Q1 What are your primary roles/responsibilities (please check all that apply)?
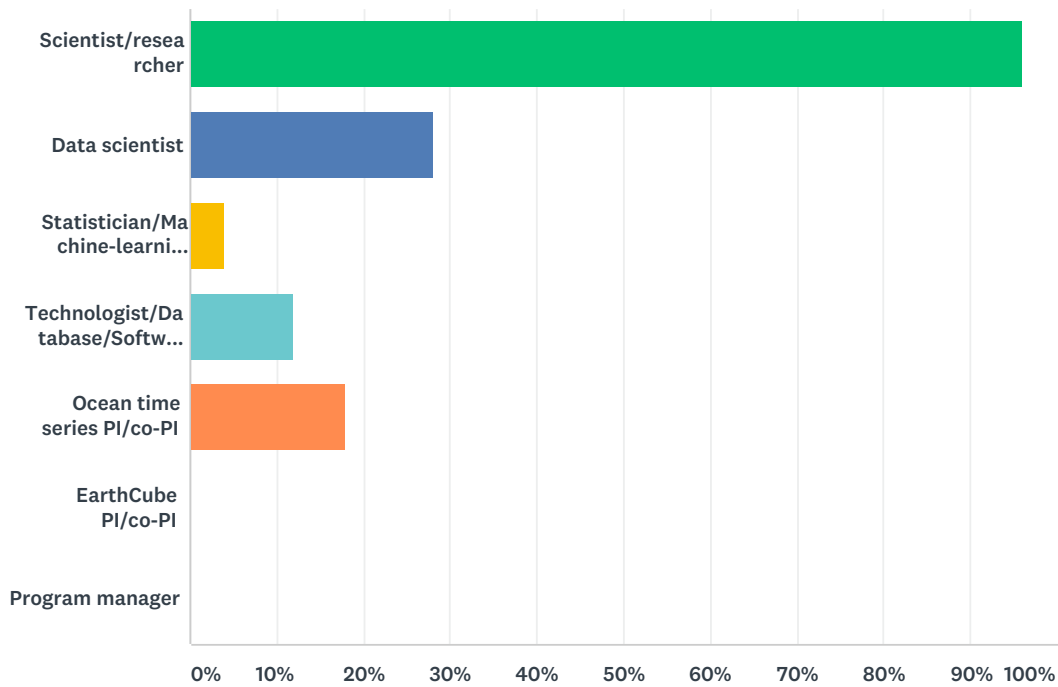
Answered: 50   Skipped: 0
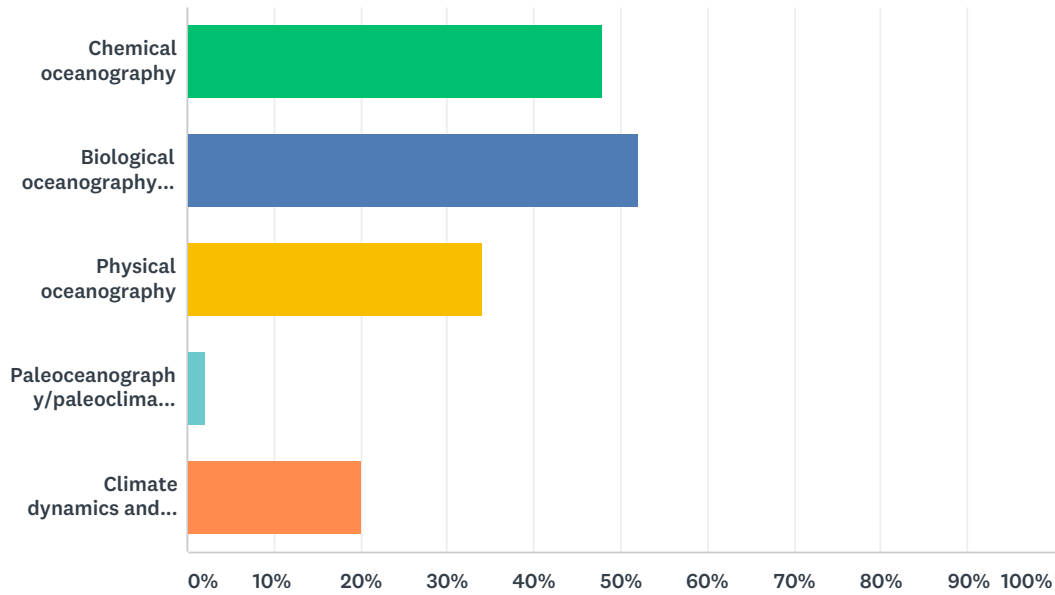

ANSWER CHOICES	RESPONSES	
Scientist/researcher	96.00%	48
Data scientist	28.00%	14
Statistician/Machine-learning specialist	4.00%	2
Technologist/Database/Software developer	12.00%	6
Ocean time series PI/co-PI	18.00%	9
EarthCube PI/co-PI	0.00%	0
Program manager	0.00%	0
Total Respondents: 50		

#	OTHER (PLEASE SPECIFY)	DATE
1	Model technician/analyst	8/2/2019 12:43 AM
2	Atmospheric time series ex-PI	6/27/2019 1:17 PM

Q2 What is (are) your primary discipline(s)? (please check all that apply)
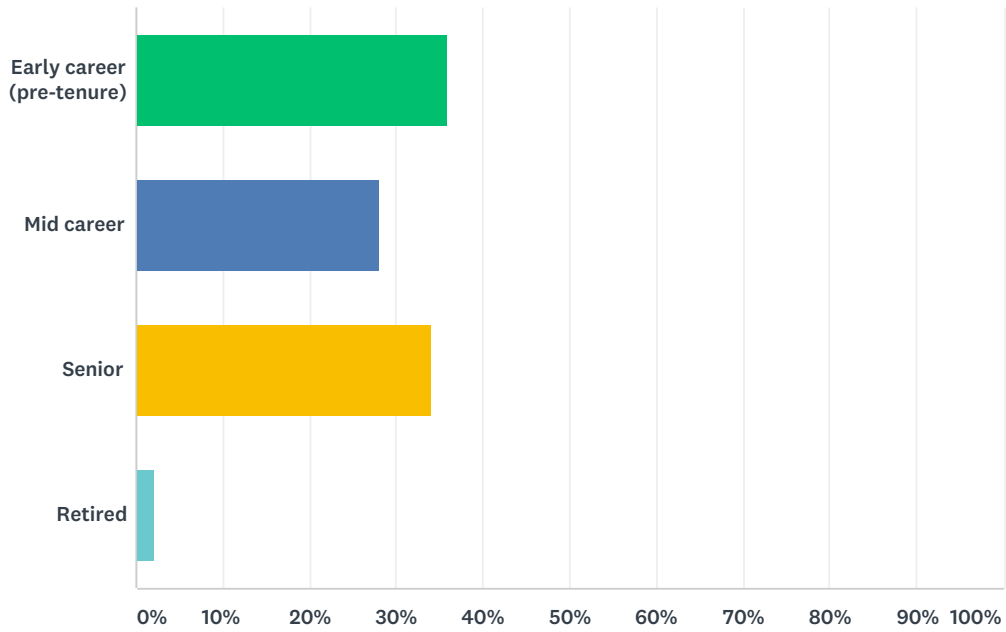
Answered: 50   Skipped: 0

ANSWER CHOICES	RESPONSES	
Chemical oceanography	48.00%	24
Biological oceanography/marine biology	52.00%	26
Physical oceanography	34.00%	17
Paleoceanography/paleoclimatology	2.00%	1
Climate dynamics and/or atmospheric science	20.00%	10
Total Respondents: 50		

#	OTHER (PLEASE SPECIFY)	DATE
1	Hydrology, water resources engineering	8/7/2019 11:10 AM
2	Data assimilation	7/25/2019 7:25 AM
3	sensor development	7/9/2019 5:18 AM
4	Biogeochemistry	6/27/2019 7:12 PM
5	Biogeochemistry	6/27/2019 7:34 AM
6	Coupled physical-biogeochemical modeling	6/24/2019 7:39 AM

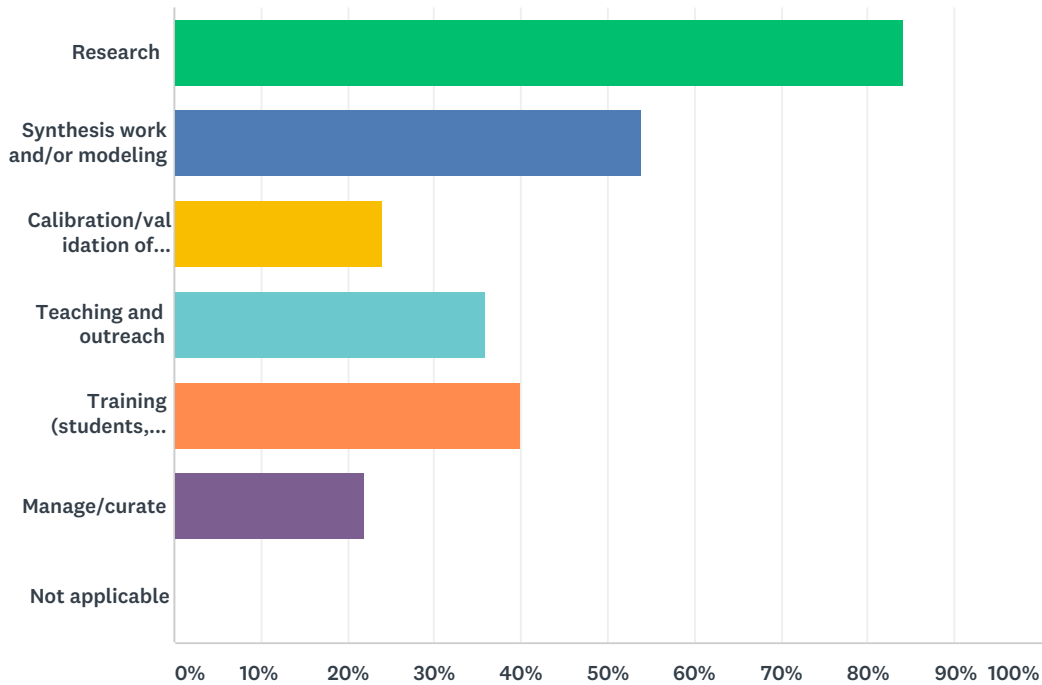# Q3 What is your career stage?

Answered: 50   Skipped: 0

ANSWER CHOICES	RESPONSES	
Early career (pre-tenure)	36.00%	18
Mid career	28.00%	14
Senior	34.00%	17
Retired	2.00%	1
TOTAL		50

Q4 How do you use ocean time series data? (please check all that apply)

Answered: 50   Skipped: 0

ANSWER CHOICES	RESPONSES	
Research	84.00%	42
Synthesis work and/or modeling	54.00%	27
Calibration/validation of satellite data and/or autonomous sensors	24.00%	12
Teaching and outreach	36.00%	18
Training (students, postdocs, etc.)	40.00%	20
Manage/curate	22.00%	11
Not applicable	0.00%	0
Total Respondents: 50		

#	OTHER (PLEASE SPECIFY)	DATE
1	scientific assistance to coastal water managers	8/23/2019 5:01 AM
2	assimilation of observations for and verification of operational oceanography products	7/25/2019 1:50 AM
3	Same for atmospheric time series	6/27/2019 1:17 PM
4	Not doing modeling anyway	6/14/2019 6:58 AM

Q5 Please list your primary sources of funding for ocean time series-related work (e.g., NSF, NOAA, NASA, private foundations, etc.)

Answered: 48   Skipped: 2

#	RESPONSES	DATE
1	private foundations	9/10/2019 6:29 PM
2	NSF,NASA, NOAA,foundations	9/3/2019 9:33 AM
3	University Grants Commission, India; ICAR, (NICRA) India	9/3/2019 9:10 AM
4	Spanish Ministry for Science and Education	9/2/2019 7:22 AM
5	CNPq (Brazil) CAPES (Brazil)	9/2/2019 6:52 AM
6	ICOS, H2020, national funding	8/27/2019 12:23 AM
7	french water agency	8/23/2019 5:01 AM
8	NSF, NOAA	8/22/2019 10:39 AM
9	NOAA	8/22/2019 8:20 AM
10	UIB/GEOMAR/EuroSea/AtlantOS	8/9/2019 12:54 AM
11	BOEM, NSF	8/7/2019 11:10 AM
12	CMEMS	8/2/2019 12:43 AM
13	-	7/25/2019 7:25 AM
14	National Weather Services, Copernicus Marine	7/25/2019 1:50 AM
15	NSF, NASA, NOAA	7/18/2019 2:28 PM
16	national funding	7/17/2019 11:59 PM
17	NSF	7/16/2019 9:00 AM
18	DOST-funded project	7/14/2019 2:05 AM
19	NIWA SSIF funding (New Zealand Govt funding)	7/10/2019 6:52 PM
20	Currently I am funded by a Simons Fellowship to do work at Station ALOHA, but by the time this workshop happens I will be funded by two grants (one NERC, project: CLASS, the other EU, project: COMFORT) to be doing global climate-relevant biogeochemistry data analysis, using time series & model output.	7/10/2019 6:30 PM
21	Non	7/10/2019 11:28 AM
22	NASA, The Gordon and Betty Moore Foundation	7/10/2019 5:17 AM
23	NSF	7/9/2019 1:15 PM
24	ERDDAP	7/9/2019 12:18 PM
25	NSF	7/9/2019 11:52 AM
26	NSF	7/9/2019 5:18 AM
27	NSF, private foundations	7/5/2019 7:59 AM
28	Instituto Español de Oceanografia (IEO, Spain) Galicia Regional Government (Xunta de Galicia, Spain) European Research Funds (various EU research and innovation programmes and Interreg funds) Spanish Government Research Funds (various research projects and infrastructure funds)	6/28/2019 3:22 AM
29	NSF	6/27/2019 7:12 PM
30	NASA, NSF	6/27/2019 1:17 PM
31	private foundations, NSF	6/27/2019 8:28 AM

32	NOAA, NASA, EPA, NSF	6/27/2019 7:34 AM
33	NSF, NASA	6/27/2019 6:30 AM
34	NSF	6/27/2019 6:27 AM
35	NOAA	6/24/2019 9:47 AM
36	NSF, NOAA	6/24/2019 8:22 AM
37	NASA, NOAA, NSF, ONR (in that order)	6/24/2019 7:39 AM
38	Instituto Nacional de Investigacion y Desarrollo Pesquero (Argentina)	6/21/2019 11:27 AM
39	BOEM, NSF	6/21/2019 8:03 AM
40	Mexican government funding (Conacyt), Nippon Foundation and POGO, IAI	6/19/2019 10:53 AM
41	NOAA	6/19/2019 8:25 AM
42	NSF	6/17/2019 10:13 AM
43	NASA, private foundations	6/14/2019 2:05 PM
44	Currently no sources of funding	6/14/2019 6:58 AM
45	NSF	6/14/2019 4:30 AM
46	EU funded projects, i.e. EU COST ACTION Ocean Governance for Sustainability (OceanGov CA 1527) www.oceangov.eu - Working Group Ocean, Climate Change and Acidification	6/13/2019 11:38 PM
47	USGS, state of California	6/13/2019 5:01 PM
48	IMARPE, NOAA and NASA	6/13/2019 3:21 PM

Q6 We are trying to identify key barriers to working with ocean time series data. How difficult is it for you to:

Answered: 50   Skipped: 0
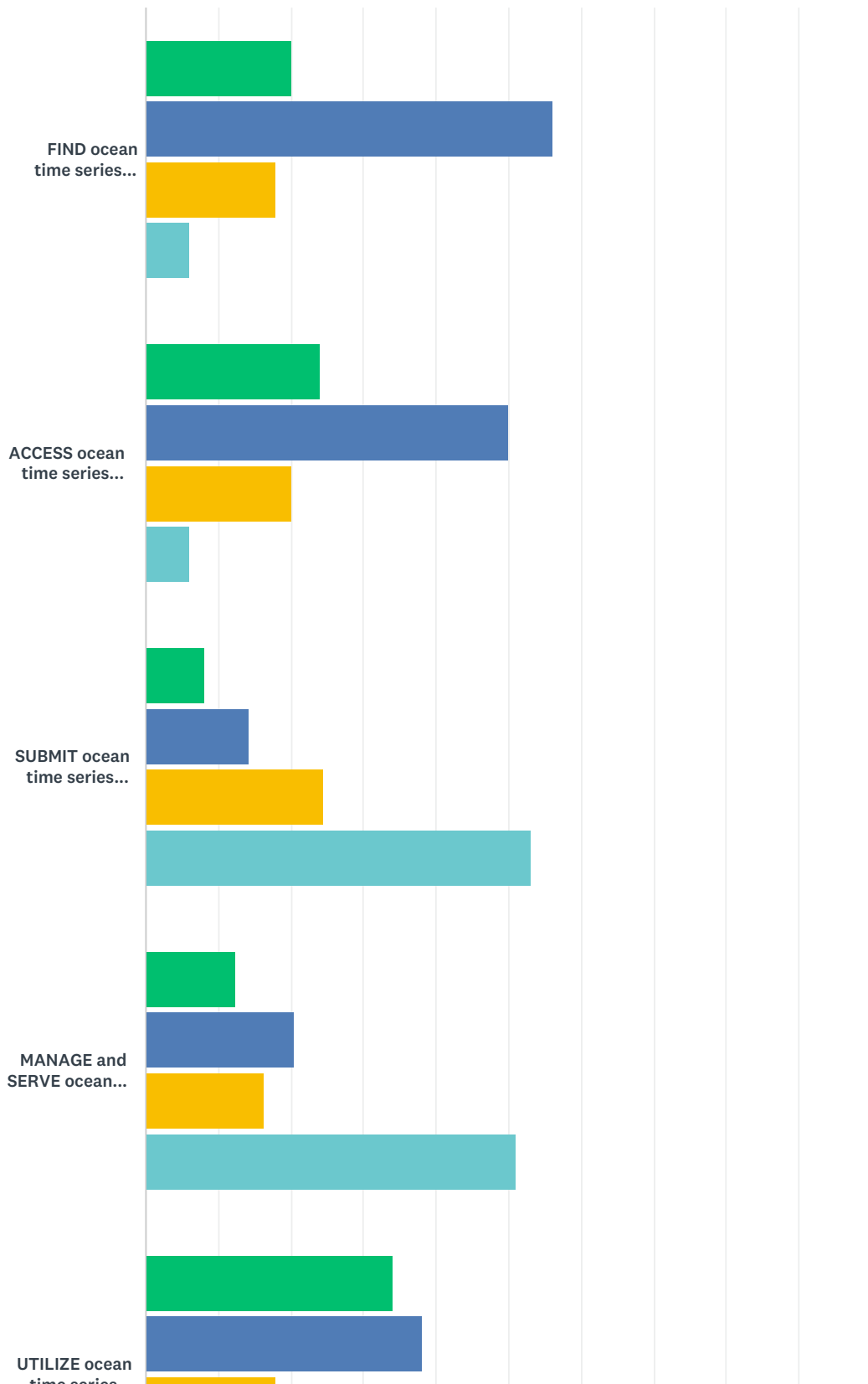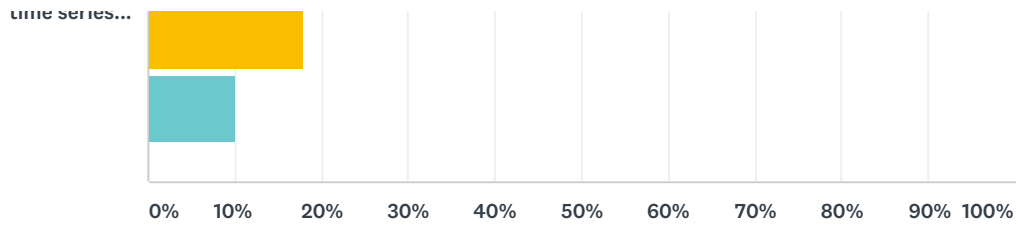
	EASY	SOMEWHAT DIFFICULT	VERY DIFFICULT	N/A	TOTAL
FIND ocean time series data you need	20.00% 10	56.00% 28	18.00% 9	6.00% 3	50
ACCESS ocean time series data you need	24.00% 12	50.00% 25	20.00% 10	6.00% 3	50
SUBMIT ocean time series data within 12-24 months of collection to a data management entity	8.16% 4	14.29% 7	24.49% 12	53.06% 26	49
MANAGE and SERVE ocean time series data once submitted	12.24% 6	20.41% 10	16.33% 8	51.02% 25	49
UTILIZE ocean time series data sets once obtained (formatting, data quality, etc.)	34.00% 17	38.00% 19	18.00% 9	10.00% 5	50

Q7 Please comment on specific aspects of your difficulties with ocean time series data

Answered: 41   Skipped: 9

| #	RESPONSES	DATE
1	When I first find time series data, sometimes I got some difficulties to process the data because of the limiting tools and methods that I am good at. Then sometimes I do not find the appropriate data to my research regarding spatial-temporal resolution.	9/10/2019 6:29 PM
2	sites change constantly, available data changes, format changes constantly, different web sources for same or different version of the same data. difficulty obtaining a time series, usually it is easy to obtain a short period or a day, but not all the time series	9/3/2019 9:33 AM
3	none	9/2/2019 6:52 AM
4	While getting access to physical oceanographic data it is rather difficult to get access to bgc data	8/27/2019 12:23 AM
5	to use data tretements more complicate than classical statistic (spectral analysis the follow-up of the use of the data series	8/23/2019 5:01 AM
6	Often, there is insufficient metadata - or non-standard terms or jargon from another discipline	8/22/2019 8:20 AM
7	Data gaps an inconsistent units are my main problems.	8/13/2019 4:57 AM
8	I often have to ask researchers directly for where their data are, and then I have to deal with various proprietary sensor formats.	8/7/2019 11:10 AM
9	Finding, and downloading time-series has been time consuming and sometimes unsuccessful. Data is often in non standardised .txt, .dat, .csv files rather than netcdf.	8/2/2019 12:43 AM
10	Inconsistent access locations, formats, metadata.	7/25/2019 7:25 AM
11	- finding a good inventory of what is available for a given time period is difficult - there are more and more data portal with visual maps to help find data and this is a good direction, but sometimes data that are visualized as available only have meta data - some data set exist on multiple platforms, but do not have a common references that allow easily to see overlap.	7/25/2019 1:50 AM
12	Lack of standardization and lack of technical "best practices" documentation (ie what database should I use, what API is preferred).	7/18/2019 2:28 PM
13	As they are multidisciplinar.. getting first the analysis, then a merged and formated file is difficult	7/17/2019 11:59 PM
14	BCO-DMO / NSF partitions time-series data into different projects based on funding. Therefore we cannot have a continuous project/dataset, leading to numerous requests for data. And comments about missing data. Maintaining project funding to avoid any data gaps is becoming increasing difficult.	7/16/2019 9:00 AM
15	accessibility and format	7/14/2019 2:05 AM
16	I am primarily working with my own data, from voyage planning, equipment maintenance, sample analysis, data analysis, data management, data submission. The data QA/QC submission process generally is time consuming, particularly dealing with the back data (ie data from some years ago). I don't often use data from other time series.	7/10/2019 6:52 PM
17	Mostly I think the challenge is finding time series data that I'm not explicitly aware of but know are out there, & determining to what extent different datasets are comparable.	7/10/2019 6:30 PM
18	There are so many requirement in some data bases that for a new user it becomr very difficult to cite the area/location of interest	7/10/2019 11:28 AM
19	Data sets all have different formats, very little information on measurement errors, data can be difficult to assess regarding techniques and associated errors and what the measurement actually means. Techniques vary with little metadata. Little repeat measurements for assessing errors. Little to no QA/QC. The GOV data repositories not data bases so they are hard to access/filter.	7/10/2019 5:17 AM

20	implementing QARTOD and other QC/QA checks to meet community standards, building trust in time series we acquire	7/9/2019 1:15 PM
21	Find the description of the data, metadata and units	7/9/2019 12:18 PM
22	Finding up to date figures prepared by others, e.g. BATS CO2 time-series data	7/9/2019 5:18 AM
23	HOT and BATS should manage their own data - they both do a good job of making their data available in a timely fashion. BCO-DMO is not set-up well for serving these types of data, at least not in a user-friendly way like currently available through systems like HOT-DOGS. NSF should provide funding to the time series programs themselves for data management and service.	7/5/2019 7:59 AM
24	Lack of a specific unit to deal with multidisciplinary ocean data (particularly integrating biology - plankton- data with hydrographic and biogeochemistry data)	6/28/2019 3:22 AM
25	standard products and data layout.	6/27/2019 7:12 PM
26	There is a difference between long term "time series" data, such as from BATS, HOTS, etc and shorter time series that only have their metadata submitted to a data base or data portal. It is the latter that are difficult to find or manage at times; sometimes only the integrated data, rather than the original profiles or rates, are submitted. And I understand why NetCDF but I hate NetCDF!	6/27/2019 1:17 PM
27	I don't really have any difficulties. The data are easy to access for a modeler, and usually have all the meta-data I need. Time-series data are generally much easier to work with for a modeler than data from individual process studies.	6/27/2019 7:34 AM
28	Not always clear what considerations need to be taken into account when using the data (methodological concerns, gaps, sensitivity, etc).	6/27/2019 6:30 AM
29	Usually the problems arise when trying to aggregate deployment data and/or comparing two different data sets. These problems all come down to the way time is represented (e.g., matching up "hours since ..." with calendar day)	6/24/2019 8:22 AM
30	[FAIR relevance indicated in ( )]: The discovery (F) to access (A) step is problematic, especially for biogeochemical data. Sites like BCO-DMO and MACAN/MARCO offer data searches, but really only deliver metadata about projects and PIs that have data (F, but ~A). They use tedious interactive map interfaces (~I). We have existing (for many years) tools like ERDDAP where geospatial/temporal extent searches are trivial (F), and the download formats are rich and flexible (A,R). If more data sets were made available via ERDDAP, even in a distributed sense, the Advanced Search capability and ability to have virtual catalogs would address all the FAIR issues with these.	6/24/2019 7:39 AM
31	We use data from our own time series, or from other time series obtained directly from the PIs	6/21/2019 11:27 AM
32	Researchers at UAF have worked in isolation for years, and have a collection of MATLAB scripts that generate data in formats we are used to working with. But we don't comply with standards etc so sharing our data is easy for us (hard for those who work with it). Also, our institution doesn't have the resources to support data management.	6/21/2019 8:03 AM
33	Finding the resources to maintain ocean time series data collection]	6/19/2019 10:53 AM
34	Getting the data from the original data collectors. Even if they give it, they do not want it shared. So "managing time series data" is not a challenge because there is not much to "manage" (at least in terms of making a public database of it).	6/19/2019 8:25 AM
35	N/A	6/17/2019 10:13 AM
36	As someone who mostly submits data, I struggle with versioning. I work in part with DNA sequencing, and I've found that the database managers who want to upload species ID and counts as for organismal data don't understand why, once my data are "analyzed," they aren't static and may change with, e.g., newer reference sequences. I have not found a good solution here.	6/14/2019 2:05 PM
37	Easiness in accessing is a challenge and sometimes complications of the language used in the website (not use a friend)	6/14/2019 6:58 AM
38	Every time series dataset is accessed slightly differently and it can be difficult for a user that doesn't know the system/site to easily access these data. It would great if we could be more consistent in the platforms used to access time series data so that it could be easier for users to find what they need.	6/14/2019 4:30 AM
39	Gaining timely (within 12-24 months of collection) access to the most updated data sets; data formatting; unit of measurement	6/13/2019 11:38 PM

| 40 | unwillingness to share data; incomplete metadata; uncertainties about data quality; formatting that gives the impression data 'owners' are not highly motivated to share | 6/13/2019 5:01 PM |
| 41 | It is difficult in wind data | 6/13/2019 3:21 PM |

Q8 How do you most commonly discover your data?

Answered: 49   Skipped: 1
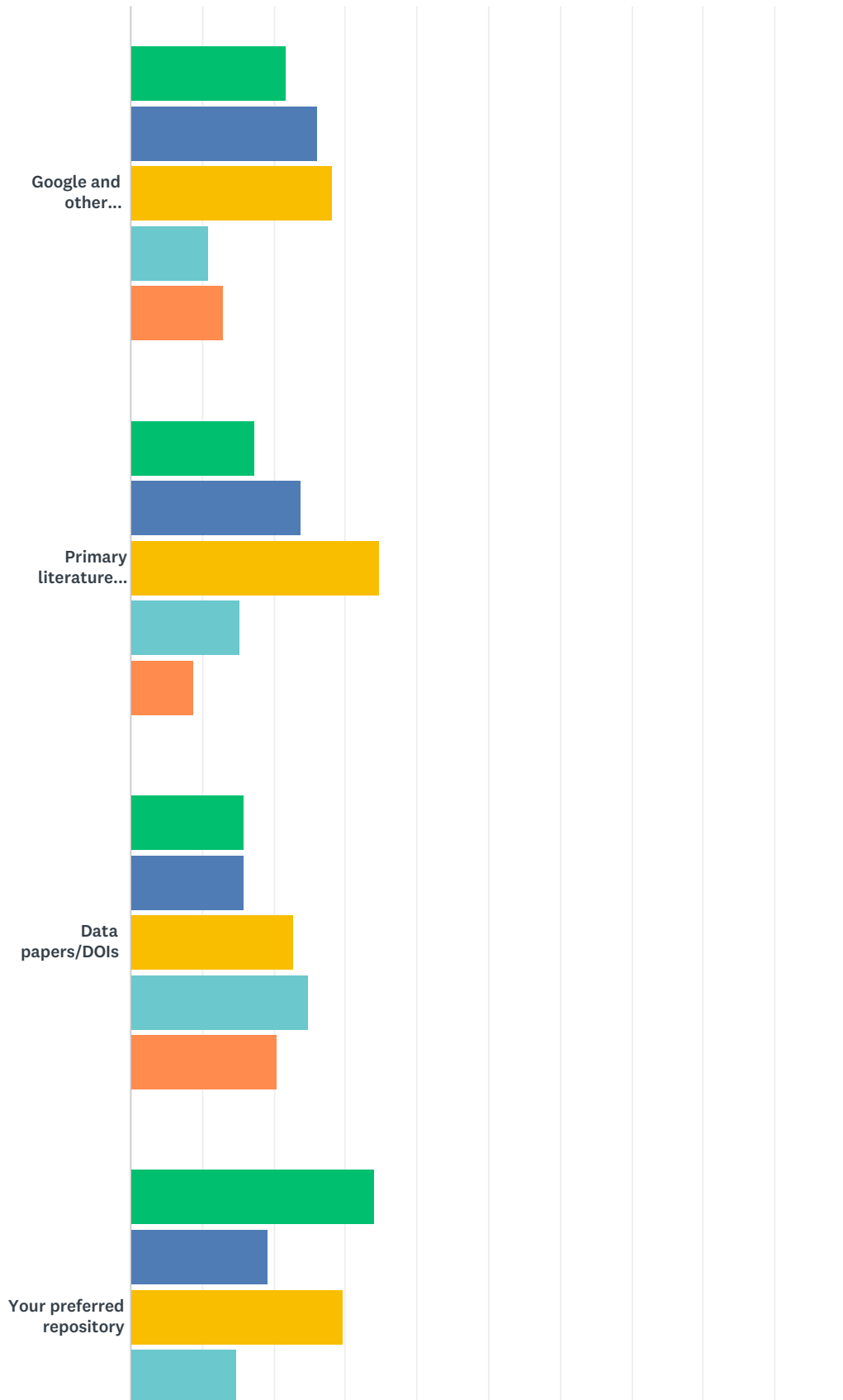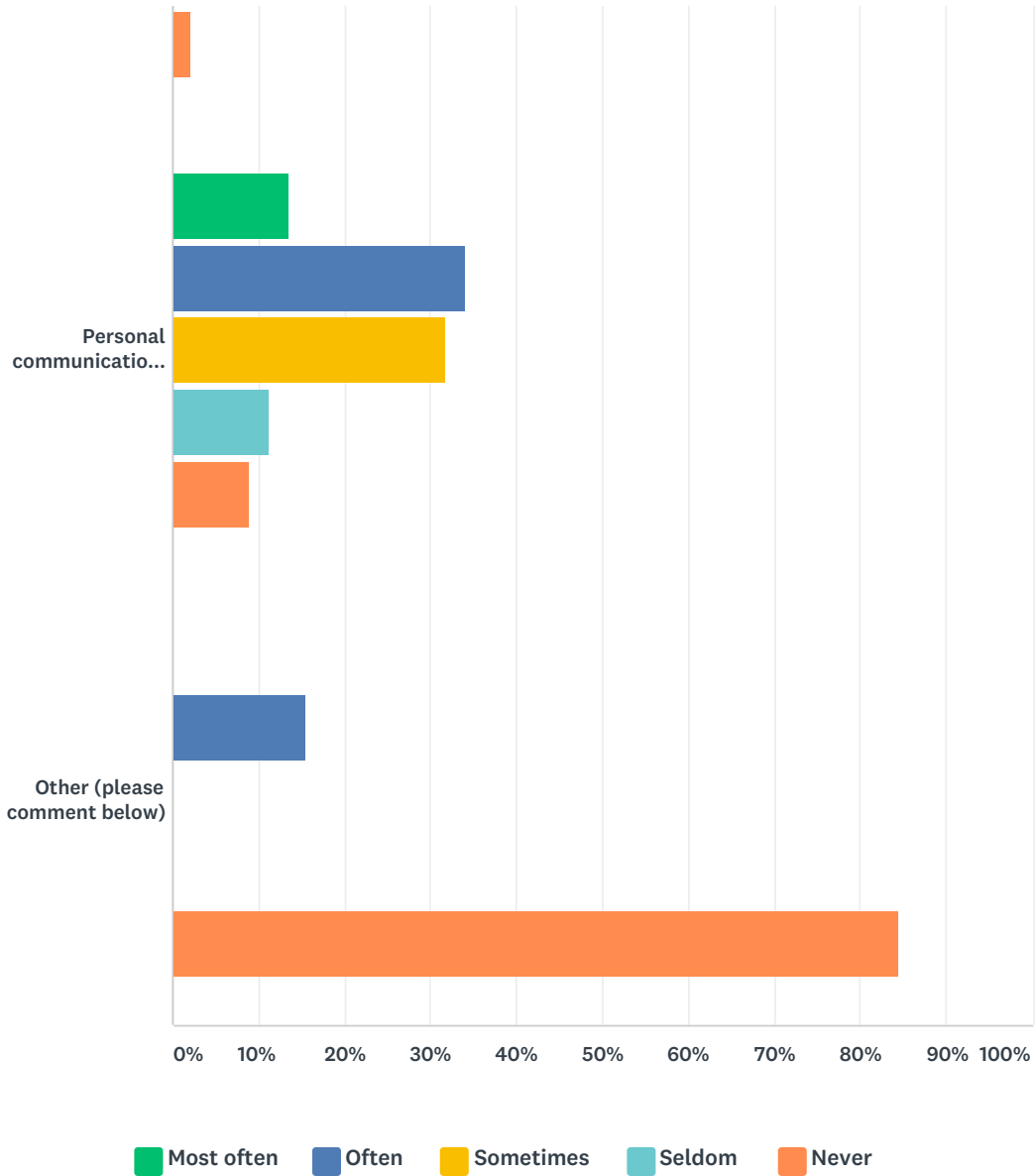
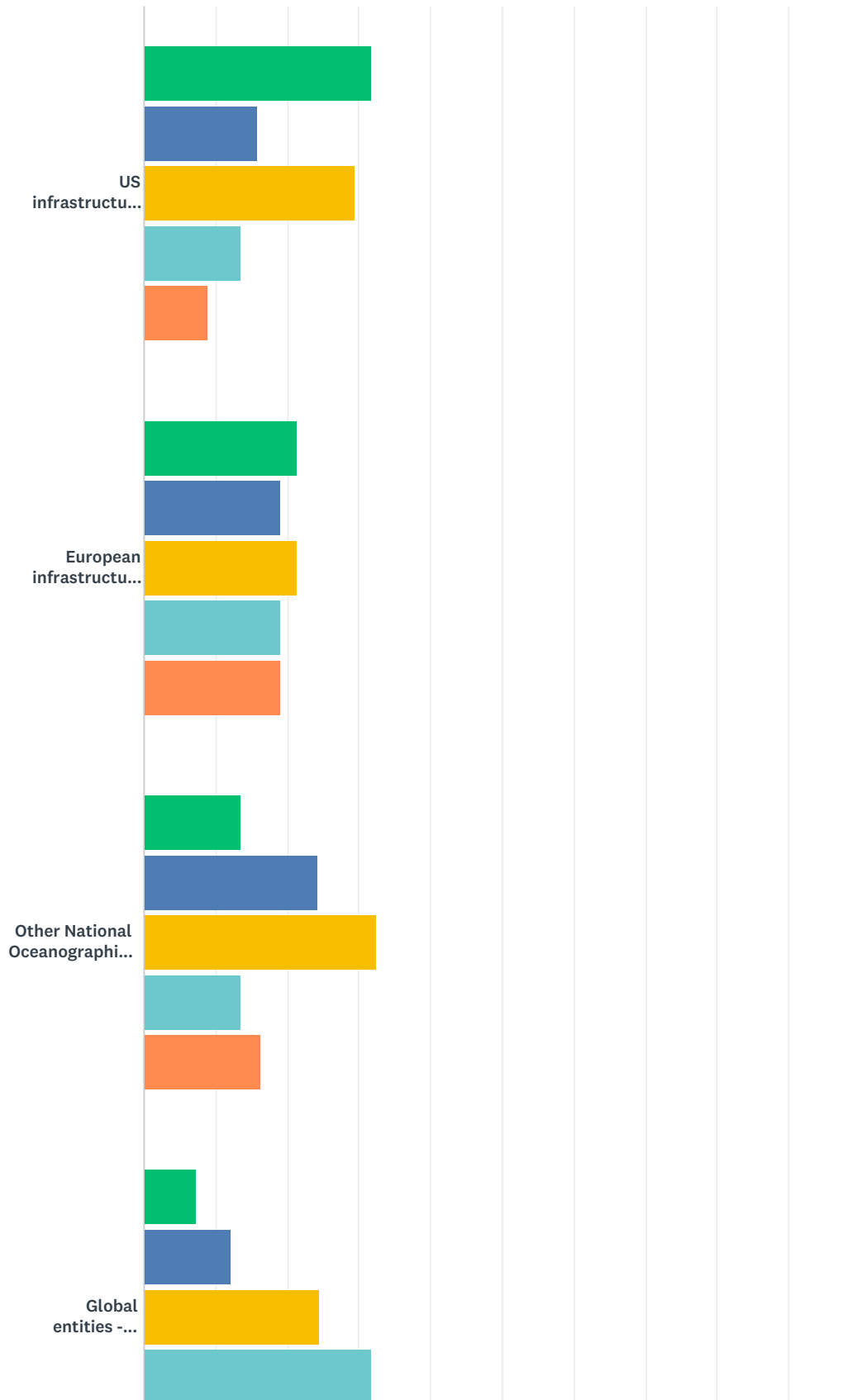|	MOST OFTEN	OFTEN	SOMETIMES	SELDOM	NEVER	TOTAL
Google and other commercial search engines	21.74% 10	26.09% 12	28.26% 13	10.87% 5	13.04% 6	46
Primary literature (science publications)	17.39% 8	23.91% 11	34.78% 16	15.22% 7	8.70% 4	46
Data papers/DOIs	15.91% 7	15.91% 7	22.73% 10	25.00% 11	20.45% 9	44
Your preferred repository	34.04% 16	19.15% 9	29.79% 14	14.89% 7	2.13% 1	47
Personal communication with PIs	13.64% 6	34.09% 15	31.82% 14	11.36% 5	9.09% 4	44
Other (please comment below)	0.00% 0	15.38% 2	0.00% 0	0.00% 0	84.62% 11	13

Q9 If you chose "Other" in the previous question, please comment further here on how you most commonly discover ocean time series data.
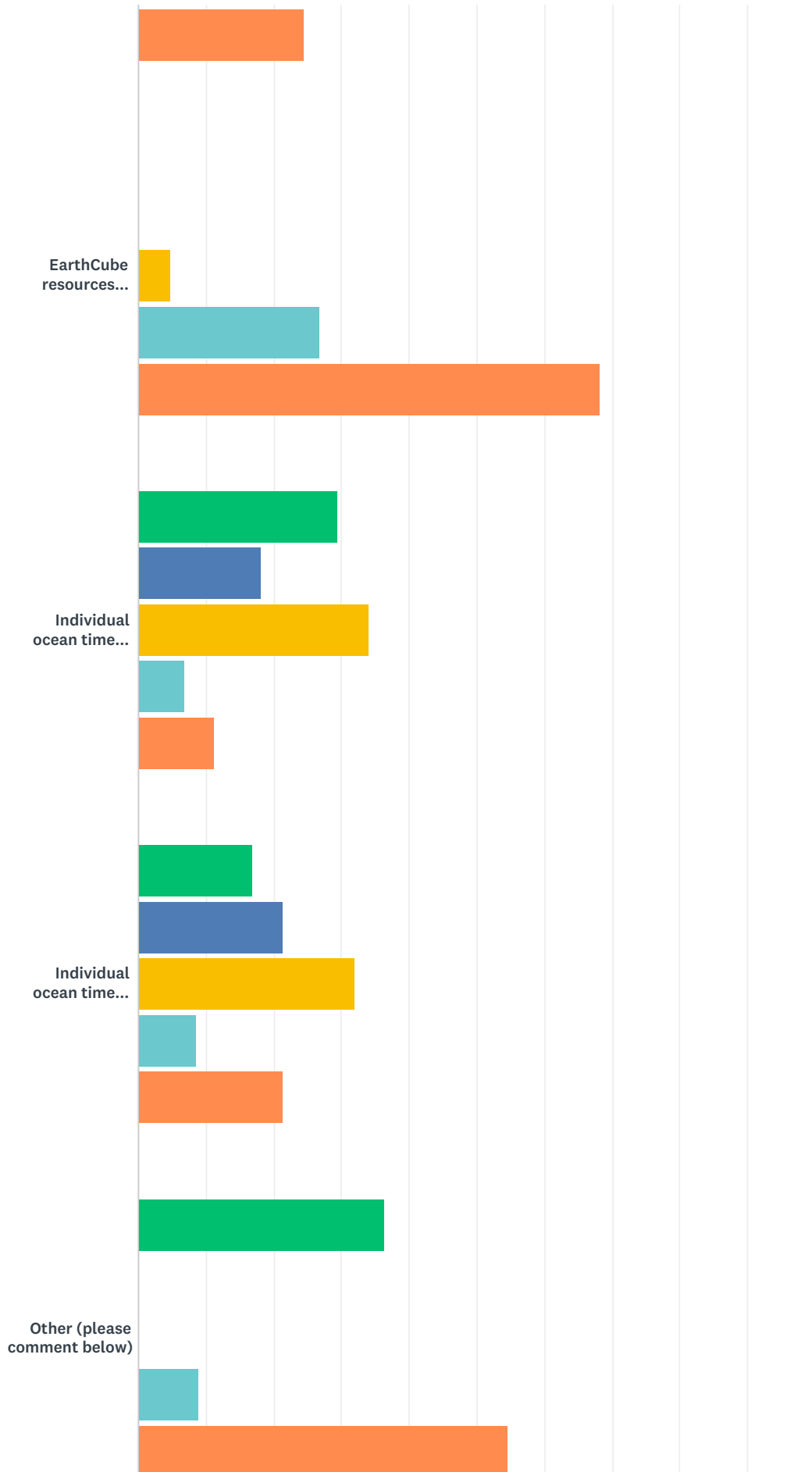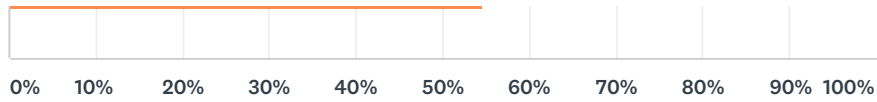
Answered: 9   Skipped: 41

#	RESPONSES	DATE
1	Word of mouth from other researchers	8/13/2019 4:57 AM
2	NA	7/18/2019 2:28 PM
3	N/A	7/10/2019 6:52 PM
4	Through the ocean time series websites, which do a good job of making the data accessible and "viewable".	7/5/2019 7:59 AM
5	I access ocean related data using ERDDAP servers that solve most of these issues	6/24/2019 9:47 AM
6	N/A	6/24/2019 8:22 AM
7	I discover existence through papers/metadata searches, but then try various comprehensive catalogs like ERDDAP at Coastwatch or PacIOOS, or some other OOSs, hoping to find the data mirrored there.	6/24/2019 7:39 AM
8	N/A	6/17/2019 10:13 AM
9	NA	6/14/2019 4:30 AM

Q10 Where do you most commonly access ocean time series data?

Answered: 49   Skipped: 1

EarthCube resources...

Individual ocean time...

Individual ocean time...

Other (please comment below)

	Most often	Often	Sometimes	Seldom	Never

|	**MOST OFTEN**	**OFTEN**	**SOMETIMES**	**SELDOM**	**NEVER**	**TOTAL**
US infrastructures - e.g., Biological and Chemical Oceanography Data Management Office (BCO-DMO), National Centers for Environmental Information (NCEI), DataONE, etc.	31.82% 14	15.91% 7	29.55% 13	13.64% 6	9.09% 4	44
European infrastructures and data centres - e.g., SEADATANET, PANGAEA, British Oceanographic Data Centre (BODC), Integrated Carbon Observation System (ICOS), European Multidisciplinary Seafloor and water-column Observatory (EMSO), etc.	21.43% 9	19.05% 8	21.43% 9	19.05% 8	19.05% 8	42
Other National Oceanographic Data Centres	13.51% 5	24.32% 9	32.43% 12	13.51% 5	16.22% 6	37
Global entities - e.g., GEO/GEOSS, IODE Ocean Data Portal, OceanSITES	7.32% 3	12.20% 5	24.39% 10	31.71% 13	24.39% 10	41
EarthCube resources and/or data infrastructure	0.00% 0	0.00% 0	4.88% 2	26.83% 11	68.29% 28	41
Individual ocean time series websites/data interfaces - e.g., HOT-DOGS	29.55% 13	18.18% 8	34.09% 15	6.82% 3	11.36% 5	44
Individual ocean time series PIs/staff	17.02% 8	21.28% 10	31.91% 15	8.51% 4	21.28% 10	47
Other (please comment below)	36.36% 4	0.00% 0	0.00% 0	9.09% 1	54.55% 6	11

# Q11 If you chose "Other" in the previous question, please comment here on where you access your data.

Answered: 9   Skipped: 41

#	RESPONSES	DATE
1	from the WMO GTS	7/25/2019 1:50 AM
2	NA	7/18/2019 2:28 PM
3	N/A	7/10/2019 6:52 PM
4	For coastal time series, EPA and NOAA sites.	6/27/2019 7:34 AM
5	Various ERDDAP servers	6/24/2019 9:47 AM
6	N/A	6/24/2019 8:22 AM
7	https://coastwatch.pfeg.noaa.gov/erddap/info/index.html?page=1&itemsPerPage=1000 http://erddap.sensors.ioos.us/erddap/info/index.html?page=1&itemsPerPage=1000	6/24/2019 7:39 AM
8	N/A	6/17/2019 10:13 AM
9	NA	6/14/2019 4:30 AM

Q12 Please indicate the quality of the following aspects of your data access experience with these ocean data portals:

Answered: 50   Skipped: 0
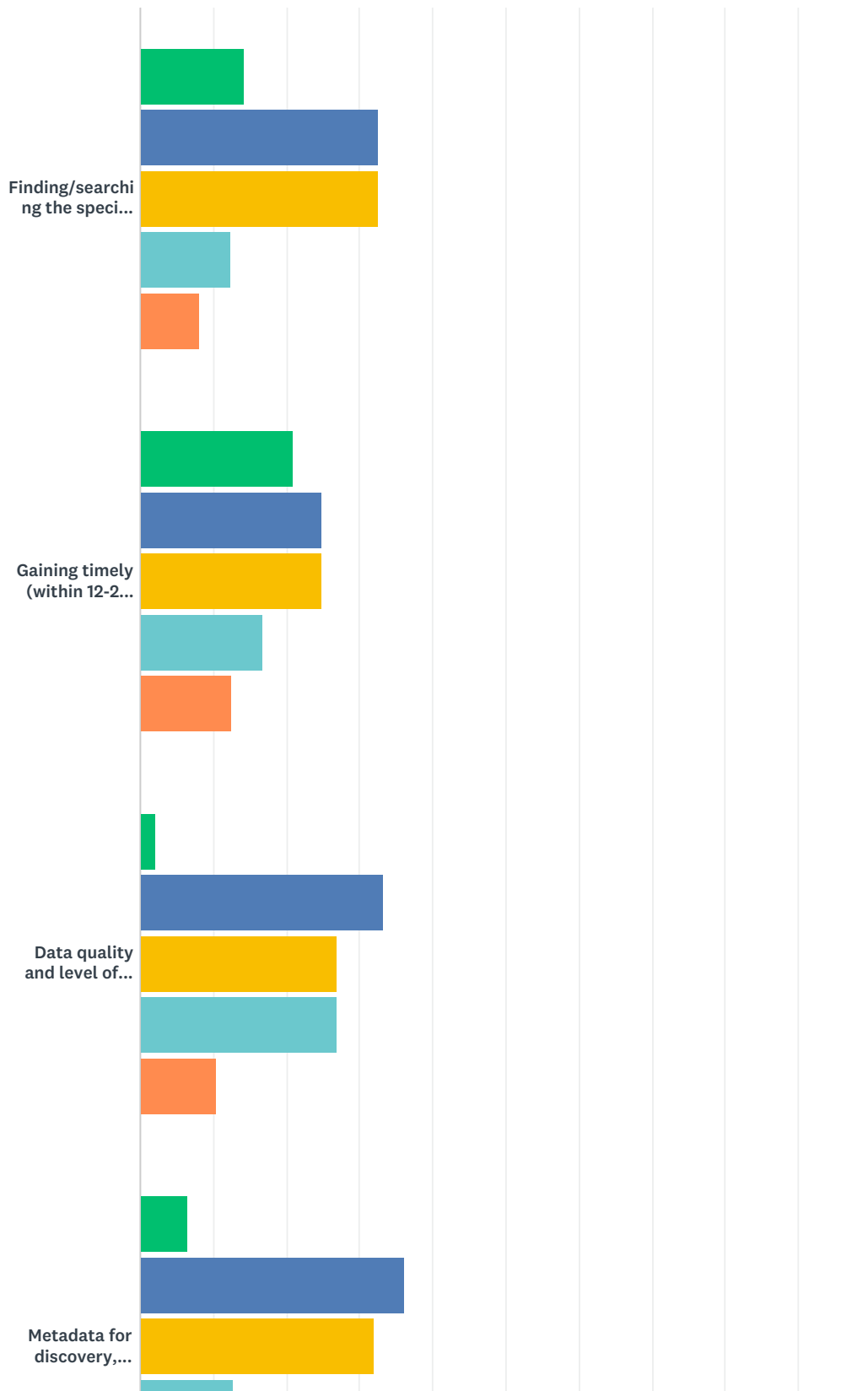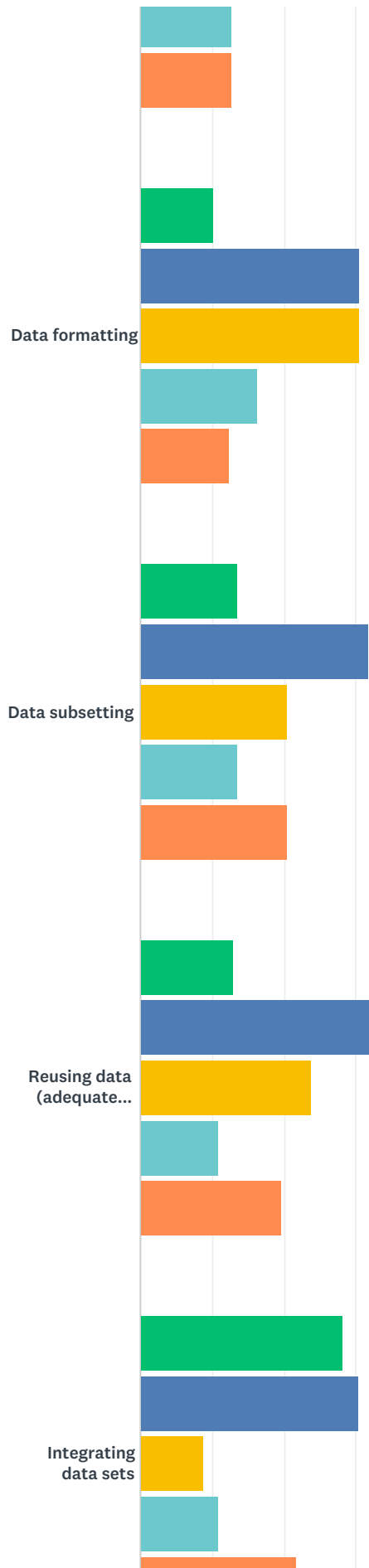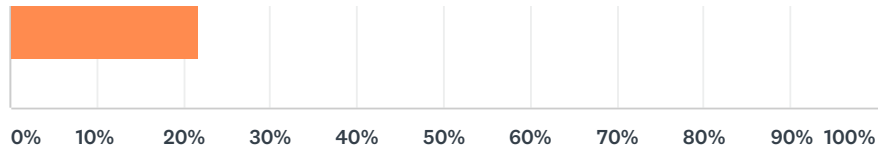
| | Poor | Fair | Good | Very Good/Excellent | N/A |

|	POOR	FAIR	GOOD	VERY GOOD/EXCELLENT	N/A	TOTAL
Finding/searching the specific data sets you want (precision/completeness of search process)	14.29% 7	32.65% 16	32.65% 16	12.24% 6	8.16% 4	49
Gaining timely (within 12-24 months of collection) access to the most updated data sets	20.83% 10	25.00% 12	25.00% 12	16.67% 8	12.50% 6	48
Data quality and level of quality control	2.08% 1	33.33% 16	27.08% 13	27.08% 13	10.42% 5	48
Metadata for discovery, provenance	6.38% 3	36.17% 17	31.91% 15	12.77% 6	12.77% 6	47
Data formatting	10.20% 5	30.61% 15	30.61% 15	16.33% 8	12.24% 6	49
Data subsetting	13.64% 6	31.82% 14	20.45% 9	13.64% 6	20.45% 9	44
Reusing data (adequate documentation)	13.04% 6	32.61% 15	23.91% 11	10.87% 5	19.57% 9	46
Integrating data sets	28.26% 13	30.43% 14	8.70% 4	10.87% 5	21.74% 10	46

Q13 Please comment on specific issues you've had with obtaining data.

Answered: 23   Skipped: 27

#	RESPONSES	DATE
1	Not sure if I'm commenting on servers I use or ones I don't use because of difficulties!	8/22/2019 8:20 AM
2	Searching for what I need, particularly finding biogeochemical data when the majority of observational data (time series and other) is physical.	8/13/2019 4:57 AM
3	No consistent data product containing all time series data at the same QC level.	8/9/2019 12:54 AM
4	accessibility or the lack thereof	7/14/2019 2:05 AM
5	Usually a formatting issue,	7/10/2019 6:52 PM
6	Problem in accessing data bases	7/10/2019 11:28 AM
7	Need to develop data-set specific QA/QC and difficult time in trying to filter out repeat observations in different archives as there are no unique data identifiers.	7/10/2019 5:17 AM
8	Information quality is not present.	7/9/2019 12:18 PM
9	Synthesizing paleoceanographic timeseries from NOAA Paleo or PANGEA is difficult.	7/9/2019 11:52 AM
10	In the past it has been hard to get the most updated BATS time-series data, e.g. within 1 year of collection.	7/9/2019 5:18 AM
11	The biggest issues are those associated with finding and using time series data from secondary sites (like BCO-DMO or Ocean SITES).	7/5/2019 7:59 AM
12	Difficulties when integrating datasets with limited information on specific quality controls applied to each dataset	6/28/2019 3:22 AM
13	None.	6/27/2019 7:34 AM
14	N/A	6/24/2019 8:22 AM
15	Of them all, the NSF Ocean Observatories Initiative (OOI) access to Pioneer Coastal Array data is the worst. It is barely functional so we have written our own circumvention to the online portal and scape all the data into a private ERDDAP at http://www.myroms.org:8080/erddap/info/index.html?page=1&itemsPerPage=1000.	6/24/2019 7:39 AM
16	Not applicable.	6/21/2019 11:27 AM
17	Metadata from individual researchers is non-existent.	6/21/2019 8:03 AM
18	It depends on the type of data but many times the problems are formatting.	6/19/2019 10:53 AM
19	Most data (and/or the most recent or complete version of the data) is only in the hands of the original collectors. Data still in the hands of individual (the collectors) is in a plethora of different formats. (Each person has a different format.)	6/19/2019 8:25 AM
20	N/A	6/17/2019 10:13 AM
21	Metadata is key - for example, to not inappropriately compare measurements made with different techniques.	6/14/2019 2:05 PM
22	The language used in the data source is not user-friendly. Eg if you need data for a specific location, how to set or locate properly the area in the data source/base is a challenge to new users	6/14/2019 6:58 AM
23	It can be difficult to find the datasets I'm interested in, again, because they come from different sites that have different ways to access their data so it makes it difficult to integrate the datasets in the end.	6/14/2019 4:30 AM

Q14 What analysis and visualization tools and/or platforms do you most frequently use to analyze and/or visualize ocean time series data? (select all that apply)

Answered: 50   Skipped: 0
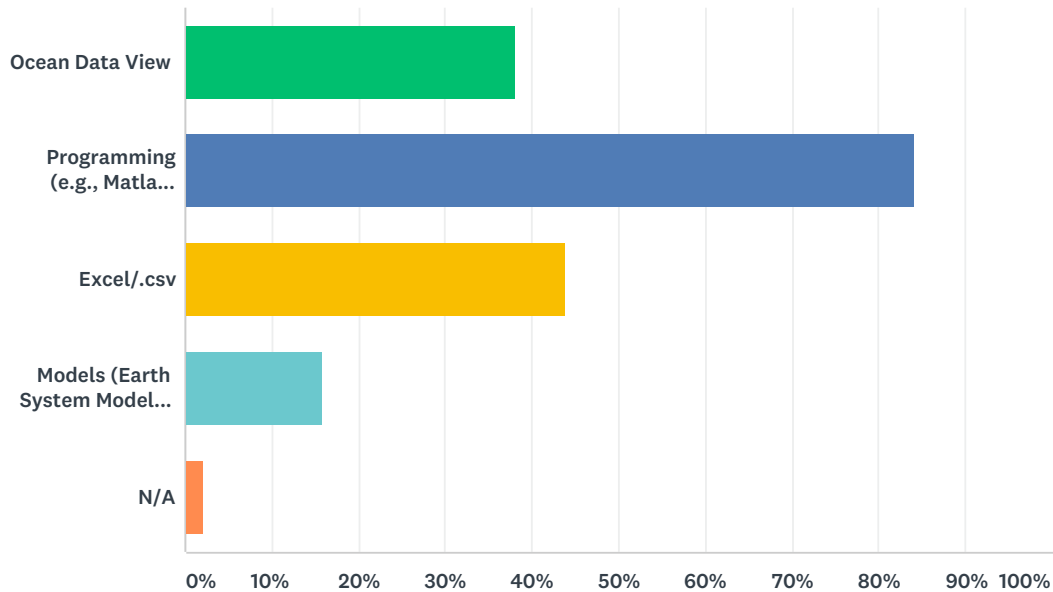
ANSWER CHOICES	RESPONSES	
Ocean Data View	38.00%	19
Programming (e.g., Matlab, Python, R, etc.)	84.00%	42
Excel/.csv	44.00%	22
Models (Earth System Models, biogeochemical models, ecological models, etc.)	16.00%	8
N/A	2.00%	1
Total Respondents: 50		

#	OTHER (PLEASE SPECIFY)	DATE
1	I:m a very low level user, so use simple products as my programming skills are low.	7/10/2019 6:52 PM
2	HOT-DOGS is a fantastic resource - it allows you to visualize the data before downloading and using - this saves time and makes for an excellent teaching resource.	7/5/2019 7:59 AM
3	JMP	6/27/2019 1:17 PM
4	Matlab	6/27/2019 7:34 AM
5	R	6/27/2019 6:30 AM
6	GrADS	6/24/2019 8:22 AM
7	COPEPODITE	6/19/2019 8:25 AM

Q15 How important do you perceive the following for improving ocean time series data systems?

Answered: 50   Skipped: 0
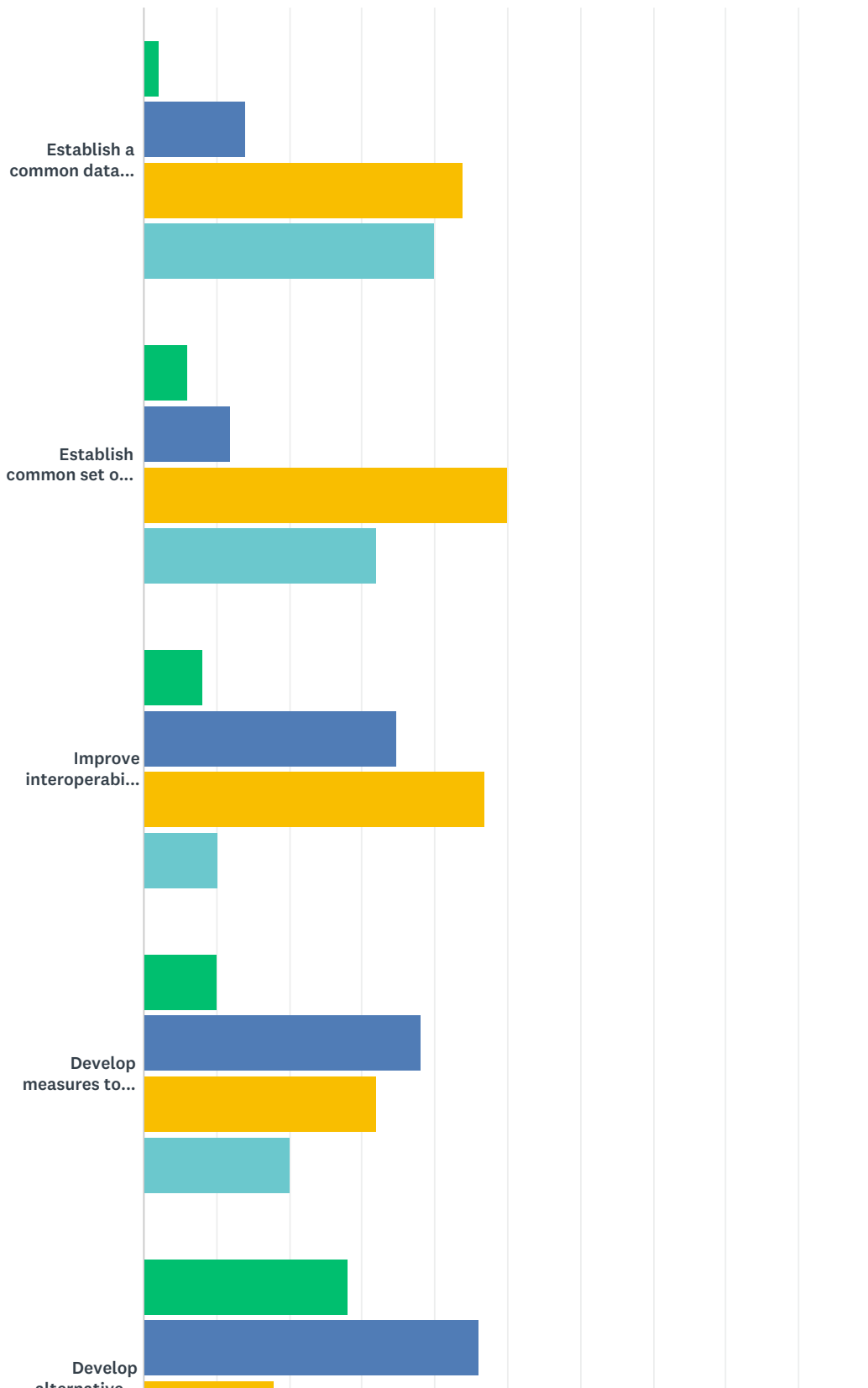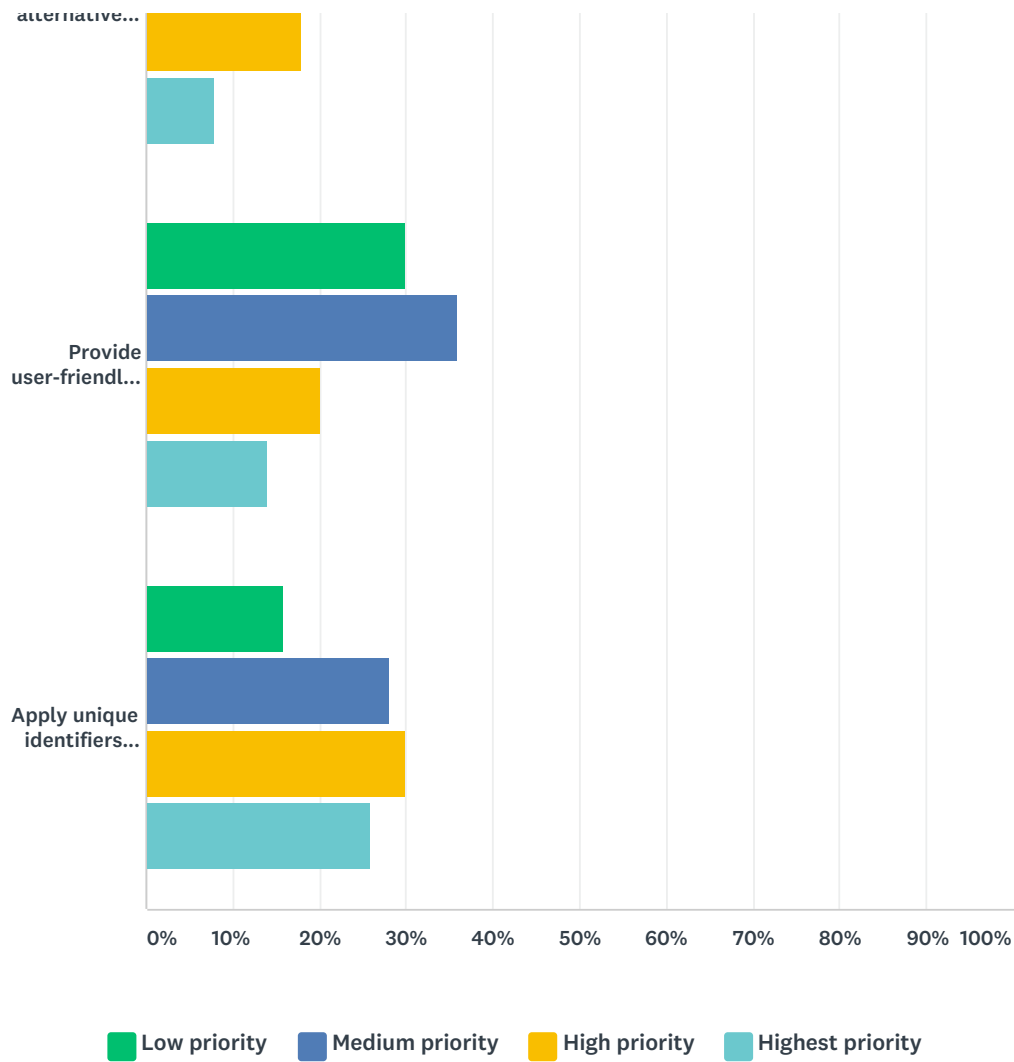
	LOW PRIORITY	MEDIUM PRIORITY	HIGH PRIORITY	HIGHEST PRIORITY	TOTAL
Establish a common data model for reporting core ocean time series variables (e.g., vocabulary, units, error reporting, etc.)	2.00% 1	14.00% 7	44.00% 22	40.00% 20	50
Establish common set of metadata reporting guidelines	6.00% 3	12.00% 6	50.00% 25	32.00% 16	50
Improve interoperability across different data portals	8.16% 4	34.69% 17	46.94% 23	10.20% 5	49
Develop measures to streamline and simplify data submission to ocean data portals	10.00% 5	38.00% 19	32.00% 16	20.00% 10	50
Develop alternative output formats and products to support a broader range of applications (e.g., synthesis, decision support, modeling, etc.)	28.00% 14	46.00% 23	18.00% 9	8.00% 4	50
Provide user-friendly visualization and computational tools as part of data interface	30.00% 15	36.00% 18	20.00% 10	14.00% 7	50
Apply unique identifiers (such as DOIs) to data sets to enable citation and better credit data providers	16.00% 8	28.00% 14	30.00% 15	26.00% 13	50

Q16 Please comment further on these and other priorities for improving the experience of ocean time series data users.

Answered: 20   Skipped: 30

#	RESPONSES	DATE
1	Some existing standards are great, please do not reinvent the wheel. See OceanSITES data format, Climate and Forecast convention, Attribute Convention for Data Discovery (at ESIP).	8/22/2019 8:20 AM
2	See point 13	8/9/2019 12:54 AM
3	The problem of "getting people to submit data" is best solved by adding value in the form of context-empowered visualization and analysis enabled by similar data.	7/18/2019 2:28 PM
4	As a data provider rather a data user, I identified the data submission process as the highest priority, then I think an on-line metadata editor. I like the SOCAT portal	7/10/2019 6:52 PM
5	None	7/10/2019 11:28 AM
6	I think this process would be best served if a specific data product was chosen as a test data set to develop the methods and then once the standard was created and tested it would be used on others. I also think the effort should triage the different data types so that the effort can focus on the higher needs first.	7/10/2019 5:17 AM
7	The data should be incorporated a data quality flag	7/9/2019 12:18 PM
8	no comment	7/9/2019 5:18 AM
9	It is imperative that data managers were close to data originators. Ideally, one data expert will be required to ensure data flow (including metadata and formatting) between ca. 10-20 data generators and the data base or repository.	6/28/2019 3:22 AM
10	Highest priority is getting the actual data into the data portal; if only metadata, ensuring the metadata are current and accurate. Nad getting all the data in in a timely manner; if it is after 2 yrs of collection, then have all the parameters, not only some. Then one has to contact the PI who most often will gladly send the data files personally. As a data generator, ensuring that the users recognize the data originators. This step is essential with the funders, even long after the project data collection phase is over.	6/27/2019 1:17 PM
11	It's most important to allow the users to download the raw data (hopefully as netCDF files) and let us all use our favorite software to plot and analyze the data. We don't need software and visualization online of the data for scientists (perhaps for the public though.)	6/27/2019 7:34 AM
12	1) I believe we already have a common data model (netCDF) and convention (CF) 2) Metadata is a long, tedious process that is typically ignored by users (especially those accessing data via service). I find the typically workflow is download data, look for familiar things like "time", "temperature", etc., then email p.o.c. (PI) for questions rather then reading metadata (data equivalent of appliance manual) 3) the hang up with submitting data is it is always changing (delayed-mode QC, refinement, etc.), so it rarely is "final"	6/24/2019 8:22 AM
13	There are already a number of communities who have grappled with these issues and developed excellent solutions, e.g. Climate-Forecast Conventions for metadata (including a vigorous active online community adding to and improving these standards), UNIDATA THREDDS/OPeNDAP services for providing easy access and subsetting, ERDDAP with Advanced Search capabilities to scan multiple data sets to find occurrence in requested interval/spaces (excellent for data discovery) and an active international user community. The panels of GOOS, GCOS and JCOMM regularly debate these issues and are knowledgeable about solution. If NSF ignores this community of practise and goes it alone on Earthcube, repeating the failures and waste of the OOI CyberInfrastructure effort, that would be unfortunate to say the least.	6/24/2019 7:39 AM
14	Not applicable.	6/21/2019 11:27 AM

15	We do not need more databases. We need more data ... both in terms of access to existing data and in more sampling programs. Change "publish or perish" to "share [data] or get shunned". If a person's productivity is ONLY weighed on their publications, sharing data (and spending tons of time documenting and reformatting it for submission) takes time away from more publishing. There is no incentive to share data in this model.	6/19/2019 8:25 AM
16	N/A	6/17/2019 10:13 AM
17	If there is an effort to generate online visualization tools, there also have to be provisions to check them occasionally and make sure they're working as intended.	6/14/2019 2:05 PM
18	The use of the map to locate the area may be of good help to a new user or simple software where you may fill your GPS locations etc in a simple language	6/14/2019 6:58 AM
19	Again, establishing a common data model is key for accessibility and will aid in the other priorities as well.	6/14/2019 4:30 AM
20	easy access and search tools	6/13/2019 11:38 PM

Q17 What are your pressing needs for short term data management of ocean time series data in the near term?

Answered: 28   Skipped: 22

#	RESPONSES	DATE
1	data quality control for data, as there are many users that do not have the time or knowledge to deal with it	9/3/2019 9:33 AM
2	OPEN PORTAL FOR UPDATE OF OCEAN TIME SERIES DATA AND EASY RETRIVAL FOR THE RESEARCH GROUP THOSE WHO ARE ALL WORKING THE CORE DATA OF OCEAN TIME SERIES.	9/3/2019 9:10 AM
3	Applying standardised QC and assembling (hopefully) a TS data product	8/27/2019 12:23 AM
4	establishingg Template for data submission	8/23/2019 5:01 AM
5	DOIs for real time data, where NetCDF is updated daily (or more frequently). Identify a 'primary source' for a data set, so if it proliferates on line it can be kept in sync	8/22/2019 8:20 AM
6	Access to consistent, long-term, biogeochemical time series, with metadata.	8/13/2019 4:57 AM
7	An easy usage of multiple time series station data through consistent QC protocols/handling structures and data formats.	8/9/2019 12:54 AM
8	Guidelines for metadata when submitting data to an archive, to better enable discovery and reuse	8/7/2019 11:10 AM
9	I need a standard time-series API I can connect into grafana. I am currently scraping `csv`s into a graphite database, but haven't seen graphite anywhere else in the community.	7/18/2019 2:28 PM
10	"Small" projects rarely get funding for a data management person, yet submission of data is becoming increasing complex.	7/16/2019 9:00 AM
11	An meta data editor integrated to data submission process. Standard processing and QA methods	7/10/2019 6:52 PM
12	Establishing emperical OA data like pH and alkalinity also SST as part of climate change and compare with other data sources for improving reliability	7/10/2019 11:28 AM
13	would love a roll-up capability to something like GitHub that would allow specific data sets to always be updated and refreshed from the various data hubs.	7/10/2019 5:17 AM
14	validation of data, improving data access	7/9/2019 1:15 PM
15	faster availability (right now I see the BATS CO2 time-series figures on-line are updated to 2015, this is too slow).	7/9/2019 5:18 AM
16	The US NSF funded time series programs (HOT and BATS), which are not part of a larger network (like LTER) do a great job with data management - fund them to continue this effort.	7/5/2019 7:59 AM
17	Lack of experts in data management (preparing metadata, formatting, uniformizing quality-flags,...)	6/28/2019 3:22 AM
18	dataset interconnectivity	6/27/2019 7:12 PM
19	None.	6/27/2019 7:34 AM
20	Requisite funding and recognition of the time needed to manage the data correctly.	6/24/2019 8:22 AM
21	Access to a comprehensive historical data set of ocean acidification observations for U.S. coastal waters.	6/24/2019 7:39 AM
22	To finalize our institutional database.	6/21/2019 11:27 AM
23	help standardizing our formats to our data can be shared	6/21/2019 8:03 AM
24	LOL! I need more public data to actually "manage" (e.g., more people willing to share their data).	6/19/2019 8:25 AM
25	N/A	6/17/2019 10:13 AM
26	Aragonite saturation and alkalinity data in the western Indian Ocean.	6/14/2019 6:58 AM

| 27 | More intuitive data management infrastructure, particularly for students that may be utilizing datasets for class projects. | 6/14/2019 4:30 AM |
| 28 | apply unique doi, user-friendly visualization and computational tools; | 6/13/2019 11:38 PM |

Q18 What are your expectations for long-term data management and dissemination of ocean time series data?

Answered: 22   Skipped: 28

#	RESPONSES	DATE
1	a more standardize format and enough meta-data	9/3/2019 9:33 AM
2	Allowing re-usability and serving the needs of the scientific community. Integration of data from various sources. Currently we have too much redundancy.	8/27/2019 12:23 AM
3	Need funding to keep the conversation going between disciplines, so standards are shared and don't become barriers.	8/22/2019 8:20 AM
4	Easy submission and upload (near real-time) of new data and metadata within a consistent framwork. Further, to enhance related automatization processes (e.g. QC procedures).	8/9/2019 12:54 AM
5	Tools to enable archiving and discovery that don't require the average user to know how to program	8/7/2019 11:10 AM
6	A solution must include federated/distributed hosting with replication, versioning, "permanent" URL & API access, and RESTful subsetting.	7/18/2019 2:28 PM
7	A one-stop shop! For submitting QC'ed data and metadata, to a common format, that is then archived, managed (doi), and accessible by users. The ability to include additional parameters. And also , somehow compatible with other OTS platforms (floats, repeat glider sections etc),	7/10/2019 6:52 PM
8	To have local emperical data that may be modified then uploaded to any data bases	7/10/2019 11:28 AM
9	A closure on the metadata requirements and the QA/QC procedures. For instance, I would argue that the data providers not truncate the observations. In practice this is arbitrary and leads to significant uniform errors in the data sets across a wide range of observations.	7/10/2019 5:17 AM
10	would like to see things be accommodated as much as possible in common repositories such as NCEI. Would like to provide a way for users to see validation data	7/9/2019 1:15 PM
11	Operation of a network of specific repositories for ocean (multidisciplinary) data	6/28/2019 3:22 AM
12	All data will be available in netCDF.	6/27/2019 7:34 AM
13	software solutions will outpace any efforts to standardize data	6/24/2019 8:22 AM
14	I hope that data owners see the value of contributing to unified data portals, rather than holding data in various specialists formats on their own data portals.	6/24/2019 7:39 AM
15	To link our institutional database to other relevant international portals.	6/21/2019 11:27 AM
16	We used to provide data management at the institutional level (websites, ftp, internal databases), but are looking more and more to national repositories.	6/21/2019 8:03 AM
17	We need clear logging/tracking of the original-source identifications and usage. How do "Joe" or "Suzy" report to their bosses/funders who is using their data if the large database entities don't track usage *and* automatically report it back to "Joe" and "Suzy".	6/19/2019 8:25 AM
18	N/A	6/17/2019 10:13 AM
19	As molecular techniques (eDNA, etc.) increase in popularity, the field needs to figure out a better way to integrate both analyzed results and info about raw sequence accessibility (NCBI SRA accession numbers, for example) into databases. We need to preserve both the results used in published literature and the possibility of re-analysis and re-interpretation within the context of the associated physicochemical time-series data.	6/14/2019 2:05 PM
20	Looking for funding to install loggers or buoys with carbonate, alkalinity and CO2 sensors in the western Indian Ocean to generate data	6/14/2019 6:58 AM

21	A single portal for all time series datasets that is formatted the same and easy to select what datasets and variables you want. I think BCO-DMO is doing a good job with this and it would be useful to follow their model. Also, if the different funding agencies could collaborate to be willing to have their data on the same platform that would be helpful.	6/14/2019 4:30 AM
22	improve interoperability across different data portals	6/13/2019 11:38 PM

Q19 Is there anything else you wish to add/comment on related to ocean time series data?

Answered: 12   Skipped: 38

#	RESPONSES	DATE
1	Although I will not be able to attend, please add my email to any relevant listservs or other asynchronous discussions: tylarmurray@mail.usf.edu	7/18/2019 2:28 PM
2	This is a great initiative - thank you.	7/10/2019 6:52 PM
3	Need scientists to work together and funding too	7/10/2019 11:28 AM
4	Establishment of simple focussed effort. Remember that the more general the solution the more complex. One solution will not support all needs.	7/10/2019 5:17 AM
5	Please help make sure the time-series data continue! :)	6/27/2019 7:34 AM
6	As I have said, many solved by existing ERDDAP servers. It would be a shame to reinvent the wheel.	6/24/2019 9:47 AM
7	The challenge to maintain a time series in a developing country is far higher than in well developed centers. Hence, an organized database is desirable, but it takes longer to achieve.	6/21/2019 11:27 AM
8	Again, if everything is based only on the number-of-publications produced, where is the incentive for spending time on data management/documenting/sharing.	6/19/2019 8:25 AM
9	N/A	6/17/2019 10:13 AM
10	Welcome scientists to work together in the western Indian ocean and Tanzania in particular so as to generate more data (ilomo67@gmail.com)	6/14/2019 6:58 AM
11	I'm glad you're having this workshop, it's needed!	6/14/2019 4:30 AM
12	NA	6/13/2019 11:38 PM