Partial Least square regression model (PLS) for Budle Bay meadow

I am investigating if climatic variables (max temp, rainfall, and solar radiation) are influencing seagrass percent cover. This example is for one meadow. I am using a partial least square regression model to investigate this.

###make this example reproducible

set.seed(1)

### pls model

model1 <- plsr(budle\_bay\_pls\_$cover~budle\_bay\_pls\_$`sunshine 01`+budle\_bay\_pls\_$`sunshine 03`+budle\_bay\_pls\_$`sunshine 06`+budle\_bay\_pls\_$`sunshine 09`+budle\_bay\_pls\_$`sunshine 12`+budle\_bay\_pls\_$`max temp 01`+budle\_bay\_pls\_$`max temp 03`+budle\_bay\_pls\_$`max temp 06`+budle\_bay\_pls\_$`max temp 09`+budle\_bay\_pls\_$`max temp 12`+budle\_bay\_pls\_$`rainfall 01`+budle\_bay\_pls\_$`rainfall 03`+budle\_bay\_pls\_$`rainfall 06`+budle\_bay\_pls\_$`rainfall 09`+budle\_bay\_pls\_$rainfall12, data=budle\_bay\_pls\_, scale=TRUE, validation="CV")

summary(model1)

Data: X dimension: 10 15

Y dimension: 10 1

Fit method: kernelpls

Number of components considered: 8

VALIDATION: RMSEP

Cross-validated using 10 leave-one-out segments.

(Intercept) 1 comps 2 comps 3 comps 4 comps 5 comps 6 comps 7 comps 8 comps

CV 18.02 19.79 19.85 18.55 16.57 16.48 17.19 17.37 17.14

adjCV 18.02 19.25 19.09 17.85 15.83 15.73 16.33 16.49 16.26

TRAINING: % variance explained

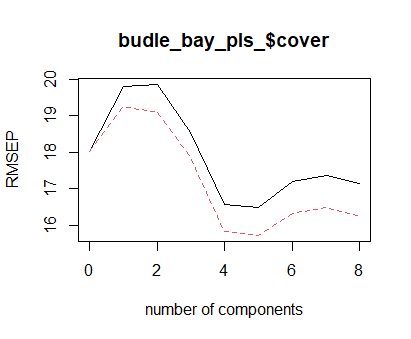
1 comps 2 comps 3 comps 4 comps 5 comps 6 comps 7 comps 8 comps

X 19.67 41.83 56.42 65.25 75.83 84.03 95.79 98.53

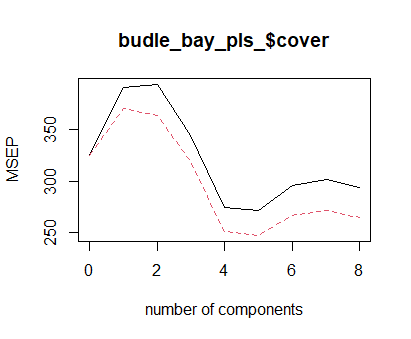
budle\_bay\_pls\_$cover 61.94 81.26 88.81 95.79 97.59 99.43 99.83 99.98

### visualize cross- validation plots

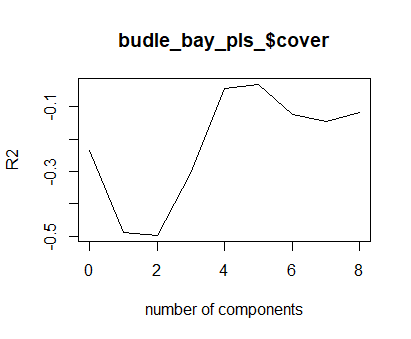
validationplot(model1)



validationplot(model1, val.type = "MSEP")



validationplot(model1, val.type = "R2")



I understand from these graphs that 4 components can make a strong model. However, I want to know which components they are, and I am not sure how to do that. I have played around with the order I have written the code and that does not seem to change anything.

My thoughts are to make a graph like the one below however this is for a PCA analysis and not a PLS analysis. Therefore, when I try follow a method to make a graph like this it does not work.

