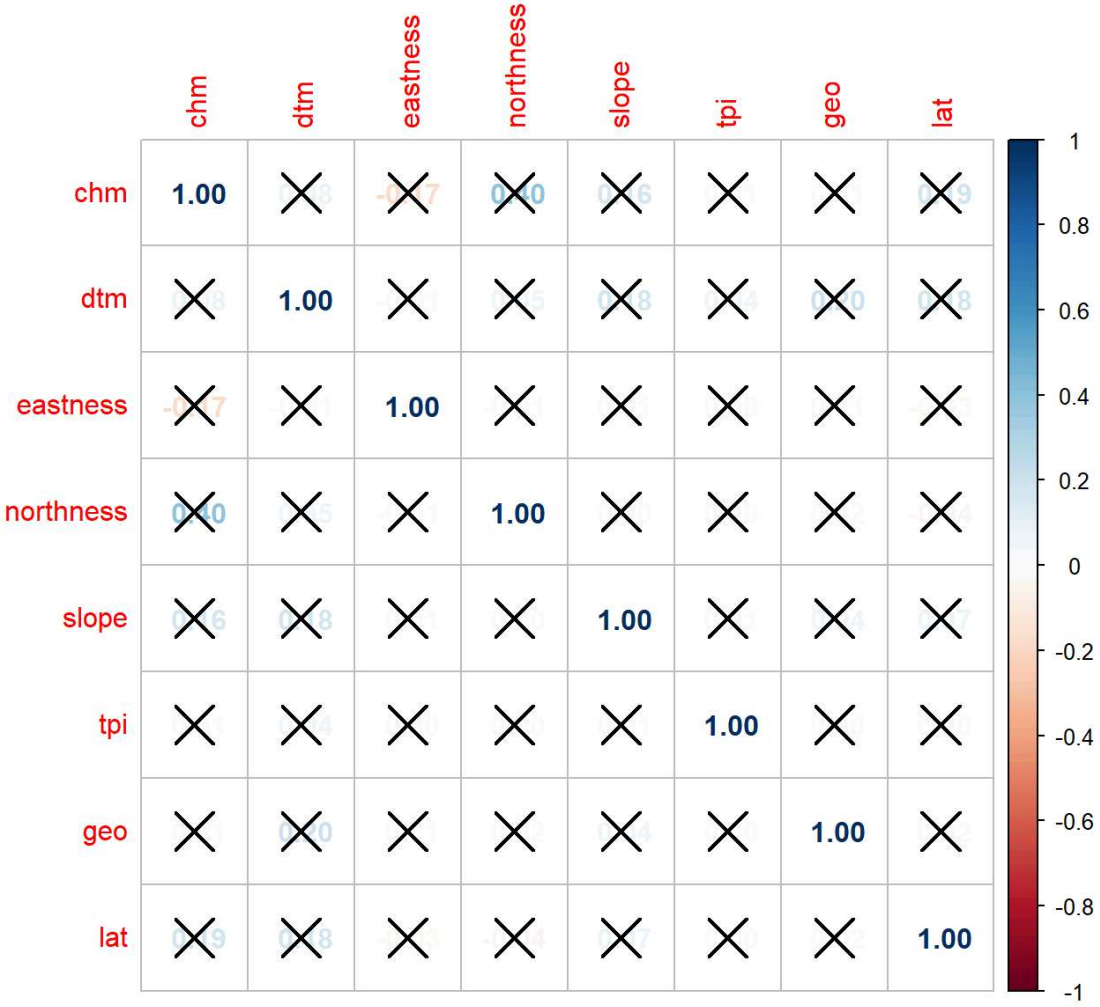
BAM analysis

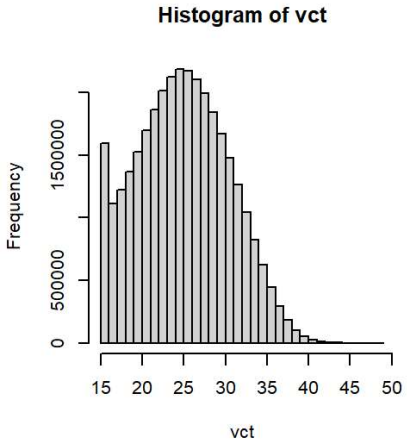
Correlation plot

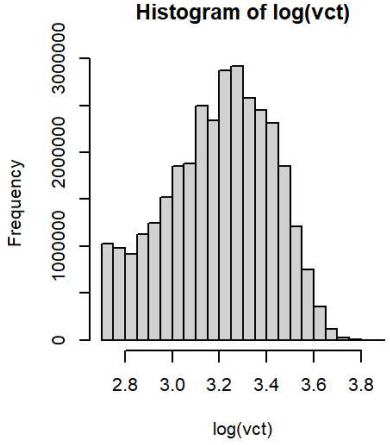


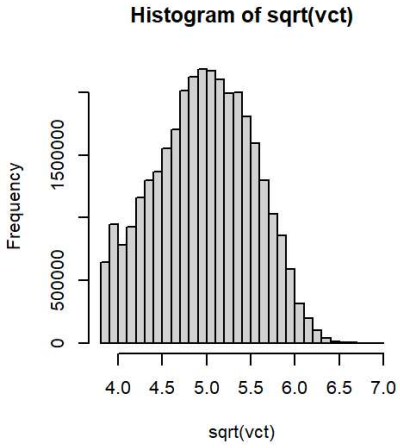
Exploratory analysis

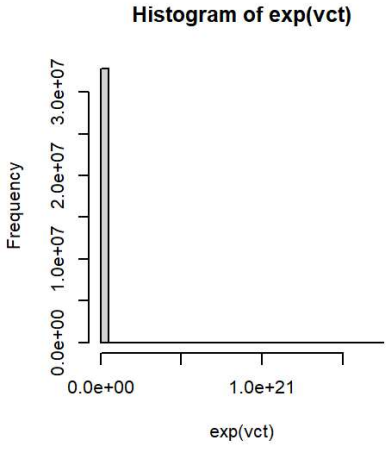
```
    Asymptotic one-sample Kolmogorov-Smirnov test

data:  vct
D = 1, p-value < 2.2e-16
alternative hypothesis: two-sided

[1] 0.7682175

[1] 3.102648


    Asymptotic one-sample Kolmogorov-Smirnov test

data:  log(vct)
```

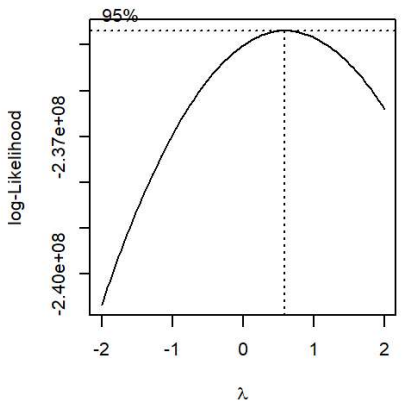
```
D = 0.99662, p-value < 2.2e-16
alternative hypothesis: two-sided
[1] 0.4081376

[1] 2.285772


    Asymptotic one-sample Kolmogorov-Smirnov test

data:  sqrt(vct)
D = 0.99995, p-value < 2.2e-16
alternative hypothesis: two-sided

[1] 0.5780534

[1] 2.617687


    Asymptotic one-sample Kolmogorov-Smirnov test

data:  exp(vct)
D = 1, p-value < 2.2e-16
alternative hypothesis: two-sided

[1] 2416.842

[1] 7492757
```

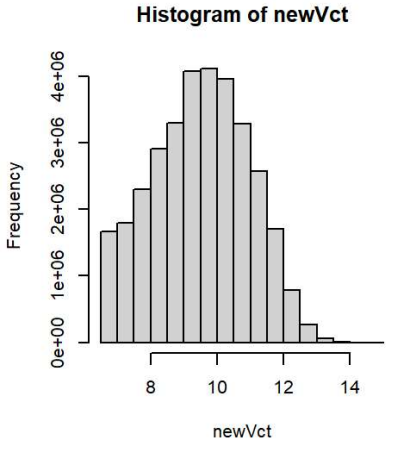




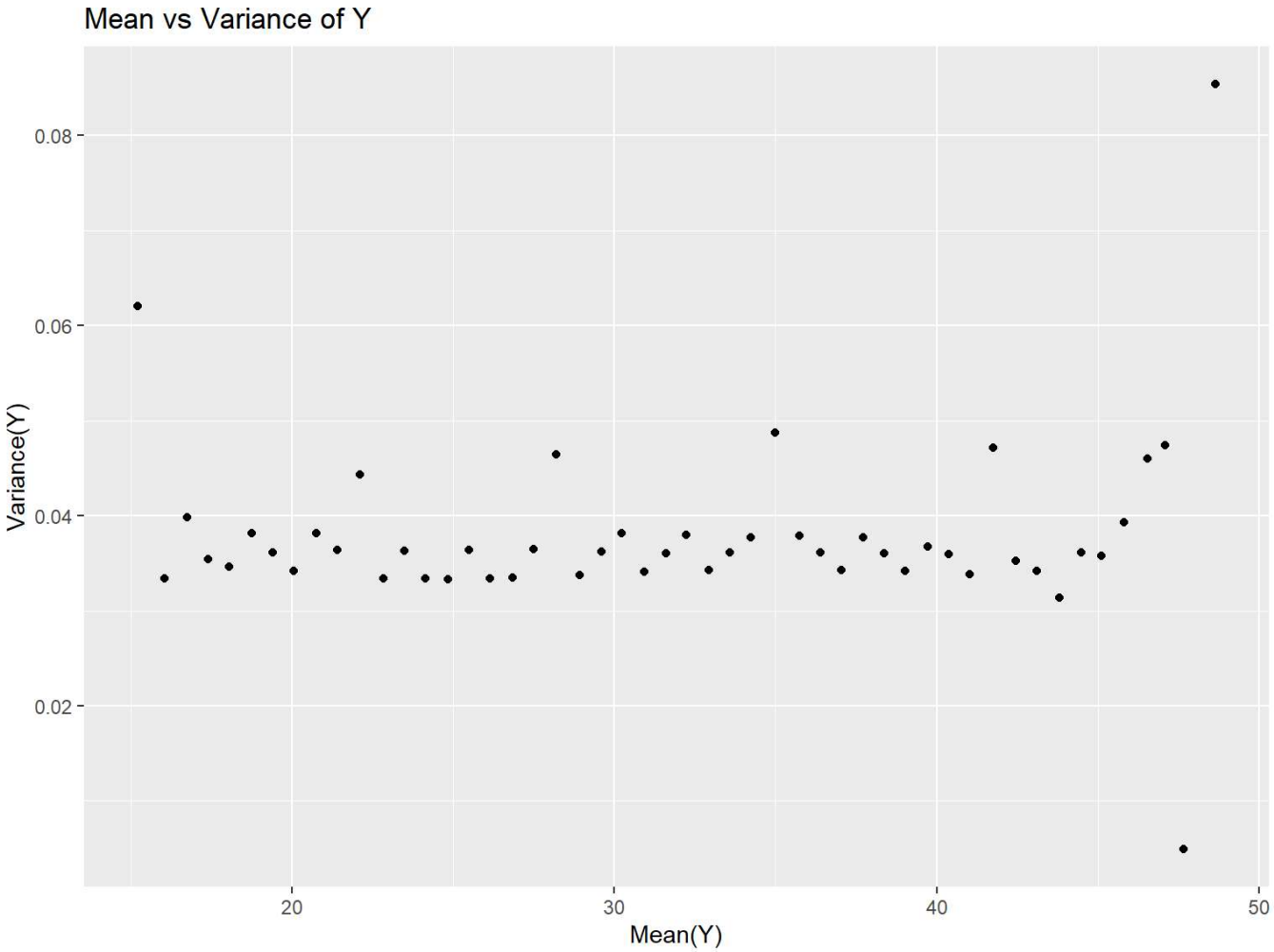








```
    Asymptotic one-sample Kolmogorov-Smirnov test

data:  newVct
D = 0.79673, p-value < 2.2e-16
alternative hypothesis: two-sided

[1] 0.07637046

[1] 1.892881
```



Bam statistics

Gam/k.check stats at 10000 samples with 0 reps

```
Method: REML   Optimizer: outer newton
full convergence after 18 iterations.
Gradient range [-42.74041,32.37094]
(score -157792871 & scale 3.944838e-05).
Hessian positive definite, eigenvalue range [4.07398,21607732].
Model rank =  56 / 56
```

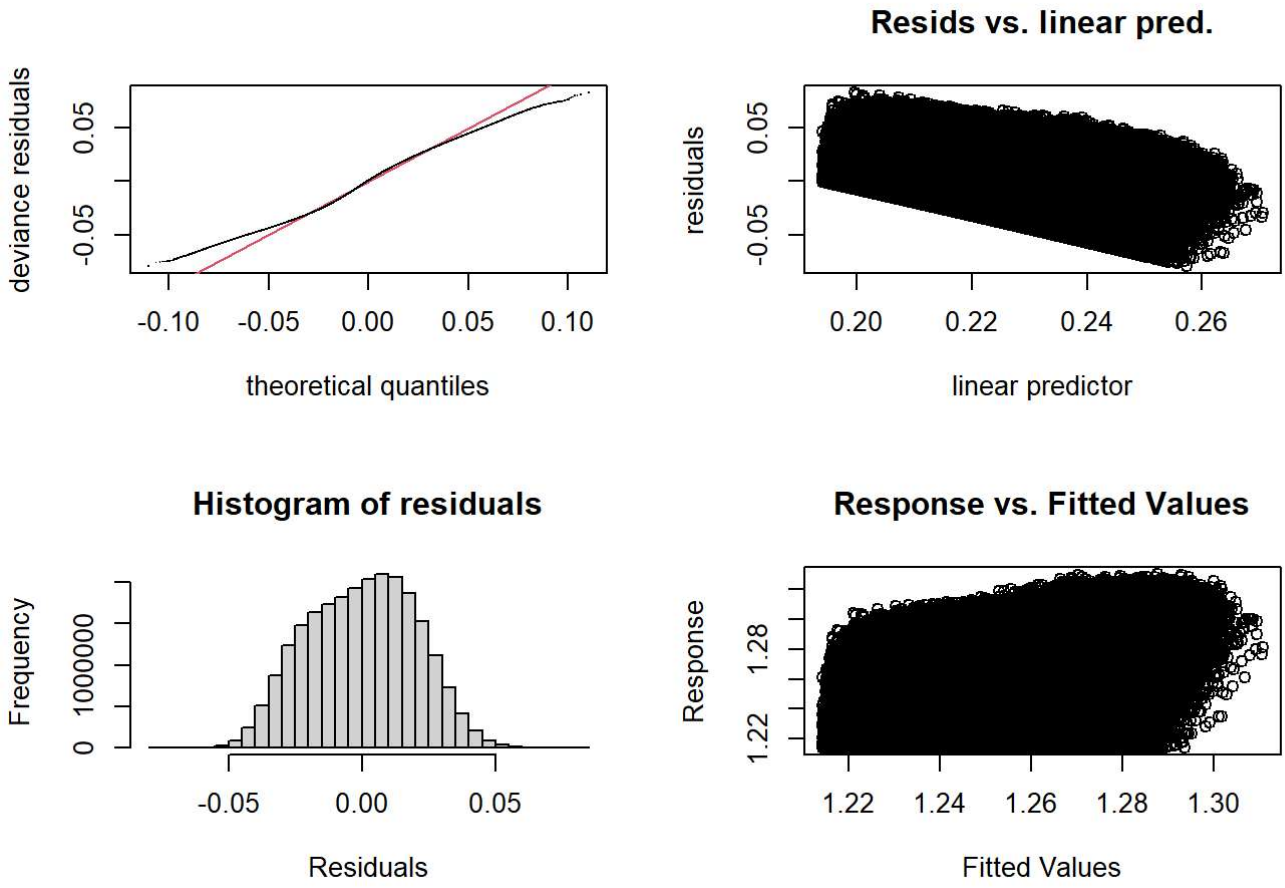
```
Basis dimension (k) checking results. Low p-value (k-index<1) may
indicate that k is too low, especially if edf is close to k'.

               k'  edf k-index p-value
s(dtm)       9.00 9.00    1.00       1
s(slope)     9.00 9.00    0.99  <2e-16 ***
s(northness) 9.00 8.92    0.99       1
s(eastness)  9.00 8.90    0.99  <2e-16 ***
s(tpi)       9.00 8.99    1.00  <2e-16 ***
s(lat)       9.00 9.00    0.97  <2e-16 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
png
  2

              k'      edf   k-index p-value
s(dtm)         9 8.999069 1.0144916       1
s(slope)       9 8.997676 1.0053365       0
s(northness)   9 8.922232 1.0011731       0
s(eastness)    9 8.904629 1.0066862       1
s(tpi)         9 8.986866 0.9963631       0
s(lat)         9 8.999710 0.9740282       0
```

Gam/k.check stats at 100000 samples with 0 reps

```
Method: REML   Optimizer: outer newton
full convergence after 18 iterations.
Gradient range [-42.74041,32.37094]
(score -157792871 & scale 3.944838e-05).
Hessian positive definite, eigenvalue range [4.07398,21607732].
Model rank =  56 / 56

Basis dimension (k) checking results. Low p-value (k-index<1) may
indicate that k is too low, especially if edf is close to k'.

               k'  edf k-index p-value
s(dtm)       9.00 9.00    1.00       1
s(slope)     9.00 9.00    1.00       1
s(northness) 9.00 8.92    1.00       1
s(eastness)  9.00 8.90    1.00  <2e-16 ***
s(tpi)       9.00 8.99    1.00  <2e-16 ***
s(lat)       9.00 9.00    0.97  <2e-16 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

png
  2

              k'      edf   k-index p-value
s(dtm)         9 8.999069 0.9922988       0
s(slope)       9 8.997676 1.0030774       1
s(northness)   9 8.922232 0.9957909       0
```

```
s(eastness)   9 8.904629 0.9977909       0
s(tpi)        9 8.986866 1.0002251       1
s(lat)        9 8.999710 0.9690448       0
```

Gam.check at 200000 samples with 0 reps




```
Method: REML   Optimizer: outer newton
full convergence after 18 iterations.
Gradient range [-42.74041,32.37094]
(score -157792871 & scale 3.944838e-05).
Hessian positive definite, eigenvalue range [4.07398,21607732].
Model rank =  56 / 56

Basis dimension (k) checking results. Low p-value (k-index<1) may
indicate that k is too low, especially if edf is close to k'.

               k'  edf k-index p-value
s(dtm)       9.00 9.00    1.00       1
s(slope)     9.00 9.00    0.99  <2e-16 ***
s(northness) 9.00 8.92    1.00  <2e-16 ***
s(eastness)  9.00 8.90    1.00  <2e-16 ***
s(tpi)       9.00 8.99    1.00       1
s(lat)       9.00 9.00    0.97  <2e-16 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
              k'      edf   k-index p-value
s(dtm)         9 8.999069 0.9973061       0
s(slope)       9 8.997676 0.9985996       0
s(northness)   9 8.922232 1.0004411       1
s(eastness)    9 8.904629 1.0001646       0
s(tpi)         9 8.986866 0.9993603       0
s(lat)         9 8.999710 0.9733846       0
```

Basis functions plots