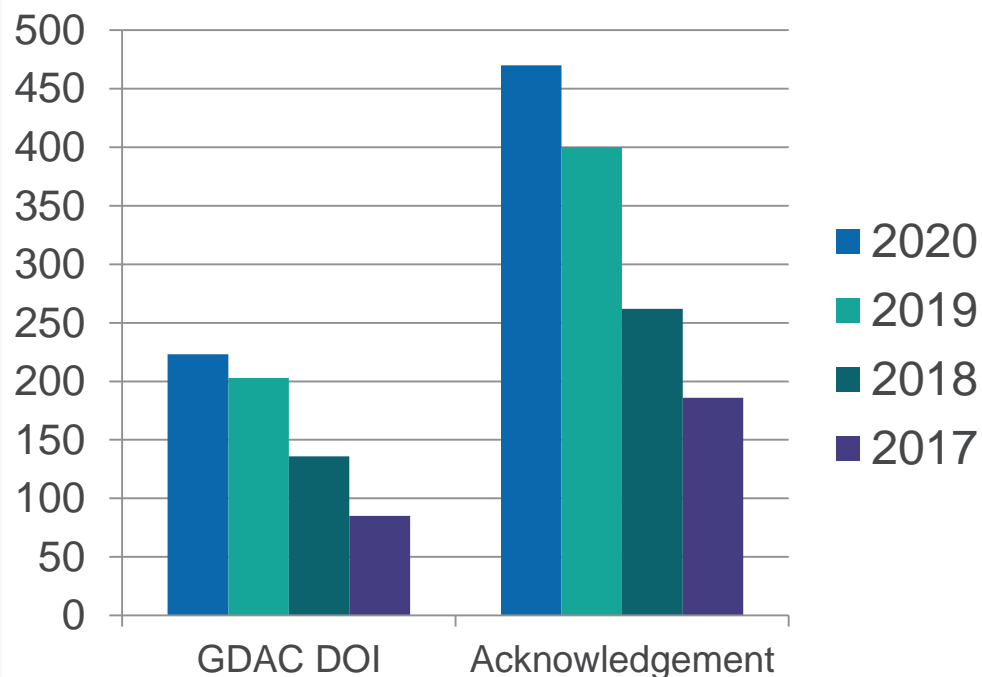


# HOW WELL DO AUTHORS ACKNOWLEDGE ARGO DATA?

Percentage of papers using GDAC data that acknowledge it through a DOI or Acknowledgment statement

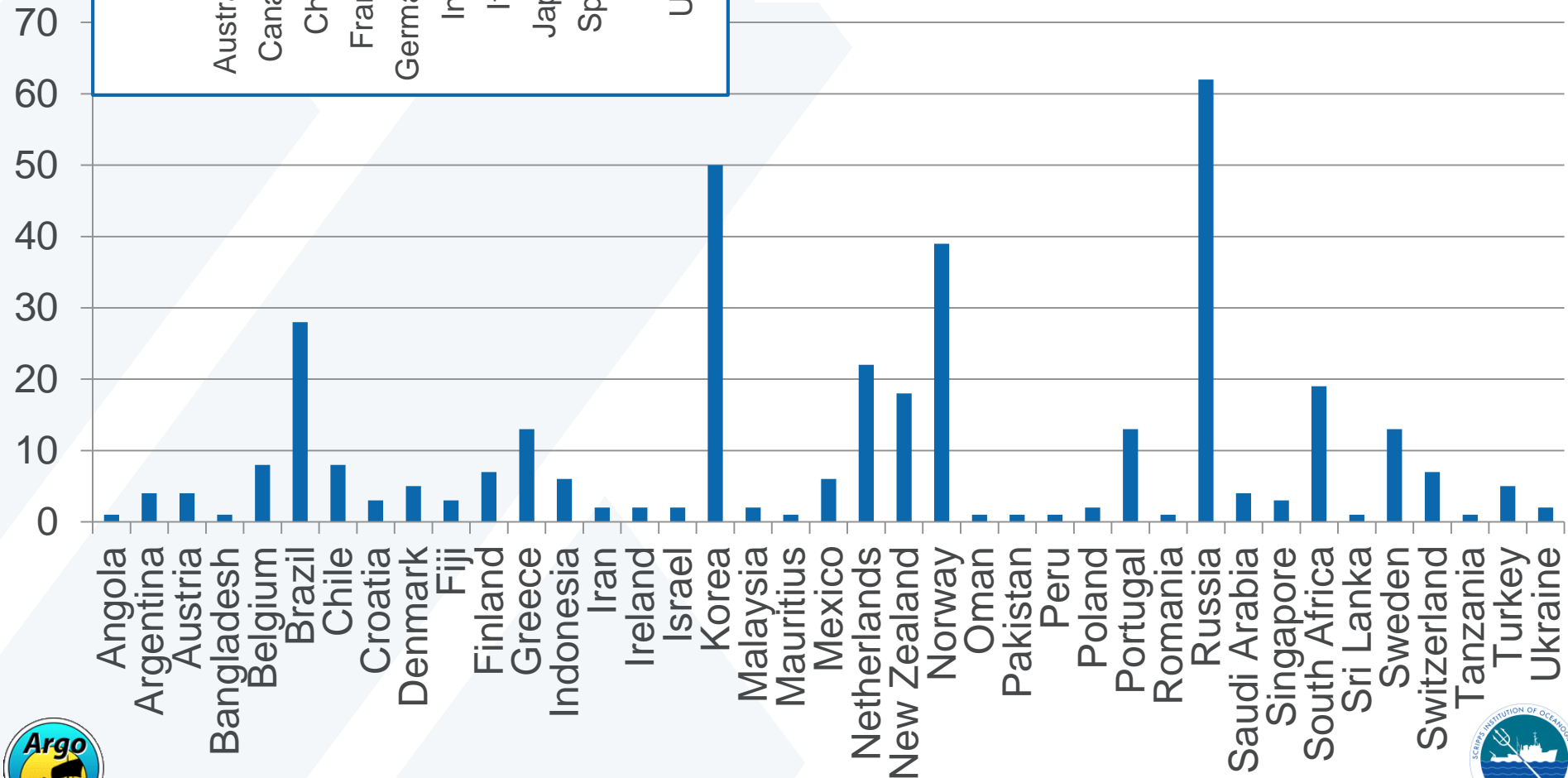
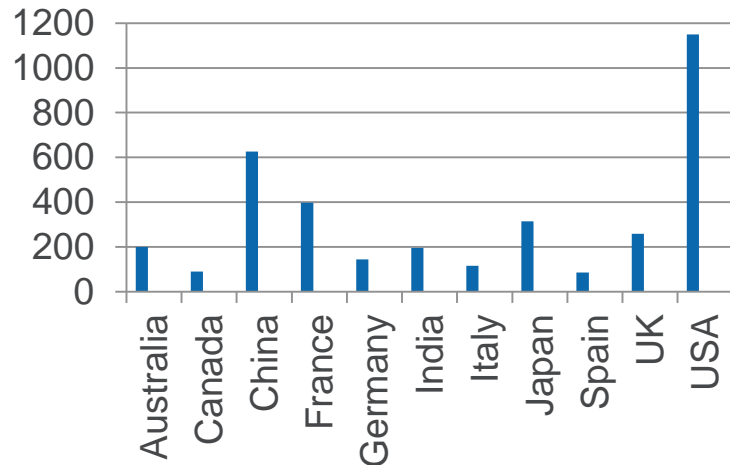


How do authors acknowledge Argo?

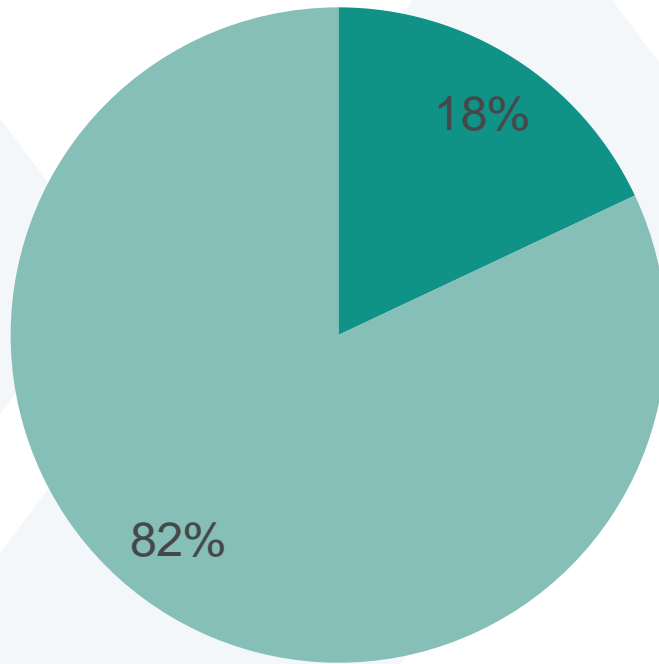


# COUNTRIES WITH ARGO PAPERS

- 51 countries in all
- One new country: Bangladesh



# PAPERS PUBLISHED BY ARGO PIS



Has trended down from ~25% four years ago

- At least one author is an Argo PI
- No author is an Argo PI

- Countries who have given me a list of Argo PIs:
- Canada China
- France Germany
- South Africa USA

- AST members from remaining countries are considered Argo PIs



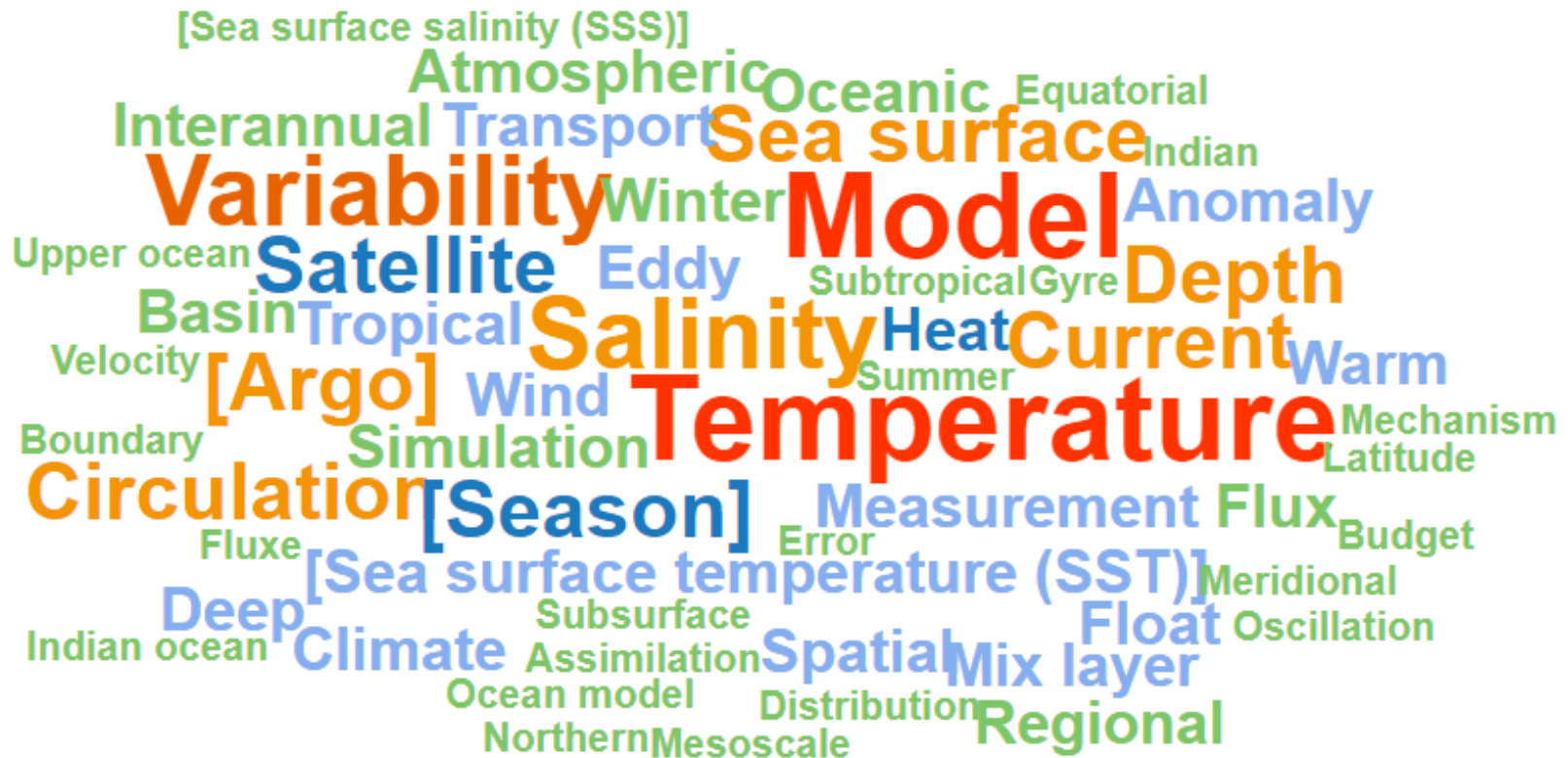
# IFREMER BIBLIOGRAPHIC ANALYSIS

[ftp://kakapo.ucsd.edu/pub/argo/Bibliography/IFREMER  
Bibliometric analysis 2014-2018 BLP 20190712.pdf](ftp://kakapo.ucsd.edu/pub/argo/Bibliography/IFREMER_Bibliometric_analysis_2014-2018_BLP_20190712.pdf)

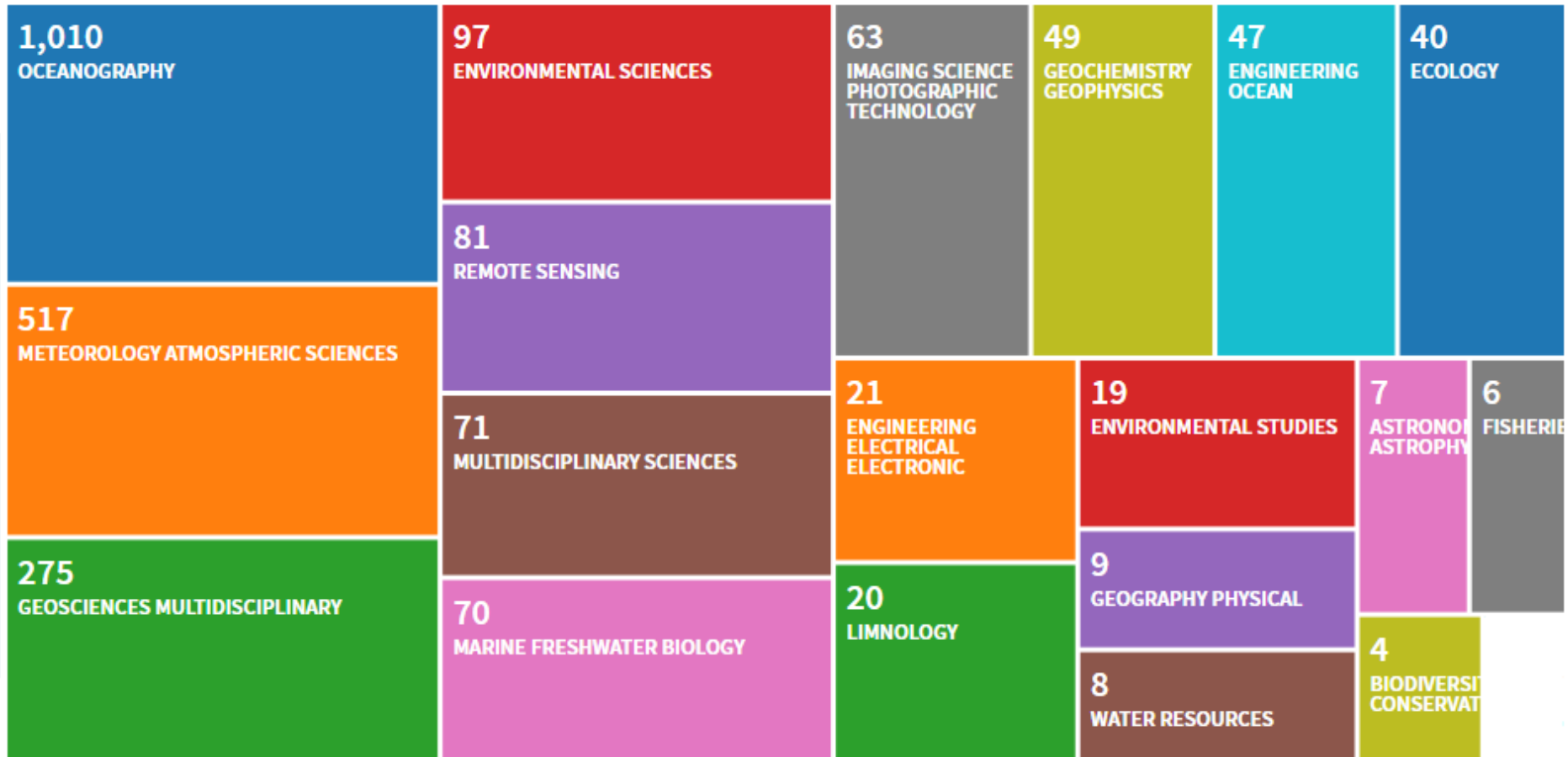


# IFREMER'S ANALYSIS FOR 2014 - 2017

Network of key concepts (excluding ocean and sea)



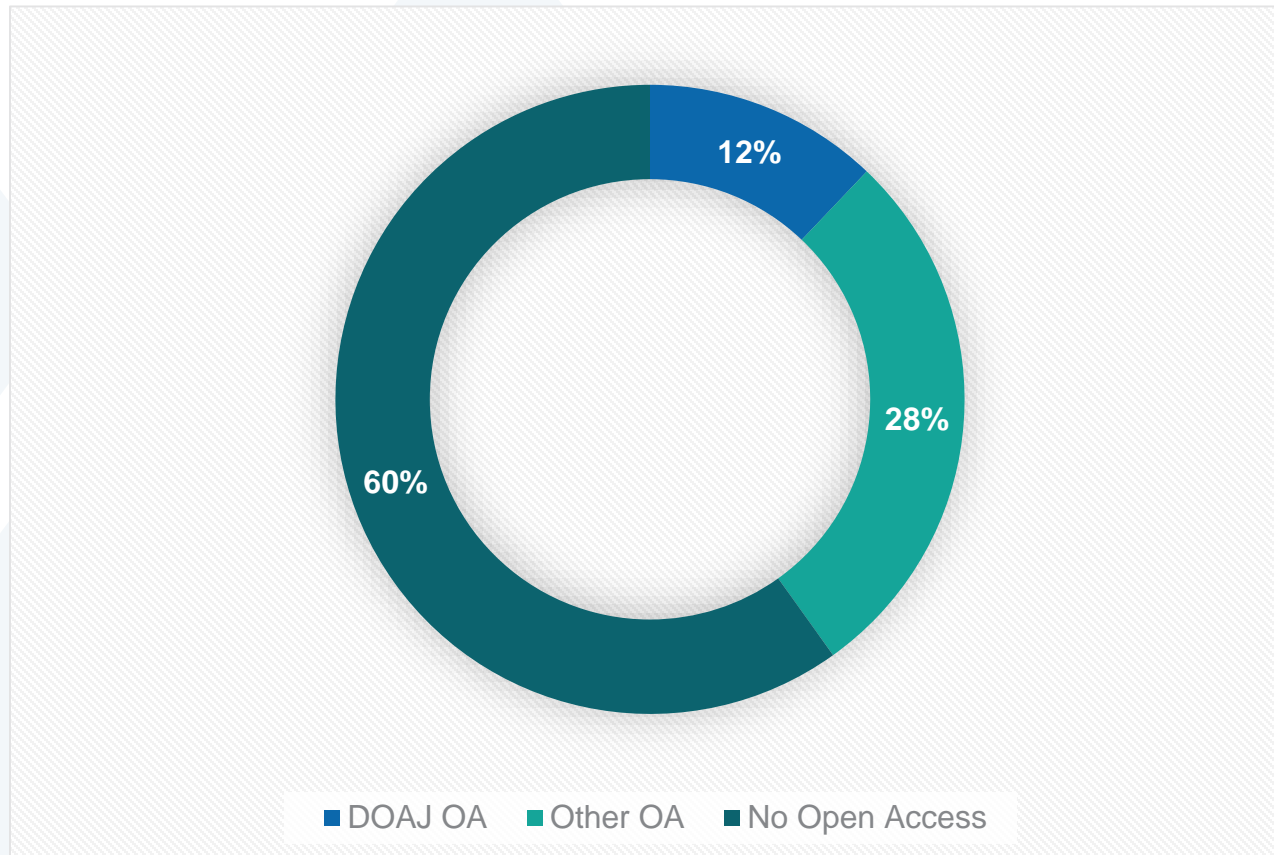
# WEB OF SCIENCE CATEGORIES



For example: there are 1 010 papers published in journals assigned to the WOS subject category *Oceanography*



# OPEN ACCESS PAPERS



DOAJ: Directory of Open Access Journals

Other: articles from hybrid journals

## HIGHLY CITED PAPERS

“As of January/February 2019, this highly cited paper received enough citations to place it in the top 1% of the academic field of Geosciences based on a highly cited threshold for the field and publication year” *Data from Essential Science Indicators*

Papers with  $\geq 120$  citations are shown

40 in total (41 last year)

First Author	Title	Times Cited
Bond, NA	Causes and impacts of the 2014 warm anomaly in the NE Pacific	260
Drobinski, P	HYMEX A 10-Year Multidisciplinary Program on the Mediterranean Water Cycle	176
MacLachlan, C	Global Seasonal forecast system version 5 (GloSea5): a high-resolution seasonal forecast system	207
Roemmich, D	Unabated planetary warming and its ocean structure since 2006	155
Waterhouse, AF	Global Patterns of Diapycnal Mixing from Measurements of the Turbulent Dissipation Rate	133
Cazanave, A	The rate of sea-level rise	132
Scmidtco, S	Multidecadal warming of Antarctic waters	130
Riser, SC	Fifteen years of ocean observations with the global Argo array	120

# THESIS CITATION LIST



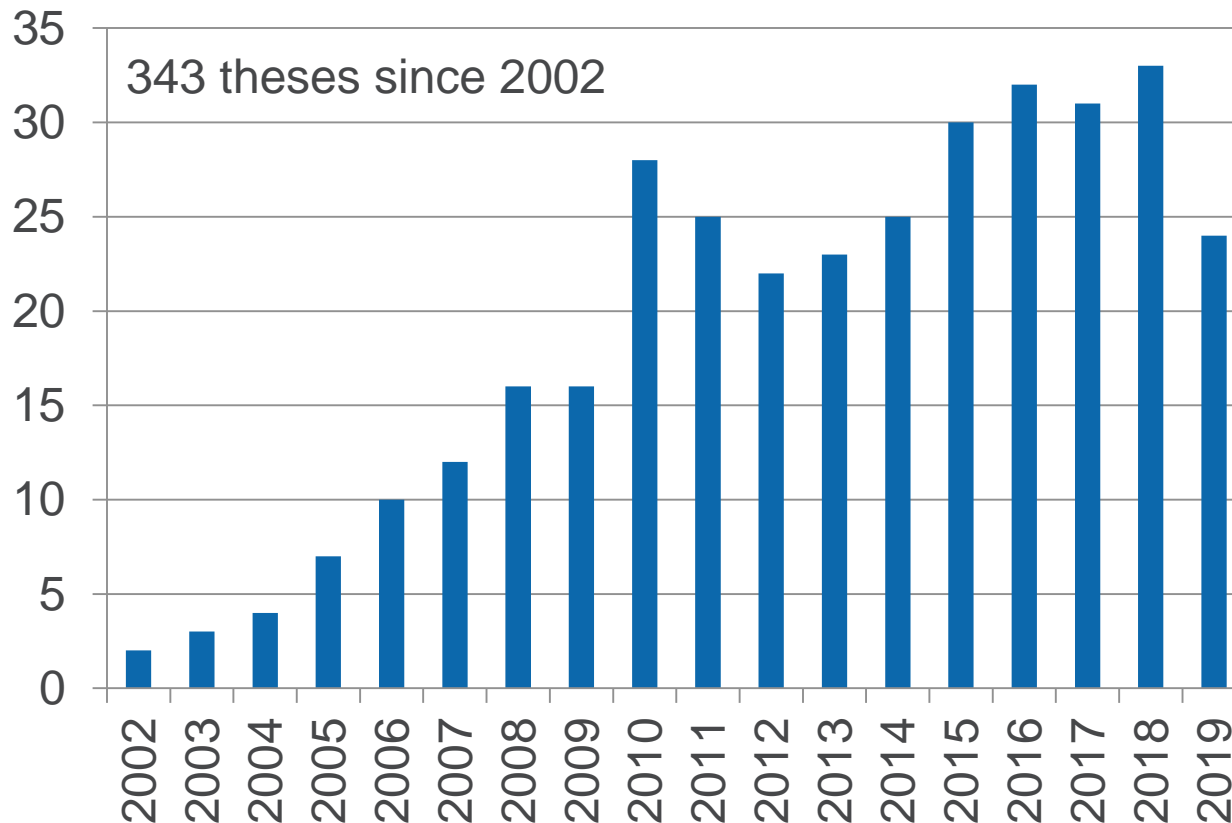
# CURRENT STATUS OF THESIS CITATION LIST

33 theses added since last AST meeting

Based on my searches and feedback from AST members

Thanks to Canada and Greece for including dissertations in National Report

Will include only theses with **verified Argo data** usage – either via access to document or by someone else familiar with thesis. This is getting easier as more theses are available online



## CONCLUSIONS

- Will likely be less papers included in Argo bibliography due to more secondary source papers
  - Should we put a statement on webpage addressing the decline/levelling off in number papers and why?
- Make sure to advertise these secondary sources of Argo data on website
- Continue thinking about restricted access to Elsevier
- Continue identifying Argo mission papers by adding unique symbols on main bibliography page

