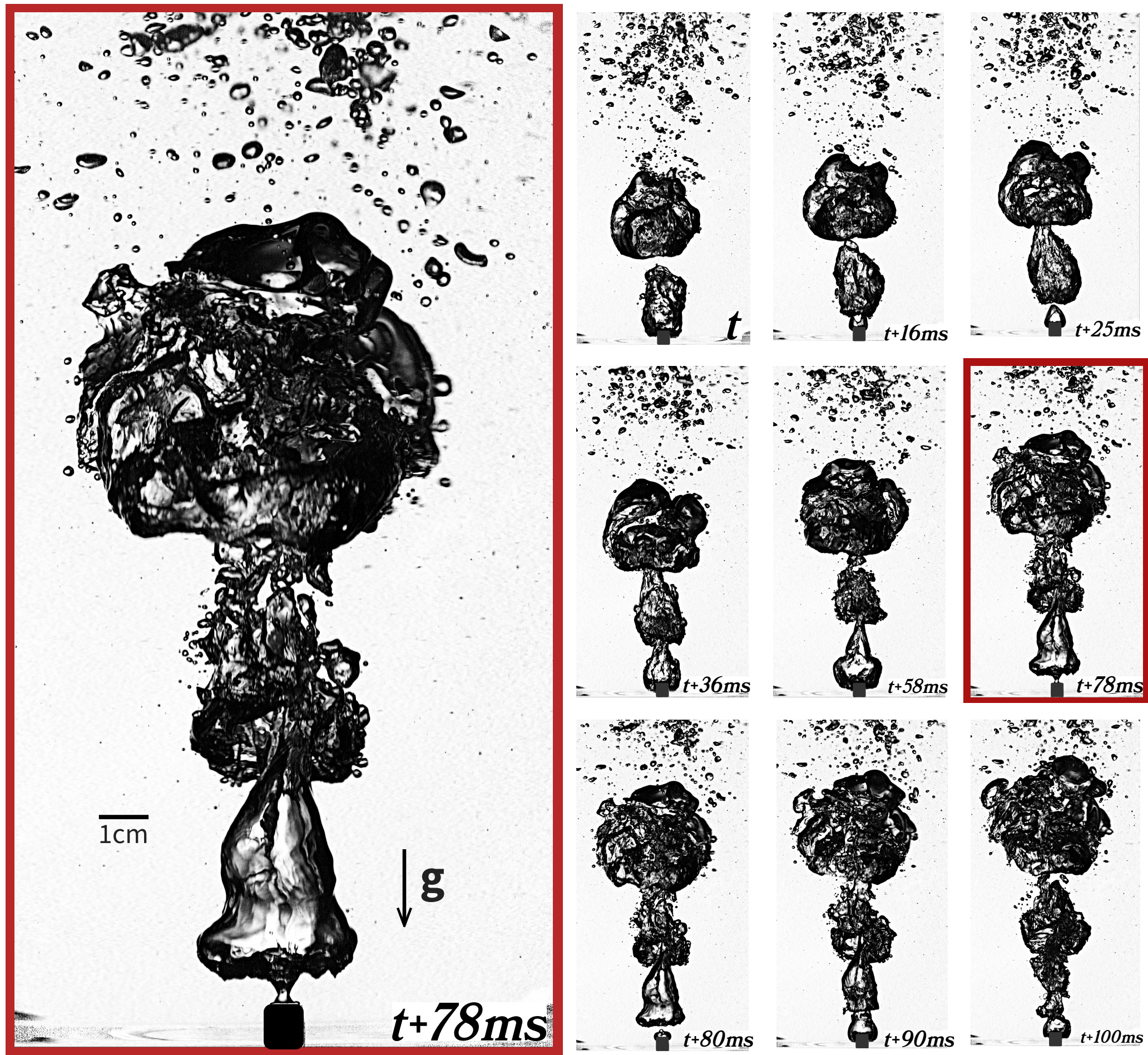


# Mushroom-shaped bubble plume under bubble crown

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We study free-rising bubble plumes produced by gas injection in pressurized water to characterize the subsea gas release conditions. Time evolution illustrations of a bubble plume under the chaining regime at atmospheric pressure given above were obtained employing a diffused backlight illumination technique. First, a continuous jet, four times larger than the nozzle diameter, and a large bubble, ten times larger than the nozzle diameter, merge in a mushroom-shaped bubble plume at the jet interruption. Then, the apparition of a new jet enlarges the bubble plume length. The process ends with the mushroom cap detachment while fragmenting into a bubble crown.

**Question:** What is the impact of subsea pressure conditions on the bubble plume evolution up to the sea level surface?

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