

LadHyX Seminar – January 30th, 10:45

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How to improve airtanker performance?

Airtanker firefighting is a fascinating tool operated to fight wildland fires. Airtankers are, however, developed based on empirical methods and their performance is only discovered after drop tests made above a grid of cups distributed on a plane field with no vegetation (the cup & grid method) developed during the 90's. Dropping a liquid from an aircraft seems easy to achieve because the released liquid directly falls to the ground due to gravity. However, the fluid dynamics processes that govern this practice is characterized by rich and varied physical phenomena, and controlling the resulting fluid distribution of the drop pattern raises many scientific issues. The liquid column penetration in the air, its large-scale fragmentation and an intense surface atomization give shape to the rainfall produced by the airtanker and the final product deposition onto the canopy. The respective roles of these mechanisms are here described and analyzed in order to determine the parameters of importance for improving airtanker drop performance for more efficient firefighting.

