Stepwise AIC variable selection

Winter, 10304:

# 1:

YY + s(avg\_precip, bs = "ps") + s(avg\_airtmp, bs = "ps") + s(avg\_glorad, bs = "ps") + s(avg\_relhum, bs = "ps") + s(avg\_soilwater, bs = "ps") + s(avg\_snowstorage, bs = "ps") + s(groundwaterdepth, bs = "ps") + s(avg\_infiltration, bs = "ps") + s(max\_precip, bs = "ps")

AIC: 888.2389, BIC: 1111.283, Deviance explained: 73.4%

Kein besseres AIC zu Erreichen mit Rausnahme einer Variable -> bestes Modell bei Rausnahme einer Variable

# 2: (without avg\_relhum)

YY + s(avg\_precip, bs = "ps") + s(avg\_airtmp, bs = "ps") + s(avg\_glorad, bs = "ps") + s(avg\_soilwater, bs = "ps") + s(avg\_snowstorage, bs = "ps") + s(groundwaterdepth, bs = "ps") + s(avg\_infiltration, bs = "ps") + s(max\_precip, bs = "ps")

AIC: 891.3007, BIC: 1100.485, Deviance explained: 73.2%

# 3: (without avg\_relhum and max\_precip)

YY + s(avg\_precip, bs = "ps") + s(avg\_airtmp, bs = "ps") + s(avg\_glorad, bs = "ps") + s(avg\_soilwater, bs = "ps") + s(avg\_snowstorage, bs = "ps") + s(groundwaterdepth, bs = "ps") + s(avg\_infiltration, bs = "ps")

AIC: 901.4289, BIC: 1102.39, Deviance explained: 73.0%

# 4: (without avg\_relhum and max\_precip and avg\_airtmp)

YY + s(avg\_precip, bs = "ps") + s(avg\_glorad, bs = "ps") + s(avg\_soilwater, bs = "ps") + s(avg\_snowstorage, bs = "ps") + s(groundwaterdepth, bs = "ps") + s(avg\_infiltration, bs = "ps")

AIC: 911.6747, BIC: 1080.813, Deviance explained: 72.4%

# 5: (without avg\_relhum and max\_precip and avg\_airtmp and avg\_precip)

YY + s(avg\_glorad, bs = "ps") + s(avg\_soilwater, bs = "ps") + s(avg\_snowstorage, bs = "ps") + s(groundwaterdepth, bs = "ps") + s(avg\_infiltration, bs = "ps")

AIC: 926.6315, BIC: 1073.878, Deviance explained: 71.7%

Summer, 10304:

# 1:

YY + s(avg\_precip, bs = "ps") + s(avg\_airtmp, bs = "ps") + s(avg\_glorad, bs = "ps") + s(avg\_relhum, bs = "ps") + s(avg\_soilwater, bs = "ps") + s(avg\_snowstorage, bs = "ps") + s(groundwaterdepth, bs = "ps") + s(avg\_infiltration, bs = "ps") + s(max\_precip, bs = "ps")

AIC: 673.188, BIC: 849.1178, Deviance explained: 74.6%

# 2: (without avg\_relhum)

YY + s(avg\_precip, bs = "ps") + s(avg\_airtmp, bs = "ps") + s(avg\_glorad, bs = "ps") + s(avg\_soilwater, bs = "ps") + s(avg\_snowstorage, bs = "ps") + s(groundwaterdepth, bs = "ps") + s(avg\_infiltration, bs = "ps") + s(max\_precip, bs = "ps")

AIC: 670.2751, BIC: 835.2965, Deviance explained: 74.6%

# 3: (without avg\_relhum and max\_precip)

YY + s(avg\_precip, bs = "ps") + s(avg\_airtmp, bs = "ps") + s(avg\_glorad, bs = "ps") + s(avg\_soilwater, bs = "ps") + s(avg\_snowstorage, bs = "ps") + s(groundwaterdepth, bs = "ps") + s(avg\_infiltration, bs = "ps")

AIC: 675.3187, BIC: 836.2856, Deviance explained: 74.6%

# 4: (without avg\_relhum and max\_precip and avg\_precip)

YY + s(avg\_airtmp, bs = "ps") + s(avg\_glorad, bs = "ps") + s(avg\_soilwater, bs = "ps") + s(avg\_snowstorage, bs = "ps") + s(groundwaterdepth, bs = "ps") + s(avg\_infiltration, bs = "ps")

AIC: 681.8139, BIC: 837.9233, Deviance explained: 74.2%

# 5: (without avg\_relhum and max\_precip and avg\_precip and avg\_snowstorage)

YY + s(avg\_airtmp, bs = "ps") + s(avg\_glorad, bs = "ps") + s(avg\_soilwater, bs = "ps") + s(groundwaterdepth, bs = "ps") + s(avg\_infiltration, bs = "ps")

AIC: 726.6099, BIC: 875.3385, Deviance explained: 72.3%

Winter, 11502:

# 1:

YY + s(avg\_precip, bs = "ps") + s(avg\_airtmp, bs = "ps") + s(avg\_glorad, bs = "ps") + s(avg\_relhum, bs = "ps") + s(avg\_soilwater, bs = "ps") + s(avg\_snowstorage, bs = "ps") + s(groundwaterdepth, bs = "ps") + s(avg\_infiltration, bs = "ps") + s(max\_precip, bs = "ps")

AIC: 689.587, BIC: 892.2698, Deviance explained: 69.9%

# 2: (without avg\_relhum)

YY + s(avg\_precip, bs = "ps") + s(avg\_airtmp, bs = "ps") + s(avg\_glorad, bs = "ps") + s(avg\_soilwater, bs = "ps") + s(avg\_snowstorage, bs = "ps") + s(groundwaterdepth, bs = "ps") + s(avg\_infiltration, bs = "ps") + s(max\_precip, bs = "ps")

AIC: 700.0255, BIC: 867.9815, Deviance explained: 68.9%

# 3: (without avg\_relhum and avg\_glorad)

YY + s(avg\_precip, bs = "ps") + s(avg\_airtmp, bs = "ps") + s(avg\_soilwater, bs = "ps") + s(avg\_snowstorage, bs = "ps") + s(groundwaterdepth, bs = "ps") + s(avg\_infiltration, bs = "ps") + s(max\_precip, bs = "ps")

AIC: 713.1995, BIC: 884.7035, Deviance explained: 68.3%

# 4: (without avg\_relhum and avg\_glorad and avg\_precip)

YY + s(avg\_airtmp, bs = "ps") + s(avg\_soilwater, bs = "ps") + s(avg\_snowstorage, bs = "ps") + s(groundwaterdepth, bs = "ps") + s(avg\_infiltration, bs = "ps") + s(max\_precip, bs = "ps")

AIC: 725.4417, BIC: 893.1349, Deviance explained: 67.7%

# 5: (without avg\_relhum and avg\_glorad and avg\_precip and avg\_airtmp)

YY + s(avg\_soilwater, bs = "ps") + s(avg\_snowstorage, bs = "ps") + s(groundwaterdepth, bs = "ps") + s(avg\_infiltration, bs = "ps") + s(max\_precip, bs = "ps")

AIC: 745.643, BIC: 889.0725, Deviance explained: 66.4%

Summer, 11502:

# 1:

YY + s(avg\_precip, bs = "ps") + s(avg\_airtmp, bs = "ps") + s(avg\_glorad, bs = "ps") + s(avg\_relhum, bs = "ps") + s(avg\_soilwater, bs = "ps") + s(avg\_snowstorage, bs = "ps") + s(groundwaterdepth, bs = "ps") + s(avg\_infiltration, bs = "ps") + s(max\_precip, bs = "ps")

AIC: 972.291, BIC: 1210.18, Deviance explained: 65.3%

# 2: (without avg\_precip)

YY + s(avg\_airtmp, bs = "ps") + s(avg\_glorad, bs = "ps") + s(avg\_relhum, bs = "ps") + s(avg\_soilwater, bs = "ps") + s(avg\_snowstorage, bs = "ps") + s(groundwaterdepth, bs = "ps") + s(avg\_infiltration, bs = "ps") + s(max\_precip, bs = "ps")

AIC: 970.6249, BIC: 1203.427, Deviance explained: 65.3%

# 3: (without avg\_precip and max\_precip)

YY + s(avg\_airtmp, bs = "ps") + s(avg\_glorad, bs = "ps") + s(avg\_relhum, bs = "ps") + s(avg\_soilwater, bs = "ps") + s(avg\_snowstorage, bs = "ps") + s(groundwaterdepth, bs = "ps") + s(avg\_infiltration, bs = "ps")

AIC: 985.0851, BIC: 1195.908, Deviance explained: 64.8%

# 4: (without avg\_precip and max\_precip and avg\_relhum)

YY + s(avg\_airtmp, bs = "ps") + s(avg\_glorad, bs = "ps") + s(avg\_soilwater, bs = "ps") + s(avg\_snowstorage, bs = "ps") + s(groundwaterdepth, bs = "ps") + s(avg\_infiltration, bs = "ps")

AIC: 996.5298, BIC: 1188.489, Deviance explained: 64.2%

# 5: (without avg\_precip and max\_precip and avg\_relhum and avg\_airtmp)

YY + s(avg\_glorad, bs = "ps") + s(avg\_soilwater, bs = "ps") + s(avg\_snowstorage, bs = "ps") + s(groundwaterdepth, bs = "ps") + s(avg\_infiltration, bs = "ps")

AIC: 1060.795, BIC: 1216.172, Deviance explained: 61.3%

Winter, 20203:

# 1:

YY + s(avg\_precip, bs = "ps") + s(avg\_airtmp, bs = "ps") + s(avg\_glorad, bs = "ps") + s(avg\_relhum, bs = "ps") + s(avg\_soilwater, bs = "ps") + s(avg\_snowstorage, bs = "ps") + s(groundwaterdepth, bs = "ps") + s(avg\_infiltration, bs = "ps") + s(max\_precip, bs = "ps")

AIC: 602.9322, BIC: 855.2025, Deviance explained: 78.5%

# 2: (without avg\_precip)

YY + s(avg\_airtmp, bs = "ps") + s(avg\_glorad, bs = "ps") + s(avg\_relhum, bs = "ps") + s(avg\_soilwater, bs = "ps") + s(avg\_snowstorage, bs = "ps") + s(groundwaterdepth, bs = "ps") + s(avg\_infiltration, bs = "ps") + s(max\_precip, bs = "ps")

AIC: 602.2465, BIC: 849.15, Deviance explained: 78.5%

# 2: (without avg\_precip and avg\_airtmp)

YY + s(avg\_glorad, bs = "ps") + s(avg\_relhum, bs = "ps") + s(avg\_soilwater, bs = "ps") + s(avg\_snowstorage, bs = "ps") + s(groundwaterdepth, bs = "ps") + s(avg\_infiltration, bs = "ps") + s(max\_precip, bs = "ps")

AIC: 605.7714, BIC: 828.423, Deviance explained: 78.1%

# 3: (without avg\_precip and avg\_airtmp and avg\_glorad)

YY + s(avg\_glorad, bs = "ps") + s(avg\_relhum, bs = "ps") + s(avg\_soilwater, bs = "ps") + s(avg\_snowstorage, bs = "ps") + s(groundwaterdepth, bs = "ps") + s(avg\_infiltration, bs = "ps") + s(max\_precip, bs = "ps")

AIC: 617.1901, BIC: 802.3887, Deviance explained: 77.1%

# 4: (without avg\_precip and avg\_airtmp and avg\_glorad and avg\_snowstorage)

YY + s(avg\_glorad, bs = "ps") + s(avg\_relhum, bs = "ps") + s(avg\_soilwater, bs = "ps") + s(groundwaterdepth, bs = "ps") + s(avg\_infiltration, bs = "ps") + s(max\_precip, bs = "ps")

AIC: 650.5087, BIC: 820.2103, Deviance explained: 75.6%

# 5: (without avg\_precip and avg\_airtmp and avg\_glorad and avg\_snowstorage and groundwaterdepth)

YY + s(avg\_glorad, bs = "ps") + s(avg\_relhum, bs = "ps") + s(avg\_soilwater, bs = "ps") + s(avg\_infiltration, bs = "ps") + s(max\_precip, bs = "ps")

AIC: 740.7942, BIC: 860.7432, Deviance explained: 71.3%

Summer, 20203:

# 1:

YY + s(avg\_precip, bs = "ps") + s(avg\_airtmp, bs = "ps") + s(avg\_glorad, bs = "ps") + s(avg\_relhum, bs = "ps") + s(avg\_soilwater, bs = "ps") + s(avg\_snowstorage, bs = "ps") + s(groundwaterdepth, bs = "ps") + s(avg\_infiltration, bs = "ps") + s(max\_precip, bs = "ps")

AIC: 1510.026, BIC: 1756.059, Deviance explained: 73.6%

# 2: (without avg\_glorad)

YY + s(avg\_precip, bs = "ps") + s(avg\_airtmp, bs = "ps") + s(avg\_relhum, bs = "ps") + s(avg\_soilwater, bs = "ps") + s(avg\_snowstorage, bs = "ps") + s(groundwaterdepth, bs = "ps") + s(avg\_infiltration, bs = "ps") + s(max\_precip, bs = "ps")

AIC: 1513.111, BIC: 1724.975, Deviance explained: 73.3%

# 3: (without avg\_glorad and avg\_airtmp)

YY + s(avg\_precip, bs = "ps") + s(avg\_relhum, bs = "ps") + s(avg\_soilwater, bs = "ps") + s(avg\_snowstorage, bs = "ps") + s(groundwaterdepth, bs = "ps") + s(avg\_infiltration, bs = "ps") + s(max\_precip, bs = "ps")

AIC: 1523.726, BIC: 1727.462, Deviance explained: 73.1%

# 4: (without avg\_glorad and avg\_airtmp and max\_precip)

YY + s(avg\_precip, bs = "ps") + s(avg\_relhum, bs = "ps") + s(avg\_soilwater, bs = "ps") + s(avg\_snowstorage, bs = "ps") + s(groundwaterdepth, bs = "ps") + s(avg\_infiltration, bs = "ps")

AIC: 1535.979, BIC: 1707.132, Deviance explained: 73.1%

# 5: (without avg\_glorad and avg\_airtmp and max\_precip and avg\_precip)

YY + s(avg\_relhum, bs = "ps") + s(avg\_soilwater, bs = "ps") + s(avg\_snowstorage, bs = "ps") + s(groundwaterdepth, bs = "ps") + s(avg\_infiltration, bs = "ps")

AIC: 1570.1, BIC: 1743.494, Deviance explained: 72.5%