GLOWA Jordan River

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GLOWA

WADISCAPE – a landscape scale model of seminatural vegetation

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Aim

•Simulation of growth of annual herbs, shrubs and trees (only version 6) in 5 different biogeographic regions (Fig.1), based on many data sources, expert knowledge and GLOWA field experiments (Tübingen, TAU, HUJ)

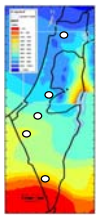


Fig.1: Historical mean annual precipitation (MAP) + biogeo-graphic regions

Important assumptions

•Version 3 → Continuous grazing of sheep and goats all year with yearly time steps (Fig.2)
•Version 6 → Grazing on a finer scale with monthly time steps: March-Nov (adjustable)

Model input

1. **daily rain** of IPCC climate scenarios, e.g. A1B , A2
   – global model: ECHAM5 or HadCM3,
   – regional model: RegCM3 (25km resolution) or MM5 (18km resolution)

→ results of GLOWA-Climatologists (TAU, IMK)

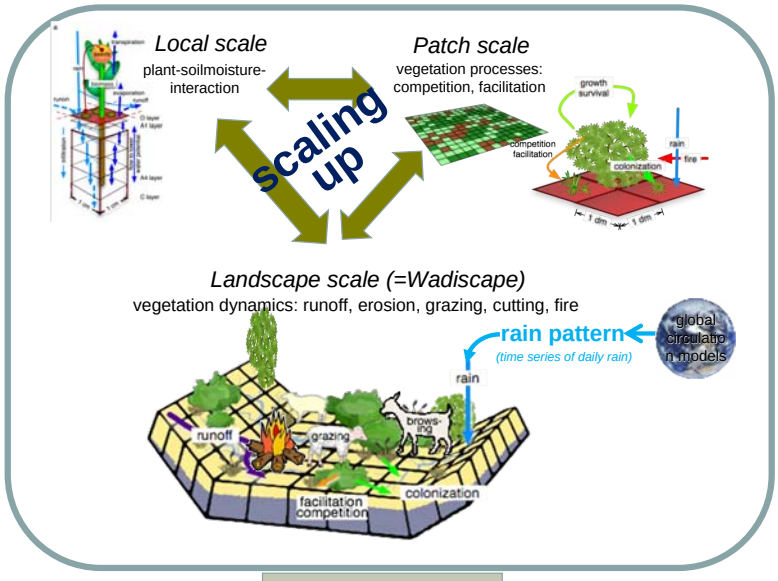
Hierarchical approach: linked models for each scale

2. **annual grazing**
   – 27 grazing intensities
   → **0 - 0.80 LSU**
   version 3 & 6

3. **hill slope**
   – 6 possible slopes
   → **0, 10, 15, 20, 30 °**
   version 3 & 6

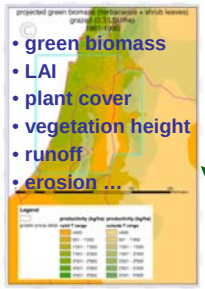
4. **cutting frequency**
   – In regular intervals to the tree height of 0.5 m
   → **0 – 20 years**
   only version 6

5. **annual probability of fire**
   – specified interval between fire years
   → **0 – 30 years**
   only version 6

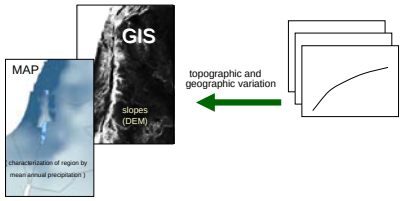


Calculation of nonlinear regressions

further upscaling



Spatial information



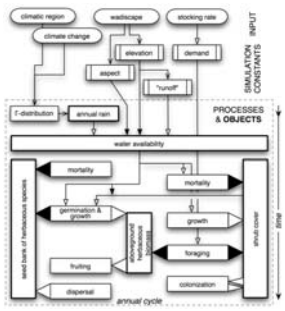


Fig. 2: Flowchart of model version 3

References

- Köchy et al.(2008): Resilience of stocking capacity to changing climate in arid to Mediterranean landscapes. Reg Environ Change 8:73–87.

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