 **Key points:** This study focuses on the formation of habitable planets around low-mass stars, particularly M dwarfs. It investigates the delivery of volatiles, like water, to these planets through late-stage bombardment by leftover planetesimals and icy asteroids.

 **Important formulas or discoveries:** The paper uses the following formula to estimate the location of the water-ice snow line in a system:

a\_snow = (T\_\*/280 K)^2 (L\_\*/L\_sun)^(-1/2) au

where a\_snow​ is the semimajor axis of the snow line, T∗​ is the stellar effective temperature, and L∗​ is the stellar luminosity.

 **Limitations:** The study acknowledges that its numerical models are simplified and do not include gas-disk interactions or a fully realistic treatment of fragmentation. It also notes the uncertainty in the initial conditions for planet formation around low-mass stars.

 **Summary:** The study concludes that late volatile delivery to habitable-zone planets around M dwarfs is unlikely in the absence of distant giant planets to perturb debris onto planet-crossing orbits. It suggests that the presence of external giant planets may be a sign that habitable-zone worlds around low-mass stars could have received and retained volatiles.