

o-Well-2

File Location

```
which.github = "local"

github.local = "X:/_git_/WSU_STAT419_2021/";
github.remote = "https://raw.githubusercontent.com/KalebWillis/WSU_STAT419_2021/main/";

if(which.github == "remote")
{
  include.me = paste0(github.remote, "o-well/");
  library(devtools);
  #source(include.me);
}else
{
  include.me = paste0(github.local, "o-well/");
  #source(include.me);
}
```

loading data frames produced in o-Well-1

```
data.path = paste0(include.me, "owell-metals.txt")
owell.metals = read.delim(data.path, header = TRUE, sep = "|")
data.path = paste0(include.me, "owell-chemistry.txt")
owell.chemistry = read.delim(data.path, header = TRUE, sep = "|")
```

Summary of Metals Statistics

```
metals.summary = summary(owell.metals)
metals.summary
```

```
##           As           B           Ba           Be
## Min.      :0.1000   Min.      : 4.40   Min.      : 3.30   Min.      :0.2000
## 1st Qu.:0.3000   1st Qu.: 7.00   1st Qu.: 8.75   1st Qu.:0.3000
## Median :0.5000   Median : 9.40   Median : 16.70   Median :0.4000
## Mean      :0.6304   Mean      :10.85   Mean      : 28.34   Mean      :0.3652
## 3rd Qu.:0.8000   3rd Qu.:14.20   3rd Qu.: 42.15   3rd Qu.:0.4000
## Max.      :2.2000   Max.      :22.80   Max.      :100.80   Max.      :0.5000
##           Cd           Co           Cr           Cu
## Min.      :0.1      Min.      :0.1000   Min.      :0.1000   Min.      :0.5000
## 1st Qu.:0.3      1st Qu.:0.1000   1st Qu.:0.4000   1st Qu.:0.5000
## Median :0.3      Median :0.2000   Median :0.5000   Median :0.6000
## Mean      :0.3      Mean      :0.1783   Mean      :0.6652   Mean      :0.6174
## 3rd Qu.:0.3      3rd Qu.:0.2000   3rd Qu.:0.7500   3rd Qu.:0.7000
## Max.      :0.4      Max.      :0.7000   Max.      :2.1000   Max.      :0.9000
##           Fe           Hg           Mn           Mo
## Min.      : 0.200   Min.      : 0.10   Min.      :0.1000   Min.      :11.00
## 1st Qu.: 0.750   1st Qu.: 1.10   1st Qu.:0.1000   1st Qu.:13.50
## Median : 2.000   Median : 3.20   Median :0.2000   Median :18.00
## Mean      : 8.078   Mean      :10.77   Mean      :0.4739   Mean      :18.87
## 3rd Qu.: 4.250   3rd Qu.:18.95   3rd Qu.:0.3000   3rd Qu.:23.50
## Max.      :93.000   Max.      :58.30   Max.      :5.2000   Max.      :31.00
##           Pb           Se           Zn           latitude           longitude
## Min.      :0.100   Min.      :0.100   Min.      :0.10   Min.      :28.44   Min.      :34.79
## 1st Qu.:1.800   1st Qu.:0.450   1st Qu.:0.50   1st Qu.:28.56   1st Qu.:34.88
## Median :2.200   Median :0.900   Median :1.10   Median :28.60   Median :34.98
## Mean      :2.013   Mean      :1.252   Mean      :1.53   Mean      :28.75   Mean      :34.97
## 3rd Qu.:2.450   3rd Qu.:2.000   3rd Qu.:1.80   3rd Qu.:28.94   3rd Qu.:35.02
## Max.      :3.000   Max.      :3.000   Max.      :6.50   Max.      :29.34   Max.      :35.22
## altitude.ft      fault      geology
## Min.      : 257   Min.      : 100   Length:23
## 1st Qu.: 894   1st Qu.: 500   Class :character
## Median :1245   Median : 2500   Mode  :character
## Mean      :1416   Mean      : 4126
## 3rd Qu.:2050   3rd Qu.: 4500
## Max.      :3168   Max.      :20000
```

Summary of Chemistry Statistics

```
chemistry.summary = summary(owell.chemistry)
chemistry.summary
```

```
##           pH           Eh           TDS           Ca
## Min.      :7.000   Min.      :355.0   Min.      : 406   Min.      :214.0
## 1st Qu.:7.350   1st Qu.:376.5   1st Qu.: 1252   1st Qu.:265.5
## Median :7.500   Median :378.0   Median : 1578   Median :330.0
## Mean      :7.443   Mean      :378.5   Mean      : 2342   Mean      :381.3
## 3rd Qu.:7.600   3rd Qu.:382.0   3rd Qu.: 2362   3rd Qu.:458.5
## Max.      :7.800   Max.      :394.0   Max.      :10018   Max.      :900.0
##           K           Mg           Na           HCO3
## Min.      : 3.00   Min.      : 12.00   Min.      : 64.0   Min.      :110.0
## 1st Qu.: 7.50   1st Qu.: 32.00   1st Qu.: 199.0   1st Qu.:131.0
## Median :17.00   Median : 58.00   Median : 272.0   Median :159.0
## Mean      :16.87   Mean      : 54.48   Mean      : 686.4   Mean      :158.5
## 3rd Qu.:22.50   3rd Qu.: 70.00   3rd Qu.: 464.5   3rd Qu.:177.0
## Max.      :39.00   Max.      :133.00   Max.      :3879.0   Max.      :226.0
##           Cl           SO4           NO3           F
## Min.      : 213.0   Min.      : 92.0   Min.      : 7.00   Min.      :0.8000
## 1st Qu.: 603.5   1st Qu.: 250.0   1st Qu.:39.50   1st Qu.:1.0000
## Median : 745.0   Median : 341.0   Median :42.00   Median :1.0000
## Mean      :1461.7   Mean      : 448.8   Mean      :39.65   Mean      :0.9826
## 3rd Qu.:1349.0   3rd Qu.: 609.0   3rd Qu.:44.50   3rd Qu.:1.0000
## Max.      :7455.0   Max.      :1402.0   Max.      :48.00   Max.      :1.1000
##           PO4           TH           TA           TS
## Min.      :0.1000   Min.      : 646.0   Min.      : 90.0   Min.      : 1698
## 1st Qu.:0.1000   1st Qu.: 868.5   1st Qu.:112.5   1st Qu.: 2690
## Median :0.1000   Median :1078.0   Median :130.0   Median : 3144
## Mean      :0.1261   Mean      :1176.8   Mean      :132.0   Mean      : 3945
## 3rd Qu.:0.1000   3rd Qu.:1388.0   3rd Qu.:145.0   3rd Qu.: 4008
## Max.      :0.4000   Max.      :2478.0   Max.      :185.0   Max.      :12722
##           SS           COD           BOD           DO
## Min.      :1292   Min.      :0.2000   Min.      :0.400   Min.      :6.000
## 1st Qu.:1448   1st Qu.:0.4000   1st Qu.:1.400   1st Qu.:6.650
## Median :1505   Median :0.8000   Median :1.700   Median :6.900
## Mean      :1603   Mean      :0.8174   Mean      :1.496   Mean      :6.835
## 3rd Qu.:1645   3rd Qu.:1.2000   3rd Qu.:1.900   3rd Qu.:7.050
## Max.      :2704   Max.      :1.6000   Max.      :2.000   Max.      :7.500
##           latitude       longitude       altitude.ft       fault
## Min.      :28.44   Min.      :34.79   Min.      : 257   Min.      : 100
## 1st Qu.:28.56   1st Qu.:34.88   1st Qu.: 894   1st Qu.: 500
## Median :28.60   Median :34.98   Median :1245   Median : 2500
## Mean      :28.75   Mean      :34.97   Mean      :1416   Mean      : 4126
## 3rd Qu.:28.94   3rd Qu.:35.02   3rd Qu.:2050   3rd Qu.: 4500
## Max.      :29.34   Max.      :35.22   Max.      :3168   Max.      :20000
##           geology
## Length:23
## Class :character
## Mode :character
##
##
##
```

```
write.table(metals.summary, file = "saudi.txt", append = FALSE, sep = "|", row.names = TRUE, col.names =
```