

LGCP with PC priors

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```
library('mapmisc')

## Loading required package: sp
## Loading required package: raster

library("geostatsp")

## Loading required package: Matrix

data('murder')
data('torontoPop')
```

```
murderT = spTransform(murder, omerc(murder, angle = -20))
covList = list(pop = torontoPdens, inc = log(torontoIncome))

borderT = spTransform(torontoBorder, projection(murderT))
borderC = crop(borderT, extent(-12700, 7000, -7500, 3100))

## Loading required namespace: rgeos

formula = ~inc + offset(pop, log = TRUE)
```

LGCP with gamma priors on precision

```
resG = lgcp(formula, data = murderT, grid = squareRaster(borderC, 30), covariates = covL
  border = borderC, buffer = 2000, priorCI = list(sd = c(0.05, 0.5), range = c(1,
    10) * 1000))
```

LGCP with penalised complexity prior

$pr(sd > 1) = 0.05$ and $pr(phi < 0.2) = 0.95$

```
resP = lgcp(formula, data = murderT, grid = squareRaster(borderC, 30), covariates = covL,
  border = borderC, buffer = 2000, priorCI = list(sd = c(u = 0.5, alpha = 0.05),
  range = c(1, 10) * 1000))
```

Parameters

```
if(!is.null(resG$parameters))
  knitr::kable(resG$parameters$summary[,c(1,3,5)], digits=3)
```

	mean	0.025quant	0.975quant
(Intercept)	-7.750	-12.978	-2.506
inc	-0.859	-1.346	-0.376
range	1371.348	927.222	1951.775
sd	0.821	0.708	0.947

```
if(!is.null(resP$parameters))
  knitr::kable(resP$parameters$summary[,c(1,3,5)], digits=3)
```

	mean	0.025quant	0.975quant
(Intercept)	-7.772	-12.958	-2.566
inc	-0.857	-1.340	-0.378
range	1369.794	932.394	1936.439
sd	0.813	0.703	0.937

Maps

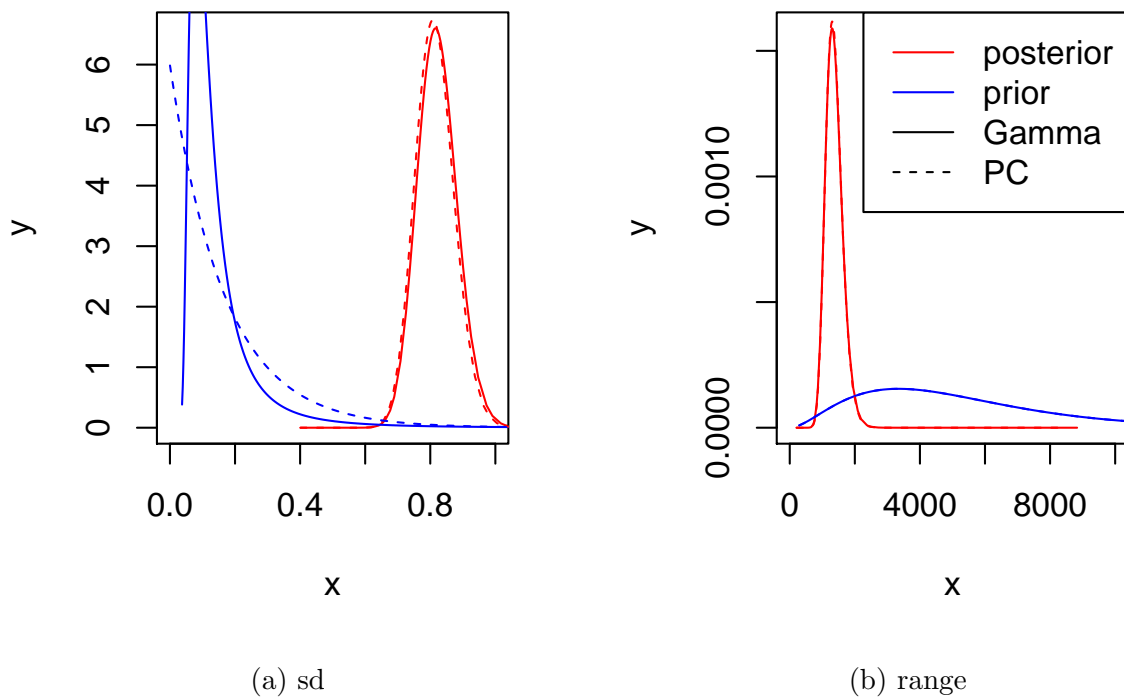


Figure 1: gamma prior

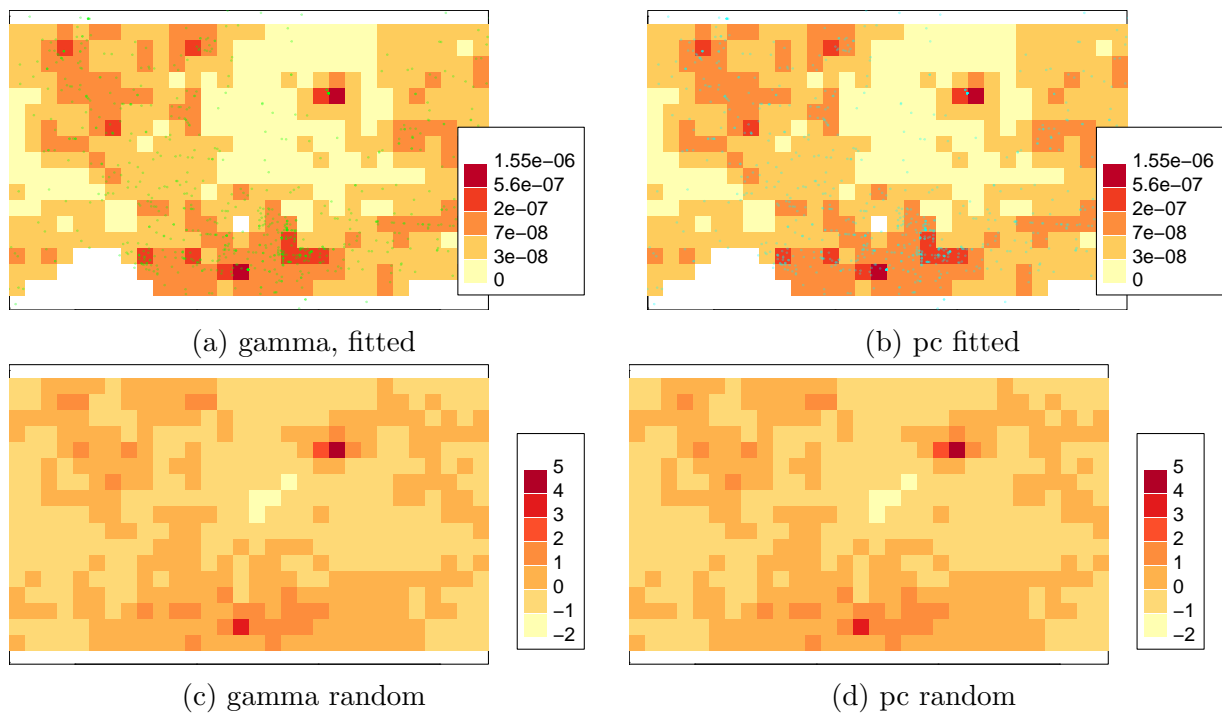


Figure 2: Random effects and fitted values