Printout

Monday, April 10, 2023 8:39 AM

Section 1

MANE 6313

Subsection 1

Week 13, Module F

Student Learning Outcome

- Select an appropriate experimental design with one or more factors,
- Select an appropriate model with one or more factors,
- Evaluate statistical analyses of experimental designs,
- Assess the model adequacy of any experimental design, and
- Interpret model results.

Module Learning Outcome

Interpret contour and 3D plots in R

Graphical Analysis in R

- R provides contour plots and 3D (perspective) plots
- The second Box-Benkhen model from Module E will be used in this module

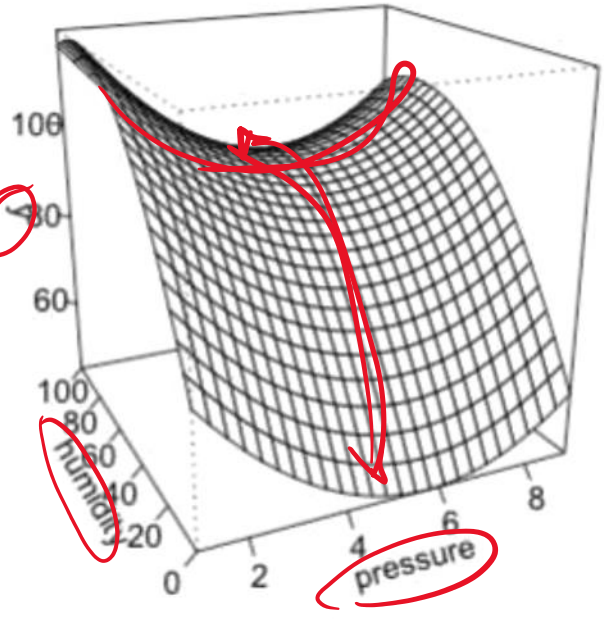
3D Plot

```r
persp(bbd11.model2,x2~x3,zlab="y")
```

label

model

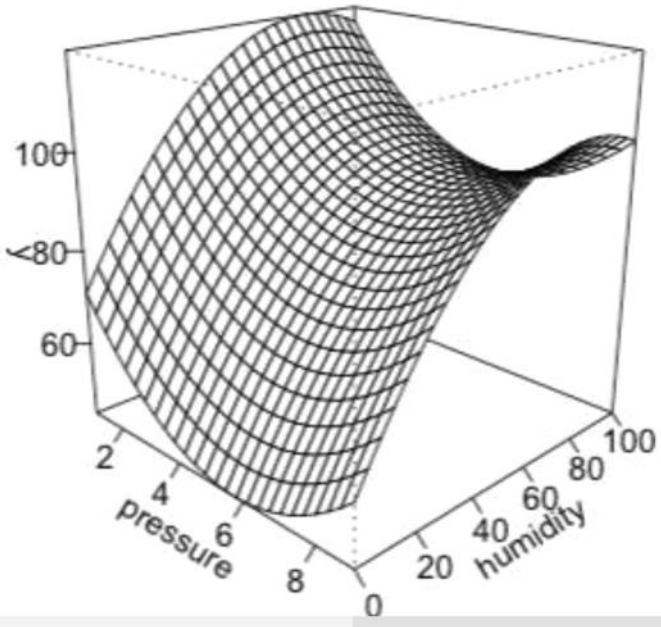
2 factors



Saddle-like function

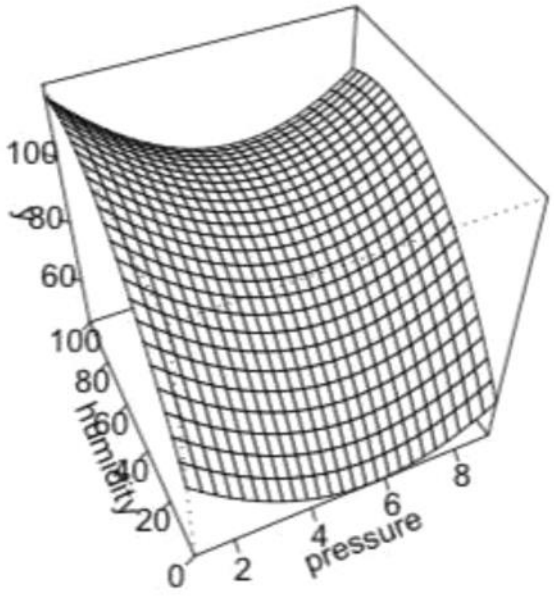
3D Plot with Theta=45, Phi=0

```
73 ```{r}
74 persp(bbd11.model2,x2~x3,zlab="y",theta=45)
75 ```
```



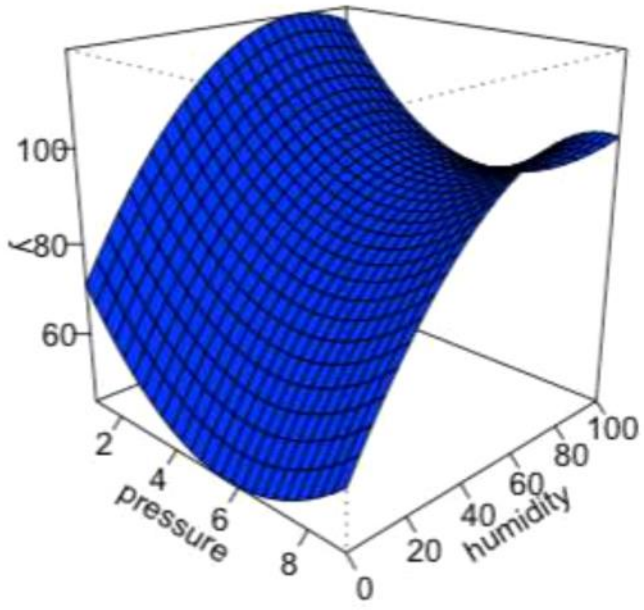
3D Plot with Theta=0,Phi=45

```
77 ```{r}
78 persp(bbd11.model2,x2~x3,zlab="y",phi=45)
79 ```
```



3D Plot with Color

```
82 ```{r}
83 persp(bbd11.model2,x2~x3,zlab="y",theta=45, col="blue")
84 ```
```

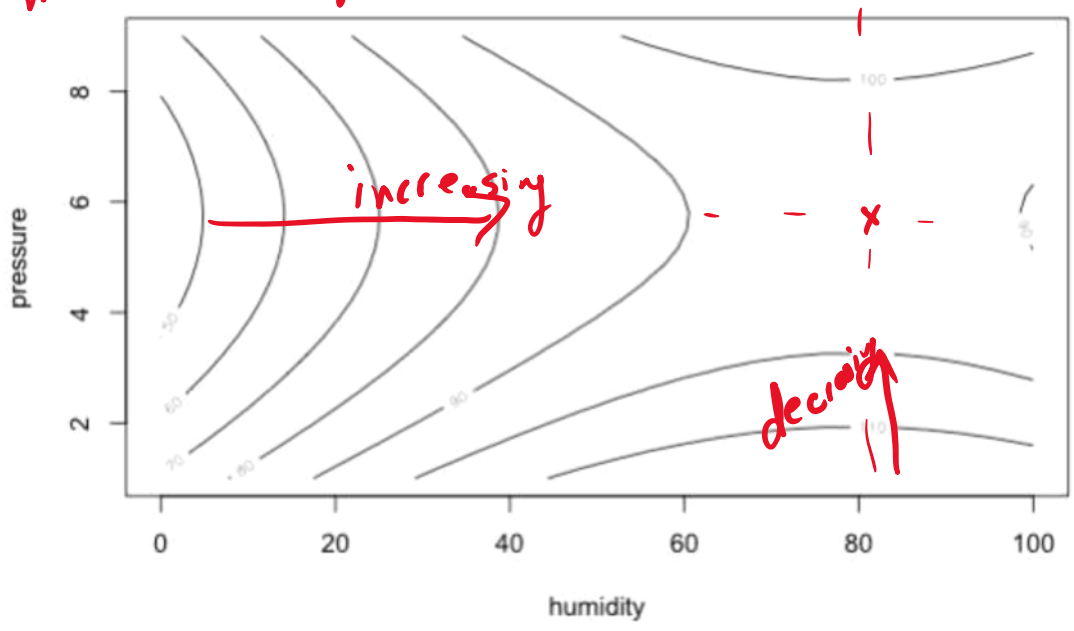


Non-image Contour Plot

```
61 ```{r}
62 contour(bbd11.model2,~x2+x3)
63 ```
```

model

2factort



Contour Plot with More Lines

```
65 ```{r}
66 contour(bbd11.model2,~x2+x3,nlevels=20)
67 ```
```

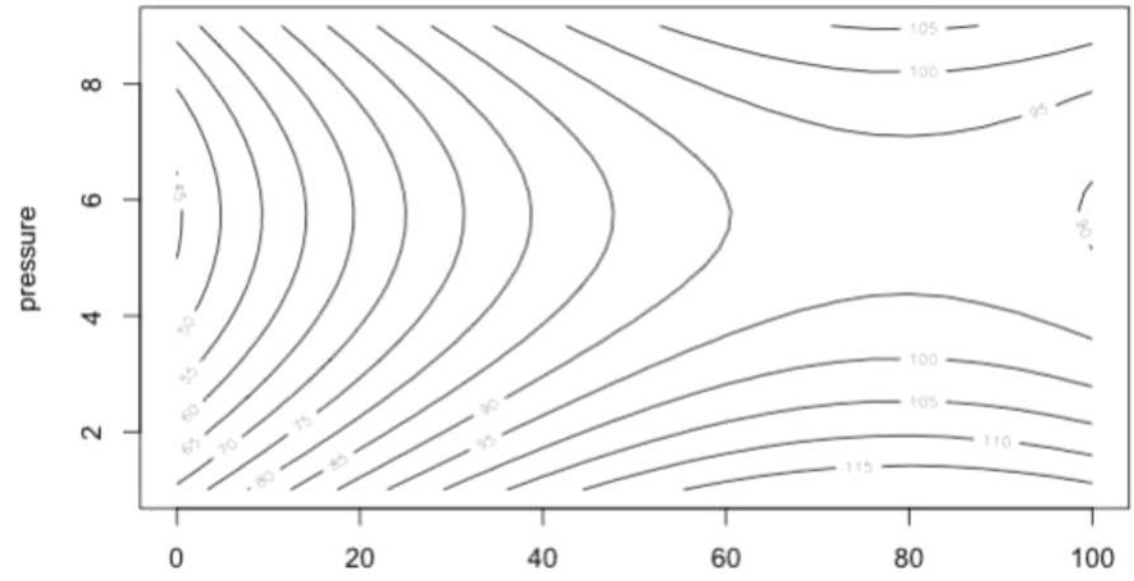
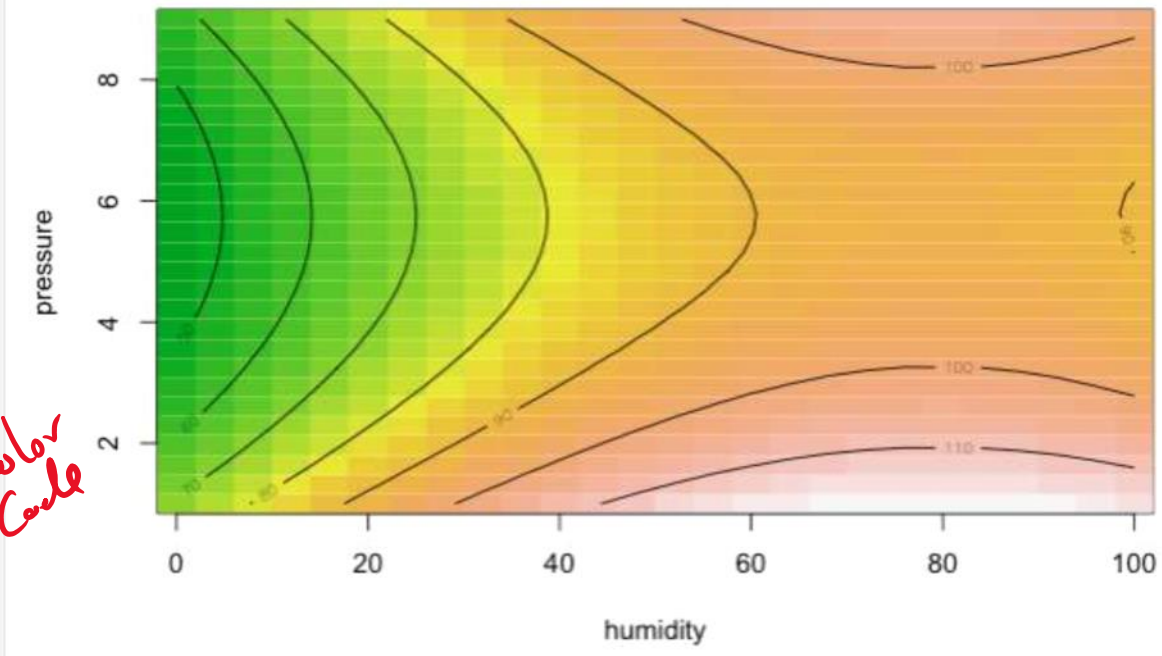


Figure 6: Contour Plot with 20 lines

Contour Plot as Image

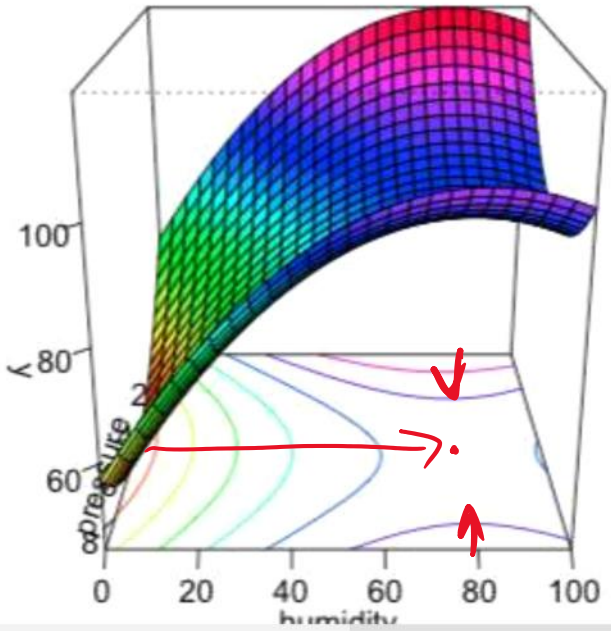
```
61 ```{r}
62 contour(bbd11.model2,~x2+x3,image=TRUE)
63 ```
```



Color Code

3D Plot with Contours

```r
persp(bbd11.model2,x2~x3,zlab="y",theta=90, col=rainbow(50),contours="colors")
```



R Demonstration