Inlabru code document

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1 Required packages

The provided code requires an R version greater than 4 and the following packages (reported version) to be used.

Table 1: List of required packages names and versions.

Package	Version
sf	1.0-4
gnorm	1.0.0
mnormt	2.0.2
rgeos	0.5-9
raster	3.5-2
MASS	7.3-54
mvtnorm	1.1-3
matrixStats	0.61.0
metR	0.11.0
data.table	1.14.2
dplyr	1.0.7
INLA	21.11.22
foreach	1.5.1
Matrix	1.3-4
inlabru	2.4.0
sp	1.4-6
viridis	0.6.2
viridisLite	0.4.0
ggplot2	3.3.5

We have also provided more detailed informations stored in the file `session.Info.Rds`. The file can be loaded into R using `load('session.Info.Rds')` and contains detailed informations on the required packages, to access them running `sess.info$otherPkgs$<package name>`

2 Run the code

To run the code it is sufficient to open the terminal in the folder and run the following line:

```
R < source/source_inlabru_1dayfore.R  --save
```

The code will fit the model on the data provided in the input folder and produce 100000 simulated catalogues stored in a `.csv` file as required by the experiment. The file will be named `ETAS_inlabry.<start.date>.csv`. The file `parameters.txt` stores information about the starting and end time of the forecast and the path to load the data to fit the model and the path to store the forecasts. They must use the same syntax used in the provided file. The generated forecast will have `depth = NA` for all the catalogues. The `catalog_id` column stores the catalog number to which the observations belong, this is done only for simulated catalogues with at least one event, the catalogues with no event are stored. Therefore, the number of unique instances of `catalog_id` corresponds to the number of simulated catalogues (on a total of 100000 with at least one event.