



# INSTITUTO NACIONAL DE PESQUISAS ESPACIAIS

## PROGRAMA DE PÓS-GRADUAÇÃO EM

### SENSORIAMENTO REMOTO

**Disciplina:** Introdução ao Geoprocessamento SER-300

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The screenshot shows the RStudio interface with the following R code in the console:

```
1 library("spdata")
2 library("stars")
3 library("geobr")
4 library("dplyr")
5 library("tidyr")
6 library("sf")
7 require(magrittr)
8 census <- geobr::read_census_tract(code_tract="DF", year=2010) %>%
9   dplyr::filter(zone == "urbano") %>%
10  dplyr::select(code_tract)
11 schoolsdf <- geobr::read_schools() %>%
12  dplyr::filter(abbrev_state == "DF")
13 plot(sf::st_geometry(census))
14 plot(sf::st_geometry(schoolsdf), add=T)
15 within <- sf::st_within(schoolsdf, census) %>%
16   as.data.frame() %>%
17   tibble::as_tibble() %>%
18   dplyr::group_by(col_id) %>%
19   dplyr::count()
20 census$col_id <- as.numeric(rownames(census))
21 census <- dplyr::left_join(census, within, by = "col_id") %>%
22   tidyr::replace_na(list(n = 0)) %>%
23   dplyr::arrange(desc(n))
24 sf::write_sf(census, "resultado.shp")
25 mydata <- sf::read_sf("resultado.shp")
26 coords <- sf::st_coordinates(schoolsdf) %>%
27   na.omit()
28 myppp <- sf::st_sfc(coords, sf::st_bbox(schoolsdf))
29 dens1 <- stats::density(myppp)
30 par(mfrow = c(1, 2))
31 plot(dens1)
32 plot(myppp)
33 s1 <- stars::st_as_stars(dens1)
34 stars::write_stars(s1, "myraster.tif")
35
```

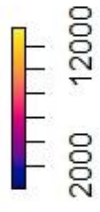
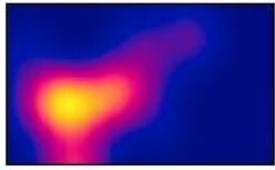
The Environment pane on the right shows the following objects:

Object	Details
as_dens1	List of 10
census	4175 obs. of 4 variables
coords	run [1:1166, 1:2] -47.9 -47.9 -47.9 -47.9
dens1	List of 10
mydata	4175 obs. of 4 variables
myppp	List of 5
s1	List of 1
schoolsdf	1379 obs. of 19 variables
within	819 obs. of 2 variables

The Preview pane shows two maps: 'dens1' (a heatmap) and 'myppp' (a point cloud).



den1



myppp

