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Olive Oil Tracer Particle Size Analysis for Optical Flow Investigations in a Gas Medium SHAUN HARRIS, BARTON SMITH, Utah State University — Seed tracer particles must be large enough to scatter sufficient light while being sufficiently small to follow the flow. These requirements motivate a desire for control over the particle size. For gas measurements, it is common to use atomized oil droplets as tracer particles. A Laskin nozzle is a device for generating oil droplets in air by directing high-pressure air through small holes under an oil surface. The droplet diameter frequency distribution can be varied by altering the hole diameter, the number of holes, or the inlet pressure. We will present a systematic study of the effect of these three parameters on the resultant particle distribution as it leaves the Laskin nozzle. The study was repeated for cases where the particles moved through a typical jet facility before their size was measured. While the jet facility resulted in an elimination of larger particles, the average particle diameter could be varied by a factor of two at both the seeder exit and downstream of the jet facility.

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