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Passive aerial dispersal of insects and other arthropods LAURA MILLER, University of North Carolina Chapel Hill — One of the defining features of the aerial dispersal of tiny organisms is the ability to overcome negative buoyancy. This can be accomplished by dispersing in the right wind conditions (e.g. an updraft) or by active flight or active release. Once in the air, draggy structures, such as the draglines of spiders or bristled wings of tiny insects, can reduce the settling velocity and extend the time of transport. Purely passive mechanisms allow spiders and other arthropods to drift on strands of silk to heights of 14,000 m and distances of hundreds of miles. Similarly, tiny insects like thrips and parasitoid wasps can travel distances of thousands to tens of thousands of meters, possibly using a combination of periods of active and passive flight. In this presentation, we used the immersed boundary method to quantify settling velocities and transport dynamics of parachuting insects and other arthropods within a quiescent fluid, a uniform updraft, and eddies.

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