



The role of phenology in assessing risks of frost damage

Annette Menzel and Nicole Estrella

Technische Universität München, Germany (amenzel@wzw.tum.de)

Climate warming in temperate regions has been shown to lengthen the summer growing season, both at the spring and autumn side, and shorten the winter season. Spring phenology, e.g. bud burst and leafing, is mainly triggered by forcing temperatures in order to maximize growing season during favorable conditions. Winter chilling and / or photoperiodic requirements prevent too early plant development related to a higher risk of damage by late spring frosts.

The questions how risks of late spring frosts have been altered in the past and will change under future warming are discussed controversially in the current literature. In this paper we will take this classical example of vegetation - atmosphere interaction to demonstrate that traits of the species studied, the (partially) neglected status of the vegetation and regional climatic conditions may account for these differences reported. We suggest a methodology based on extreme value theory (EVT) to assess the frost risks and present results for continental Europe.