# STATS

> PM1\_AMS\_per\_OAden <- c("OA\_PM1\_AMS\_per\_OAden", "Sulfate\_PM1\_AMS\_per\_OAden", "Nitrate\_PM1\_AMS\_per\_OAden", "Ammonium\_PM1\_AMS\_per\_OAden", "NR\_Chloride\_PM1\_AMS\_per\_OAden", "Potassium\_PM1\_AMS\_per\_OAden", "MSA\_PM1\_AMS\_per\_OAden", "ClO4\_PM1\_AMS\_per\_OAden", "Iodine\_PM1\_AMS\_per\_OAden", "Bromine\_PM1\_AMS\_per\_OAden", "Seasalt\_PM1\_AMS\_per\_OAden", "AmmBalance\_PM1\_AMS\_per\_OAden", "OtoC\_Ratio\_PM1\_AMS\_per\_OAden", "HtoC\_Ratio\_PM1\_AMS\_per\_OAden", "OAtoOC\_PM1\_AMS\_per\_OAden", "OSc\_PM1\_AMS\_per\_OAden", "OrgNitrFraction\_PM1\_AMS\_per\_OAden", "f43\_PM1\_AMS\_per\_OAden", "f44\_PM1\_AMS\_per\_OAden", "f57\_PM1\_AMS\_per\_OAden", "f60\_PM1\_AMS\_per\_OAden", "f82\_PM1\_AMS\_per\_OAden", "f91\_PM1\_AMS\_per\_OAden", "fC2H3O\_PM1\_AMS\_per\_OAden", "fCO2\_PM1\_AMS\_per\_OAden", "fC4H9\_PM1\_AMS\_per\_OAden", "fC2H4O2\_PM1\_AMS\_per\_OAden", "fC5H6O\_PM1\_AMS\_per\_OAden", "fC7H7\_PM1\_AMS\_per\_OAden")

> nasa\_data\_per\_OAden\_lm <- nasa\_data\_per\_OAden %>% select(c(mission\_type, ALT\_AMS, Density\_PM1\_AMS, OADensity\_PM1\_AMS), all\_of(PM1\_AMS\_per\_OAden))

> logit <- glm(mission\_type ~ ., data=nasa\_data\_per\_OAden\_lm, family="binomial")

> summary(logit)

Call:

glm(formula = mission\_type ~ ., family = "binomial", data = nasa\_data\_per\_OAden\_lm)

Deviance Residuals:

Min 1Q Median 3Q Max

-6.1271 -0.2270 -0.0677 0.2057 8.4904

Coefficients:

Estimate Std. Error z value Pr(>|z|)

(Intercept) 5.766e+01 1.476e+00 39.056 < 2e-16 \*\*\*

ALT\_AMS 1.593e-03 9.226e-06 172.692 < 2e-16 \*\*\*

Density\_PM1\_AMS 8.171e+00 5.016e-01 16.288 < 2e-16 \*\*\*

OADensity\_PM1\_AMS -3.809e+01 9.896e-01 -38.486 < 2e-16 \*\*\*

OA\_PM1\_AMS\_per\_OAden 1.220e-01 4.358e-03 28.007 < 2e-16 \*\*\*

Sulfate\_PM1\_AMS\_per\_OAden -4.829e-01 5.101e-02 -9.468 < 2e-16 \*\*\*

Nitrate\_PM1\_AMS\_per\_OAden 9.787e-01 5.896e-02 16.600 < 2e-16 \*\*\*

Ammonium\_PM1\_AMS\_per\_OAden -1.091e+00 1.454e-01 -7.503 6.21e-14 \*\*\*

NR\_Chloride\_PM1\_AMS\_per\_OAden -6.190e+00 1.925e-01 -32.150 < 2e-16 \*\*\*

Potassium\_PM1\_AMS\_per\_OAden -2.188e-01 1.500e-02 -14.585 < 2e-16 \*\*\*

MSA\_PM1\_AMS\_per\_OAden 2.800e-01 1.235e-01 2.268 0.023337 \*

ClO4\_PM1\_AMS\_per\_OAden -4.514e+00 2.632e-01 -17.149 < 2e-16 \*\*\*

Iodine\_PM1\_AMS\_per\_OAden 5.446e+00 5.705e-01 9.545 < 2e-16 \*\*\*

Bromine\_PM1\_AMS\_per\_OAden 9.748e-01 3.530e-01 2.761 0.005757 \*\*

Seasalt\_PM1\_AMS\_per\_OAden -3.027e-02 6.958e-02 -0.435 0.663566

AmmBalance\_PM1\_AMS\_per\_OAden 7.419e-02 7.406e-02 1.002 0.316453

OtoC\_Ratio\_PM1\_AMS\_per\_OAden -1.580e+02 1.050e+01 -15.056 < 2e-16 \*\*\*

HtoC\_Ratio\_PM1\_AMS\_per\_OAden 5.750e+01 5.267e+00 10.918 < 2e-16 \*\*\*

OAtoOC\_PM1\_AMS\_per\_OAden 2.868e+00 8.097e-01 3.543 0.000396 \*\*\*

OSc\_PM1\_AMS\_per\_OAden 7.027e+01 5.248e+00 13.390 < 2e-16 \*\*\*

OrgNitrFraction\_PM1\_AMS\_per\_OAden 2.815e-01 5.116e-02 5.503 3.73e-08 \*\*\*

f43\_PM1\_AMS\_per\_OAden -8.195e+00 1.735e+00 -4.722 2.33e-06 \*\*\*

f44\_PM1\_AMS\_per\_OAden 4.564e+00 3.160e+00 1.444 0.148649

f57\_PM1\_AMS\_per\_OAden -3.349e+01 4.125e+00 -8.119 4.71e-16 \*\*\*

f60\_PM1\_AMS\_per\_OAden -1.874e+02 7.320e+00 -25.596 < 2e-16 \*\*\*

f82\_PM1\_AMS\_per\_OAden 1.081e+02 8.695e+00 12.428 < 2e-16 \*\*\*

f91\_PM1\_AMS\_per\_OAden 1.043e+02 8.312e+00 12.547 < 2e-16 \*\*\*

fC2H3O\_PM1\_AMS\_per\_OAden -6.160e+01 1.896e+00 -32.493 < 2e-16 \*\*\*

fCO2\_PM1\_AMS\_per\_OAden 3.987e+01 3.175e+00 12.558 < 2e-16 \*\*\*

fC4H9\_PM1\_AMS\_per\_OAden 1.014e+02 4.968e+00 20.403 < 2e-16 \*\*\*

fC2H4O2\_PM1\_AMS\_per\_OAden 7.495e+01 7.641e+00 9.809 < 2e-16 \*\*\*

fC5H6O\_PM1\_AMS\_per\_OAden -1.916e+02 1.162e+01 -16.489 < 2e-16 \*\*\*

fC7H7\_PM1\_AMS\_per\_OAden 1.471e+02 7.415e+00 19.837 < 2e-16 \*\*\*

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Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for binomial family taken to be 1)

Null deviance: 324901 on 241579 degrees of freedom

Residual deviance: 90981 on 241547 degrees of freedom

AIC: 91047

Number of Fisher Scoring iterations: 9