Figure 12.12. Fit of the optimal model. We have two planes, one for the forested data and one for the non-forested data. The *z*-axis shows the posterior mean values. It is also possible to add 95% credible intervals and the observed data.
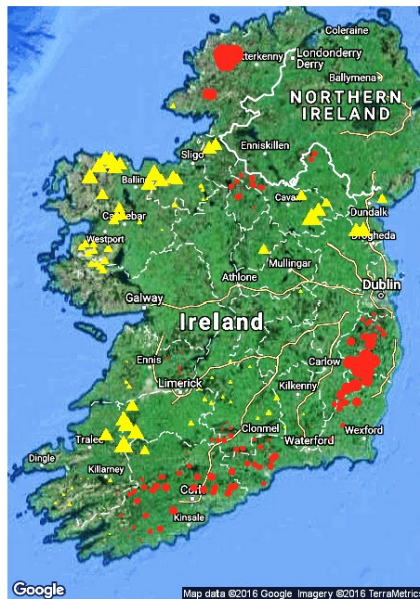

Figure 12.13. Map of Ireland. Positive values are represented by circles and negative values by triangles. The R code to create this graph is on the website for this book.
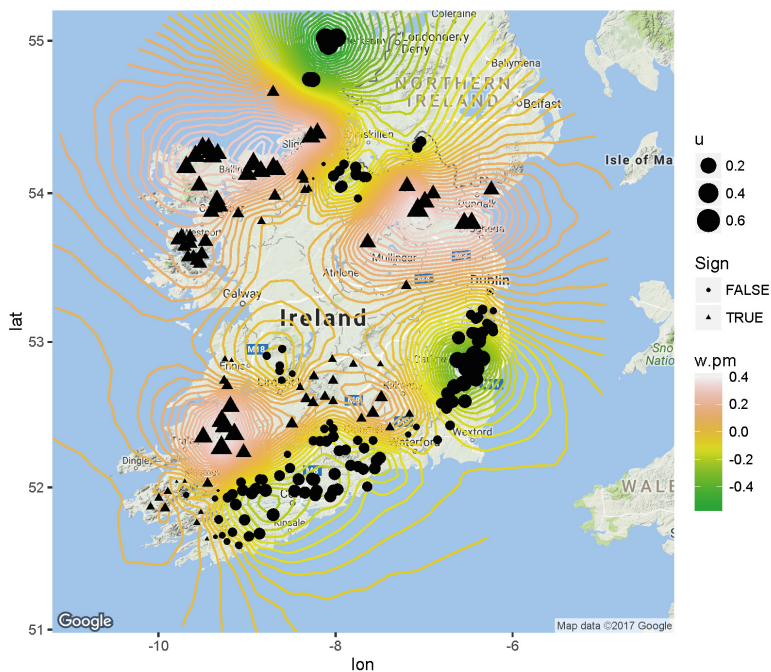
Figure 12.14. As Figure 12.13 but we also added the w_k information as coloured contour lines. The R code to create this graph is on the website for this book.

It is not easy to create Figure 12.12. The challenge is not the actual coding of the three-dimensional graph, but more so to get the data for this graph. For this we create a grid of covariates and predict the pH values for these specific covariate values. The model has two continuous covariates and one categorical covariate. We create 25 values for log altitude and also for SDI, and combine these with the two levels of forested. The `expand.grid` function below creates 1250 covariate values for which we want to obtain predicted pH values (posterior mean values and 95% credible intervals).

```
> MyData <- expand.grid(
        LogAlt    = seq(1.47, 2.94, length = 25),
        SDI       = seq(6.3, 74.25, length = 25),
        fForested = levels(iph$fForested))
> dim(MyData)

1250    3
```