

EMWIS 13.th March 2012 17.00-19.00

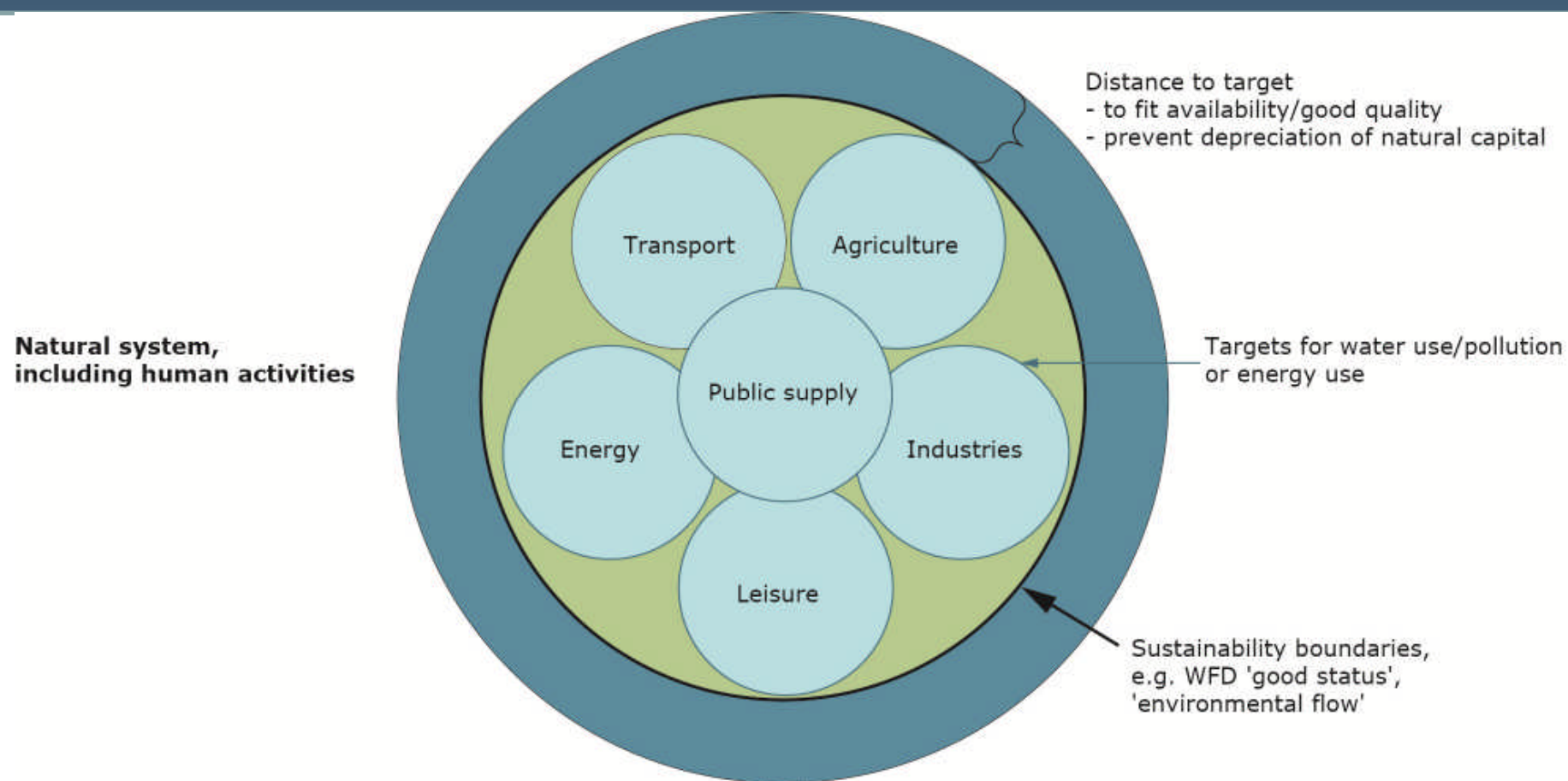
Better water governance for the Mediterranean

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EMWIS - boundaries of sustainability for competing water uses



Measuring Water use – EMWIS methodologies UNEP IRP Water Report 2

- Water registers and physical water accounts are the prerequisite to have sufficient knowledge about the hydrological reality
- Water accounts need to enlarge and relate to natural capital directly considering environmental impacts
- Water scarcity indicators can give an over-view and guidance on a pan-regional level
- Life Cycle Analysis and Water Footprint Assessment can help awareness raising. Both need the specification of localised impacts and seasonal effects when applied for quantification on business level and stewardship



Accounting, policy support and data issues

- The UN methodology (SEEA-W) for accounting aims at measuring in a consistent way the natural resources (physical assets) in relation with economic activities (monetary assets):
 - *However, the approach, based on aggregated national statistics, misses a specific water algebra:*
 - *Money and water can be saved*
 - *Money can be loaned, water cannot*
 - *Money can be transferred without physical device, water cannot*
 - *Sound water accounting is first and foremost driven by “where” and “when”,
(**sub-basin and monthly assessments**)*
- The improved approach used by EEA and others e.g. Australia, Mexico and China, allows analysis of the regional interdependencies and time-driven relationships



Water accounts conceptual model

- SEEAW concept : water balances in a strict accounting framework so to link the physical and economic worlds
 - The accounting spatial unit: 'territory of reference', made of 'statistical units'
 - Analysis carried out across the inland resource system (natural assets) and the economy
 - Exchanges between the different components: rain on soil that receives irrigation; rivers fill reservoirs used for abstraction and supply; etc.
- Applies to the physical catchments



Operational data sets: natural assets

- Climate data has been re-analysed as :
 - Soil water, a key element of all ecosystem accounts
 - Surface run-off, a key component of water accounts
- River discharge has been processed, where data could be collected:
 - Productivity / quantity at sub-basin levels , a key components of the water accounts (surface run-off with the ground-water reserves from actual observations): the touchstone of water balance accuracy



Beyond the water accounts towards ecosystem services

- Climate data has been re-analysed as :
 - Soil water, a key element of all ecosystem accounts: habitats, carbon balances
- River discharge has been processed, where data could be collected:
 - Monthly average discharge per river segment: regime is essential support to aquatic ecosystems and key to “quality accounts” for resources



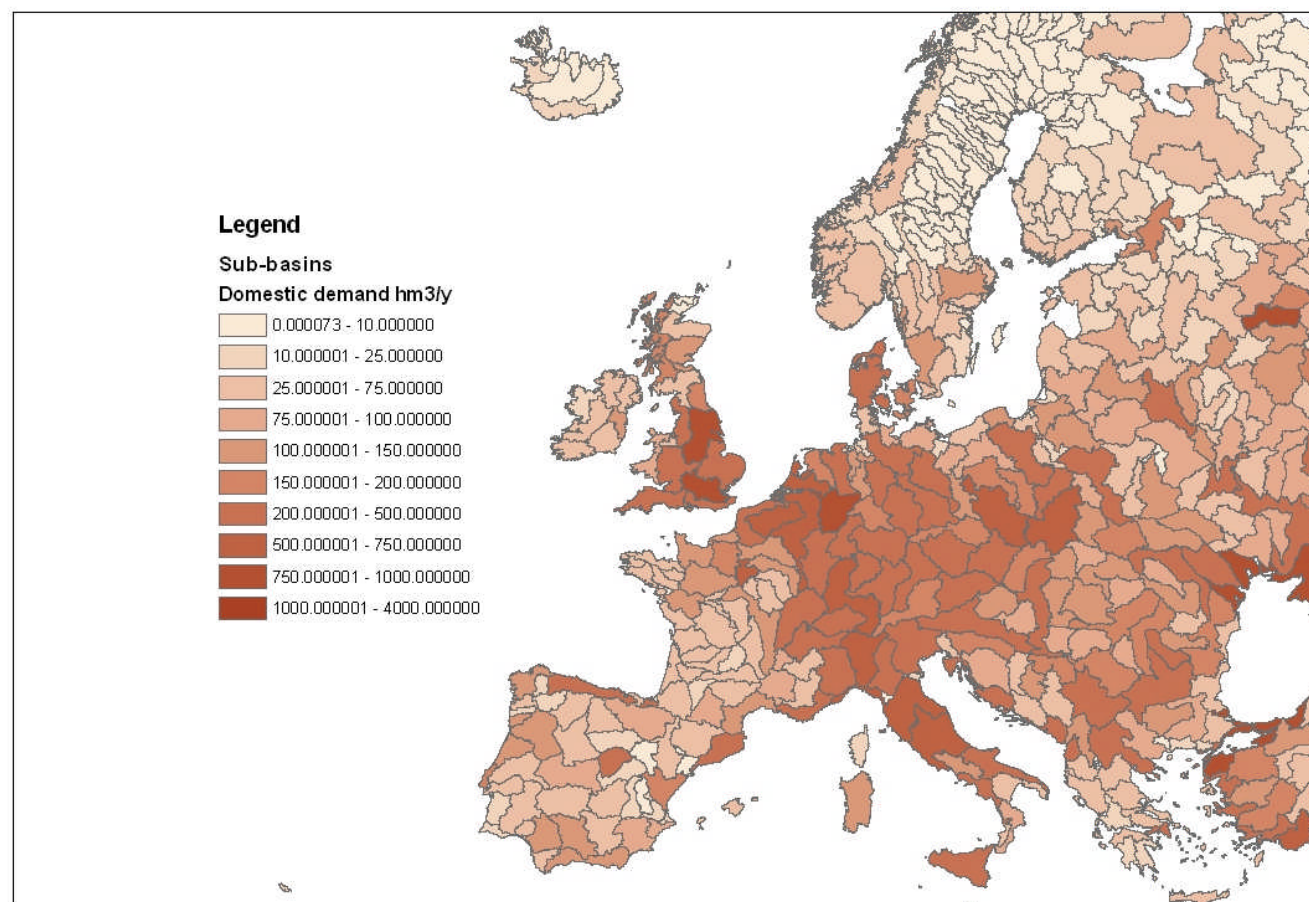
Operational datasets: water uses

- Uses vs. resource e.g. Water Exploitation Index(WEI) poses some issues:
 - Average demand / average resource is an insufficient measurement
 - Different situations (even radically) scored with similar numeric al values
 - Typology of situations, except structural deficit cannot be identified
 - Categories of uses, as demanded by the SEEA are lumped
- Water abstractions, uses and restitutions re-analysed :
 - Global statistics (volume per year / country) disaggregated by functional units (e.g. metropolis, small villages based on population density / water demands)
 - Significant water transfers systematically documented to meet SEEAW scheme



Water accounts - Water uses towards regional – seasonal WEI

- Water uses under reconstructing / apportioning under NACE.
- Example: domestic demand.
Source: Pöyry from EEA data
Reference
Ecrins



Efficient use of water resources in Europe measures and tool EEA report 1/2012



- **Resource efficiency technologies**

- Efficient irrigation techniques;
- leakage reduction;
- savings in urban water use (eco-design, urban planning);
- energy ***and*** water efficiency in supply and sanitation; reduction at source

- **Economic instruments**

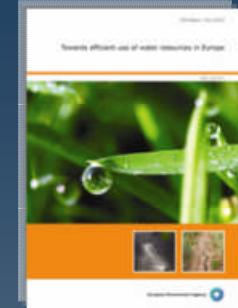
- Water pricing to provide incentives for innovation;
- full cost recovery (incl. environmental and resource costs);
- full transparency of water prices and investments;
- scrutiny on adverse subsidies;



Efficient use of water resources in Europe

Water – Energy – Food – Nexus

EEA Report1/2012



- Resource efficiency to integrate throughout the ***nexus***
water efficiency, energy efficiency and efficient land use
- Sectoral Integration via intense ***stakeholder dialogue***
and communication (Environment, Agriculture, Energy, Transport...)
- Good water ***governance*** to set common targets for all
competing water uses securing environmental needs
- Efficiency needs ***information***
→ Metering, Monitoring, Measuring

Challenges in measuring water use in a green economy - EMWIS

Quantification methods need to:

- reflect the twin challenge between efficient resource use in growing economies and respecting ecosystem boundaries → impact decoupling
- be part of the risk and knowledge management in new sustainable water management
- bridge issues such as open data access; be transparent and comparable; be suitable and tailored for the application on different scales



Thank you!

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Soil water contents per month

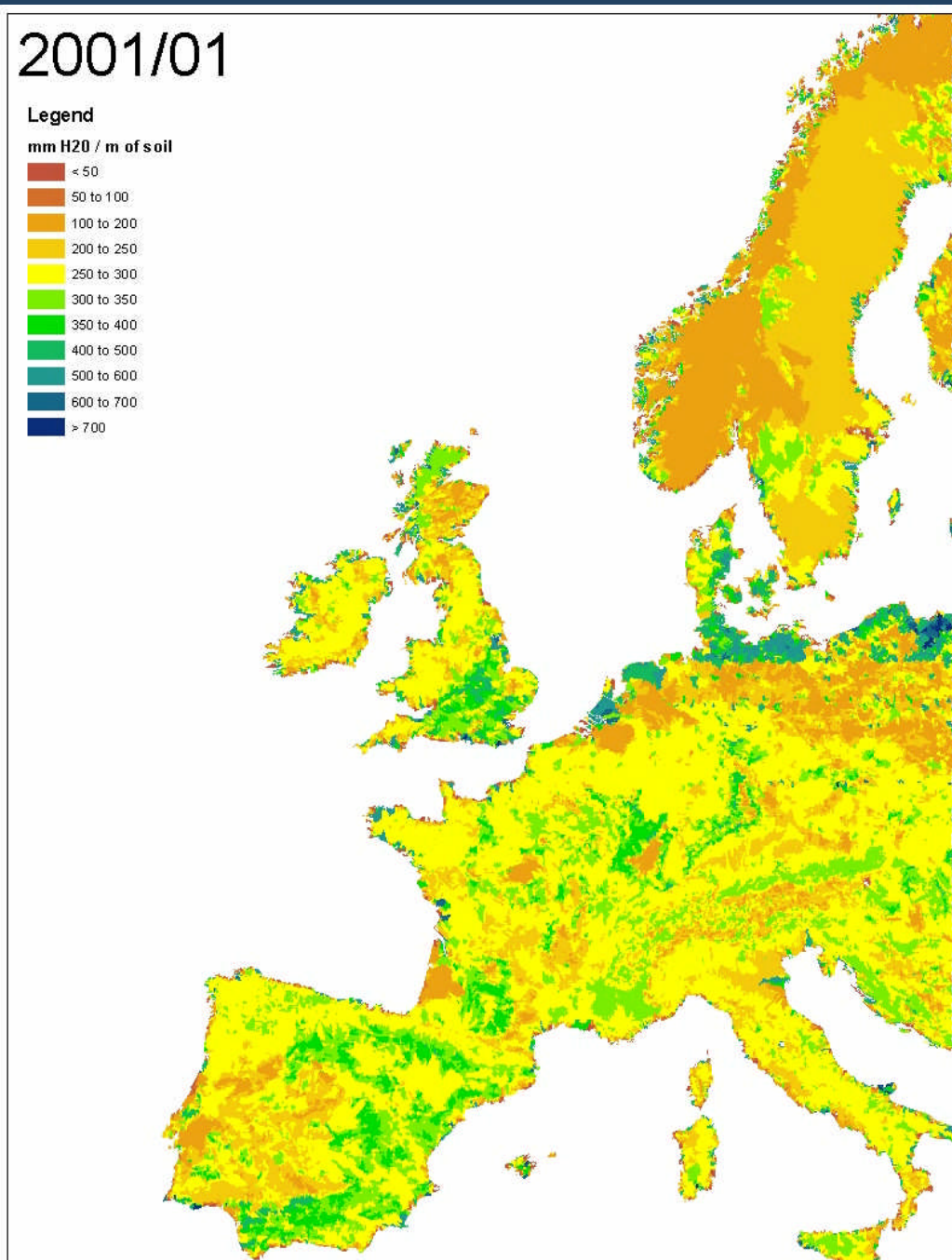
Source: EEA
computations from :

- Soil data centre
- Primary climatic: **E-OBS** :

<http://eca.knmi.nl/download/ensembles/ensembles.php>

- Reference: Ecrins (EEA)

NB: full Europe under processing



Soil run-off per month

Source: EEA
computations from :

- Soil data centre
- Primary climatic: **E-OBS** :

<http://eca.knmi.nl/download/ensembles/ensembles.php>

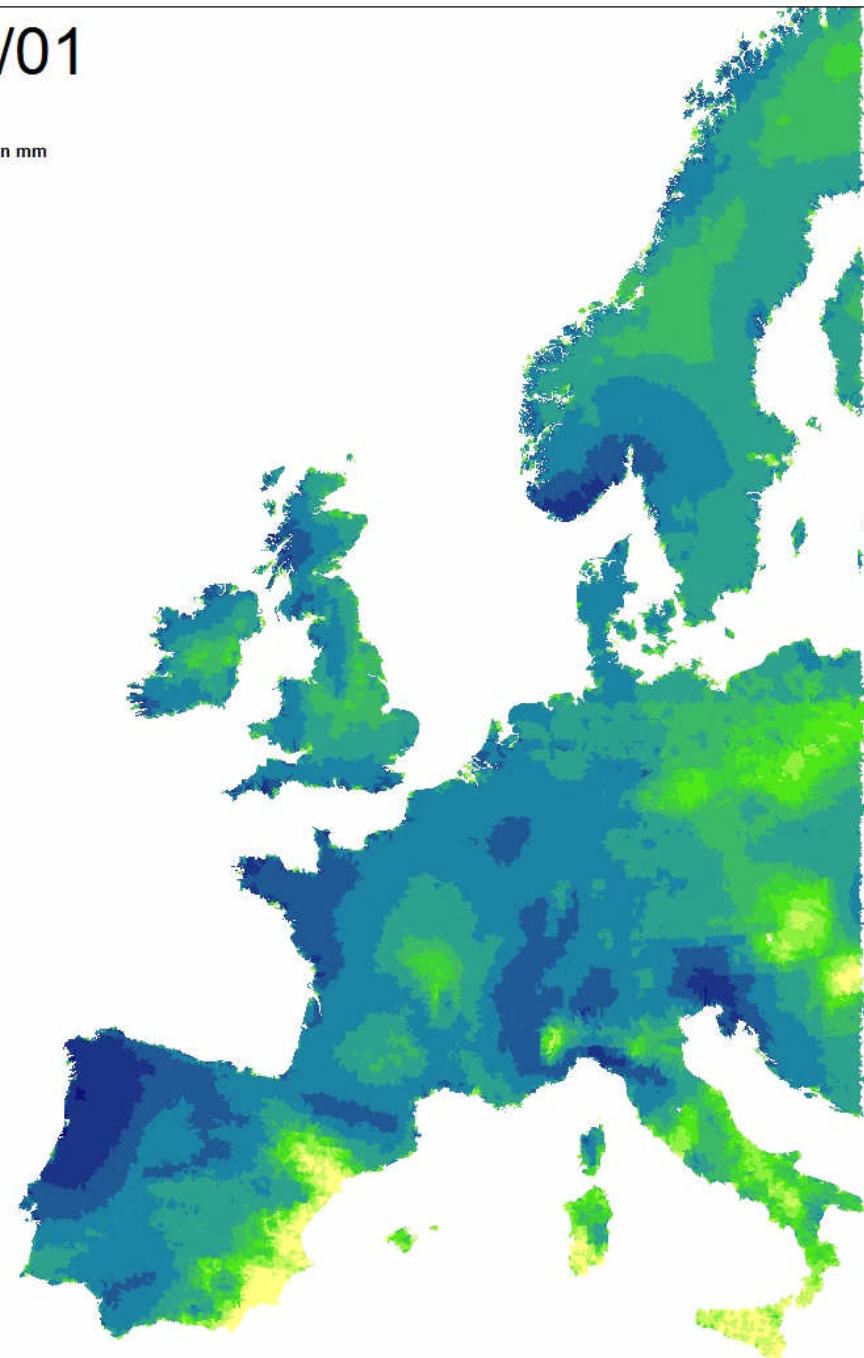
- Reference: Ecrins (EEA)

NB: full Europe under processing

2001/01

Legend

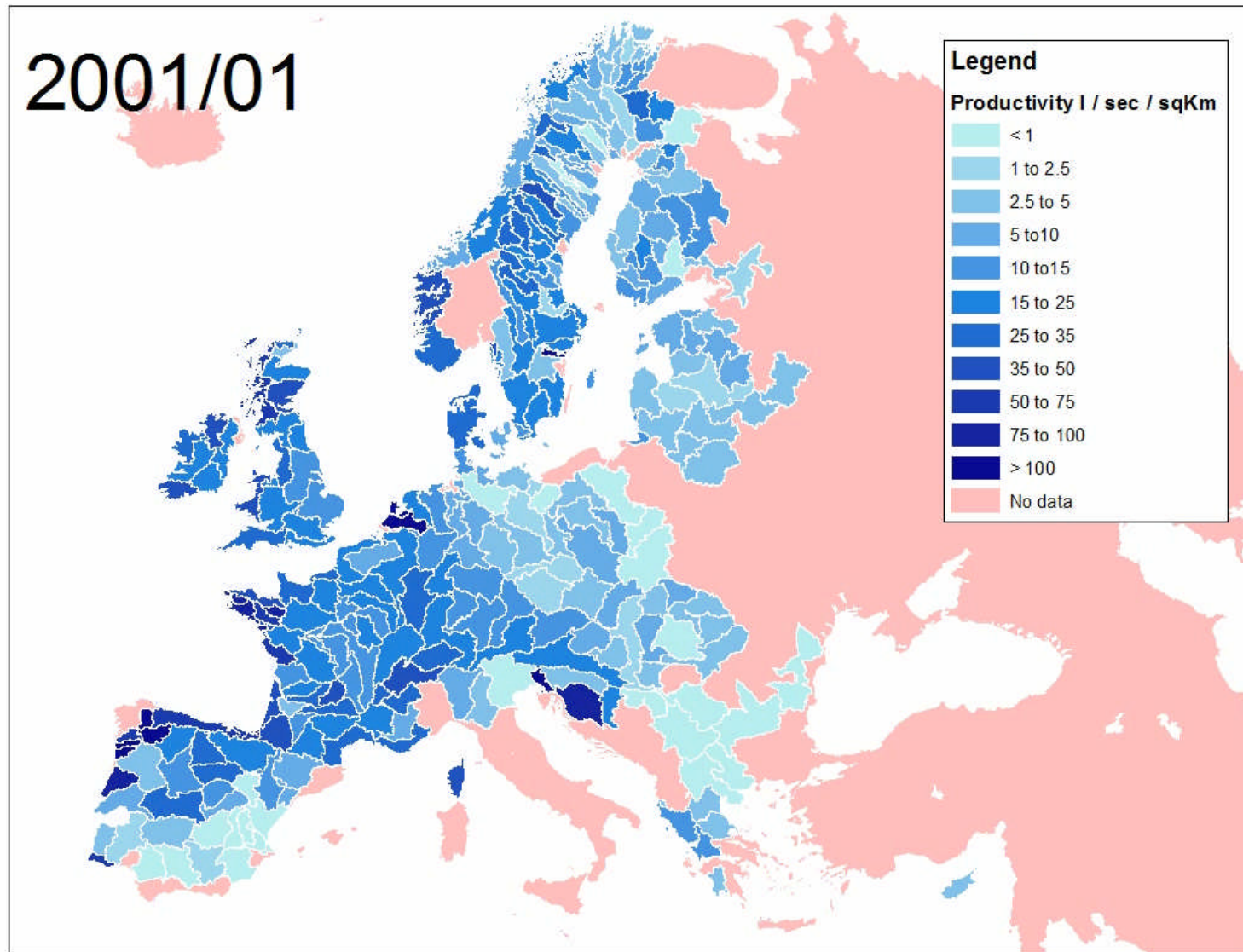
Surface run-off in mm



Monthly productivity at sub- atchment level

Source:
Pöyry
computations for DG Env

- Discharge collected by EEA
- Data organised by EEA (>70 million daily data)
- Reference: Ecrins (EEA)



Sample monthly discharge at segment level

Source: Pöyry
computations for
DG Env

- Discharge collected by EEA
- Data organised by EEA (>70 million daily data)
- Still incomplete years
- Reference: Ecrins (EEA)

