

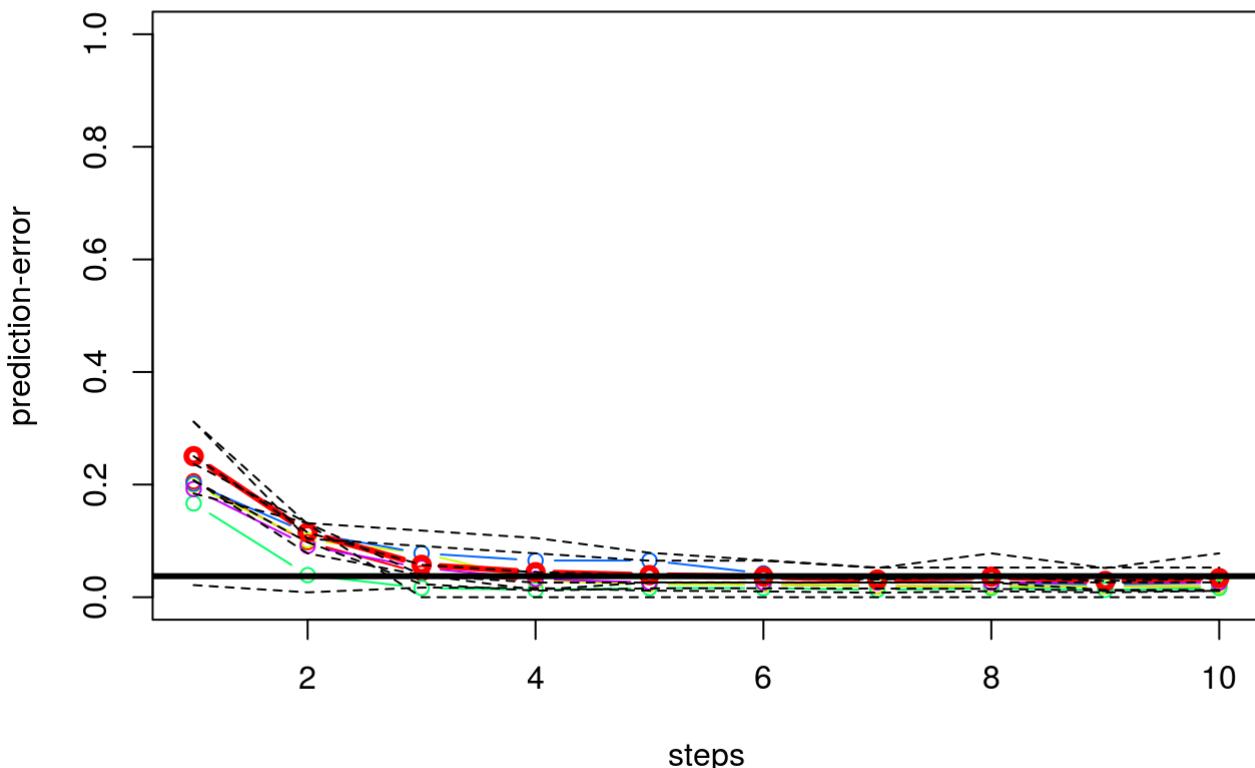
Siliceous Bedrock

fabian gruber

September 12, 2017

Allterrainscols

```
## [1] "silikatisches Festgestein_vs_Alluviale Ablagerung"
```

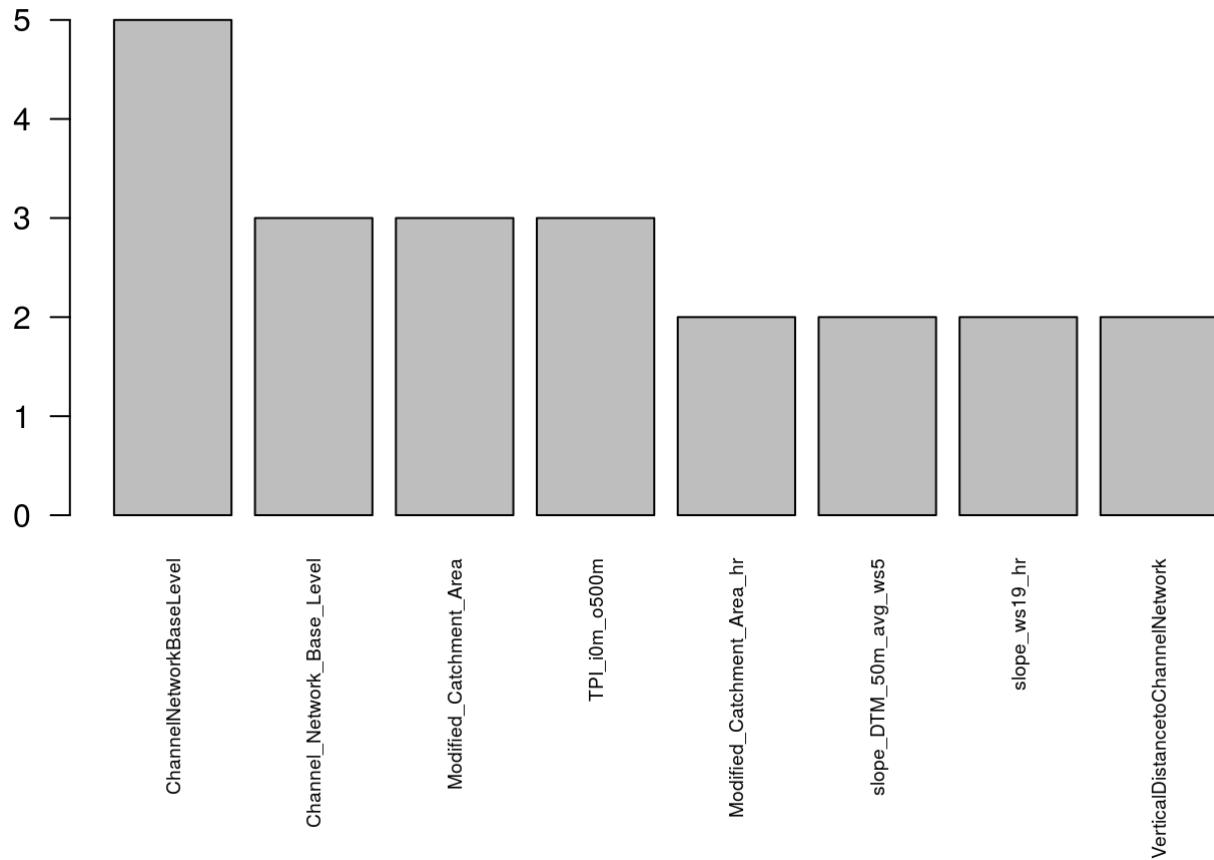


```

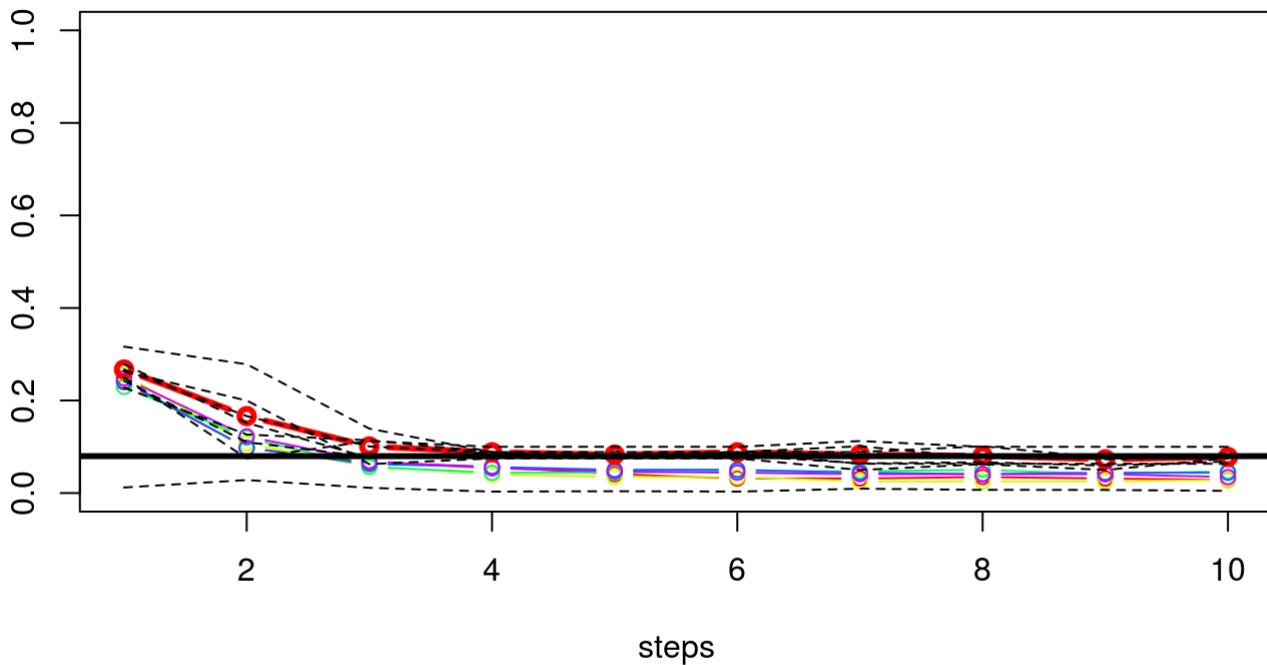
## [1] "Prediction error at end is: 0.250444292549556"
## [2] "Prediction error at end is: 0.114969241285031"
## [3] "Prediction error at end is: 0.057552973342447"
## [4] "Prediction error at end is: 0.0444634313055366"
## [5] "Prediction error at end is: 0.0392344497607655"
## [6] "Prediction error at end is: 0.0366028708133971"
## [7] "Prediction error at end is: 0.0313738892686261"
## [8] "Prediction error at end is: 0.0365686944634313"
## [9] "Prediction error at end is: 0.0287764866712235"
## [10] "Prediction error at end is: 0.0339712918660287"

## k 1 k 2
## 1 slope_ws19_hr Modified_Catchment_Area
## 2 ChannelNetworkBaseLevel slope_DTM_50m_avg_ws5
## 3 TPI_i0m_o500m ChannelNetworkBaseLevel
## 4 maxic_ws5 TPI_i0m_o500m
## 5 slope_DTM_50m_avg_ws5 Modified_Catchment_Area_hr
## 6 saga_Topographic_Wetness_Index_hr FlowLineCurvature
## 7 Modified_Catchment_Area_hr Closed_Depressions
## 8 TPI_i0m_o10m minic_ws29_hr
## 9 Mass_Balance_Index_hr_hr General_Curvature
## 10 crosc_ws3_hr longc_DTM_50m_avg_ws5
## k 3 k 4
## 1 VerticalDistancetoChannelNetwork slope_ws11_hr
## 2 ChannelNetworkBaseLevel Modified_Catchment_Area
## 3 Slope Mass_Balance_Index
## 4 MassBalanceIndex Tangential_Curvature
## 5 ConvergenceIndex Channel_Network_Base_Level
## 6 LS_Factor ChannelNetworkBaseLevel
## 7 Channel_Network_Base_Level TPI_i0m_o500m
## 8 slope_DTM_50m_avg_ws7 RelativeSlopePosition
## 9 maxic_ws7_hr crosc_ws7_hr
## 10 PlanCurvature crosc_ws5
## k 5
## 1 Modified_Catchment_Area
## 2 ChannelNetworkBaseLevel
## 3 VerticalDistancetoChannelNetwork
## 4 slope_ws15
## 5 TangentialCurvature
## 6 longc_ws11
## 7 slope_ws19_hr
## 8 DiurnalAnisotropicHeating
## 9 maxic_ws5_hr
## 10 Channel_Network_Base_Level

```



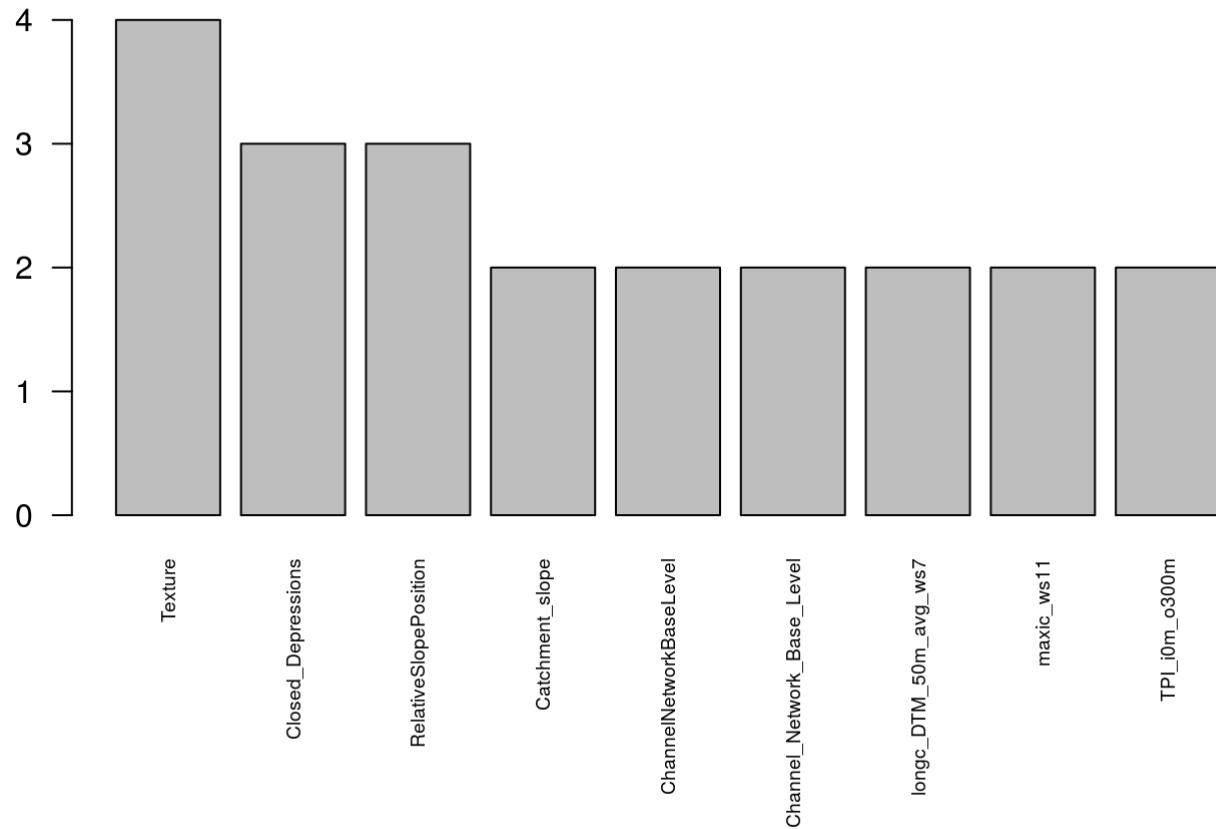
```
## [1] "silikatisches Festgestein_vs_Blockschutt"
```



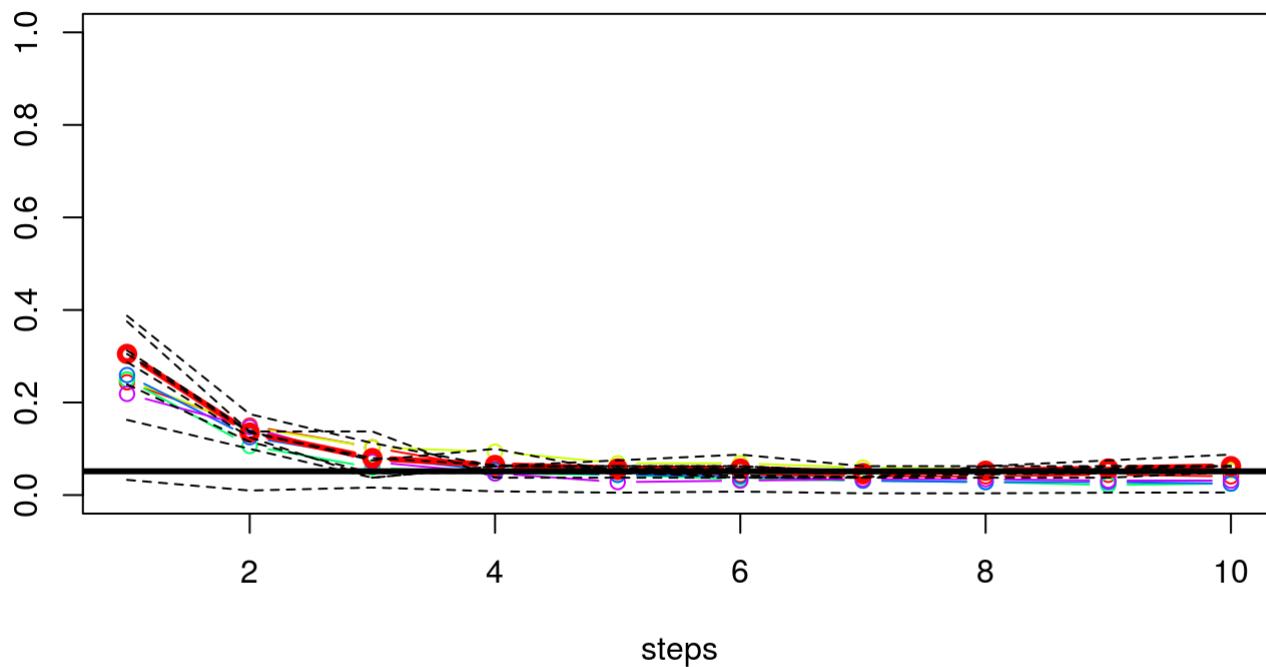
```

## [1] "Prediction error at end is: 0.267056962025316"
## [2] "Prediction error at end is: 0.166392405063291"
## [3] "Prediction error at end is: 0.100822784810127"
## [4] "Prediction error at end is: 0.0881645569620253"
## [5] "Prediction error at end is: 0.0831012658227848"
## [6] "Prediction error at end is: 0.0881645569620253"
## [7] "Prediction error at end is: 0.0831329113924051"
## [8] "Prediction error at end is: 0.0806012658227848"
## [9] "Prediction error at end is: 0.0730379746835443"
## [10] "Prediction error at end is: 0.0780379746835443"
##          k 1           k 2
## 1 ChannelNetworkBaseLevel   Channel_Network_Base_Level
## 2 RelativeSlopePosition     Catchment_slope
## 3 Modified_Catchment_Area   TPI_i0m_o300m
## 4                      Texture VerticalDistanceToChannelNetwork
## 5                      TPI_i0m_o300m           slope_ws15
## 6                      minic_ws5      ChannelNetworkBaseLevel
## 7                      crosc_ws3_hr        Convexity
## 8                      TPI_i0m_o100m       Closed_Depressions
## 9      Closed_Depressions      planc_ws9_hr
## 10                     maxic_ws13_hr    sagaTopographic_Wetness_Index
##          k 3           k 4
## 1          Texture           Texture
## 2 longc_DTM_50m_avg_ws7    longc_DTM_50m_avg_ws7
## 3 RelativeSlopePosition    slope_DTM_50m_avg_ws7
## 4          slope_ws19_hr Topographic_Wetness_Index
## 5          TPI_i0m_o120m        LSFactor
## 6          planc_ws11 DiurnalAnisotropicHeating
## 7          maxic_ws11_hr     longc_DTM_50m_avg_ws5
## 8          TPI_i0m_o200m       Closed_Depressions
## 9      minic_DTM_50m_avg_ws3    longc_ws13_hr
## 10         TPI_i0m_o140m        maxic_ws11
##          k 5
## 1          Texture
## 2      Catchment_slope
## 3          slope_ws5
## 4          TPI_i0m_o400m
## 5 Channel_Network_Base_Level
## 6          maxic_ws11
## 7          maxic_ws15
## 8          maxic_ws9_hr
## 9      RelativeSlopePosition
## 10     longc_ws15_hr

```



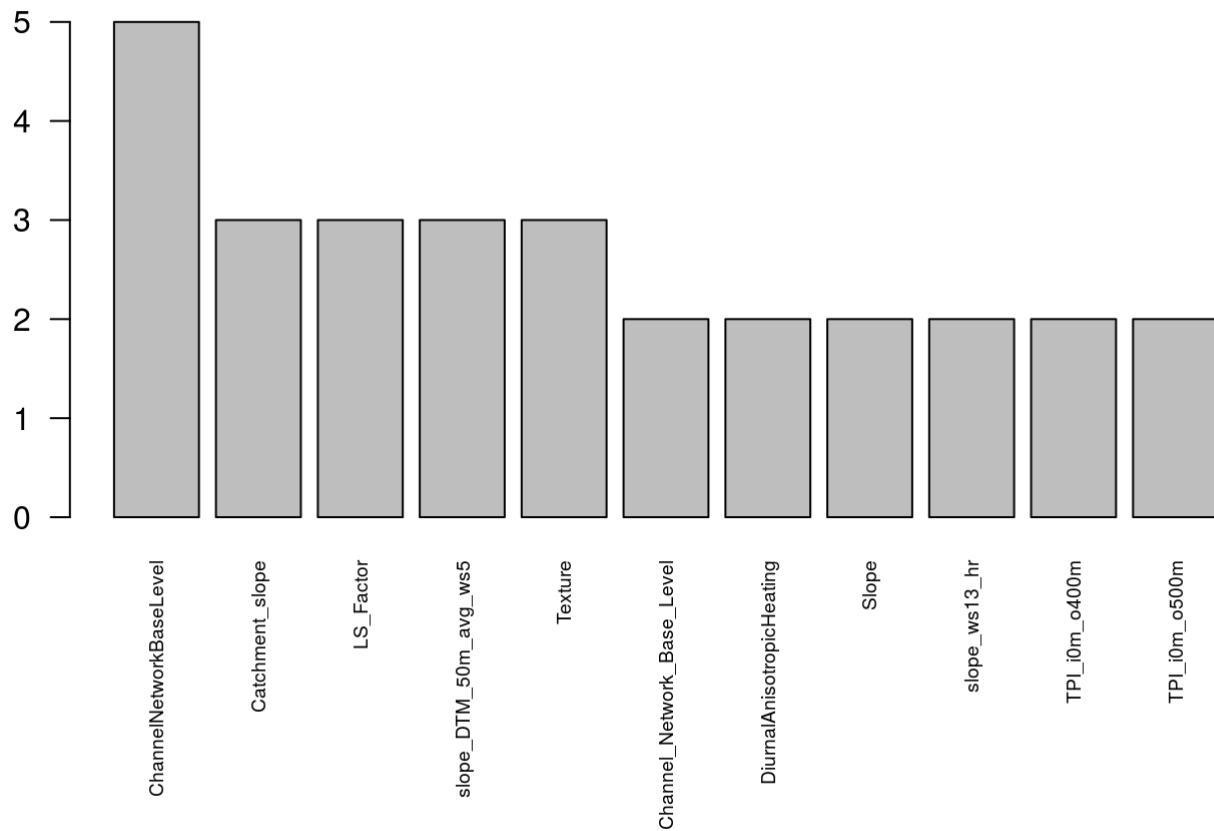
```
## [1] "silikatisches Festgestein_vs_Kolluvium"
```



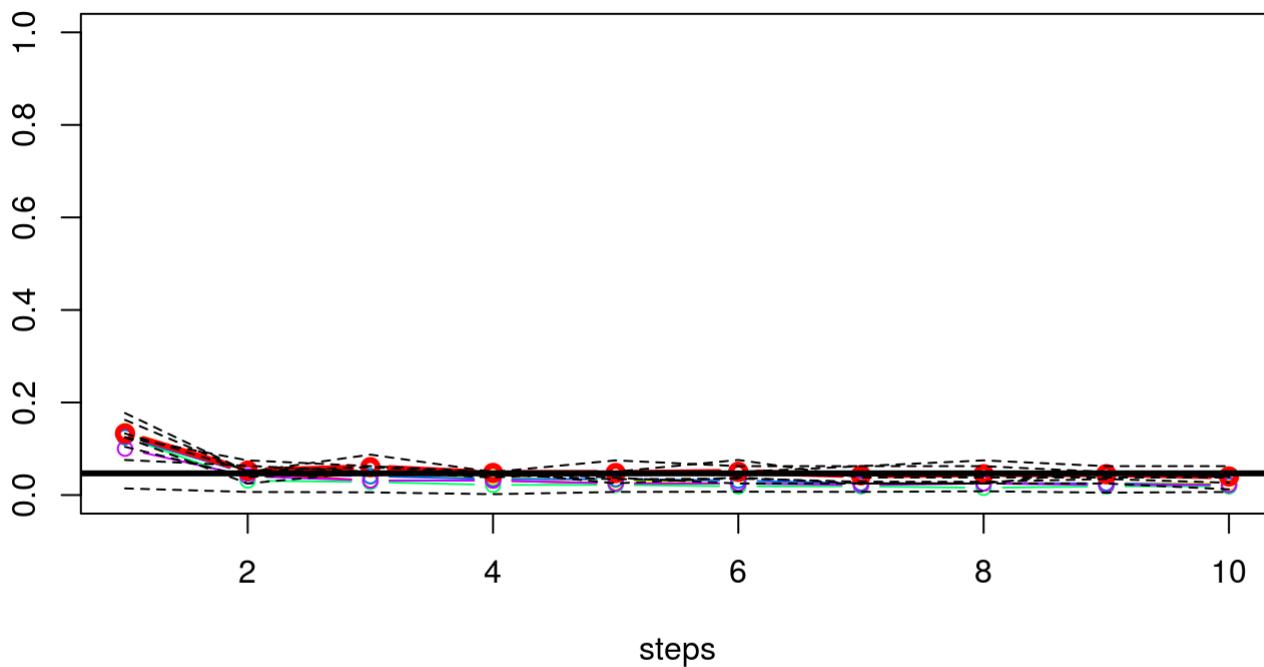
```

## [1] "Prediction error at end is: 0.305"
## [2] "Prediction error at end is: 0.135"
## [3] "Prediction error at end is: 0.08"
## [4] "Prediction error at end is: 0.065"
## [5] "Prediction error at end is: 0.0575"
## [6] "Prediction error at end is: 0.0575"
## [7] "Prediction error at end is: 0.0475"
## [8] "Prediction error at end is: 0.0525"
## [9] "Prediction error at end is: 0.0575"
## [10] "Prediction error at end is: 0.0625"
##                                k 1                  k 2
## 1 VerticalDistancetoChannelNetwork      Catchment_Area2
## 2                               Slope            Slope
## 3 ChannelNetworkBaseLevel   longc_DTM_50m_avg_ws7
## 4                               Texture ChannelNetworkBaseLevel
## 5 Channel_Network_Base_Level      TPI_i0m_o400m
## 6                               LSFactor Modified_Catchment_Area
## 7                               Convexity slope_DTM_50m_avg_ws7
## 8 Flow_Line_Curvature           Texture
## 9 DiurnalAnisotropicHeating       LS_Factor
## 10 sagaTopographic_Wetness_Index Longitudinal_Curvature
##                                k 3                  k 4
## 1      TPI_i0m_o500m      TPI_i0m_o400m
## 2      slope_ws13_hr      slope_ws13_hr
## 3 ChannelNetworkBaseLevel      ChannelNetworkBaseLevel
## 4      TPI_i0m_o80m          Texture
## 5 Catchment_slope           LS_Factor
## 6      slope_ws15      slope_DTM_50m_avg_ws5
## 7 slope_DTM_50m_avg_ws5      Catchment_slope
## 8      LS_Factor  DiurnalAnisotropicHeating
## 9      TPI_i0m_o300m Channel_Network_Base_Level
## 10      slope_ws7  Mass_Balance_Index_hr_hr
##                                k 5
## 1      maxic_DTM_50m_avg_ws7
## 2 ChannelNetworkBaseLevel
## 3      Catchment_slope
## 4      TPI_i0m_o500m
## 5 slope_DTM_50m_avg_ws5
## 6      planc_ws23_hr
## 7      planc_ws9_hr
## 8      maxic_ws19_hr
## 9      slope_ws19_hr
## 10     minic_ws23_hr

```



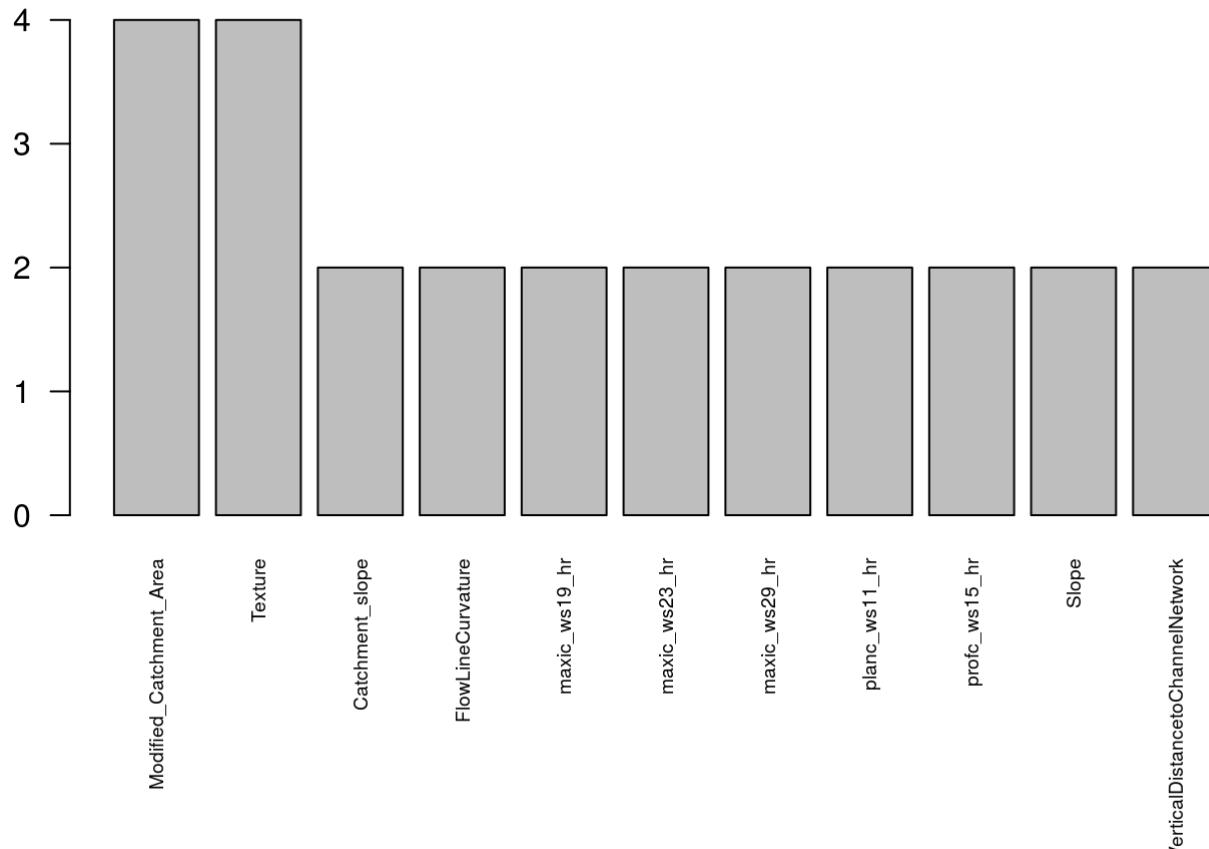
```
## [1] "silikatisches Festgestein_vs_gemischte Kegel"
```



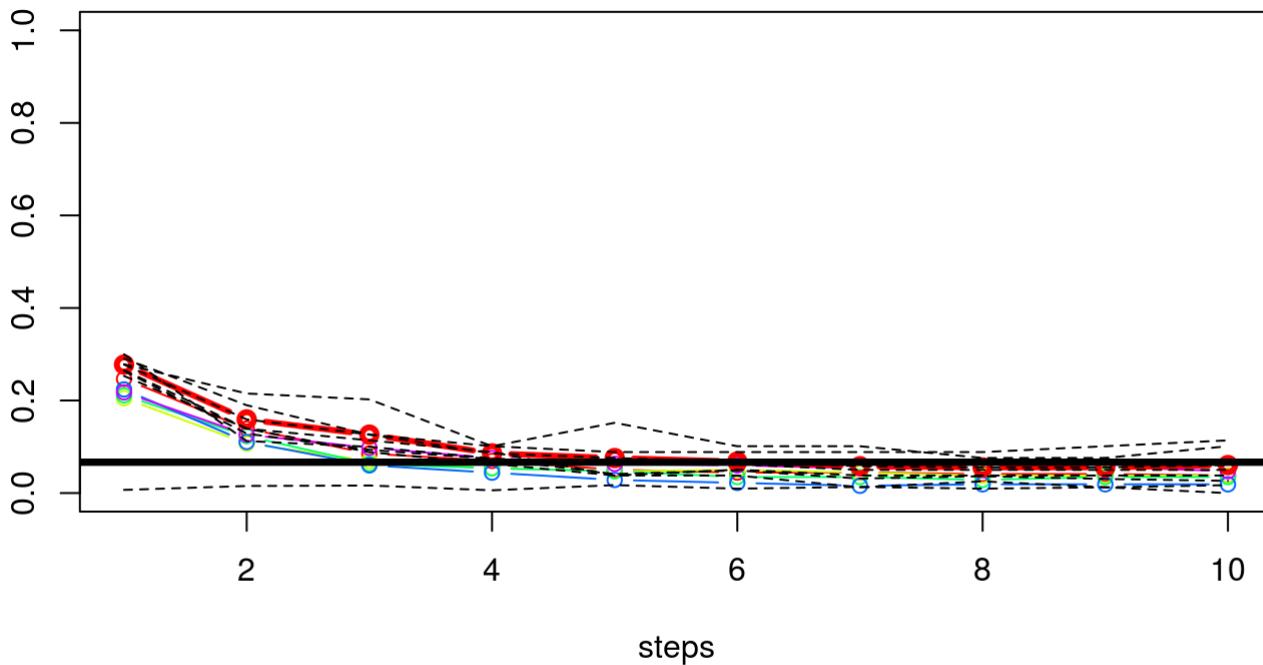
```

## [1] "Prediction error at end is: 0.133132911392405"
## [2] "Prediction error at end is: 0.0527848101265823"
## [3] "Prediction error at end is: 0.060253164556962"
## [4] "Prediction error at end is: 0.0477215189873418"
## [5] "Prediction error at end is: 0.0476898734177215"
## [6] "Prediction error at end is: 0.0502848101265823"
## [7] "Prediction error at end is: 0.0426582278481013"
## [8] "Prediction error at end is: 0.0451582278481013"
## [9] "Prediction error at end is: 0.0452215189873418"
## [10] "Prediction error at end is: 0.0401898734177215"
##          k 1           k 2
## 1 Modified_Catchment_Area      Catchment_area
## 2             maxic_ws19_hr   FlowLineCurvature
## 3             minic_ws23_hr   Catchment_slope
## 4                 Texture     Slope
## 5       Total_Curvature longc_DTM_50m_avg_ws7
## 6 DiurnalAnisotropicHeating      TPI_i0m_o500m
## 7             planc_ws11_hr   planc_ws11_hr
## 8             profc_ws15_hr   planc_ws9_hr
## 9 Channel_Network_Base_Level   Catchment_slope_hr
## 10            Catchment_slope crosc_DTM_50m_avg_ws3
##          k 3           k 4
## 1 Modified_Catchment_Area Modified_Catchment_Area
## 2             maxic_ws23_hr   FlowLineCurvature
## 3 VerticalDistancetoChannelNetwork      Texture
## 4                 Texture    profc_DTM_50m_avg_ws7
## 5             maxic_ws29_hr   maxic_ws29_hr
## 6             profc_ws15_hr   longc_ws23_hr
## 7             Catchment_Area2 TPI_i0m_o300m
## 8             crosc_ws3_hr   Flow_Line_Curvature
## 9             crosc_ws15      maxic_ws19_hr
## 10            minic_ws11     profc_ws5_hr
##          k 5
## 1 Modified_Catchment_Area
## 2             maxic_ws23_hr
## 3                 minic_ws7
## 4                 Texture
## 5             minic_ws15
## 6             crosc_ws3
## 7                 Slope
## 8 VerticalDistancetoChannelNetwork
## 9                 crosc_ws23_hr
## 10            RelativeSlopePosition

```



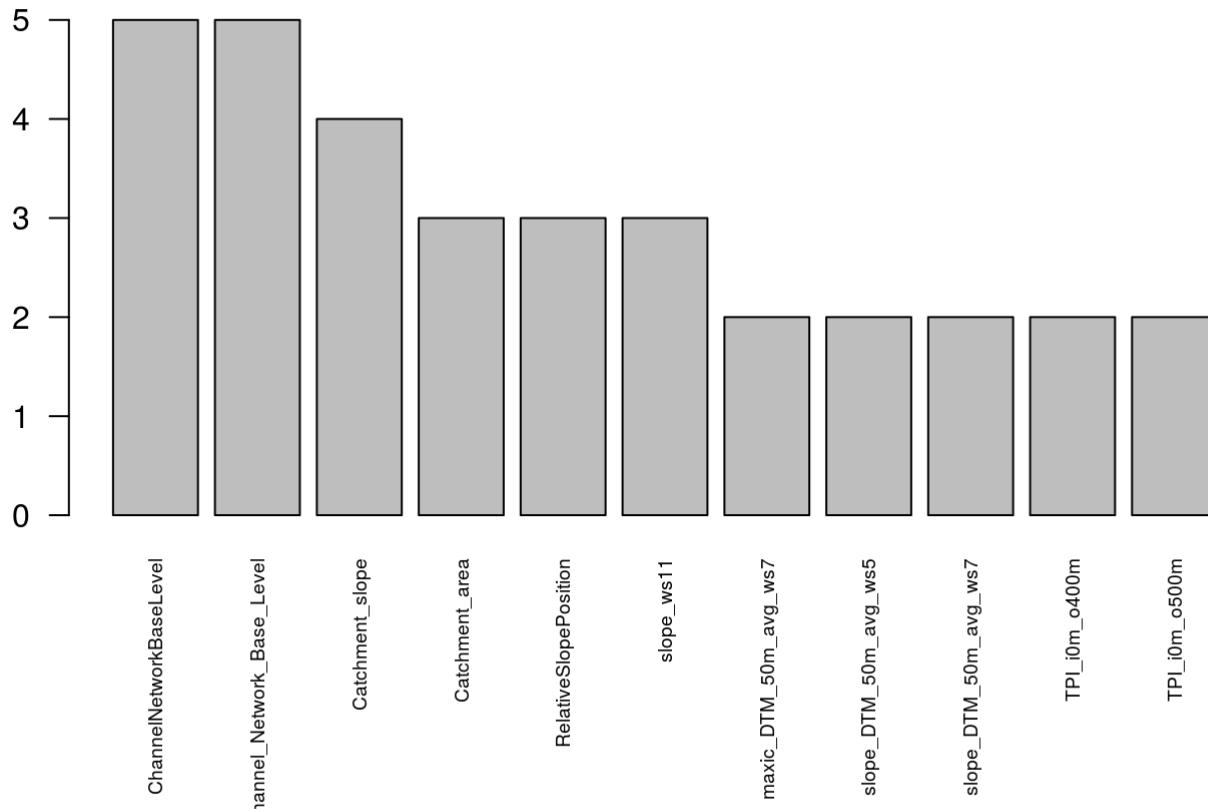
```
## [1] "silikatisches Festgestein_vs_gemischte Ablagerung"
```



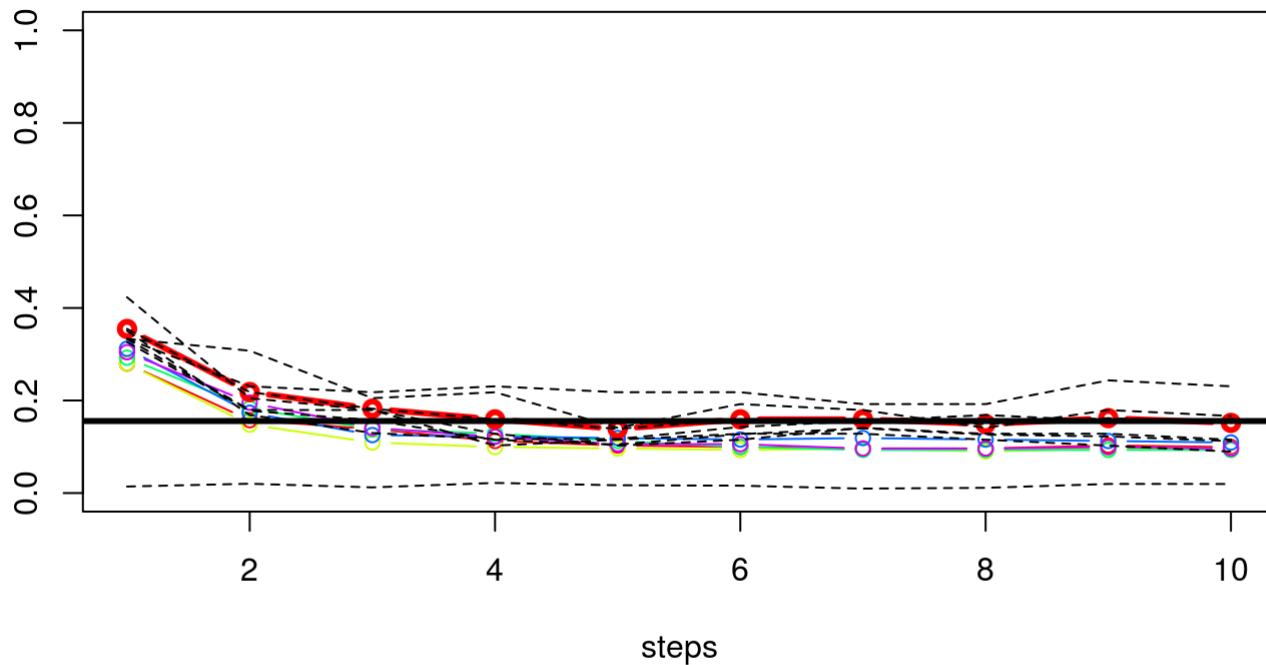
```

## [1] "Prediction error at end is: 0.277721518987342"
## [2] "Prediction error at end is: 0.159208860759494"
## [3] "Prediction error at end is: 0.126329113924051"
## [4] "Prediction error at end is: 0.0858860759493671"
## [5] "Prediction error at end is: 0.0757911392405063"
## [6] "Prediction error at end is: 0.0681962025316456"
## [7] "Prediction error at end is: 0.0581012658227848"
## [8] "Prediction error at end is: 0.0555696202531646"
## [9] "Prediction error at end is: 0.0555696202531646"
## [10] "Prediction error at end is: 0.0606329113924051"
##                                     k 1           k 2
## 1             Catchment_area          Catchment_area
## 2                   Slope Channel_Network_Base_Level
## 3   Channel_Network_Base_Level      LongitudinalCurvature
## 4             Catchment_slope        slope_ws11
## 5             TPI_i0m_o300m        TPI_i0m_o100m
## 6             CatchmentArea    ChannelNetworkBaseLevel
## 7   ChannelNetworkBaseLevel      maxic_DTM_50m_avg_ws7
## 8             TotalCurvature      TPI_i0m_o400m
## 9             slope_DTM_50m_avg_ws5 slope_DTM_50m_avg_ws7
## 10            profc_ws11_hr       Minimal_Curvature
##                                     k 3           k 4
## 1             TPI_i0m_o500m        TPI_i0m_o500m
## 2             slope_ws11    Channel_Network_Base_Level
## 3   Channel_Network_Base_Level      Catchment_slope
## 4             Texture            slope_ws11
## 5   ChannelNetworkBaseLevel    ChannelNetworkBaseLevel
## 6             Catchment_slope  RelativeSlopePosition
## 7             RelativeSlopePosition slope_DTM_50m_avg_ws7
## 8             profc_ws3_hr       planc_ws15_hr
## 9             crosc_DTM_50m_avg_ws5 minic_ws3_hr
## 10            minic_DTM_50m_avg_ws5 minic_ws9_hr
##                                     k 5
## 1             maxic_DTM_50m_avg_ws7
## 2             Catchment_area
## 3   ChannelNetworkBaseLevel
## 4             slope_DTM_50m_avg_ws5
## 5             TPI_i0m_o130m
## 6             RelativeSlopePosition
## 7             TPI_i0m_o400m
## 8             profc_ws5_hr
## 9             Catchment_slope
## 10  Channel_Network_Base_Level

```



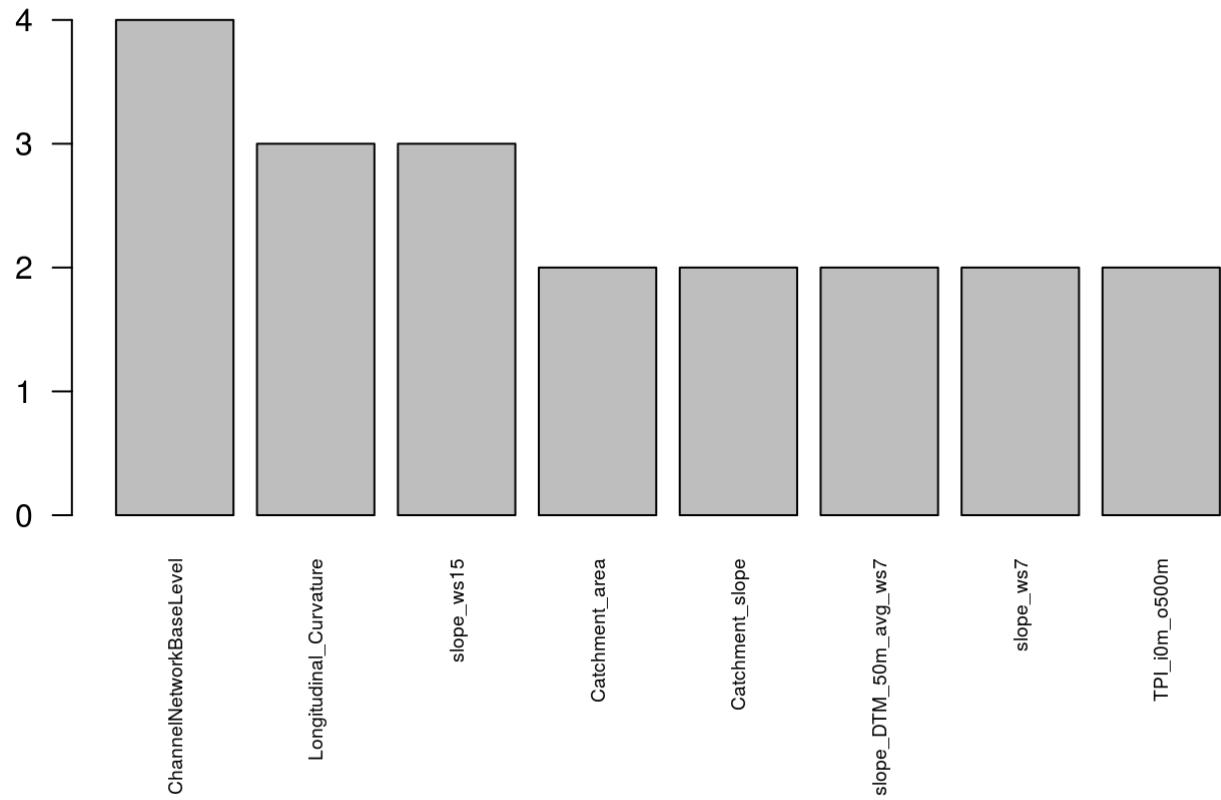
```
## [1] "silikatisches Festgestein_vs_Hangschutt"
```



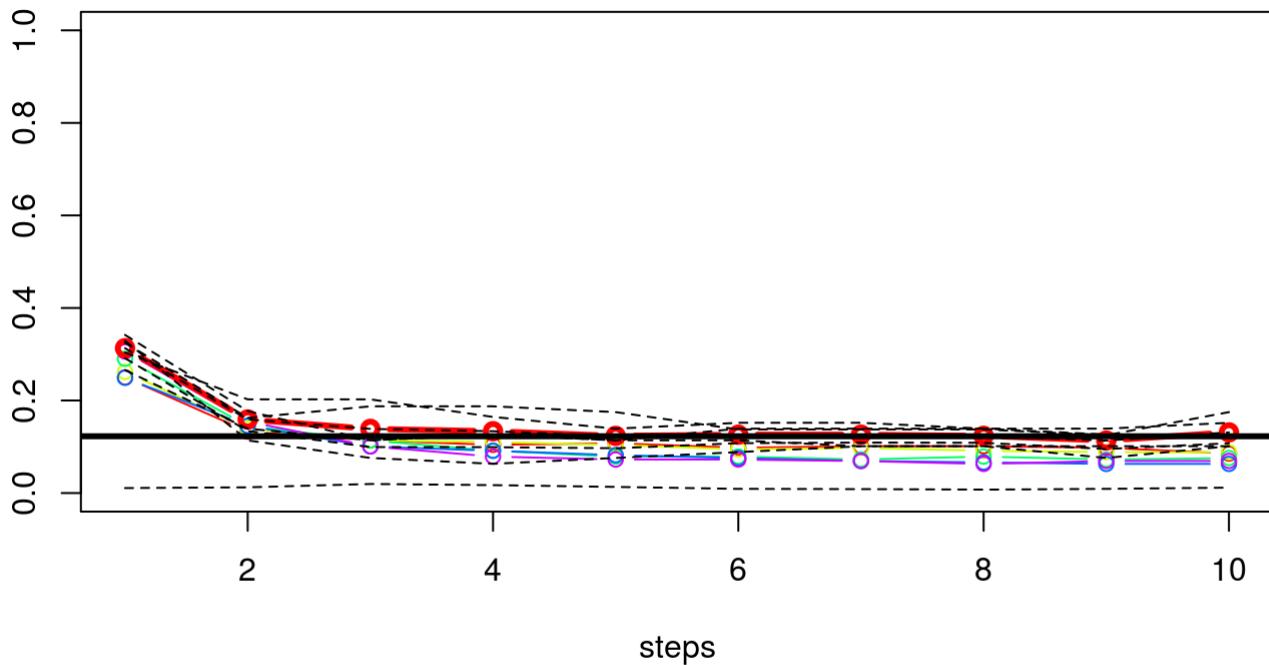
```

## [1] "Prediction error at end is: 0.354745254745255"
## [2] "Prediction error at end is: 0.218381618381618"
## [3] "Prediction error at end is: 0.182384282384282"
## [4] "Prediction error at end is: 0.159274059274059"
## [5] "Prediction error at end is: 0.138761238761239"
## [6] "Prediction error at end is: 0.159340659340659"
## [7] "Prediction error at end is: 0.159373959373959"
## [8] "Prediction error at end is: 0.149150849150849"
## [9] "Prediction error at end is: 0.161938061938062"
## [10] "Prediction error at end is: 0.151681651681652"
##          k 1           k 2           k 3
## 1      TPI_i0m_o500m ChannelNetworkBaseLevel Longitudinal_Curvature
## 2 ChannelNetworkBaseLevel           TPI_i0m_o80m ChannelNetworkBaseLevel
## 3      Catchment_slope           TPI_i0m_o500m slope_DTM_50m_avg_ws7
## 4      minic_ws13_hr       Profile_Curvature           slope_ws5
## 5      slope_ws3_hr       Catchment_slope           profc_DTM_50m_avg_ws3
## 6 Tangential_Curvature           TPI_i0m_o150m Maximal_Curvature
## 7      crosc_ws3            minic_ws3           slope_ws15
## 8      slope_ws7            slope_ws29_hr           slope_ws7
## 9      Catchment_area       MinimalCurvature           slope_ws23_hr
## 10     ProfileCurvature           longc_ws3_hr   maxic_ws11_hr
##          k 4           k 5
## 1 Longitudinal_Curvature       Catchment_area
## 2 slope_DTM_50m_avg_ws7 ChannelNetworkBaseLevel
## 3 longc_DTM_50m_avg_ws3           slope_ws15
## 4           Texture           profc_ws11
## 5 saga_Topographic_Wetness_Index_hr minic_ws19_hr
## 6           TPI_i0m_o200m Longitudinal_Curvature
## 7           slope_ws15 General_Curvature
## 8   maxic_DTM_50m_avg_ws5 longc_ws19_hr
## 9 DiurnalAnisotropicHeating minic_ws11_hr
## 10      profc_ws7_hr           planc_ws7

```



```
## [1] "silikatisches Festgestein_vs_Grundmoraene"
```



```

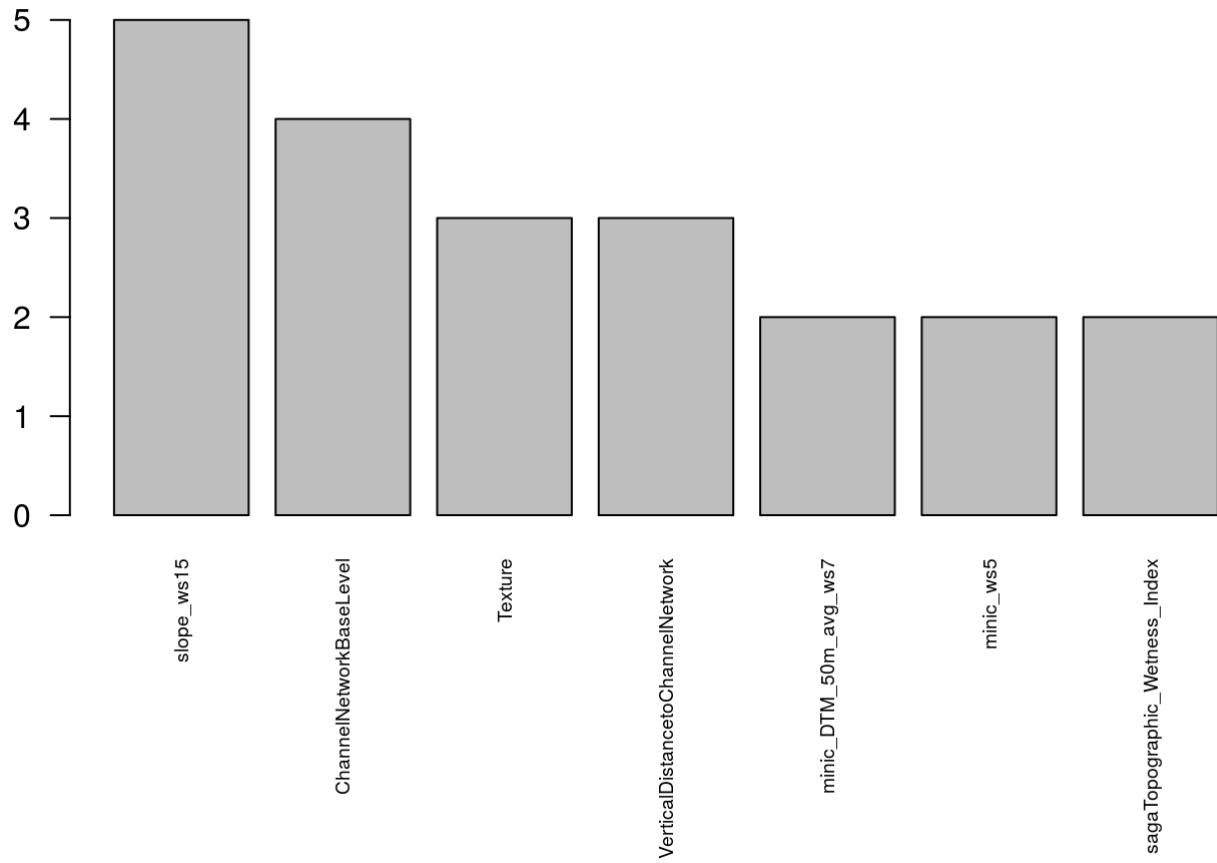
## [1] "Prediction error at end is: 0.313101265822785"
## [2] "Prediction error at end is: 0.159082278481013"
## [3] "Prediction error at end is: 0.13876582278481"
## [4] "Prediction error at end is: 0.13370253164557"
## [5] "Prediction error at end is: 0.123607594936709"
## [6] "Prediction error at end is: 0.12623417721519"
## [7] "Prediction error at end is: 0.12623417721519"
## [8] "Prediction error at end is: 0.12370253164557"
## [9] "Prediction error at end is: 0.113607594936709"
## [10] "Prediction error at end is: 0.13120253164557"

##                                     k 1                      k 2
## 1                  slope_ws15                  slope_ws15
## 2                  TPI_i0m_o500m              TPI_i0m_o400m
## 3                  maxic_ws15                slope_ws5_hr
## 4                  slope_ws29_hr              crosc_ws7
## 5 Channel_Network_Base_Level             Texture
## 6      Minimal_Curvature            slope_ws23_hr
## 7      TPI_i0m_o150m sagaTopographic_Wetness_Index
## 8      minic_DTM_50m_avg_ws5           Slope
## 9 ChannelNetworkBaseLevel            minic_DTM_50m_avg_ws7
## 10 sagaTopographic_Wetness_Index    Longitudinal_Curvature

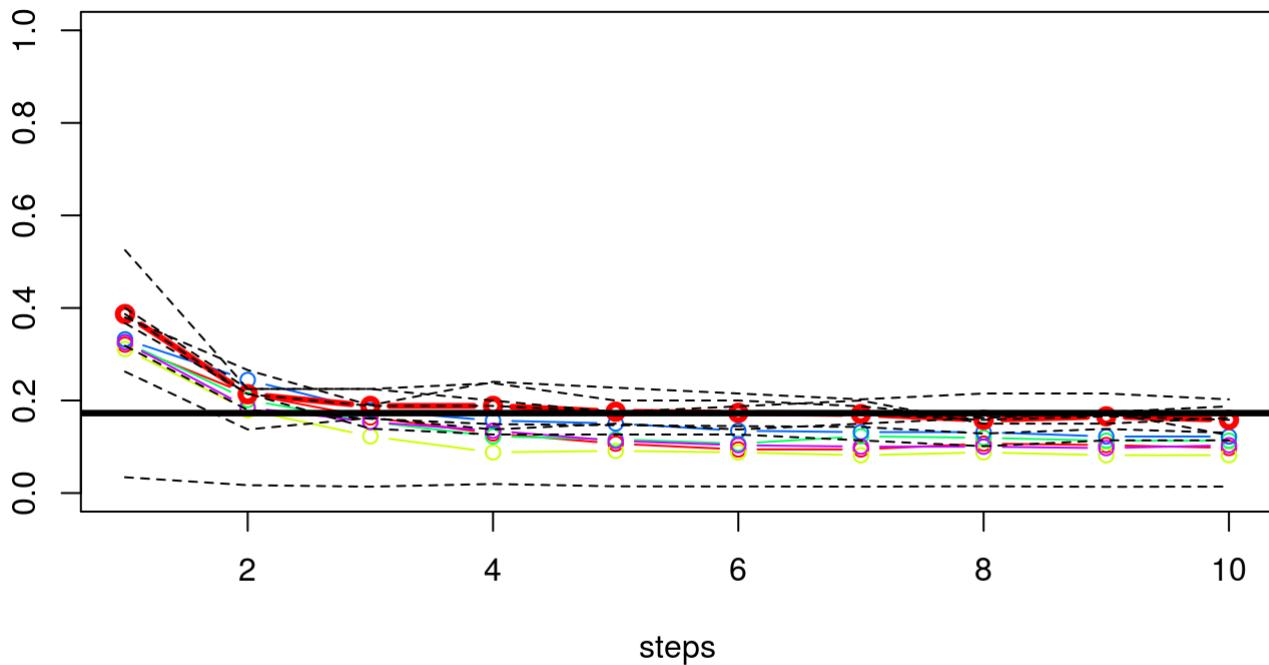
##                                     k 3                      k 4
## 1                  slope_ws15                  slope_ws15
## 2 ChannelNetworkBaseLevel            ChannelNetworkBaseLevel
## 3 VerticalDistancetoChannelNetwork VerticalDistancetoChannelNetwork
## 4                  Texture                  minic_ws5
## 5                  minic_ws5        DiurnalAnisotropicHeating
## 6      TPI_i0m_o300m                 Texture
## 7      slope_DTM_50m_avg_ws3          profc_ws11
## 8      minic_ws3_hr                 minic_DTM_50m_avg_ws7
## 9      maxic_ws7_hr                 minic_ws15_hr
## 10     profc_DTM_50m_avg_ws3       crosc_ws11_hr

##                                     k 5
## 1                  slope_ws15
## 2 ChannelNetworkBaseLevel
## 3 VerticalDistancetoChannelNetwork
## 4      TPI_i0m_o10m
## 5      longc_ws19_hr
## 6      maxic_ws9_hr
## 7      longc_ws29_hr
## 8      longc_ws11
## 9      minic_ws3
## 10     PlanCurvature

```



```
## [1] "silikatisches Festgestein_vs_Moraene undifferenziert"
```



```

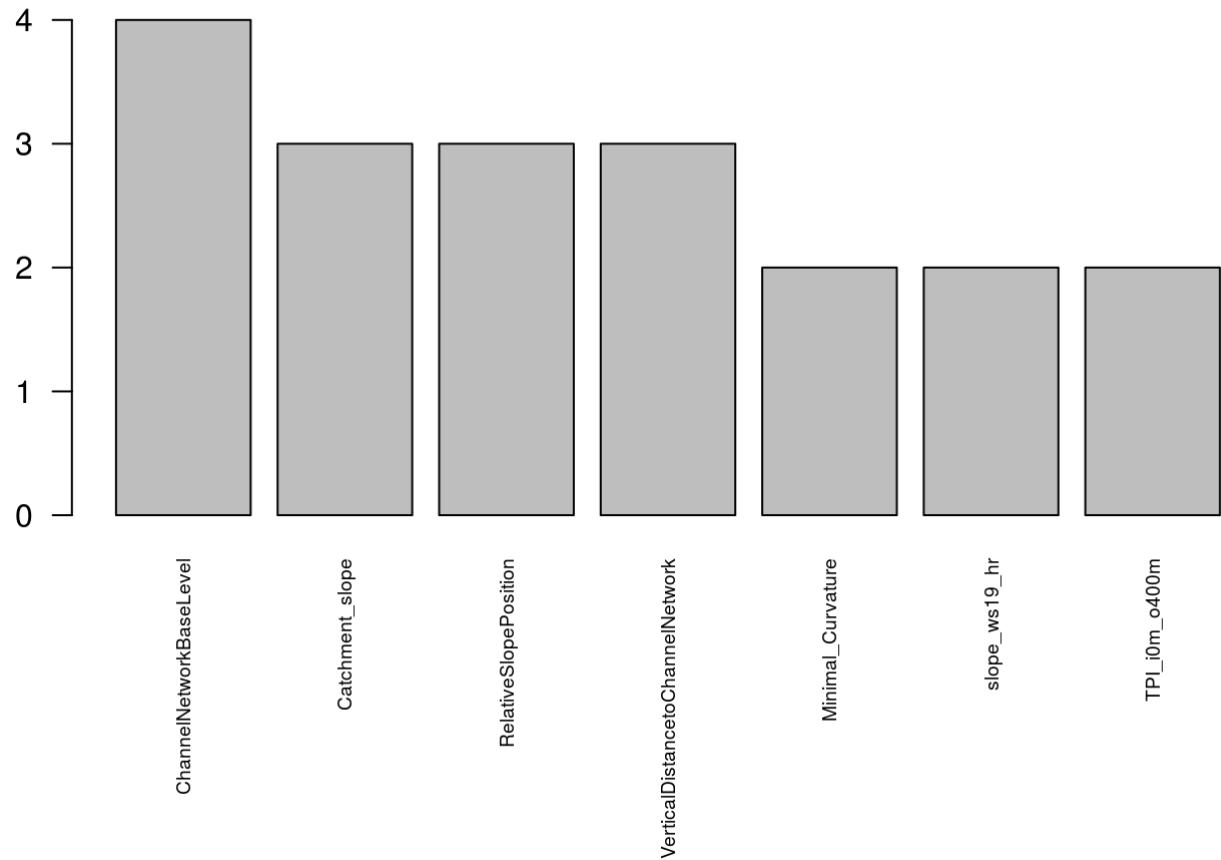
## [1] "Prediction error at end is: 0.386867088607595"
## [2] "Prediction error at end is: 0.21370253164557"
## [3] "Prediction error at end is: 0.188322784810127"
## [4] "Prediction error at end is: 0.188417721518987"
## [5] "Prediction error at end is: 0.175886075949367"
## [6] "Prediction error at end is: 0.173354430379747"
## [7] "Prediction error at end is: 0.170791139240506"
## [8] "Prediction error at end is: 0.158291139240506"
## [9] "Prediction error at end is: 0.165822784810127"
## [10] "Prediction error at end is: 0.158291139240506"

##                                     k 1                      k 2
## 1                  slope_ws19_hr      ChannelNetworkBaseLevel
## 2                  TPI_i0m_o400m VerticalDistanctoChannelNetwork
## 3          ChannelNetworkBaseLevel
## 4                  maxic_ws3
## 5 VerticalDistanctoChannelNetwork
## 6          RelativeSlopePosition
## 7          TangentialCurvature
## 8                  longc_ws3
## 9          Minimal_Curvature
## 10         TPI_i0m_o80m

##                                     k 3                      k 4
## 1          ChannelNetworkBaseLevel
## 2 VerticalDistanctoChannelNetwork
## 3          slope_DTM_50m_avg_ws3
## 4          Convexity
## 5          MaximalCurvature
## 6          slope_ws19_hr
## 7          TPI_i0m_o300m
## 8          slope_DTM_50m_avg_ws5
## 9          RelativeSlopePosition
## 10         minic_DTM_50m_avg_ws7

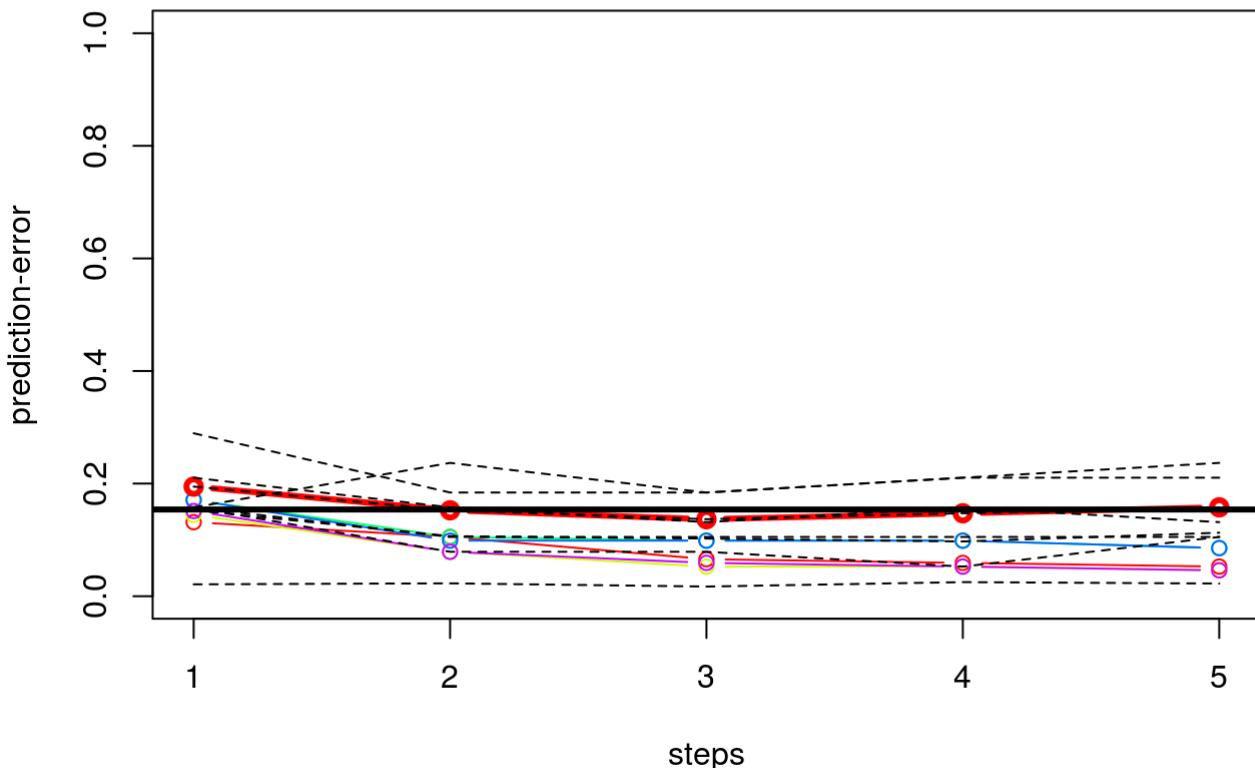
##                                     k 5
## 1          slope_ws15
## 2          ChannelNetworkBaseLevel
## 3          TPI_i0m_o400m
## 4          Catchment_slope
## 5          slope_ws23_hr
## 6          RelativeSlopePosition
## 7          longc_ws13_hr
## 8          slope_DTM_50m_avg_ws7
## 9          slope_ws7_hr
## 10         MRVBF_hr

```



Local terrain

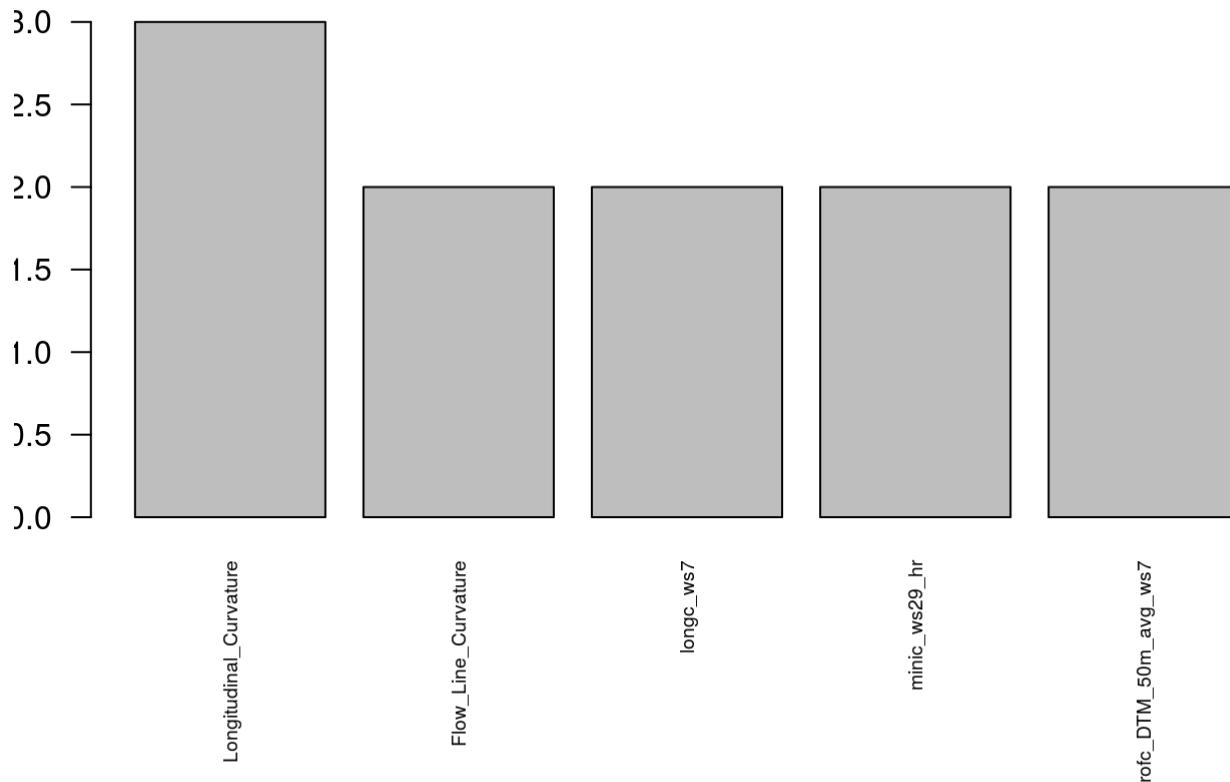
```
## [1] "silikatisches Festgestein_vs_Alluviale Ablagerung"
```



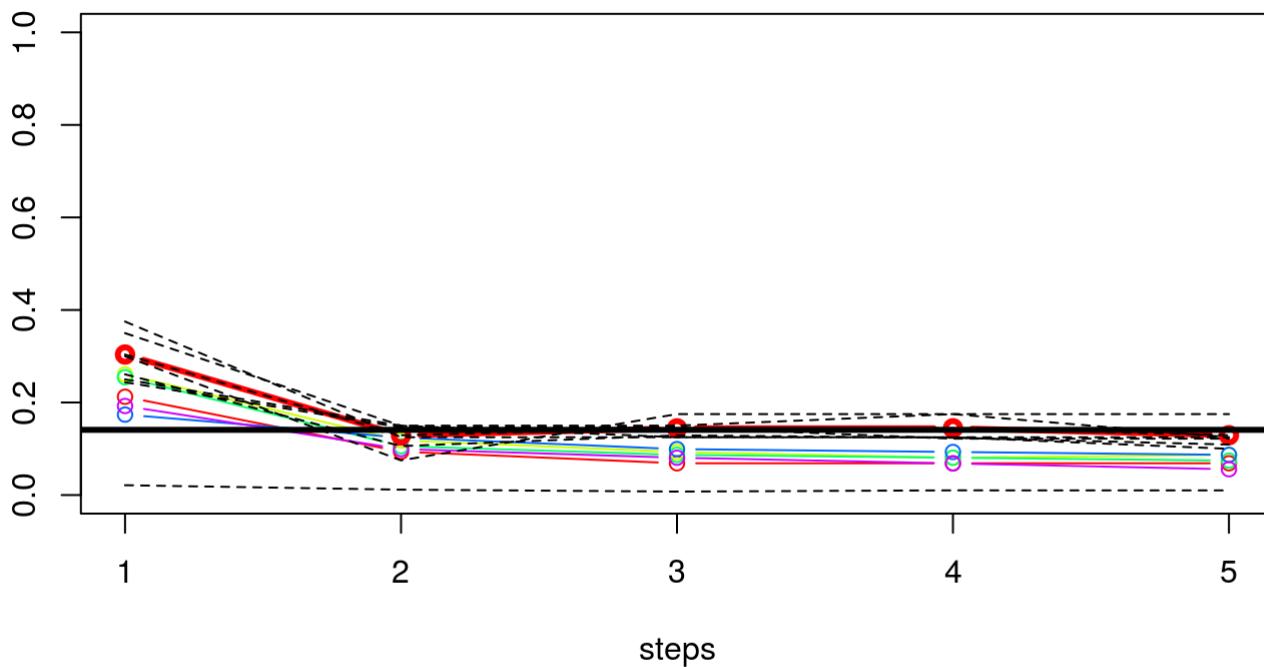
```

## [1] "Prediction error at end is:  0.194736842105263"
## [2] "Prediction error at end is:  0.152631578947368"
## [3] "Prediction error at end is:  0.136842105263158"
## [4] "Prediction error at end is:  0.147368421052632"
## [5] "Prediction error at end is:  0.157894736842105"
##          k 1           k 2           k 3
## 1 Longitudinal_Curvature profc_DTM_50m_avg_ws7  profc_DTM_50m_avg_ws7
## 2      maxic_ws11 slope_DTM_50m_avg_ws7   Flow_Line_Curvature
## 3      minic_ws29_hr      minic_ws29_hr      PlanCurvature
## 4      maxic_ws13_hr      profc_ws29_hr CrossSectionalCurvature
## 5      planc_ws3_hr      longc_ws7    minic_DTM_50m_avg_ws7
##          k 4           k 5
## 1 Longitudinal_Curvature Longitudinal_Curvature
## 2      longc_ws11          Convexity
## 3  profc_DTM_50m_avg_ws5   Flow_Line_Curvature
## 4      profc_ws7_hr      maxic_ws19_hr
## 5      longc_ws7    planc_DTM_50m_avg_ws3

```



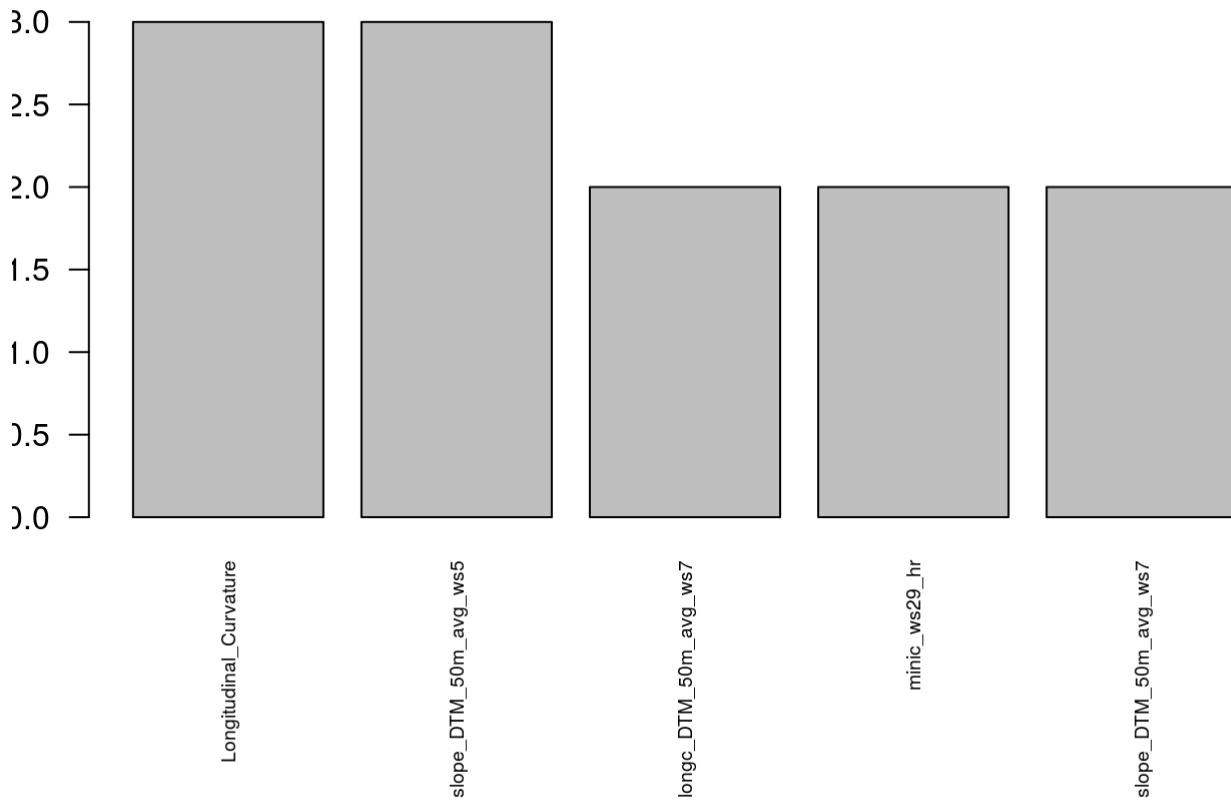
```
## [1] "silikatisches Festgestein_vs_Blockschutt"
```



```

## [1] "Prediction error at end is: 0.303780487804878"
## [2] "Prediction error at end is: 0.129268292682927"
## [3] "Prediction error at end is: 0.144268292682927"
## [4] "Prediction error at end is: 0.144390243902439"
## [5] "Prediction error at end is: 0.129390243902439"
##          k 1           k 2           k 3
## 1 Longitudinal_Curvature longc_DTM_50m_avg_ws7 slope_DTM_50m_avg_ws5
## 2 slope_DTM_50m_avg_ws5 slope_DTM_50m_avg_ws5 profc_DTM_50m_avg_ws7
## 3 maxic_DTM_50m_avg_ws5      minic_ws29_hr      minic_ws9_hr
## 4 longc_DTM_50m_avg_ws5      maxic_ws3       planc_DTM_50m_avg_ws5
## 5      slope_ws23_hr      planc_DTM_50m_avg_ws7 DiurnalAnisotropicHeating
##          k 4           k 5
## 1 Longitudinal_Curvature Longitudinal_Curvature
## 2      slope_ws15      slope_DTM_50m_avg_ws7
## 3 maxic_DTM_50m_avg_ws7      slope_ws5
## 4      crosc_ws19_hr      minic_ws29_hr
## 5 slope_DTM_50m_avg_ws7      longc_DTM_50m_avg_ws7

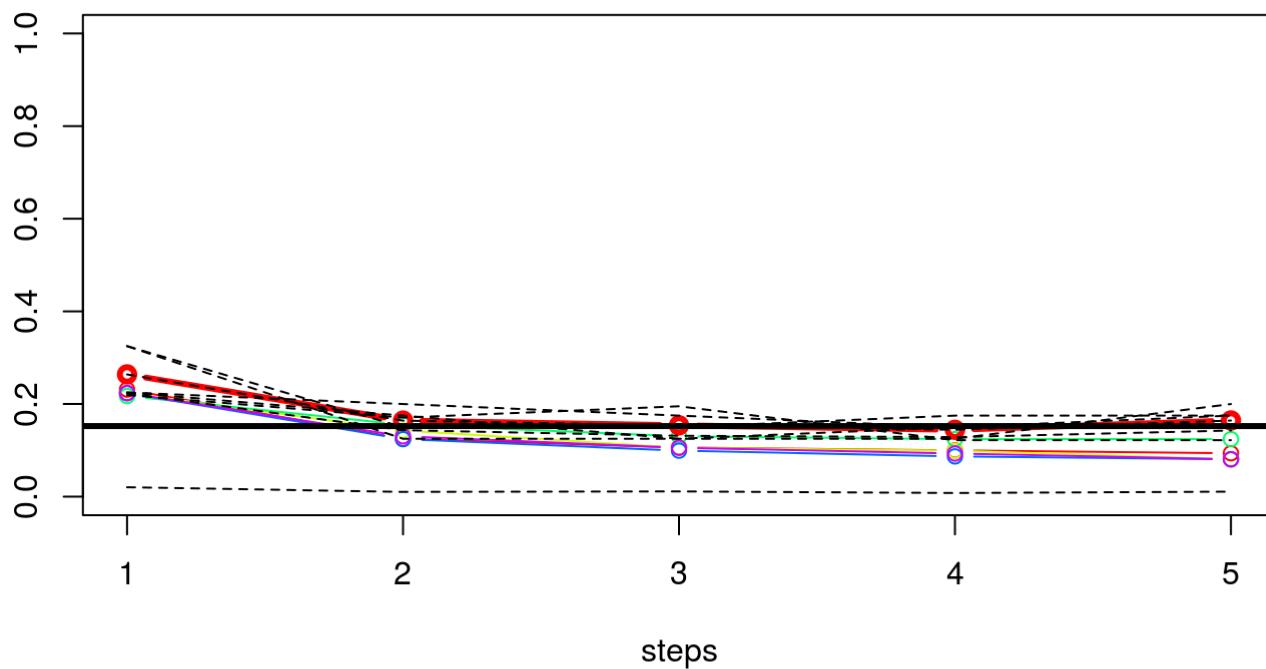
```



```

## [1] "silikatisches Festgestein_vs_Kolluvium"

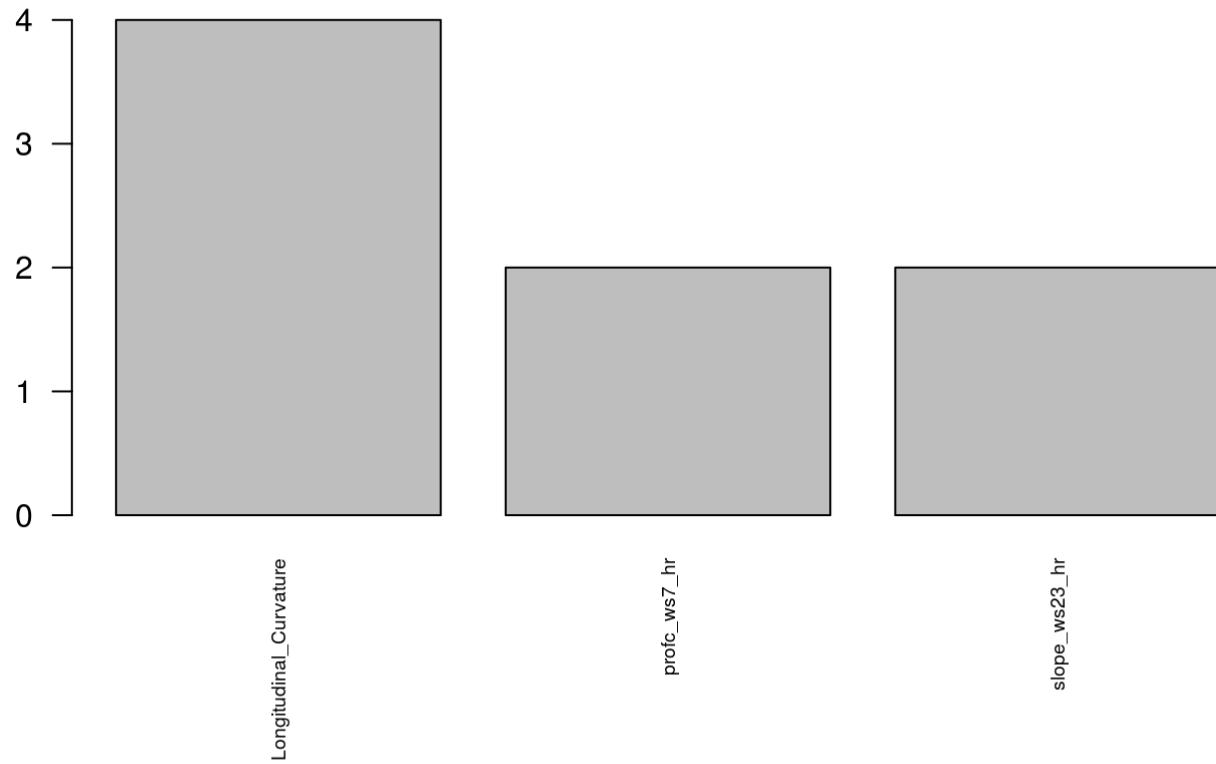
```



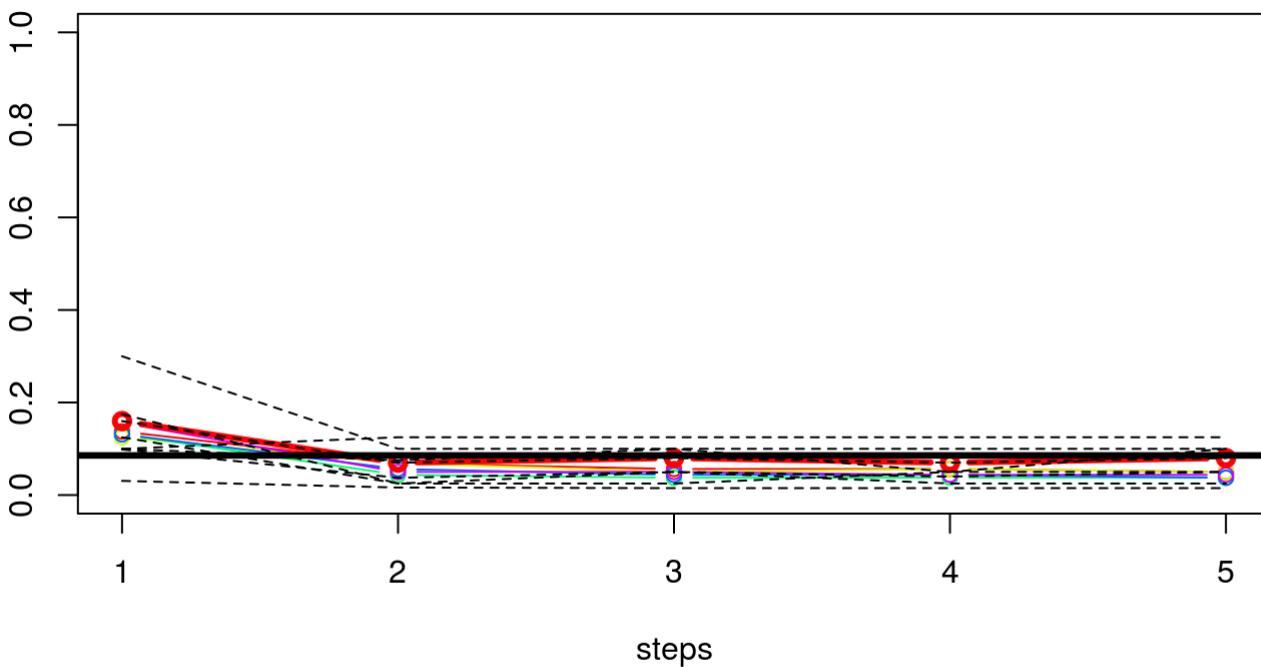
```

## [1] "Prediction error at end is: 0.26390243902439"
## [2] "Prediction error at end is: 0.164146341463415"
## [3] "Prediction error at end is: 0.154024390243902"
## [4] "Prediction error at end is: 0.144390243902439"
## [5] "Prediction error at end is: 0.164390243902439"
##          k 1           k 2           k 3
## 1 Longitudinal_Curvature Longitudinal_Curvature Longitudinal_Curvature
## 2      slope_ws23_hr      slope_ws23_hr  maxic_DTM_50m_avg_ws5
## 3      Total_Curvature    profc_ws13_hr   FlowLineCurvature
## 4      Tangential_Curvature profc_ws7_hr  slope_DTM_50m_avg_ws7
## 5      planc_ws29_hr     profc_ws11  longc_DTM_50m_avg_ws7
##          k 4           k 5
## 1           slope_ws5 maxic_DTM_50m_avg_ws7
## 2 Longitudinal_Curvature      slope_ws7_hr
## 3           profc_ws7_hr     planc_ws19_hr
## 4 LongitudinalCurvature      slope_ws3
## 5  longc_DTM_50m_avg_ws5     planc_ws5

```



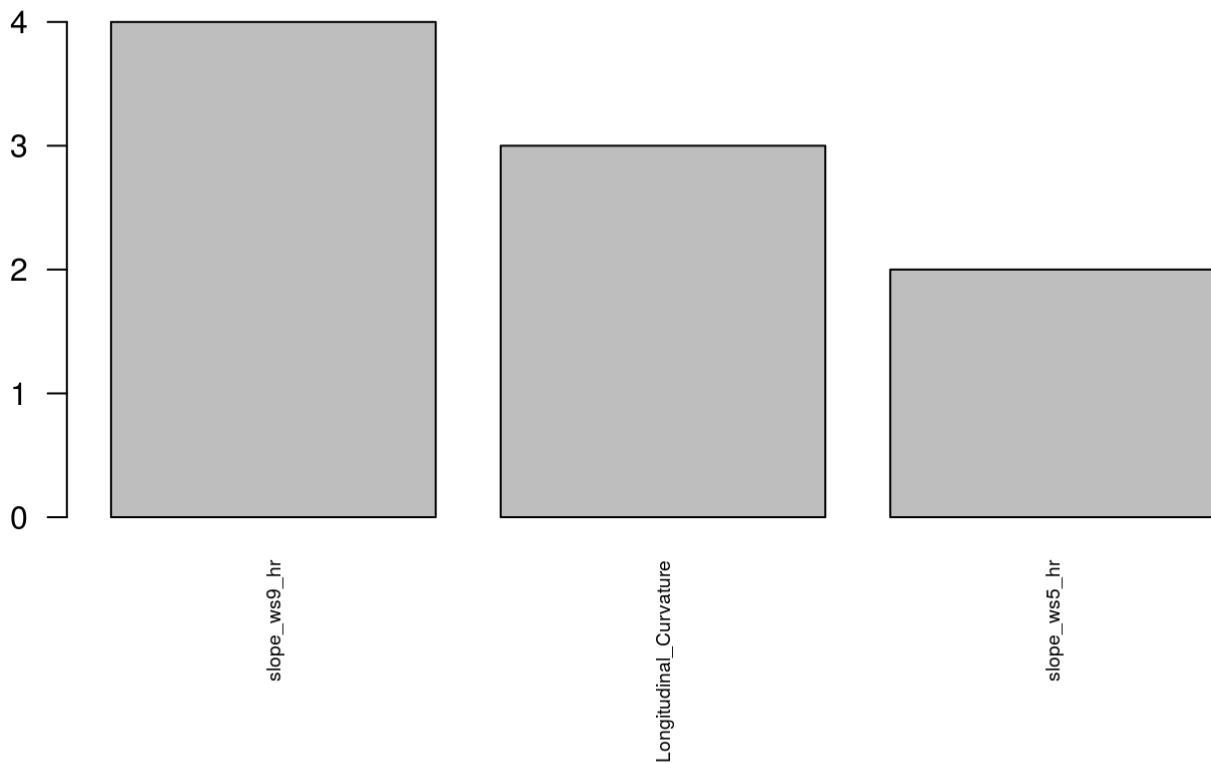
```
## [1] "silikatisches Festgestein_vs_gemischte Kegel"
```



```

## [1] "Prediction error at end is: 0.16" "Prediction error at end is: 0.07"
## [3] "Prediction error at end is: 0.08" "Prediction error at end is: 0.07"
## [5] "Prediction error at end is: 0.08"
##          k 1           k 2           k 3
## 1      slope_ws9_hr      slope_ws9_hr      slope_ws9_hr
## 2 profc_DTM_50m_avg_ws7 Longitudinal_Curvature Longitudinal_Curvature
## 3          Convexity      slope_ws19_hr     FlowLineCurvature
## 4 LongitudinalCurvature  crosc_DTM_50m_avg_ws7      crosc_ws3_hr
## 5      longc_ws23_hr      slope_ws5_hr  longc_DTM_50m_avg_ws7
##          k 4           k 5
## 1      slope_ws11_hr      slope_ws9_hr
## 2 Longitudinal_Curvature maxic_DTM_50m_avg_ws7
## 3 CrossSectionalCurvature planc_DTM_50m_avg_ws5
## 4      slope_ws5_hr      slope_ws7_hr
## 5    planc_DTM_50m_avg_ws7 crosc_DTM_50m_avg_ws5

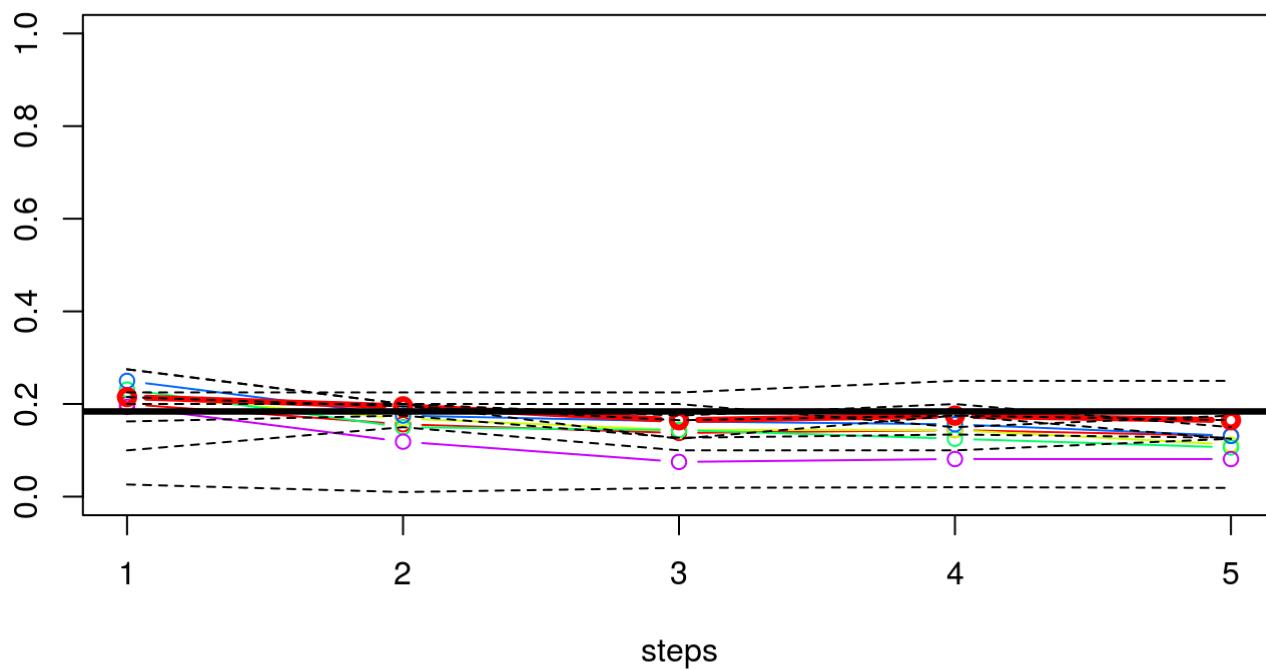
```



```

## [1] "silikatisches Festgestein_vs_gemischte Ablagerung"

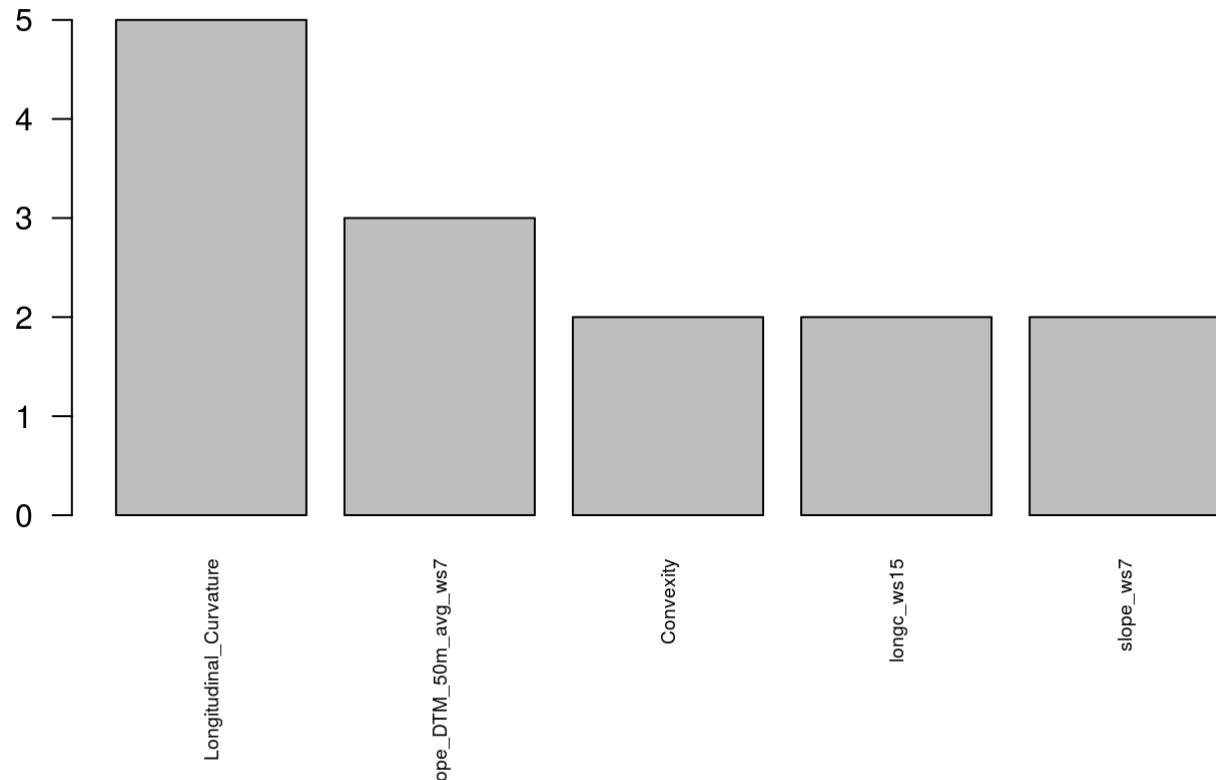
```



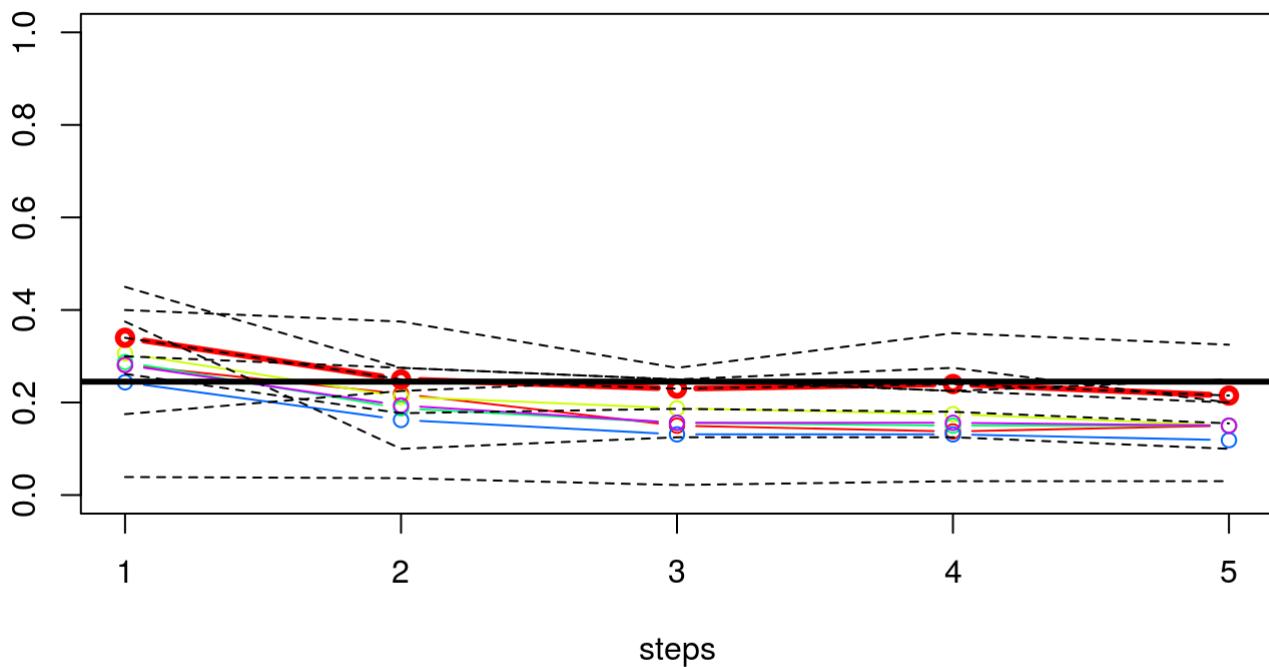
```

## [1] "Prediction error at end is: 0.215"
## [2] "Prediction error at end is: 0.195"
## [3] "Prediction error at end is: 0.165"
## [4] "Prediction error at end is: 0.175"
## [5] "Prediction error at end is: 0.165"
##          k 1           k 2           k 3
## 1 Longitudinal_Curvature Longitudinal_Curvature Longitudinal_Curvature
## 2      slope_ws19_hr        longc_ws15       slope_ws7
## 3      slope_ws7         planc_ws11     Convexity
## 4 minic_DTM_50m_avg_ws7 slope_DTM_50m_avg_ws7   longc_ws15
## 5      slope_ws5      maxic_DTM_50m_avg_ws7 minic_ws29_hr
##          k 4           k 5
## 1 Longitudinal_Curvature Longitudinal_Curvature
## 2      planc_ws19_hr     Convexity
## 3      crosc_ws19_hr slope_DTM_50m_avg_ws7
## 4 slope_DTM_50m_avg_ws7      crosc_ws15_hr
## 5 profc_DTM_50m_avg_ws5 LongitudinalCurvature

```



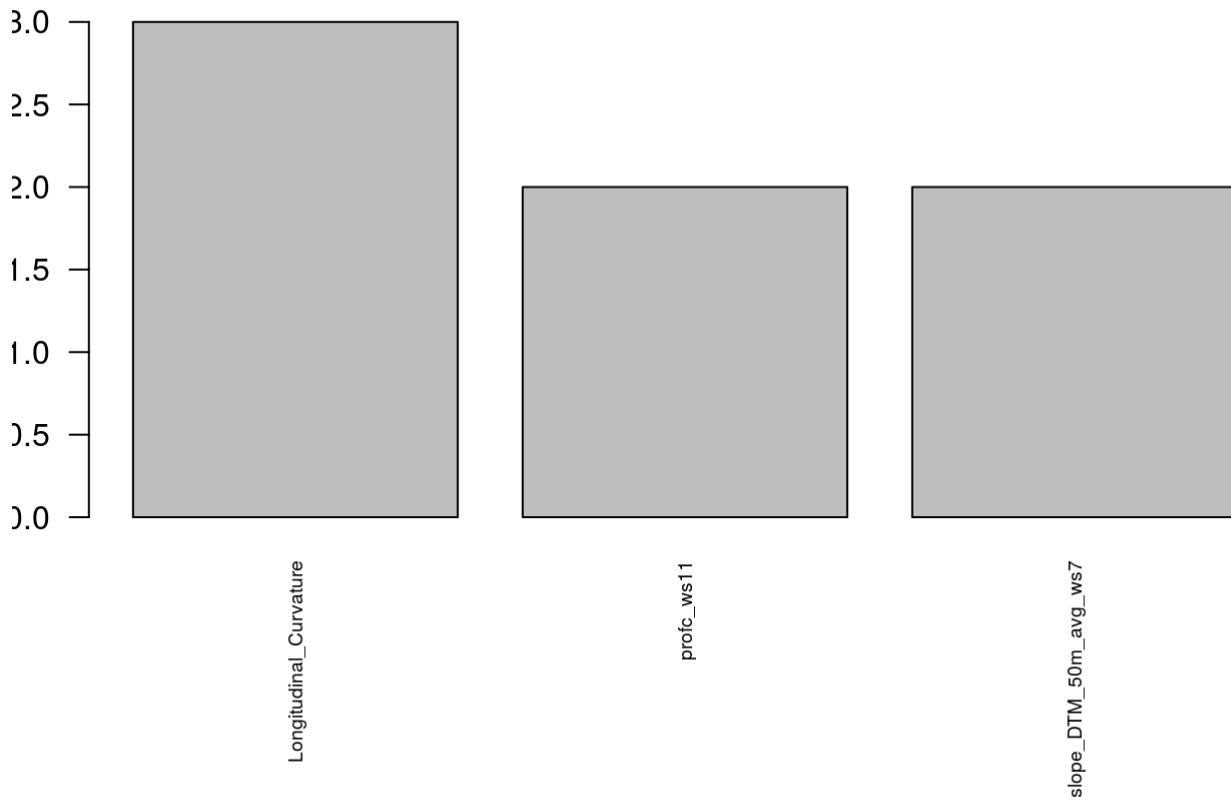
```
## [1] "silikatisches Festgestein_vs_Hangschutt"
```



```

## [1] "Prediction error at end is: 0.34"
## [2] "Prediction error at end is: 0.25"
## [3] "Prediction error at end is: 0.23"
## [4] "Prediction error at end is: 0.24"
## [5] "Prediction error at end is: 0.215"
##          k 1           k 2           k 3
## 1      profc_ws11      slope_ws15 Longitudinal_Curvature
## 2 longc_DTM_50m_avg_ws5      longc_ws11 slope_DTM_50m_avg_ws7
## 3      slope_ws3 Longitudinal_Curvature  planc_DTM_50m_avg_ws5
## 4      minic_ws3 longc_DTM_50m_avg_ws3 General_Curvature
## 5      maxic_ws3_hr      maxic_ws19_hr   planc_ws13_hr
##          k 4           k 5
## 1 Longitudinal_Curvature      slope_ws19_hr
## 2 slope_DTM_50m_avg_ws7 profc_DTM_50m_avg_ws3
## 3      longc_ws7 minic_DTM_50m_avg_ws7
## 4      maxic_ws11      slope_ws3_hr
## 5      profc_ws11      minic_ws5_hr

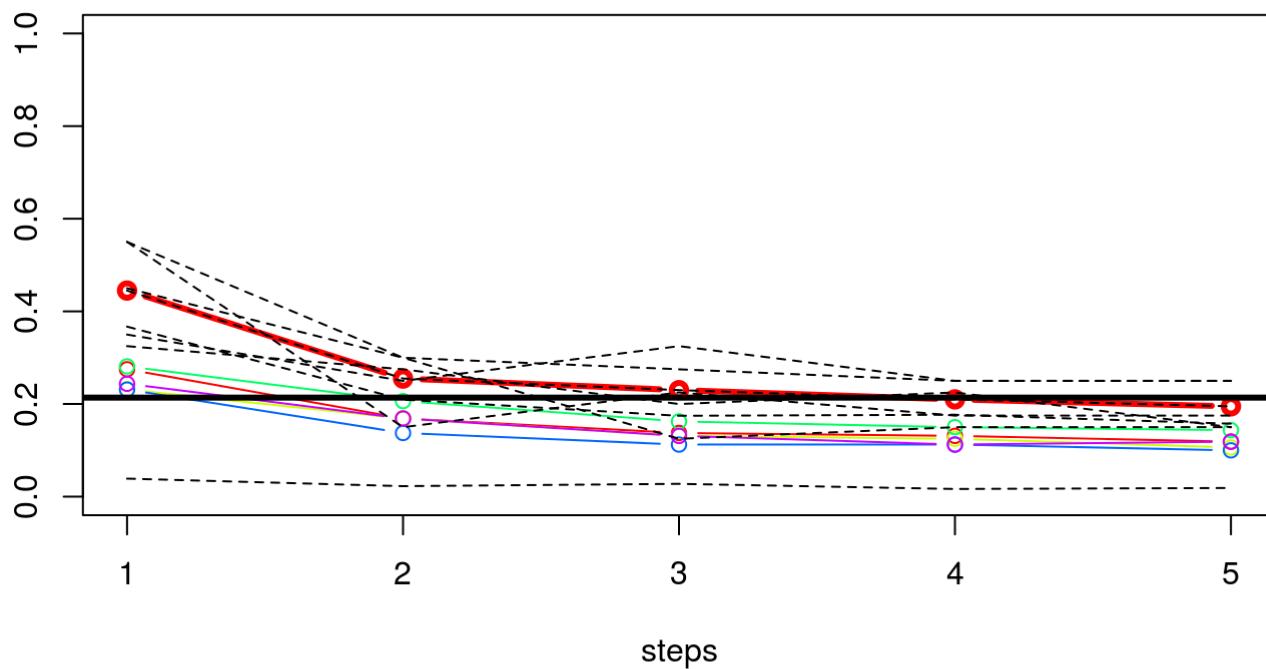
```



```

## [1] "silikatisches Festgestein_vs_Grundmoraene"

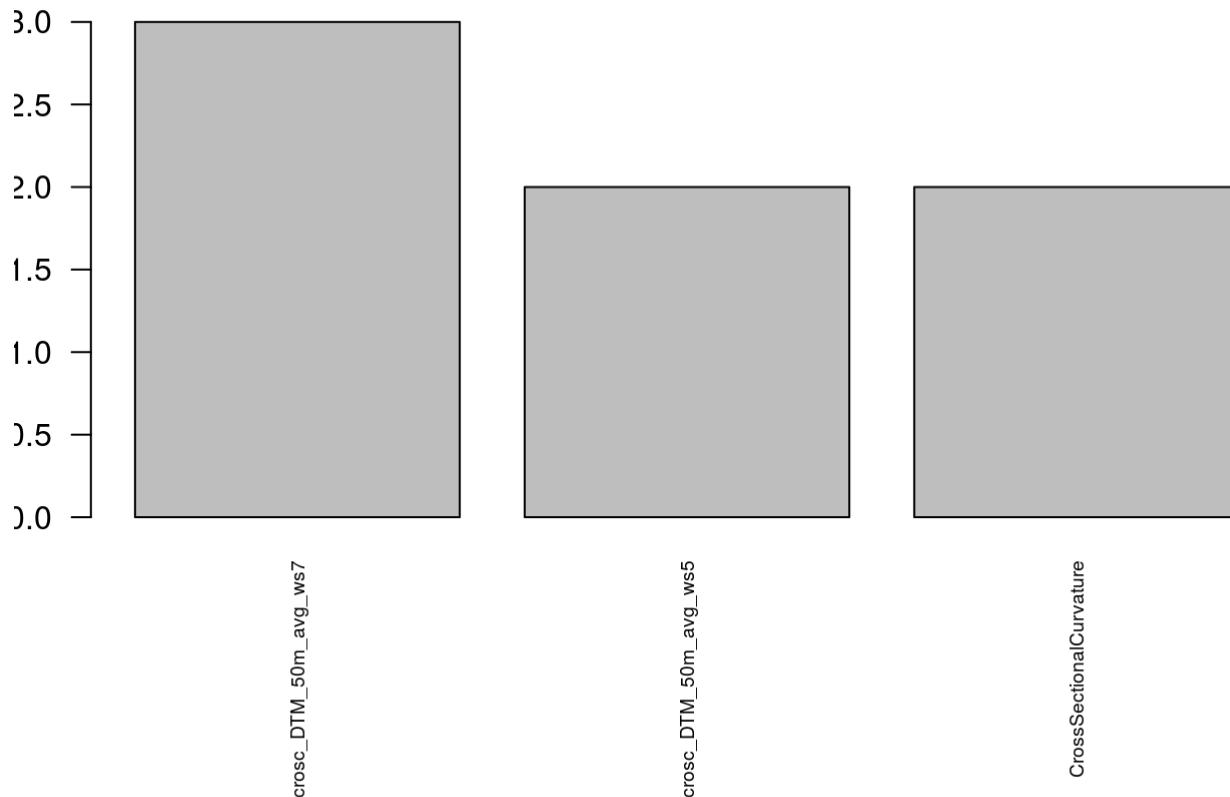
```



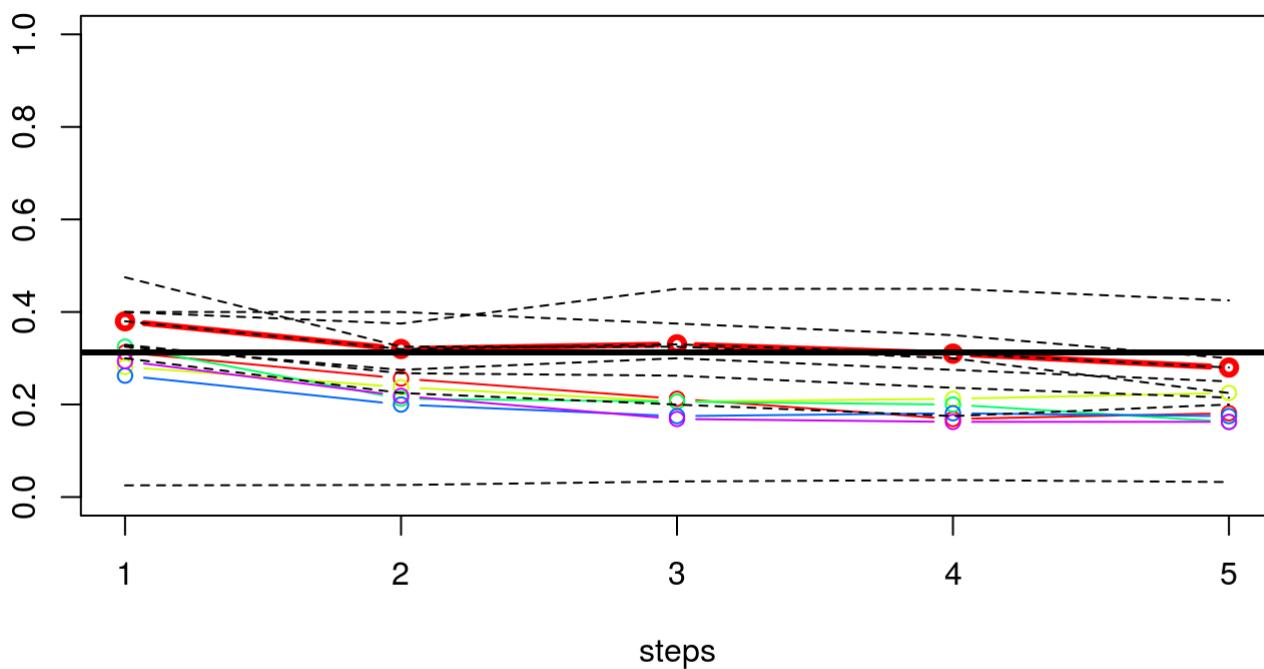
```

## [1] "Prediction error at end is: 0.445"
## [2] "Prediction error at end is: 0.255"
## [3] "Prediction error at end is: 0.23"
## [4] "Prediction error at end is: 0.21"
## [5] "Prediction error at end is: 0.195"
##           k 1           k 2           k 3
## 1      Slope      slope_ws9_hr longc_ws13_hr
## 2 crosc_DTM_50m_avg_ws5 Longitudinal_Curvature crosc_DTM_50m_avg_ws7
## 3      slope_ws7      planc_ws11_hr slope_DTM_50m_avg_ws5
## 4 profc_DTM_50m_avg_ws7      crosc_DTM_50m_avg_ws7      profc_ws7_hr
## 5 minic_ws29_hr      longc_ws29_hr      minic_ws7_hr
##           k 4           k 5
## 1      slope_ws15_hr      minic_ws5_hr
## 2 CrossSectionalCurvature      crosc_DTM_50m_avg_ws5
## 3      crosc_DTM_50m_avg_ws7      longc_DTM_50m_avg_ws7
## 4      longc_ws3      maxic_ws15_hr
## 5      planc_ws5_hr CrossSectionalCurvature

```



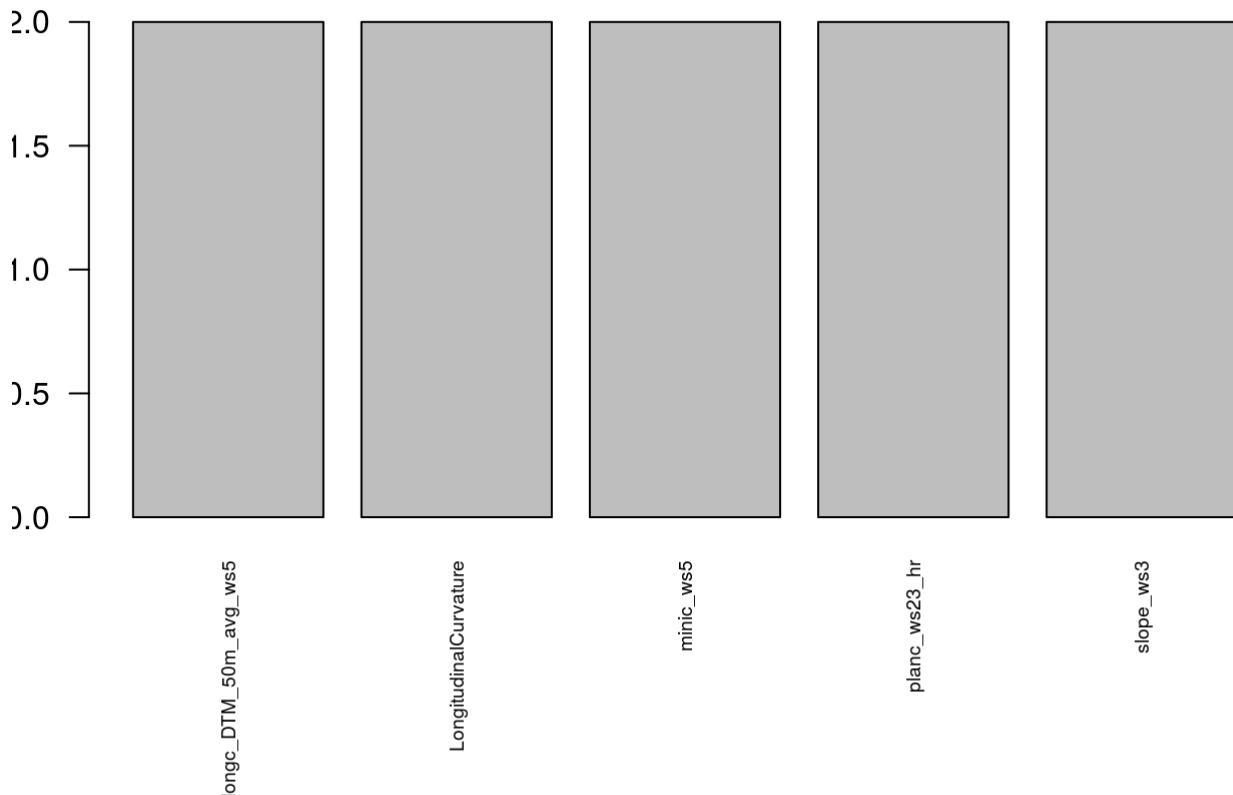
```
## [1] "silikatisches Festgestein_vs_Moraene undifferenziert"
```



```

## [1] "Prediction error at end is: 0.38" "Prediction error at end is: 0.32"
## [3] "Prediction error at end is: 0.33" "Prediction error at end is: 0.31"
## [5] "Prediction error at end is: 0.28"
##          k 1           k 2           k 3
## 1      slope_ws15_hr longc_ws11      slope_ws29_hr
## 2  minic_DTM_50m_avg_ws3 slope_ws3 longc_DTM_50m_avg_ws5
## 3 CrossSectionalCurvature slope_ws5_hr      planc_ws23_hr
## 4      planc_ws23_hr   minic_ws5      maxic_ws3_hr
## 5      minic_ws5   minic_ws15 LongitudinalCurvature
##          k 4           k 5
## 1 Longitudinal_Curvature LongitudinalCurvature
## 2 Flow_Line_Curvature      slope_ws3
## 3 longc_DTM_50m_avg_ws7 longc_DTM_50m_avg_ws5
## 4      FlowLineCurvature slope_DTM_50m_avg_ws7
## 5      planc_ws29_hr      crosc_ws19_hr

```

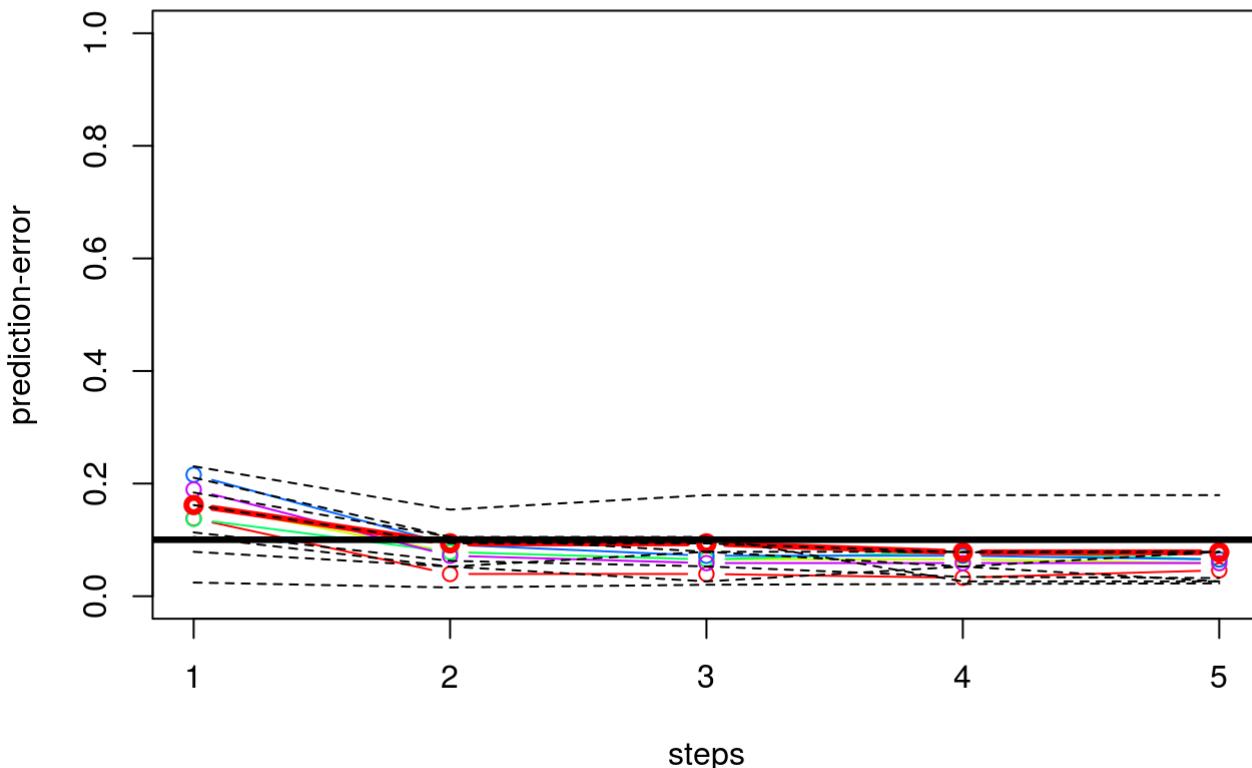


Regional terrain

```

## [1] "silikatisches Festgestein_vs_Alluviale Ablagerung"

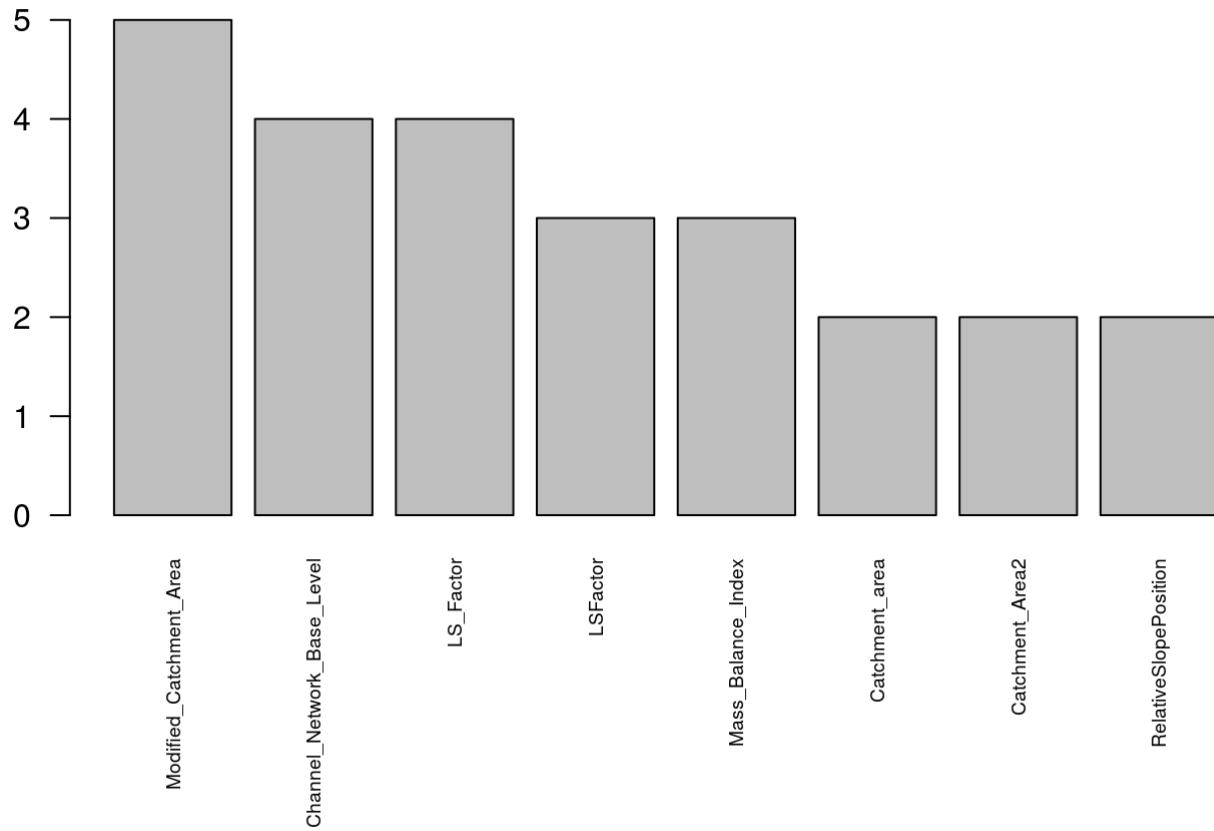
```



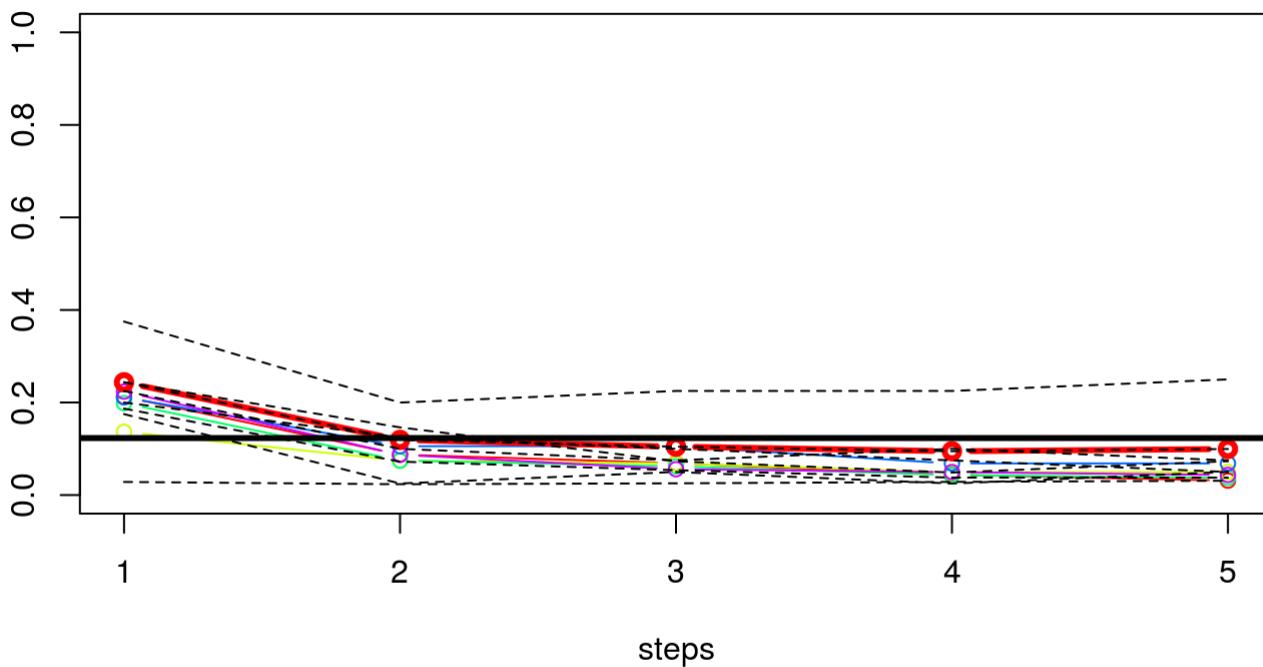
```

## [1] "Prediction error at end is: 0.161943319838057"
## [2] "Prediction error at end is: 0.0939271255060729"
## [3] "Prediction error at end is: 0.0937921727395412"
## [4] "Prediction error at end is: 0.0780026990553306"
## [5] "Prediction error at end is: 0.0780026990553306"
##                               k 1           k 2
## 1     Modified_Catchment_Area   Modified_Catchment_Area
## 2                 LS_Factor          LSFactor
## 3 Channel_Network_Base_Level      Catchment_Area2
## 4       RelativeSlopePosition Channel_Network_Base_Level
## 5             Catchment_area    Mass_Balance_Index
##                               k 3           k 4
## 1     Modified_Catchment_Area   Modified_Catchment_Area
## 2 Channel_Network_Base_Level      LS_Factor
## 3       RelativeSlopePosition Channel_Network_Base_Level
## 4             LS_Factor        Mass_Balance_Index
## 5             LSFactor          LSFactor
##                               k 5
## 1 Modified_Catchment_Area
## 2           LS_Factor
## 3   Mass_Balance_Index
## 4     Catchment_area
## 5   Catchment_Area2

```



```
## [1] "silikatisches Festgestein_vs_Blockschutt"
```



```

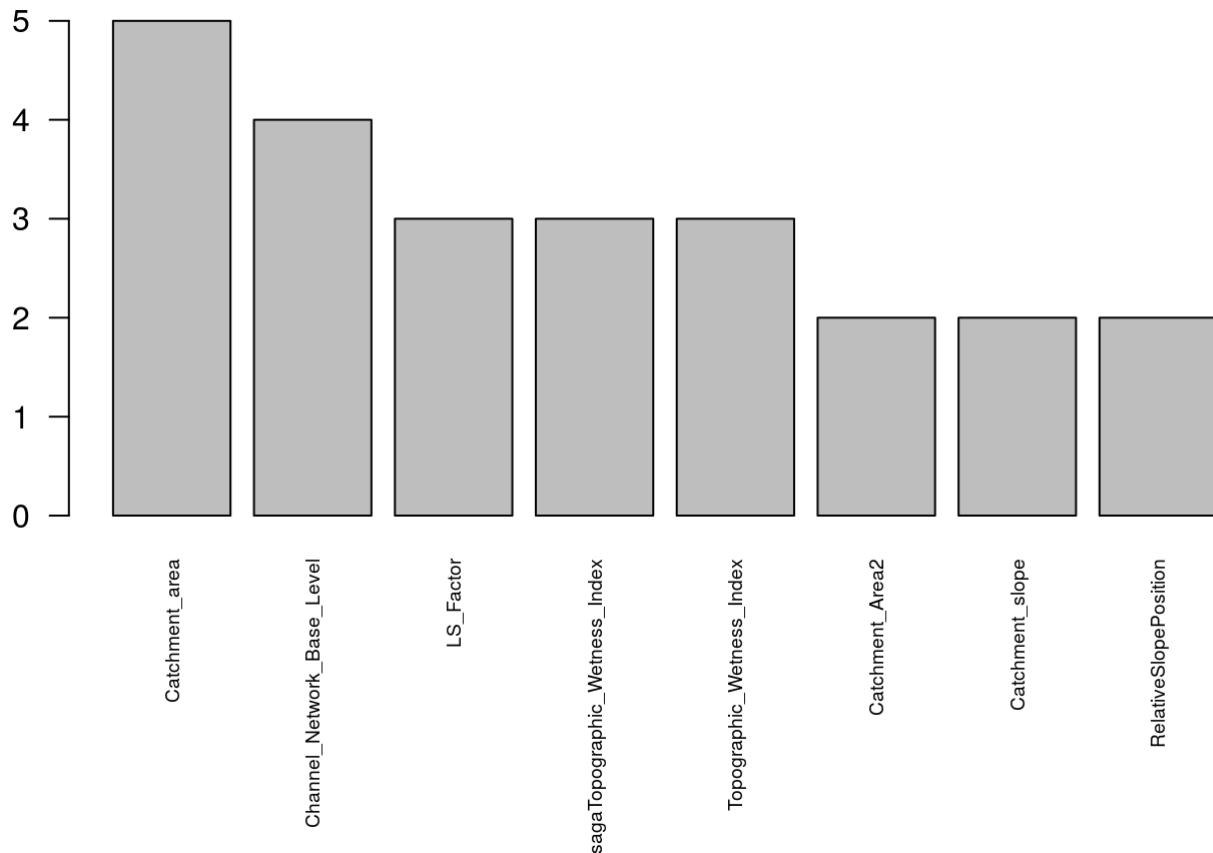
## [1] "Prediction error at end is: 0.243780487804878"
## [2] "Prediction error at end is: 0.119268292682927"
## [3] "Prediction error at end is: 0.104634146341463"
## [4] "Prediction error at end is: 0.0947560975609756"
## [5] "Prediction error at end is: 0.0996341463414634"

## k 1 k 2
## 1 Catchment_area Catchment_area
## 2 Catchment_slope sagaTopographic_Wetness_Index
## 3 Channel_Network_Base_Level Topographic_Wetness_Index
## 4 Topographic_Wetness_Index Catchment_Area2
## 5 LS_Factor Mass_Balance_Index

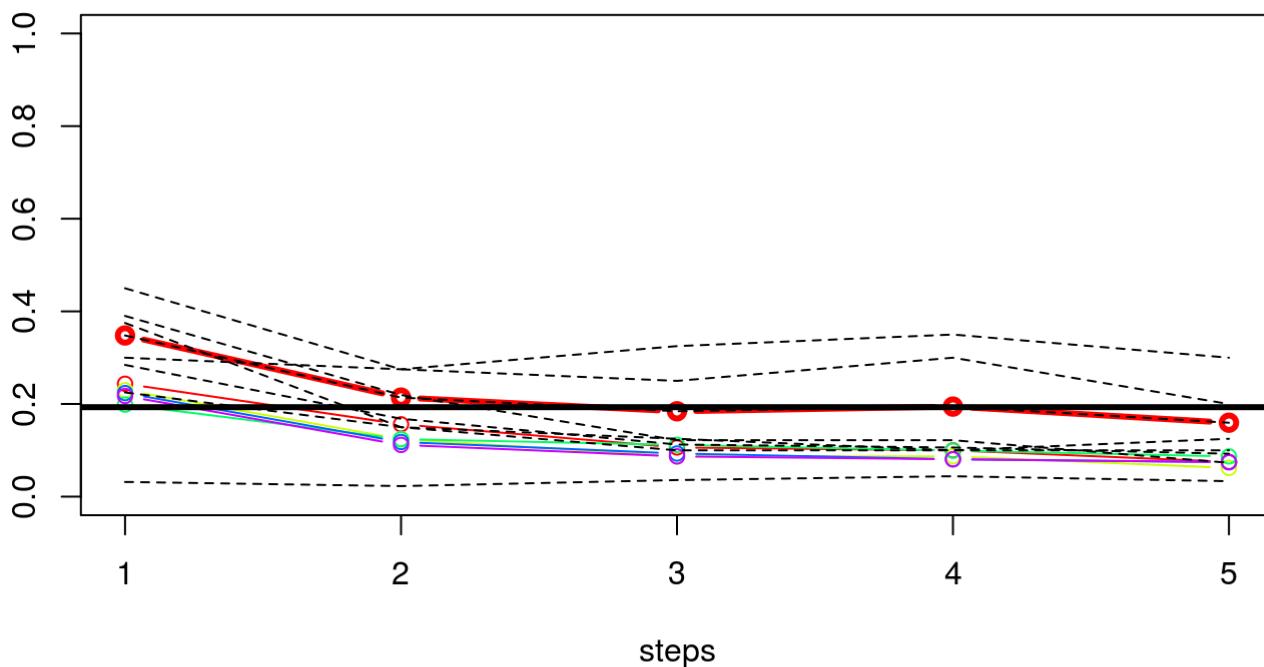
## k 3 k 4
## 1 Catchment_area Catchment_area
## 2 sagaTopographic_Wetness_Index sagaTopographic_Wetness_Index
## 3 Channel_Network_Base_Level Channel_Network_Base_Level
## 4 RelativeSlopePosition LS_Factor
## 5 LS_Factor Catchment_Area2

## k 5
## 1 Catchment_slope
## 2 Topographic_Wetness_Index
## 3 Channel_Network_Base_Level
## 4 RelativeSlopePosition
## 5 Catchment_area

```



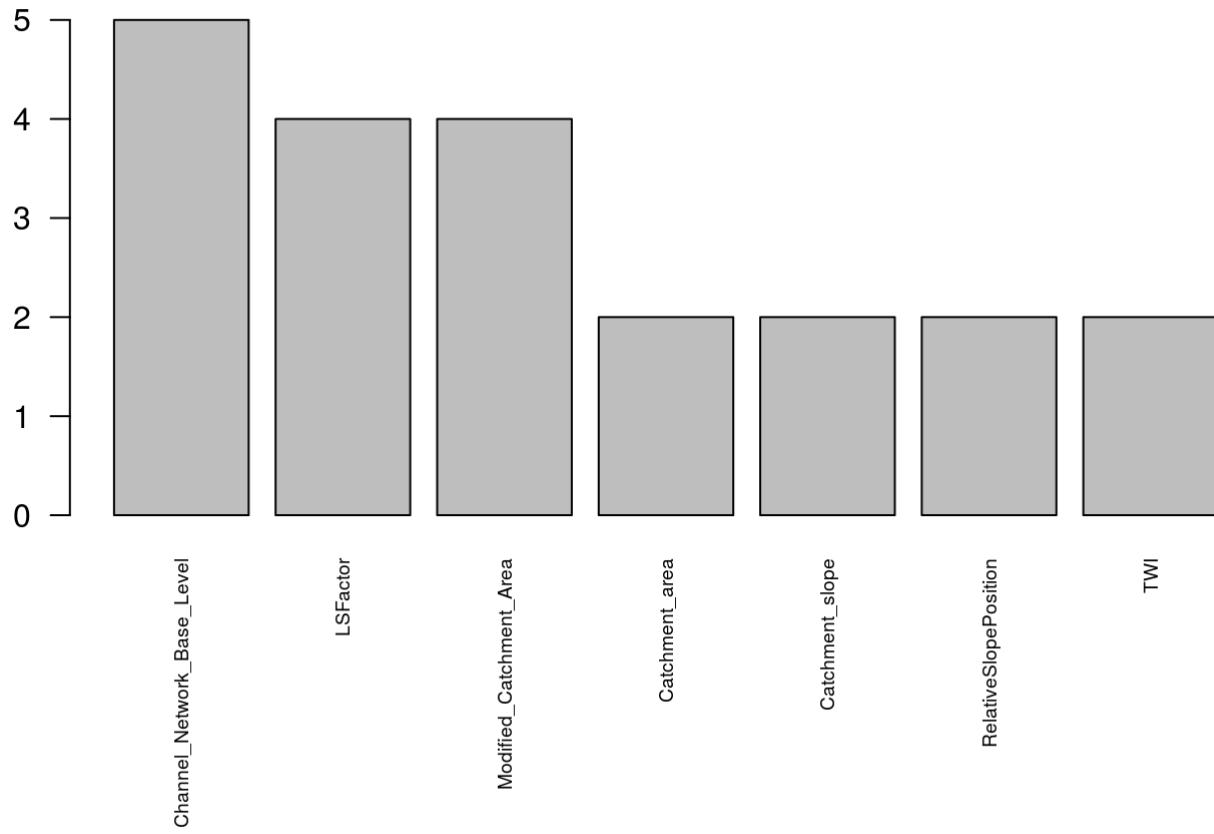
```
## [1] "silikatisches Festgestein_vs_Kolluvium"
```



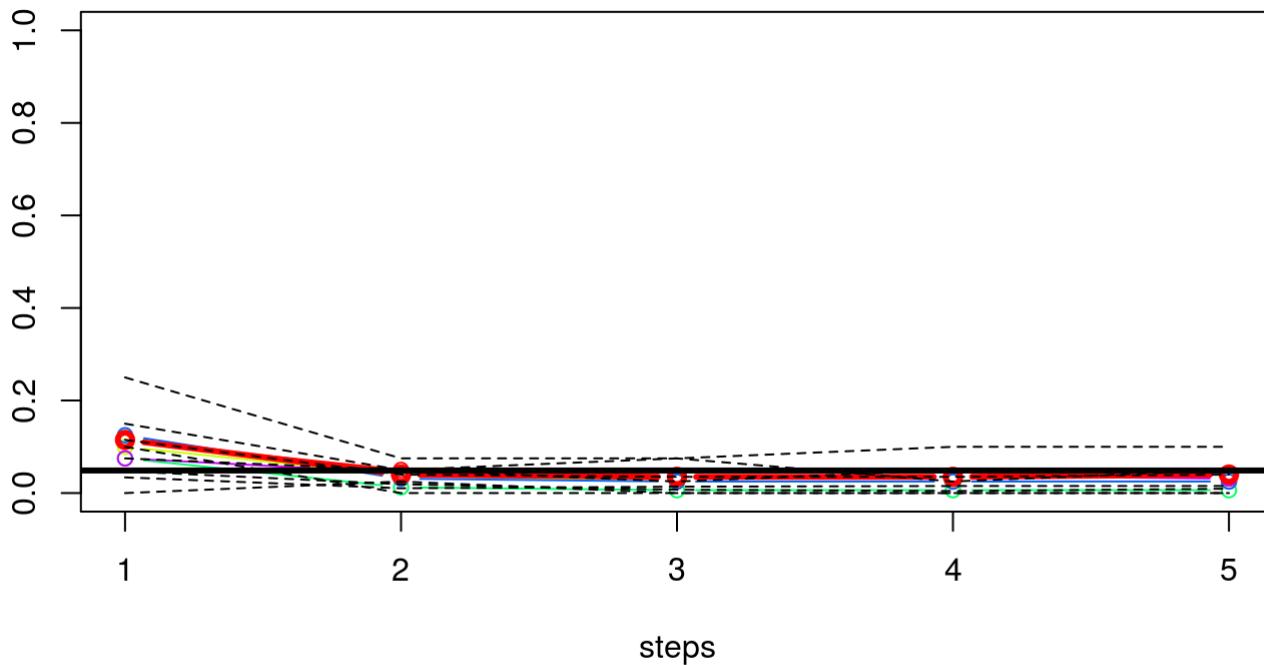
```

## [1] "Prediction error at end is: 0.348048780487805"
## [2] "Prediction error at end is: 0.21390243902439"
## [3] "Prediction error at end is: 0.184390243902439"
## [4] "Prediction error at end is: 0.194390243902439"
## [5] "Prediction error at end is: 0.159634146341463"
##          k 1           k 2
## 1 Topographic_Wetness_Index    Modified_Catchment_Area
## 2                      LSFactor Channel_Network_Base_Level
## 3    Modified_Catchment_Area           LSFactor
## 4 Channel_Network_Base_Level           Catchment_slope
## 5      RelativeSlopePosition           LS_Factor
##          k 3           k 4
## 1    Modified_Catchment_Area           Catchment_area
## 2      RelativeSlopePosition           LSFactor
## 3                  TWI   Channel_Network_Base_Level
## 4      Catchment_area_hr    Modified_Catchment_Area
## 5 Channel_Network_Base_Level sagaTopographic_Wetness_Index
##          k 5
## 1      Catchment_area
## 2          LSFactor
## 3      Catchment_slope
## 4          TWI
## 5 Channel_Network_Base_Level

```



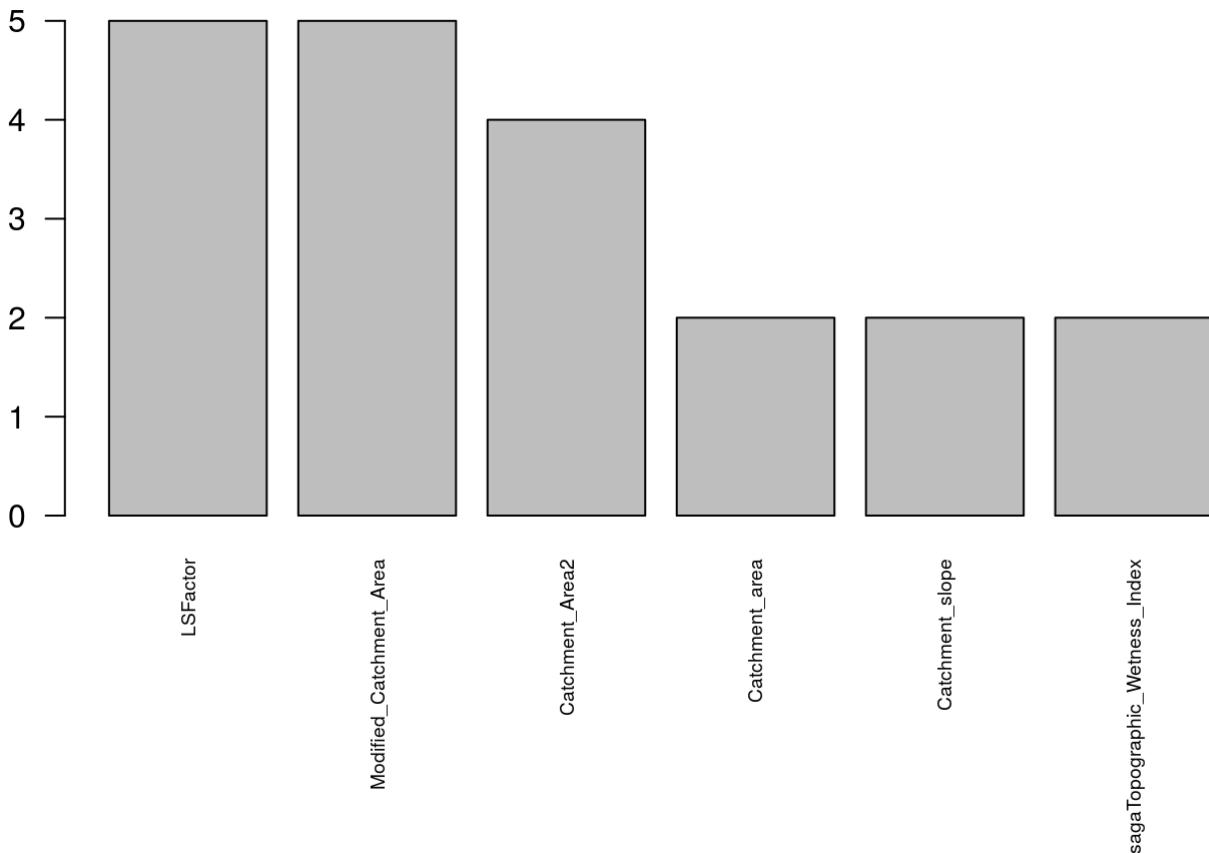
```
## [1] "silikatisches Festgestein_vs_gemischte Kegel"
```



```

## [1] "Prediction error at end is: 0.115"
## [2] "Prediction error at end is: 0.04"
## [3] "Prediction error at end is: 0.035"
## [4] "Prediction error at end is: 0.035"
## [5] "Prediction error at end is: 0.04"
##                               k 1                         k 2
## 1 Topographic_Wetness_Index      Modified_Catchment_Area
## 2                           LSFactor                  LSFactor
## 3   Modified_Catchment_Area          Catchment_area_hr
## 4                           TWI           Catchment_Area2
## 5       Catchment_slope sagaTopographic_Wetness_Index
##                               k 3                         k 4
## 1 Modified_Catchment_Area      Modified_Catchment_Area
## 2                   LSFactor                  LSFactor
## 3   Catchment_Area2          Catchment_Area2
## 4   Catchment_area        RelativeSlopePosition
## 5   Catchment_slope sagaTopographic_Wetness_Index
##                               k 5
## 1       Catchment_area
## 2             LSFactor
## 3   Catchment_Area2
## 4   Modified_Catchment_Area
## 5 Channel_Network_Base_Level

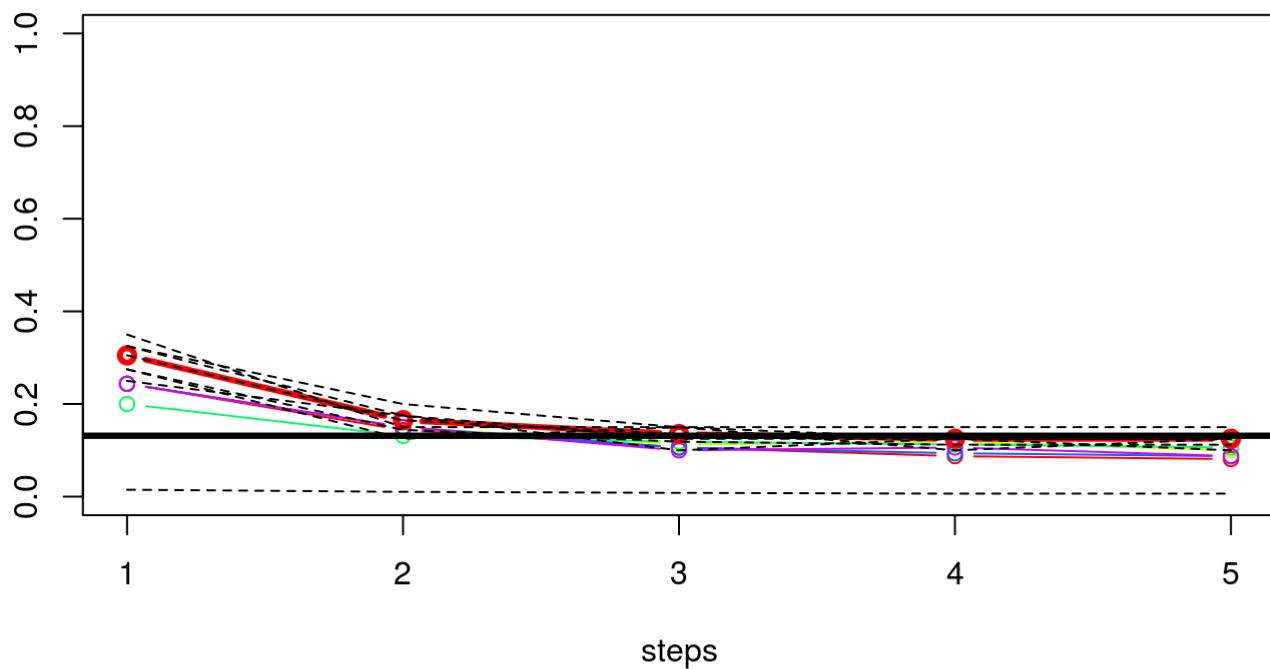
```



```

## [1] "silikatisches Festgestein_vs_gemischte Ablagerung"

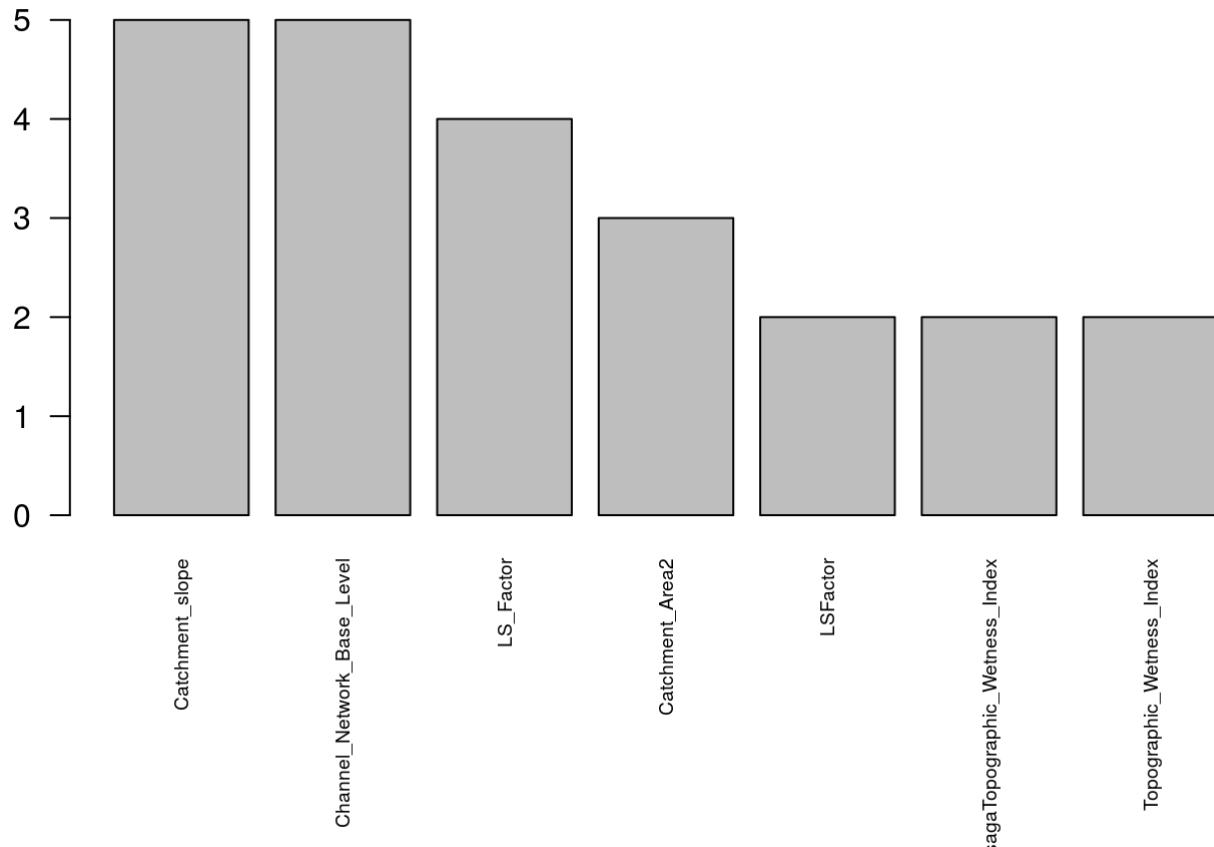
```



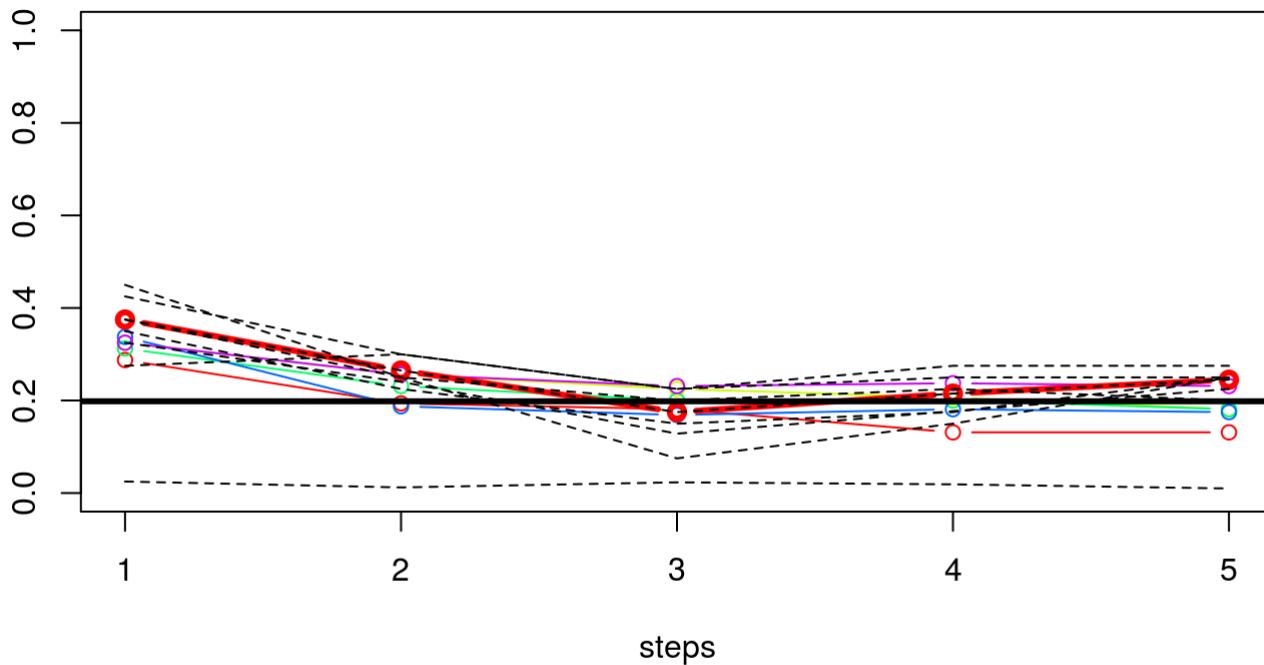
```

## [1] "Prediction error at end is: 0.305"
## [2] "Prediction error at end is: 0.165"
## [3] "Prediction error at end is: 0.135"
## [4] "Prediction error at end is: 0.125"
## [5] "Prediction error at end is: 0.125"
##                               k 1           k 2
## 1             Catchment_Area2      Catchment_Area2
## 2                 LS_Factor Channel_Network_Base_Level
## 3             Catchment_slope          LS_Factor
## 4   Channel_Network_Base_Level          LSFactor
## 5 sagaTopographic_Wetness_Index      Catchment_slope
##                               k 3           k 4
## 1   Topographic_Wetness_Index      Catchment_Area2
## 2 Channel_Network_Base_Level Channel_Network_Base_Level
## 3             Catchment_slope          LS_Factor
## 4   Modified_Catchment_Area      Catchment_slope
## 5                 LSFactor       Mass_Balance_Index
##                               k 5
## 1   Topographic_Wetness_Index
## 2 Channel_Network_Base_Level
## 3 sagaTopographic_Wetness_Index
## 4             Catchment_slope
## 5                 LS_Factor

```



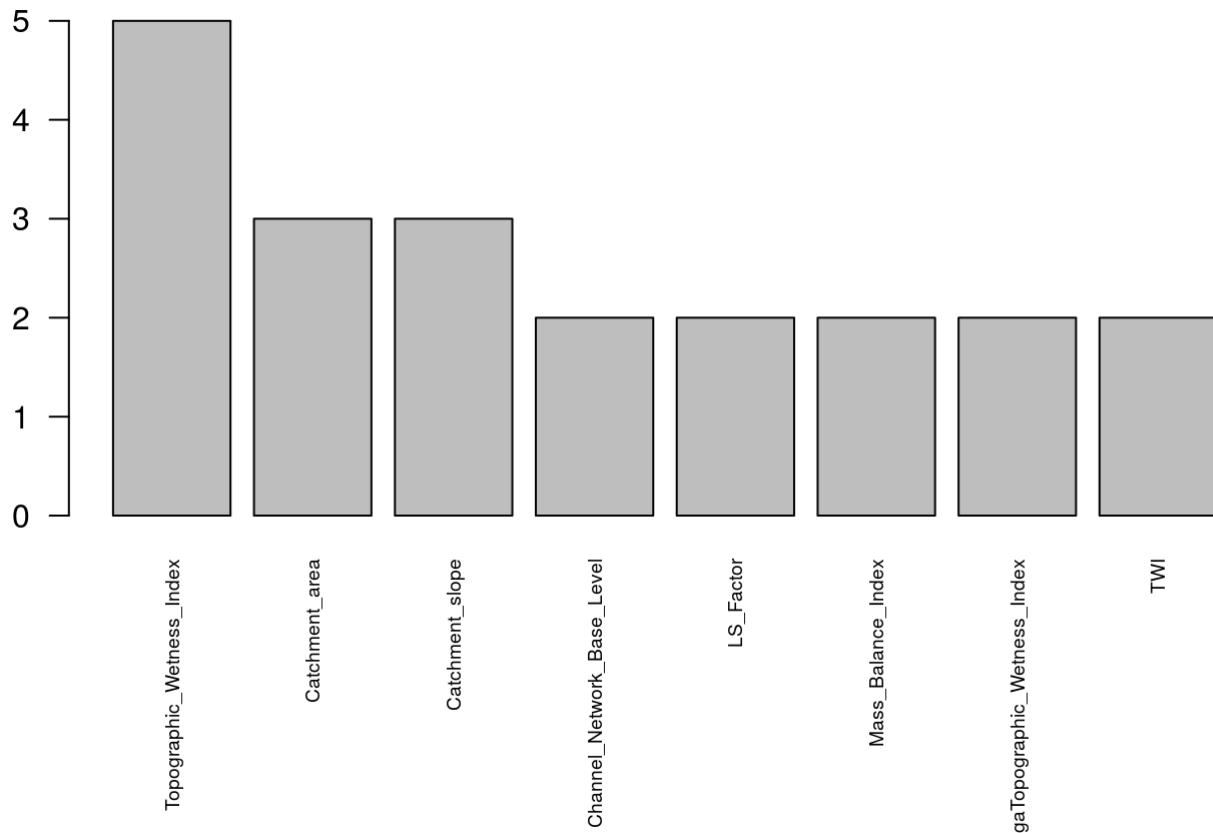
```
## [1] "silikatisches Festgestein_vs_Hangschutt"
```



```

## [1] "Prediction error at end is: 0.375"
## [2] "Prediction error at end is: 0.265"
## [3] "Prediction error at end is: 0.175"
## [4] "Prediction error at end is: 0.215"
## [5] "Prediction error at end is: 0.245"
##          k 1           k 2
## 1      Catchment_slope      LS_Factor
## 2           TWI Topographic_Wetness_Index
## 3 Topographic_Wetness_Index Channel_Network_Base_Level
## 4      Mass_Balance_Index      Catchment_area
## 5   TopographicWetnessIndex           TWI
##          k 3           k 4
## 1      LS_Factor      Catchment_Area2
## 2 Topographic_Wetness_Index sagaTopographic_Wetness_Index
## 3 sagaTopographic_Wetness_Index Topographic_Wetness_Index
## 4 Channel_Network_Base_Level      Catchment_slope
## 5      Catchment_area      MassBalanceIndex
##          k 5
## 1      Catchment_area
## 2      Catchment_slope
## 3 Topographic_Wetness_Index
## 4 RelativeSlopePosition
## 5      Mass_Balance_Index

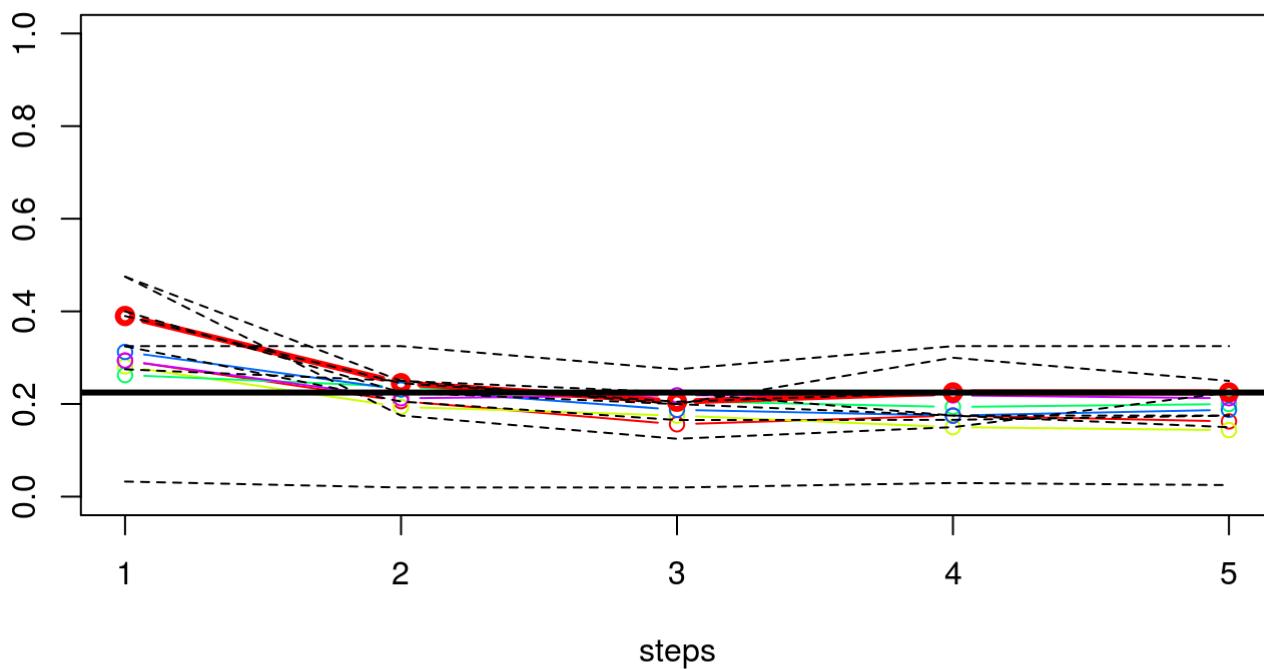
```



```

## [1] "silikatisches Festgestein_vs_Grundmoraene"

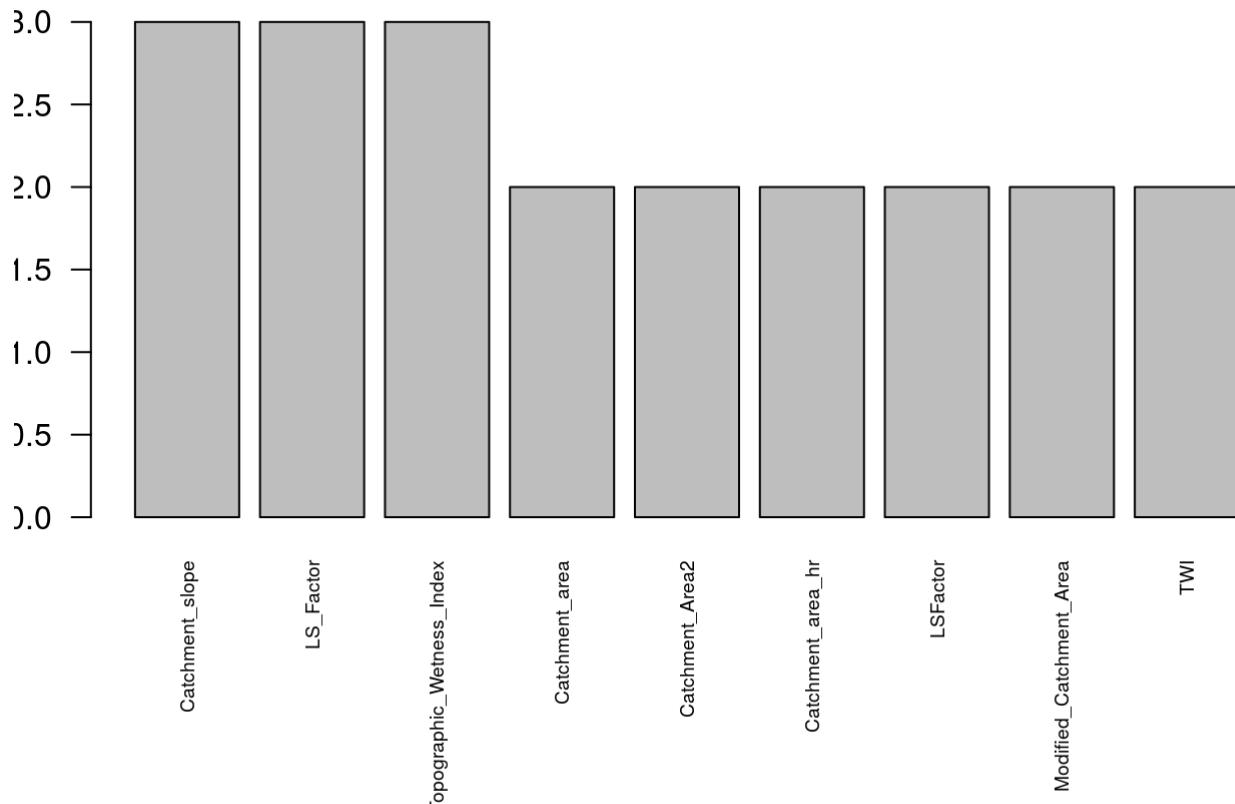
```



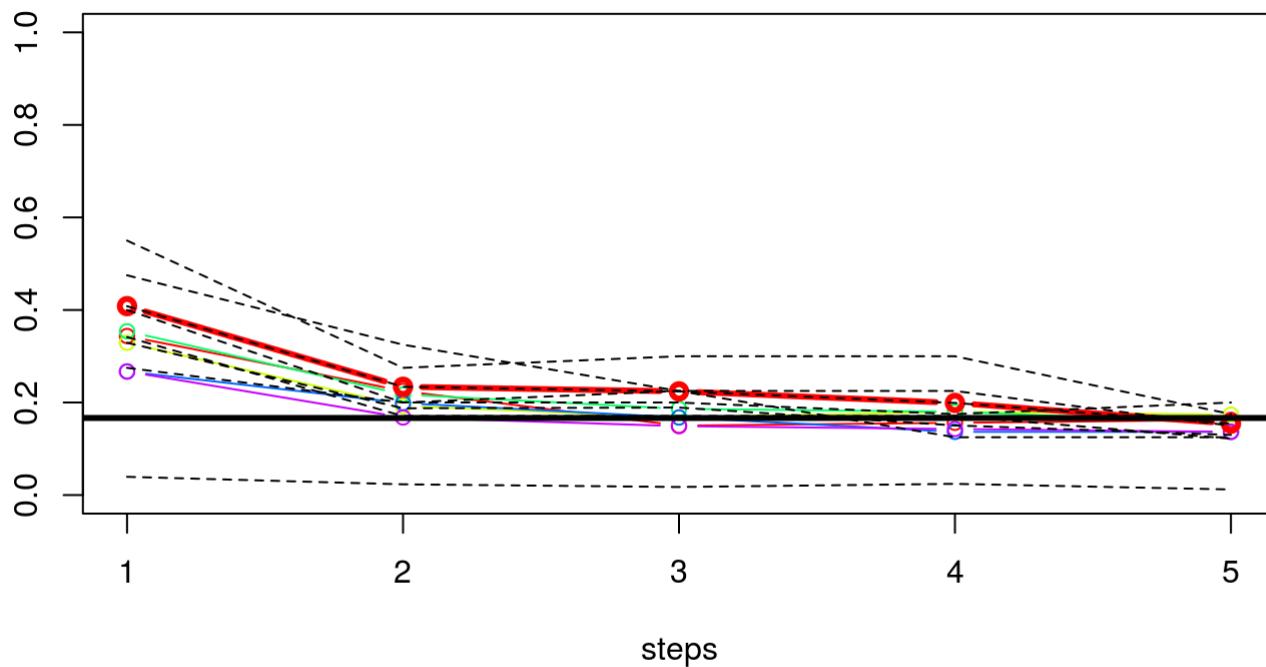
```

## [1] "Prediction error at end is: 0.39"
## [2] "Prediction error at end is: 0.245"
## [3] "Prediction error at end is: 0.205"
## [4] "Prediction error at end is: 0.225"
## [5] "Prediction error at end is: 0.225"
##                               k 1           k 2
## 1      Catchment_slope      Catchment_slope
## 2  Modified_Catchment_Area sagaTopographic_Wetness_Index
## 3 Channel_Network_Base_Level          LS_Factor
## 4      Catchment_area_hr   Modified_Catchment_Area
## 5          LS_Factor      Catchment_area
##                               k 3           k 4
## 1 Topographic_Wetness_Index Topographic_Wetness_Index
## 2      Mass_Balance_Index          LSFactor
## 3      Catchment_slope      MassBalanceIndex
## 4          LS_Factor      Catchment_Area2
## 5          TWI            Catchment_area_hr
##                               k 5
## 1          LSFactor
## 2      Catchment_area
## 3 Topographic_Wetness_Index
## 4      Catchment_Area2
## 5          TWI

```



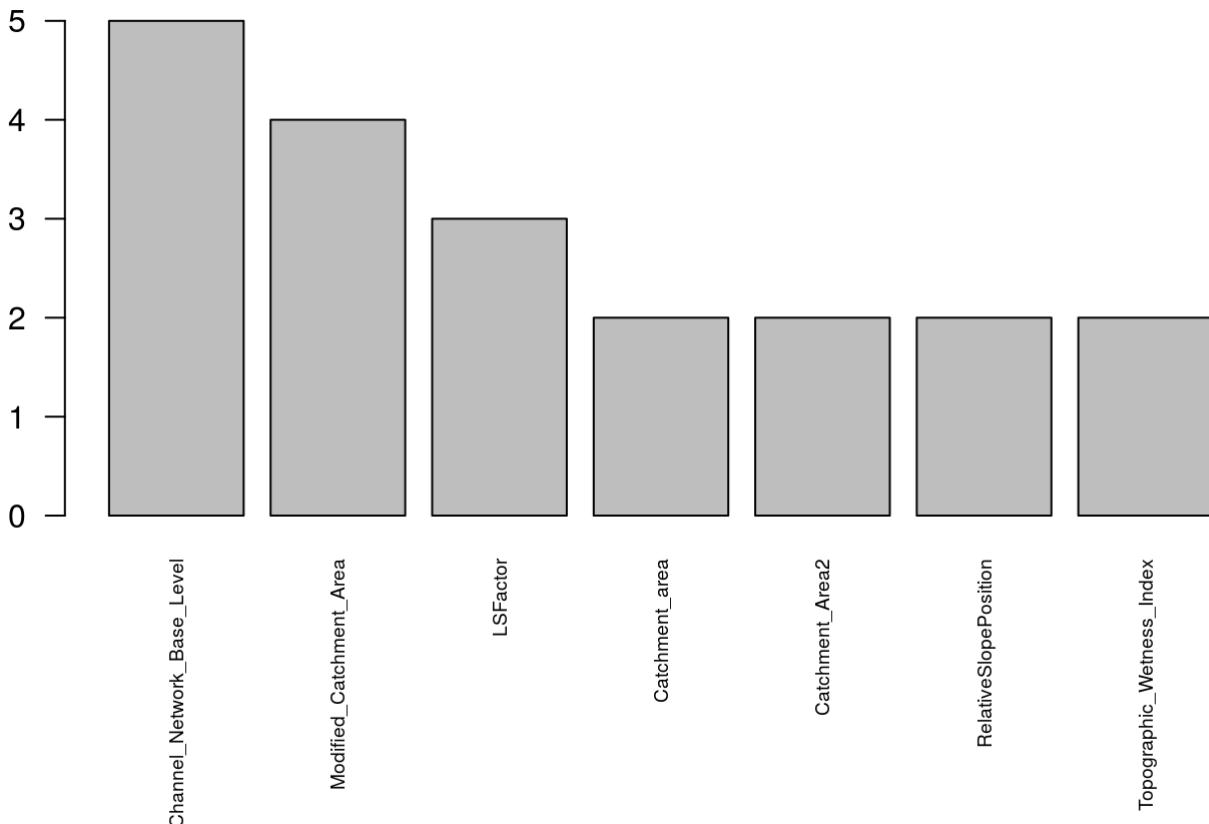
```
## [1] "silikatisches Festgestein_vs_Moraene undifferenziert"
```



```

## [1] "Prediction error at end is: 0.408292682926829"
## [2] "Prediction error at end is: 0.234146341463415"
## [3] "Prediction error at end is: 0.224146341463415"
## [4] "Prediction error at end is: 0.199146341463415"
## [5] "Prediction error at end is: 0.154390243902439"
##                                     k 1
## 1      Topographic_Wetness_Index          LSFactor
## 2 Channel_Network_Base_Level Channel_Network_Base_Level
## 3                      LS_Factor    Modified_Catchment_Area
## 4 sagaTopographic_Wetness_Index           Catchment_area
## 5                           LSFactor        Catchment_Area2
##                                     k 2
## 1      Modified_Catchment_Area    Modified_Catchment_Area
## 2 Channel_Network_Base_Level Channel_Network_Base_Level
## 3          Catchment_slope            TWI
## 4     RelativeSlopePosition       Catchment_Area2
## 5 Topographic_Wetness_Index       Mass_Balance_Index
##                                     k 3
## 1      Modified_Catchment_Area
## 2 Channel_Network_Base_Level
## 3          Catchment_area
## 4     RelativeSlopePosition
## 5           LSFactor
##                                     k 4
## 1      Modified_Catchment_Area
## 2 Channel_Network_Base_Level
## 3          Catchment_area
## 4     RelativeSlopePosition
## 5           LSFactor
##                                     k 5
## 1      Modified_Catchment_Area
## 2 Channel_Network_Base_Level
## 3          Catchment_area
## 4     RelativeSlopePosition
## 5           LSFactor

```

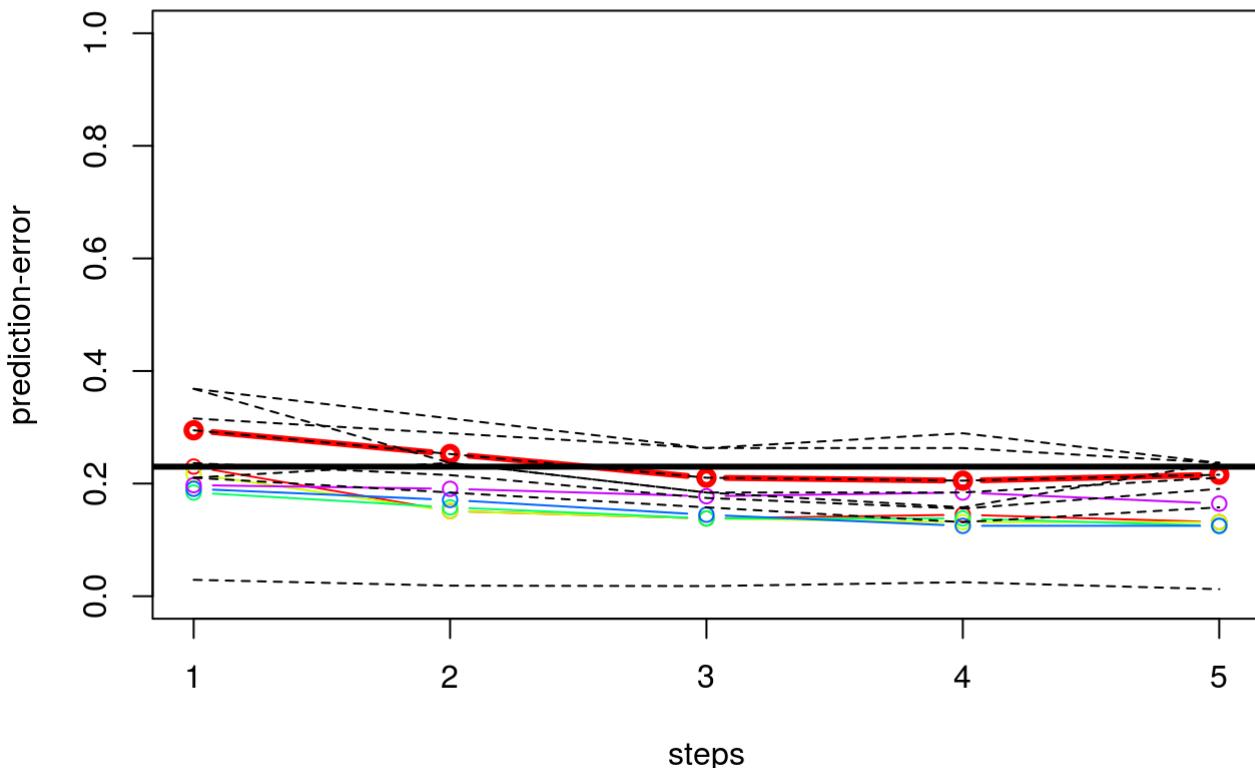


roughness

```

## [1] "silikatisches Festgestein_vs_Alluviale Ablagerung"

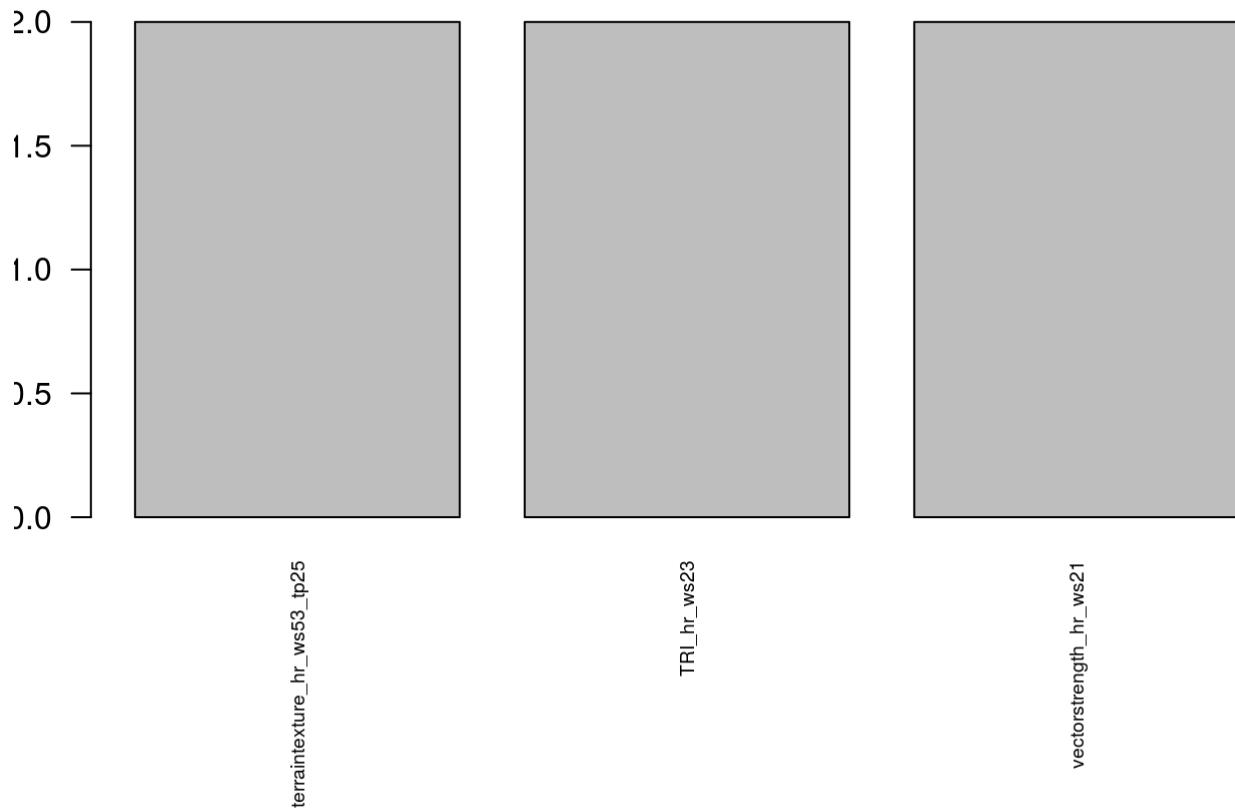
```



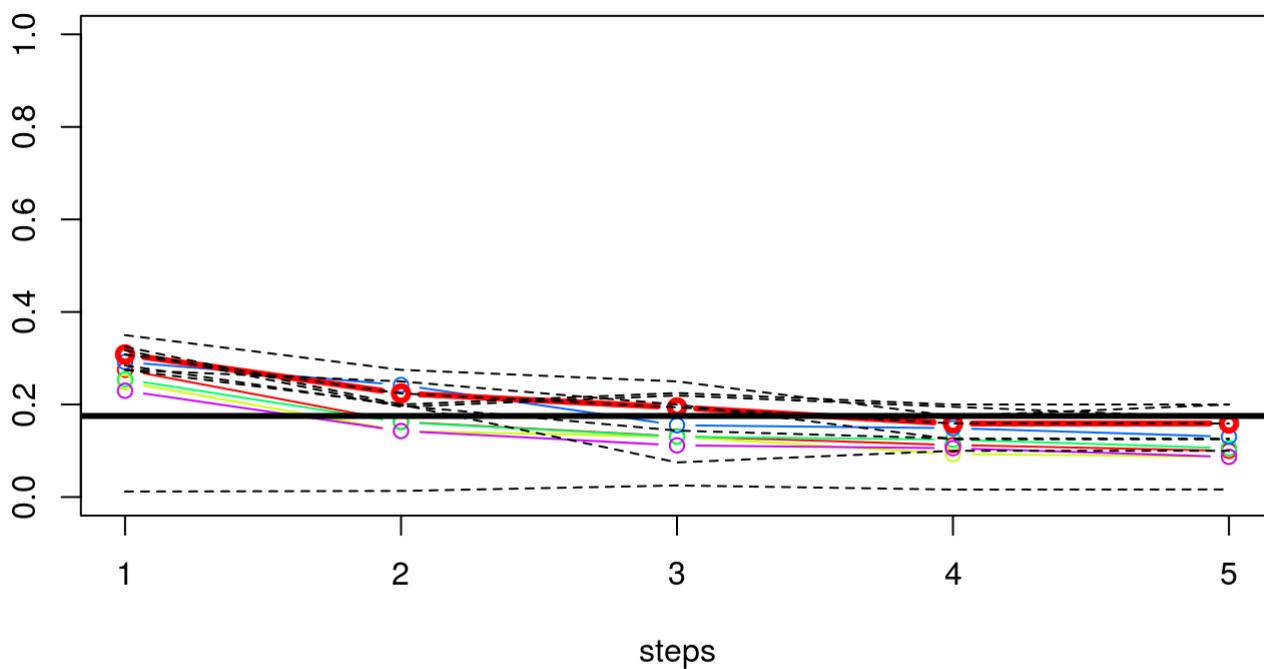
```

## [1] "Prediction error at end is: 0.294736842105263"
## [2] "Prediction error at end is: 0.252631578947368"
## [3] "Prediction error at end is: 0.210526315789474"
## [4] "Prediction error at end is: 0.205263157894737"
## [5] "Prediction error at end is: 0.215789473684211"
##           k 1           k 2
## 1 vectorruggedness_hr_ws31   vectorruggedness_hr_ws47
## 2          fischerk_ws51   vectorstrength_hr_ws49
## 3  vectorstrength_hr_ws21           TRI_hr_ws2
## 4  vectorstrength_hr_ws23   vectorruggedness_hr_ws27
## 5  vectorstrength_hr_ws59 terraintecture_hr_ws21_tp25
##           k 3           k 4
## 1 vectorruggedness_hr_ws51           TRI_hr_ws23
## 2          fischerk_ws53   vectorstrength_hr_ws21
## 3 vectorruggedness_hr_ws35 terraintecture_hr_ws57_tp25
## 4 vectorruggedness_hr_ws15 terraintecture_hr_ws57_tp5
## 5  vectorstrength_hr_ws51 terraintecture_hr_ws53_tp25
##           k 5
## 1           TRI_hr_ws23
## 2          fischerk_ws59
## 3  vectorstrength_hr_ws11
## 4 terraintecture_hr_ws53_tp25
## 5  vectorstrength_hr_ws61

```



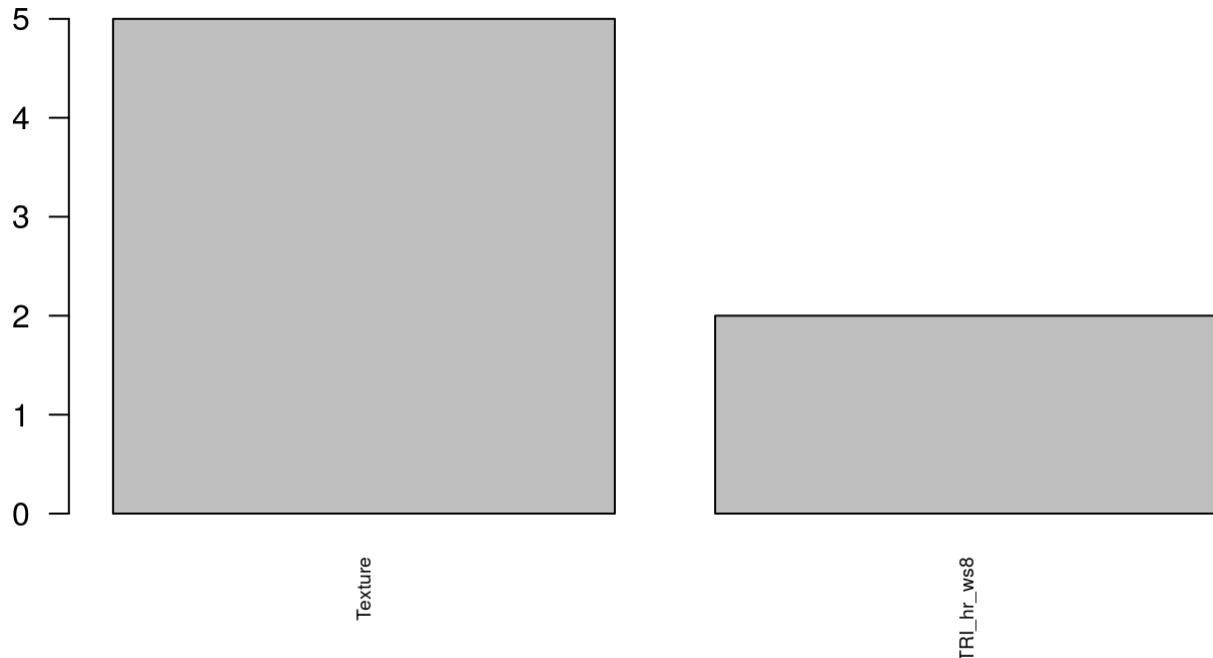
```
## [1] "silikatisches Festgestein_vs_Blockschutt"
```



```

## [1] "Prediction error at end is: 0.308414634146341"
## [2] "Prediction error at end is: 0.224024390243902"
## [3] "Prediction error at end is: 0.19390243902439"
## [4] "Prediction error at end is: 0.159024390243902"
## [5] "Prediction error at end is: 0.159146341463415"
##          k 1           k 2
## 1      Texture      Texture
## 2      TRI_hr_ws9    TRI_hr_ws8
## 3 terraintecture_hr_ws29_tp25 fischerk_ws49
## 4   vectorstrength_hr_ws51 vectorruggedness_hr_ws21
## 5      fischerk_ws15 vectorruggedness_hr_ws57
##          k 3           k 4
## 1      Texture      TRI_hr_ws18
## 2      fischerk_ws55    Texture
## 3 vectorruggedness_hr_ws39 vectorruggedness_hr_ws53
## 4      TRI_hr_ws12    fischerk_ws43
## 5 vectorruggedness_hr_ws29 terraintecture_hr_ws21_tp25
##          k 5
## 1      Texture
## 2      TRI_hr_ws8
## 3      fischerk_ws51
## 4  vectorruggedness_hr_ws59
## 5 terraintecture_hr_ws57_tp5

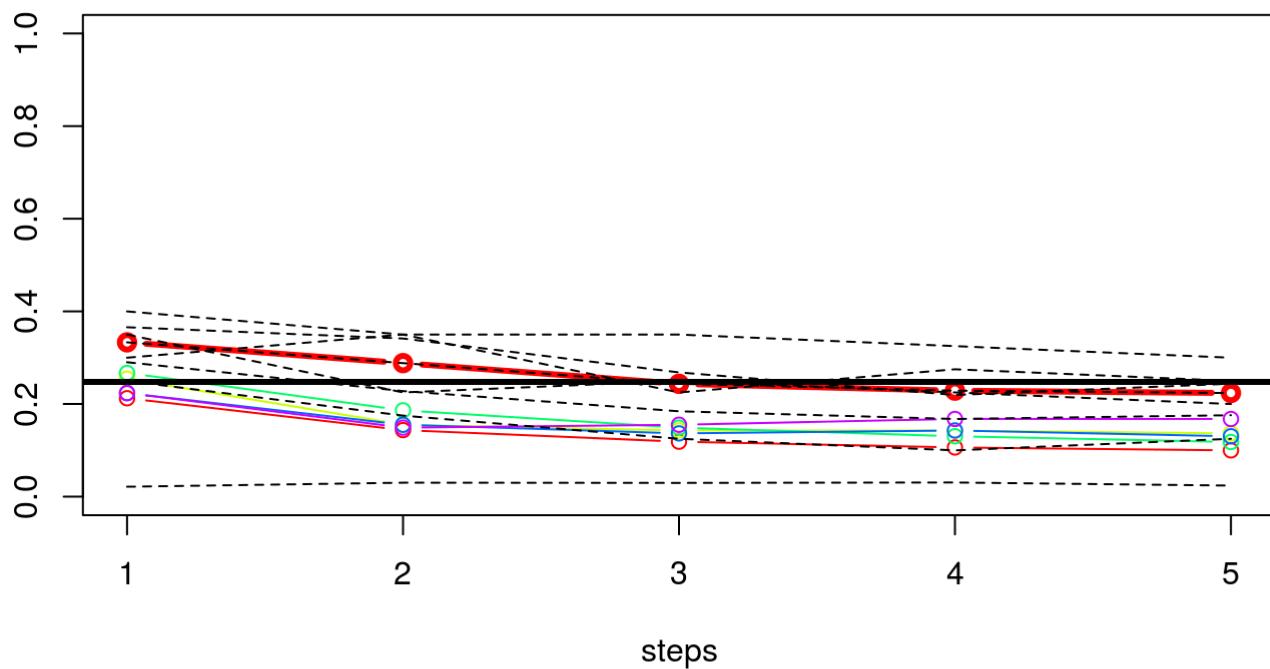
```



```

## [1] "silikatisches Festgestein_vs_Kolluvium"

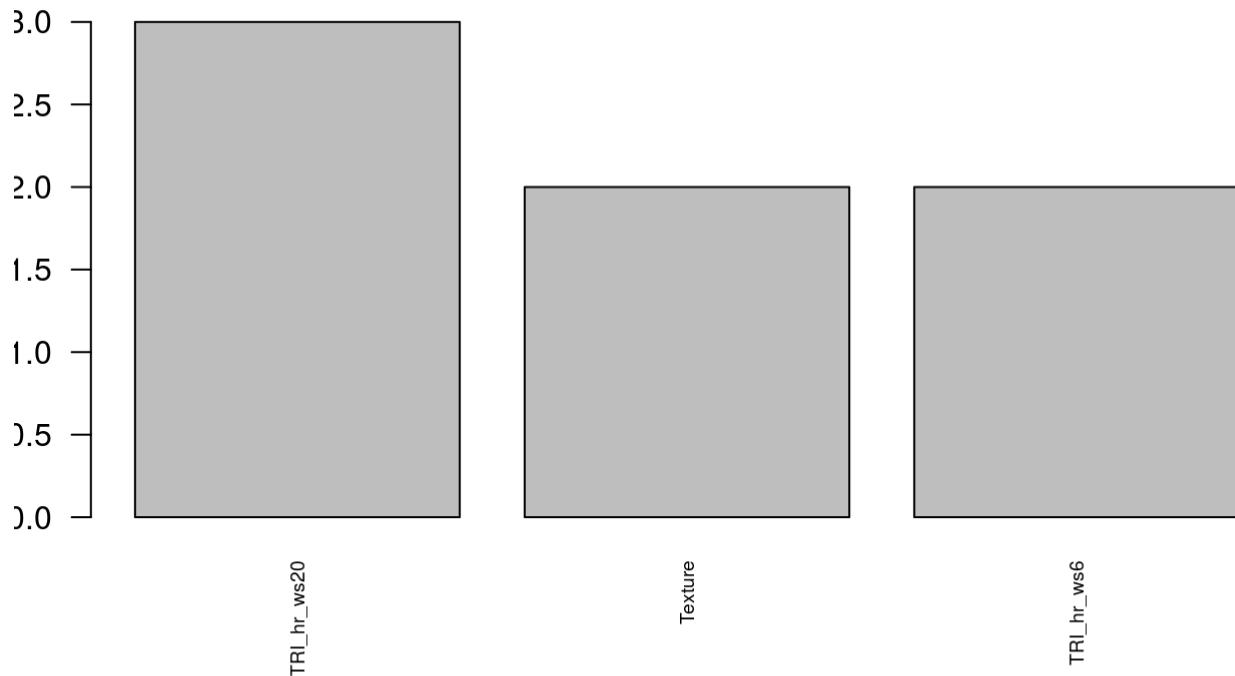
```



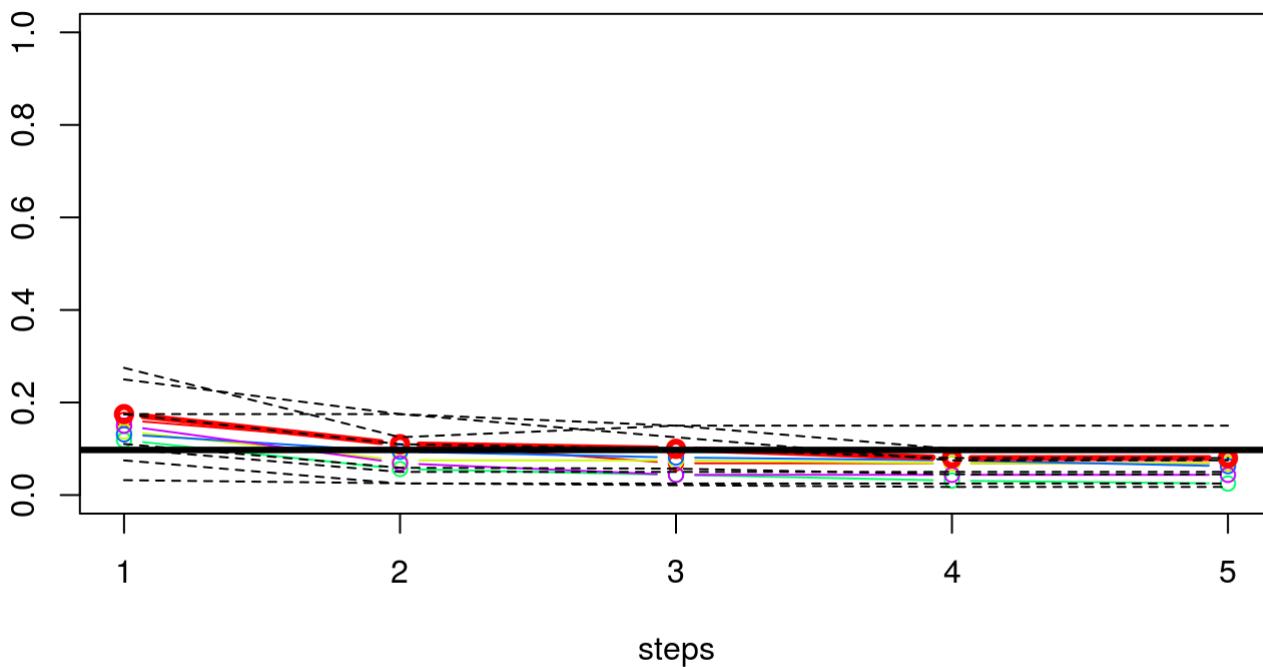
```

## [1] "Prediction error at end is: 0.333170731707317"
## [2] "Prediction error at end is: 0.288292682926829"
## [3] "Prediction error at end is: 0.243658536585366"
## [4] "Prediction error at end is: 0.22890243902439"
## [5] "Prediction error at end is: 0.223780487804878"
##           k 1           k 2           k 3
## 1   TRI_hr_ws23          TRI_hr_ws20          TRI_hr_ws20
## 2   TRI_hr_ws6 vectorstrength_hr_ws51          Texture
## 3   Texture vectorstrength_hr_ws33 vectorruggedness_hr_ws5
## 4   TRI_hr_ws26          TRI_hr_ws6 Melton_Ruggedness_Number_hr
## 5 fischerk_ws51 vectorstrength_hr_ws59      fischerk_ws49
##           k 4           k 5
## 1           TRI_hr_ws20          TRI_hr_ws3
## 2           TRI_hr_ws2          fischerk_ws43
## 3   vectorstrength_hr_ws23 vectorstrength_hr_ws13
## 4           TRI_hr_ws7          fischerk_ws55
## 5 terraintexture_hr_ws29_tp25      TRI_hr_ws4

```



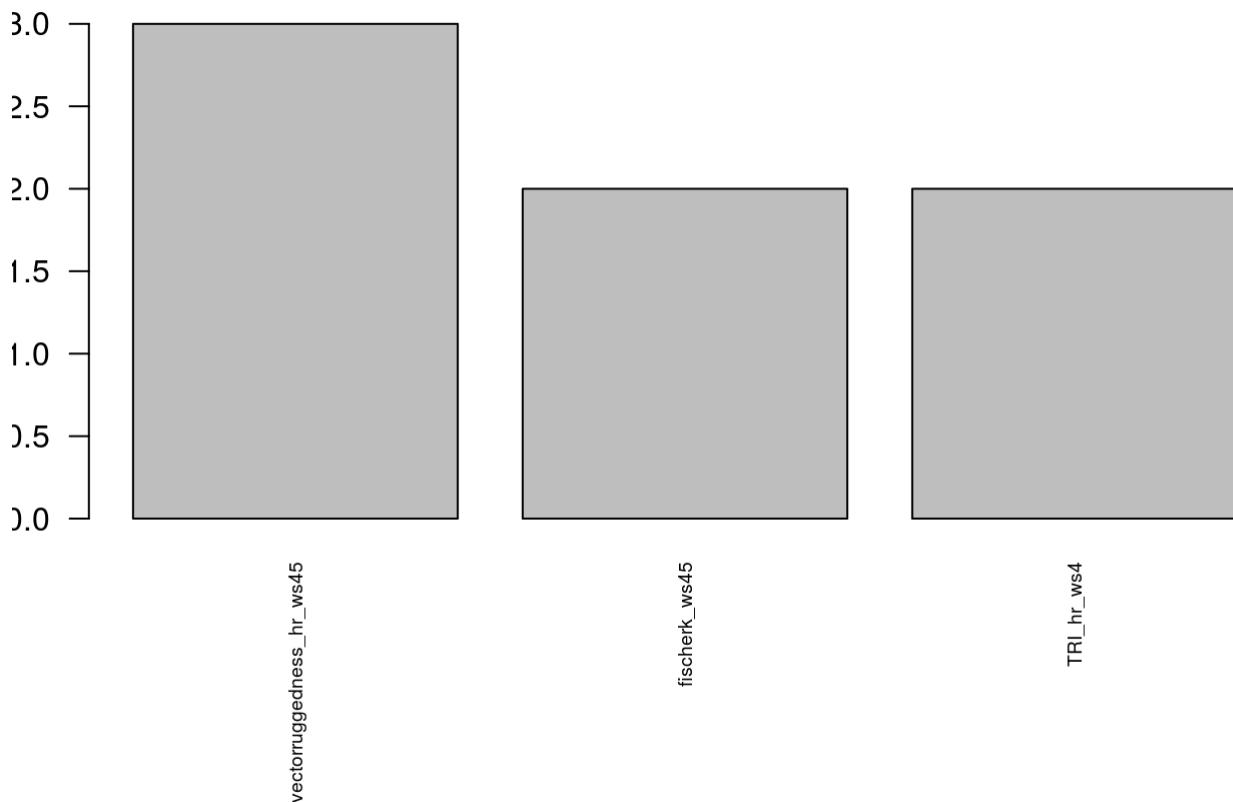
```
## [1] "silikatisches Festgestein_vs_gemischte Kegel"
```



```

## [1] "Prediction error at end is: 0.175"
## [2] "Prediction error at end is: 0.11"
## [3] "Prediction error at end is: 0.1"
## [4] "Prediction error at end is: 0.08"
## [5] "Prediction error at end is: 0.08"
##           k 1           k 2
## 1 vectorruggedness_hr_ws45  vectorruggedness_hr_ws55
## 2             TRI_hr_ws4   vectorruggedness_hr_ws15
## 3  vectorstrength_hr_ws23 terraintecture_hr_ws53_tp5
## 4             TRI_hr_ws23 terraintecture_hr_ws17_tp25
## 5       fischerk_ws17  terraintecture_hr_ws37_tp5
##           k 3           k 4
## 1 vectorruggedness_hr_ws45  vectorruggedness_hr_ws45
## 2             TRI_hr_ws6 Melton_Ruggedness_Number_hr
## 3             Texture          TRI_hr_ws7
## 4       fischerk_ws55        fischerk_ws49
## 5  vectorstrength_hr_ws13        fischerk_ws45
##           k 5
## 1             TRI_hr_ws19
## 2 vectorstrength_hr_ws45
## 3             TRI_hr_ws4
## 4       fischerk_ws29
## 5       fischerk_ws45

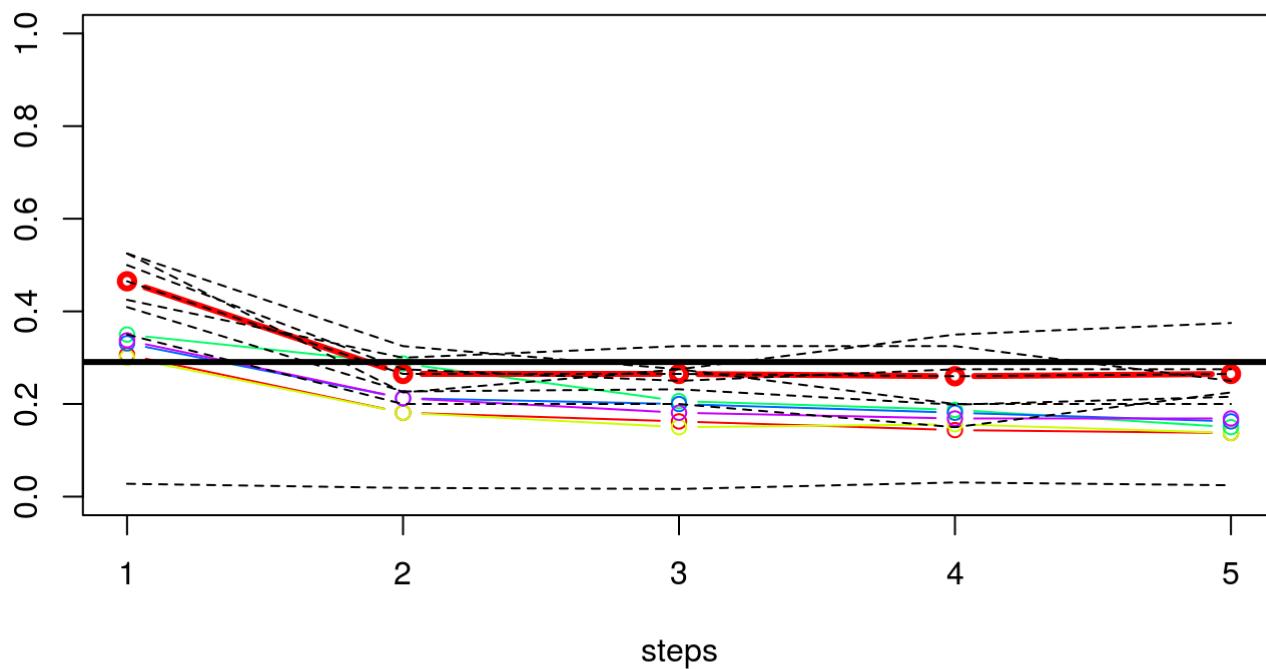
```



```

## [1] "silikatisches Festgestein_vs_gemischte Ablagerung"

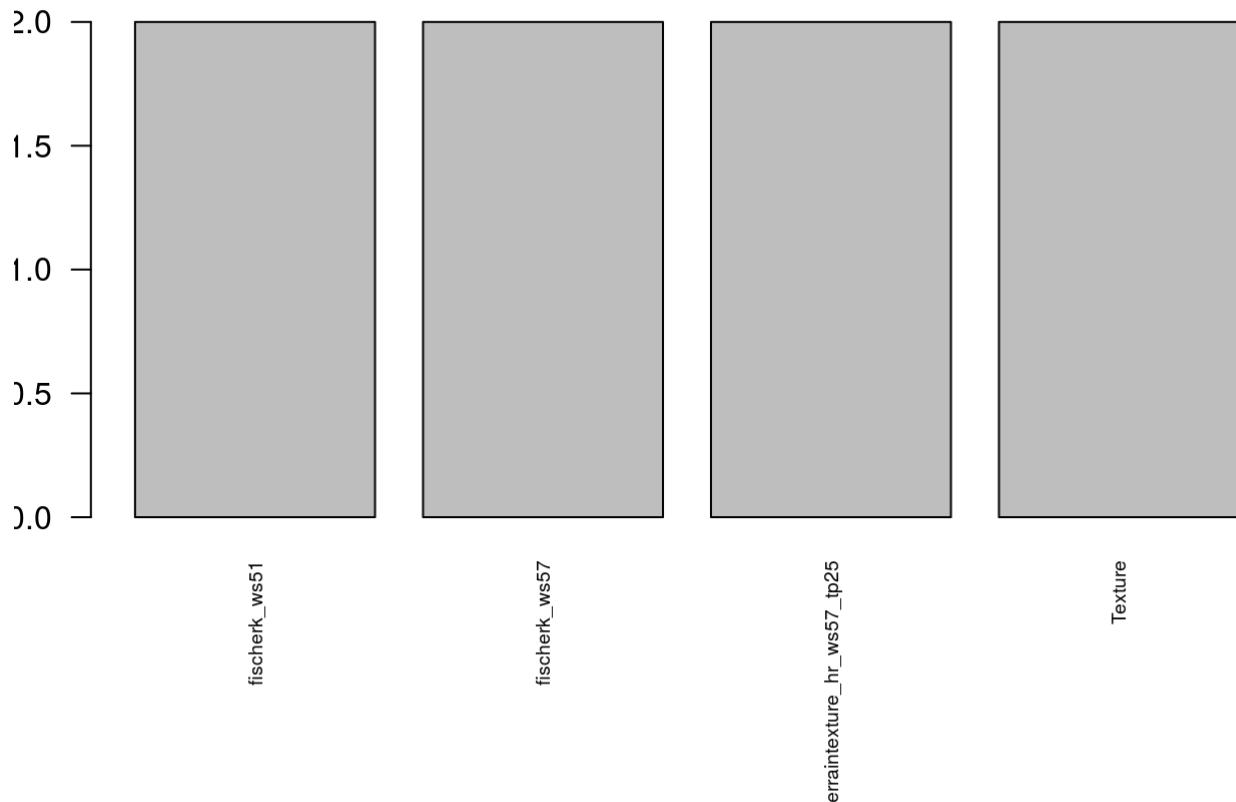
```



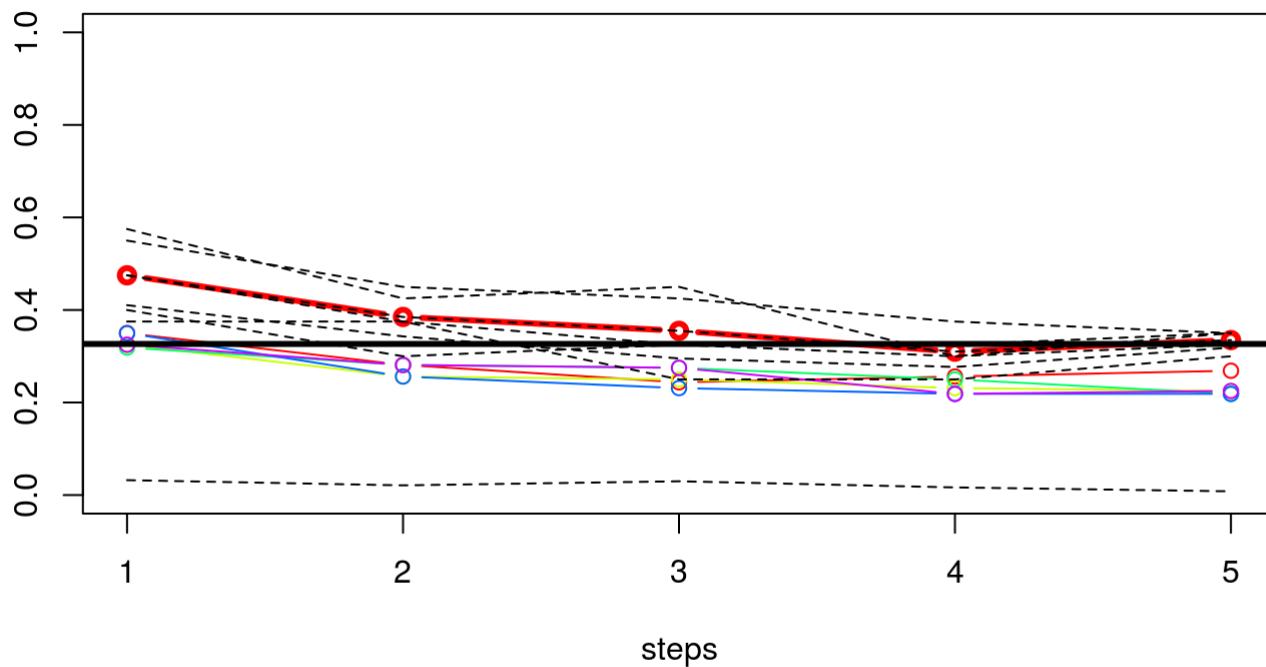
```

## [1] "Prediction error at end is: 0.465"
## [2] "Prediction error at end is: 0.265"
## [3] "Prediction error at end is: 0.265"
## [4] "Prediction error at end is: 0.26"
## [5] "Prediction error at end is: 0.265"
##          k 1           k 2           k 3
## 1      TRI_hr_ws20 fischerk_ws57 terraintecture_hr_ws57_tp25
## 2      fischerk_ws51   TRI_hr_ws16          TRI_hr_ws5
## 3 terraintecture_hr_ws37_tp25 fischerk_ws19          fischerk_ws59
## 4    vectorruggedness_hr_ws39       Texture          Texture
## 5 terraintecture_hr_ws21_tp25   TRI_hr_ws13    vectorruggedness_hr_ws51
##          k 4           k 5
## 1      TRI_hr_ws10      fischerk_ws57
## 2      fischerk_ws23      TRI_hr_ws21
## 3 terraintecture_hr_ws53_tp5 terraintecture_hr_ws57_tp25
## 4 terraintecture_hr_ws45_tp5 terraintecture_hr_ws41_tp5
## 5      fischerk_ws51    vectorruggedness_hr_ws59

```



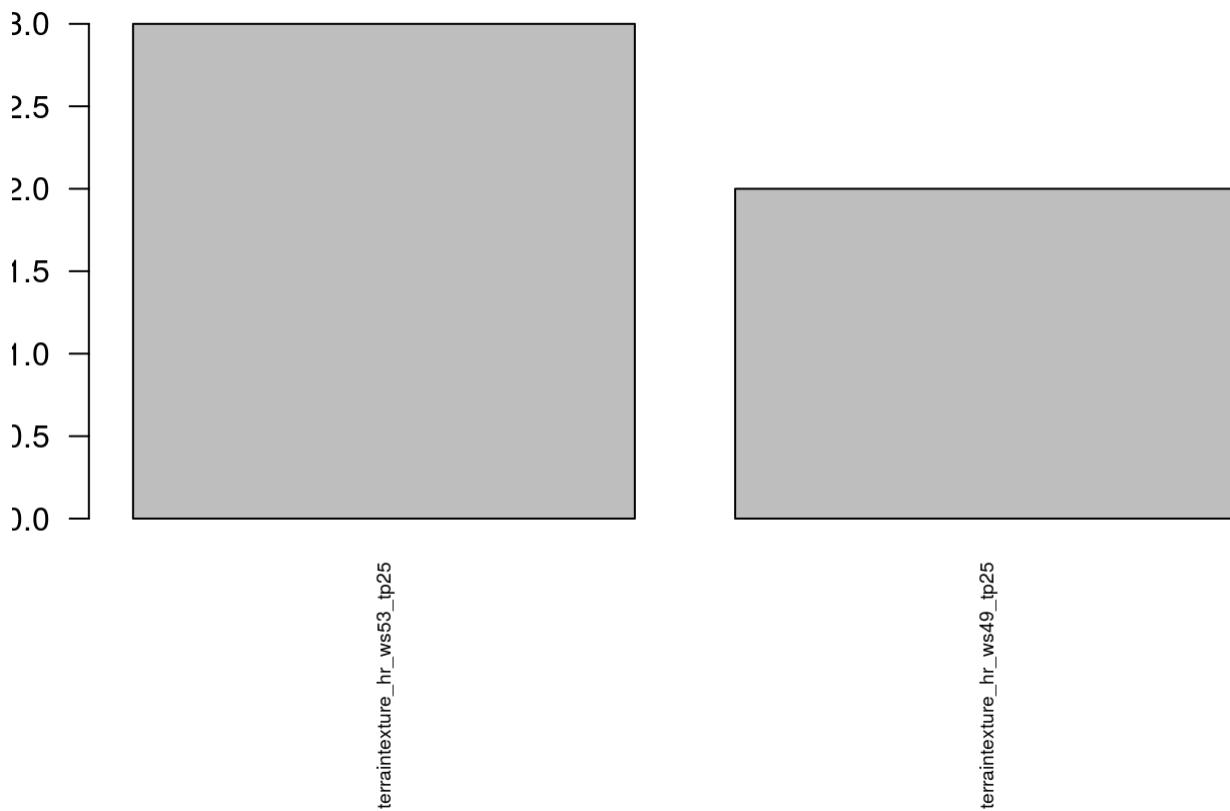
```
## [1] "silikatisches Festgestein_vs_Hangschutt"
```



```

## [1] "Prediction error at end is: 0.475"
## [2] "Prediction error at end is: 0.385"
## [3] "Prediction error at end is: 0.355"
## [4] "Prediction error at end is: 0.31"
## [5] "Prediction error at end is: 0.335"
##          k 1           k 2
## 1      TRI_hr_ws21      TRI_hr_ws23
## 2 vectorruggedness_hr_ws21      fischerk_ws45
## 3 vectorruggedness_hr_ws17  vectorruggedness_hr_ws53
## 4 vectorruggedness_hr_ws33 terraintecture_hr_ws53_tp25
## 5      TRI_hr_ws1 terraintecture_hr_ws33_tp25
##          k 3           k 4
## 1      TRI_hr_ws18      TRI_hr_ws16
## 2 terraintecture_hr_ws29_tp25 terraintecture_hr_ws57_tp25
## 3      vectorstrength_hr_ws57  vectorruggedness_hr_ws51
## 4 terraintecture_hr_ws49_tp25 terraintecture_hr_ws41_tp25
## 5 terraintecture_hr_ws53_tp25      vectorstrength_hr_ws13
##          k 5
## 1      fischerk_ws51
## 2      fischerk_ws59
## 3      TRI_hr_ws22
## 4 terraintecture_hr_ws49_tp25
## 5 terraintecture_hr_ws53_tp25

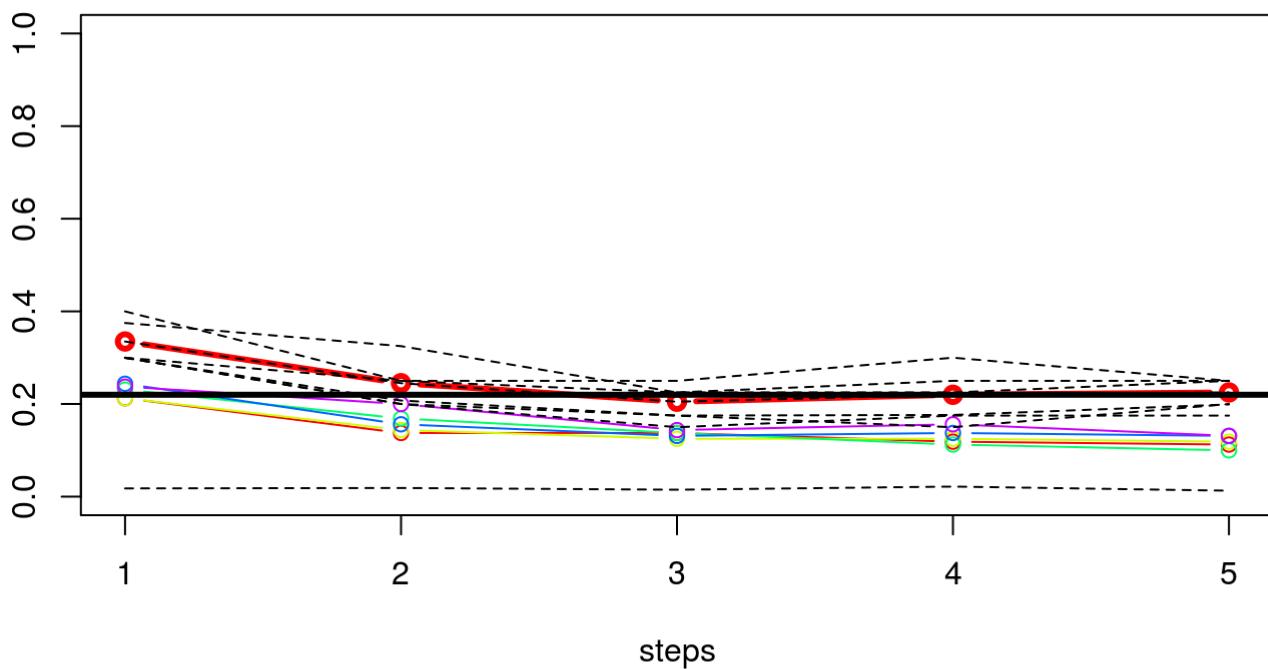
```



```

## [1] "silikatisches Festgestein_vs_Grundmoraene"

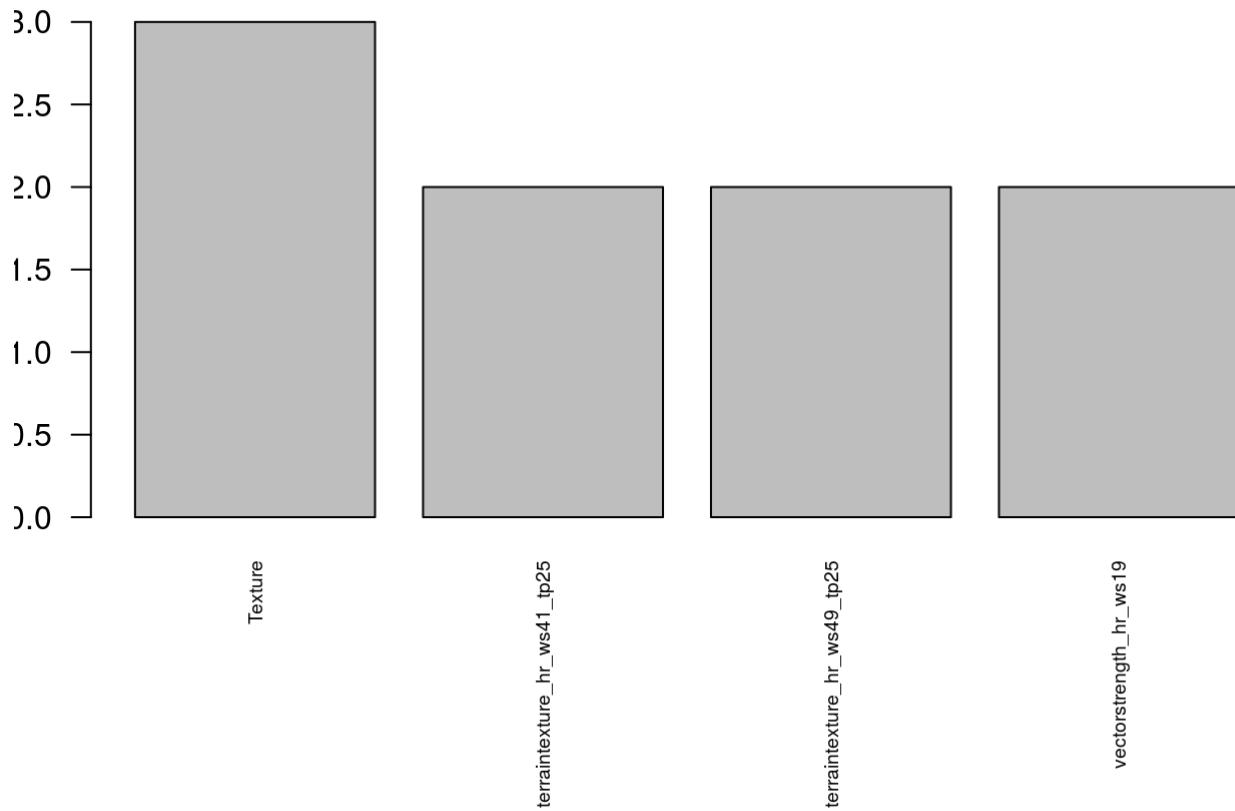
```



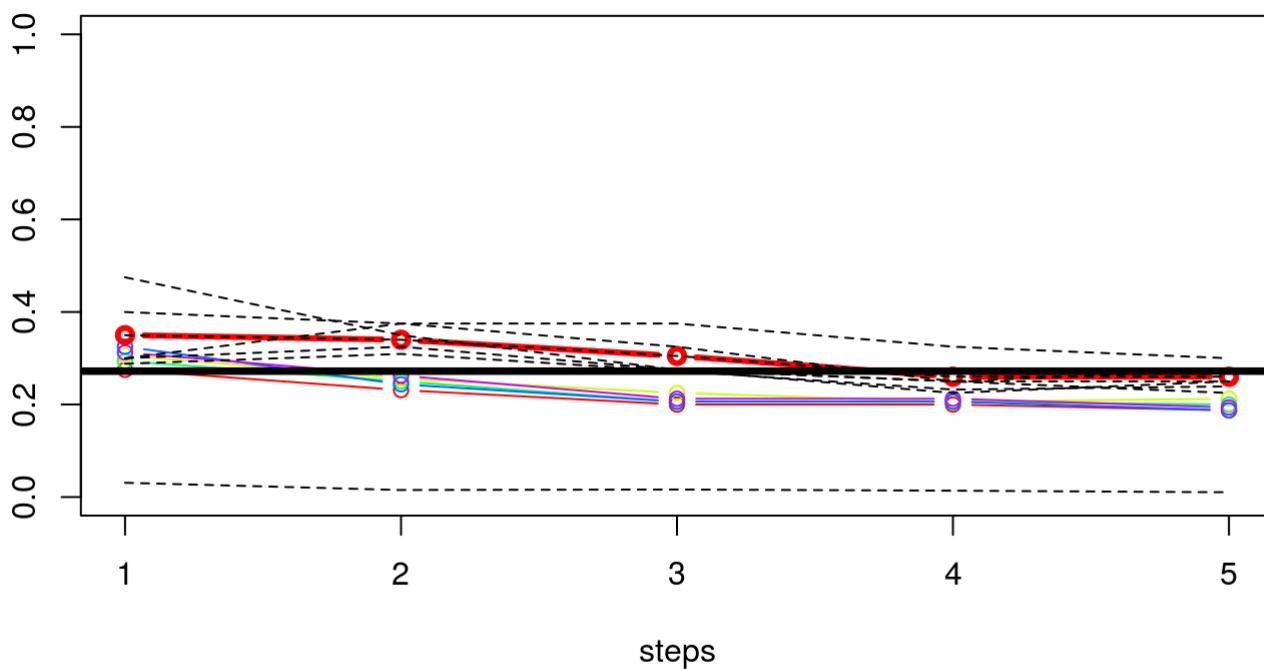
```

## [1] "Prediction error at end is: 0.335"
## [2] "Prediction error at end is: 0.245"
## [3] "Prediction error at end is: 0.205"
## [4] "Prediction error at end is: 0.22"
## [5] "Prediction error at end is: 0.225"
##          k 1           k 2
## 1      TRI_hr_ws21      TRI_hr_ws13
## 2 terraintexture_hr_ws29_tp25 terraintexture_hr_ws49_tp25
## 3          Texture      vectorstrength_hr_ws33
## 4      fischerk_ws51      TRI_hr_ws2
## 5 vectorruggedness_hr_ws39      vectorstrength_hr_ws19
##          k 3           k 4
## 1      TRI_hr_ws24 vectorruggedness_hr_ws57
## 2 terraintexture_hr_ws25_tp25 vectorruggedness_hr_ws3
## 3          Texture      vectorstrength_hr_ws17
## 4 terraintexture_hr_ws41_tp25      TRI_hr_ws7
## 5      vectorstrength_hr_ws11      vectorstrength_hr_ws19
##          k 5
## 1 terraintexture_hr_ws41_tp25
## 2          Texture
## 3 vectorruggedness_hr_ws49
## 4 terraintexture_hr_ws49_tp25
## 5      vectorstrength_hr_ws3

```



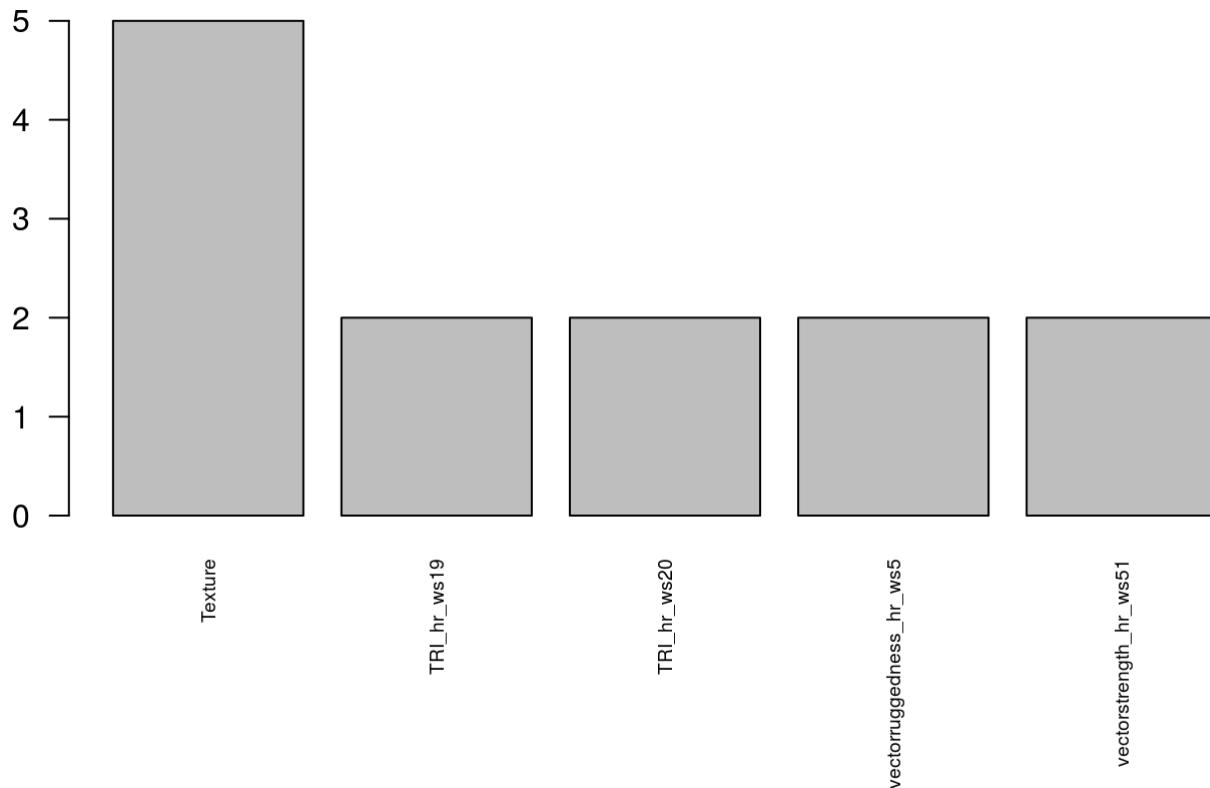
```
## [1] "silikatisches Festgestein_vs_Moraene undifferenziert"
```



```

## [1] "Prediction error at end is: 0.35"
## [2] "Prediction error at end is: 0.34"
## [3] "Prediction error at end is: 0.305"
## [4] "Prediction error at end is: 0.26"
## [5] "Prediction error at end is: 0.26"
##           k 1           k 2
## 1      TRI_hr_ws19      TRI_hr_ws23
## 2      Texture vectorruggedness_hr_ws49
## 3 vectorruggedness_hr_ws37  vectorstrength_hr_ws55
## 4      TRI_hr_ws20  vectorstrength_hr_ws51
## 5  vectorstrength_hr_ws61          Texture
##           k 3           k 4
## 1      TRI_hr_ws20      TRI_hr_ws18
## 2      Texture  fischerk_ws53
## 3  vectorstrength_hr_ws51      TRI_hr_ws13
## 4  vectorstrength_hr_ws57          Texture
## 5 vectorruggedness_hr_ws13 vectorruggedness_hr_ws5
##           k 5
## 1      TRI_hr_ws19
## 2  fischerk_ws51
## 3  vectorruggedness_hr_ws5
## 4 terraintexture_hr_ws37_tp5
## 5          Texture

```

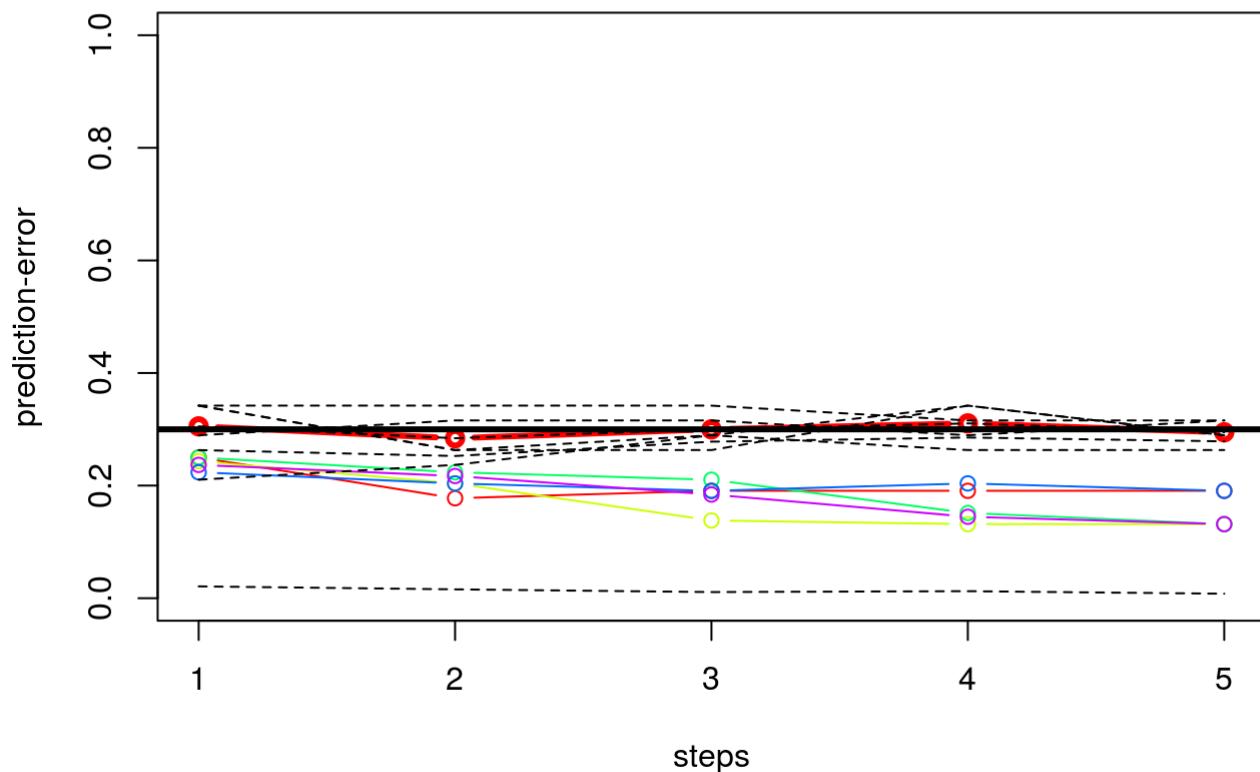


RLcols

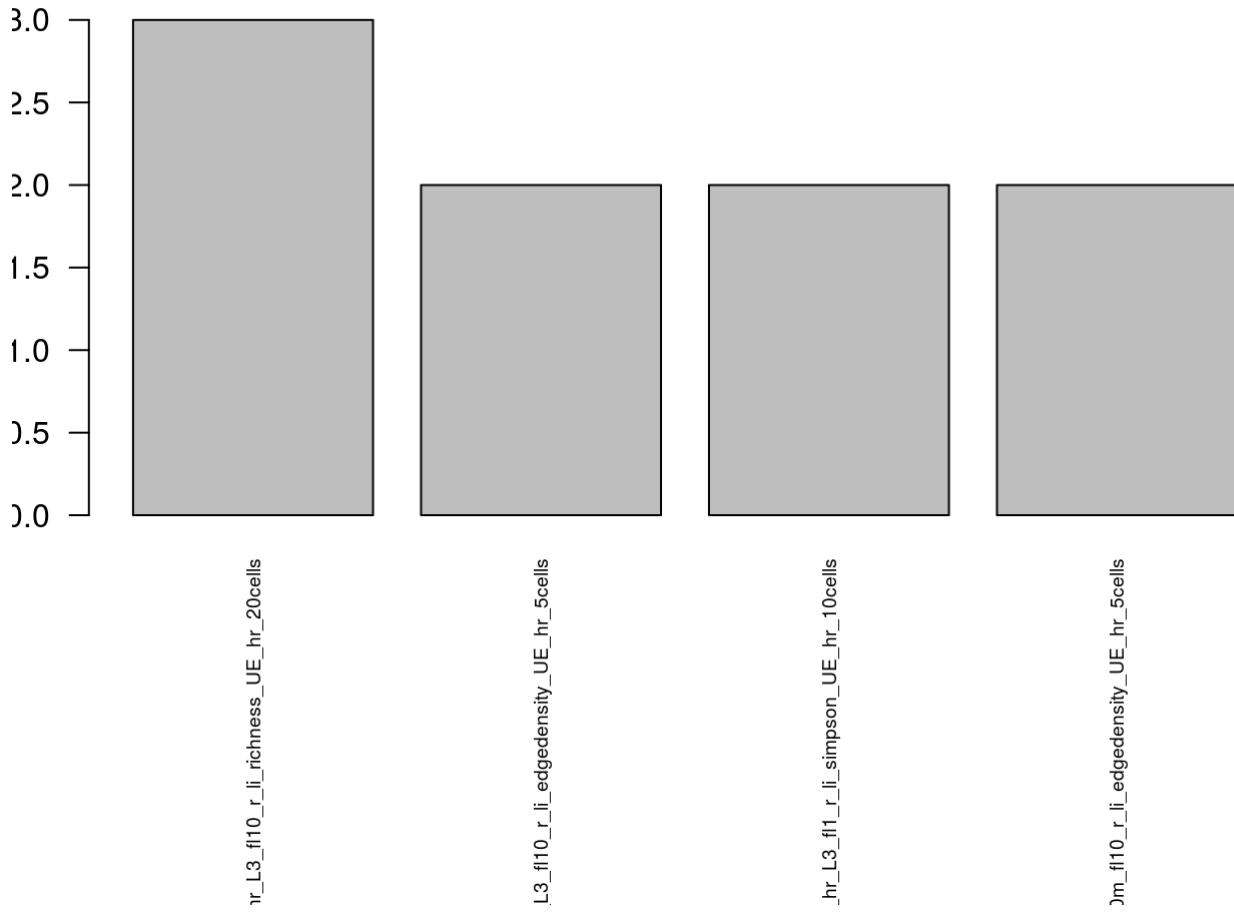
```

## [1] "silikatisches Festgestein_vs_Alluviale Ablagerung"

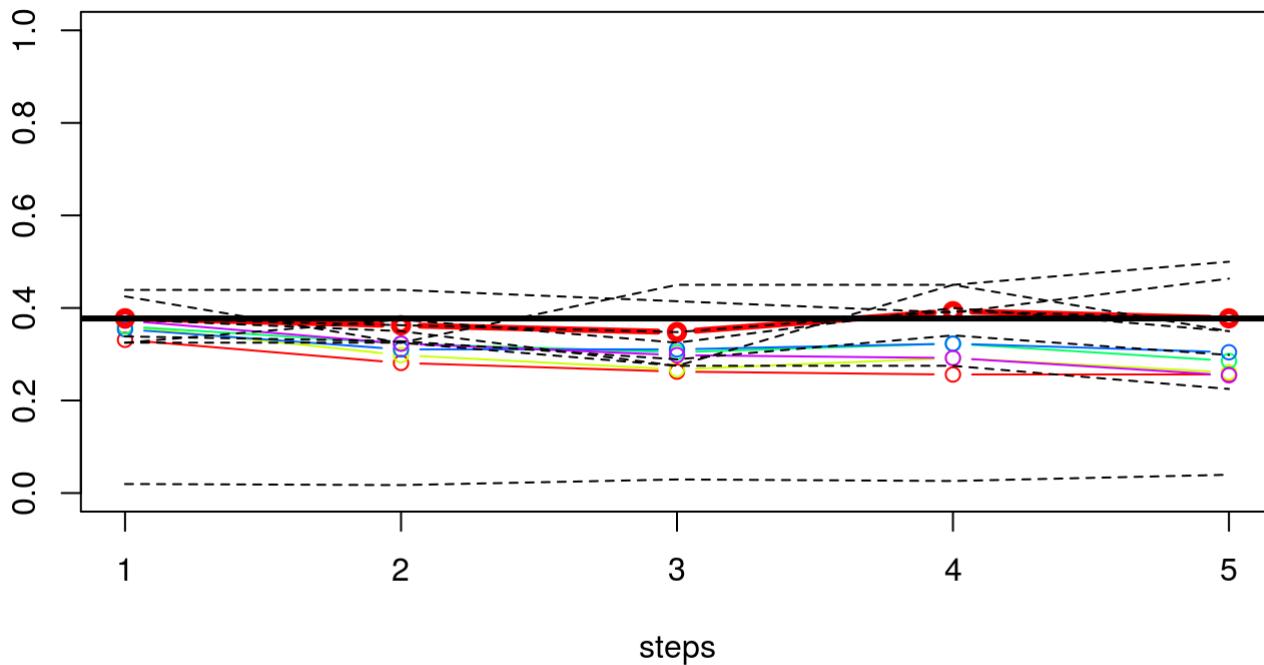
```



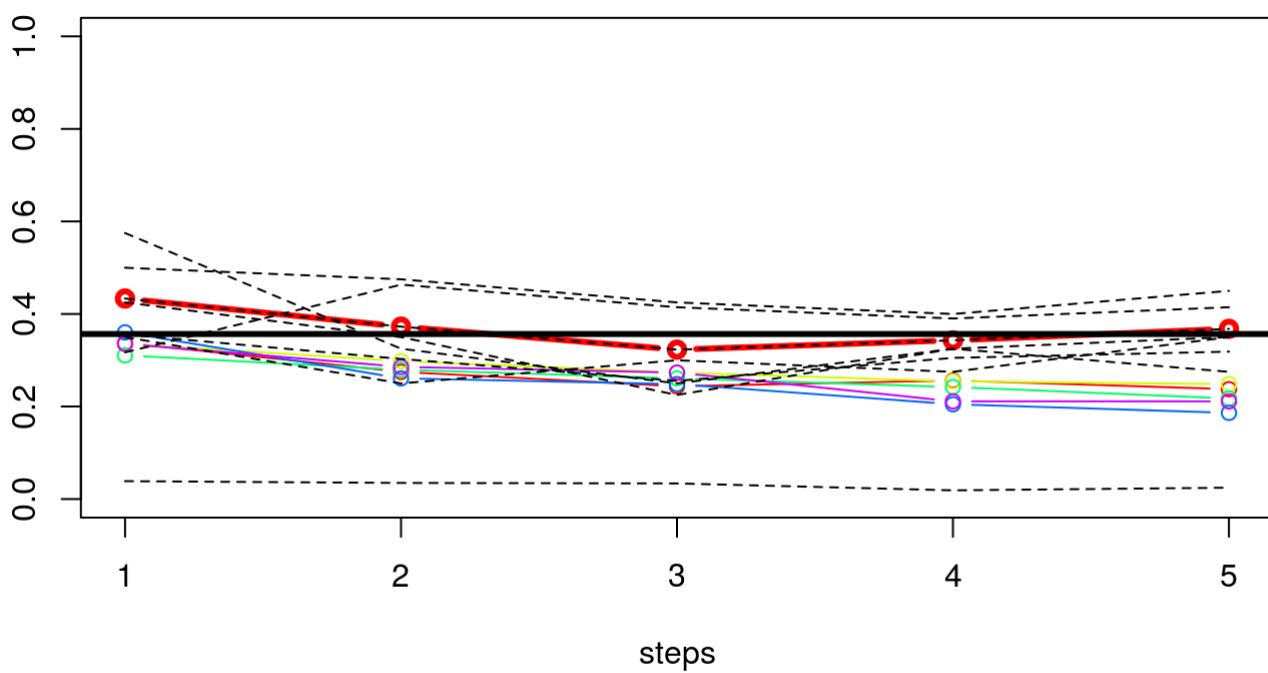
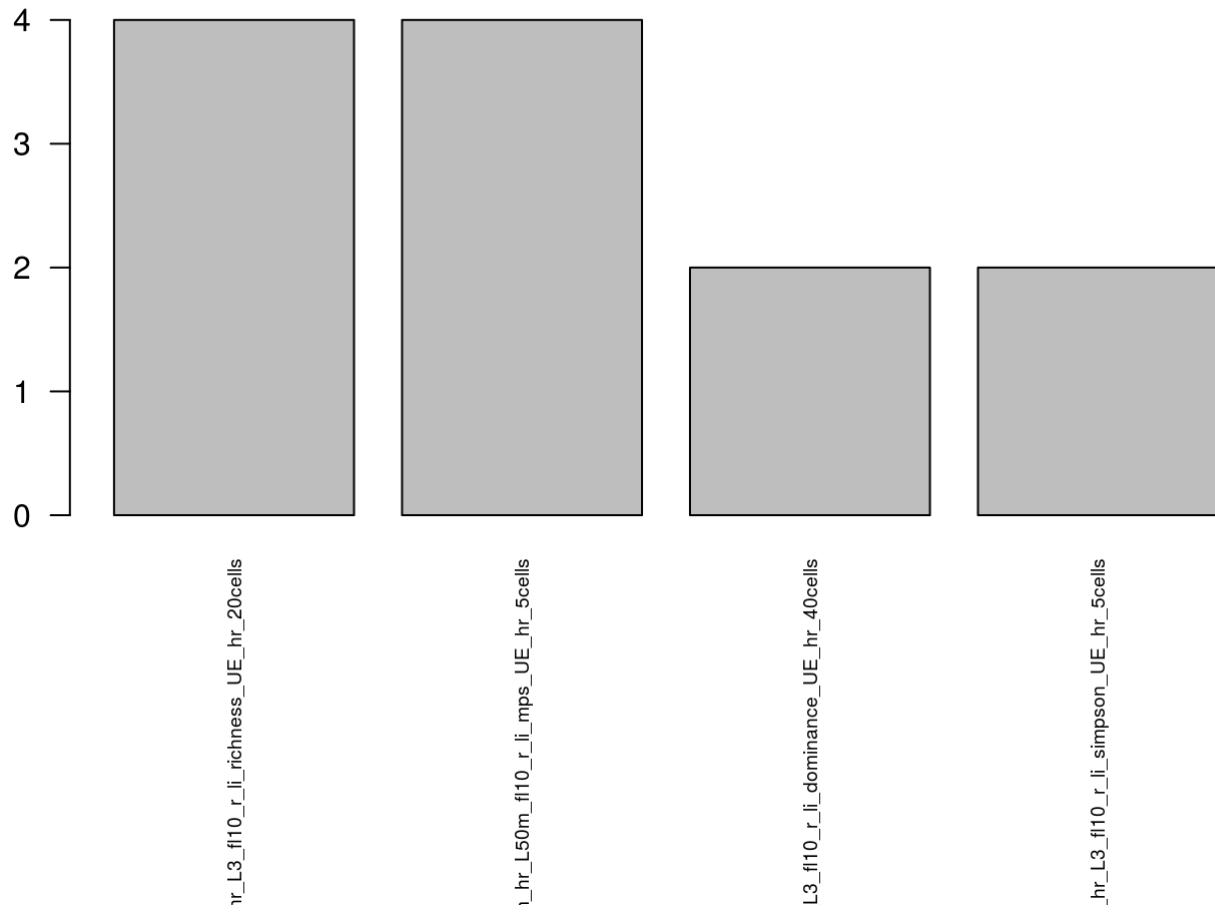
```
## [1] "Prediction error at end is: 0.305263157894737"
## [2] "Prediction error at end is: 0.284210526315789"
## [3] "Prediction error at end is: 0.3"
## [4] "Prediction error at end is: 0.310526315789474"
## [5] "Prediction error at end is: 0.294736842105263"
##                                     k 1
## 1      geom_hr_L3_f10_r_li_richness_UE_hr_20cells
## 2      geom_hr_L50m_f11_r_li_mps_UE_hr_20cells
## 3 geom_hr_L50m_f110_r_li_edgedensity_UE_hr_10cells
## 4      geom_hr_L50m_f110_r_li_mps_UE_hr_5cells
## 5      geom_hr_L3_f110_r_li_dominance_UE_hr_20cells
##                                     k 2
## 1      geom_hr_L50m_f110_r_li_mps_UE_hr_10cells
## 2      geom_hr_L3_f110_r_li_mps_UE_hr_5cells
## 3      geom_hr_L3_f11_r_li_shannon_UE_hr_10cells
## 4      geom_hr_L50m_f11_r_li_simpson_UE_hr_10cells
## 5 geom_hr_L50m_f110_r_li_edgedensity_UE_hr_5cells
##                                     k 3
## 1      geom_hr_L3_f110_r_li_richness_UE_hr_20cells
## 2 geom_hr_L3_f110_r_li_edgedensity_UE_hr_5cells
## 3      geom_hr_L3_f11_r_li_simpson_UE_hr_10cells
## 4 geom_hr_L50m_f110_r_li_edgedensity_UE_hr_5cells
## 5      geom_hr_L3_f110_r_li_dominance_UE_hr_5cells
##                                     k 4
## 1      geom_hr_L50m_f110_r_li_richness_UE_hr_20cells
## 2 geom_hr_L50m_f11_r_li_patchdensity_UE_hr_5cells
## 3      geom_hr_L50m_f11_r_li_richness_UE_hr_5cells
## 4      geom_hr_L50m_f11_r_li_simpson_UE_hr_5cells
## 5      geom_hr_L3_f110_r_li_richness_UE_hr_20cells
##                                     k 5
## 1      geom_hr_L3_f110_r_li_simpson_UE_hr_20cells
## 2      geom_hr_L3_f11_r_li_simpson_UE_hr_10cells
## 3 geom_hr_L3_f110_r_li_edgedensity_UE_hr_5cells
## 4      geom_hr_L50m_f110_r_li_simpson_UE_hr_5cells
## 5      geom_hr_L3_f11_r_li_simpson_UE_hr_5cells
```



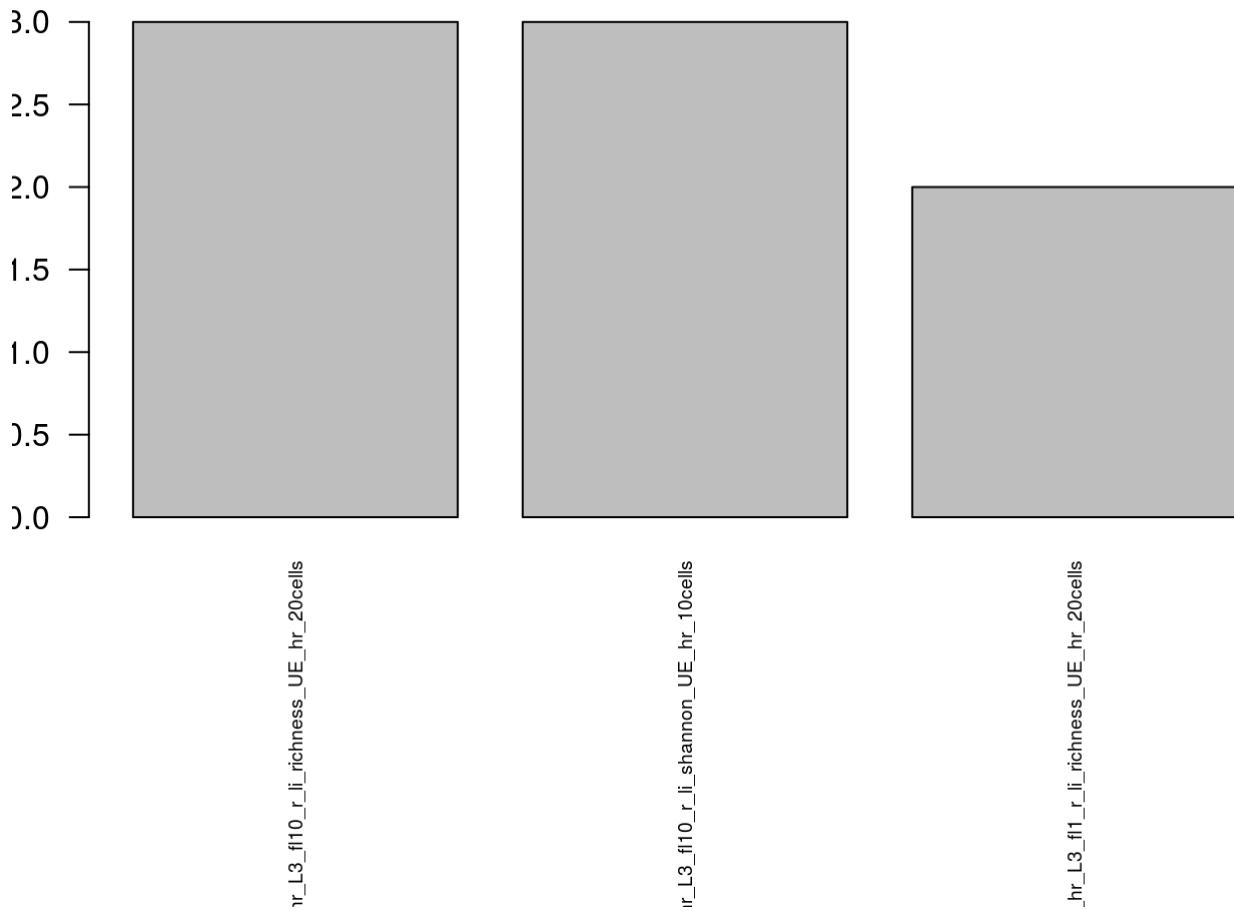
```
## [1] "silikatisches Festgestein_vs_Blockschutt"
```



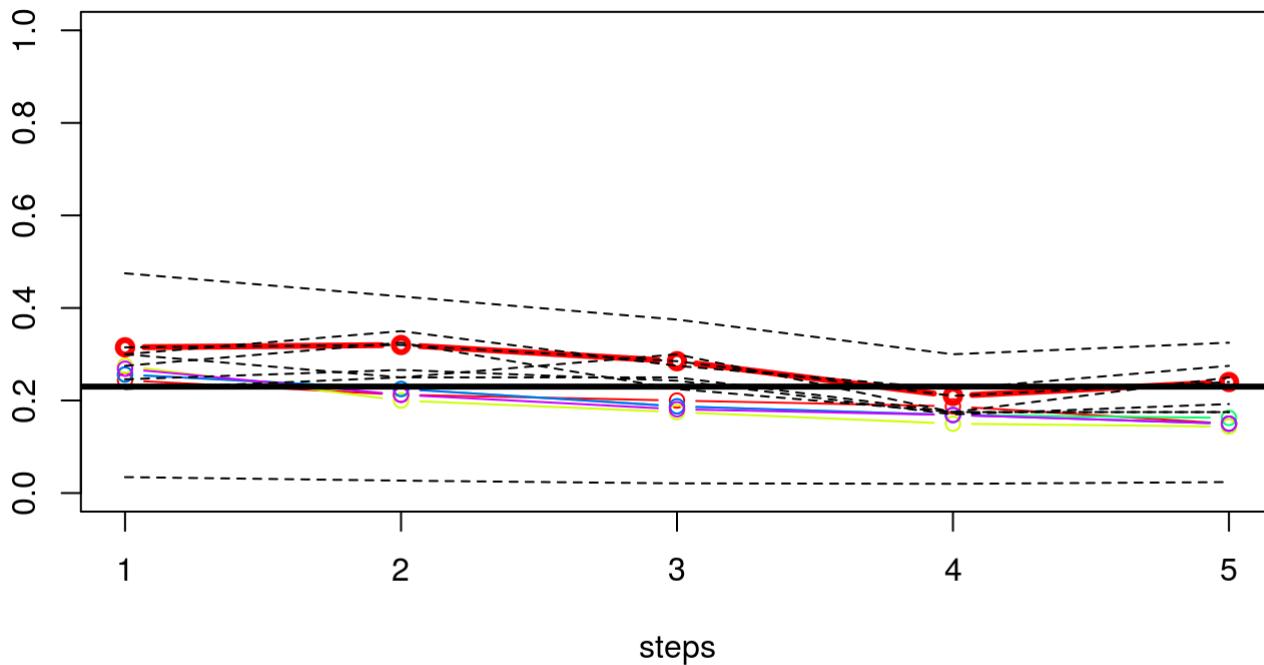
```
## [1] "Prediction error at end is: 0.37780487804878"  
## [2] "Prediction error at end is: 0.36280487804878"  
## [3] "Prediction error at end is: 0.347926829268293"  
## [4] "Prediction error at end is: 0.393048780487805"  
## [5] "Prediction error at end is: 0.377682926829268"  
## k 1  
## 1 geom_hr_L50m_f10_r_li_mps_UE_hr_5cells  
## 2 geom_hr_L50m_f11_r_li_edgedensity_UE_hr_20cells  
## 3 geom_hr_L3_f10_r_li_richness_UE_hr_20cells  
## 4 geom_hr_L50m_f110_r_li_patchdensity_UE_hr_5cells  
## 5 geom_hr_L3_f110_r_li_dominance_UE_hr_40cells  
## k 2  
## 1 geom_hr_L3_f11_r_li_mps_UE_hr_20cells  
## 2 geom_hr_L3_f11_r_li_edgedensity_UE_hr_20cells  
## 3 geom_hr_L50m_f110_r_li_simpson_UE_hr_10cells  
## 4 geom_hr_L50m_f110_r_li_shannon_UE_hr_10cells  
## 5 geom_hr_L3_f11_r_li_shape_UE_hr_20cells  
## k 3  
## 1 geom_hr_L50m_f110_r_li_mps_UE_hr_5cells  
## 2 geom_hr_L3_f110_r_li_richness_UE_hr_20cells  
## 3 geom_hr_L50m_f110_r_li_mps_UE_hr_20cells  
## 4 geom_hr_L3_f110_r_li_simpson_UE_hr_5cells  
## 5 geom_hr_L50m_f11_r_li_dominance_UE_hr_10cells  
## k 4  
## 1 geom_hr_L50m_f110_r_li_mps_UE_hr_5cells  
## 2 geom_hr_L3_f110_r_li_shape_UE_hr_20cells  
## 3 geom_hr_L3_f110_r_li_simpson_UE_hr_5cells  
## 4 geom_hr_L3_f110_r_li_mps_UE_hr_10cells  
## 5 geom_hr_L3_f110_r_li_richness_UE_hr_20cells  
## k 5  
## 1 geom_hr_L50m_f110_r_li_mps_UE_hr_5cells  
## 2 geom_hr_L3_f110_r_li_richness_UE_hr_20cells  
## 3 geom_hr_L3_f110_r_li_dominance_UE_hr_40cells  
## 4 geom_hr_L3_f110_r_li_patchdensity_UE_hr_10cells  
## 5 geom_hr_L3_f11_r_li_richness_UE_hr_20cells
```



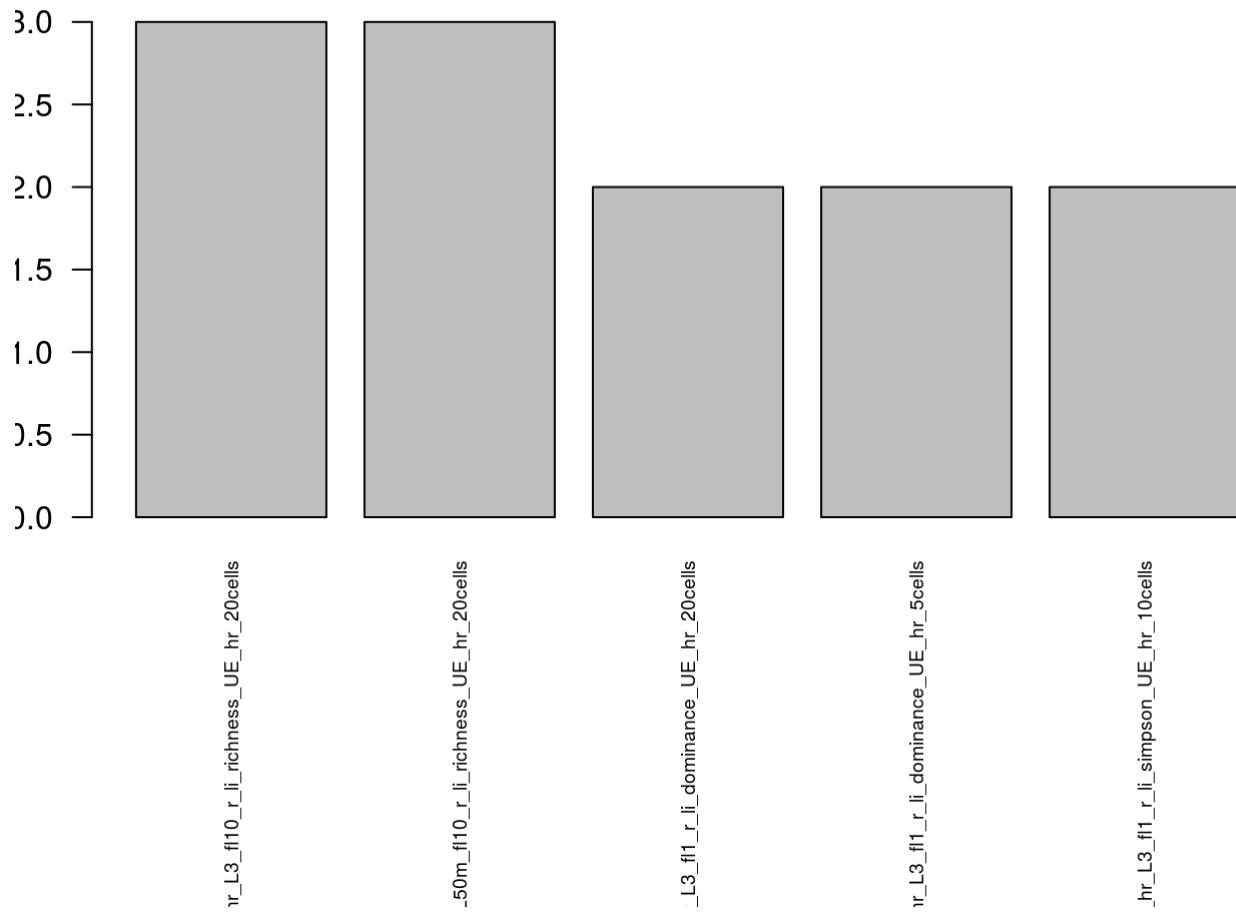
```
## [1] "Prediction error at end is: 0.433414634146341"
## [2] "Prediction error at end is: 0.372682926829268"
## [3] "Prediction error at end is: 0.322926829268293"
## [4] "Prediction error at end is: 0.343048780487805"
## [5] "Prediction error at end is: 0.367926829268293"
##
## 1 geom_hr_L3_f10_r_li_richness_UE_hr_20cells
## 2 geom_hr_L3_f11_r_li_richness_UE_hr_20cells
## 3 geom_hr_L3_f10_r_li_shape_UE_hr_10cells
## 4 geom_hr_L3_f10_r_li_simpson_UE_hr_5cells
## 5 geom_hr_L3_f11_r_li_dominance_UE_hr_5cells
##
## 1 geom_hr_L3_f10_r_li_shannon_UE_hr_10cells
## 2 geom_hr_L3_f11_r_li_richness_UE_hr_10cells
## 3 geom_hr_L3_f10_r_li_richness_UE_hr_20cells
## 4 geom_hr_L50m_f11_r_li_simpson_UE_hr_20cells
## 5 geom_hr_L3_f11_r_li_dominance_UE_hr_20cells
##
## 1 geom_hr_L50m_f10_r_li_richness_UE_hr_20cells
## 2 geom_hr_L3_f11_r_li_richness_UE_hr_20cells
## 3 geom_hr_L50m_f11_r_li_dominance_UE_hr_20cells
## 4 geom_hr_L50m_f10_r_li_patchdensity_UE_hr_5cells
## 5 geom_hr_L50m_f10_r_li_simpson_UE_hr_5cells
##
## 1 geom_hr_L3_f11_r_li_mps_UE_hr_5cells
## 2 geom_hr_L3_f10_r_li_shannon_UE_hr_10cells
## 3 geom_hr_L3_f11_r_li_simpson_UE_hr_10cells
## 4 geom_hr_L50m_f11_r_li_mps_UE_hr_5cells
## 5 geom_hr_L3_f11_r_li_richness_UE_hr_5cells
##
## 1 geom_hr_L50m_f10_r_li_patchdensity_UE_hr_20cells
## 2 geom_hr_L3_f10_r_li_shannon_UE_hr_10cells
## 3 geom_hr_L3_f11_r_li_shannon_UE_hr_20cells
## 4 geom_hr_L3_f10_r_li_richness_UE_hr_20cells
## 5 geom_hr_L3_f10_r_li_patchdensity_UE_hr_5cells
```



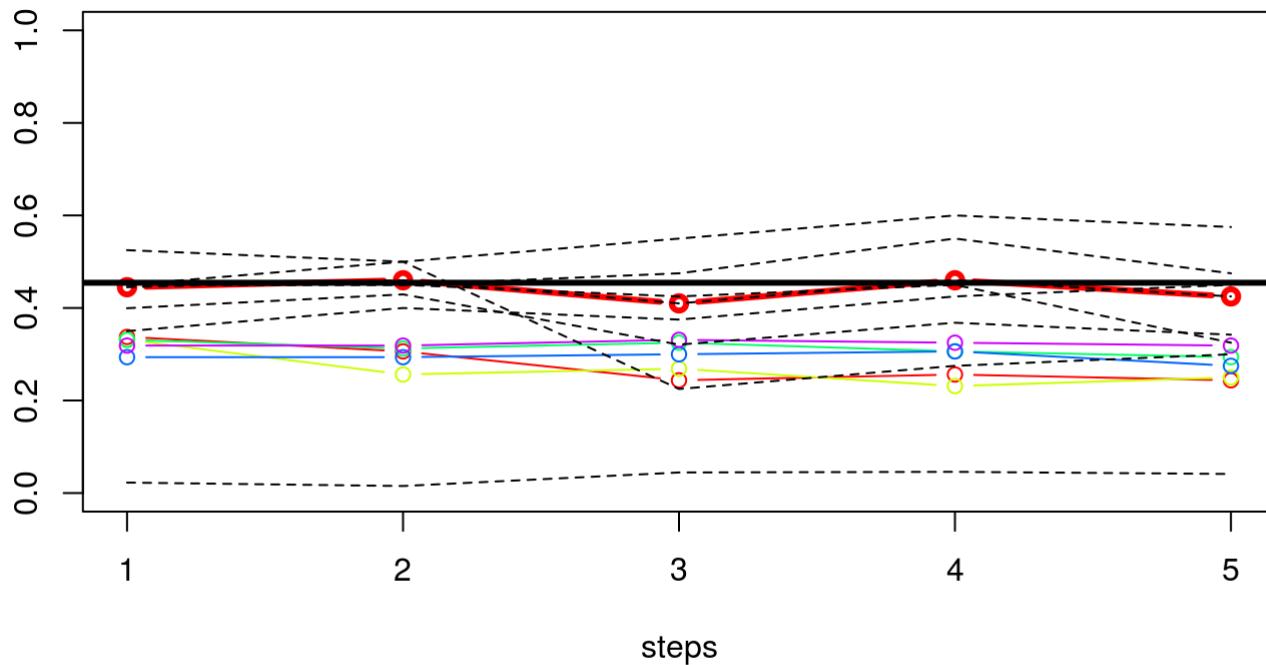
```
## [1] "silikatisches Festgestein_vs_gemischte Kegel"
```



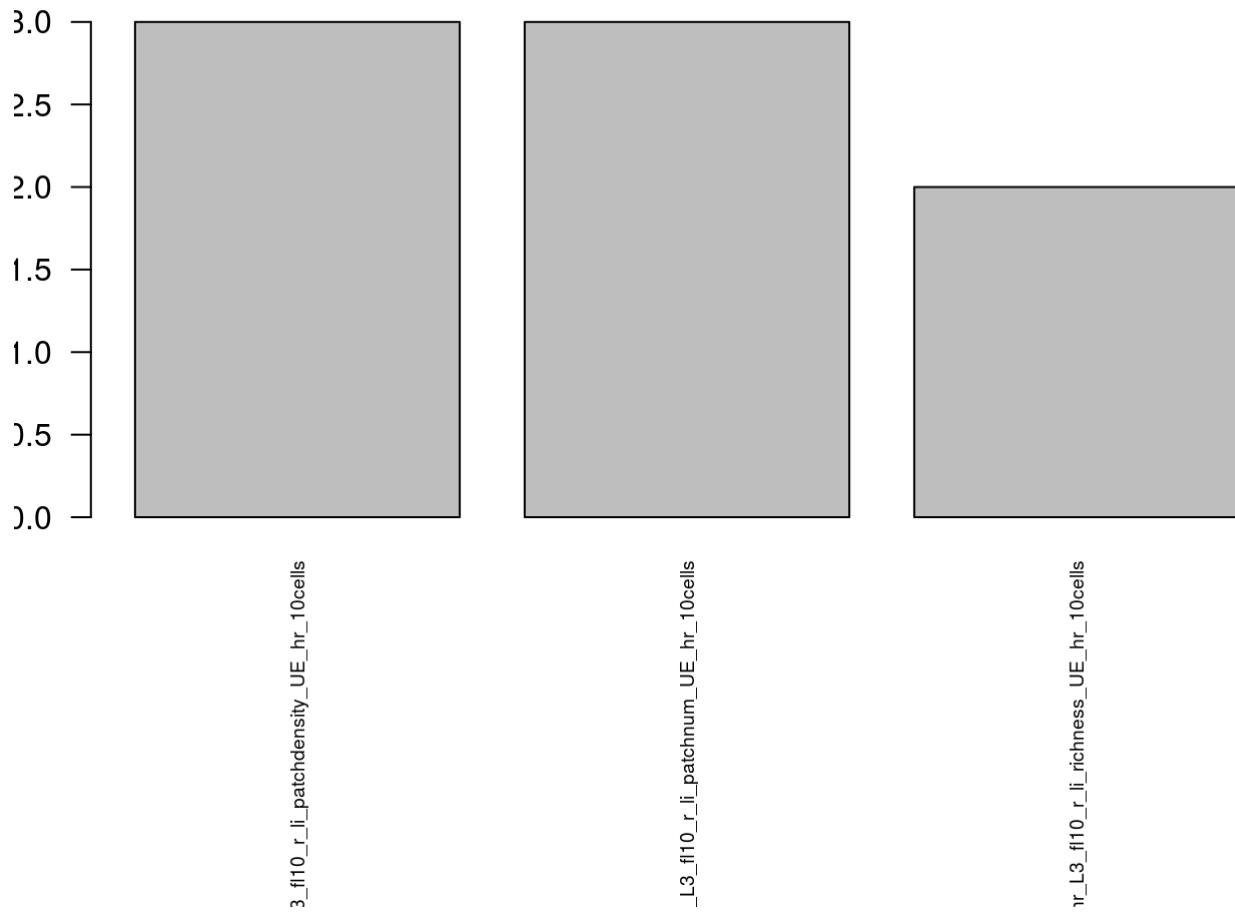
```
## [1] "Prediction error at end is: 0.315"
## [2] "Prediction error at end is: 0.32"
## [3] "Prediction error at end is: 0.285"
## [4] "Prediction error at end is: 0.21"
## [5] "Prediction error at end is: 0.24"
##                                     k 1
## 1      geom_hr_L3_f10_r_li_mps_UE_hr_5cells
## 2 geom_hr_L50m_f10_r_li_patchdensity_UE_hr_5cells
## 3      geom_hr_L3_f11_r_li_dominance_UE_hr_20cells
## 4      geom_hr_L3_f11_r_li_richness_UE_hr_10cells
## 5  geom_hr_L3_f10_r_li_patchdensity_UE_hr_10cells
##                                     k 2
## 1 geom_hr_L50m_f10_r_li_richness_UE_hr_20cells
## 2  geom_hr_L3_f10_r_li_richness_UE_hr_20cells
## 3      geom_hr_L50m_f10_r_li_mps_UE_hr_5cells
## 4      geom_hr_L3_f11_r_li_dominance_UE_hr_5cells
## 5  geom_hr_L50m_f10_r_li_shannon_UE_hr_20cells
##                                     k 3
## 1 geom_hr_L50m_f10_r_li_richness_UE_hr_20cells
## 2  geom_hr_L3_f10_r_li_shannon_UE_hr_5cells
## 3      geom_hr_L3_f11_r_li_simpson_UE_hr_5cells
## 4      geom_hr_L3_f11_r_li_dominance_UE_hr_5cells
## 5      geom_hr_L3_f10_r_li_mps_UE_hr_20cells
##                                     k 4
## 1 geom_hr_L50m_f10_r_li_richness_UE_hr_20cells
## 2  geom_hr_L50m_f10_r_li_simpson_UE_hr_10cells
## 3      geom_hr_L3_f10_r_li_richness_UE_hr_20cells
## 4      geom_hr_L3_f11_r_li_simpson_UE_hr_10cells
## 5  geom_hr_L3_f11_r_li_dominance_UE_hr_20cells
##                                     k 5
## 1      geom_hr_L3_f10_r_li_richness_UE_hr_20cells
## 2  geom_hr_L50m_f10_r_li_dominance_UE_hr_20cells
## 3      geom_hr_L50m_f10_r_li_simpson_UE_hr_5cells
## 4      geom_hr_L50m_f10_r_li_shape_UE_hr_20cells
## 5  geom_hr_L3_f11_r_li_simpson_UE_hr_10cells
```



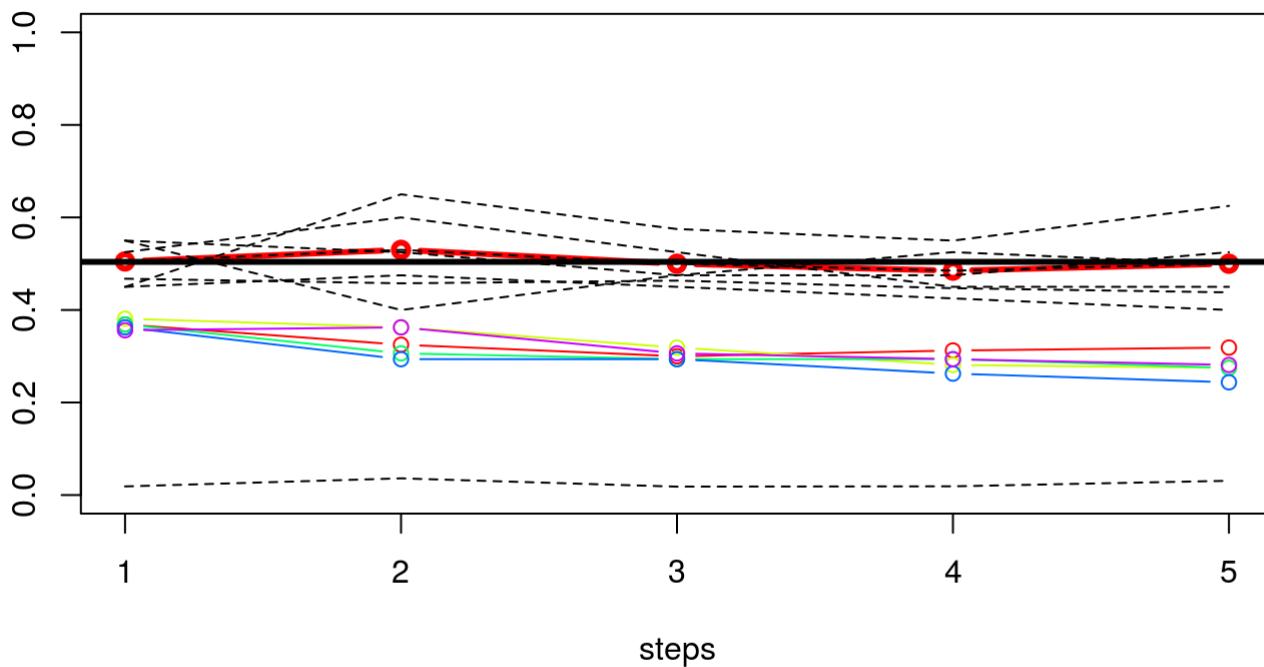
```
## [1] "silikatisches Festgestein_vs_gemischte Ablagerung"
```



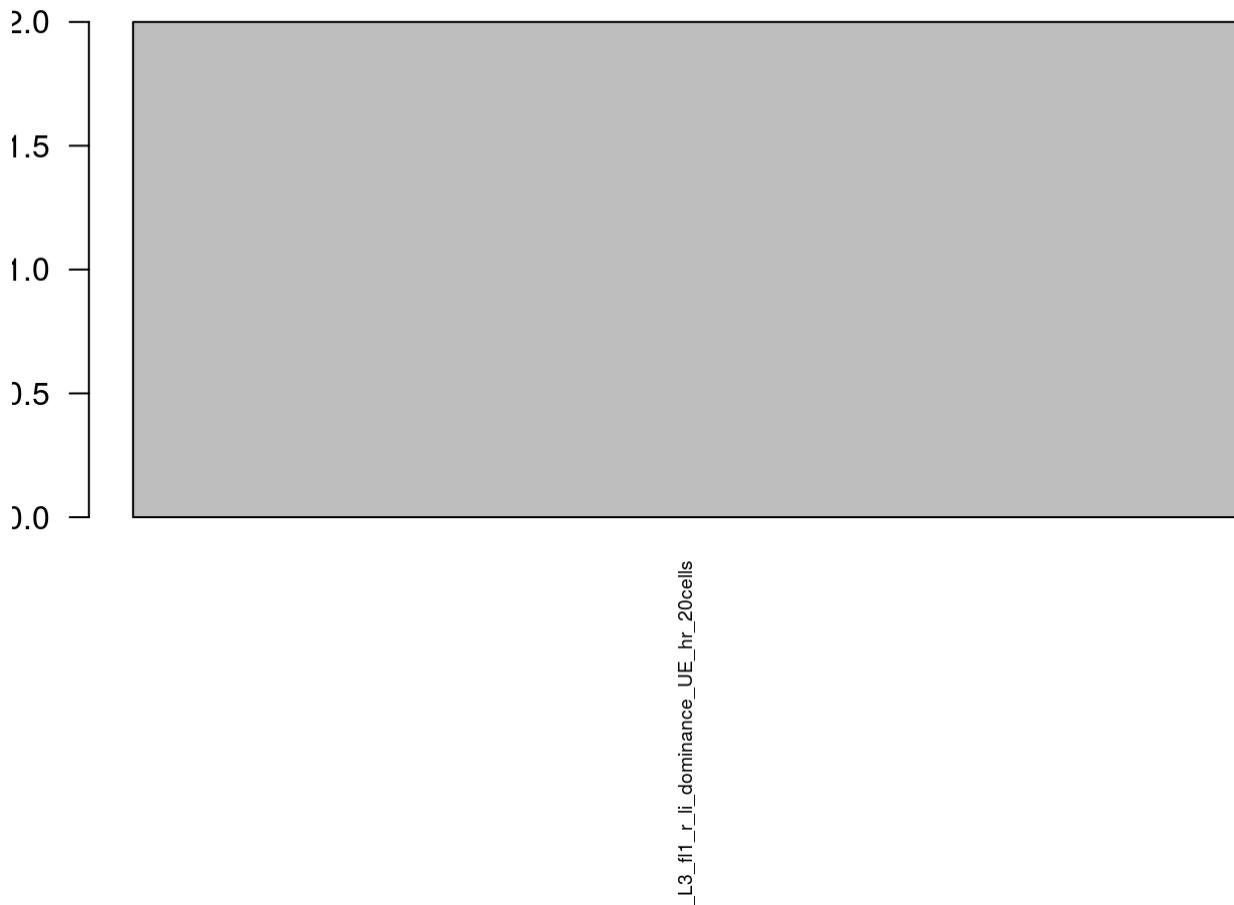
```
## [1] "Prediction error at end is: 0.445"
## [2] "Prediction error at end is: 0.46"
## [3] "Prediction error at end is: 0.41"
## [4] "Prediction error at end is: 0.46"
## [5] "Prediction error at end is: 0.425"
##
## 1 geom_hr_L3_f10_r_li_richness_UE_hr_10cells
## 2 geom_hr_L3_f10_r_li_simpson_UE_hr_10cells
## 3 geom_hr_L3_f10_r_li_richness_UE_hr_20cells
## 4 geom_hr_L3_f10_r_li_dominance_UE_hr_20cells
## 5      geom_hr_L3_f10_r_li_mps_UE_hr_20cells
##
## 1 geom_hr_L50m_f10_r_li_shannon_UE_hr_10cells
## 2 geom_hr_L3_f10_r_li_richness_UE_hr_5cells
## 3 geom_hr_L50m_f10_r_li_simpson_UE_hr_10cells
## 4 geom_hr_L50m_f10_r_li_richness_UE_hr_5cells
## 5 geom_hr_L50m_f10_r_li_shannon_UE_hr_20cells
##
## 1 geom_hr_L3_f10_r_li_patchdensity_UE_hr_10cells
## 2      geom_hr_L50m_f10_r_li_mps_UE_hr_10cells
## 3      geom_hr_L3_f10_r_li_dominance_UE_hr_40cells
## 4      geom_hr_L3_f10_r_li_patchnum_UE_hr_10cells
## 5      geom_hr_L50m_f10_r_li_shape_UE_hr_10cells
##
## 1      geom_hr_L3_f10_r_li_mps_UE_hr_10cells
## 2 geom_hr_L3_f10_r_li_patchdensity_UE_hr_10cells
## 3      geom_hr_L3_f10_r_li_patchnum_UE_hr_10cells
## 4 geom_hr_L50m_f10_r_li_dominance_UE_hr_20cells
## 5 geom_hr_L50m_f10_r_li_shannon_UE_hr_10cells
##
## 1 geom_hr_L3_f10_r_li_patchdensity_UE_hr_10cells
## 2      geom_hr_L3_f10_r_li_patchnum_UE_hr_10cells
## 3 geom_hr_L50m_f10_r_li_patchdensity_UE_hr_5cells
## 4      geom_hr_L50m_f10_r_li_richness_UE_hr_10cells
## 5      geom_hr_L3_f10_r_li_richness_UE_hr_10cells
```



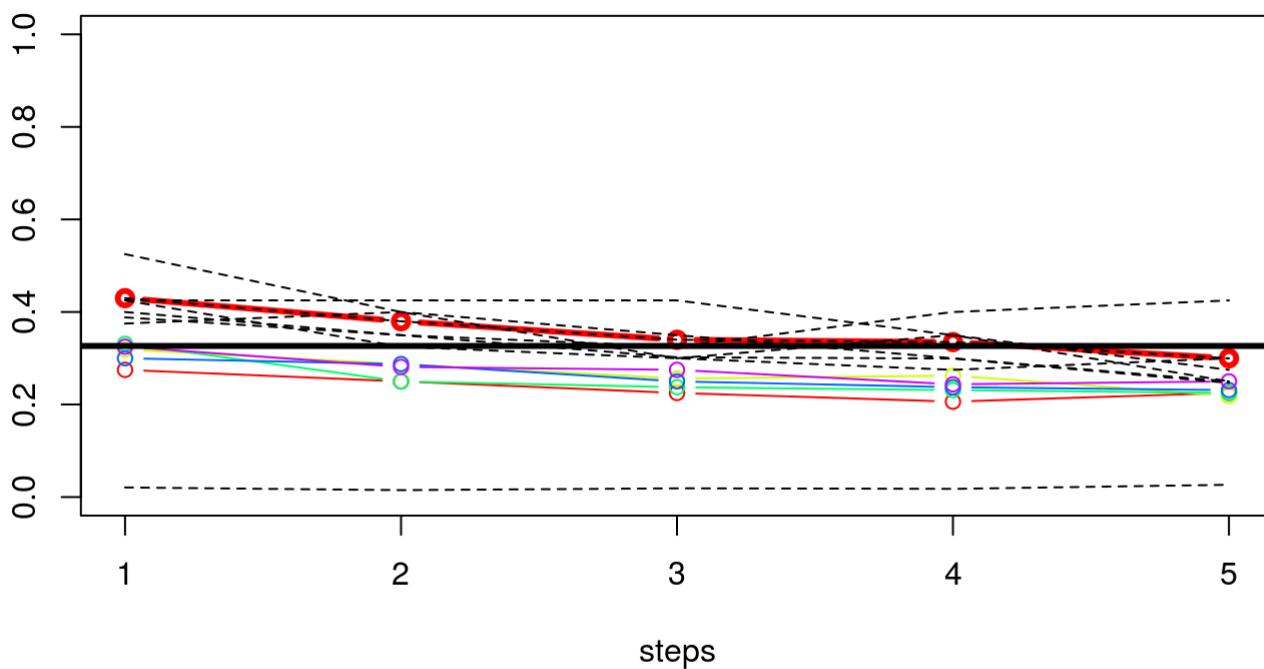
```
## [1] "silikatisches Festgestein_vs_Hangschutt"
```



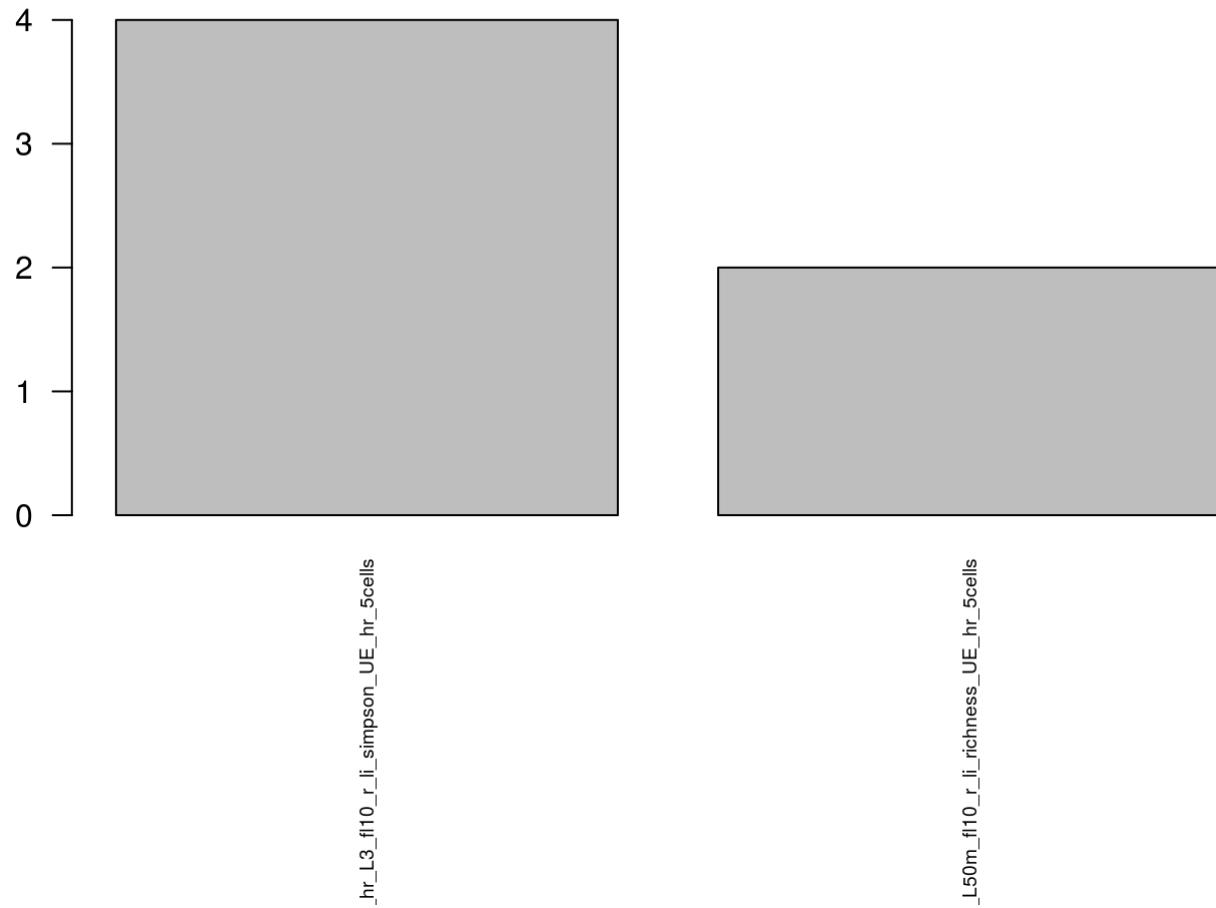
```
## [1] "Prediction error at end is: 0.505"  
## [2] "Prediction error at end is: 0.53"  
## [3] "Prediction error at end is: 0.5"  
## [4] "Prediction error at end is: 0.485"  
## [5] "Prediction error at end is: 0.5"  
## k 1  
## 1 geom_hr_L3_f10_r_li_richness_UE_hr_20cells  
## 2 geom_hr_L3_f11_r_li_dominance_UE_hr_20cells  
## 3 geom_hr_L50m_f10_r_li_mps_UE_hr_20cells  
## 4 geom_hr_L50m_f110_r_li_mps_UE_hr_10cells  
## 5 geom_hr_L50m_f11_r_li_patchdensity_UE_hr_10cells  
## k 2  
## 1 geom_hr_L3_f11_r_li_richness_UE_hr_20cells  
## 2 geom_hr_L3_f11_r_li_dominance_UE_hr_20cells  
## 3 geom_hr_L3_f110_r_li_dominance_UE_hr_20cells  
## 4 geom_hr_L3_f110_r_li_shannon_UE_hr_5cells  
## 5 geom_hr_L50m_f110_r_li_shannon_UE_hr_5cells  
## k 3  
## 1 geom_hr_L3_f110_r_li_dominance_UE_hr_40cells  
## 2 geom_hr_L50m_f11_r_li_simpson_UE_hr_20cells  
## 3 geom_hr_L3_f110_r_li_shape_UE_hr_20cells  
## 4 geom_hr_L50m_f110_r_li_richness_UE_hr_5cells  
## 5 geom_hr_L3_f110_r_li_edgedensity_UE_hr_20cells  
## k 4  
## 1 geom_hr_L50m_f110_r_li_shape_UE_hr_20cells  
## 2 geom_hr_L50m_f110_r_li_simpson_UE_hr_20cells  
## 3 geom_hr_L50m_f110_r_li_edgedensity_UE_hr_20cells  
## 4 geom_hr_L50m_f11_r_li_richness_UE_hr_20cells  
## 5 geom_hr_L50m_f110_r_li_mps_UE_hr_5cells  
## k 5  
## 1 geom_hr_L50m_f110_r_li_dominance_UE_hr_20cells  
## 2 geom_hr_L50m_f11_r_li_patchdensity_UE_hr_20cells  
## 3 geom_hr_L3_f110_r_li_simpson_UE_hr_5cells  
## 4 geom_hr_L3_f11_r_li_dominance_UE_hr_10cells  
## 5 geom_hr_L3_f11_r_li_shape_UE_hr_5cells
```



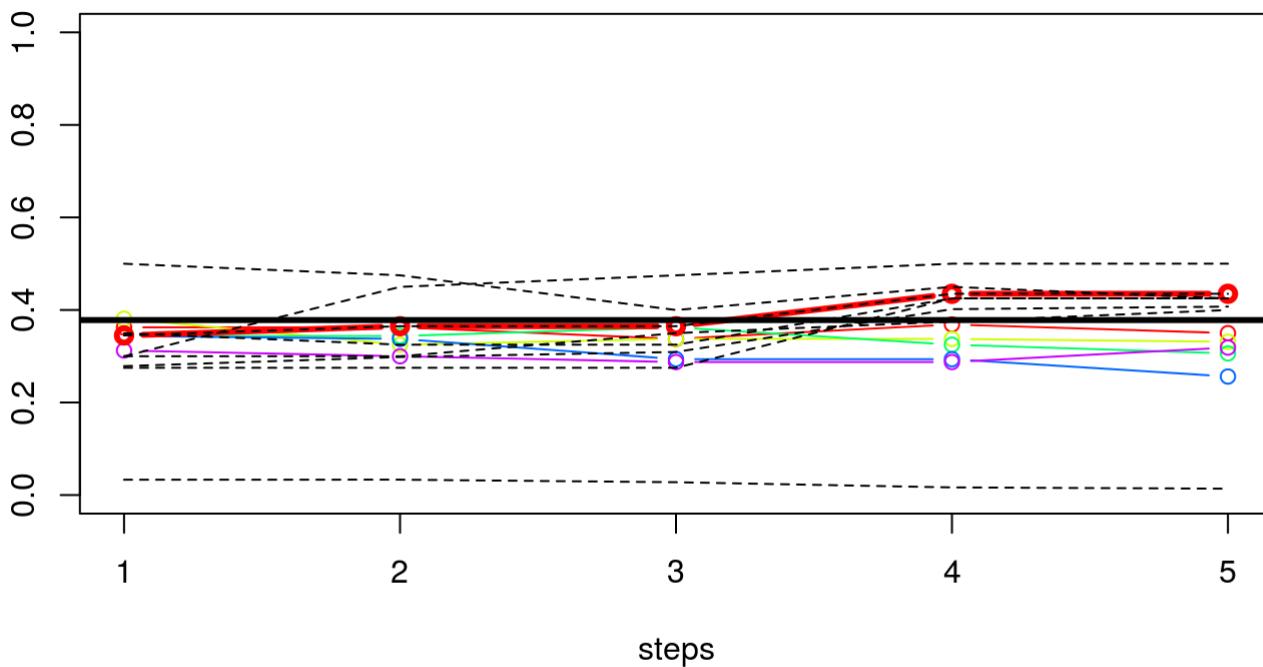
```
## [1] "silikatisches Festgestein_vs_Grundmoraene"
```



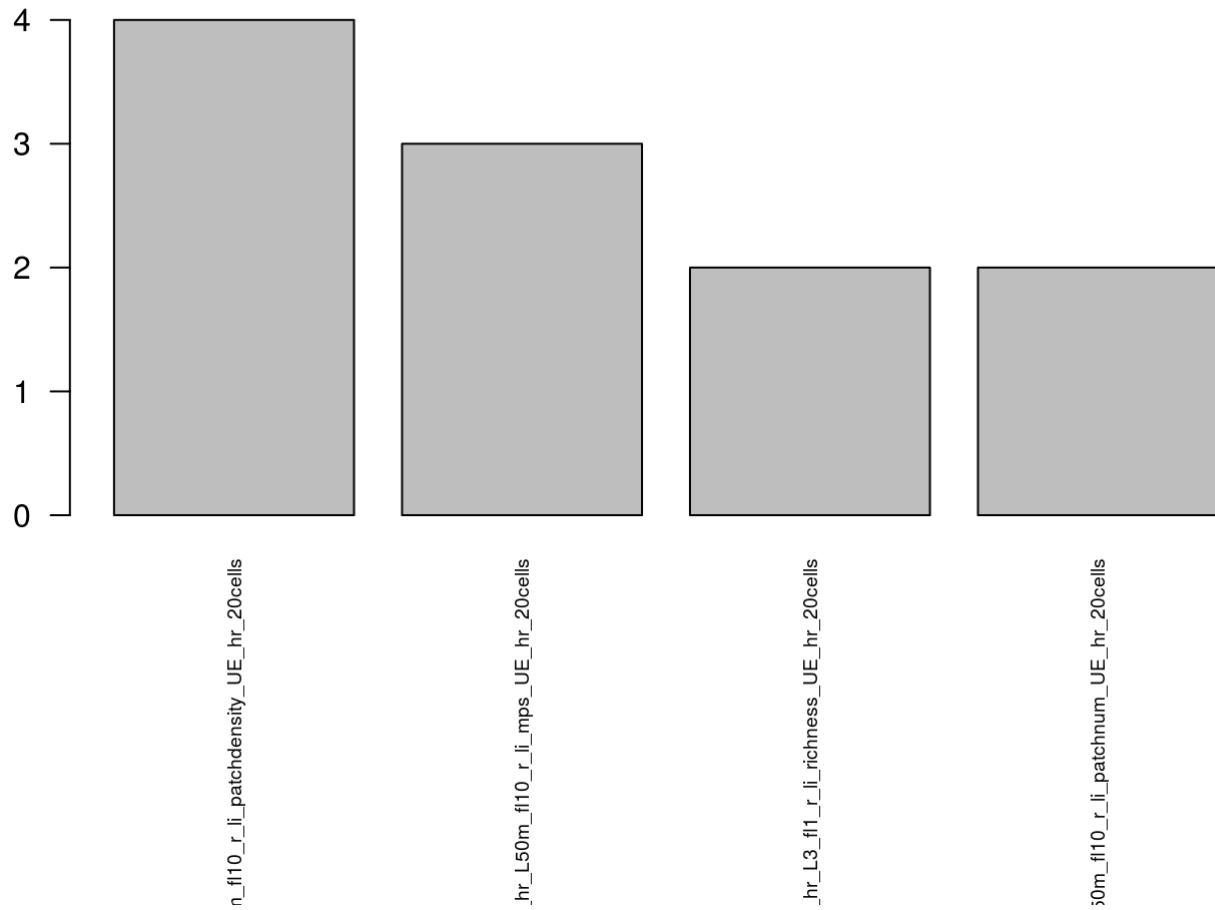
```
## [1] "Prediction error at end is: 0.43"
## [2] "Prediction error at end is: 0.38"
## [3] "Prediction error at end is: 0.34"
## [4] "Prediction error at end is: 0.335"
## [5] "Prediction error at end is: 0.3"
##
## 1 geom_hr_L50m_f10_r_li_shannon_Ue_hr_10cells
## 2 geom_hr_L50m_f11_r_li_shannon_Ue_hr_10cells
## 3 geom_hr_L50m_f10_r_li_richness_Ue_hr_5cells
## 4 geom_hr_L50m_f10_r_li_richness_Ue_hr_10cells
## 5 geom_hr_L50m_f11_r_li_richness_Ue_hr_10cells
##
## 2
## 1 geom_hr_L3_f10_r_li_patchdensity_Ue_hr_10cells
## 2 geom_hr_L50m_f11_r_li_richness_Ue_hr_20cells
## 3 geom_hr_L3_f10_r_li_shape_Ue_hr_20cells
## 4 geom_hr_L3_f10_r_li_simpson_Ue_hr_5cells
## 5 geom_hr_L50m_f10_r_li_shape_Ue_hr_5cells
##
## 3
## 1 geom_hr_L50m_f10_r_li_mps_Ue_hr_5cells
## 2 geom_hr_L3_f10_r_li_simpson_Ue_hr_5cells
## 3 geom_hr_L3_f10_r_li_mps_Ue_hr_5cells
## 4 geom_hr_L50m_f10_r_li_edgedensity_Ue_hr_10cells
## 5 geom_hr_L3_f11_r_li_shannon_Ue_hr_20cells
##
## 4
## 1 geom_hr_L3_f10_r_li_shannon_Ue_hr_10cells
## 2 geom_hr_L3_f10_r_li_simpson_Ue_hr_5cells
## 3 geom_hr_L50m_f10_r_li_richness_Ue_hr_5cells
## 4 geom_hr_L3_f11_r_li_richness_Ue_hr_10cells
## 5 geom_hr_L3_f10_r_li_dominance_Ue_hr_5cells
##
## 5
## 1 geom_hr_L50m_f10_r_li_richness_Ue_hr_20cells
## 2 geom_hr_L50m_f10_r_li_mps_Ue_hr_20cells
## 3 geom_hr_L3_f10_r_li_simpson_Ue_hr_5cells
## 4 geom_hr_L3_f11_r_li_simpson_Ue_hr_20cells
## 5 geom_hr_L3_f10_r_li_mps_Ue_hr_10cells
```



```
## [1] "silikatisches Festgestein_vs_Moraene undifferenziert"
```

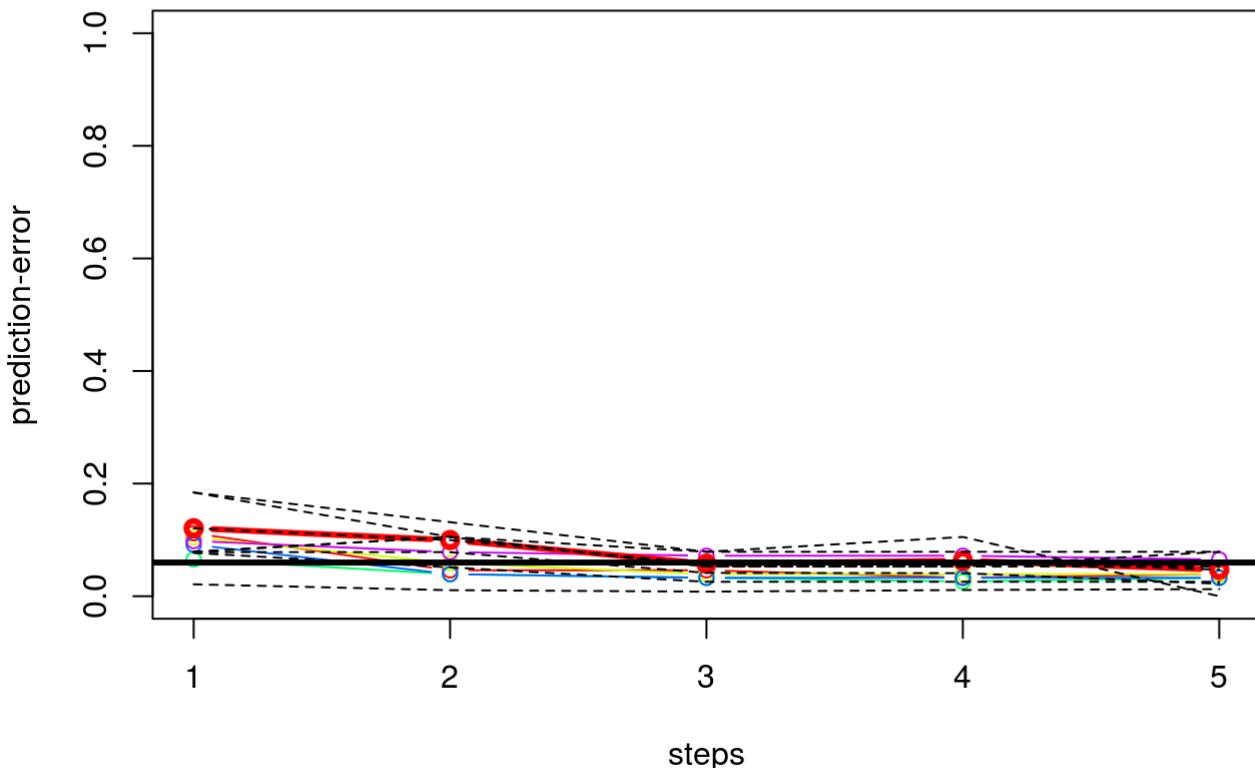


```
## [1] "Prediction error at end is: 0.345"
## [2] "Prediction error at end is: 0.365"
## [3] "Prediction error at end is: 0.365"
## [4] "Prediction error at end is: 0.435"
## [5] "Prediction error at end is: 0.435"
##
## k 1
## 1 geom_hr_L50m_f110_r_li_patchdensity_UE_hr_20cells
## 2     geom_hr_L50m_f110_r_li_patchnum_UE_hr_20cells
## 3         geom_hr_L50m_f110_r_li_mps_UE_hr_20cells
## 4     geom_hr_L50m_f11_r_li_dominance_UE_hr_5cells
## 5     geom_hr_L50m_f11_r_li_patchdensity_UE_hr_5cells
##
## k 2
## 1 geom_hr_L50m_f110_r_li_patchdensity_UE_hr_20cells
## 2     geom_hr_L3_f11_r_li_richness_UE_hr_20cells
## 3     geom_hr_L50m_f110_r_li_shannon_UE_hr_20cells
## 4     geom_hr_L50m_f11_r_li_simpson_UE_hr_20cells
## 5     geom_hr_L50m_f110_r_li_mps_UE_hr_20cells
##
## k 3
## 1 geom_hr_L50m_f110_r_li_patchdensity_UE_hr_20cells
## 2     geom_hr_L50m_f110_r_li_patchnum_UE_hr_20cells
## 3     geom_hr_L3_f110_r_li_dominance_UE_hr_5cells
## 4     geom_hr_L3_f11_r_li_simpson_UE_hr_5cells
## 5         geom_hr_L3_f110_r_li_mps_UE_hr_10cells
##
## k 4
## 1 geom_hr_L50m_f110_r_li_patchdensity_UE_hr_20cells
## 2     geom_hr_L3_f11_r_li_richness_UE_hr_20cells
## 3     geom_hr_L50m_f110_r_li_mps_UE_hr_20cells
## 4     geom_hr_L50m_f11_r_li_shannon_UE_hr_20cells
## 5         geom_hr_L50m_f11_r_li_mps_UE_hr_10cells
##
## k 5
## 1 geom_hr_L50m_f110_r_li_richness_UE_hr_20cells
## 2     geom_hr_L3_f110_r_li_shape_UE_hr_10cells
## 3 geom_hr_L3_f11_r_li_patchdensity_UE_hr_5cells
## 4     geom_hr_L3_f11_r_li_simpson_UE_hr_20cells
## 5     geom_hr_L3_f11_r_li_simpson_UE_hr_10cells
```



Heights

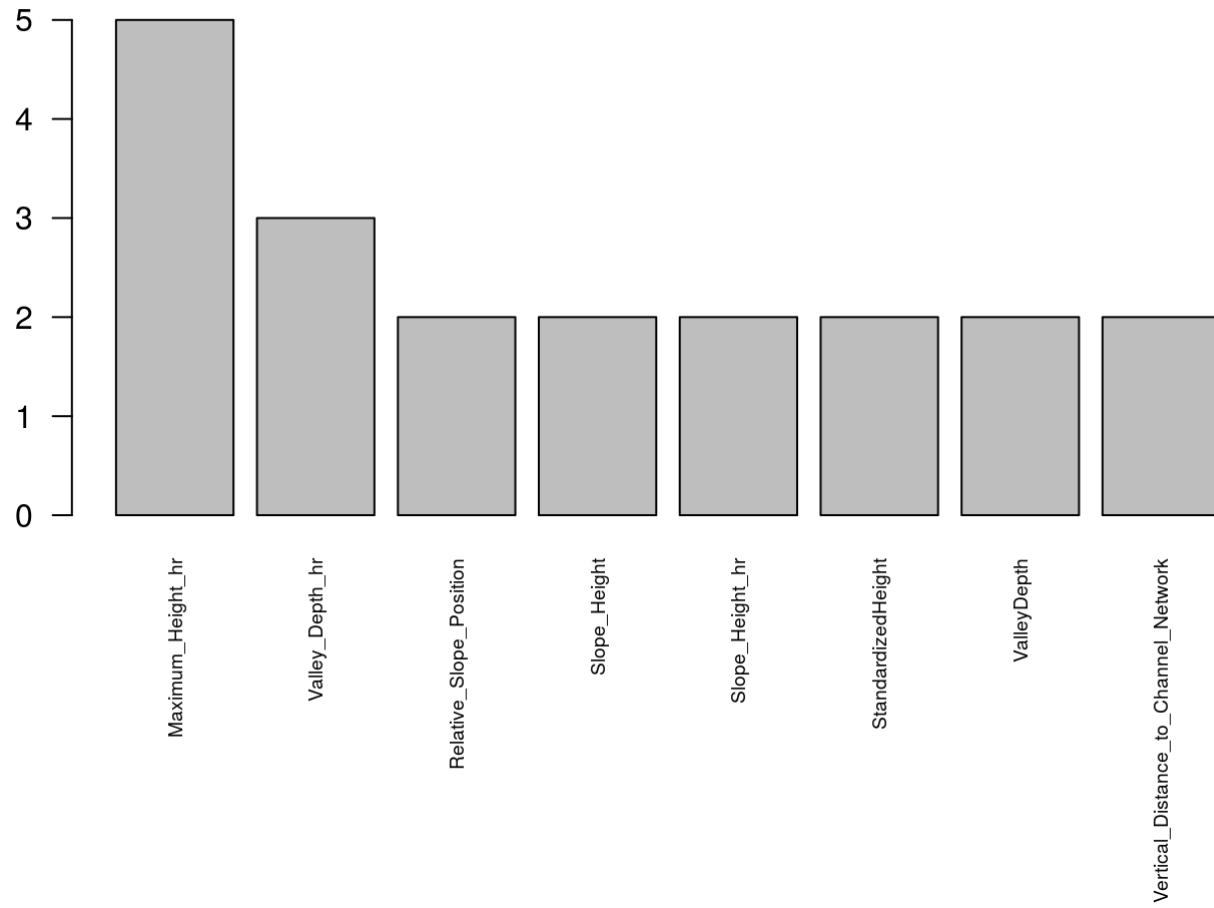
```
## [1] "silikatisches Festgestein_vs_Alluviale Ablagerung"
```



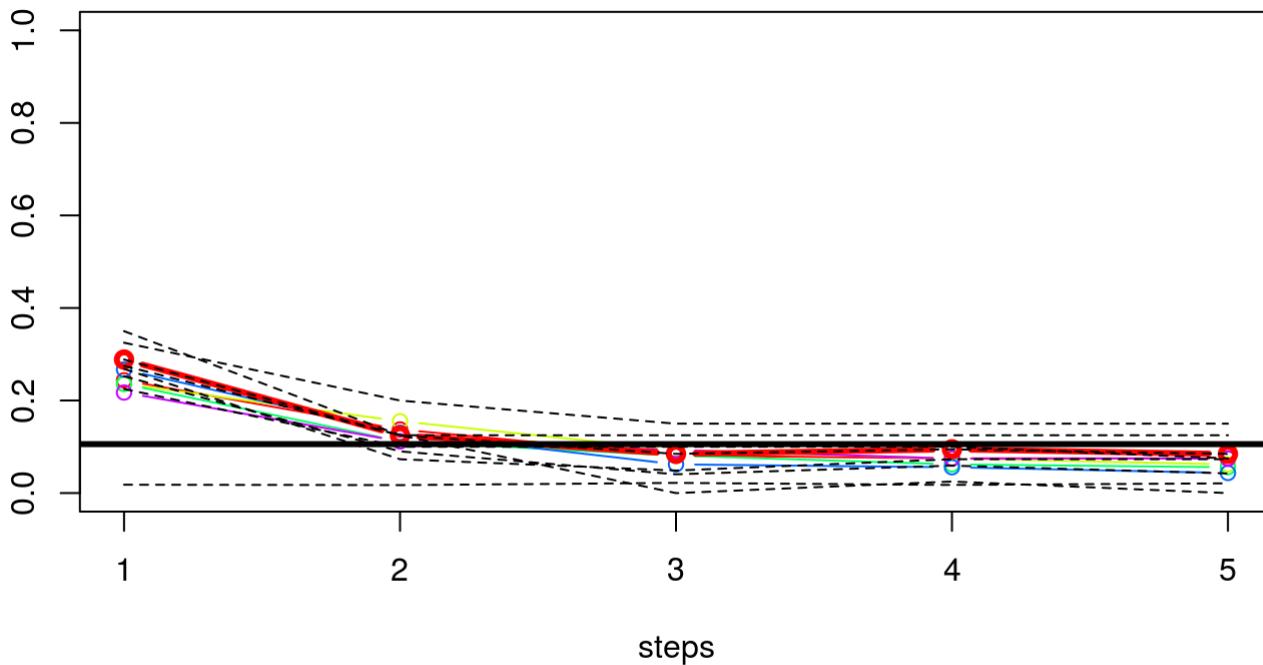
```

## [1] "Prediction error at end is: 0.120647773279352"
## [2] "Prediction error at end is: 0.0997300944669366"
## [3] "Prediction error at end is: 0.0577597840755735"
## [4] "Prediction error at end is: 0.0630229419703104"
## [5] "Prediction error at end is: 0.0472334682860999"
##           k 1           k 2           k 3
## 1 Maximum_Height_hr Maximum_Height_hr Maximum_Height_hr
## 2      ValleyDepth      Slope_Height StandardizedHeight
## 3 StandardizedHeight      Valley_Depth_hr   Valley_Depth_hr
## 4      Valley_Depth_hr MidSlope_Positon_hr NormalizedHeight
## 5 Standardized_Height_hr Normalized_Height_hr       Slope_Height
##           k 4
## 1           Maximum_Height_hr
## 2 Vertical_Distance_to_Channel_Network
## 3           Slope_Height_hr
## 4           ValleyDepth
## 5           Relative_Slope_Position
##           k 5
## 1           Relative_Slope_Position
## 2 Vertical_Distance_to_Channel_Network
## 3           Slope_Height_hr
## 4           Mid_Slope_Positon
## 5           Maximum_Height_hr

```



```
## [1] "silikatisches Festgestein_vs_Blockschutt"
```

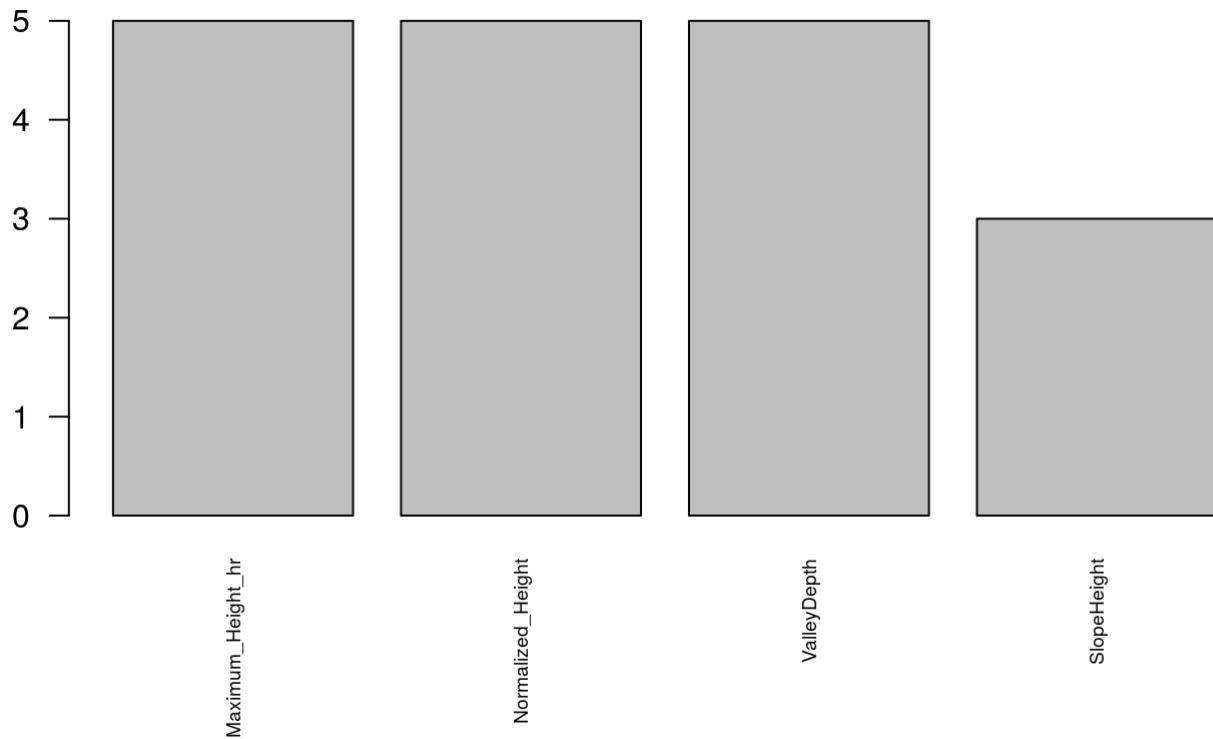


```

## [1] "Prediction error at end is: 0.288658536585366"
## [2] "Prediction error at end is: 0.124634146341463"
## [3] "Prediction error at end is: 0.0847560975609756"
## [4] "Prediction error at end is: 0.0946341463414634"
## [5] "Prediction error at end is: 0.0846341463414634"

##          k 1           k 2
## 1 Normalized_Height Maximum_Height_hr
## 2 Maximum_Height_hr Normalized_Height
## 3      ValleyDepth      ValleyDepth
## 4 StandardizedHeight Slope_Height
## 5      SlopeHeight Normalized_Height_hr
##                      k 3           k 4
## 1                  Normalized_Height Normalized_Height
## 2 Vertical_Distance_to_Channel_Network Maximum_Height_hr
## 3                      ValleyDepth      ValleyDepth
## 4                      Valley_Depth_hr SlopeHeight
## 5                  Maximum_Height_hr Relative_Slope_Position
##          k 5
## 1 Maximum_Height_hr
## 2 Normalized_Height
## 3      ValleyDepth
## 4      SlopeHeight
## 5 NormalizedHeight

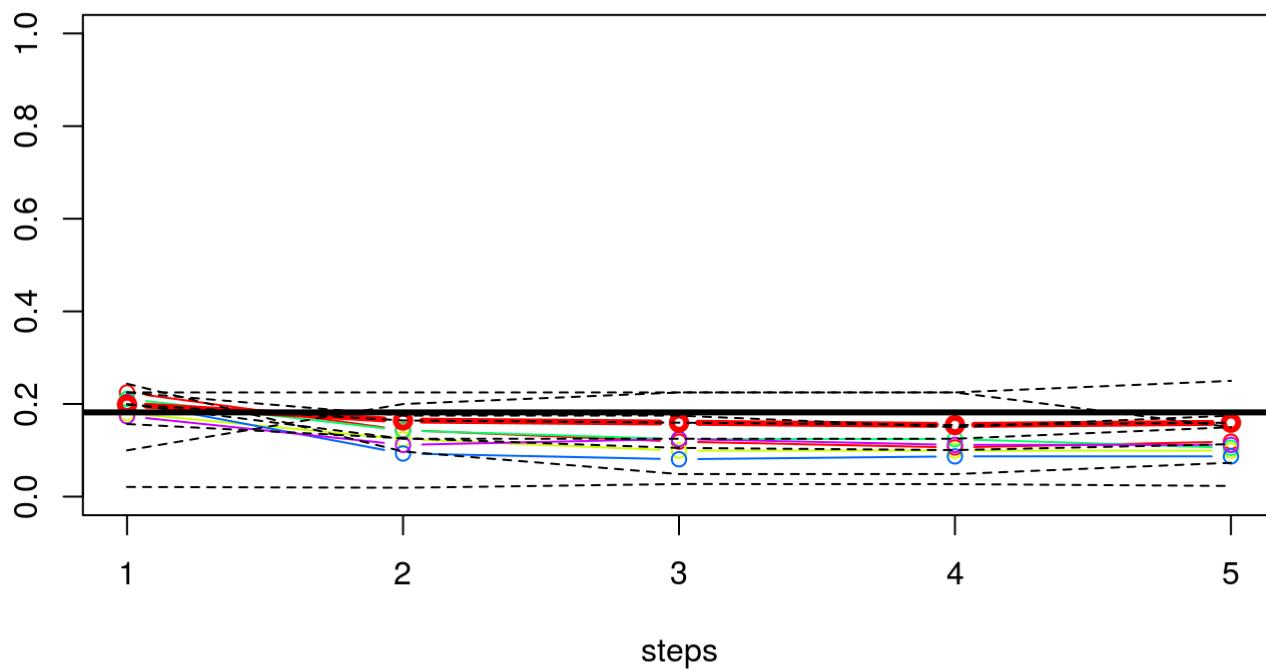
```



```

## [1] "silikatisches Festgestein_vs_Kolluvium"

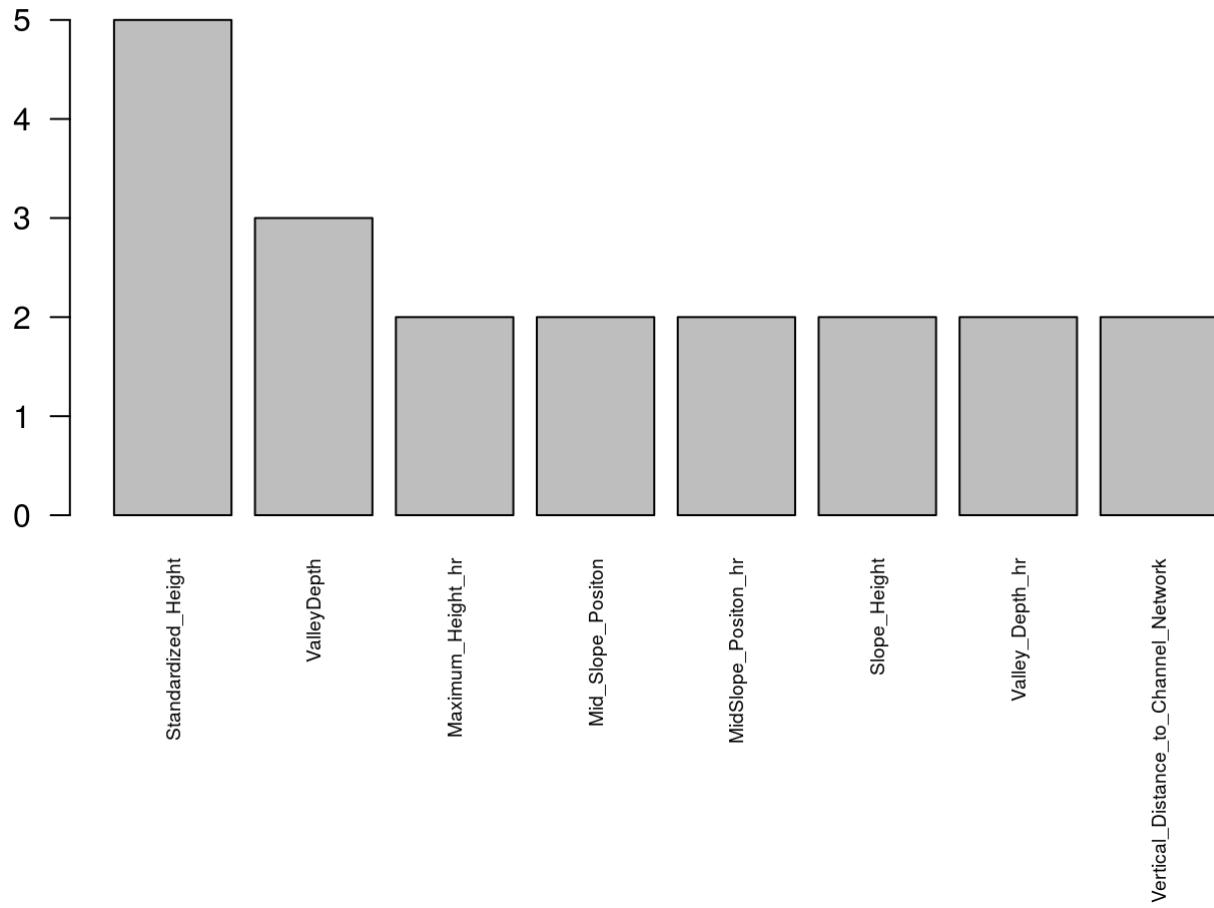
```



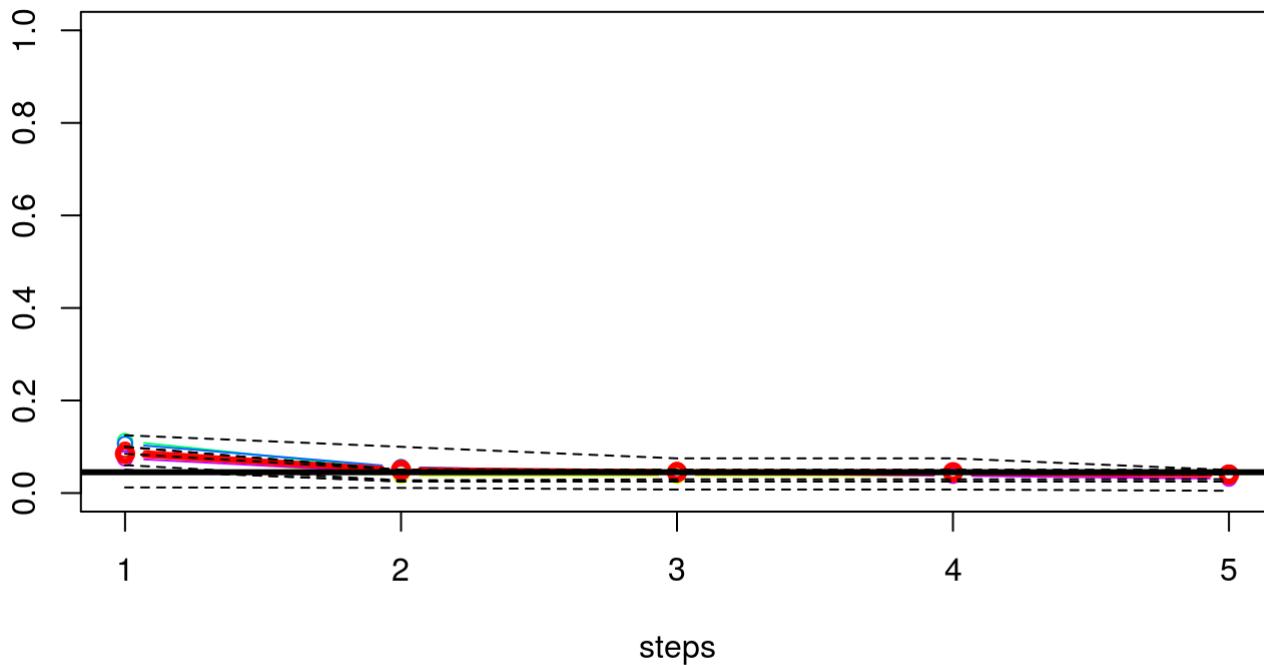
```

## [1] "Prediction error at end is: 0.198780487804878"
## [2] "Prediction error at end is: 0.164512195121951"
## [3] "Prediction error at end is: 0.159756097560976"
## [4] "Prediction error at end is: 0.154756097560976"
## [5] "Prediction error at end is: 0.159634146341463"
##           k 1           k 2
## 1 Standardized_Height Standardized_Height
## 2 ValleyDepth          ValleyDepth
## 3 MidSlope_Positon_hr Mid_Slope_Positon
## 4 Normalized_Height   NormalizedHeight
## 5 Valley_Depth_hr     Vertical_Distance_to_Channel_Network
##           k 3           k 4
## 1 Standardized_Height Standardized_Height
## 2 Standardized_Height_hr ValleyDepth
## 3 Maximum_Height_hr    Slope_Height
## 4 Slope_Height_hr      Mid_Slope_Positon
## 5 Valley_Depth_hr     Vertical_Distance_to_Channel_Network
##           k 5
## 1 Standardized_Height
## 2 MidSlope_Positon_hr
## 3 Normalized_Height_hr
## 4 Maximum_Height_hr
## 5 Slope_Height

```



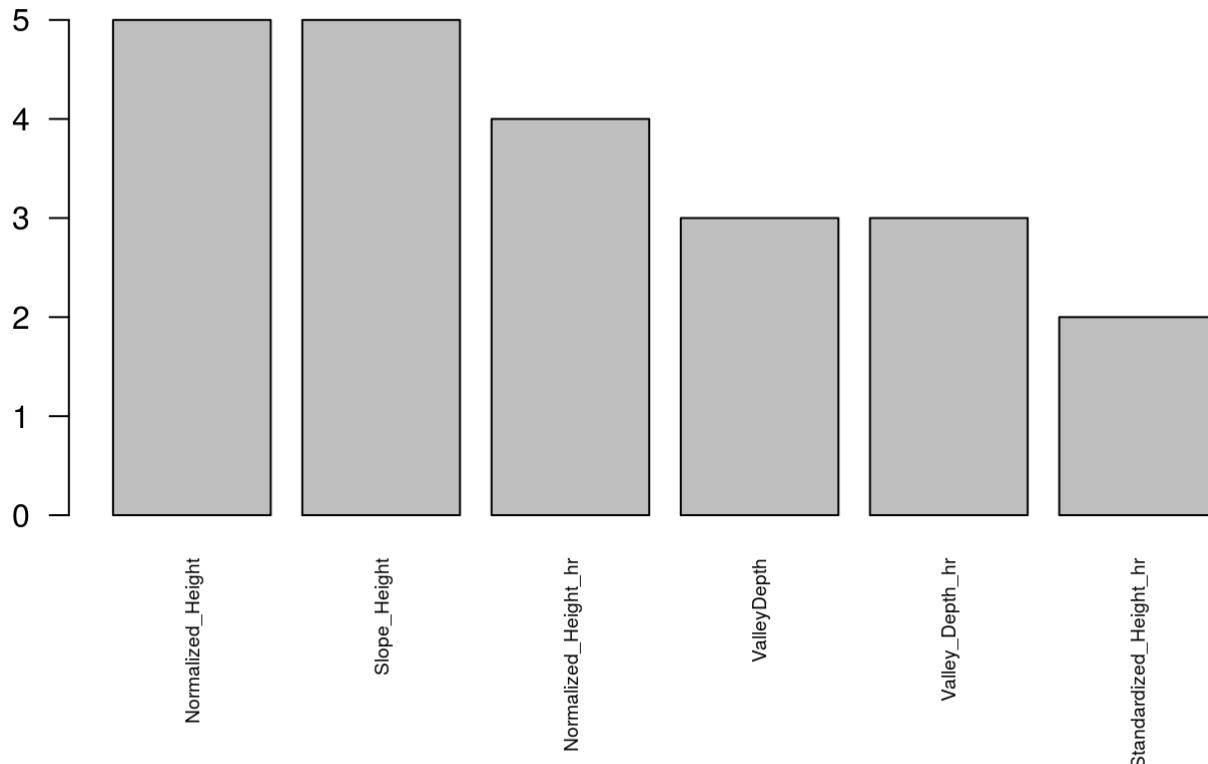
```
## [1] "silikatisches Festgestein_vs_gemischte Kegel"
```



```

## [1] "Prediction error at end is: 0.085"
## [2] "Prediction error at end is: 0.05"
## [3] "Prediction error at end is: 0.045"
## [4] "Prediction error at end is: 0.045"
## [5] "Prediction error at end is: 0.04"
##                                k 1          k 2
## 1           Normalized_Height   Normalized_Height
## 2           Standardized_Height_hr   Slope_Height
## 3           Slope_Height   Normalized_Height_hr
## 4           ValleyDepth   ValleyDepth
## 5 Vertical_Distance_to_Channel_Network   Valley_Depth_hr
##                                k 3          k 4          k 5
## 1   Normalized_Height   Normalized_Height   Normalized_Height
## 2   Slope_Height   Slope_Height   Slope_Height
## 3   Valley_Depth_hr   Normalized_Height_hr   Normalized_Height_hr
## 4 Normalized_Height_hr   MidSlope_Positon_hr   Valley_Depth_hr
## 5   Mid_Slope_Positon Standardized_Height_hr   ValleyDepth

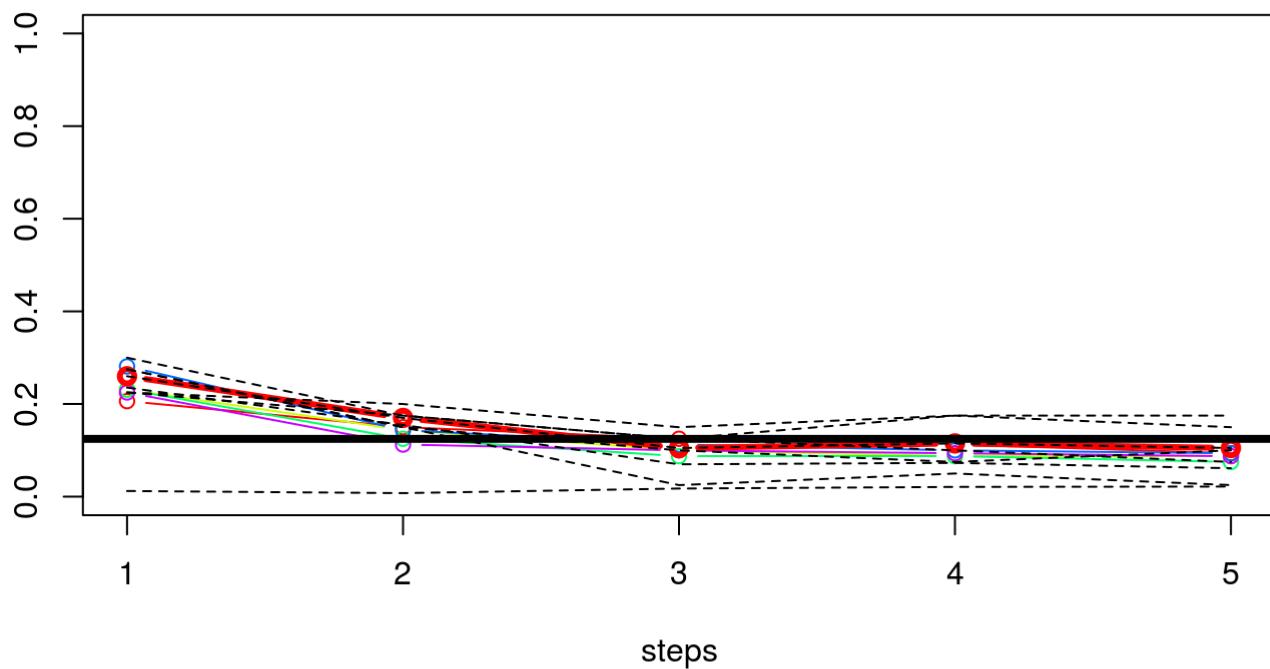
```



```

## [1] "silikatisches Festgestein_vs_gemischte Ablagerung"

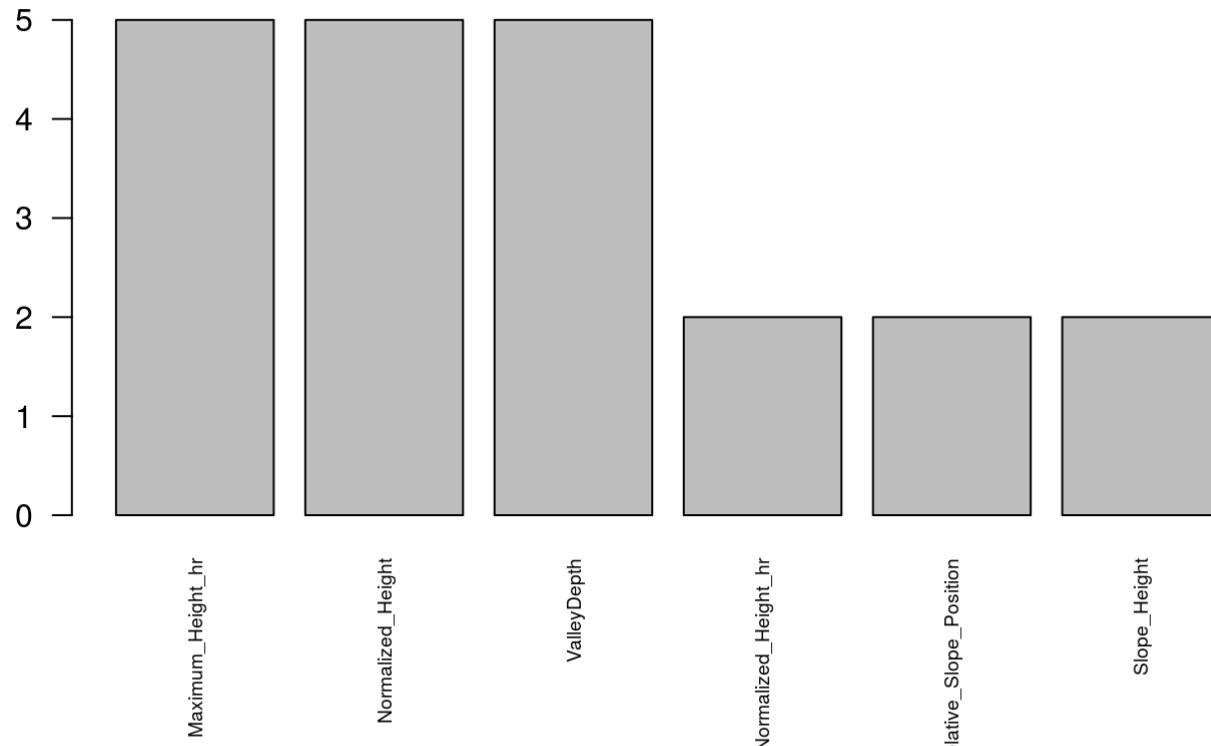
```



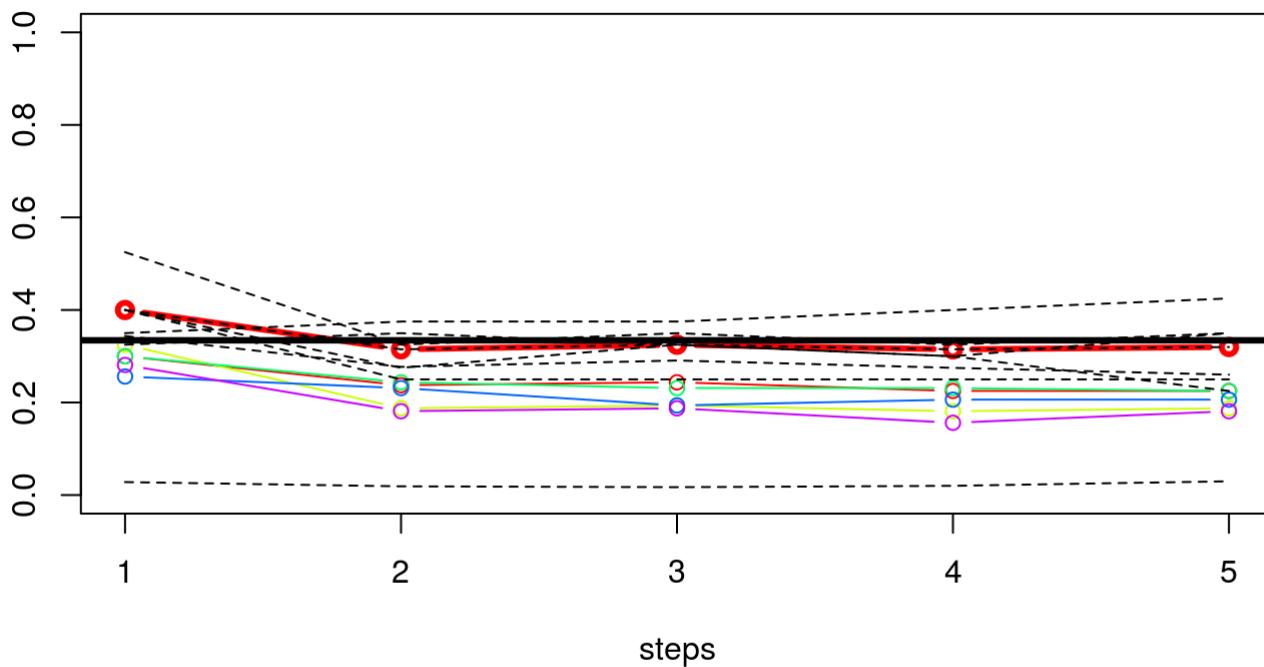
```

## [1] "Prediction error at end is: 0.26"
## [2] "Prediction error at end is: 0.17"
## [3] "Prediction error at end is: 0.105"
## [4] "Prediction error at end is: 0.115"
## [5] "Prediction error at end is: 0.105"
##           k 1           k 2           k 3
## 1 Normalized_Height   Normalized_Height   Normalized_Height
## 2     Slope_Height      ValleyDepth       ValleyDepth
## 3 Maximum_Height_hr   Maximum_Height_hr   Maximum_Height_hr
## 4     ValleyDepth   Relative_Slope_Position Relative_Slope_Position
## 5   Valley_Depth_hr   StandardizedHeight   SlopeHeight
##           k 4           k 5
## 1 Normalized_Height   Normalized_Height
## 2 Maximum_Height_hr   ValleyDepth
## 3     ValleyDepth Normalized_Height_hr
## 4 Normalized_Height_hr Maximum_Height_hr
## 5     Slope_Height MidSlope_Positon_hr

```



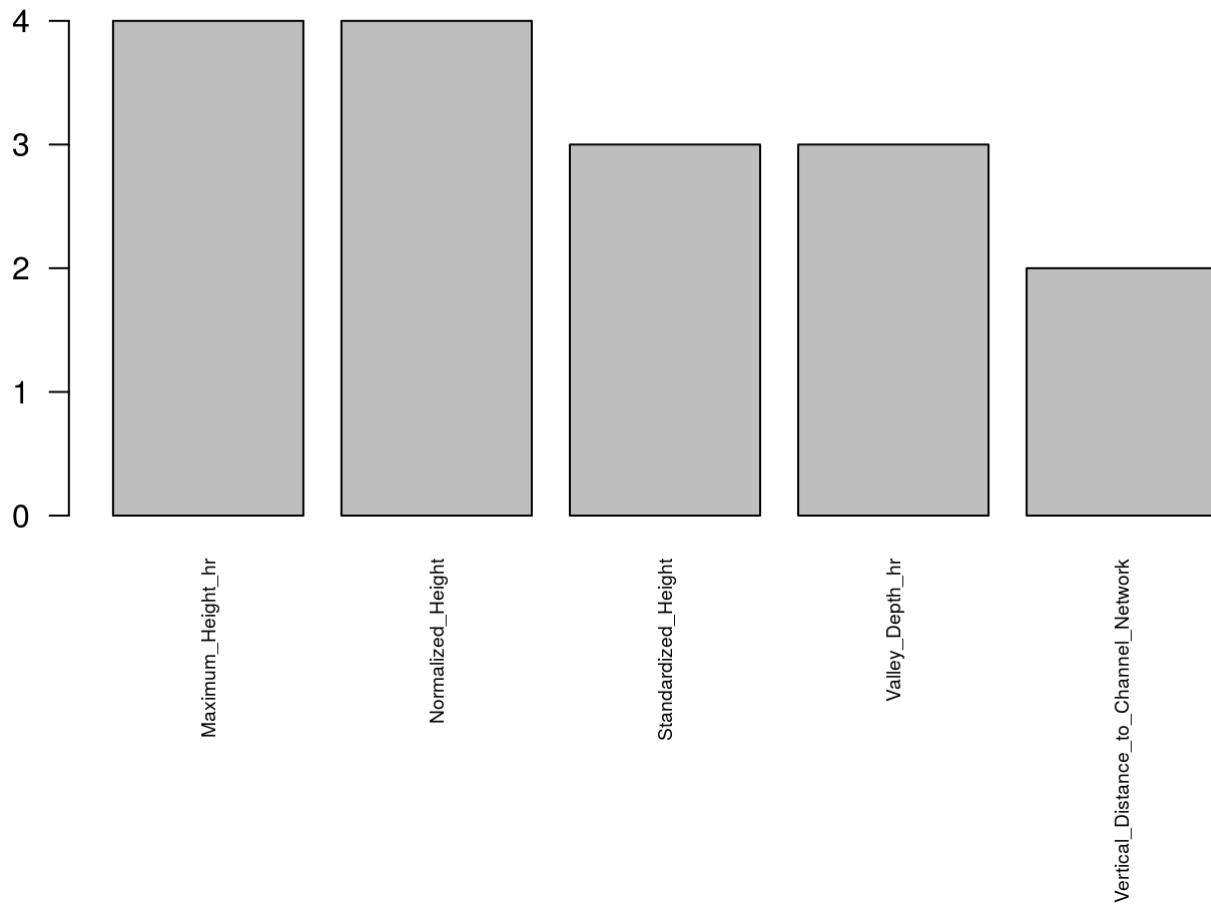
```
## [1] "silikatisches Festgestein_vs_Hangschutt"
```



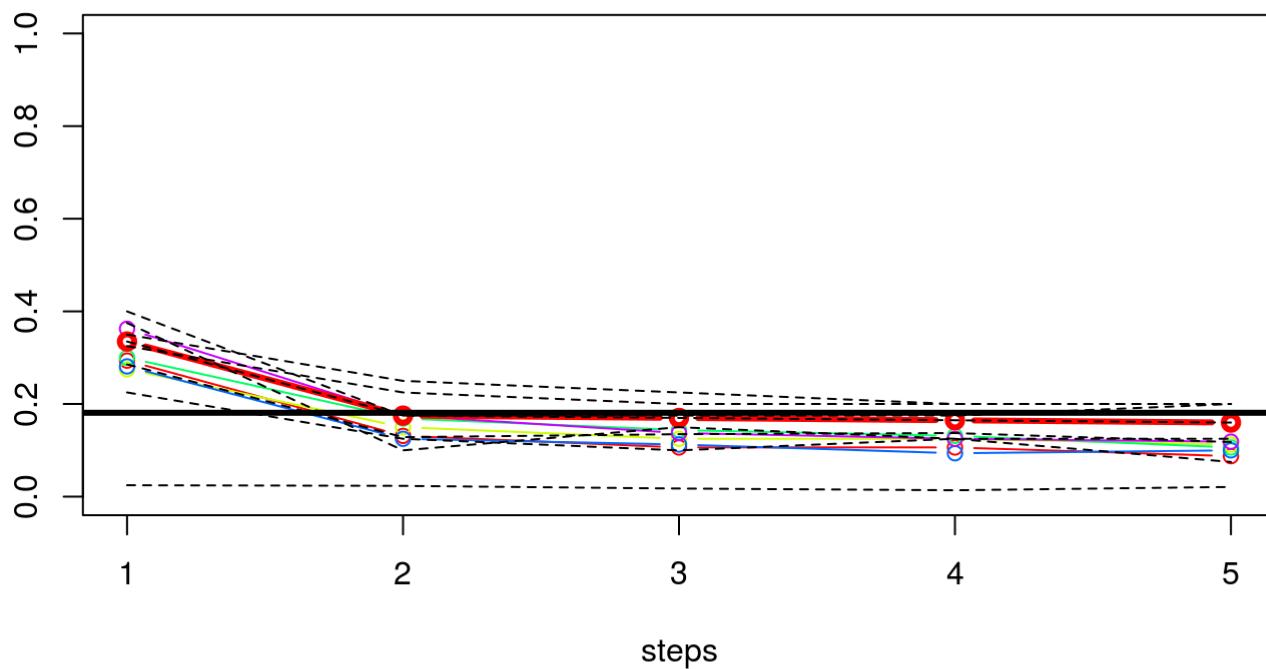
```

## [1] "Prediction error at end is: 0.4"
## [2] "Prediction error at end is: 0.315"
## [3] "Prediction error at end is: 0.325"
## [4] "Prediction error at end is: 0.315"
## [5] "Prediction error at end is: 0.32"
##          k 1           k 2
## 1 Normalized_Height Normalized_Height
## 2 Standardized_Height Maximum_Height_hr
## 3      Slope_Height Standardized_Height
## 4 Valley_Depth_hr     Valley_Depth_hr
## 5 Normalized_Height_hr      SlopeHeight
##          k 3           k 4
## 1           Normalized_Height NormalizedHeight
## 2           Maximum_Height_hr Maximum_Height_hr
## 3           Mid_Slope_Positon Relative_Slope_Position
## 4           StandardizedHeight Standardized_Height_hr
## 5 Vertical_Distance_to_Channel_Network Valley_Depth_hr
##          k 5
## 1           Normalized_Height
## 2           Standardized_Height
## 3           MidSlope_Positon_hr
## 4 Vertical_Distance_to_Channel_Network
## 5           Maximum_Height_hr

```



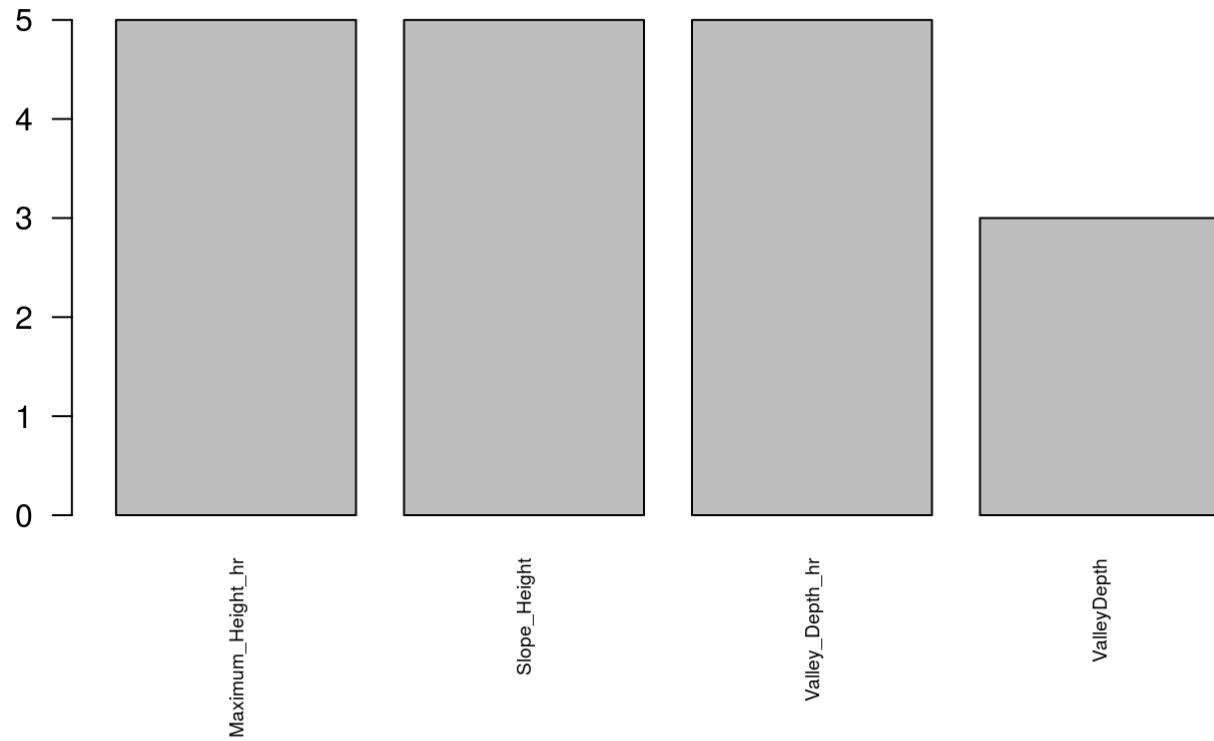
```
## [1] "silikatisches Festgestein_vs_Grundmoraene"
```



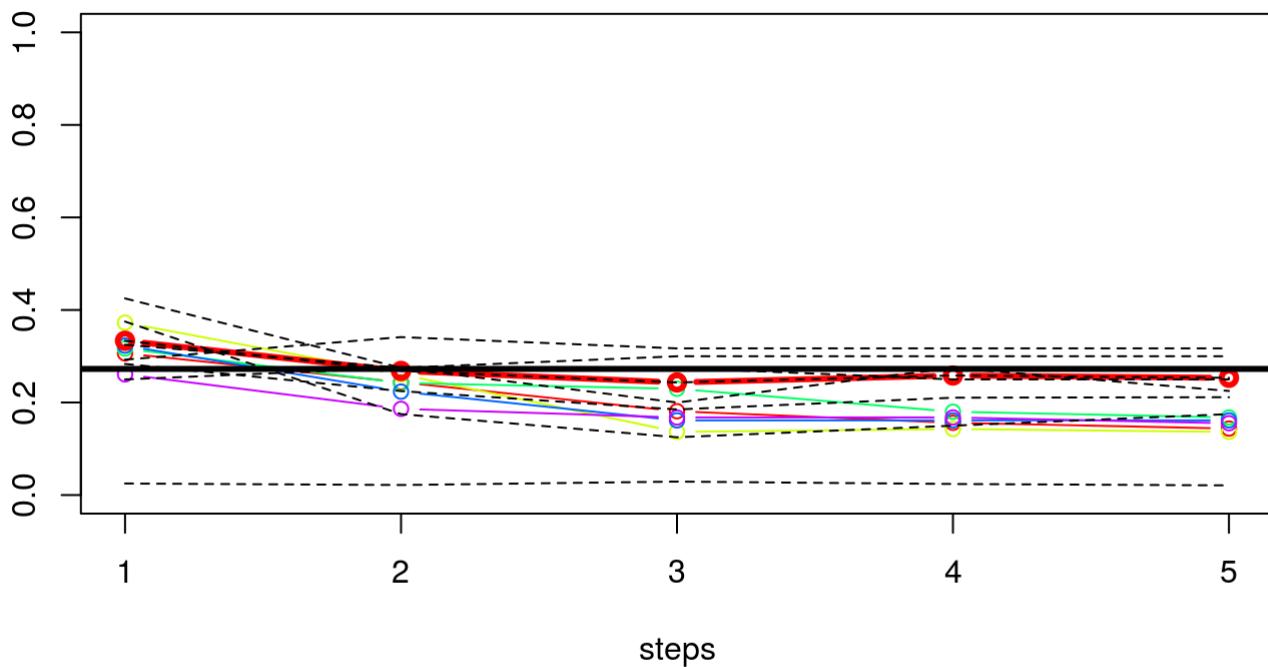
```

## [1] "Prediction error at end is: 0.335"
## [2] "Prediction error at end is: 0.175"
## [3] "Prediction error at end is: 0.17"
## [4] "Prediction error at end is: 0.165"
## [5] "Prediction error at end is: 0.16"
##           k 1           k 2           k 3
## 1 Maximum_Height_hr      Slope_Height Maximum_Height_hr
## 2      ValleyDepth  Maximum_Height_hr      ValleyDepth
## 3  Valley_Depth_hr      Valley_Depth_hr Relative_Slope_Position
## 4 Normalized_Height      Slope_Height      Slope_Height
## 5      Slope_Height MidSlope_Positon_hr      Valley_Depth_hr
##           k 4           k 5
## 1 Maximum_Height_hr Maximum_Height_hr
## 2      Slope_Height  Valley_Depth_hr
## 3  Mid_Slope_Positon      ValleyDepth
## 4  Valley_Depth_hr  NormalizedHeight
## 5 StandardizedHeight      Slope_Height

```



```
## [1] "silikatisches Festgestein_vs_Moraene undifferenziert"
```



```

## [1] "Prediction error at end is: 0.333536585365854"
## [2] "Prediction error at end is: 0.268292682926829"
## [3] "Prediction error at end is: 0.243414634146341"
## [4] "Prediction error at end is: 0.258414634146341"
## [5] "Prediction error at end is: 0.253414634146341"

## k 1 k 2
## 1 Normalized_Height Normalized_Height
## 2 Relative_Slope_Position Maximum_Height_hr
## 3 Vertical_Distance_to_Channel_Network Slope_Height_hr
## 4 Standardized_Height_hr SlopeHeight
## 5 ValleyDepth Relative_Slope_Position

## k 3 k 4
## 1 Normalized_Height Normalized_Height
## 2 Standardized_Height Maximum_Height_hr
## 3 Vertical_Distance_to_Channel_Network Valley_Depth_hr
## 4 Valley_Depth_hr NormalizedHeight
## 5 Normalized_Height_hr Standardized_Height

## k 5
## 1 Normalized_Height
## 2 Maximum_Height_hr
## 3 Standardized_Height
## 4 Vertical_Distance_to_Channel_Network
## 5 ValleyDepth

```

