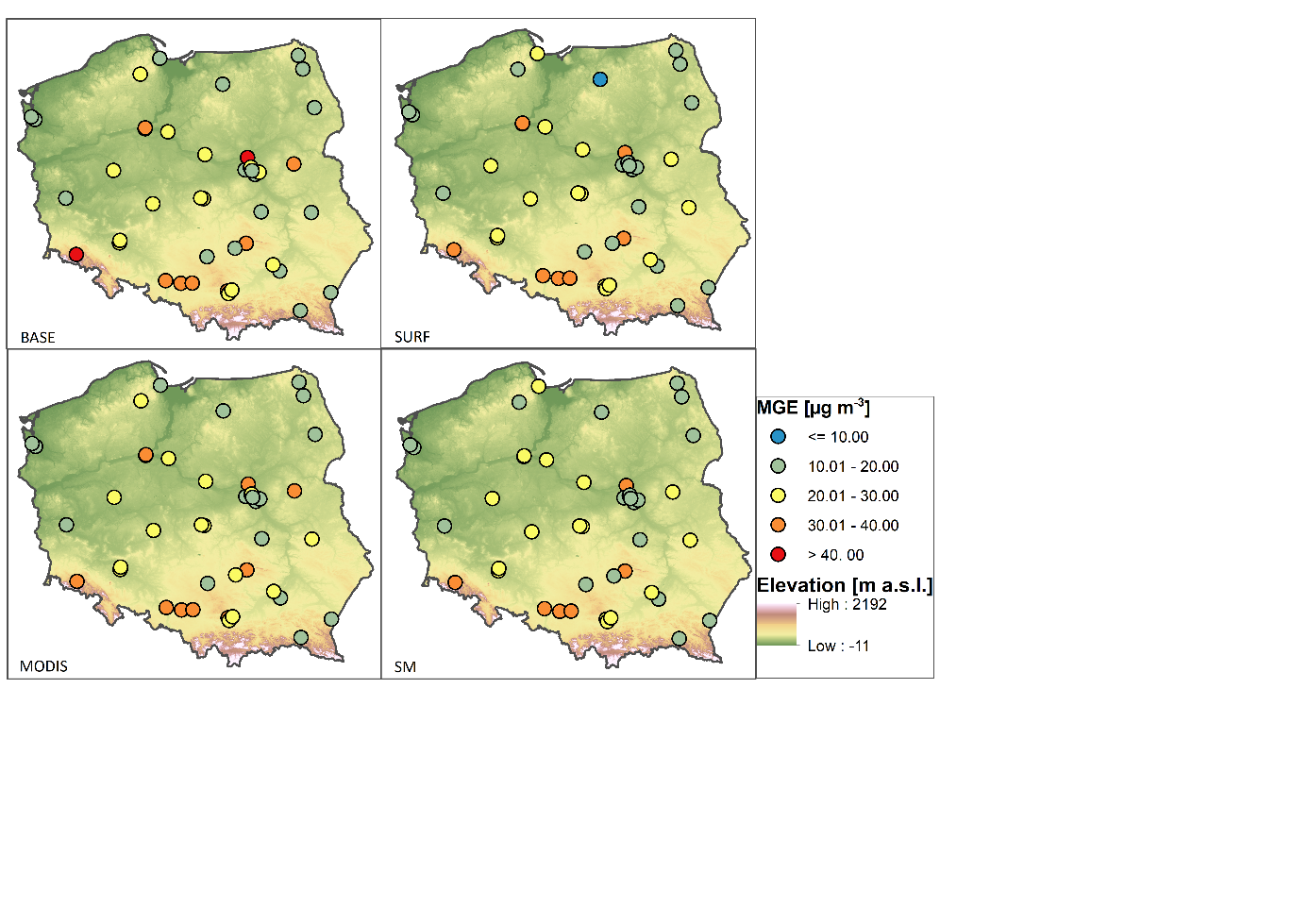
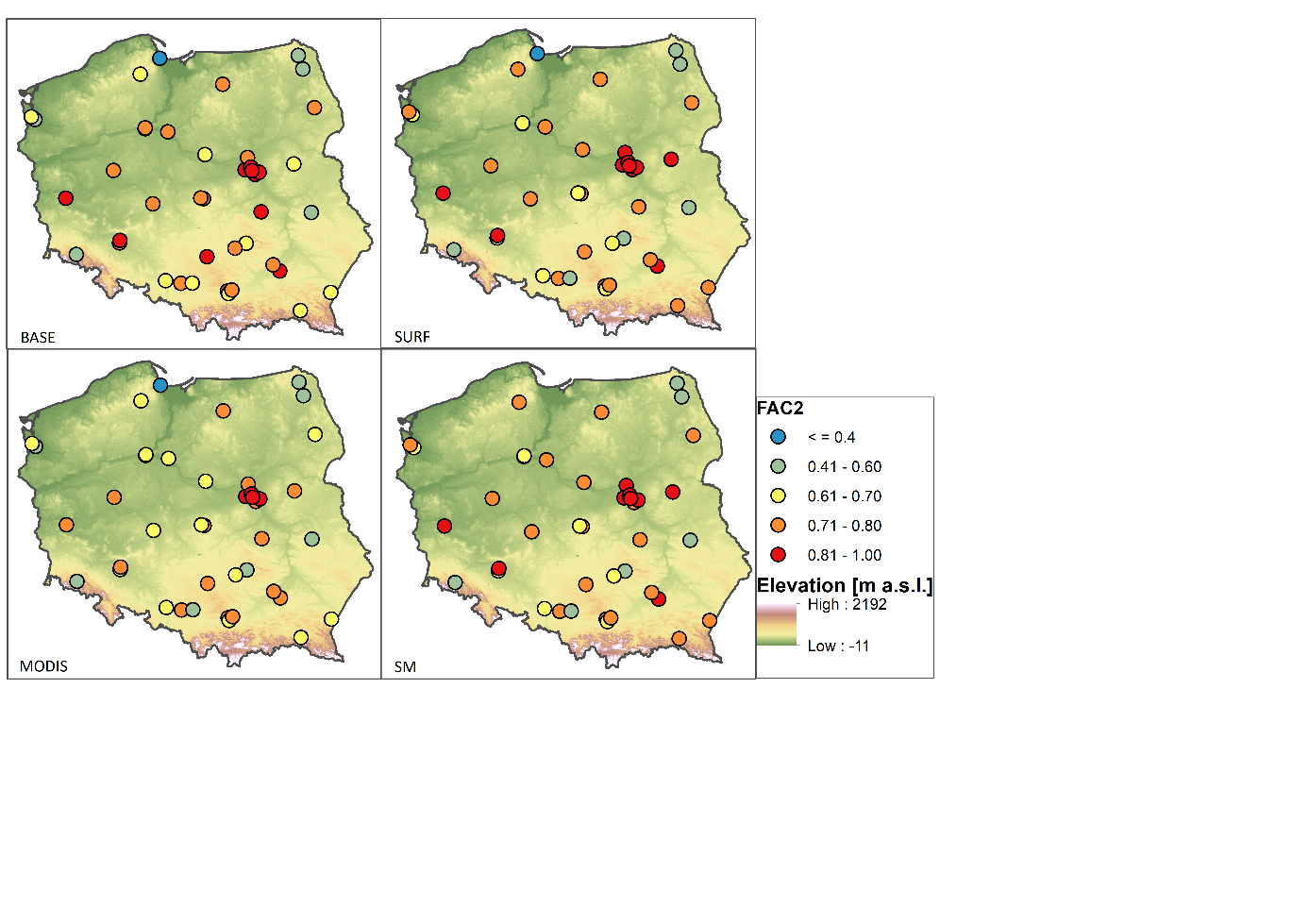


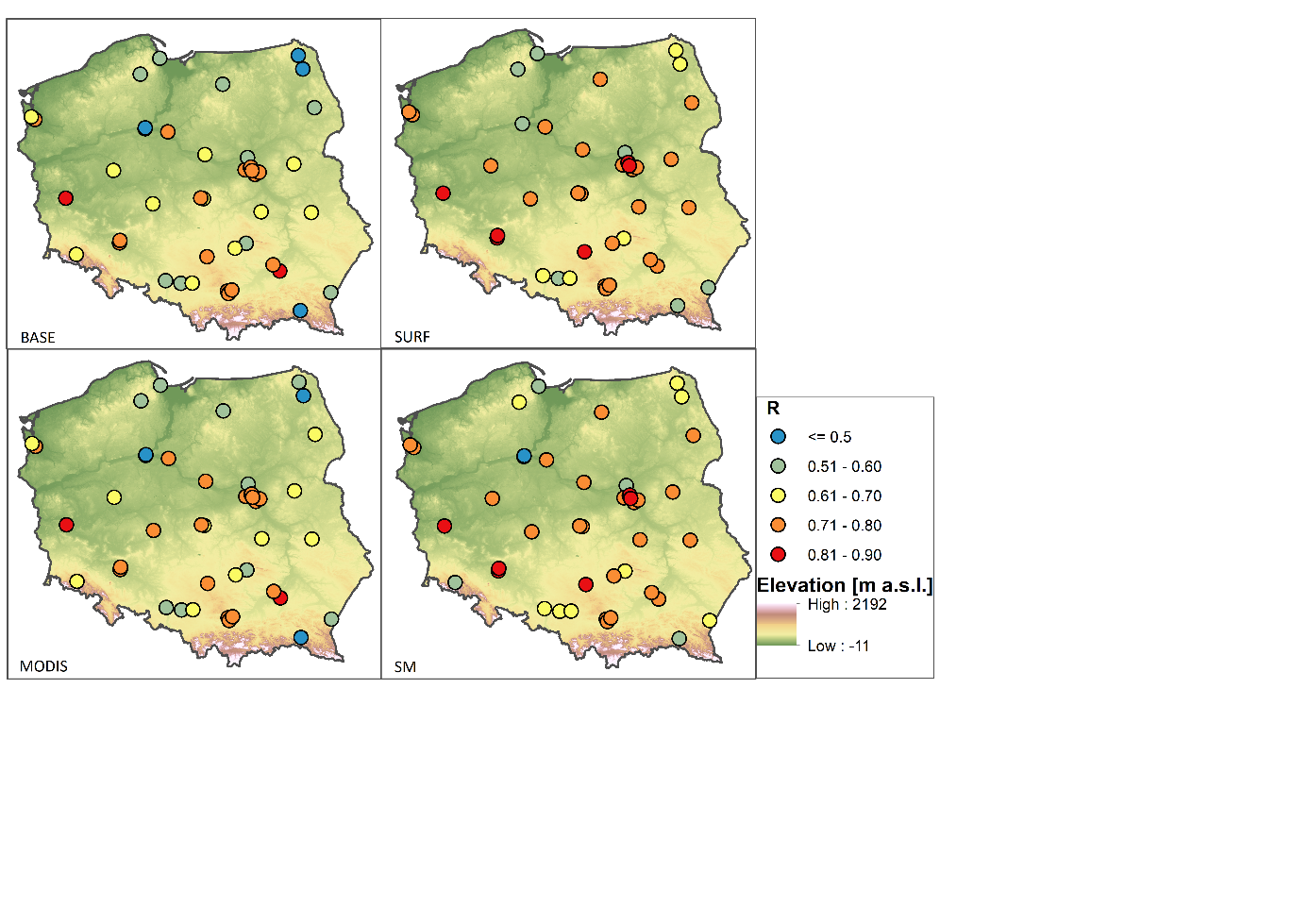
**Figure 1S.** Performance diagram summarizing the success ratio, probability of detection, bias (dashed lines with labels on the outward extension of the line) and critical success ratio (solid lines) for detecting PM2.5 concentrations above 61 µg m-3 (“poor” air quality) by the BASE, SURF, MODIS and SM simulations over Poland for the winter 2017 episode over Poland. The perfect model lies in the upper right corner.



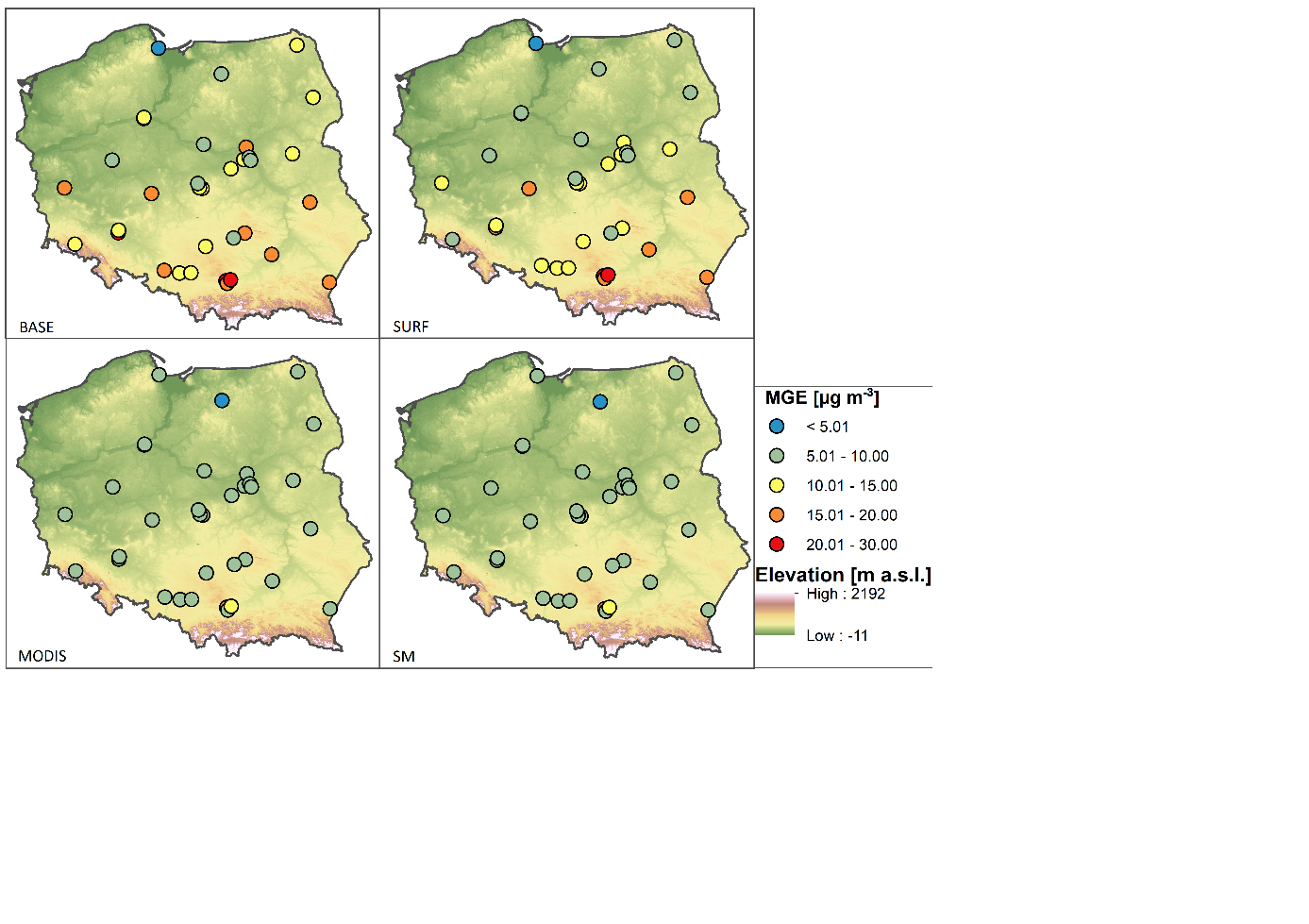
**Figure 2S.** Spatial distributions of MGE for PM2.5 concentrations for the winter 2017 episode over Poland.



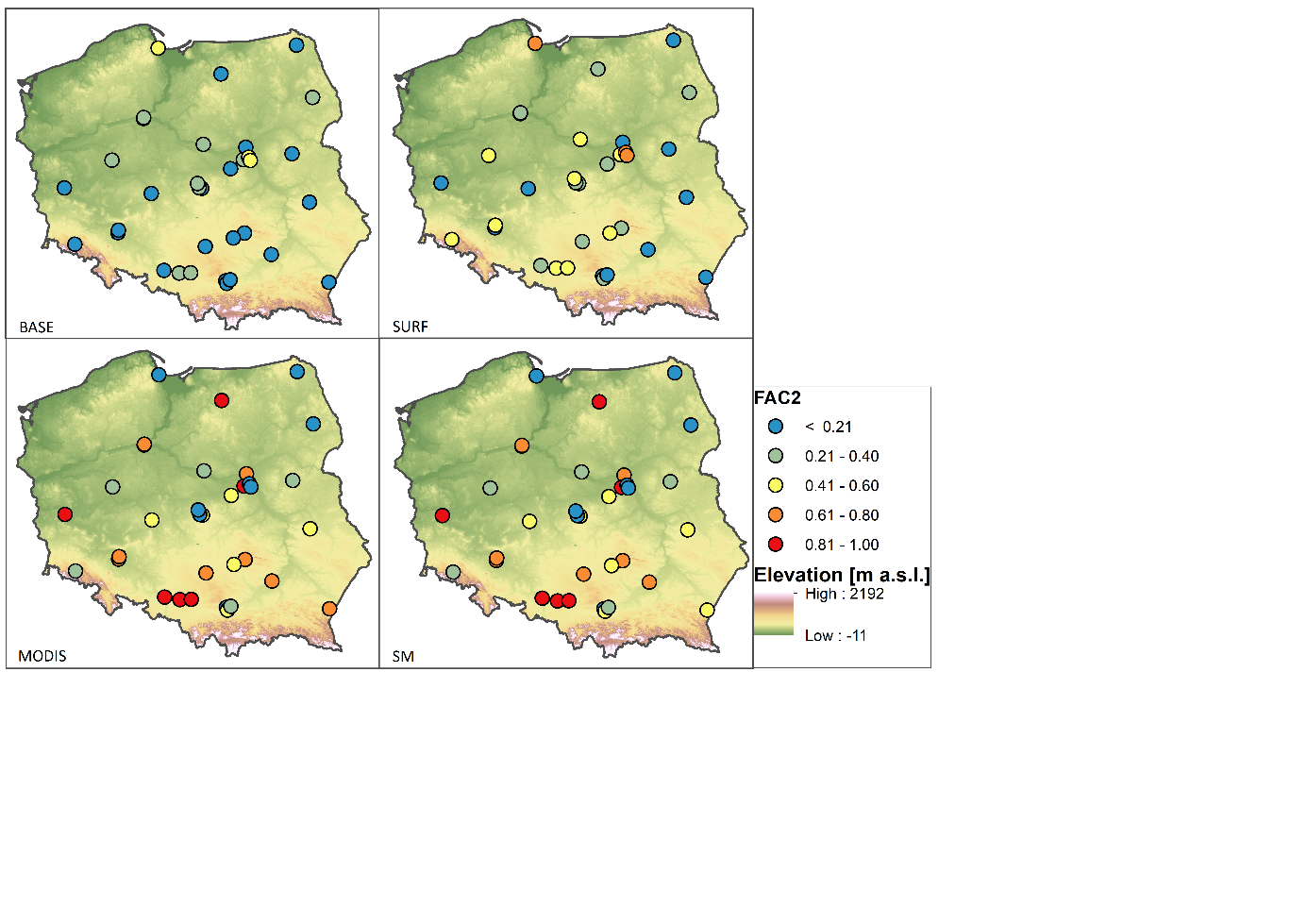
**Figure 3S.** Spatial distributions of FAC2 for PM2.5 concentrations for the winter 2017 episode over Poland.



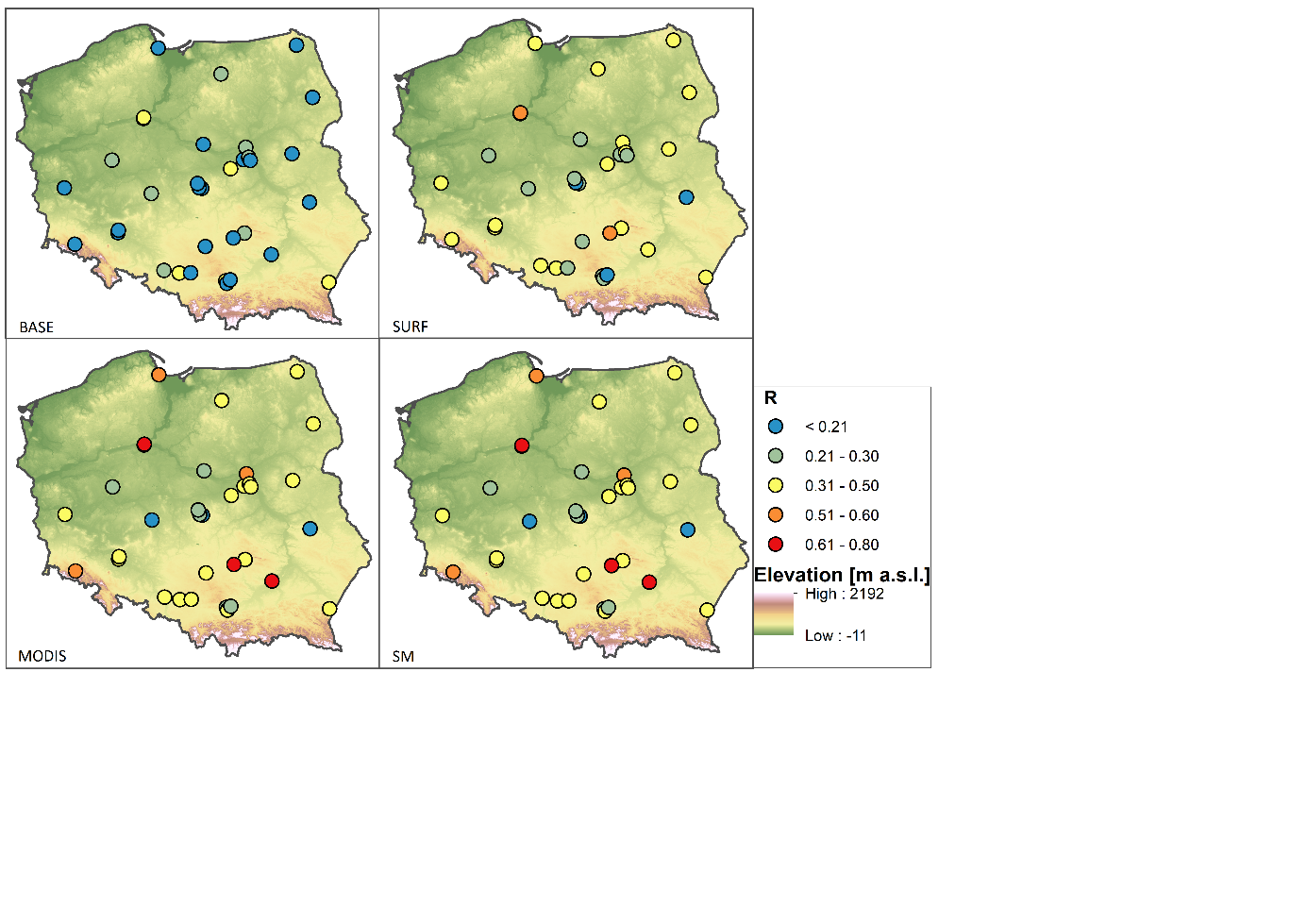
**Figure 4S.** Spatial distributions of R for PM2.5 concentrations for the winter 2017 episode over Poland.



**Figure 5S.** Spatial distributions of MGE for PM2.5 concentrations for the summer 2015 episode over Poland.



**Figure 6S.** Spatial distributions of FAC2 for PM2.5 concentrations for the summer 2015 episode over Poland.



**Figure 7S.** Spatial distributions of R for PM2.5 concentrations for the summer 2015 episode over Poland.