Aggregate formation in 3D turbulent-like flows[1] A. DOMINGUEZ, Eindhoven University of Technology, H.J.H. CLERCX, Eindhoven University of Technology and University of Twente — Aggregate formation is an important process in industrial and environmental turbulent flows. In oceans turbulence play an important role on Marine Snow (aggregate) formation. For a proper description, the study of aggregate formation in turbulent flows requires a particle based model i.e. following trajectories of single particles. For these to be done, it is required to model three main processes: the flow, the motion of the particles and the encounter and coalescence of particles. In this study we use 3-D kinematic simulations to model the turbulent flow. A simplified version of the Maxey-Riley equation is used, with Stokes drag, bouyancy and added mass forces. In the collision and aggregate formation module a geometrical collision check is used. When the distance between two particles, is smaller than the sum of their radii, a collision takes place. All the particles that collide stay together to form an aggregate. To account for the porosity of the aggregates a Fractal Growth Model is used. In this study we will explore the effects of different parameters on the aggregate formation (*e.g. St; Wst; ϕ; Re*) and the effects of two different background populations: constant and decaying.

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