

Classification of Rainfall days				
Classifier: SVM, With no Oversampling				
Overall Summary (we are mostly interested in class 1 and class 3)				
No History				
Data-set: lead 1	Precision	Recall	F1-score	Support samples
Class 1	0.2	0.22	0.21	328
Class 2	0.66	0.44	0.52	1062
Class 3	0.15	0.35	0.21	245
Overall	0.34	0.33	0.31	1635
Balanced accuracy: 33.0		Accuracy: 37.86		Cor. Pred: 619
Data-set: lead 3	Precision	Recall	F1-score	Support samples
Class 1	0.22	0.24	0.23	328
Class 2	0.64	0.42	0.51	1062
Class 3	0.16	0.38	0.23	245
Overall	0.34	0.35	0.32	1635
Balanced accuracy: 35.0		Accuracy: 38.0		Cor. Pred: 619
Data-set: lead 5	Precision	Recall	F1-score	Support samples
Class 1	0.2	0.42	0.27	328
Class 2	0.64	0.28	0.39	1062
Class 3	0.17	0.33	0.22	245
Overall	0.34	0.34	0.29	1635
Balanced accuracy: 34.33		Accuracy: 31.62		Cor. Pred: 517
Data-set: lead 10	Precision	Recall	F1-score	Support samples
Class 1	0.43	0.69	0.53	328
Class 2	0.74	0.2	0.31	1062
Class 3	0.23	0.76	0.35	245
Overall	0.47	0.55	0.4	1635
Balanced accuracy: 55.0		Accuracy: 38.10		Cor. Pred: 623
Lead 10 data set shows best performance with 69% and 76% accuracy in class 1 and 3				
With Three Days History				
Data-set: lead 1	Precision	Recall	F1-score	Support samples
Class 1	0.2	0.31	0.24	328
Class 2	0.67	0.35	0.46	1062
Class 3	0.13	0.31	0.19	245
Overall	0.33	0.32	0.3	1635
Balanced accuracy: 32.34		Accuracy: 33.70		Cor. Pred: 551
Data-set: lead 3	Precision	Recall	F1-score	Support samples
Class 1	0.22	0.28	0.25	328
Class 2	0.66	0.4	0.5	1062
Class 3	0.16	0.37	0.22	245
Overall	0.34	0.35	0.32	1635
Balanced accuracy: 34.84		Accuracy: 36.94		Cor. Pred: 604
Data-set: lead 5	Precision	Recall	F1-score	Support samples
Class 1	0.19	0.33	0.24	328
Class 2	0.62	0.31	0.41	1062

Class 3	0.17	0.36	0.23	245
Overall	0.32	0.33	0.29	1635
Balanced accuracy: 33.29	Accuracy: 31.93		Cor. Pred: 522	
Data-set: lead 10	Precision	Recall	F1-score	Support samples
Class 1	0.46	0.66	0.55	328
Class 2	0.73	0.22	0.34	1062
Class 3	0.22	0.77	0.35	245
Overall	0.47	0.55	0.41	1635
Balanced accuracy: 55.14	Accuracy: 39.27		Cor. Pred: 642	
Lead 10 data set with 3 days history shows best performance with 66% and 77% accu.				

Classifier: SVM, With Oversampling: Adasyn method()

Overall Summary (we are mostly interested in class 1 and class 3)

No History

Data-set: lead 1	Precision	Recall	F1-score	Support samples
Class 1	0.21	0.34	0.26	328
Class 2	0.66	0.31	0.42	1062
Class 3	0.14	0.34	0.2	245
Overall	0.34	0.33	0.29	1635
Balanced accuracy: 33.17	Accuracy: 32.17		Cor. Pred: 526	
Data-set: lead 3	Precision	Recall	F1-score	Support samples
Class 1	0.24	0.41	0.3	328
Class 2	0.67	0.32	0.43	1062
Class 3	0.16	0.37	0.22	245
Overall	0.35	0.36	0.32	1635
Balanced accuracy: 36.40	Accuracy: 34.37		Cor. Pred: 562	
Data-set: lead 5	Precision	Recall	F1-score	Support samples
Class 1	0.2	0.36	0.26	328
Class 2	0.63	0.25	0.36	1062
Class 3	0.16	0.4	0.23	245
Overall	0.33	0.34	0.28	1635
Balanced accuracy: 34.01	Accuracy: 29.79		Cor. Pred: 487	
Data-set: lead 10	Precision	Recall	F1-score	Support samples
Class 1	0.39	0.7	0.5	328
Class 2	0.71	0.2	0.31	1062
Class 3	0.23	0.69	0.34	245
Overall	0.44	0.53	0.38	1635
Balanced accuracy: 53.13	Accuracy: 37.37		Cor. Pred: 611	
Lead 10 data set shows best performance with 70% and 69% accuracy in class 1 and 3				

With Three days History

Data-set: lead 1	Precision	Recall	F1-score	Support samples
Class 1	0.21	0.35	0.27	328
Class 2	0.67	0.29	0.41	1062
Class 3	0.15	0.4	0.22	245
Overall	0.35	0.35	0.3	1635

Balanced accuracy: 34.75		Accuracy: 31.99		Cor. Pred: 523
Data-set: lead 3	Precision	Recall	F1-score	Support samples
Class 1	0.22	0.32	0.26	328
Class 2	0.65	0.34	0.44	1062
Class 3	0.16	0.4	0.23	245
Overall	0.34	0.35	0.31	1635
Balanced accuracy: 34.94		Accuracy: 34.07		Cor. Pred: 557
Data-set: lead 5	Precision	Recall	F1-score	Support samples
Class 1	0.24	0.35	0.29	328
Class 2	0.65	0.32	0.43	1062
Class 3	0.16	0.4	0.22	245
Overall	0.35	0.36	0.31	1635
Balanced accuracy: 35.89		Accuracy: 34.07		Cor. Pred: 557
Data-set: lead 10	Precision	Recall	F1-score	Support samples
Class 1	0.4	0.7	0.51	328
Class 2	0.74	0.24	0.37	1062
Class 3	0.23	0.66	0.34	245
Overall	0.46	0.53	0.4	1635
Balanced accuracy: 53.41		Accuracy: 39.69		Cor. Pred: 649
Lead 10 data set with 3 months history shows best performance with 70% and 66% acc				
Classifier: Random Forest, With Oversampling: Adasyn method()				
Overall Summary (we are mostly interested in class 1 and class 3)				
No History				
Data-set: lead 1	Precision	Recall	F1-score	Support samples
Class 1	0.22	0.39	0.28	328
Class 2	0.67	0.28	0.4	1062
Class 3	0.13	0.31	0.18	245
Overall	0.34	0.33	0.29	1635
Balanced accuracy: 32.80		Accuracy: 30.89		Cor. Pred: 505
Data-set: lead 3	Precision	Recall	F1-score	Support samples
Class 1	0.23	0.39	0.29	328
Class 2	0.65	0.31	0.42	1062
Class 3	0.15	0.35	0.21	245
Overall	0.34	0.35	0.3	1635
Balanced accuracy: 34.7		Accuracy: 32.91		Cor. Pred: 538
Data-set: lead 5	Precision	Recall	F1-score	Support samples
Class 1	0.19	0.31	0.24	328
Class 2	0.64	0.28	0.39	1062
Class 3	0.16	0.41	0.23	245
Overall	0.33	0.33	0.28	1635
Balanced accuracy: 33.3		Accuracy: 30.46		Cor. Pred: 498
Data-set: lead 10	Precision	Recall	F1-score	Support samples
Class 1	0.39	0.72	0.51	328
Class 2	0.72	0.2	0.31	1062
Class 3	0.22	0.67	0.34	245
Overall	0.45	0.53	0.39	1635

Balanced accuracy: 53.08		Accuracy: 37.55		Cor. Pred: 614	
Lead 10 data set shows best performance with 72% and 67% accuracy in class 1 and 3					
With Three Days History					
Data-set: lead 1	Precision	Recall	F1-score	Support samples	
Class 1	0.21	0.36	0.26	328	
Class 2	0.67	0.3	0.41	1062	
Class 3	0.15	0.38	0.22	245	
Overall	0.34	0.34	0.3	1635	
Balanced accuracy: 34.46		Accuracy: 32.17		Cor. Pred: 526	
Data-set: lead 3	Precision	Recall	F1-score	Support samples	
Class 1	0.22	0.36	0.27	328	
Class 2	0.68	0.32	0.44	1062	
Class 3	0.14	0.34	0.2	245	
Overall	0.35	0.34	0.3	1635	
Balanced accuracy: 34.32		Accuracy: 33.46		Cor. Pred: 547	
Data-set: lead 5	Precision	Recall	F1-score	Support samples	
Class 1	0.22	0.35	0.27	328	
Class 2	0.65	0.35	0.45	1062	
Class 3	0.15	0.33	0.21	245	
Overall	0.34	0.34	0.31	1635	
Balanced accuracy: 34.46		Accuracy: 34.56		Cor. Pred: 565	
Data-set: lead 10	Precision	Recall	F1-score	Support samples	
Class 1	0.39	0.71	0.51	328	
Class 2	0.74	0.26	0.39	1062	
Class 3	0.22	0.6	0.32	245	
Overall	0.45	0.53	0.41	1635	
Balanced accuracy: 52.57		Accuracy: 40.43		Cor. Pred: 661	
Lead 10 data set with 3 days history shows best performance with 71% and 60% accu.					