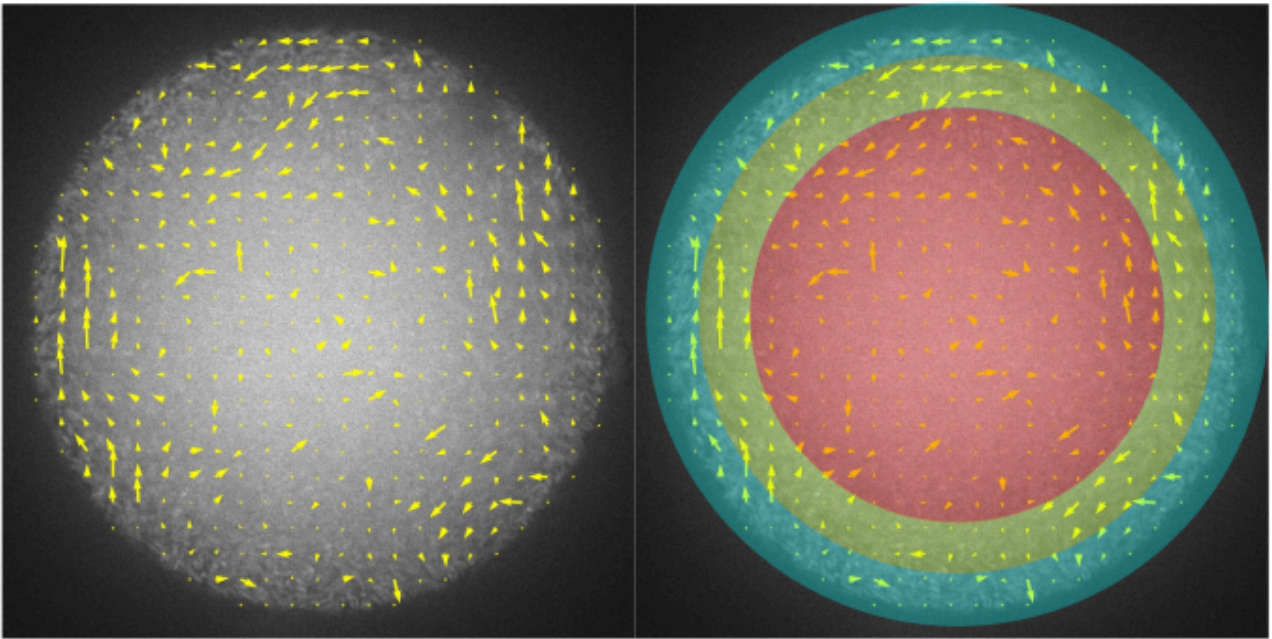
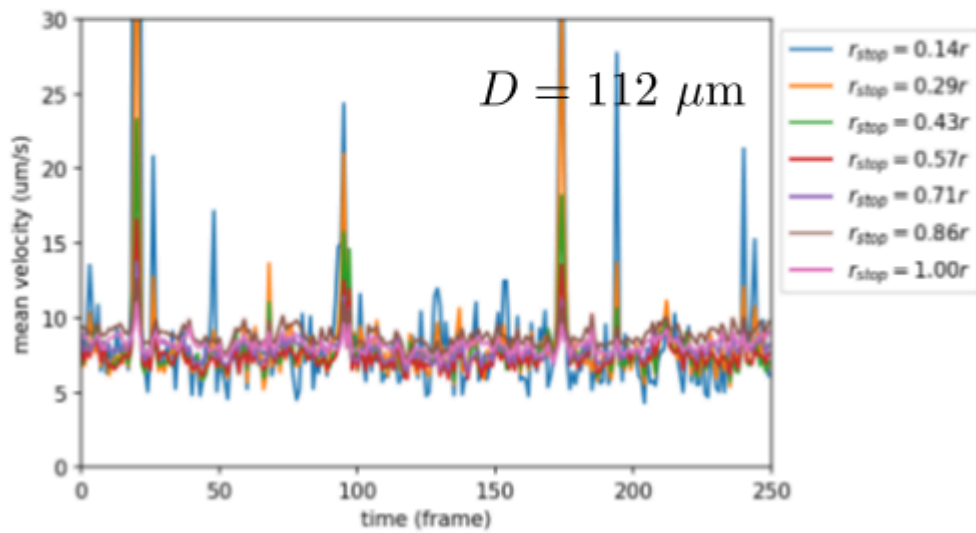
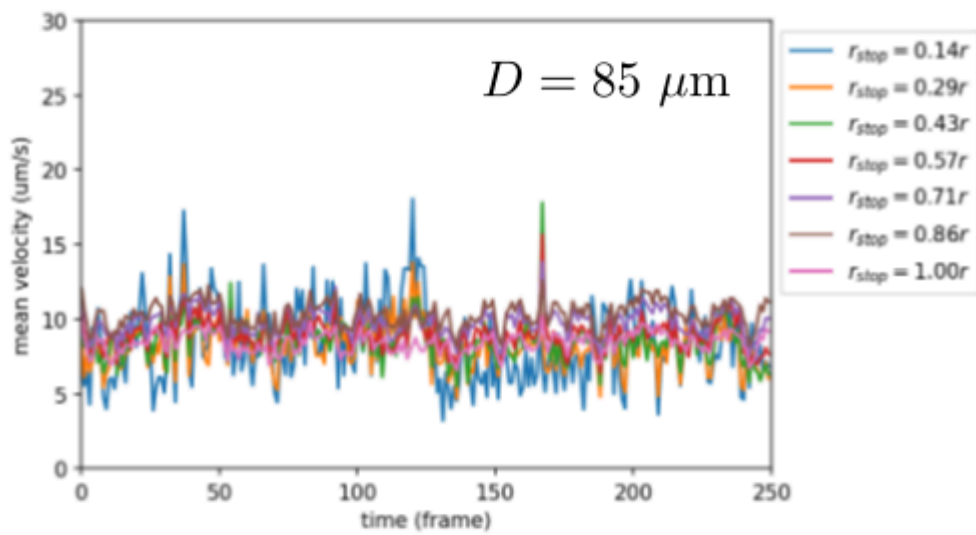
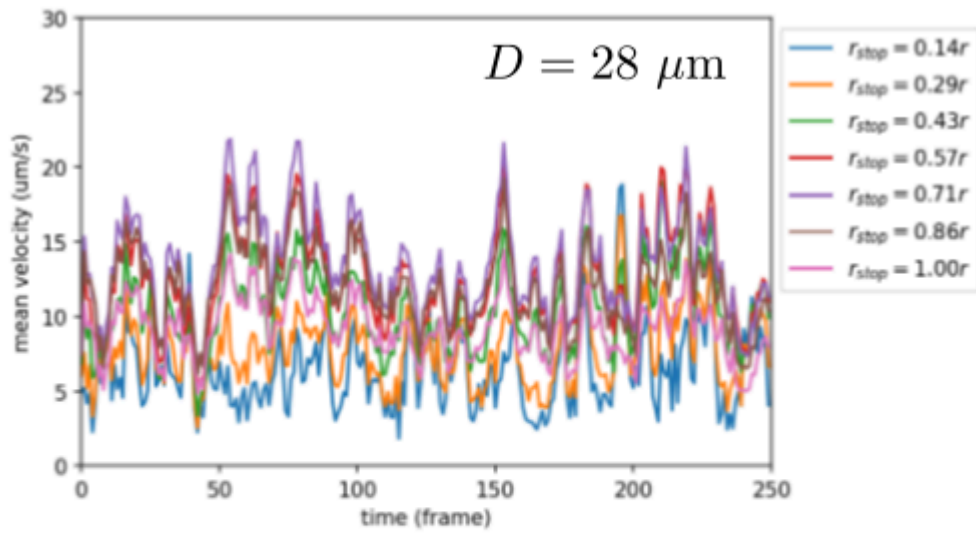


Mean velocity and mask

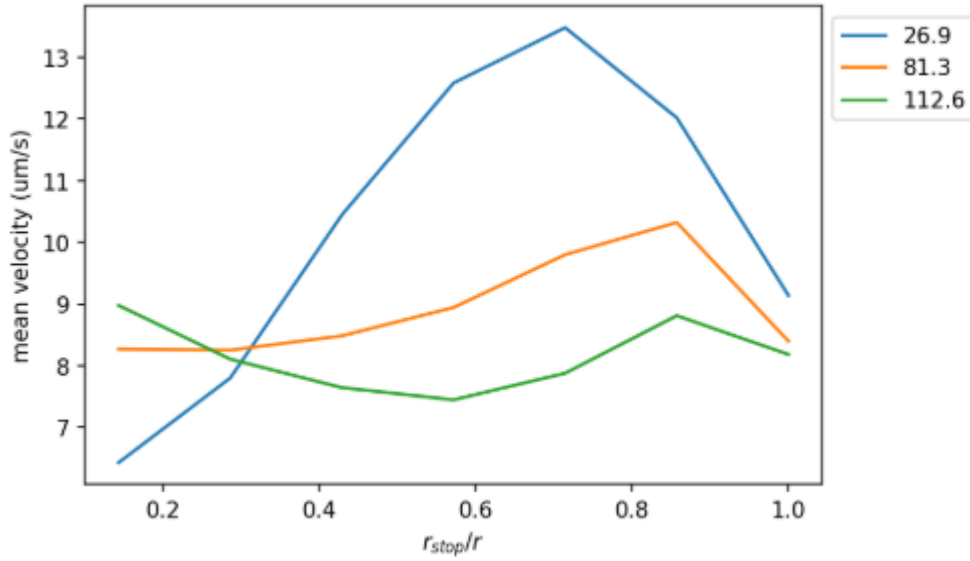


How much do the edge data affect the mean velocity we measure? Let's take the same example as used in the VACF note and test.

Mean velocity over time



Mean velocity vs. r_{stop}

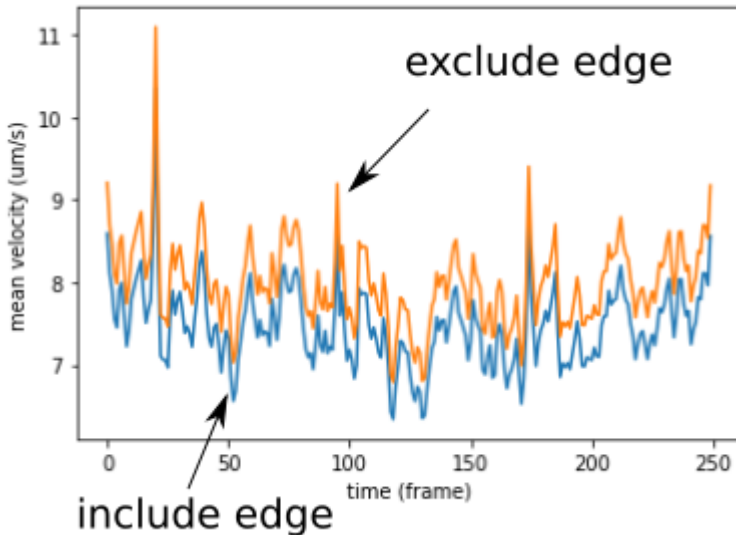


Two observations:

- Small droplets are more susceptible to the choice of mask than large droplets
- The negative effect of edge data is revealed in all the 3 tests

Only exclude edge data

The example above uses different r_{stop} intervals for different droplet sizes. Here, we visualize the effect only from the edge data (using droplet#19).



Overall, edge data decrease the mean velocity by $0.5 \sim 1 \mu\text{m/s}$. Note that this value is not so significant compared to the velocity variation when $r_{stop} \rightarrow r$, meaning that the large variation there is due more to the **non-uniform velocity profile**, than including the edge data. The mean velocity calculated including the edge data should still be considered as acceptable.