

FORSYS

Forest Management Decision Support Systems

Guidelines for the development and application of
Decision Support Systems for forest management
problems in multifunctional forestry

Country Report - Austria

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06.10.2010

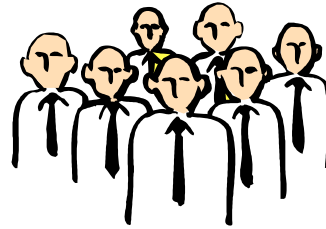


Decision problems in forest management

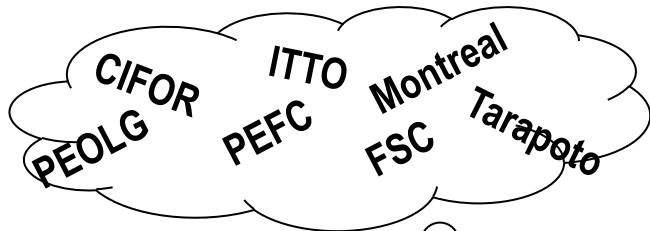


lack of regeneration in mountain forests - browsing impact

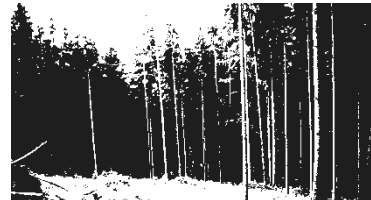
Balancing multiple interests in protection forests



Identifying adaption strategies for climate change



Identification of a sustainable forest management strategy



Management / Conversion of secondary coniferous forests



Identification of Natura 2000 management plans



mobilisation of timber wood supply chain management

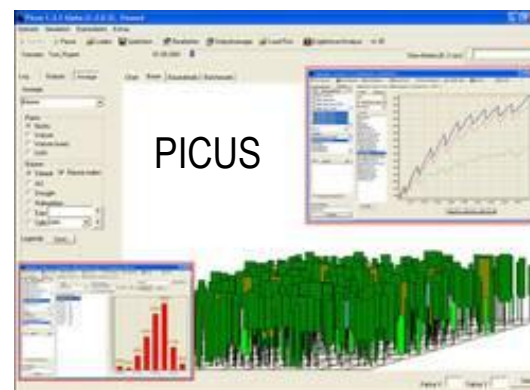


Marketing of non timber forest products and services

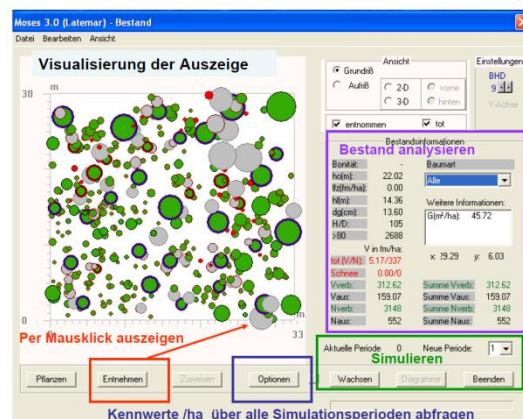


Forest Growth Models in Austria

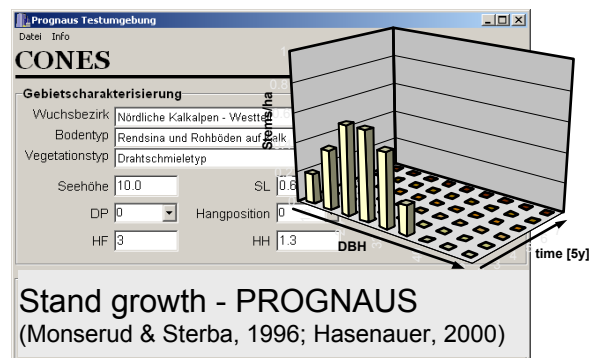
- MOSES (stat. tree g.)
- Proгнаus (stat. stand g.)
- PICUS (patch model)
- Biome-BGC (mechanistic ecosystem model)



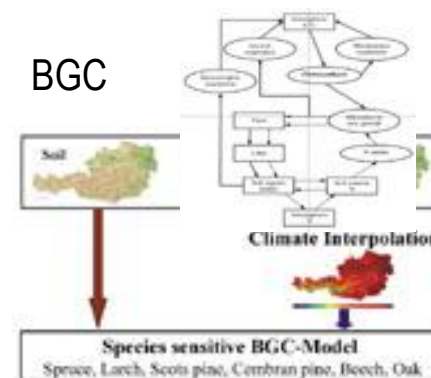
Lexer & Hönninger 2001, Seidl et al 2005



MOSES



Stand growth - PROGNAUS
(Monserud & Sterba, 1996; Hasenauer, 2000)



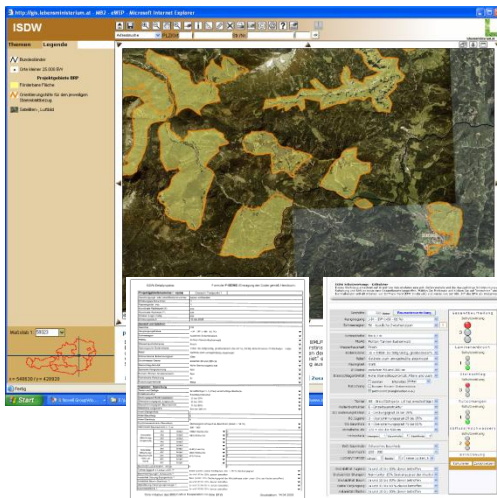
Hasenauer et al 1999,
Pietsch & Hasenauer, 2006)



Tools supporting sustainable forest management

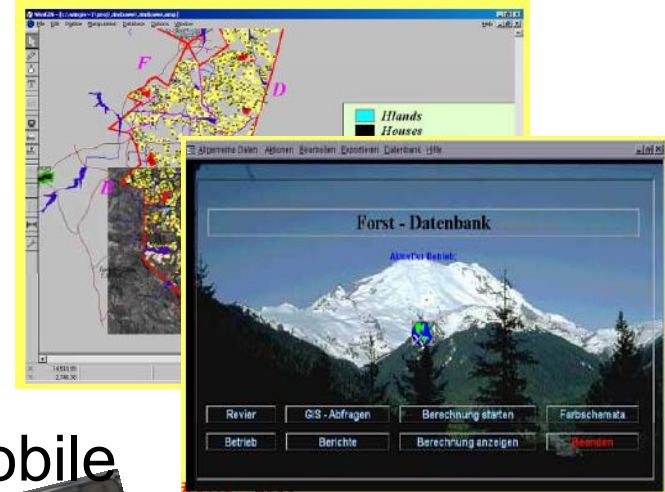
ISDW

„assessment of protection functions and supporting project management“



WinGIS Forst

„forest inventory and management“



Forestmobile

„forest inventory and management“



MCA applications and participatory planning

ARTEMIS

„sustainability impact assessment energy production“



Erneuerbare Energie aus kleinen privaten Anlagen

- Hackschnitzel
- Pellets
- Solarthermie

Energiereduktion und Wärme aus kleinen Anlagen

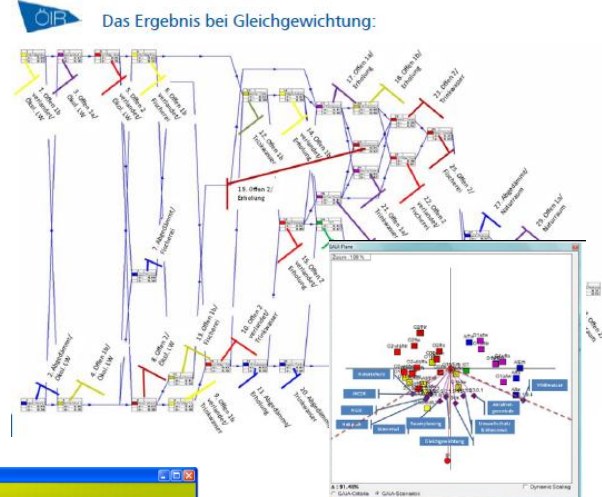
- Sparmaßnahmen
- Hackschnitzel
- Pellets

Biogas

- Fern-/Nahwärme

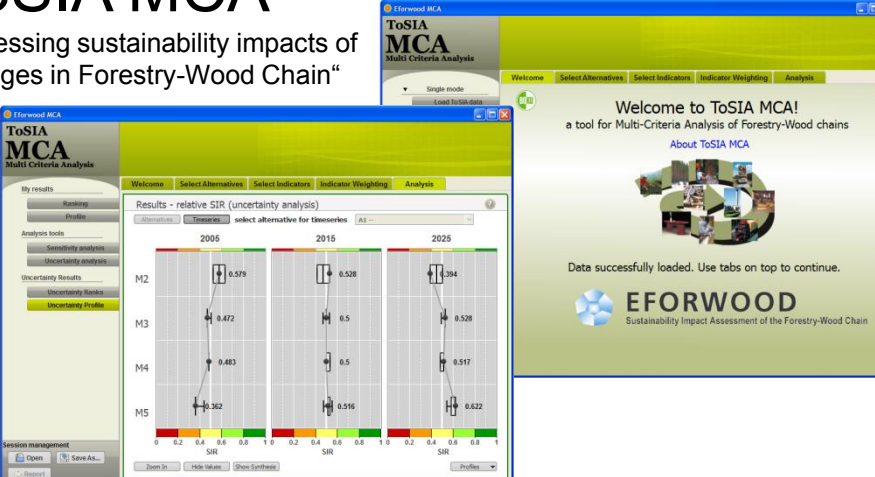
Optima Lobau

„best compromise solutions water management“



ToSIA MCA

„assessing sustainability impacts of changes in Forestry-Wood Chain“



Alternative	2005	2015	2025
M2	0.579	0.528	0.394
M3	0.472	0.5	0.528
M4	0.483	0.5	0.517
M5	0.302	0.516	0.622



collection of KM tools

in general 50 tools are listed and described

„18 tools have been developed with Austrian cooperation, 2 applications near to forest management“

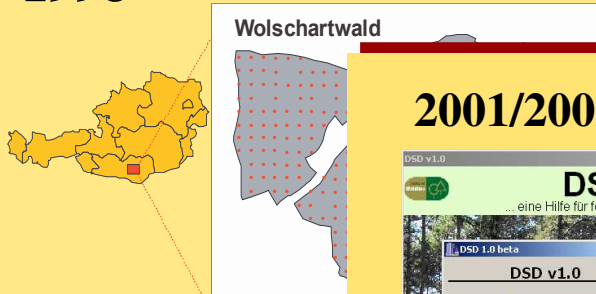


Tool No.	KM-Tool	Description	Organizational Tool		Research/Development Activities in Austria w.r.t. KM-Tool	Application of KM-Tool in the Environment Domain in Austria	Application of KM-Tool in the Environment Domain <i>outside</i> Austria
			Organizational Tool	Technological Tool			
1	Community of Practice	Community of Practice (CoP) describes a group of people who share an interest and/or a profession. It is through the process of sharing knowledge and experiences with the group that the members learn from each other. CoPs can exist online, (e.g. in wikis or newsgroups) or in real life, in form of meetings. (cf. A 1)	x	x		COP - CforSee - Coppice Forests	A COP on Forest Policy - Forest Practice ; Community of Practice for Forest Observations ; Community of Practice on Forest Financing in Latin America
15	Mind Mapping	Mind mapping tools are very well suited if the documentation is concerned with the structuring of knowledge and not so much with descriptive content. (cf. A 15)	x	x	Online-Mindmapping: Further developments by Mindmeister in cooperation with Know-Center		
23	Knowledge Portal	Knowledge Portals aim at providing knowledge for employees within a consistent environment, mostly the Intranet. The integration of different knowledge sources (e.g. access to the document management system, the project database etc.) is an		x	Semantic Knowledge Discovery involving the integration of Linked Open Data (LOD) at Know Center	IDIOM Project (Information Diffusion Across Interactive Online Media): Media Watch on Climate Change: Acquiring, managing and applying knowledge in addressing environmental issues, ensuring that	



Examples of DSS for forest management planning

1998



2001/2002

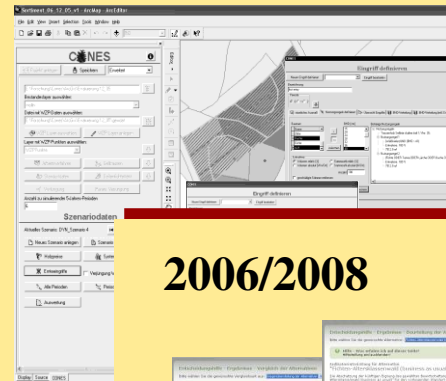


Decision Support
DSD v1.0 – scots pine forests

SDSS Wildalpen

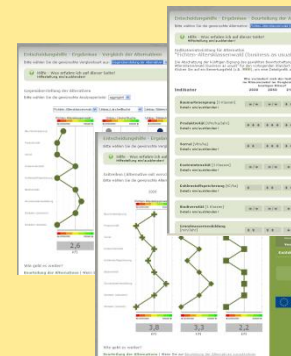
Regeneration planning for a sustained water yield

2002/2005



CON
timber
in steep

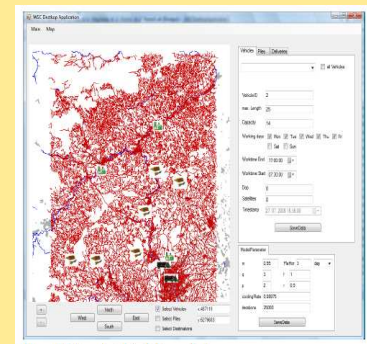
2006/2008



ClimChalp

Adaption of forest management for coniferous forests under climate change

2007/2009



WSC

Wood Supply Chain Management
Real Time Spatial Optimization



Data and information acquisition and analysis

- using personal contacts to researchers / organisations
 - BOKU
 - University of Vienna
 - Know Center / Technical University of Graz
 - companies
- asking for a list and short description of tools / methods / models and the setting of how they have been applied
- classifying the tools
- after the meeting: considering additional ways and topics to be included



preliminary results – classification of DSS

Problem type		DSS	Models and methods	KM techniques	participatory planning
Temporal scale: Medium(tactical) Spatial context: Spatial Spatial Scale: Stand level DM dimension: collegial/unilateral Participation: None Objectives: Multiple Goods/services: M. Wood prod.		CONES	Prognaus, Damage Models BPS, MCA	DBMS	
Temporal scale: Medium(tactical) Spatial context: Non Spatial Spatial Scale: Stand level DM dimension: Bargaining Participation: Stakeholder (forest owner) Objectives: Multiple Goods/ services: M. Wood prod. ; G & Serv.		DSD	MOSES AHP, MAUT	DBMS	Preference elicitation; priorization of management objectives
Temporal scale: Mid-Long t. (strategic) Spatial context: Spatial Spatial Scale: Stand level DM dimension: Restricted public Participation: Stakeholder Objectives: Multiple Goods/ services: M. Wood prod. ; G & Serv.		Climchalp	PICUS PBS, MAUT	DBMS	



Thank's for your attention!

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