Random Forrest Forecast for El Nino 3.4

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Data

```
{-1.42, -1.31, -1.04, -1.12, -1.38, <<758>>, -0.37, -0.28, -0.14, -0.2, -0.49}
```

Make a sequential time series with intervals of 1:

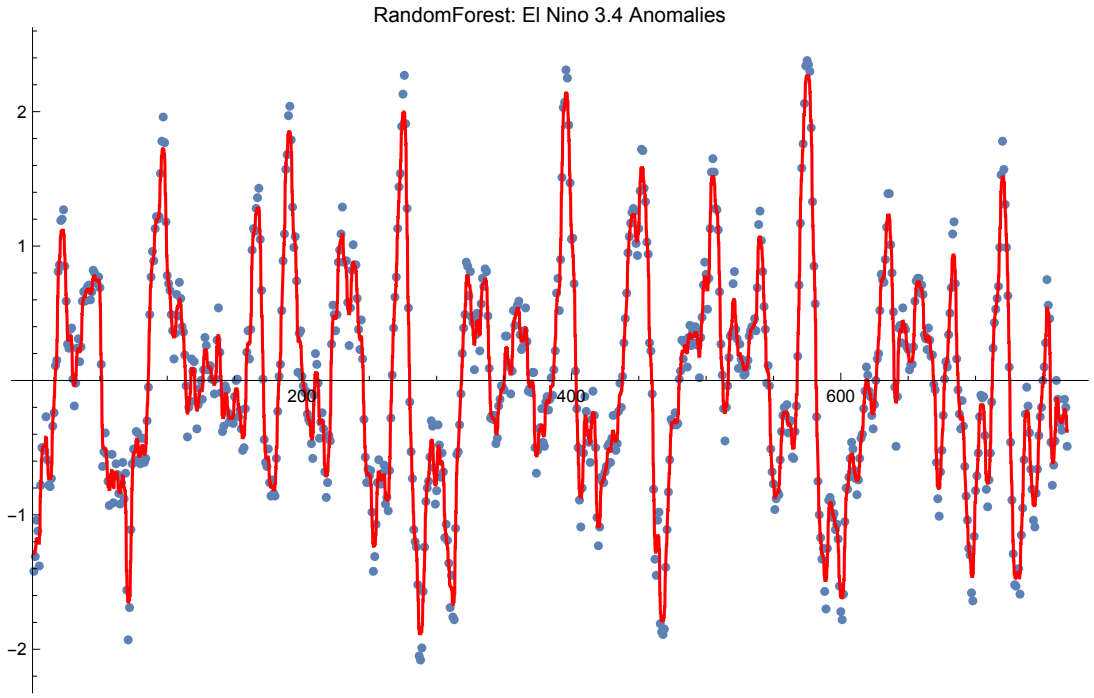
```
data = Range[Length[data]] → data;
```

Get a forecast function from Random Forrest:

```
randForest = Predict[data, Method → "RandomForest", PerformanceGoal → "Quality"];
```

Actual data blue dots, Random Forrest Forecast Red:

```
Show[ListPlot@data[[2]], Plot[randForest[x], {x, 1, 768}, PlotStyle → Red],
 PlotRange → All, PlotLabel → "RandomForest: El Nino 3.4 Anomalies"]
```




```
PredictorInformation[randForest, "MethodDescription"]
```

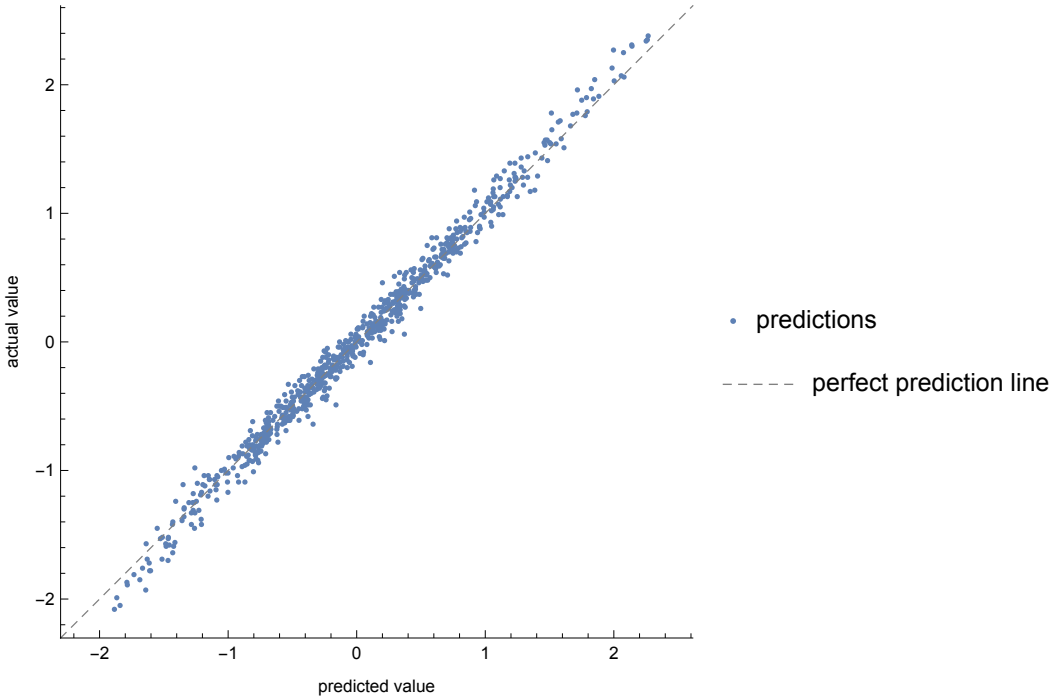
The random forest predictor uses an ensemble of decision trees to predict the class. Each decision tree has been trained on a random subset of the training set, and only uses a random subset of the features.

```
PredictorInformation[randForest]
```

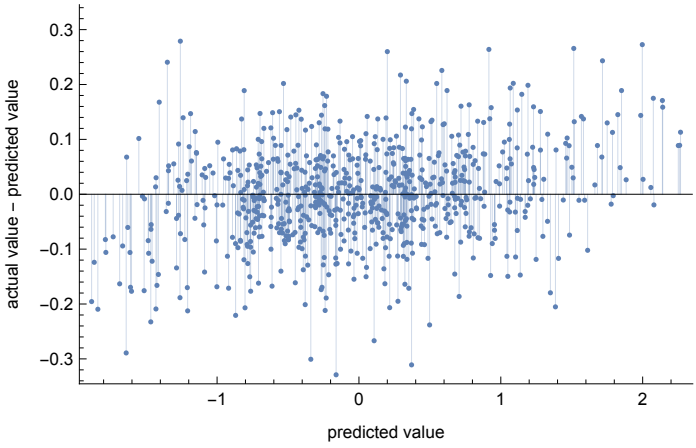
Predictor information

Method	Random forest
Number of features	1
Number of training examples	768
Number of extracted features	1
Number of trees	200

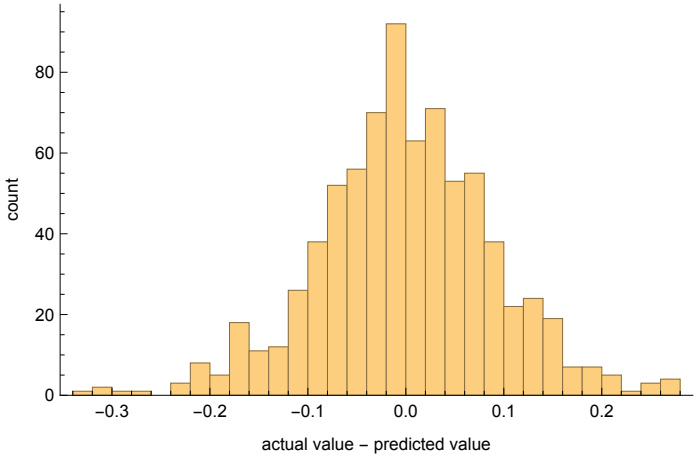
```
PredictorMeasurements[randForest, data, "ComparisonPlot"]
```




```
PredictorMeasurements[randForest, data, "ResidualPlot"]
```



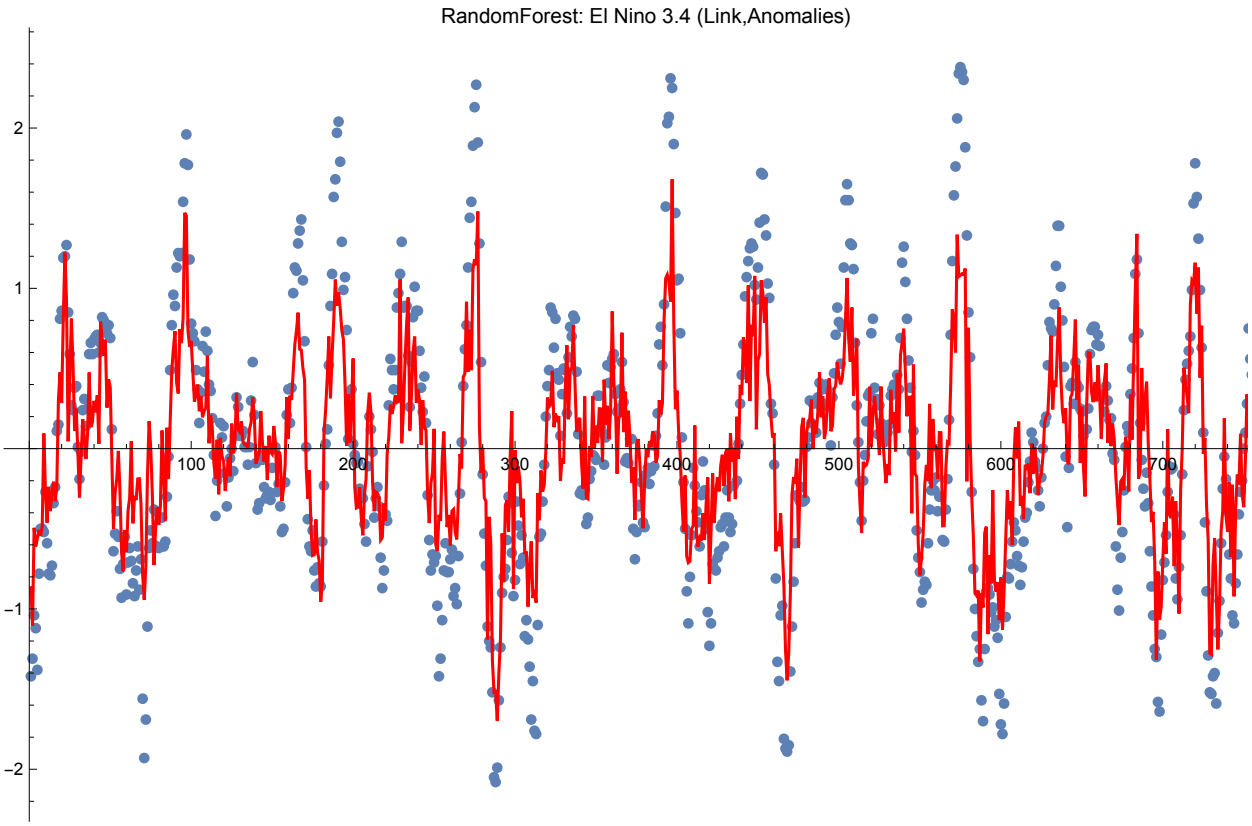
```
PredictorMeasurements[randForest, data, "ResidualHistogram"]
```



Link Strength

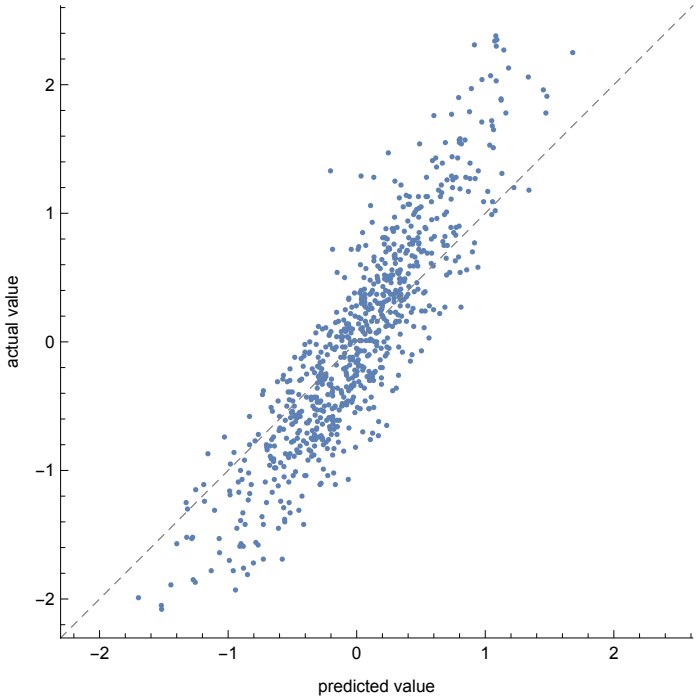
{-0.0131887,-0.11609,-0.178518,-0.209169,-0.170269,-0.120167,-0.0493241,0.00174265,-0.00342914,-0.00938341,0.0482938,0.148507,0.223024,0.27746,0.294639,0.260127,0.18824,≪729≫,-0.15834,-0.119561,-0.0936648,-0.116268,-0.160705,-0.210296,-0.258976,-0.276159,-0.311986,-0.319575,-0.296664,-0.226749,-0.165093,-0.11449,-0.104858,-0.0616275}

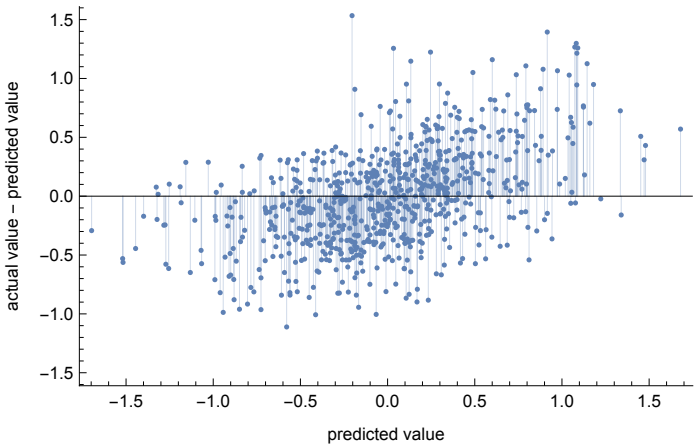
Intead of mapping integers to Anomalies, we mapp link⟶anom.

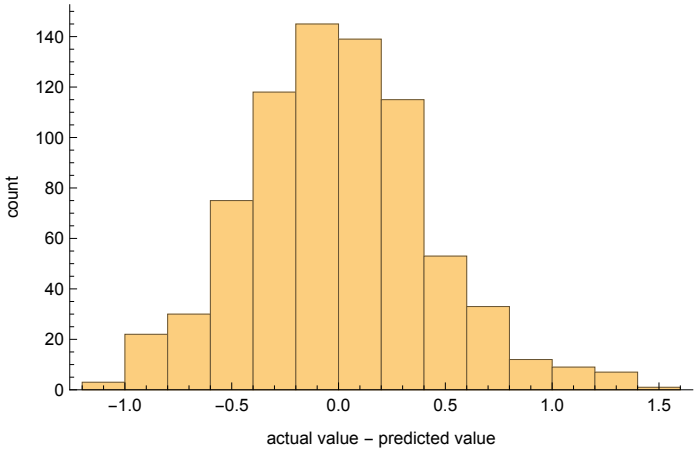


Predictor information

Method	Random forest
Number of features	1
Number of training examples	762
Number of extracted features	1
Number of trees	200

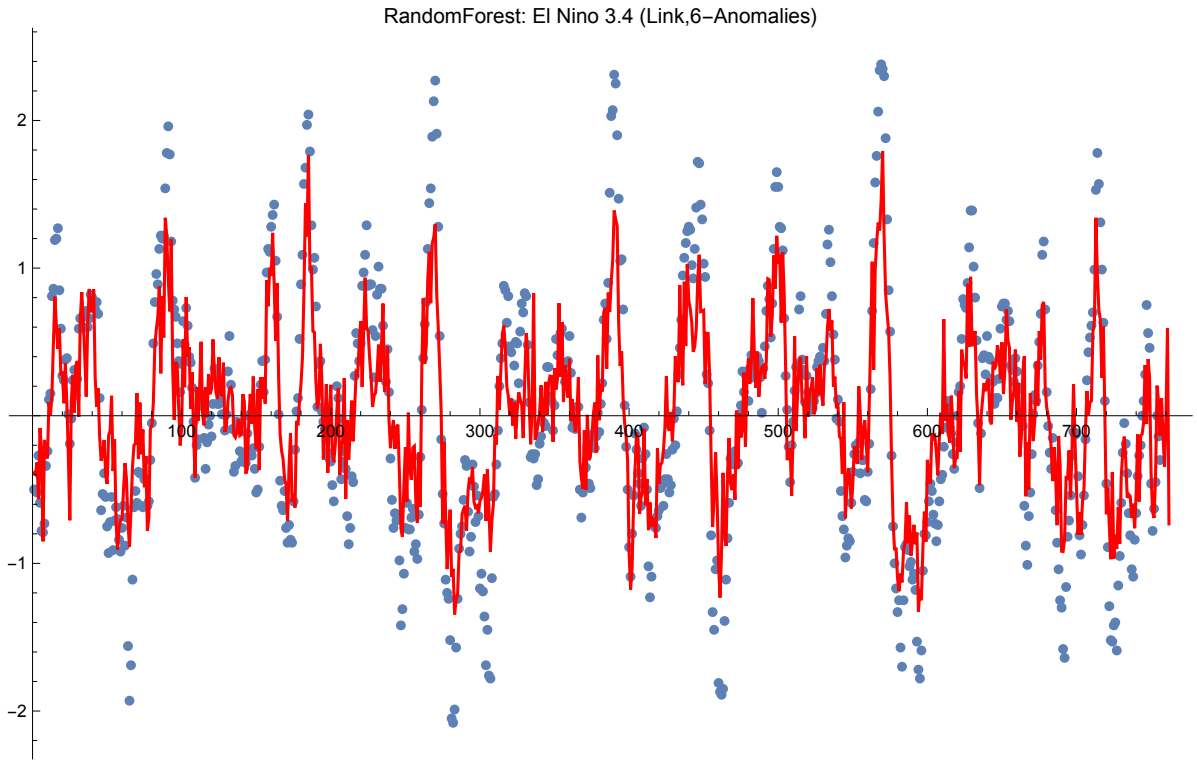

actual value
predicted value
predictions
perfect prediction line


actual value − predicted value
predicted value


count
actual value − predicted value

Link Strength: 6 Months Lag

Out[9]=

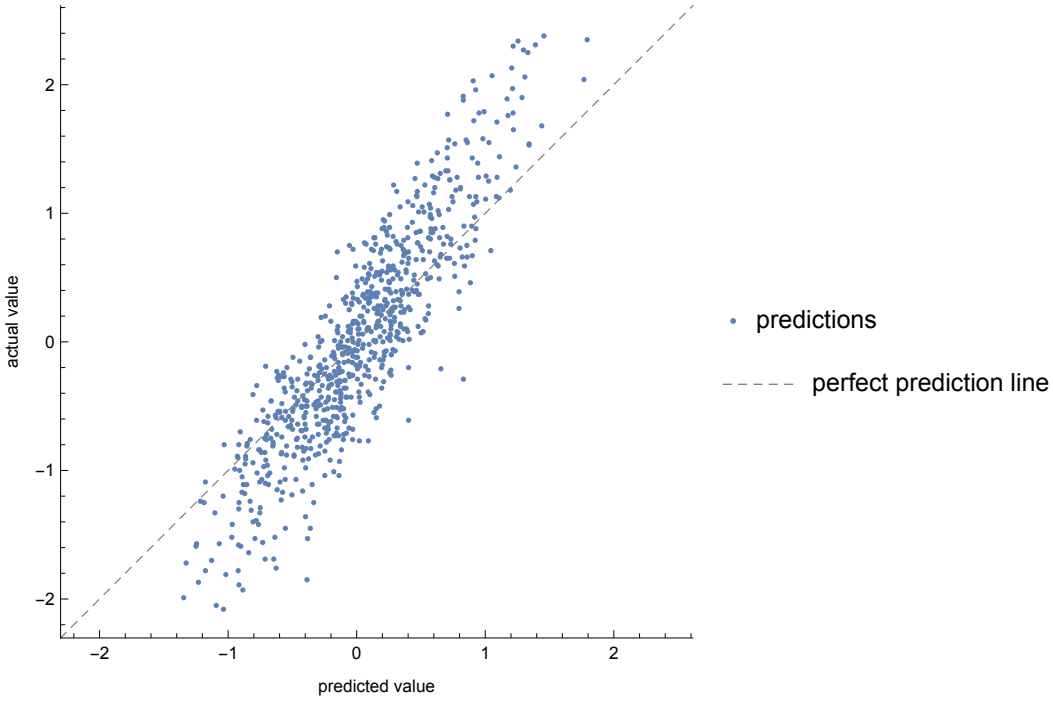


Out[10]=

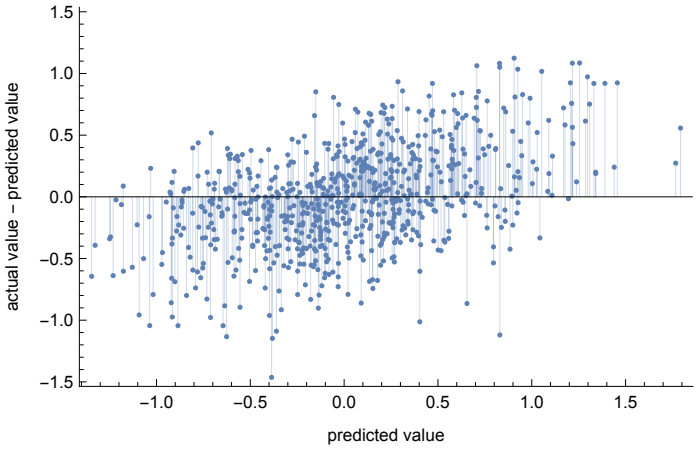
Predictor information

Method	Random forest
Number of features	1
Number of training examples	756
Number of extracted features	1
Number of trees	200

Out[11]=



Out[12]=



Out[13]=