RandomForest analysis

fabian gruber

February 6, 2018

```
## [1] "1a.2.1 - Potential as a habitat for drought-tolerant species"
```

```
## [1] "OBB error with all predictors of  allpreds is  0.611111111111111"
```

```
## [1] "OBB error with all predictors of  allpreds is  0.62962962962963"
## [1] "OOB-error:  0.657407407407407  for predictors TRI_hr_ws40 AND TRI_hr_ws34"
## [1] "confusion OOB"
##   1 2 3  4  5 class.error
## 1 0 1 1  2  0   1.0000000
## 2 1 2 2  3  5   0.8461538
## 3 0 3 3 10  5   0.8571429
## 4 0 4 9 16  9   0.5789474
## 5 0 4 3  9 16   0.5000000
```

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```
## [1] "1a.2.2 - Potential as a habitat for moisture-tolerant species"
```

```
## [1] "OBB error with all predictors of  allpreds is  0.518518518518518"
```

```
## [1] "OBB error with all predictors of  allpreds is  0.546296296296296"
## [1] "OOB-error:  0.5  for predictors vectorruggedness_hr_ws9 AND geom_10m_fl4_L9"
## [1] "confusion OOB"
##     2 3  4 5 class.error
## 2 14 7  8 4   0.5757576
## 3  6 9  7 1   0.6086957
## 4  3 5 23 4   0.3428571
## 5  2 0  7 8   0.5294118
```

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```
## [1] "1a.3 - Habitat for soil organisms"
```

```
## [1] "OBB error with all predictors of  allpreds is  0.37962962962963"
```

```
## [1] "OBB error with all predictors of  allpreds is  0.361111111111111"
## [1] "OOB-error:  0.527777777777778  for predictors elev_ws3_10m AND elev_ws15_10m"
## [1] "confusion OOB"
##     1  2 3  4 class.error
## 1  6 10 6  2   0.7500000
## 2 11 19 3  1   0.4411765
## 3  6  4 9  7   0.6538462
## 4  1  1 5 17   0.2916667
```

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```
## [1] "1a.4 - Habitat for crops"
```

```
## [1] "OBB error with all predictors of  allpreds is  0.175925925925926"
```

```
## [1] "OBB error with all predictors of  allpreds is  0.157407407407407"
## [1] "OOB-error:  0.157407407407407  for predictors slope_ws3_hr_hr AND TRI_hr_ws3"
## [1] "confusion OOB"
##   3  4  5 class.error
## 3 4  3  1  0.50000000
## 4 3 56  3  0.09677419
## 5 0  7 31  0.18421053
```

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```
## [1] "1c.1 - Average precipitation retention capacity"
```

```
## [1] "OBB error with all predictors of  allpreds is  0.62962962962963"
```

```
## [1] "OBB error with all predictors of  allpreds is  0.611111111111111"
## [1] "OOB-error:  0.564814814814815  for predictors vectorruggedness_hr_ws55 AND ge
om_hr_L3_fl1_rplipdominance_UE_hr_60cells_hr"
## [1] "confusion OOB"
##    1  2 3 4 5 class.error
## 1 10  8 3 3 2   0.6153846
## 2  8 34 1 2 0   0.2444444
## 3  5  5 1 1 0   0.9166667
## 4  6  8 1 2 1   0.8888889
## 5  4  2 1 0 0   1.0000000
```

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```
## [1] "1c.1 - Minimum precipitation retention capacity"
```

```
## [1] "OBB error with all predictors of  allpreds is  0.722222222222222"
```

```
## [1] "OBB error with all predictors of  allpreds is  0.703703703703704"
## [1] "OOB-error:  0.722222222222222  for predictors TotalCurvature_10m AND vectorru
ggedness_hr_ws9"
## [1] "confusion OOB"
##    1 2 3  4 5 class.error
## 1 1 2 4  2 3   0.9166667
## 2 0 4 8  9 5   0.8461538
## 3 3 5 9  2 3   0.5909091
## 4 2 8 2  9 5   0.6538462
## 5 1 4 0 10 7   0.6818182
```

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```
## [1] "1c.2 - Retention capacity for heavy precipitation events"
```

```
## [1] "OBB error with all predictors of  allpreds is  0.305555555555556"
```

```
## [1] "OBB error with all predictors of  allpreds is  0.296296296296296"
## [1] "OOB-error:  0.37037037037037  for predictors vectorruggedness_hr_ws21 AND vec
torruggedness_hr_ws31"
## [1] "confusion OOB"
##     1 2 3 4 5 class.error
## 1 64 2 3 3 3   0.1466667
## 2  7 3 0 1 0   0.7272727
## 3  5 1 0 0 0   1.0000000
## 4  4 4 0 0 0   1.0000000
## 5  6 1 0 0 1   0.8750000
```

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```
## [1] "1c.3 - groundwater reformation rate"
```

```
## [1] "OBB error with all predictors of  allpreds is  0.648148148148148"
```

```
## [1] "OBB error with all predictors of  allpreds is  0.611111111111111"
## [1] "OOB-error:  0.62037037037037  for predictors vectorruggedness_hr_ws29 AND ele
v_ws5_10m"
## [1] "confusion OOB"
##    1  2 3 4 5 class.error
## 1 6  5 1 0 2   0.5714286
## 2 5 21 4 6 3   0.4615385
## 3 2  9 0 0 3   1.0000000
## 4 1  6 1 6 5   0.6842105
## 5 2  6 1 5 8   0.6363636
```

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```
## [1] "1c.4 - Potential for providing nutrients for plants"
```

```
## [1] "OBB error with all predictors of  allpreds is  0.305555555555556"
```

```
## [1] "OBB error with all predictors of  allpreds is  0.333333333333333"
## [1] "OOB-error:  0.287037037037037  for predictors vectorruggedness_hr_ws25 AND SG
U"
## [1] "confusion OOB"
##     1 3  5 class.error
## 1 56 3  6   0.1384615
## 3  5 1  5   0.9090909
## 5 10 2 20   0.3750000
```

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```
## [1] "1c.5 - Potential as a CO2 sink"
```

```
## [1] "OBB error with all predictors of  allpreds is  0.333333333333333"
```

```
## [1] "OBB error with all predictors of  allpreds is  0.342592592592593"
## [1] "OOB-error:  0.333333333333333  for predictors vectorruggedness_hr_ws5 AND ele
v_ws11_10m"
## [1] "confusion OOB"
##    1 2 3  4 5 class.error
## 1 41 0 7  3 0   0.1960784
## 2  0 0 0  1 0   1.0000000
## 3  5 0 4  9 0   0.7777778
## 4  0 1 5 27 0   0.1818182
## 5  1 0 0  4 0   1.0000000
```

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```
## [1] "1d.1 - Potential for retention of heavy metals"
```

```
## [1] "OBB error with all predictors of  allpreds is  0.333333333333333"
```

```
## [1] "OBB error with all predictors of  allpreds is  0.342592592592593"
## [1] "OOB-error:  0.453703703703704  for predictors elev_ws11_10m AND elev_ws5_10m"
## [1] "confusion OOB"
##    1 2 3 4  5 class.error
## 1 24 4 3 3  8   0.4285714
## 2  6 0 0 0  1   1.0000000
## 3  2 0 5 1  2   0.5000000
## 4  2 0 2 0  3   1.0000000
## 5  7 1 1 3 30   0.2857143
```

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```
## [1] "1d.2 - Potential for transforming organic contaminants"
```

```
## [1] "OBB error with all predictors of  allpreds is  0.537037037037037"
```

```
## [1] "OBB error with all predictors of  allpreds is  0.546296296296296"
## [1] "OOB-error:  0.555555555555556  for predictors vectorruggedness_hr_ws5 AND Cha
nnel_Network_Base_Level_hr"
## [1] "confusion OOB"
##    1 2  3 4  5 class.error
## 1 0 1  5 0  4   1.0000000
## 2 2 6  7 2  5   0.7272727
## 3 1 6 16 1  4   0.4285714
## 4 1 2  1 0  5   1.0000000
## 5 2 4  3 4 26   0.3333333
```

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```
## [1] "1d.3 - Potential as filter and buffer for organic contaminants"
```

```
## [1] "OBB error with all predictors of  allpreds is  0.037037037037037"
```

```
## [1] "OBB error with all predictors of  allpreds is  0.037037037037037"
## [1] "OOB-error:  0.0277777777777778  for predictors Normalized_Height_50m AND geom
_hr_L50m_fl1_rplipedgedensity_UE_hr_20cells_hr"
## [1] "confusion OOB"
##   4   5 class.error
## 4 1   3        0.75
## 5 0 104        0.00
```

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```
## [1] "1d.4 - Potential for retention of water-soluble contaminants"
```

```
## [1] "OBB error with all predictors of  allpreds is  0.509259259259259"
```

```
## [1] "OBB error with all predictors of  allpreds is  0.490740740740741"
## [1] "OOB-error:  0.518518518518518  for predictors sagaTopographic_Wetness_Index_5
0m AND vectorruggedness_hr_ws43"
## [1] "confusion OOB"
##    1 2 3 4 5 class.error
## 1 38 4 0 5 0   0.1914894
## 2  7 0 4 3 0   1.0000000
## 3  3 3 4 5 2   0.7647059
## 4  5 2 3 9 3   0.5909091
## 5  1 1 3 2 1   0.8750000
```

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```
## [1] "1d.5 - Potential as buffer for acidic contaminants"
```

```
## [1] "OBB error with all predictors of  allpreds is  0.564814814814815"
```

```
## [1] "OBB error with all predictors of  allpreds is  0.62037037037037"
## [1] "OOB-error:  0.601851851851852  for predictors Standardized_Height_50m AND Nor
malized_Height_50m"
## [1] "confusion OOB"
##     1 2 3 4 5 class.error
## 1 28 6 4 0 1   0.2820513
## 2 10 7 5 2 0   0.7083333
## 3  8 4 4 2 2   0.8000000
## 4  2 6 3 3 2   0.8125000
## 5  2 0 2 4 1   0.8888889
```