

Inventory data and availability of forest resource projections models

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Forest inventory systems in Europe

- National Forest Inventory (NFI)
 - Based on a statistical sample (1 plot per 100-2000ha)
- Standwise Forest Inventory (SFI)
 - All stands are inventoried
 - Often connected to Forest Management Planning

National Forest Inventory systems

- Mostly circular plots (some angle count sampling)
- Often in clusters
- Different cycles
- Different sampling intensity
- Different dbh threshold
- Different breast height
- Permanent plots yes/no/partly

Standwise Forest Inventory

- Visual assessment
 - Plot-based
 - Transect-based
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- Some countries use both NFI and SFI

National resource projections systems

- As much variety as there are countries (and inventory systems)
- Not all countries have their own system
- Great difference in level of detail, processes included, functionality etc.
- Very difficult to compare, comparison studies hardly exist
- Hardly feasible to use in European-wide projections

- Overview in Barreiro et al. (2016) *Annals of Forest Science*

Tools available at the European level

- European Forest Information Scenario model (EFISCEN) (EFI/Alterra)
- European Forest Dynamics model (EFDM) (JRC)
- CBM-CFS3 (Canada, JRC)
- G4M (IIASA)

- Forest Vegetation Simulator (FVS) (USA, not applied in Europe)

EFISCEN

- In use for about 25 years
- Works on aggregated inventory data plus growth data (repeated inventories/yield tables/research plots)
- Can work with variable quality of input data
- Developed for even-aged managed forests
- Many additional indicators available (carbon, soil)
- Has been coupled to EFI-GTM
- Widely used in EU projects, European outlooks, individual countries, Archangelsk region, Leningrad region, European part of Russia (EFSOS I)
- Freely available from the web
- Training can be arranged

European Forest Dynamics Model (EFDM)

- Recently developed by JRC
- Basics similar to EFISCEN
- Growth driven by repeated observations on permanent sample plots
- Initialisation using plot-level info
- Also an unevenaged version has been developed
- Tested for a range of countries, but not applied much yet
- To be coupled to JRC trade model (and landuse model)
- No good interface available yet
- Additional indicators could be derived but not readily included
- Freely available from the web

■ Training can be arranged



CBM-CFS3

- Canadian model transferred to JRC
- Evenaged model, but also unevenaged version (trick) has been developed
- Initialised with aggregated data (age classes by species)
- Growth driven by yield tables
- To be coupled to JRC trade model (and landuse model)
- Not freely available?
- Training can probably be arranged

G4M

- Developed by IIASA
- Applied in many projects
- Coupled to Globiom trade model
- Some economics included?
- Spatially explicit (0.5 degree grid)
- Initialisation on NFI data
- Growth based on downscaled NPP maps
- Not freely available

Possible combinations

- EFISCEN – EFI-GTM
- EFDM – JRC trade model
- CBM-CFS3 – JRC trade model
- G4M – Globiom
- (resource model) – GFPM
- FVS - GFPM

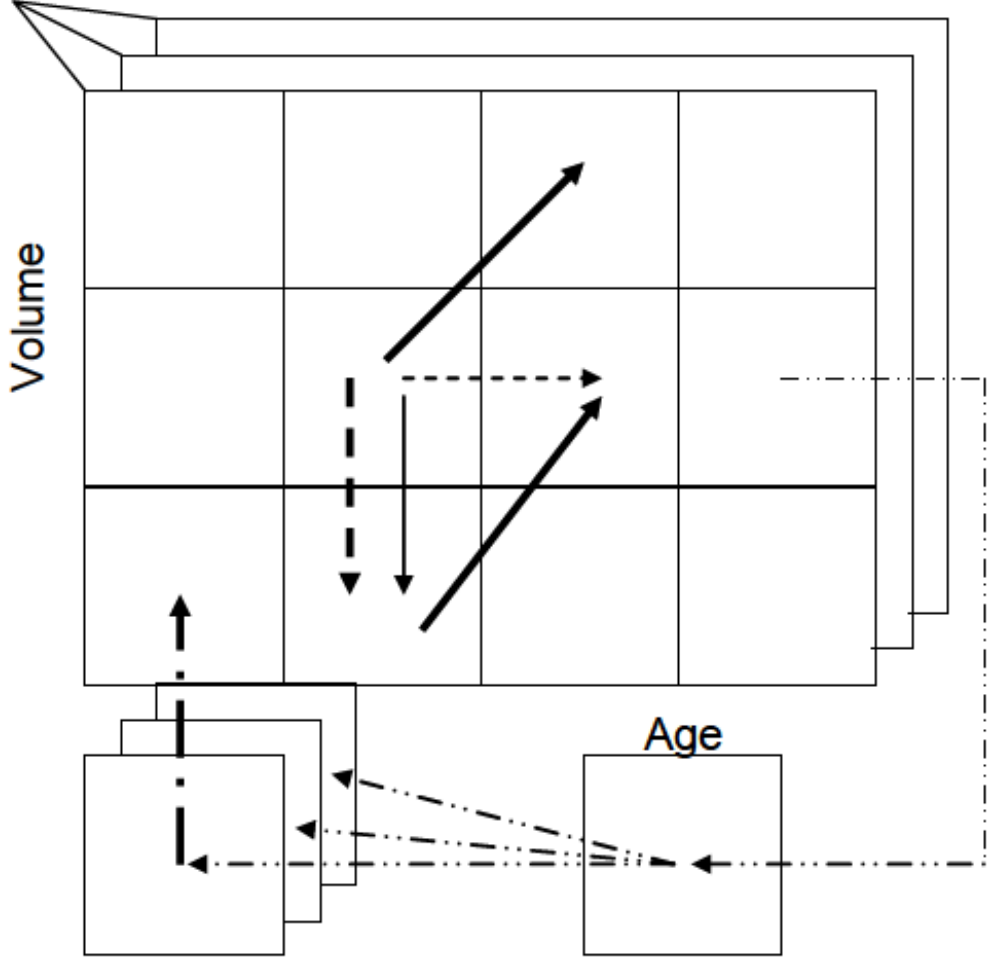
Choice should be based on

- Availability of data matching model requirements
 - Availability of model
 - Does it produce what you want to know
 - Can it model the scenarios you are interested in
 - Do you want to couple it to a trade model and if so, what model
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- For Russian Federation: Or use your own model(s)!

Thanks for your
attention!



Forest types



- Growth
- - - - -→ Aging
- - - - -→ Thinning
- Natural mortality
- · · · ·→ Final harvest
- · - · - · → Regeneration

