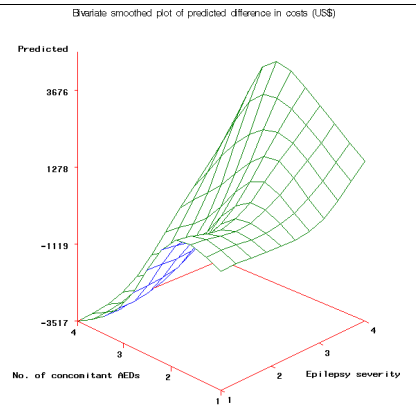
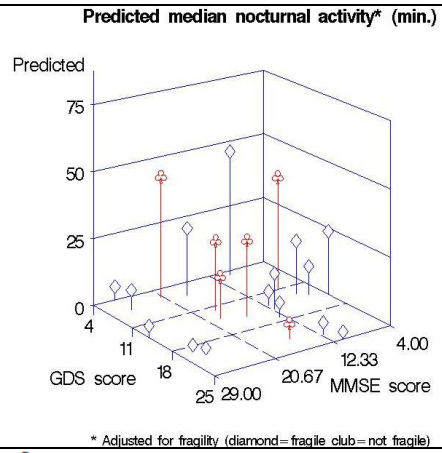
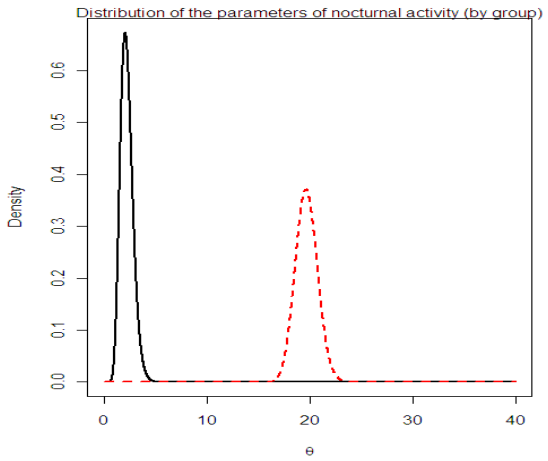


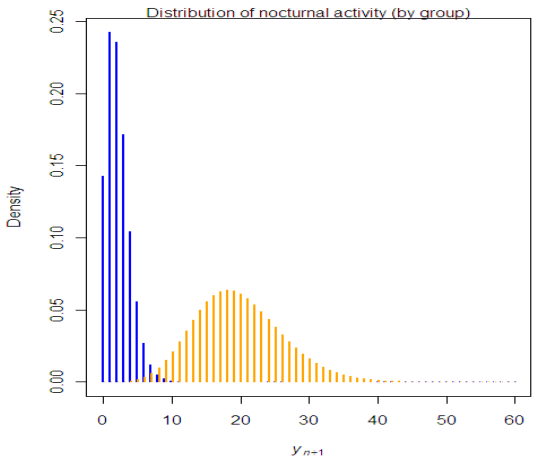
Robust regression: spline-smoothed predicted response surface (≈ beta-binomial model, not shown)



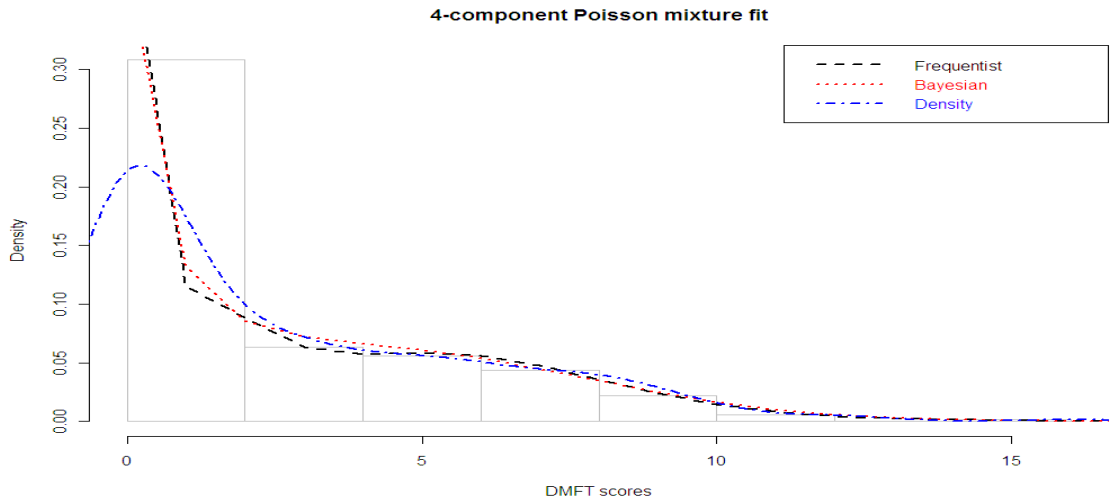
$\hat{Y}$ vs. **X**: 3-D scatter plot (split by fragility)



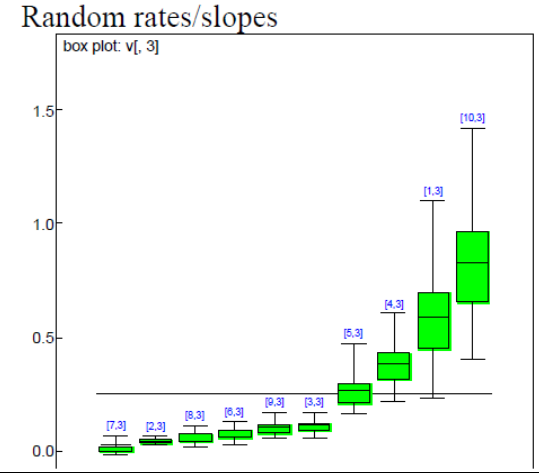
Gamma posterior distribution of θ|Y (by group)



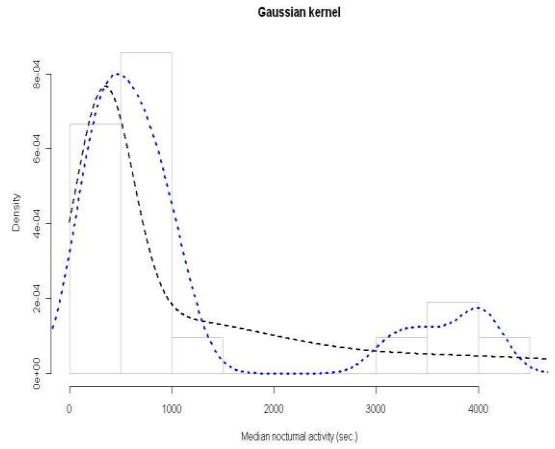
Negative binomial posterior predictive distribution of $\hat{Y}$|Y (by group)



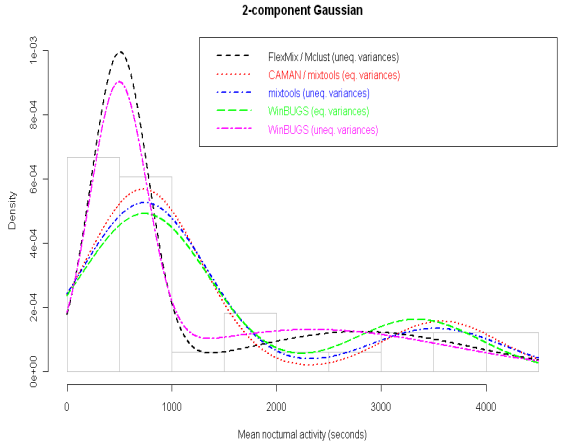
Finite Poisson mixture model: comparison of C.A.MAN. vs. WinBUGS fits



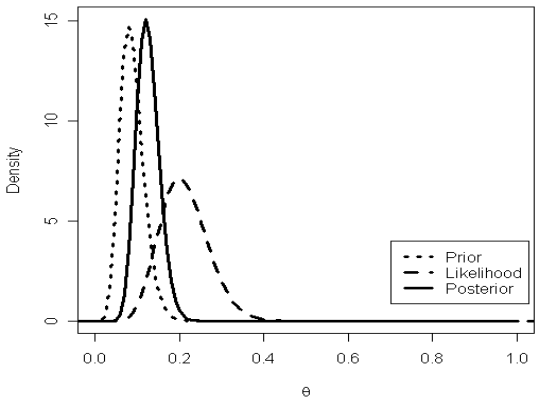
Growth model showing 10 random rates in a model having 3 correlated random-effects



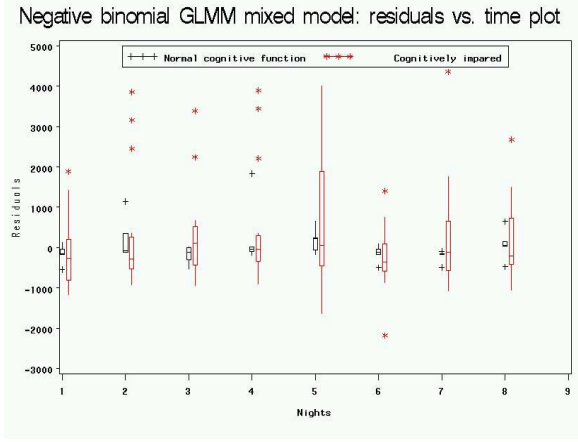
Finite Gaussian mixture model fit to *repeated* measures data (package *FlexMix*)



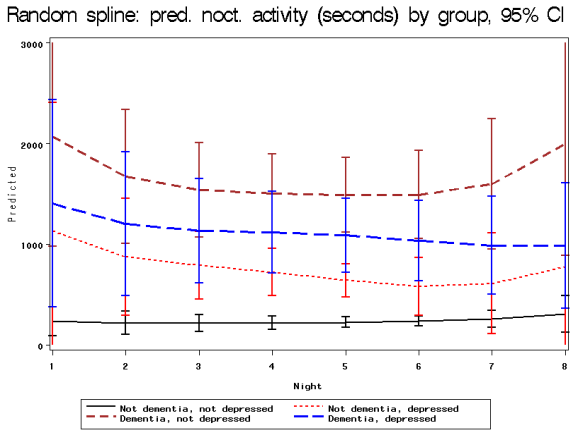
Finite Gaussian mixture models comparing FlexMix, Mclust, C.A.MAN., mixtools & WinBUGS (package *mixAK* not shown)



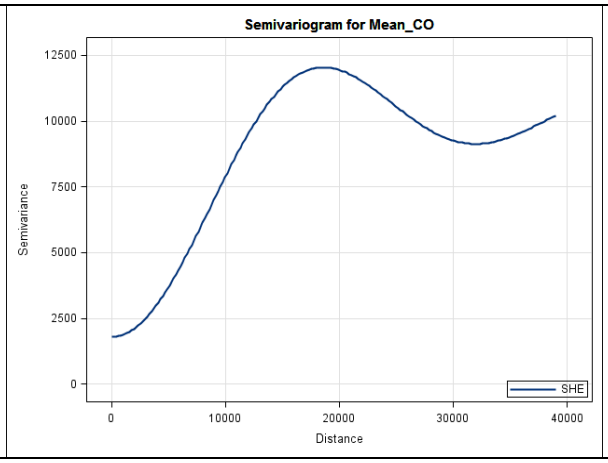
Beta prior model



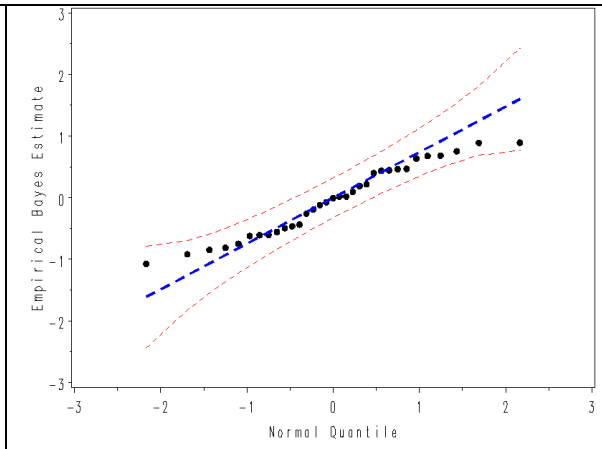
Residuals with extra variation in a fitted (negative binomial) random-intercept model (*proc nlmixed*)



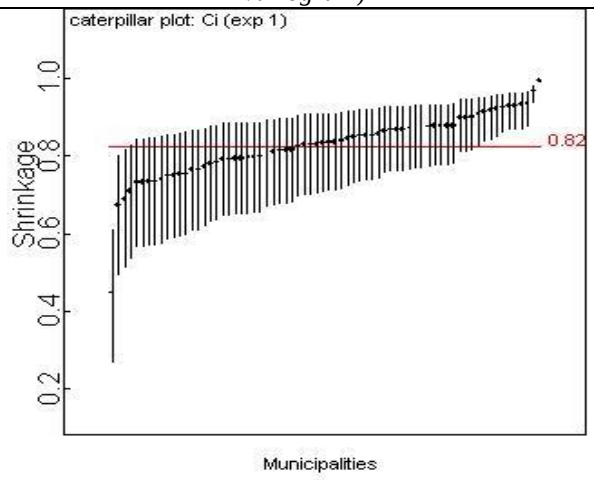
Negative binomial random splines model (*proc glimmix*)



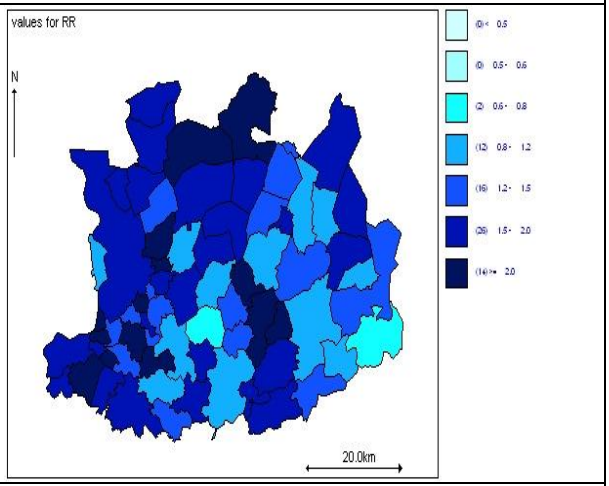
Semivariogram with ‘sine hole effect’ of air pollution data (showing nugget effect) (*proc krige2d*, *proc variogram*)



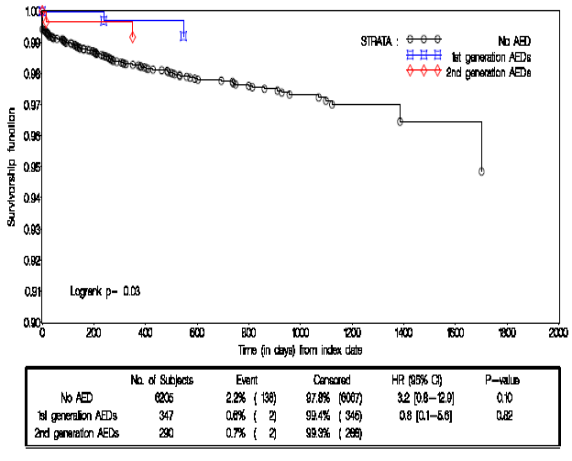
Empirical Bayes *qqplot* (± 95% CI) of random intercepts



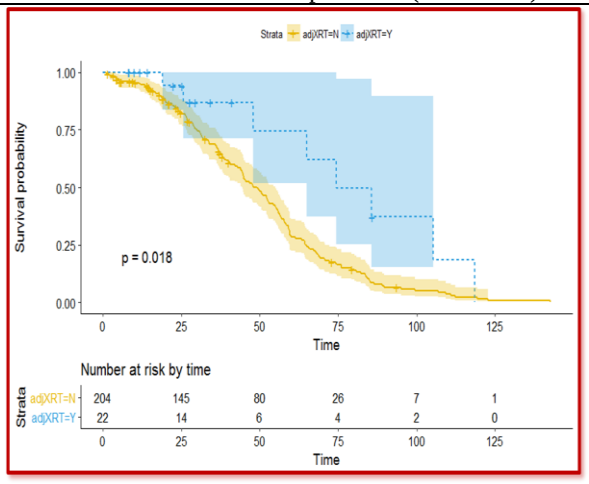
Disease mapping: ‘Bayesian shrinkage’ – ranked caterpillar plot in a Poisson-gamma model



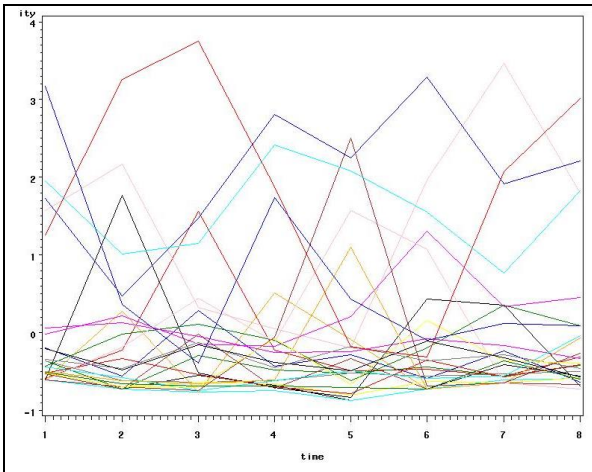
Disease mapping: CAR model of cervix cancer incidence in the Antwerp district (*WinBUGS*)



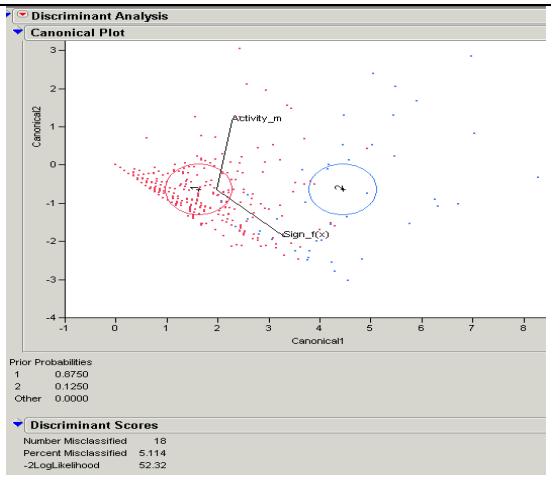
Suicide attempts ↓ with AED (any generation) treatment contrary to FDA alert (unmatched analysis)



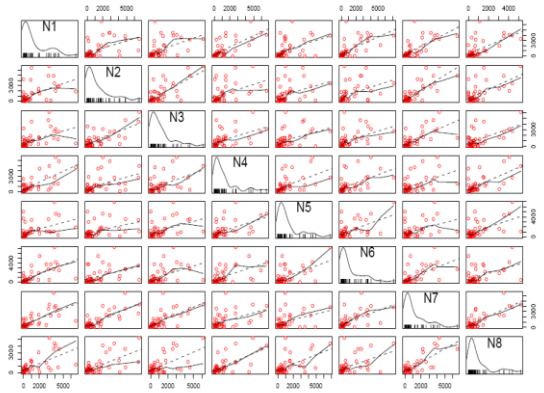
KM plot comparing RTX + CTX treated vs. untreated CRC patients (package *suvminer*)



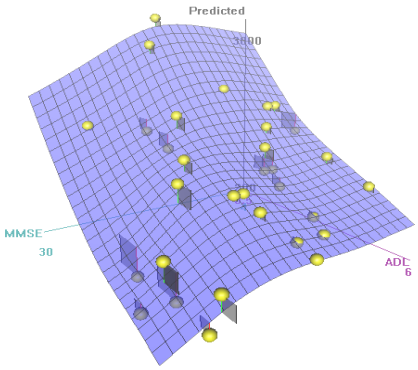
Tracking longitudinal data (*proc stdize*)



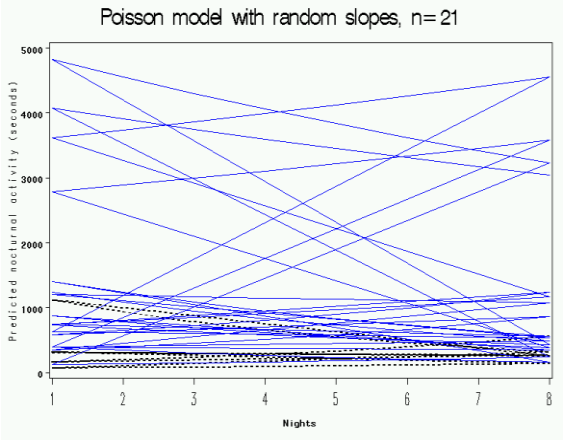
Linear empirical Bayes discrimination (*JMP*)



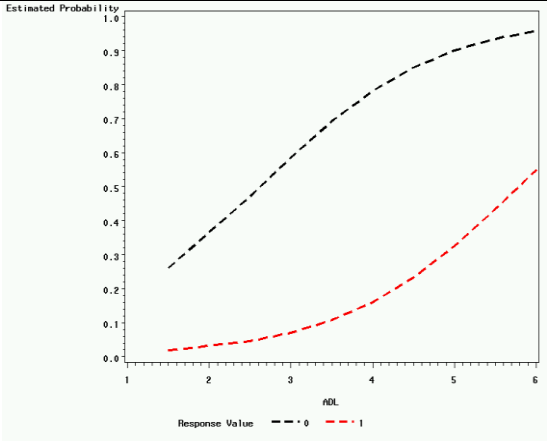
Correlation scatterplot between 8 repeated measurements; with diagonals showing right skewed 'multimodal' distribution



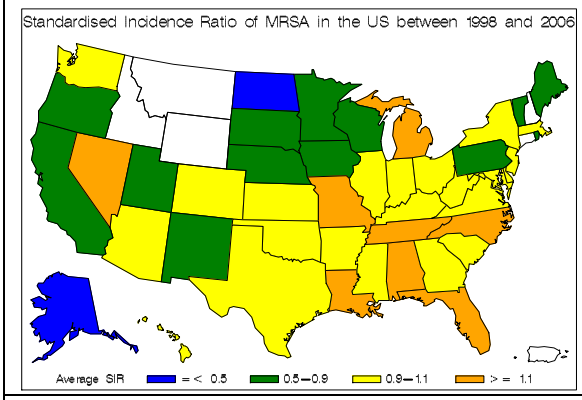
Spline-smoothed predicted response surface with squared residuals (screenshot during 360° rotation)



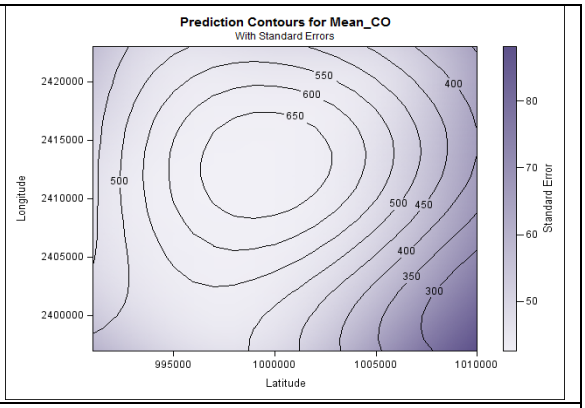
Random slopes by group: Poisson model (*proc nlmixed*)



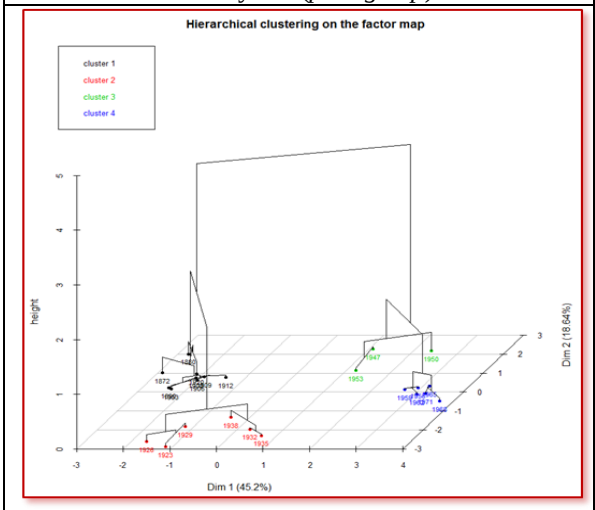
P-O model comparing 3 categories: 'worsening' (red), 'stable' (black) & 'improving' (reference) → subjects have a constant impact (OR) of ADL (exposure) across any level



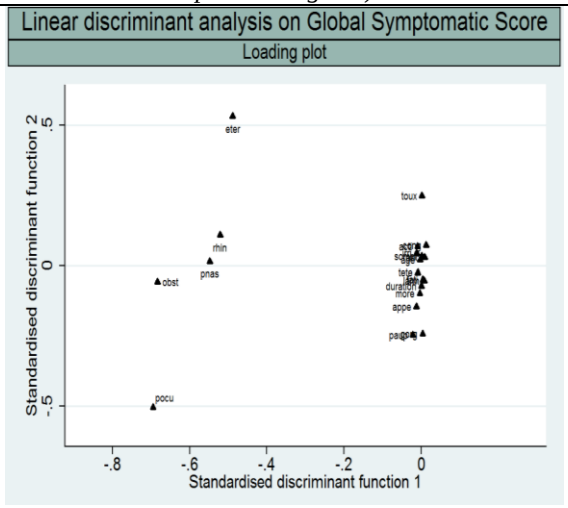
Crude SIRs standardised by age-classes, averaged over 9 years (*proc gmap*)



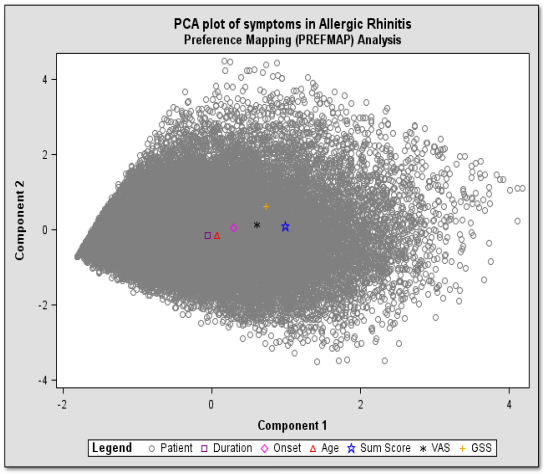
Kriging of air pollution (CO) data (*proc krige2d, proc variogram*)



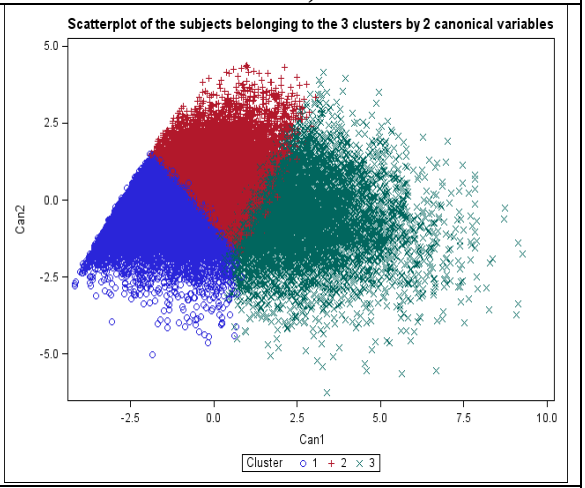
AHC clustering dendrogram combined with PCA (package *FactoMineR*)



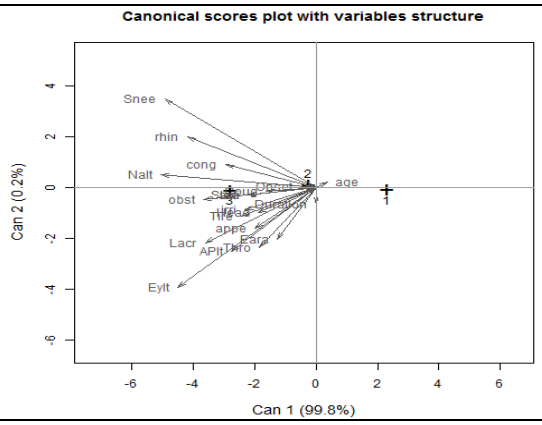
Loading plot of symptoms (*Stata*); in this case better than VAS or summary score; MDS not shown (*proc MDS*)



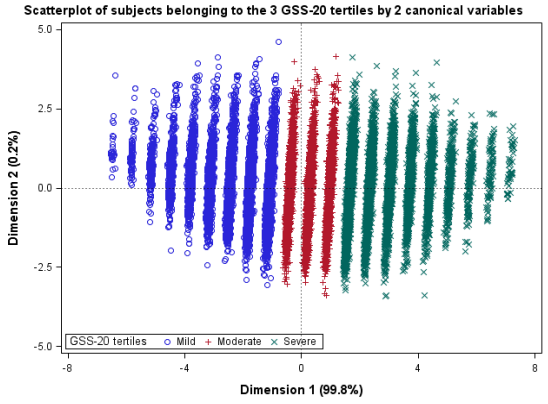
Preference mapping analysis (*proc prinqual, proc transreg*)



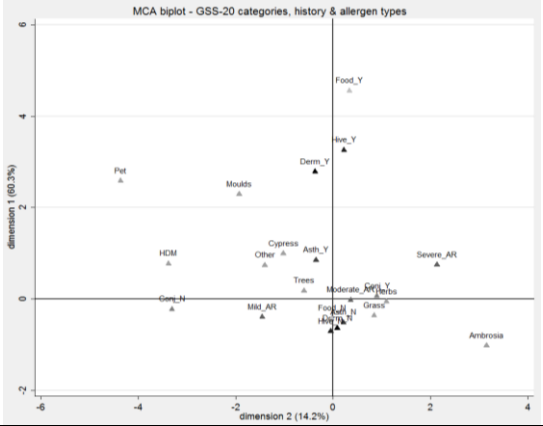
k-means cluster analysis (*proc fastclus*); in this case better than hierarchical cluster analysis (*proc cluster, proc tree*) not shown



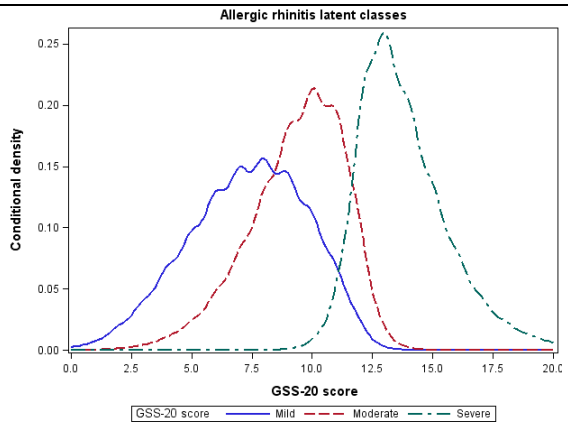
Canonical scores plot with Eigenvectors map (package *Hmisc*)



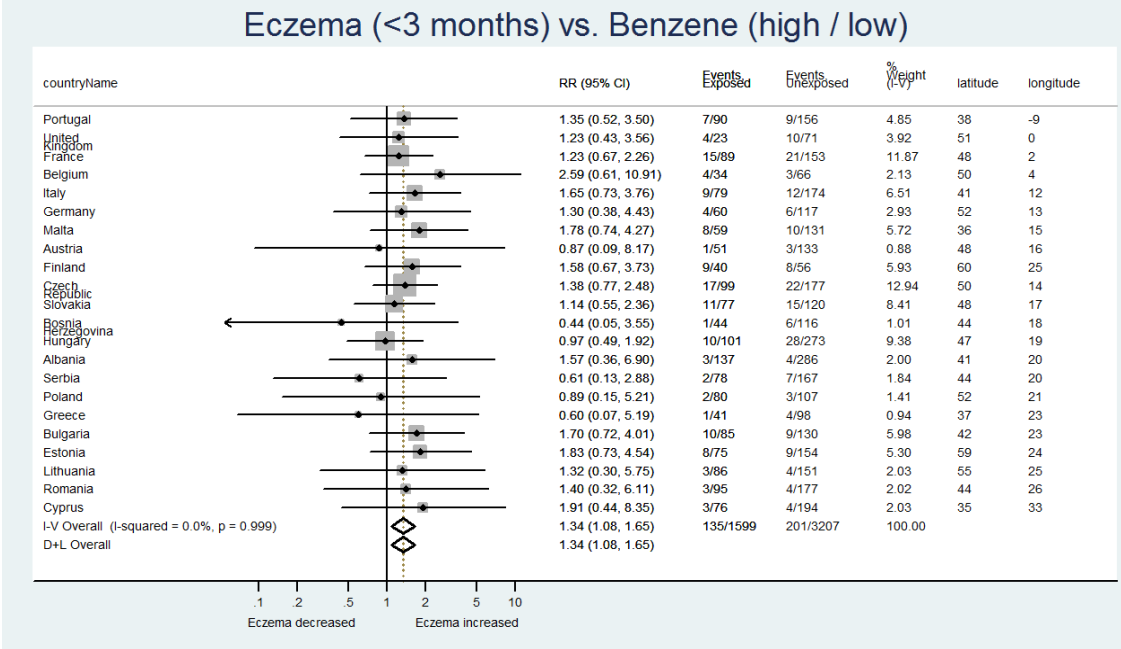
Canonical discriminant analysis (*proc candisc*)



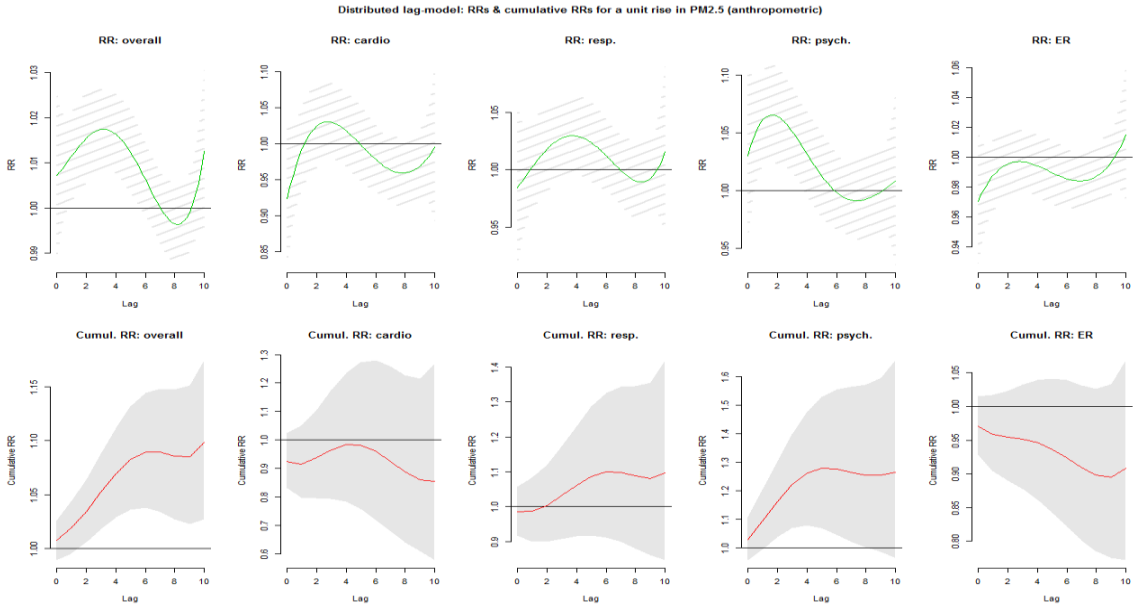
Multiple correspondence plot (*Stata*)



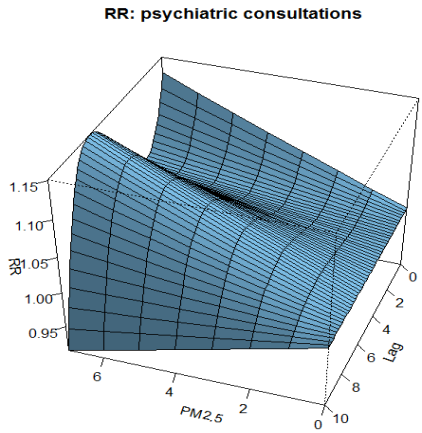
Latent class analysis (*proc lca*)

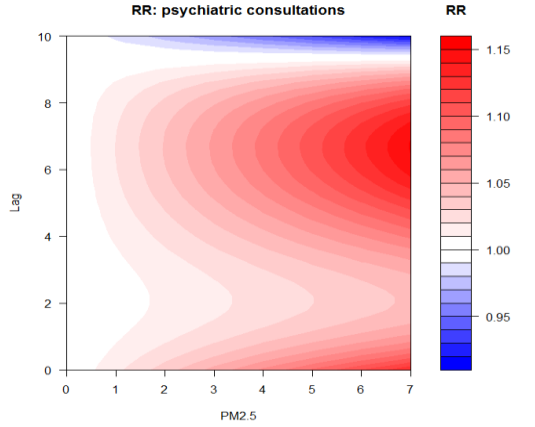


Meta-analysis: forest plot (*Stata*)

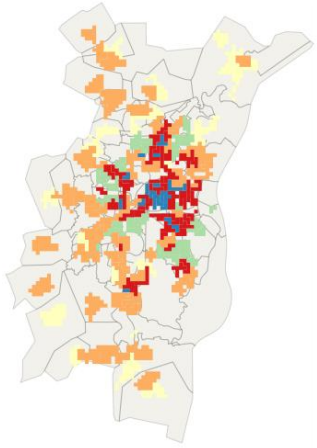


Time-Series Analysis (TSA) with GAMs: Distribued Lag Models (DLM) (package *dlnm*)

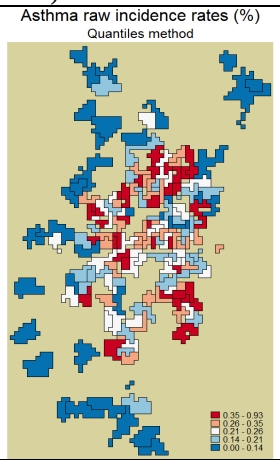




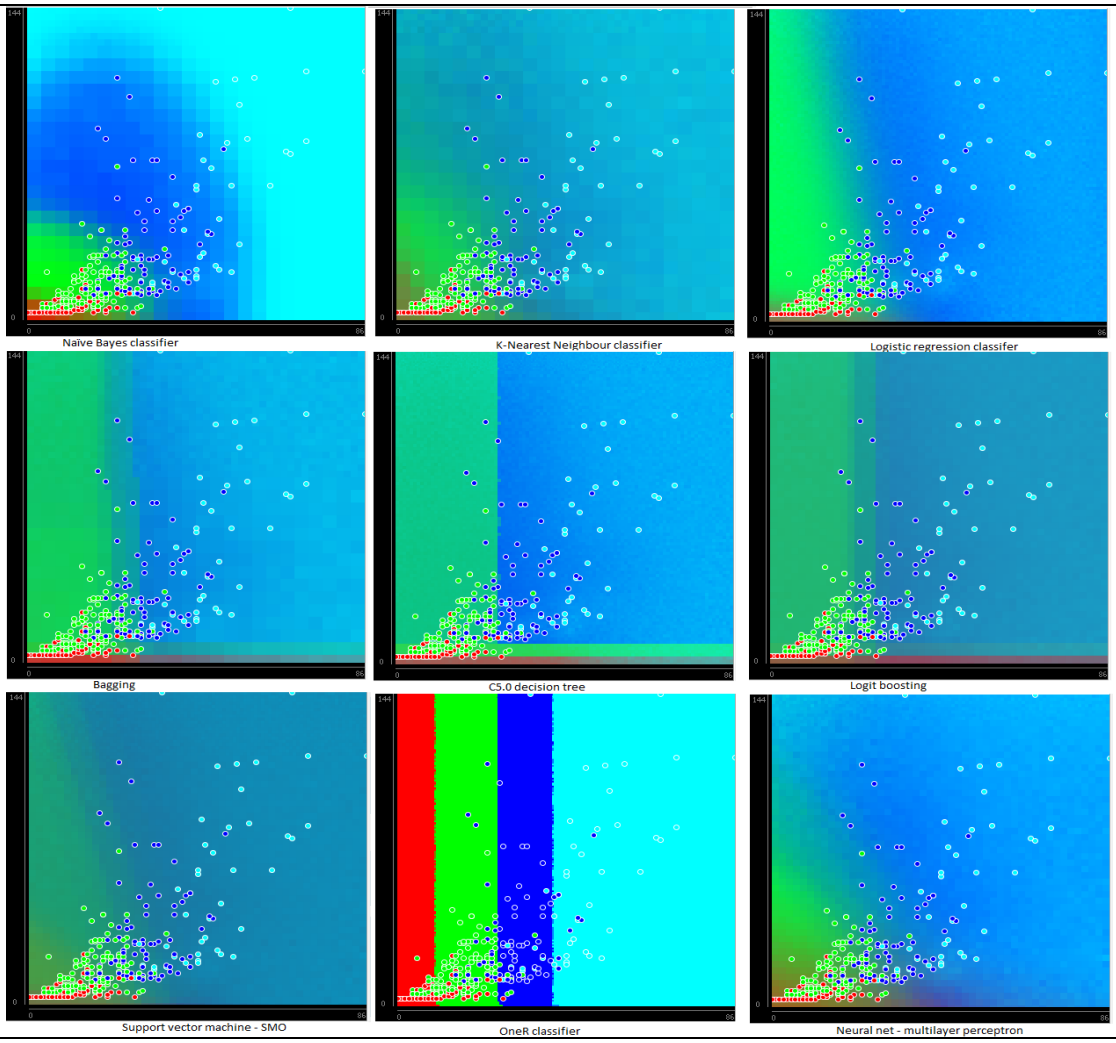
TSA with GAMs: DLM (package *dlnm*)



IRIS map overlaid by new zoning map showing neighbourhood deprivation index (*QGIS*)



Raw incidence rates in the new zonings (*Stata*)



Decision boundaries of different classifiers (*Weka*)

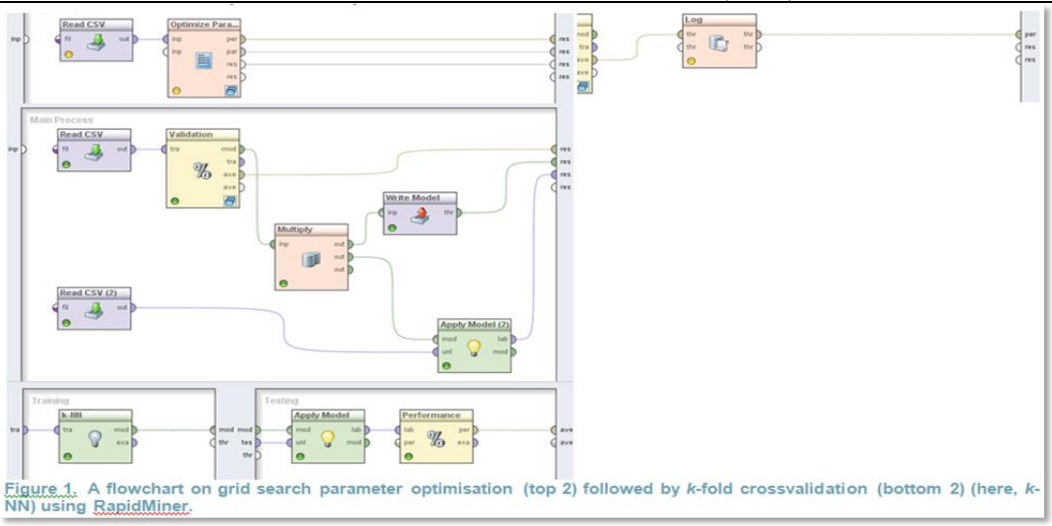
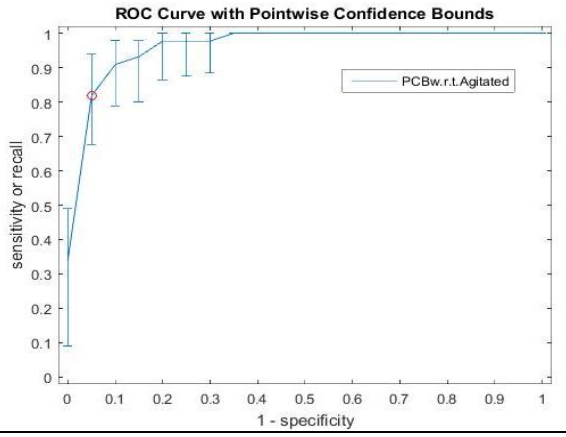
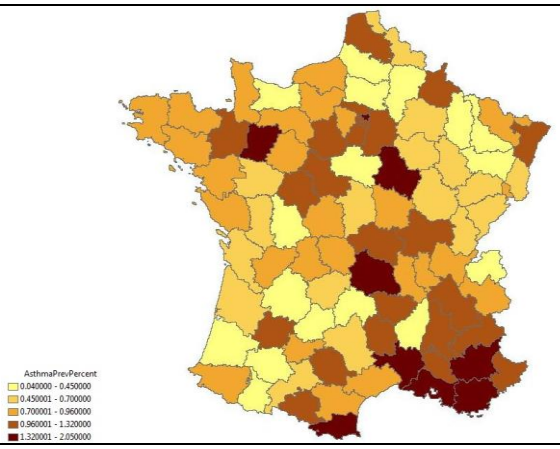


Figure 1. A flowchart on grid search parameter optimisation (top 2) followed by *k*-fold crossvalidation (bottom 2) (here, *k*-NN) using RapidMiner.

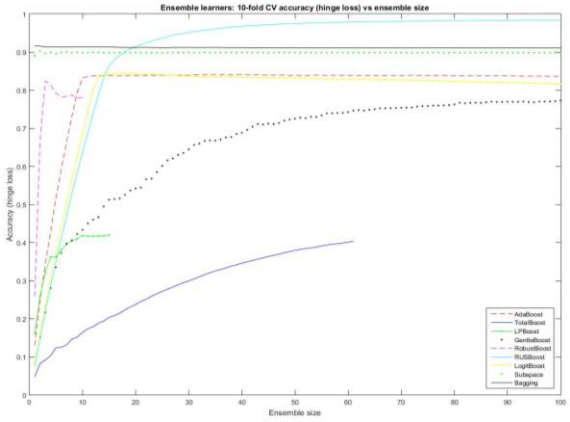
Parameter optimisation & predictive modelling flowchart (*RapidMiner*)



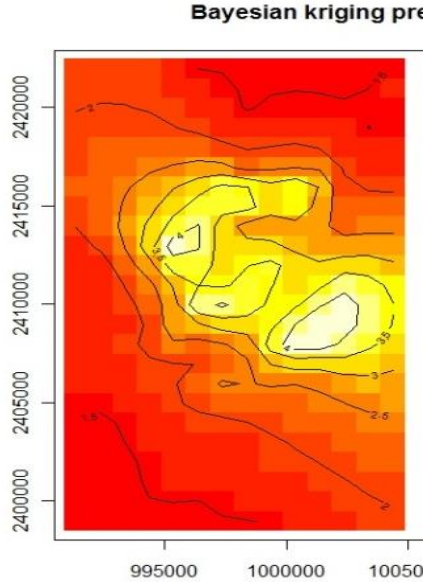
ROC curve with bootstrapped 95% CI & optimal operating point (*Matlab*)



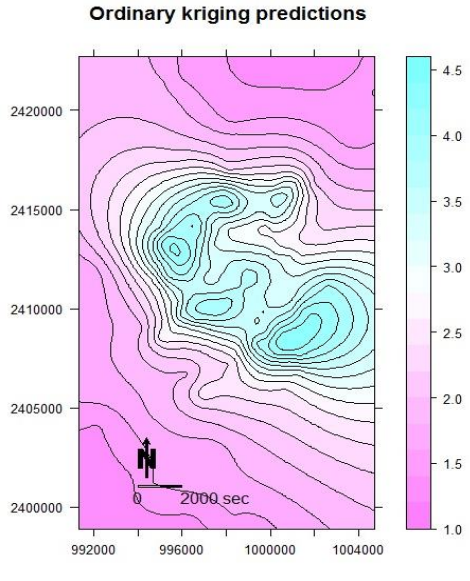
Prevalence % in France (*ArcGIS*) from the EGB cohort, map courtesy: NUTS3



Different ensemble learning methods compared (boosting, bagging, random subspace) (*Matlab*)



Bayesian Kriging of SES data (package *sgeostat*)



Kriging of SES data (package *gstat*)