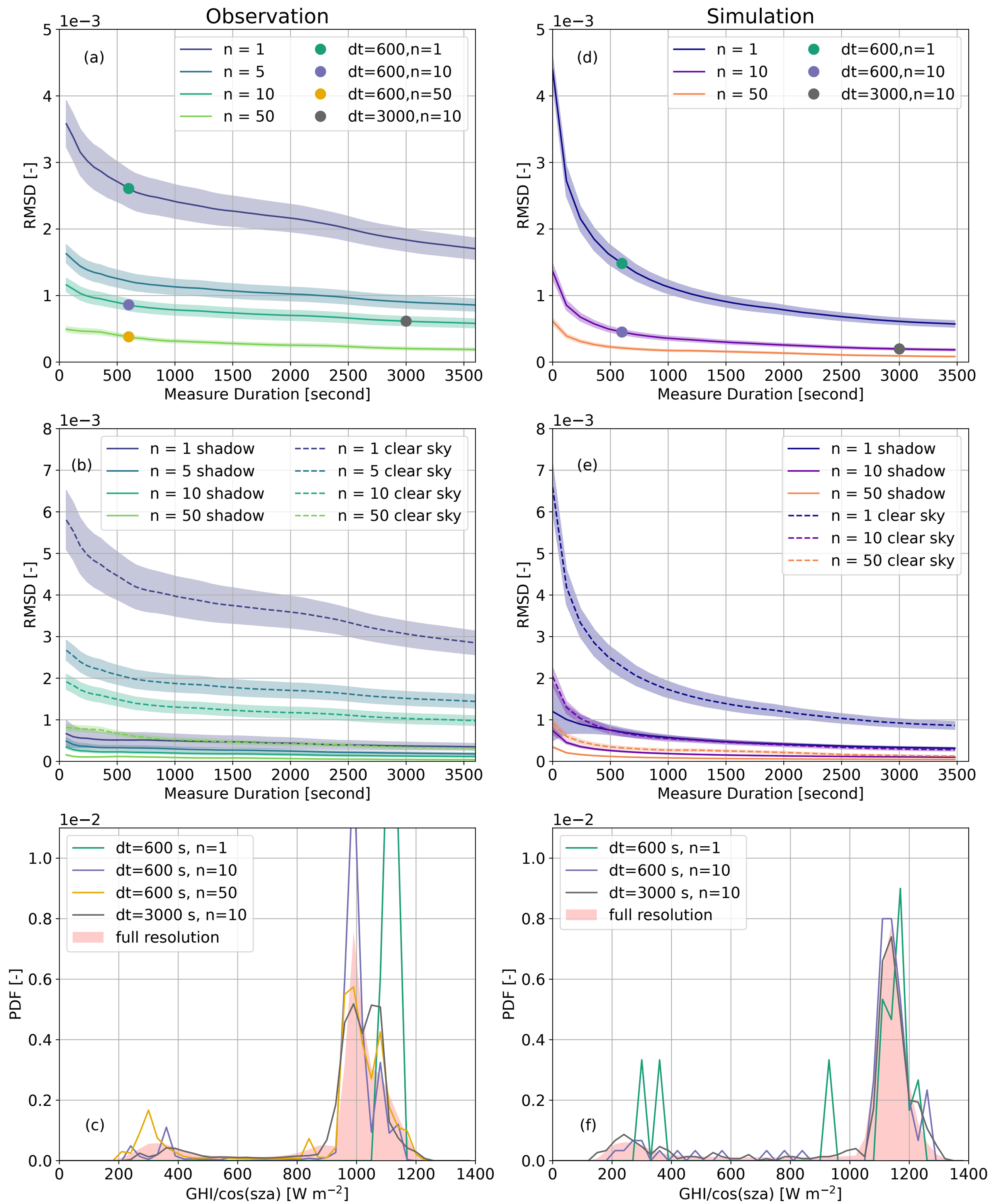Measure the spatial distribution for a period of time