

Abstract Submitted
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Explosion cavities ADRIEN BENUSIGLIO, CHRISTOPHE CLANET, LadHyX - Ecole Polytechnique, DAVID QUERE, PMMH - ESPCI — We study the cavities produced at the water-air interface by the explosion of firecrackers. Without confinement, we first observe a spherical hole which grows and reaches a maximal size that depends on the initial energy. Beyond this maximal extension, the cavity collapses in an anisotropic way and leads to the formation of a jet right at the point of explosion. In the case of a confined explosion in a cylindrical tube, the water/air interface initially moves away from the explosion location and reaches a maximal depth that again depends on the initial energy of the explosion. The main difference with the unconfined limit is the fact that the size of the cavity cannot be larger than the size of the confining tube.

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