

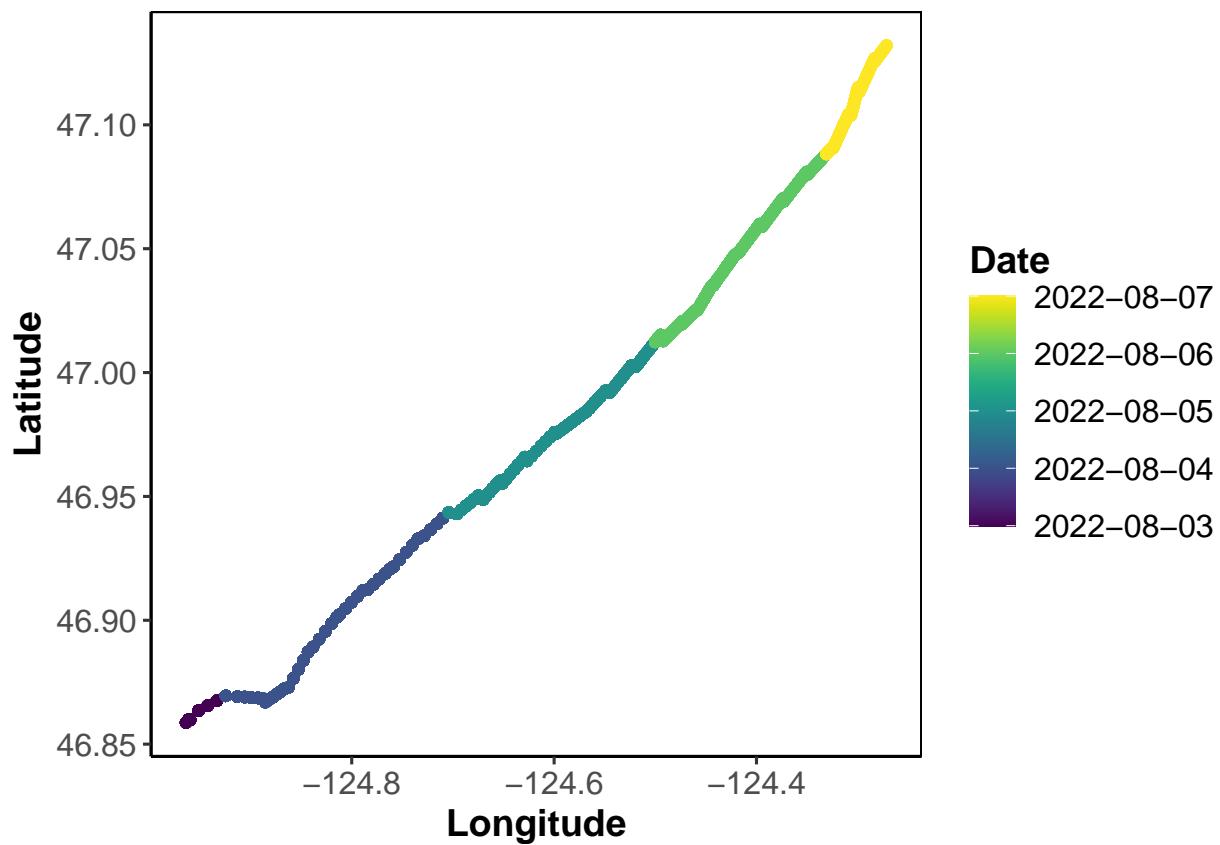
Analyzing Glider Data

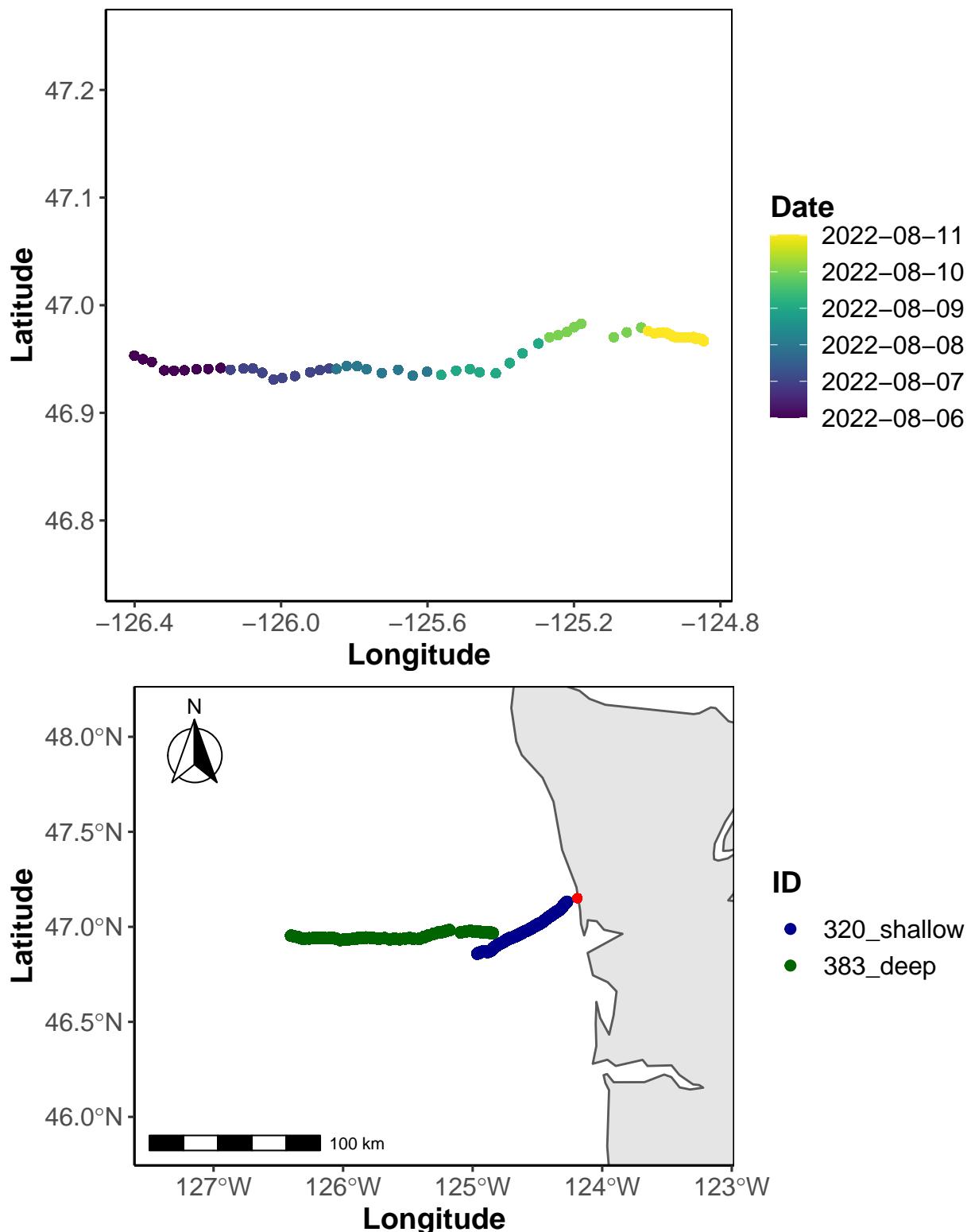
EOS 518

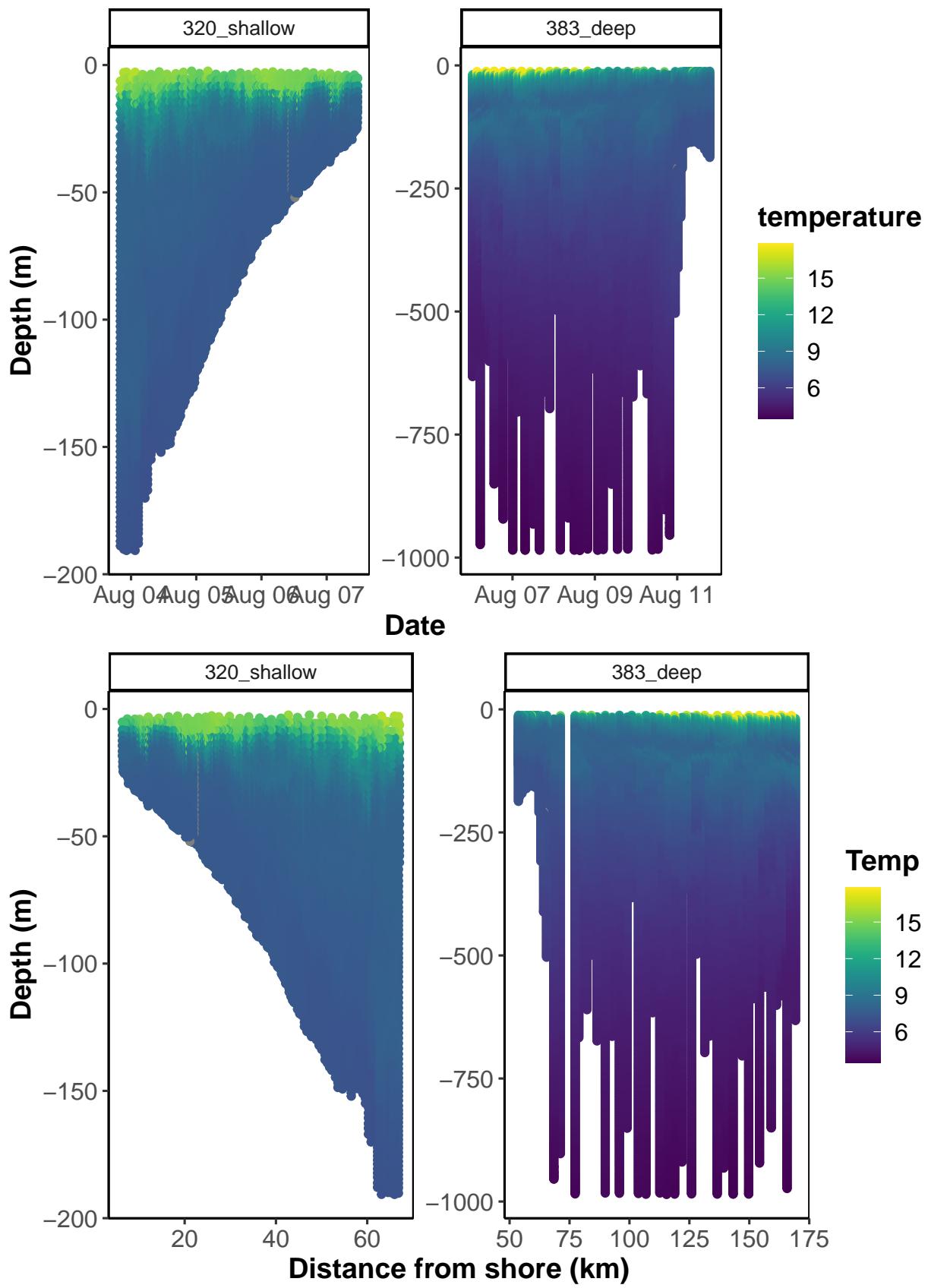
Dominique Maucieri

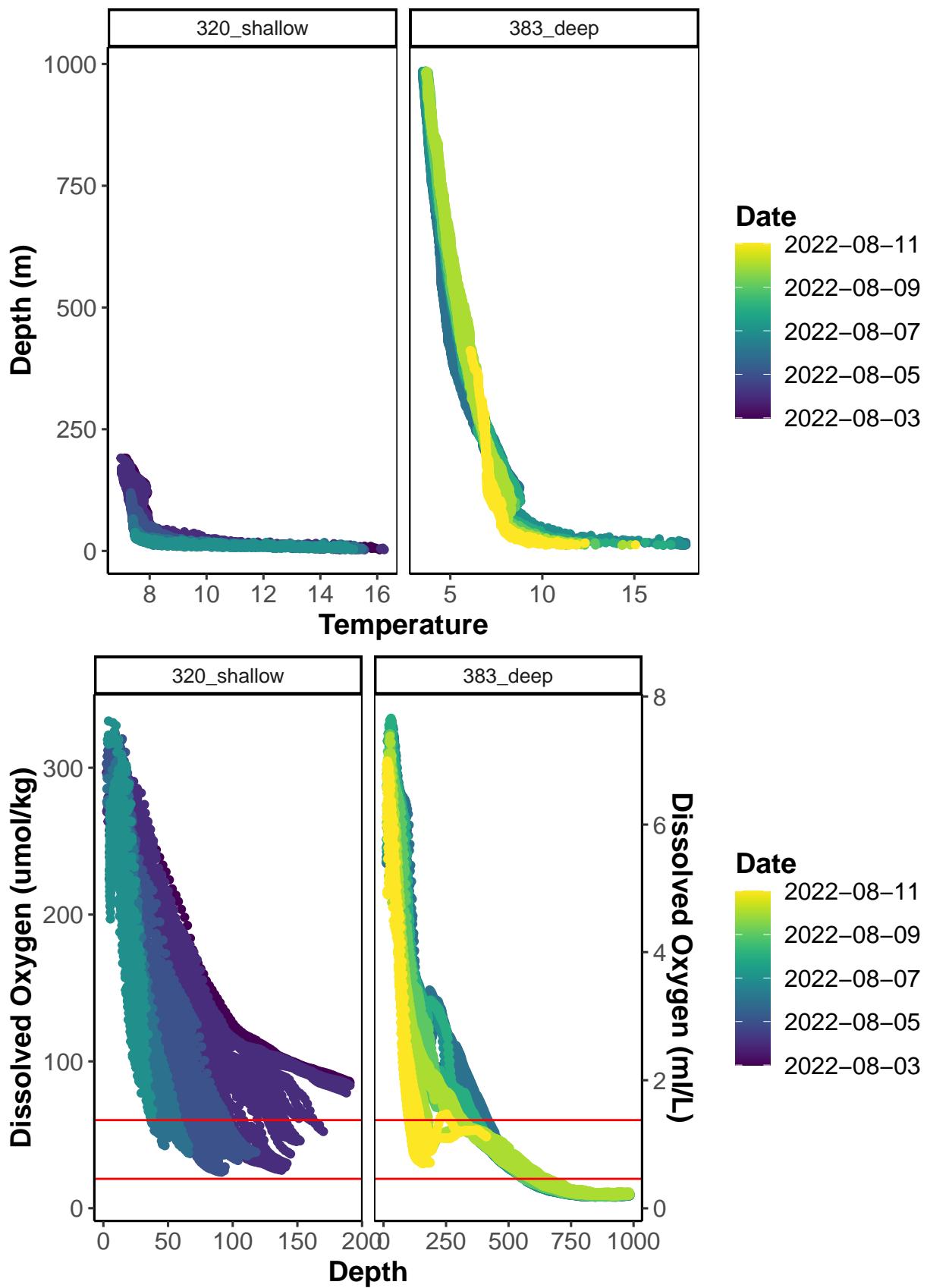
12 August, 2022

Contents









```

dfo_k999_nc <- nc_open(here::here("", "dfo_k999.nc"))
names(dfo_k999_nc$var)

## [1] "latitude"           "longitude"          "heading"
## [4] "pitch"              "roll"               "waypoint_latitude"
## [7] "waypoint_longitude" "conductivity"       "temperature"
## [10] "pressure"           "chlorophyll"        "cdom"
## [13] "backscatter_700"    "oxygen_concentration" "depth"
## [16] "distance_over_ground" "salinity"           "potential_density"
## [19] "density"             "potential_temperature" "profile_index"
## [22] "profile_direction"

dfo_k999 <- as.data.frame(matrix(data=NA, nrow=7983, ncol=11))
colnames(dfo_k999) <- c("Time", "latitude", "longitude", "chlorophyll", "salinity", "depth", "oxygen_concentration", "temperature", "cdom", "depth", "potential_density", "profile_index")
dfo_k999$Time <- dfo_k999_nc[["dim"]][["time"]]$vals
dfo_k999$Time <- as.POSIXct(dfo_k999$Time, origin = "1970-01-01T00:00:00+00:00")
dfo_k999$latitude <- ncvar_get(dfo_k999_nc, varid = c("latitude"))
dfo_k999$longitude <- ncvar_get(dfo_k999_nc, varid = c("longitude"))
dfo_k999$chlorophyll <- ncvar_get(dfo_k999_nc, varid = c("chlorophyll"))
dfo_k999$salinity <- ncvar_get(dfo_k999_nc, varid = c("salinity"))
dfo_k999$depth <- ncvar_get(dfo_k999_nc, varid = c("depth"))
dfo_k999$oxygen_concentration <- ncvar_get(dfo_k999_nc, varid = c("oxygen_concentration"))
dfo_k999$temperature <- ncvar_get(dfo_k999_nc, varid = c("temperature"))
dfo_k999$backscatter_700 <- ncvar_get(dfo_k999_nc, varid = c("backscatter_700"))
dfo_k999$cdom <- ncvar_get(dfo_k999_nc, varid = c("cdom"))

dfo_k999$ID <- "k999_deep"

dfo_k999 <- dfo_k999 %>%
  filter(latitude < 49)

max_lat_map_VI <- max(dfo_k999$latitude) + 1.5
min_lat_map_VI <- min(dfo_k999$latitude) - 1.5

max_long_map_VI <- max(dfo_k999$longitude) + 1
min_long_map_VI <- min(dfo_k999$longitude) - 1

simple_map_VI <- ggplot(data = world) +
  geom_sf() +
  annotation_scale(location = "bl", width_hint = 0.5) +
  annotation_north_arrow(
    location = "tl",
    which_north = "true",
    style = north_arrow_fancy_orienteering
  ) +
  coord_sf(
    xlim = c(min_long_map_VI, max_long_map_VI),
    ylim = c(min_lat_map_VI, max_lat_map_VI)
  ) +
  theme_DOM() +
  geom_point()

```

```
data = dfo_k999,
aes(
  x = longitude,
  y = latitude,
  color = "red"
),
size = 2
) +
labs(x = "Longitude", y = "Latitude")
simple_map_VI
```

