

# Insect overwintering in a changing climate

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At temperate latitudes a specialized state of dormancy, termed diapause, is used as an overwintering strategy by virtually all insects. The induction of diapause often involves a trans-generational ‘memory’ of environmental gradients (photoperiod and temperature), and I present evidence of how this is being disrupted by climate change. This leads to a mis-match between life cycle events and environmental conditions, and I will discuss the consequences of diapause disruption on insect phenology, distribution and survival. Despite the importance of diapause, we are only just beginning to understand the molecular mechanisms that underpin this adaptation to seasonal change. I will outline some of our ongoing work, using metabolomic and lipidomic approaches, to investigate the molecular changes associated with the diapause programme, and their contribution to stress tolerance.



Tuesday November 5<sup>th</sup> at 13.15  
Room 127 (zoofys kaffestue), building 1131