Copepods use chemical trails to find sinking marine snow aggregates

Copepods are major consumers of sinking marine particles and hence reduce the efficiency of the biological carbon pump. Their high abundance on marine snow suggests that they can detect sinking particles remotely. By means of laboratory observations, we show that the copepod Temora longicornis can detect chemical trails originating from sinking marine snow particles (appendicularian houses). The chemical cue was detected by copepods from a distance of >25 particle radii, with the probability of detection decreasing with distance. The behavior of T. longicornis following the trail resembled the behavior of males tracking pheromone trails, although with a lower tracking velocity. Upon finding a house, the copepod would attach for a short period (10–30 s) and feed intensively. Due to short residence times, daily feeding rates were moderate. Our results demonstrate that even T. longicornis, a species usually considered a microparticle feeder, is able to detect and feed on marine snow aggregates. If similar behaviors are displayed by the more dedicated aggregate-feeding copepods, a topic that remains unexplored, the effect of copepods on vertical flux attenuation may be significant.