Teilprojekt 4 Phenology

The bio-indicator for climate change

Spreading Knowledge

Promoting Perception

Communicating Complexity

Citizen Science
Warming fingerprint in phenology
- lack of chilling in mild winters
- farmers are not tracking speed of change
- attribution of changes to warming

Abstract
A paper published in Global Change Biology in 2006 revealed that phenological responses in 1970-2000 matched the warming pattern in Europe, but a lack of chilling and adaptation in farming may have renewed these findings. Therefore, for 1955-2018 in a corresponding data set, we determined changes as linear trends and analyzed their variation by plant traits, groups, access season and time as well as their contribution to warming following IPCC methodology. Although spring and summer phases in wild plants advanced less linearly advances in 1970-2015 (mean +/- 95% and more significantly +/- 100%) was present than the changes, representing higher relative warming, respectively. These trends were strongly attributable to winter and spring warming. Findings for crop spring phases were similar, but were less pronounced. There were clearer and distinguishable signs for a delayed season in response to winter and spring warming.
Warming fingerprint in phenology

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“Chilling” pupils

- cut twigs as perfect experimental tool
- cutting may affect forcing requirements

Menzel A, Yuan Y et al. (to be submitted)
Constructing a phenological past

- Citizen scientists need past data fitting to their observations

Yuan Y, Haerer S, Menzel A et al. (to be submitted)
Constructing a phenological past

- Robust interpolation ME ~ 8 days
- Implications for temporal trends

Yuan Y, Haerer S, Menzel A et al. (to be submitted)