

climate changes spatial planning

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Biodiversity in a changing environment:
predicting spatio-temporal dynamics of
vegetation

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Vegetation and climate change

- Understanding vegetation – climate change interactions becomes increasingly important
 - Can we predict hotspots of biodiversity?
 - EU-legislation (e.g. Habitat directive): Can nature be conserved?
 - Where should we protect nature? And where can we expect problems in the near future?

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Why models?

- Experiments alone do not grasp the whole range of possibilities in space and time

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Why a new vegetation model?

- Existing models have drawbacks:
 - Empirical relationships derived at current climate
 - Non-equilibrium dynamics or feedbacks are not always accounted for
 - Vegetation types are assumed to have invariable characteristics
 - Uncertainties are not quantified



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- Modeling vegetation through plant traits might cope with these drawbacks

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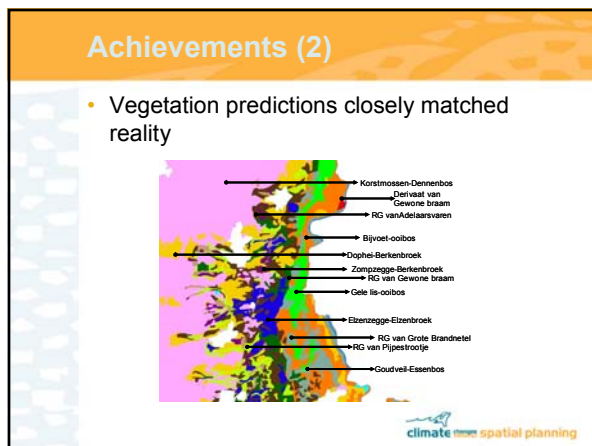
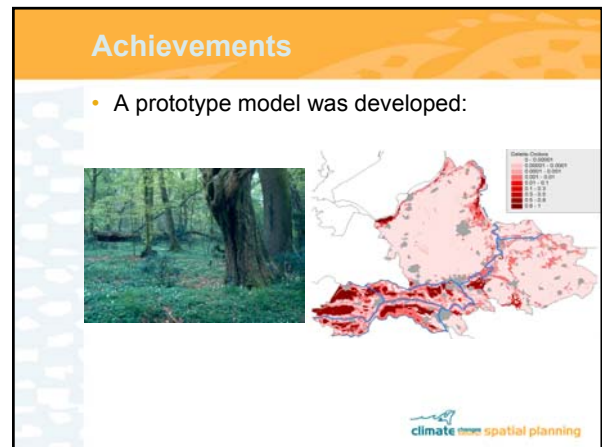
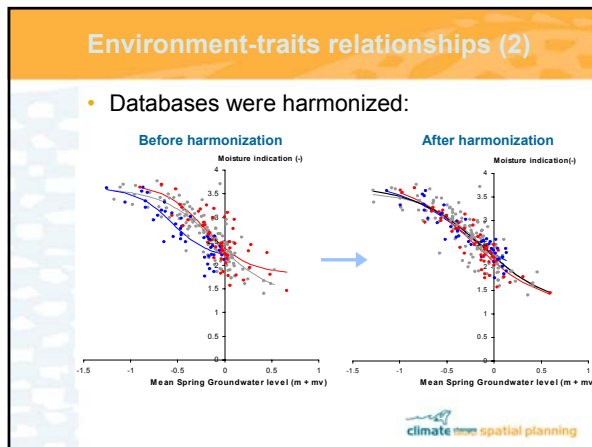
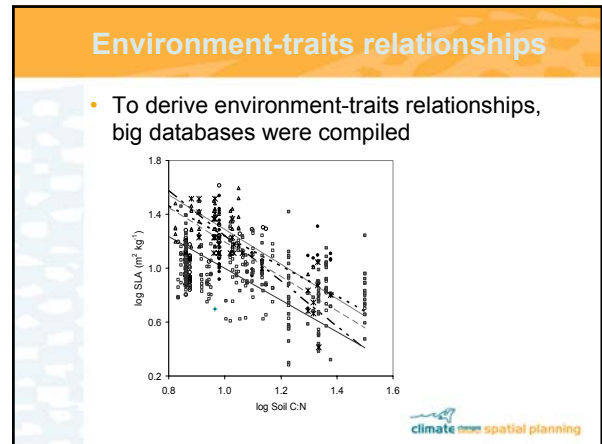
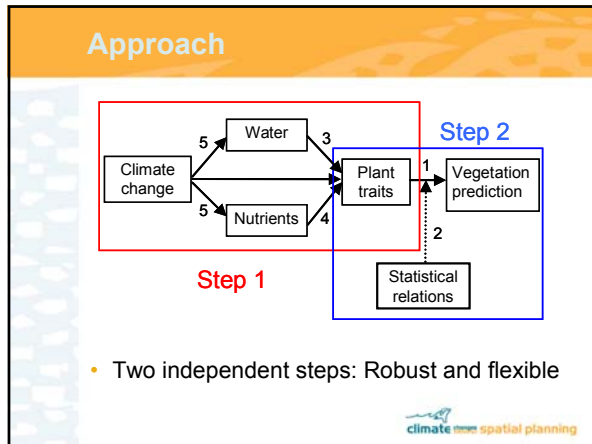
What are plant traits?

- Characteristics (independent of species identity) related to adaptations to the environment incl. climate

- Leaf size, leaf life span and leaf 'tastiness' are affected by growth conditions

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Future perspectives

- Our approach was already fruitful at present day conditions and for nature and water management.
- Future plans:
 - Implement feedbacks and trade-offs
 - Couple model to national ecosystems models of MNP.
 - Link models to climate change scenarios for direct applications in policy, spatial planning and nature and water management.

- Thank you for your attention, also in behalf of the other team members