

# Global SCOC database

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```
knitr::opts_chunk$set(echo = TRUE, warning=FALSE, message=FALSE)
```

## Loading SCOC dataset

```
setwd("C:/Users/TanjaS/Documents/paper/Paper 3_Global dataset of SCOC/data analysis")
```

```
SCOC_data = read.csv("SCOC database.csv") # read csv file
```

```
require(ggplot2)
require(scales)
require(varhandle)
require(scales)
require(psych)
require(scales)
```

```
SCOC_data <- SCOC_data[c(1:3540), c(2:4, 6:9, 11, 16)]
```

```
cols <- c("Ocean", "Latitude", "Longitude", "Depth", "Depth_range", "SCOC", "ex_in_situ", "TOU_DOU", "Reference")
```

```
colnames(SCOC_data) <- cols
```

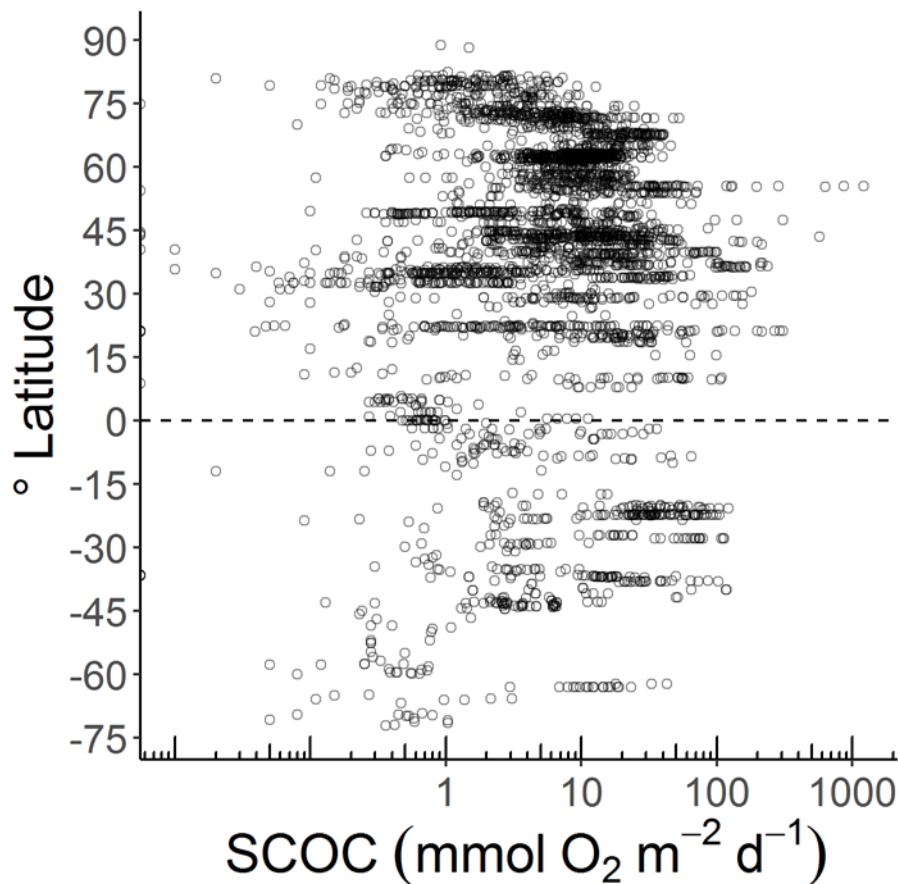
## Preparing figure 3: SCOC along a latitudinal gradient

```
data_figure3 <- SCOC_data[, c(2, 6)]
```

```
data_figure3 <- na.omit(data_figure3)
```

```
data_figure3$Latitude <- as.numeric(data_figure3$Latitude)
```

```
ggplot(data = data_figure3, aes(x = SCOC, y = Latitude)) +
  geom_point(alpha = 0.5, size=1.5, shape=1) + theme_classic() +
  scale_y_continuous(breaks = c(-90, -75, -60, -45, -30, -15, 0,
                                15, 30, 45, 60, 75, 90)) +
  xlab(bquote(' '*SCOC~(mmol~O[2]~m^-2~d^-1*'''))) + ylab("Â° Latitude") +
  theme(axis.text.x = element_text(vjust=0.5, size=15)) +
  theme(axis.text.y = element_text(vjust=0.5, size=15)) + scale_x_continuous(
trans=log_trans(10), breaks = c(1, 10, 100, 1000)) + annotation_logticks(side
s = "b") +
  theme(text = element_text(size=20)) + geom_hline(yintercept = 0, linetype="
dashed")+ theme(plot.margin=unit(c(0.5,0.5,0.5,0.5), "cm"))
```



```
ggsave(file="Figure 3.png", width=5,height=5)
ggsave("Figure 3.pdf", width=5,height=5)
```

### Preparing figure 4: SCOC along a depth gradient

```
data_figure4 <- SCOC_data[, c(1, 4, 6)]
data_figure4$Depth <- as.numeric(data_figure4$Depth)

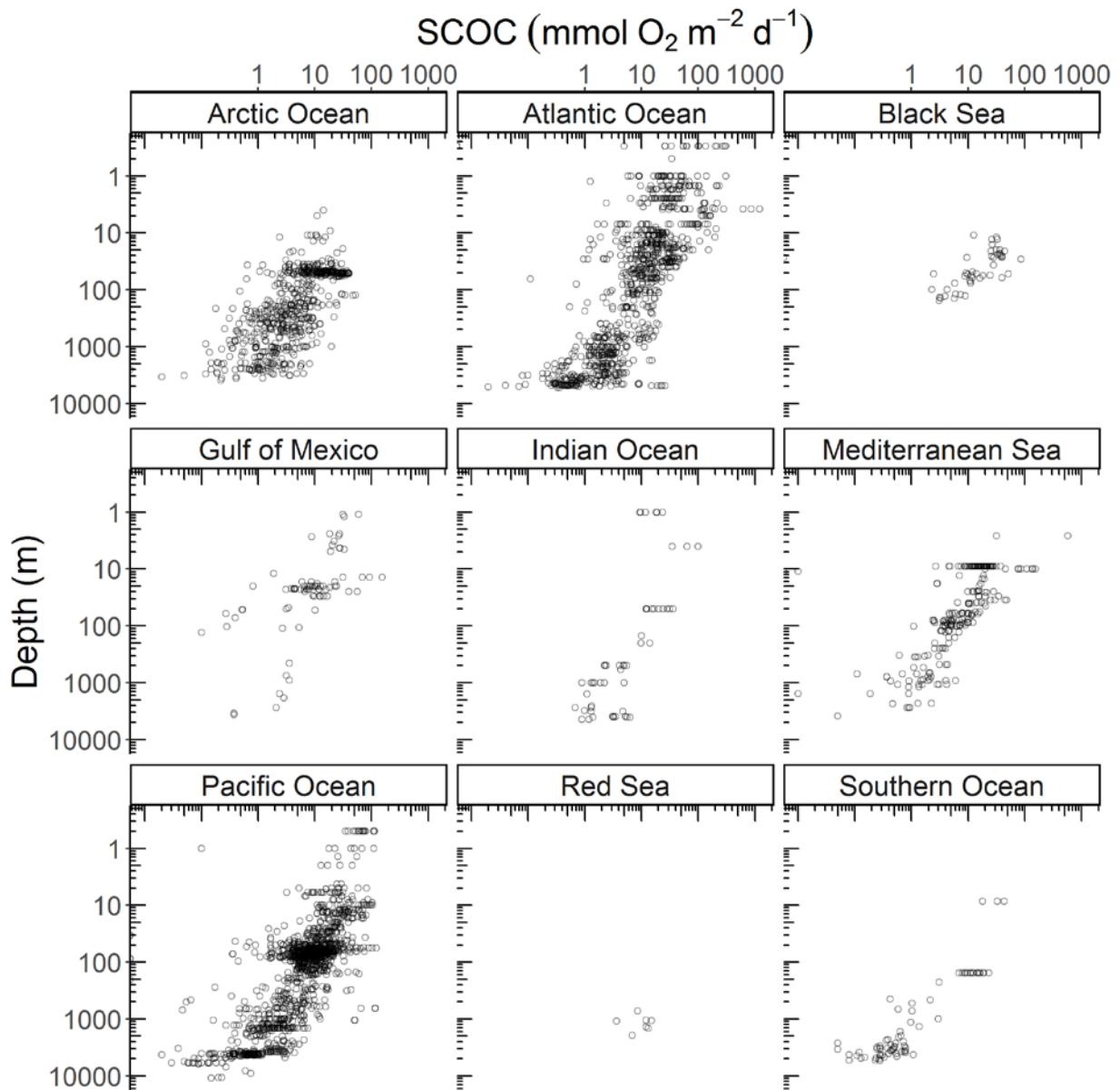
reverselog_trans <- function(base = exp(1)) {
  trans <- function(y) -log(y, base)
  inv <- function(y) base^(-y)
  trans_new(paste0("reverselog-", format(base)), trans, inv,
            log_breaks(base = base),
            domain = c(1e-100, Inf))
}

ggplot(data = data_figure4, aes(x = SCOC, y = Depth)) +
  geom_point(alpha = 0.5, size=1.5, shape=1) +
  theme_classic() + xlab(bquote('SCOC~(mmol~O[2]~m^-2~d^-1)')) +
  ylab("Depth (m)") + scale_y_continuous(trans=reverselog_trans(10), breaks =
c(1, 10, 100, 1000, 10000)) + scale_x_continuous(trans=log_trans(10), breaks
= c(1, 10, 100, 1000), position = "top") +
```

```

theme(axis.text.x = element_text(vjust=0.5, size=15)) +
theme(axis.text.y = element_text(vjust=0.5, size=15)) +
theme(text = element_text(size=20)) + annotation_logticks(sides = "t1") +
theme(legend.title = element_blank()) + guides(col = guide_legend(nrow=3))
+
theme(legend.position = "none") + theme(plot.margin=unit(c(0.5,0.5,0.5,0.5)
, "cm")) + facet_wrap(~ Ocean, ncol=3)

```



```

ggsave(file="Figure 4.png", width=9,height=9)
ggsave(file="Figure 4.pdf", width=9,height=9)

```