**Table 4. GridSearchCV Results for Clusters based on rainfall data and testing period 2011-2022**

|  |  |  |  |
| --- | --- | --- | --- |
| **Model** | **Best Score** | **Accuracy Score** | **Best Parameters** |
| Support Vector Machine | 0.290909 | 0.25 | {'C': 1, 'coef0': 0.0, 'degree': 2, 'kernel': 'rbf', 'probability': True} |
| Random Forest | 0.318182 | 0.083333 | {'criterion': 'gini', 'max\_depth': 10, 'min\_samples\_leaf': 1, 'min\_samples\_split': 5, 'n\_estimators': 50} |
| Logistic Regression | 0.281818 | 0.25 | {'C': 1, 'penalty': 'l1'} |
| Naive Bayes Gaussian | 0.172727 | 0.25 | {} |
| Naive Bayes Multinomial | 0.327273 | 0.25 | {'alpha': 0.1} |
| Decision Tree | 0.281818 | 0 | {'criterion': 'gini', 'max\_depth': None, 'min\_samples\_leaf': 4, 'min\_samples\_split': 10} |
| Linear Discriminant Analysis | 0.227273 | 0.25 | {} |