9. Appendices

9.1. Appendix 1. - Decision Boundaries

The following plots show the decision boundaries between the phenology parameters 'SOSD' and 'EOSD' when used as feature set for the models deemed the best:
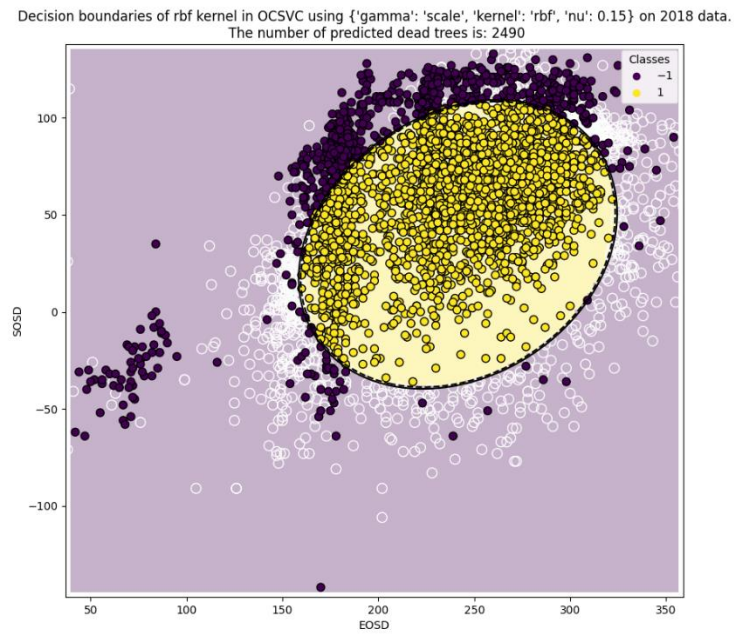

Figure A1. 1. Decision boundary for One-Class SVM for feature set of ['SOSD', 'EOSD'], using hyperparameters: {'gamma':'scale', 'kernel':'rbf', 'nu':0.15} on validation dataset #1 (2018). '1': dead tree prediction, '-1': outlier. Accuracy: 74.95 %
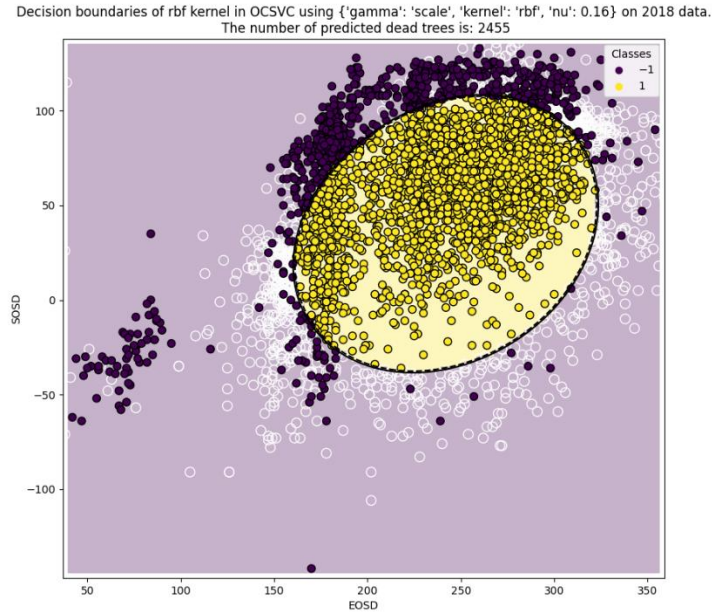
Figure A1. 2. Decision boundary for One-Class SVM for feature set of ['SOSD', 'EOSD'], using hyperparameters: {'gamma':'scale', 'kernel':'rbf', 'nu':0.16} on validation dataset #1 (2018). '1': dead tree prediction, '-1': outlier. Accuracy: 73.90 %
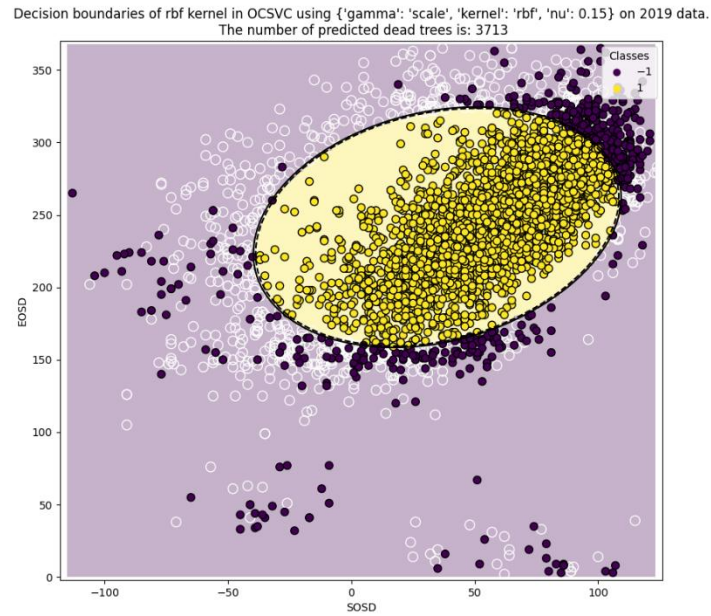

Figure A1. 3. Decision boundary for One-Class SVM for feature set of ['SOSD', 'EOSD'], using hyperparameters: {'gamma':'scale', 'kernel':'rbf', 'nu':0.15} on validation dataset #2 (2019). '1': dead tree prediction, '-1': outlier. Accuracy: 87.82 %
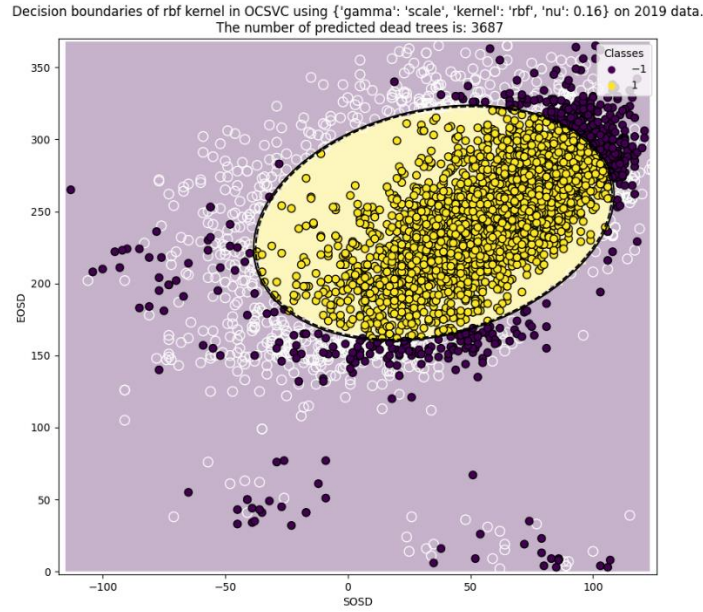
Figure A1. 4. Decision boundary for One-Class SVM for feature set of ['SOSD', 'EOSD'], using hyperparameters: {'gamma':'scale', 'kernel':'rbf', 'nu':0.16} on validation dataset #2 (2019). '1': dead tree prediction, '-1': outlier. Accuracy: 87.20 %
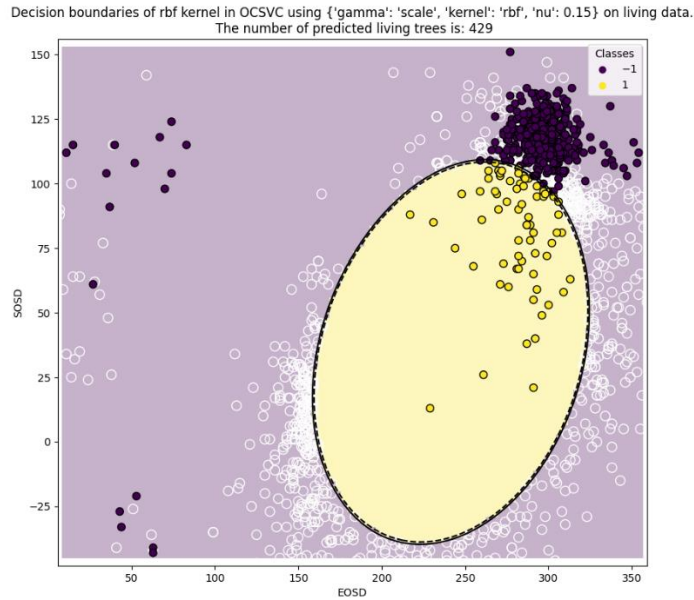

Figure A1. 5. Decision boundary for One-Class SVM for feature set of ['SOSD', 'EOSD'], using hyperparameters: {'gamma':'scale', 'kernel':'rbf', 'nu':0.15} on test dataset (GEP - 2022). '1': dead tree prediction, '-1': outlier. Accuracy: 86.14 %

Decision boundaries of rbf kernel in OCSVC using {'gamma': 'scale', 'kernel': 'rbf', 'nu': 0.16} on living data.
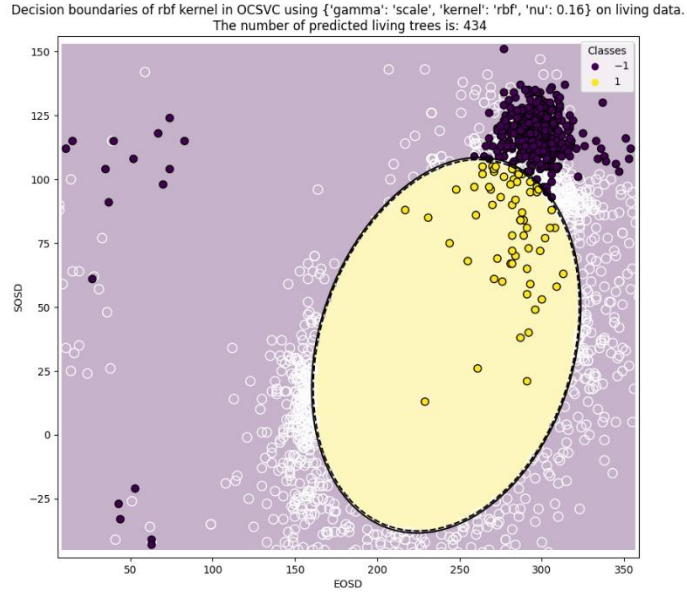The number of predicted living trees is: 434

Figure A1. 6. Decision boundary for One-Class SVM for feature set of ['SOSD', 'EOSD'], using hyperparameters: {'gamma':'scale', 'kernel':'rbf', 'nu':0.16} on test dataset (GEP - 2022). '1': dead tree prediction, '-1': outlier. Accuracy: 87.14 %

The following plots show the decision boundaries between the phenology parameters 'SOSD' and 'PROD_DIFF' when used as feature set for the models deemed the best:
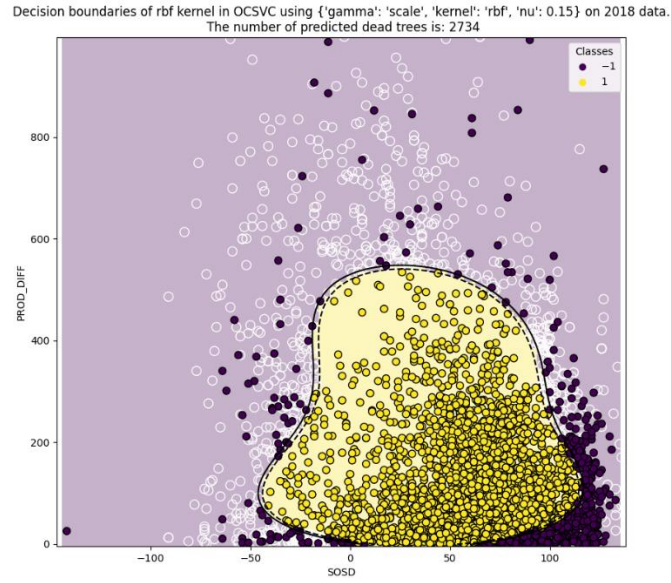
Figure A1. 7. Decision boundary for One-Class SVM for feature set of ['SOSD', 'PROD_DIFF'], using hyperparameters: {'gamma':'scale', 'kernel':'rbf', 'nu':0.15} on validation dataset #1 (2018). Accuracy: '1': dead tree prediction, '-1': outlier. 82.30 %
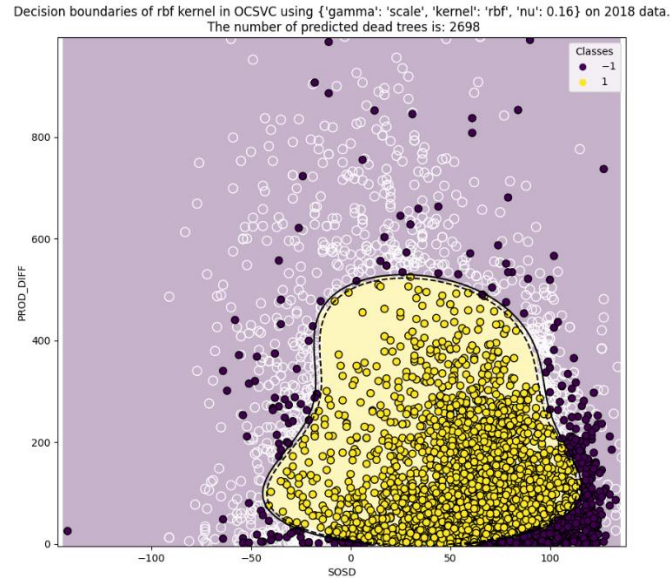

Figure A1. 8. Decision boundary for One-Class SVM for feature set of ['SOSD', 'PROD_DIFF'], using hyperparameters: {'gamma':'scale', 'kernel':'rbf', 'nu':0.16} on validation dataset #1 (2018). '1': dead tree prediction, '-1': outlier. Accuracy: 81.22 %
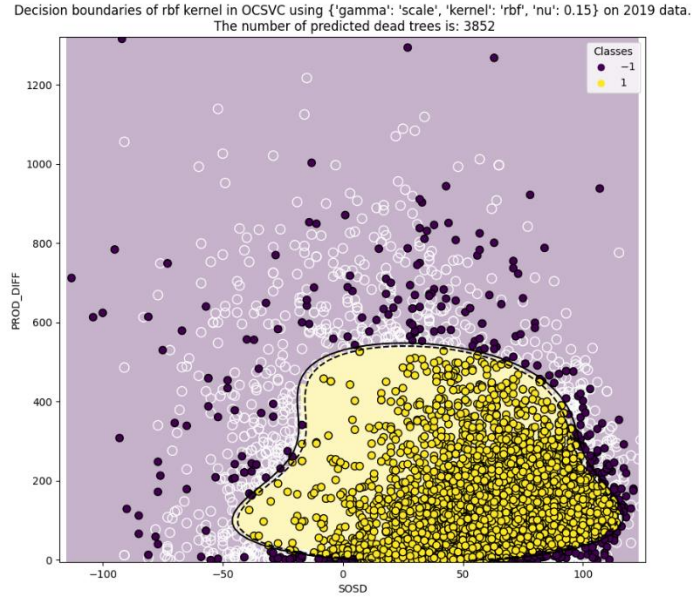
Figure A1. 9. Decision boundary for One-Class SVM for feature set of ['SOSD', 'PROD_DIFF'], using hyperparameters: {'gamma':'scale', 'kernel':'rbf', 'nu':0.15} on validation dataset #2 (2019). '1': dead tree prediction, '-1': outlier. Accuracy: 91.30 %
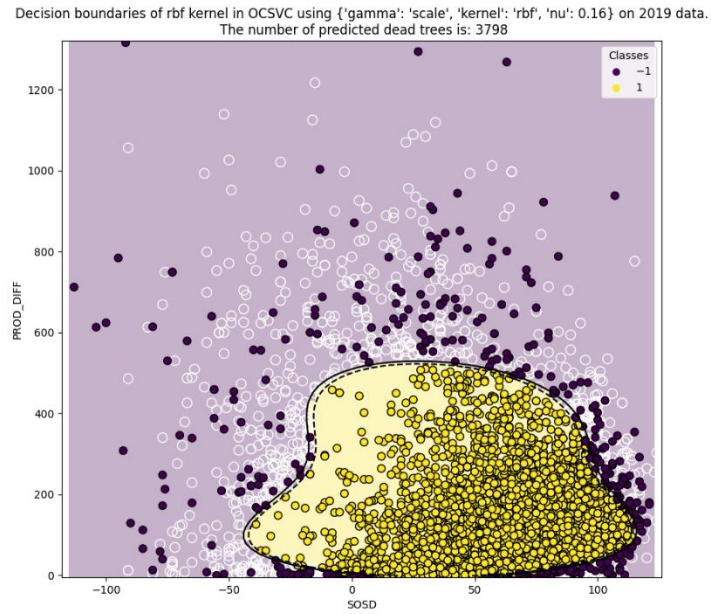

Figure A1. 10. Decision boundary for One-Class SVM for feature set of ['SOSD', 'PROD_DIFF'], using hyperparameters: {'gamma':'scale', 'kernel':'rbf', 'nu':0.16} on validation dataset #2 (2019). '1': dead tree prediction, '-1': outlier. Accuracy: 90.02 %
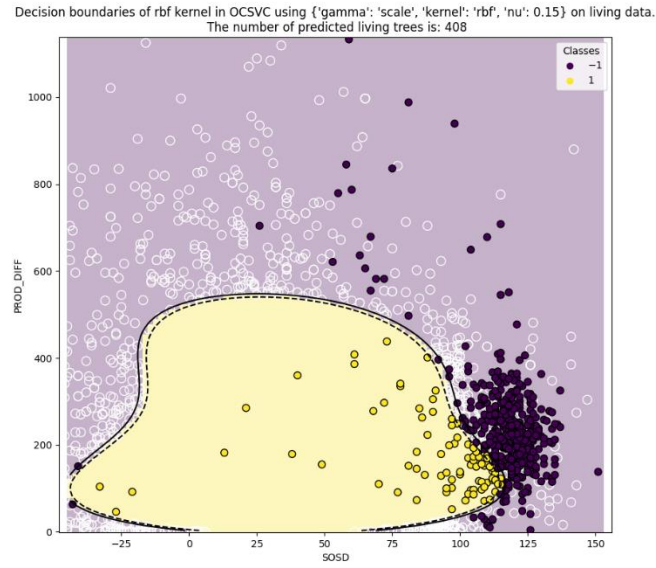
Figure A1. 11. Decision boundary for One-Class SVM for feature set of ['SOSD', 'PROD_DIFF'], using hyperparameters: {'gamma':'scale', 'kernel':'rbf', 'nu':0.15} on test dataset (GEP - 2022). '1': dead tree prediction, '-1': outlier. Accuracy: 81.93 %
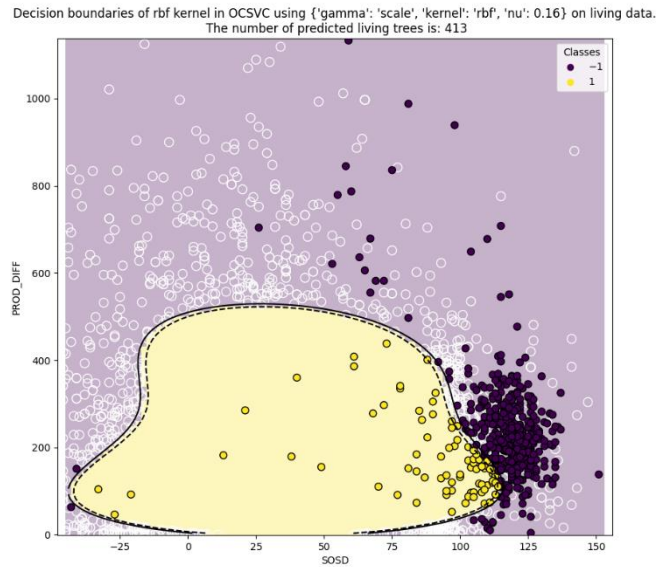

Figure A1. 12. Decision boundary for One-Class SVM for feature set of ['SOSD', 'PROD_DIFF'], using hyperparameters: {'gamma':'scale', 'kernel':'rbf', 'nu':0.16} on test dataset (GEP - 2022). '1': dead tree prediction, '-1': outlier. Accuracy: 82.93 %