

Calcite Analysis

S. Eanes

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Setup data

```
coral <- read.csv("~/School/Fossil Coral/data/coral_3weighted.csv")

#omit data with no response
coral <- coral[!is.na(coral$U238),]

#select three largest species
genus_trim <- c("Acropora", "Porites")
#remove coral with age > 10
coral <- coral[which(coral$Genus %in% genus_trim),] %>% dplyr::filter(Age < 10)

#clean up a nice dataframe
coral.df <- coral %>% mutate(Temperature = Temp,
                             Calcite = ifelse(is.na(Calcite), "N/A", ifelse(Calcite > 1, "Calcite > 1", "Calcite < 1")))
select(U238, pH, TAlk, Salinity, Temperature, OmegaA, TC02, Calcite) %>%
data.frame()

coral.df$U238 <- coral.df$U238 * 0.421
nrow(coral.df)

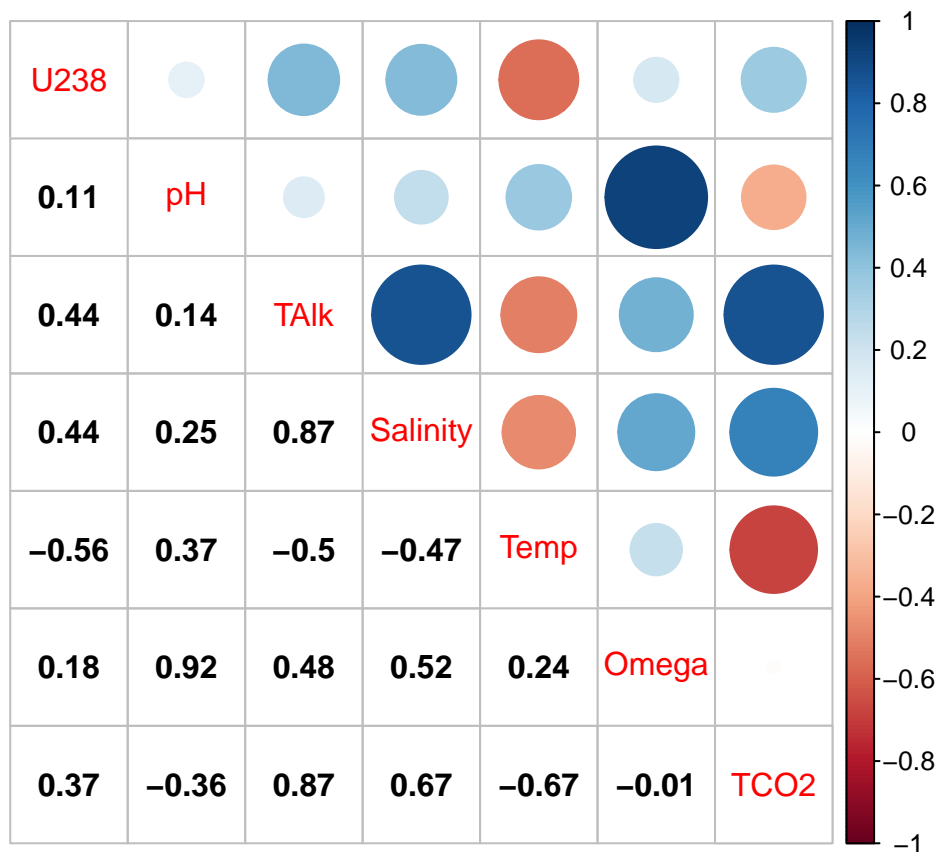
## [1] 737

library(corrplot)

## Warning: package 'corrplot' was built under R version 3.6.3

## corrplot 0.84 loaded

coral.corr <- coral.df %>% rename( Temp = Temperature, Omega = OmegaA) %>% select(-Calcite)
corrplot.mixed(cor(coral.corr), lower.col="black")
```



```
f1 <- ggplot(coral.df, aes(pH,U238))+
  geom_point()+
  geom_smooth(method="lm")+
  facet_wrap(~Calcite)

f2 <- ggplot(coral.df, aes(Temperature,U238))+
  geom_point()+
  geom_smooth(method="lm")+
  facet_wrap(~Calcite)

f3 <- ggplot(coral.df, aes(Salinity,U238))+
  geom_point()+
  geom_smooth(method="lm")+
  facet_wrap(~Calcite)

f4 <- ggplot(coral.df, aes(OmegaA,U238))+
  geom_point()+
  geom_smooth(method="lm")+
  facet_wrap(~Calcite)

f5 <- ggplot(coral.df, aes(TCO2,U238))+
  geom_point()+
```

```

geom_smooth(method="lm")+
facet_wrap(~Calcite)

f6 <- ggplot(coral.df, aes(Talk,U238))+
  geom_point()+
  geom_smooth(method="lm")+
  facet_wrap(~Calcite)

grid.arrange(f1,f2,f3,f4,f5,f6,ncol=2)

```

```

## `geom_smooth()` using formula 'y ~ x'
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```

