

Modelling the carbon budget of selected German forestal intensive monitoring test sites using the simulation model BIOME-BGC

H. Jochheim, M. Puhmann, A. Marx

Objective

- Assessment of **additional measurements** at the level-II plots to improve the applicability of dynamic simulation models
- Simulating the **carbon budget** of **selected** test sites

cooperation partners	additional measurements
<ul style="list-style-type: none"> • W. Lux (BFH) → German level-II data base • R. Kallweit (LFE) → data Brandenburg • C. Schulz, S. Raspe (LWF) → data Bavaria • H. Meesenburg, K.-J. Meiwes (NW-FVA) → data Lower Saxony • F. Beese, H. Schulte-Bisping (Uni Göttingen) → data IM-plot Neuglobsow • P. Lasch, F. Badeck, F. Suckow (PIK) → simulations with 4C 	<p>facultative programme</p> <ul style="list-style-type: none"> • Soil physics • Litter fall • Stem girth measurements • Tree ring analysis <p>within this project</p> <ul style="list-style-type: none"> • Soil respiration • NIR spectroscopy → litter quality • Long-term soil carbon data

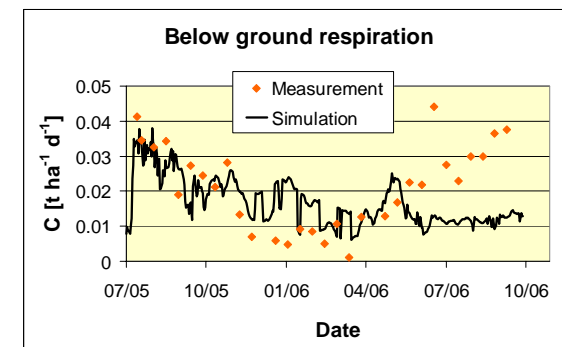
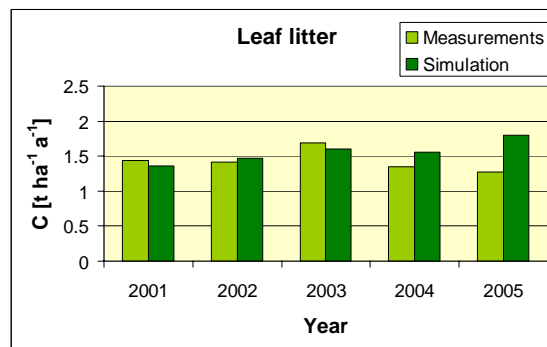
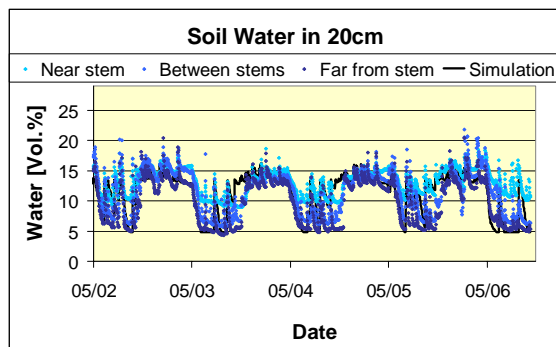
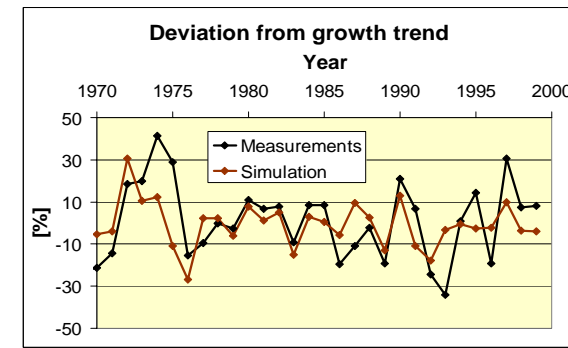
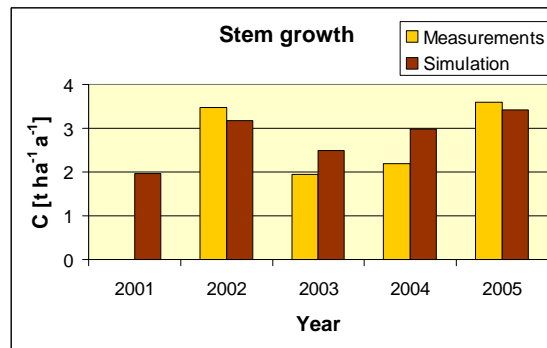
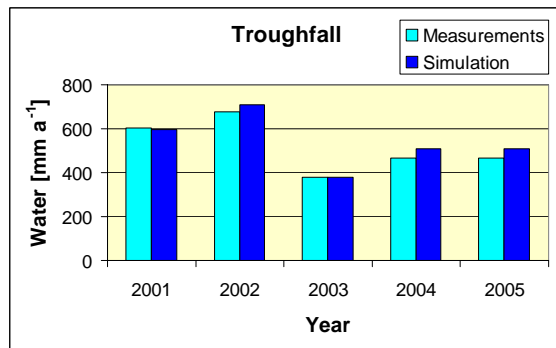
- Simulation runs using BIOME-BGC with **significant changes**

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- 19 selected level-II plots + 30 ÖWK plots in total
- Preliminary results of 2 test plots of Brandenburg (1202 pine, 1207 beech)

Results



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Conclusions

- ❖ The level-II plots measurements of the **current obligatory** programme provide **valuable data**. But, with the objective of calculating the carbon budget of forest ecosystems by using simulation models, these data are **insufficient**.
- ❖ By calibrating the simulation model BIOME-BGC with **obligatory, facultative and additional** level-II measurements, a **well founded calculation** of the carbon budget of forest stands is achievable.
- ❖ Furthermore, based on the calibration, BIOME-BGC is an useful tool to **assess climate change effects** on forest ecosystems.