Prepare libraries

```r
library(dplyr)
library(stats)
```

```r
S1_sl_F1 <- c(0.80137633, 0.6624942 , 0.74317484, 0.78897048, 0.9014417 ,
        0.90530827, 0.93036994, 0.90926525, 0.75292016, 0.82254349,
        0.8326779 , 0.89488443, 0.90658832, 0.61696545, 0.86103307,
        0.54823738, 0.50420547, 0.626121  , 0.86672486, 0.93921698,
        0.63929097, 0.62536051, 0.87142185, 0.89188948, 0.5850221 ,
        0.57281197, 0.43777252, 0.50997561)

L8SR_F1 <- c(0.92793214, 0.87226521, 0.85161917, 0.90174571, 0.95841169,
        0.96303188, 0.87999467, 0.91844305, 0.95486589, 0.97980018,
        0.8939212 , 0.8091466 , 0.93740589, 0.80652573, 0.77150843,
        0.93789477, 0.97548463, 0.96136515, 0.97698698, 0.97502889,
        0.98406883, 0.97294458, 0.90599129, 0.96903235, 0.52347107,
        0.93102617, 0.93983048, 0.96929415)


L8SR_S1A_sl_F1 <- c(0.9356481 , 0.91253159, 0.90075742, 0.89374653, 0.95888571,
        0.96112047, 0.93123638, 0.93163619, 0.94186173, 0.99533711,
        0.86009682, 0.92661311, 0.93354874, 0.82232623, 0.86807943,
        0.96145246, 0.97186758, 0.97775286, 0.98363422, 0.97911601,
        0.98355996, 0.97614854, 0.96894387, 0.97610668, 0.60756085,
        0.92195246, 0.92225712, 0.97042522)

L8SR_S1A_sl3_F1 <- c(0.93343101, 0.74512727, 0.90822313, 0.87554979, 0.95534186,
        0.9554049 , 0.93093216, 0.92586812, 0.93666773, 0.99488317,
        0.85223777, 0.92567679, 0.9210681 , 0.75990931, 0.87269652,
        0.95442615, 0.97425885, 0.97365789, 0.980665  , 0.97545385,
        0.98131705, 0.97246168, 0.96851747, 0.96533358, 0.60002683,
        0.89036429, 0.91327309, 0.96745419)

ndwi <- c(0.90450723, 0.88508933, 0.84932429, 0.82566943, 0.93400426,
        0.93370738, 0.75562196, 0.82635947, 0.89560735, 0.95225523,
        0.88371997, 0.65224888, 0.9429905 , 0.78551783, 0.69480037,
        0.95283301, 0.93098132, 0.94032677, 0.90385911, 0.97032009,
        0.9338438 , 0.93778953, 0.79329156, 0.92955841, 0.57991652,
        0.934091  , 0.86623431, 0.94344732)

cloud <- c(27.80858361, 55.49323322, 52.84362254, 37.71106785,  2.79291806,
        24.01844642, 87.77669633, 12.62384131, 31.46607341, 74.45022247,
        46.58954394, 26.11503522, 48.57508343, 58.35771227, 95.19466073,
        44.37300704, 25.89330738, 29.30394883, 22.72849462,  6.8277716 ,
        19.56572117, 59.35057471, 33.65266963, 56.89182425, 83.62263626,
        19.33685577, 31.17834631, 53.5521876)

m1 <- lm(S1_sl_F1 ~ cloud)
m2 <- lm(L8SR_F1 ~ cloud)
m3 <- lm(L8SR_S1A_sl_F1 ~ cloud)
m4 <- lm(L8SR_S1A_sl3_F1 ~ cloud)
m5 <- lm(ndwi ~ cloud)
```

```r
summary(m1)
```

```
## 
## Call:
## lm(formula = S1_sl_F1 ~ cloud)
## 
## Residuals:
##     Min       1Q   Median       3Q      Max
## -0.31501 -0.12477  0.04309  0.13727  0.20248
## 
## Coefficients:
##                Estimate Std. Error t value Pr(>|t|)
## (Intercept)  0.7664873  0.0604673  12.676 1.23e-12 ***
## cloud       -0.0004397  0.0012621  -0.348     0.73
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## 
## Residual standard error: 0.1573 on 26 degrees of freedom
## Multiple R-squared:  0.004646,   Adjusted R-squared:  -0.03364
## F-statistic: 0.1214 on 1 and 26 DF,  p-value: 0.7304
```

```
summary(m2)
```

```
## 
## Call:
## lm(formula = L8SR_F1 ~ cloud)
## 
## Residuals:
##       Min        1Q    Median        3Q       Max
## -0.297843 -0.024887  0.002059  0.033776  0.139316
## 
## Coefficients:
##                Estimate Std. Error t value Pr(>|t|)
## (Intercept)  0.9960827  0.0315303  31.591  < 2e-16 ***
## cloud       -0.0020900  0.0006581  -3.176  0.00383 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## 
## Residual standard error: 0.08204 on 26 degrees of freedom
## Multiple R-squared:  0.2795, Adjusted R-squared:  0.2518
## F-statistic: 10.09 on 1 and 26 DF,  p-value: 0.003826
```

```
summary(m3)
```

```
## 
## Call:
## lm(formula = L8SR_S1A_sl_F1 ~ cloud)
## 
## Residuals:
##       Min        1Q    Median        3Q       Max
## -0.260291 -0.023554  0.006376  0.030436  0.114396
## 
## Coefficients:
##                Estimate Std. Error t value Pr(>|t|)
## (Intercept)  0.9871811  0.0263191  37.508   <2e-16 ***
## cloud       -0.0014270  0.0005493  -2.598   0.0153 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## 
## Residual standard error: 0.06848 on 26 degrees of freedom
## Multiple R-squared:  0.2061, Adjusted R-squared:  0.1755
## F-statistic: 6.748 on 1 and 26 DF,  p-value: 0.01525
```

```
summary(m4)
```

```
##
## Call:
## lm(formula = L8SR_S1A_sl3_F1 ~ cloud)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.24907 -0.02373  0.01202  0.04136  0.13144
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)  0.9799132  0.0306450  31.976   <2e-16 ***
## cloud       -0.0015644  0.0006396  -2.446   0.0215 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.07974 on 26 degrees of freedom
## Multiple R-squared:  0.187,  Adjusted R-squared:  0.1558
## F-statistic: 5.982 on 1 and 26 DF,  p-value: 0.02153
```

```
summary(m5)
```

```
##
## Call:
## lm(formula = ndwi ~ cloud)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.24654 -0.03249  0.01569  0.04339  0.14510
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)  0.9482949  0.0343556  27.602   <2e-16 ***
## cloud       -0.0018957  0.0007171  -2.644   0.0137 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.08939 on 26 degrees of freedom
## Multiple R-squared:  0.2119, Adjusted R-squared:  0.1815
## F-statistic: 6.989 on 1 and 26 DF,  p-value: 0.01372
```