Authors would like to thank the reviewer for its careful reading, comments and inspiring suggestions. We took them into account in the revised. Hopefully, you will be satisfied with it. Please find below a point by point answer to your comments.

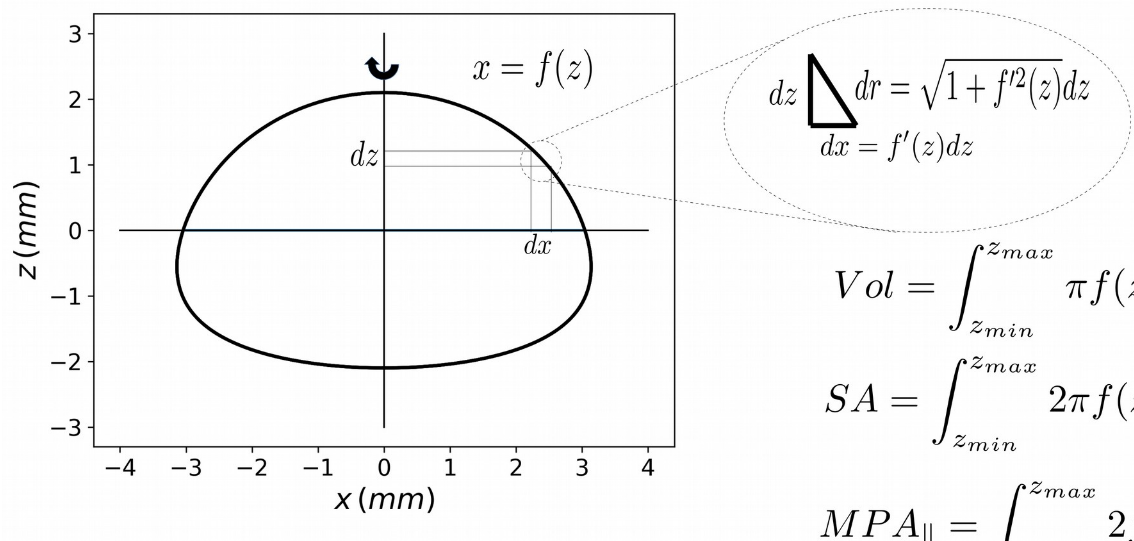
The paper models the 3D trajectories and velocities of discrete raindrops accounting for corrections for raindrop oblateness. The paper is original and results are sound, but there are some comments that need clarification before the paper is accepted for publication.

Section 2.1 needs improvement mainly on the definition/description of some of the variables/equations. For instance, the wind is a vector and has 3 components, but the definition of v_wind does not say in which direction (is it in the 'z' direction?).

It was clarified that v_wind is indeed a vector with three components.

What's "SA"? how did you come up with the equations shown in Lines 105 and lines 114 for MPA.

"SA" corresponds to surface area. This was clarified after this first use. Equations were obtained via integral calculus. Please find below a figure to illustrate the computations. This was added as well in the paper to clarify this point.



$$Vol = \int_{z_{min}}^{z_{max}} \pi f(z)^2 dz$$

$$SA = \int_{z_{min}}^{z_{max}} 2\pi f(z) dr$$

$$MPA_{\parallel} = \int_{z_{min}}^{z_{max}} 2 f(z) dz$$

The force balance (FW = FB+ FD) is valid with the assumption that the particle reached terminal velocity and therefore any additional force due to acceleration is zero. Therefore, if the particle reached terminal velocity, should not dv/dt be equal to zero? However, Eq 1 shows that dv/dt is not zero. Could you please clarify?

In this paper, we are interested in the motion of a particle within a changing wind, meaning that it never reaches its terminal fall velocity. So we are simply using Newton's second law which equals the mass times the acceleration to the net force (here it was divided by the mass). This was clarified in the manuscript.

In addition, the force balance gives:

Fw = FB+FD

where Fw is the weight of particle, FB buoyancy and FD the drag. This equation leads to a well-known expression in fluid mechanics for the terminal velocity of a single particle given by:

v^2 = 4*D*g/3/CD* (rho_p - rho_air)/rho_air

where rho_p and rho_air is the density of the particle and air respectively, CD the drag coefficient, g gravity, D particle's diameter. So if the particle's velocity v is equal to v_rel = v_wind - vp in your notation (assuming v_wind is in the z direction), then any change in v_wind over time will affect v_rel and CD (CD is a function of Re and Re a function of v_rel). So it is unclear how you came up with your Equation 1 without including the time derivatives of CD and v_wind. Perhaps I misunderstood something, but if you can elaborate please.

Authors would like to thank the reviewer whose comment help spot a typo in Eq. 1. Indeed a division by rho_water was missing in the term corresponding to the drag force. This has been corrected. It did not affect the scripts which were correct. The equation you are mentioning for terminal fall velocity is obviously retrieved as well. Due to copy/paste of latex equation, it was also reflected in Eq. 5 which has now been corrected as well.

The notation regarding v_wind which is a vector have been clarified.

All the above does not account for raindrop breakup or aggregation and only applies for discrete particles that do not interact with each other. However, we know this is an important process in precipitation and this will affect v through the increase/decrease of D. Given the fact that you are using a more complex model to work out CD and account for raindrop oblateness, what are the implications of breakup/aggregation in your results?

The reviewer is correct that these processes are currently not dealt with in this paper which handles individual drops. Following your comment, this has been clarified and is now mentioned as a limitation in the conclusion.

Section 3.1. Recommendation: to use a different variable for C1 in Eq 7 to avoid confusion with 'c1' in Eq 3.

Thanks you for spotting this issue. Given that C1 in Eq. 7 is a very common notation, authors changed the "c"'s in Eq. 3 to "a"'s to avoid any confusion.

Section 3.2 The real part 'Re' might be confused with the Reynolds number 'Re'.

It was changed to “Real” to avoid any confusion and improve clarity.

Eq 11. be consistent with the variable definition. is ux, uy and uz the same as vx, vy and vz in Figs 5 and 6?

It is corrected in Eq. 11 to ensure consistent notations.

From the conclusions, it is clear that wind effects are important especially during strong winds. However, it is unclear how to correct radar rainfall estimates on the ground to account for this. Perhaps the authors can elaborate further.

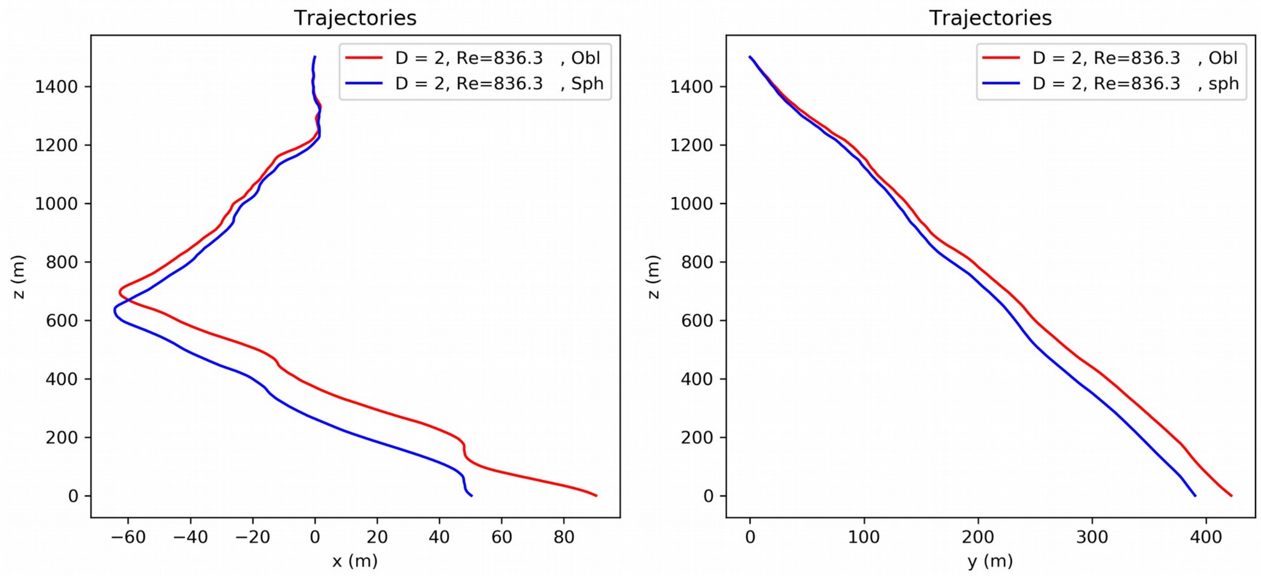
As suggested by the reviewer, the conclusion has been updated to elaborate more on this issue.

From a practical point of view, what’s the difference in trajectories/displacements shown by this model and the one that assumes spherical particles (when computing CD). Is the additional complexity in the modelling adding any value? I would like to see the differences in terms of displacements as well.

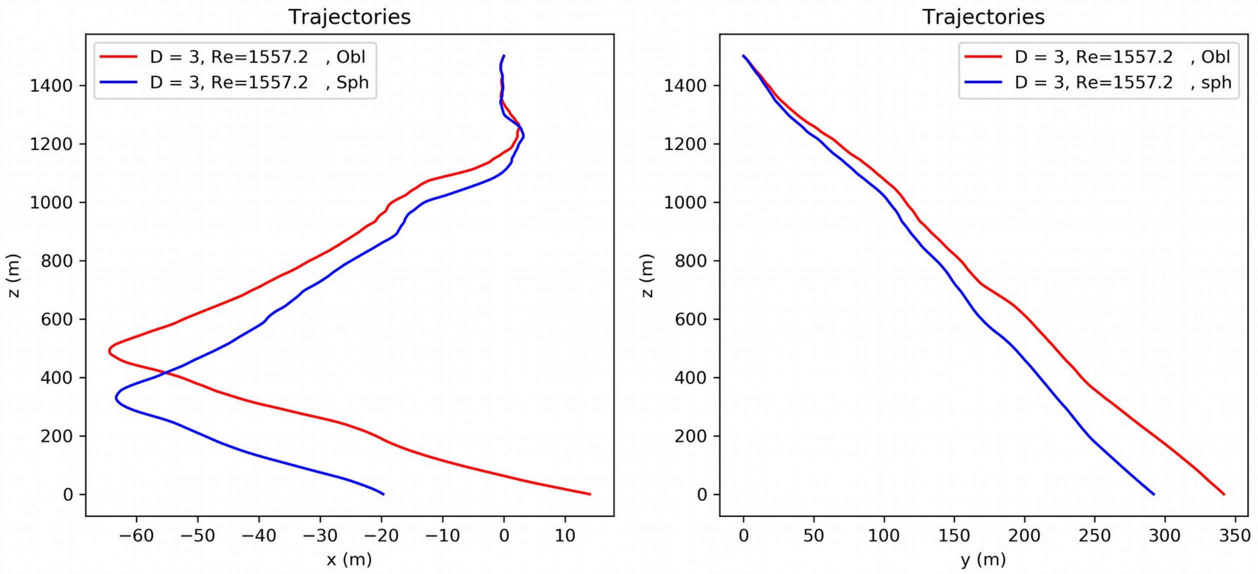
There are indeed some differences between trajectories (and therefore ground position) with or without accounting for oblateness. Please find below some examples of trajectories (projected on vertical plans) for drops of various sizes and for the two events. There are some differences of more than few hundred meters even for large drops. A sentence was added to mention this in section 4.2. For now this kind of figures was not inserted, but if the reviewer feels that it should be because the comment is not enough, this can obviously be done.

Low wind

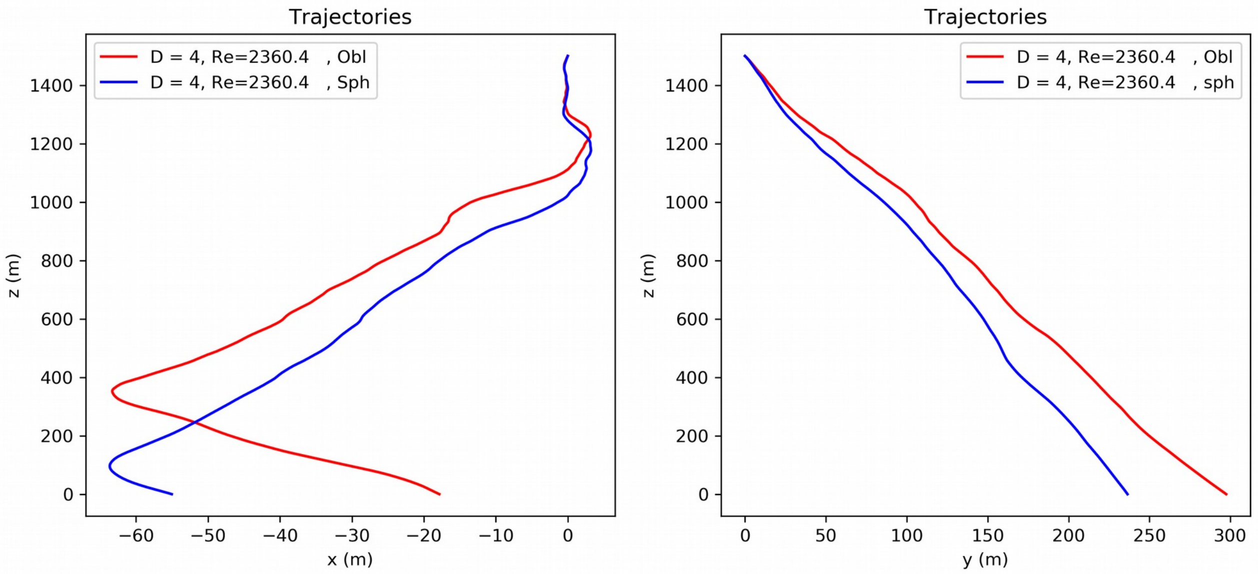
Deq = 2 mm



Deq = 3 mm

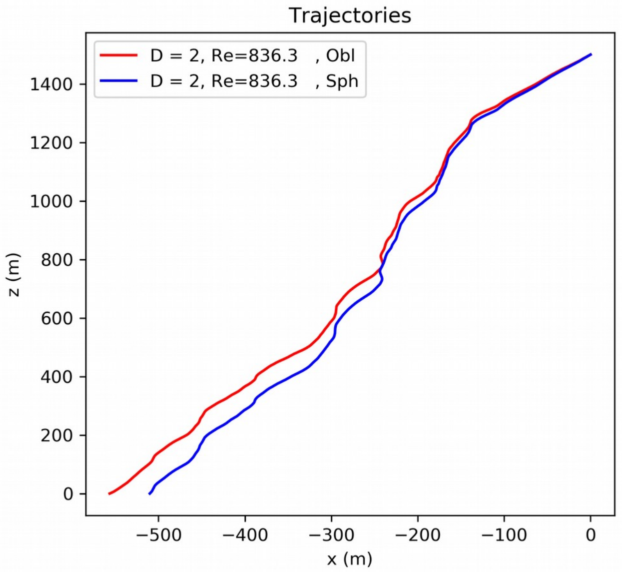


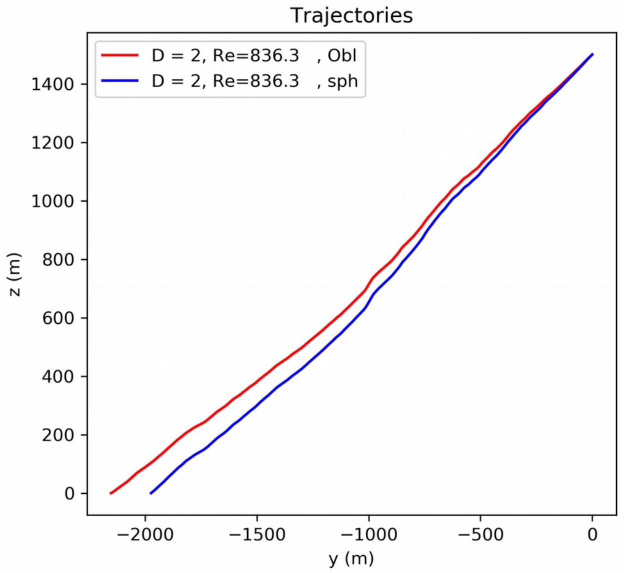
Deq = 4 mm



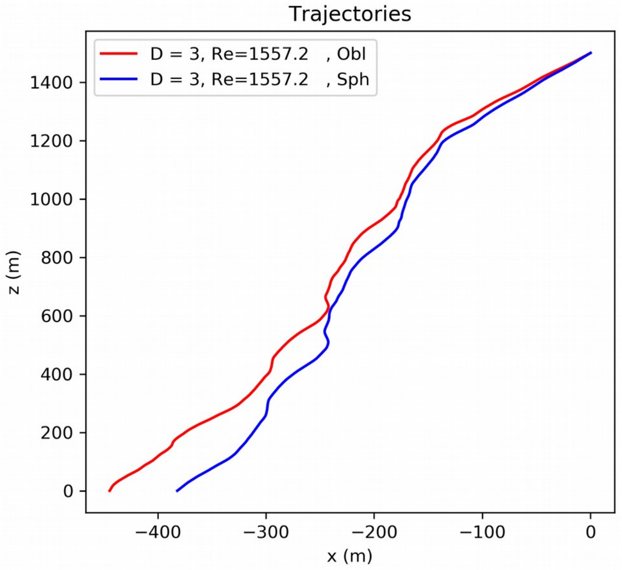
Strong wind

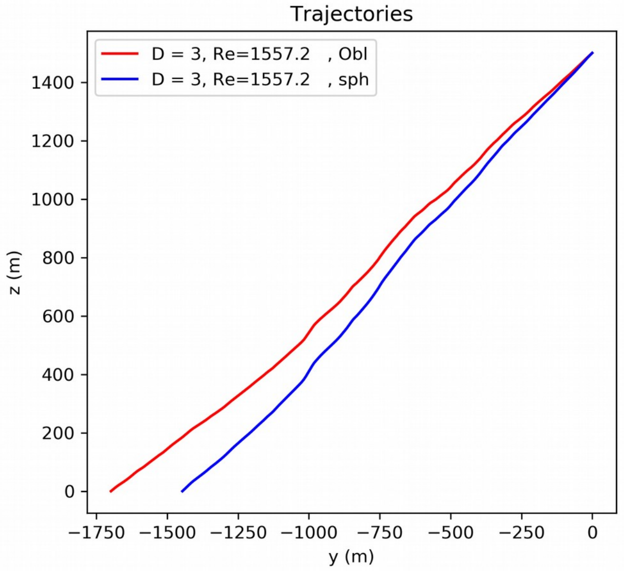
Deq = 2 mm

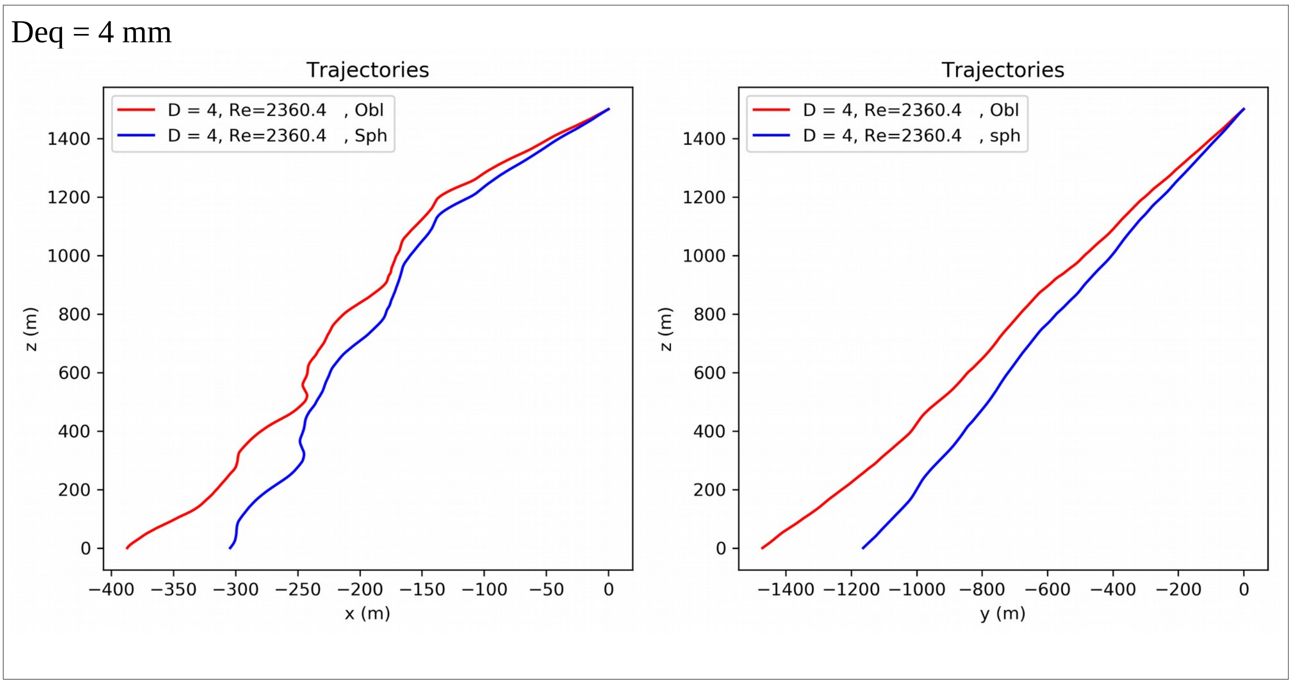




Deq = 3 mm







Spelling mistakes:

“equivolumic” (line 193), “withing a voxel” (line 272).

What was the issue with “equivolumic” ? Miss spelled “within” was corrected.