

Current precipitation nowcasting systems primarily use the extrapolation of observed radar reflectivity. I used the extrapolation and studied limits of the forecast using the concept of the decorrelation time (DCT). I used data from two radars covering the territory of the Czech Republic from warm parts of four years and calculated DCT in dependence on several selected conditions describing the state of the atmosphere. I found that the mean DCT for the extrapolation is 45.4 minutes. On average the increase of the DCT in comparison when the persistence forecast is employed is 13.4 minutes. However, in dependence on current conditions the DCT may increase or decrease in more than 40 %. I also explored time evolution of the DCT during two storm events. I found that the DCT may significantly change in time, which is the consequence of changing character of the atmosphere during the storm development.