

Aggregated Marine Data Products for Svalbard

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Overview

Data portals like [NPDC](#), [SIOS](#), [PANGAEA](#), and others provide a lot of **FAIR** data (**F**indable, **A**vailable, **I**nteroperable, and **R**euseable) 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 various data files and formats, which may lead to more time spent on data wrangling than on research. This is a stumbling block in the **Reuseability** 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 fjord and adjacent coastal socio-ecological systems. These data were sourced, aggregated (Table 1), and are referenced in a central [meta-database](#) (*follow QR code*). An example analysis highlights the functionality of these combined data.

Table 1: Sources for the datasets amalgamated for FACE-IT. Note that there is a heavy focus on time series and station datasets. No geo-spatial datasets are included (e.g. bathymetry, glacier topography).

Site	NPDC	SIOS	PANGAEA	other
Svalbard	10	0	1740	5
Kongsfjorden	7	0	130	10
Isfjorden	3	3	215	7
Storfjorden	0	0	84	0

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Hundreds of fully referenced datasets have been combined throughout Svalbard via the **FACE-IT** project



Example analysis

Key drivers in Kongsfjorden were averaged by date, depth, and regions adapted from Hop et al. (2002; The marine ecosystem of Kongsfjorden, Svalbard) (Figure 1). Comparisons of these averaged values were made between temperature (°C) and oxygen (% sat), chlorophyll A (µg/L), & PAR (µmol/m^2/s) (Figure 2). With the exception of PAR data in the middle fjord, there was not enough overlap between temperature and the other variables to determine any significant relationships. This highlights the need to find additional datasets for these key drivers.

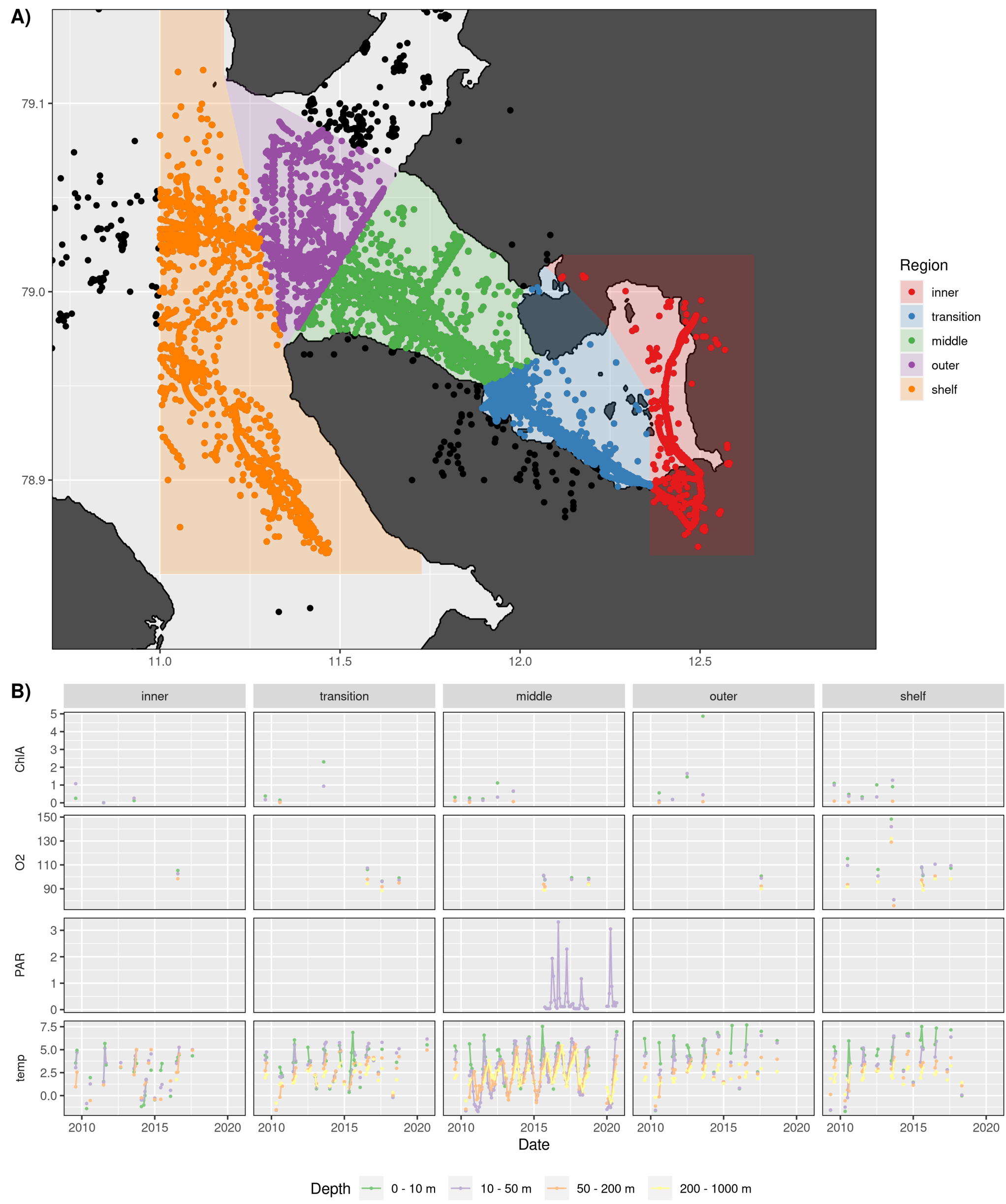


Figure 1: Data in Kongsfjorden. A) Points represent available data and are coloured by the region of the fjord in which they are found, with black dots showing data outside of a region. B) Dot and line plots showing averaged monthly data for the key drivers: temperature (°C), oxygen (% sat), chlorophyll A (µg/L), and PAR (µmol/m^2/s). Each column of panels represents a fjord regions and each row represents the data available per key drivers. Colours show the depth of the data, and lines connect two or more months with continuous data.

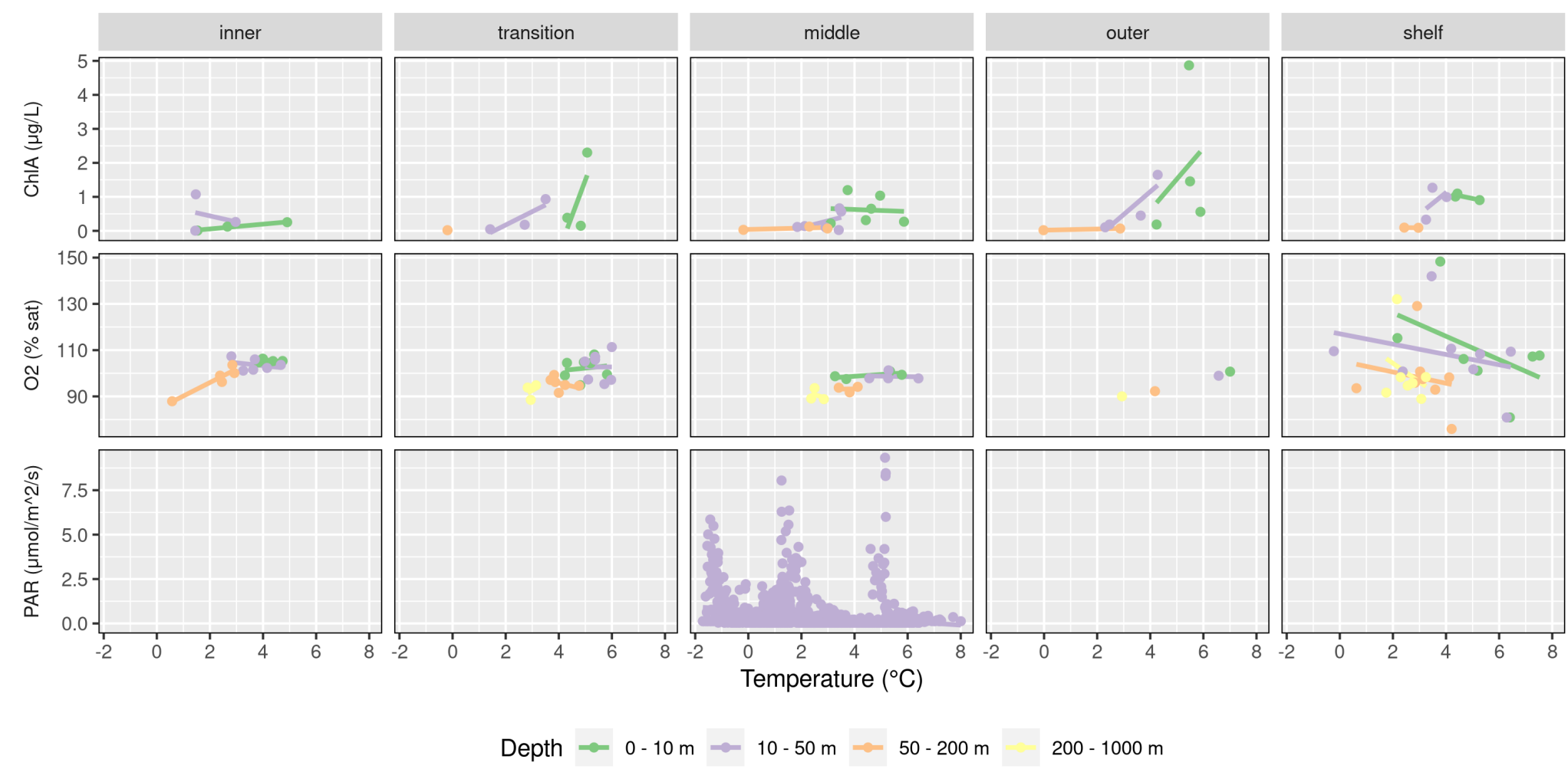


Figure 2: Scatterplots showing the relationship between key drivers. Temperature is the x-axis of each panel, and the y-axis of each row shows the key driver being compared. Dots show the daily data being compared, and straight lines show linear models of the relationship. Colours show the depth of the data.