

Aggregated Marine Data Products for Svalbard

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Introduction

Thanks to data portals like [NPDC](#), [SIOS](#), [PANGAEA](#), and others, there is a lot of **FAIR** data (**F**indable, **A**vailable, **I**nteroperable, and **R**euseable) available for Svalbard. However, should an investigation require access to multiple different variables (e.g. ocean temperature, ChlA, sea ice thickness, tourist arrivals) researchers may find themselves inundated with data files in different formats and could potentially spend more time with data wrangling than with research. This is a stumbling block in the **R**euseability of the data currently hosted on data portals. As part of the Horizon2020 project FACE-IT, experts across many fields of social and natural sciences identified a list of important drivers of change in European Arctic fjords and adjacent coastal socio-ecological systems. These data were sourced, amalgamated (Table 1, and are referenced in a central [meta-database](#). An example analysis is performed here to highlight the functionality of these combined data. Note that there is a heavy focus on time series data and no geo-spatial data are included (e.g. bathymetry, glacier topography).

Table 1: Sources for the datasets amalgamated for FACE-IT.

Site	NPDC	SIOS	PANGAEA	other
Svalbard	10	0	350	5
Kongsfjorden	7	0	130	10
Isfjorden	3	3	215	7
Storfjorden	0	0	84	0

Hundreds of fully referenced datasets have been combined throughout Svalbard to allow for a range of analyses.



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Example analysis

My current plan is to create meaned time series for the daily/monthly data in the separate parts of the fjord (i.e. inner, middle, mouth, outer) for some of the core key drivers identified for the review paper. Temperature, PAR, and ice cover OR ChlA OR pCO2. The final variable choice will depend on availability of those drivers in the main dataset. I then would like to perform a marine heatwave analysis ([Hobday et al. 2016](#)). The main objective is to show how dT from different datasets can be brought together to show more than any single dataset could.

Results

The results will be shown with a two panel figure (Figure 1). The first panel will be a map of Kongsfjorden that shows the data points used and which part of the fjord they are in (i.e. inner, middle, mouth, outer). The second panel will be a series of averaged time series for the variables mentioned above.

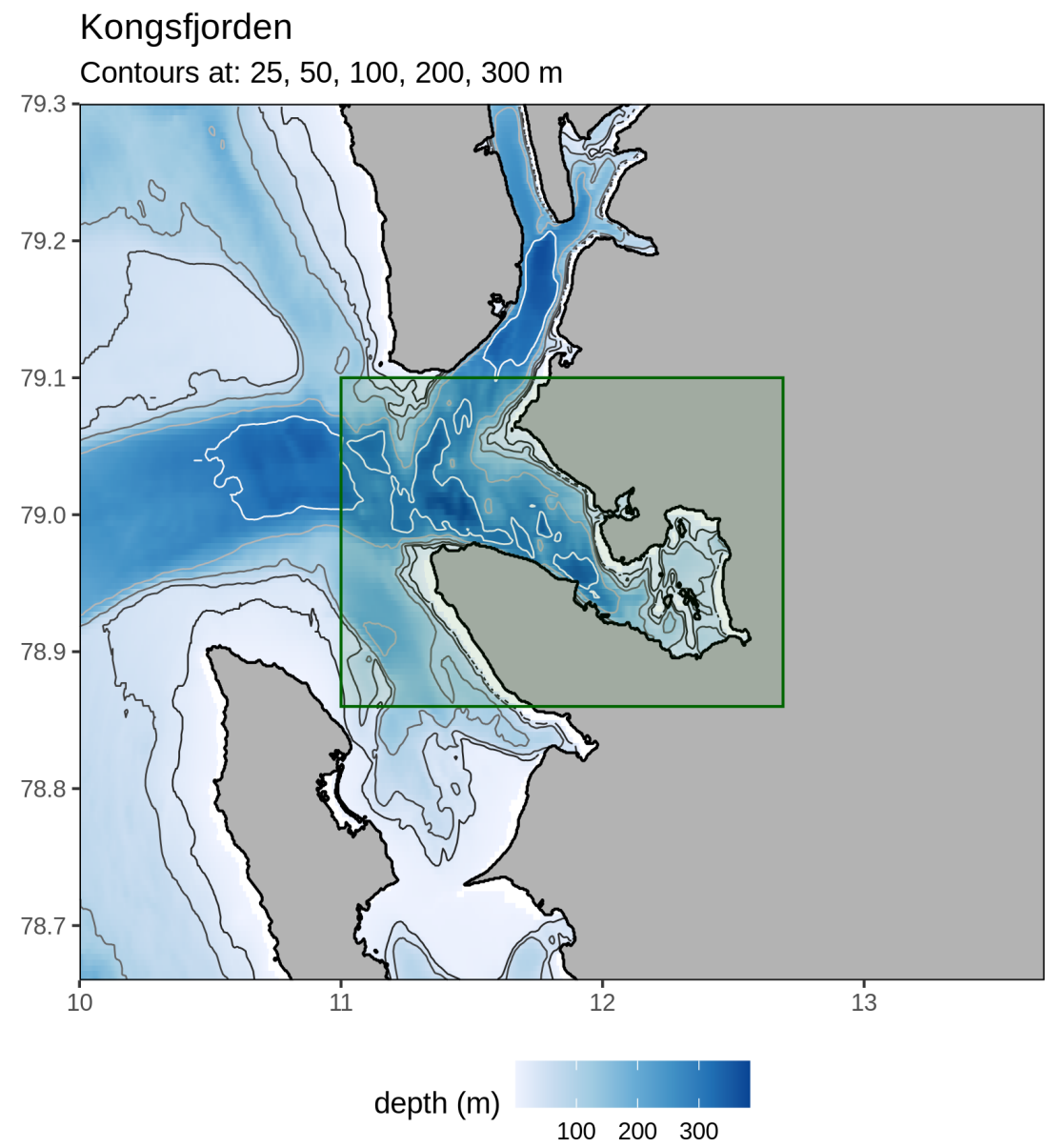


Figure 1: This is a placeholder.

The objective for this figure (Figure 2) is to show a bubble plot that illustrates the relationship between the chosen variables.

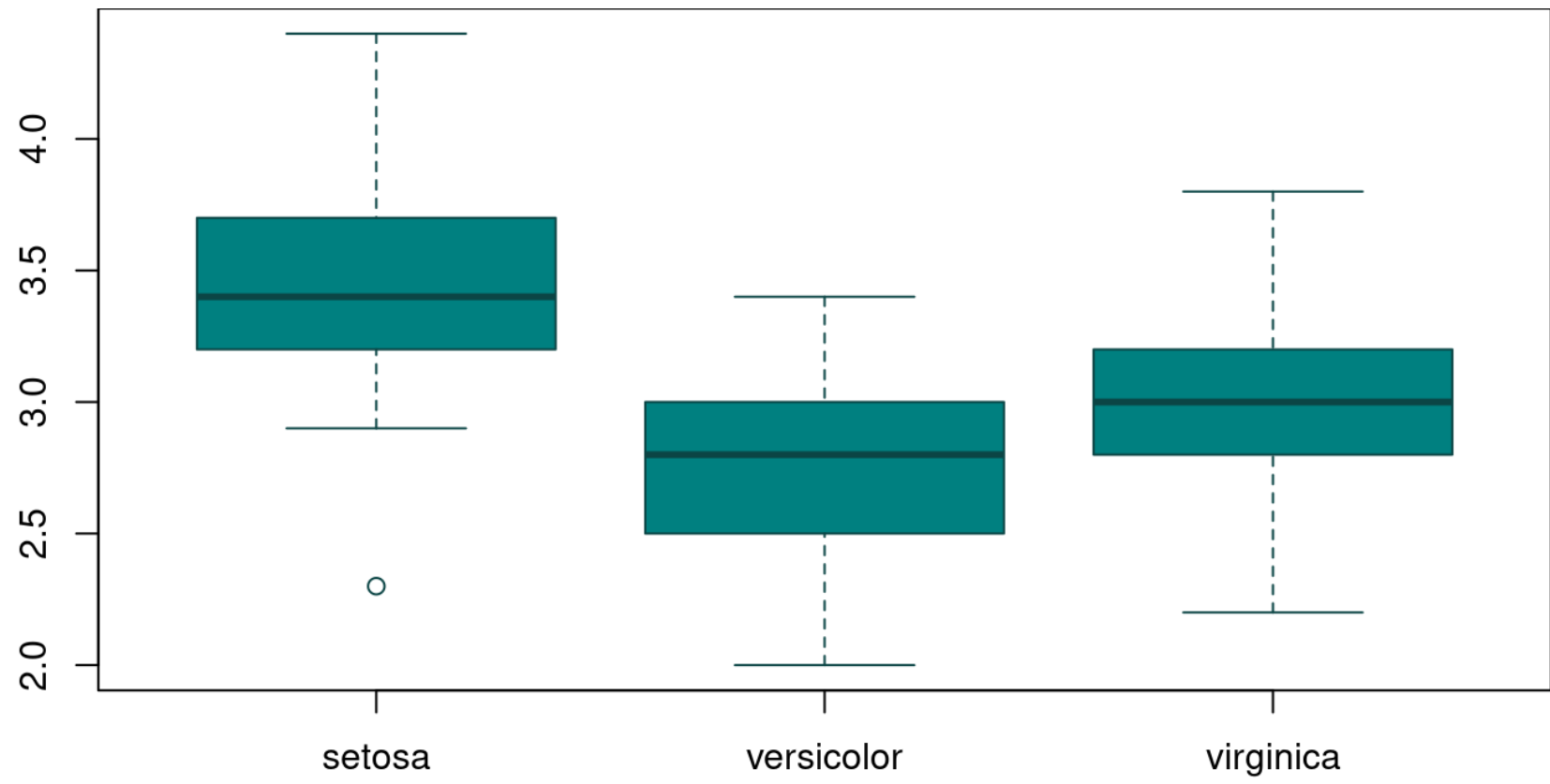


Figure 2: This is another placeholder.

References

Hobday, Alistair J, Lisa V Alexander, Sarah E Perkins, Dan A Smale, Sandra C Straub, Eric CJ Oliver, Jessica A Benthuyssen, et al. 2016. "A Hierarchical Approach to Defining Marine Heatwaves." *Progress in Oceanography* 141: 227–38. <https://doi.org/10.1016/j.pocan.2015.12.014>.