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A QGIS plug-in to produce EU SEEA Ecosystem Accounts

Marcel Buchhorn, Thomas Danckaert, Maarten Van Loo, Wim Peelaerts, **Bruno Smets**, Steven Broekx

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Context

Standardization phase

Implementation phase

TIER 1

Ecosystem services modelled from global datasets with no or little user input data

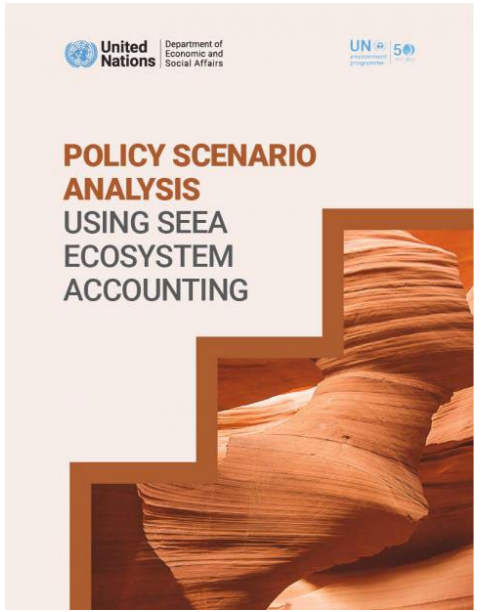
TIER 2

Ecosystem services modelled from national datasets customized for national contexts, some validation

TIER 3

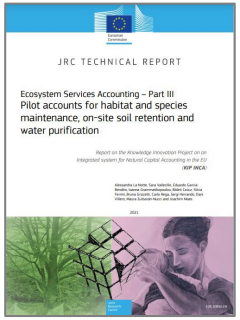
Ecosystem services modelled with local data and direct surveys, better validation, and best available tools

Use phase



Support mainstream of NCA (Tier2/3) in Europe

European Commission | eurostat



KIP-INCA PILOT

EU REGULATION


02011R0691 — EN — 20.02.2022 — 002.001 — 1

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691/2011

▶B REGULATION (EU) No 691/2011 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 6 July 2011

on European environmental economic accounts

(Text with EEA relevance)

(OJ L 192, 22.7.2011, p. 1)

Support in INCA Phase-3

vito + Ecounting | IDEEA Group | eftec

1. EU methodological **Guidelines**
2. INCA Account **Tool**
3. **Validation** Methods
4. Demo **policy use**

- Unified Framework
- Harmonization
- Feedback loop
- Multi-user
- Open source

EU or National data-sets

eea/ OpenDataPortal

Copernicus

EUROPEAN STATISTICAL SYSTEM

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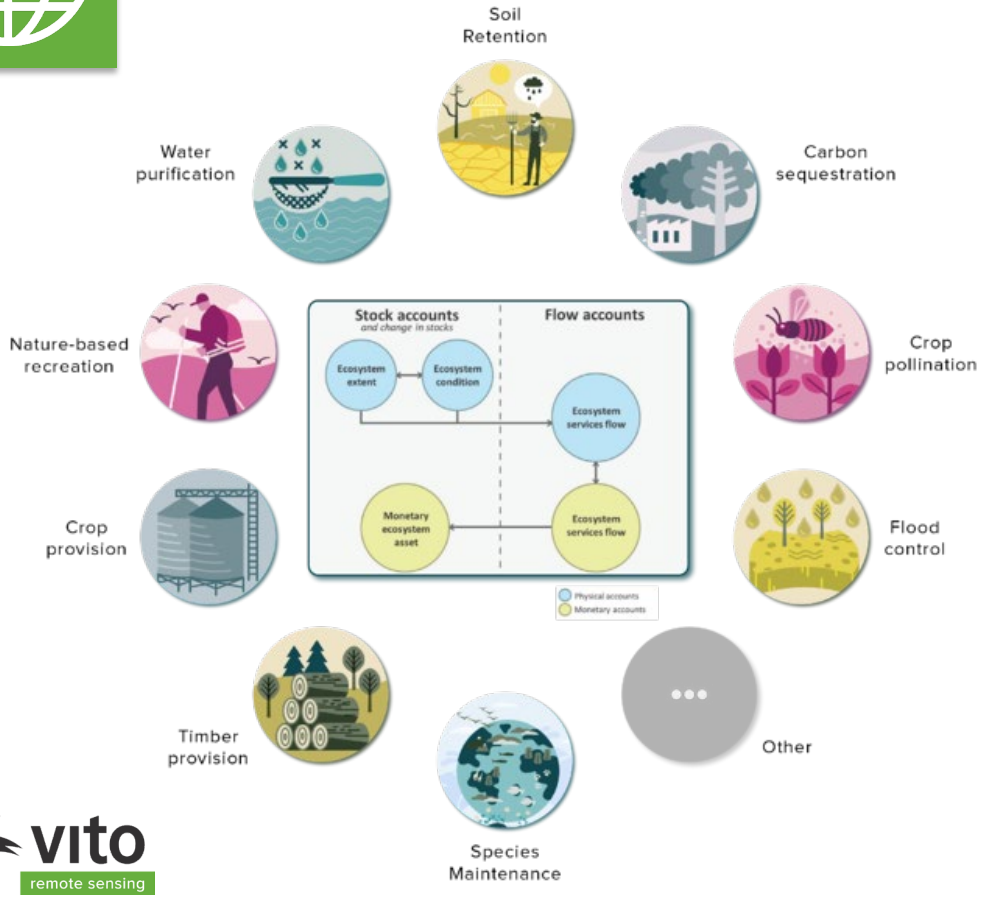
Services in INCA tool



	Service	Beta
Provisioning	Crop provision	X
	Wood provision	X
Regulating	Soil Retention	X
	Crop pollination	X
	Air filtration	
	Carbon sequestration	X
	Carbon retention	
	Local climate regulation	
	Water purification	X
	Flood control	X
	Species maintenance	X
Cultural	Nature-based	X
	Tourism	

1.0 (end 2022)

2.0 (end 2023)

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User Requirements for INCA tool

Type of User	Needs	Tool interaction	Required skills
Basic User	Only source for national accounts / Cross validation of national models	Consultation and use of final results at national level (tabular data)	Consultation and processing of tabular data (e.g. MS Excel)
Proficient User	Starting point to develop improved national accounts	Operate the tools on a national level and replace input data with national data sources	Consultation and processing of spatial data (e.g. GIS software – QGIS, ArcGIS)
Expert User	Starting point to develop national accounting procedures and perform R&D (e.g. JRC)	Operate the tools to replace formulas (open source code) and input data	Programming skills (e.g. python, …)

From PILOT to FAIR

Findability

- DOI for algorithm model
- Rich Metadata annotation (production date, units, used inputs, etc.)

Accessibility

- Free and open source published under EUPL (end 2022)
- Installation, user and developer manuals
- Run on a normal PC to upscaled on high-end machines (cloud, multi-core)
- Basic to proficient to expert users

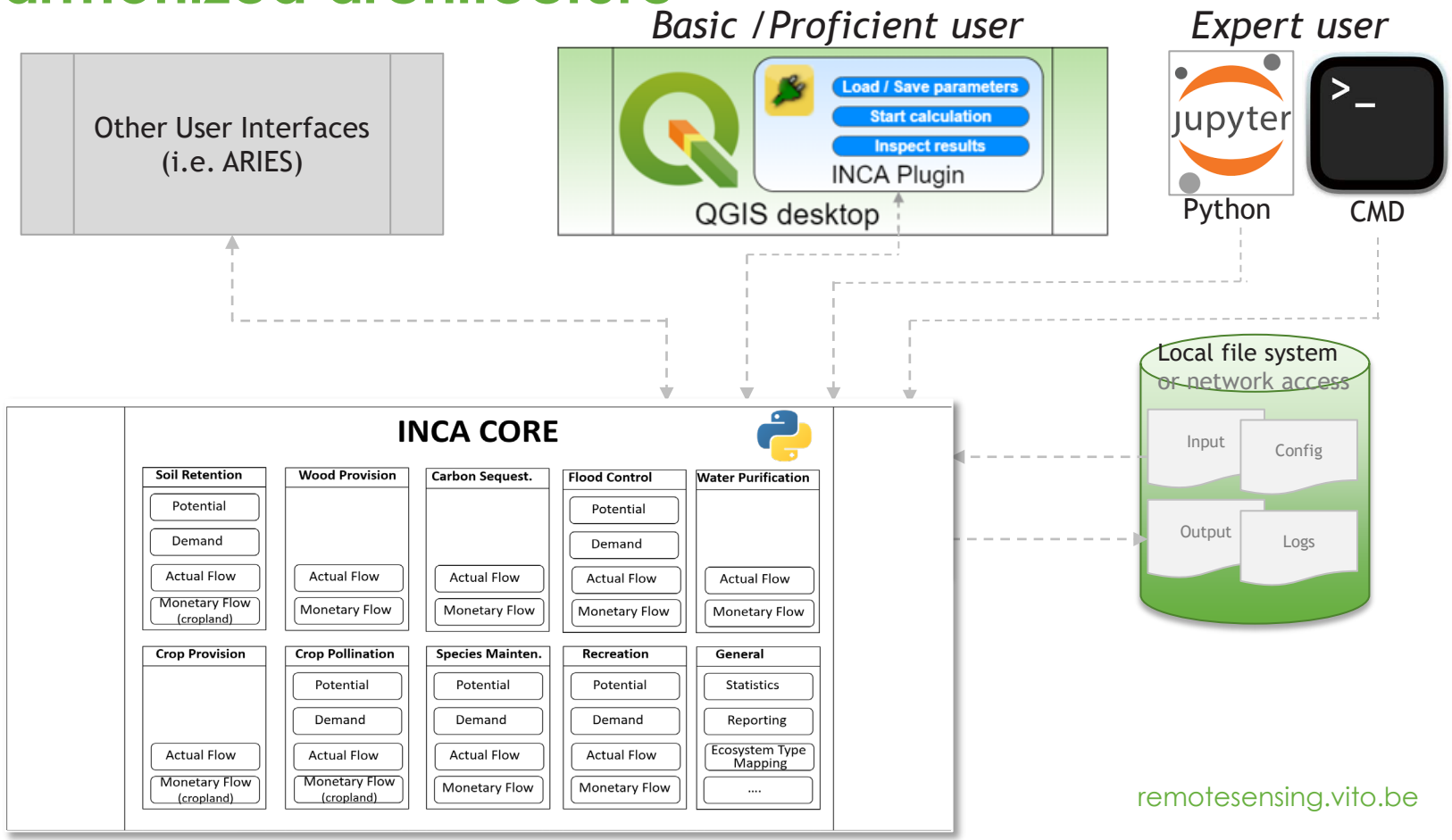
Interoperability

- Compliant to SEEA EA EU guidelines
- Common API (INCA architecture)
- Harmonized reporting across EU (cog, csv, xlsx templates)
- Tested on Linux and Windows

Reusability

- Modular standard design, easy to add new services
- Modular design, enables integration in different platforms

Harmonized architecture



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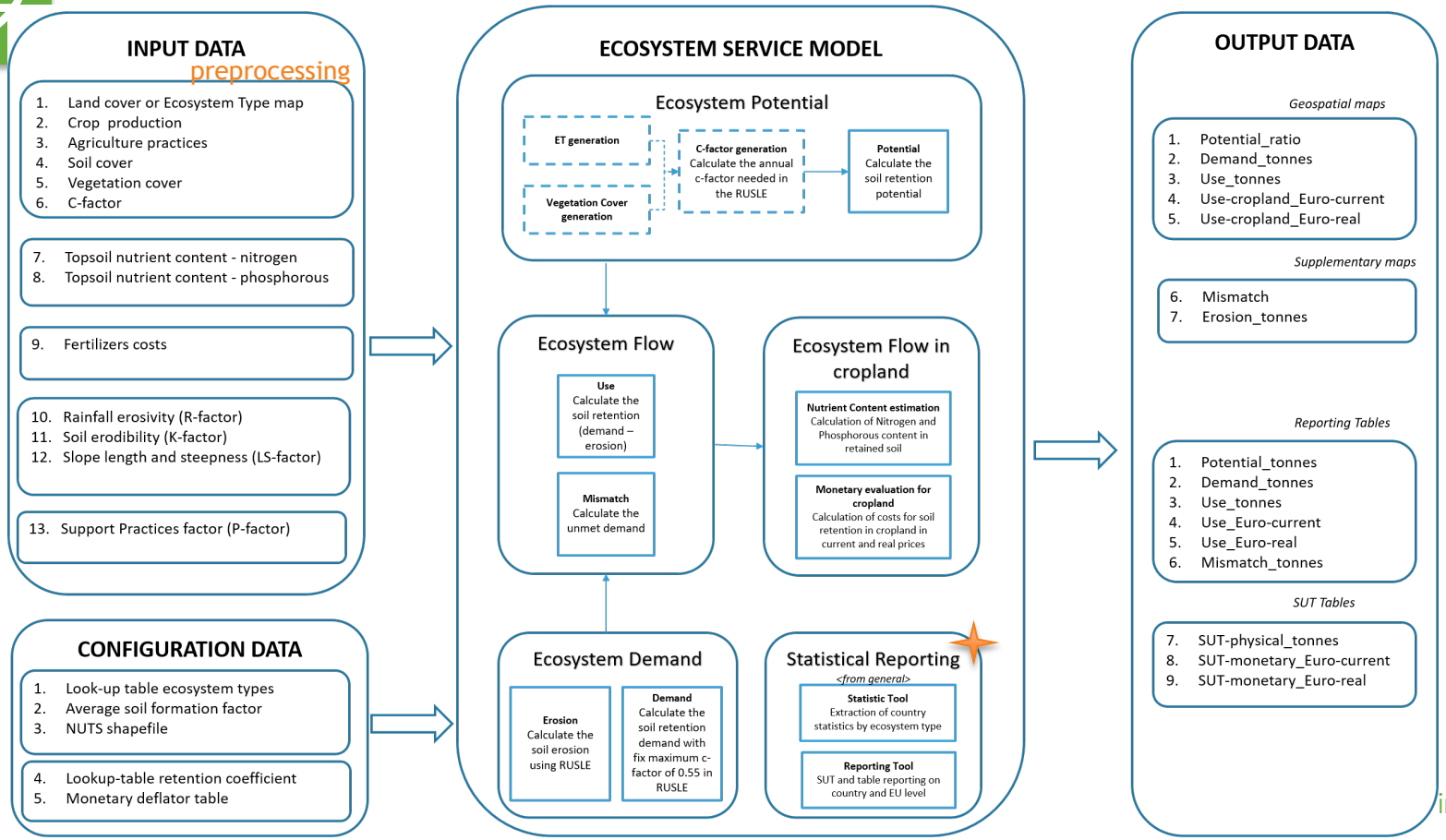
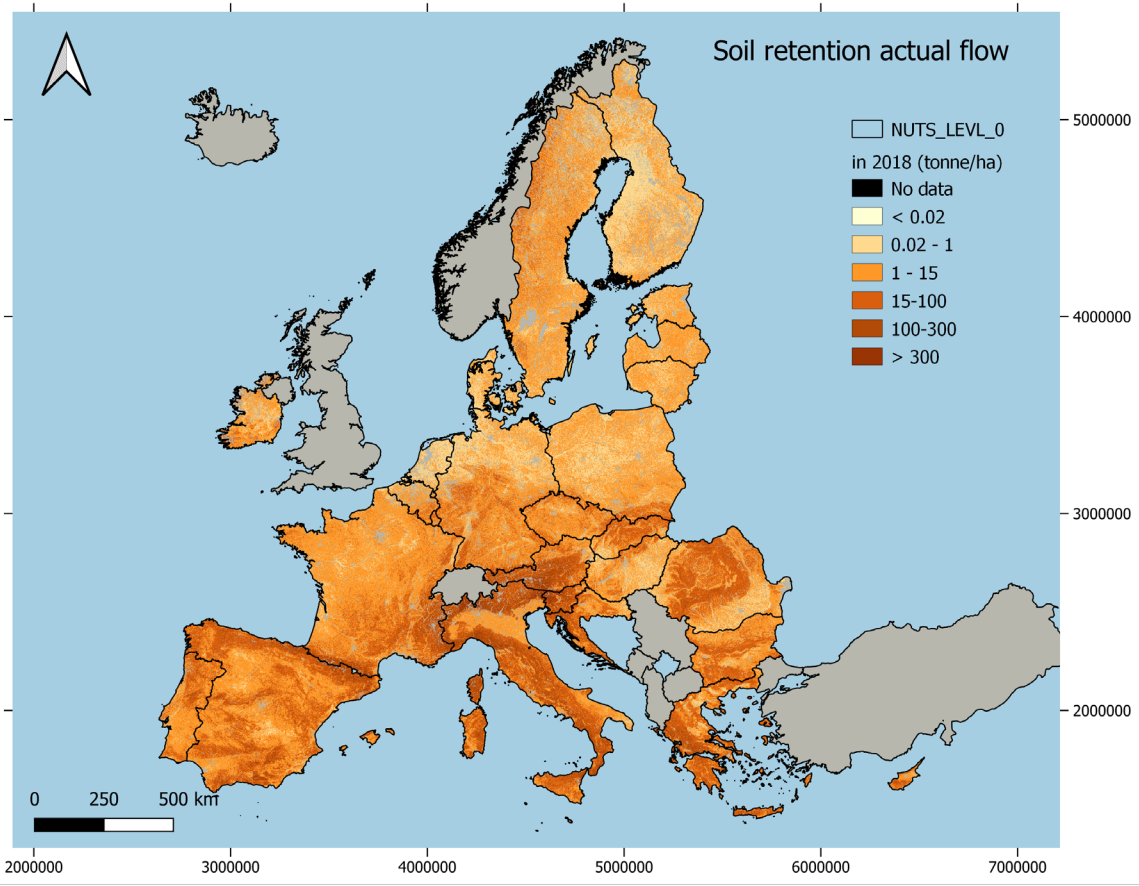
Example soil retention – CORE module



Example soil retention flow @ EU



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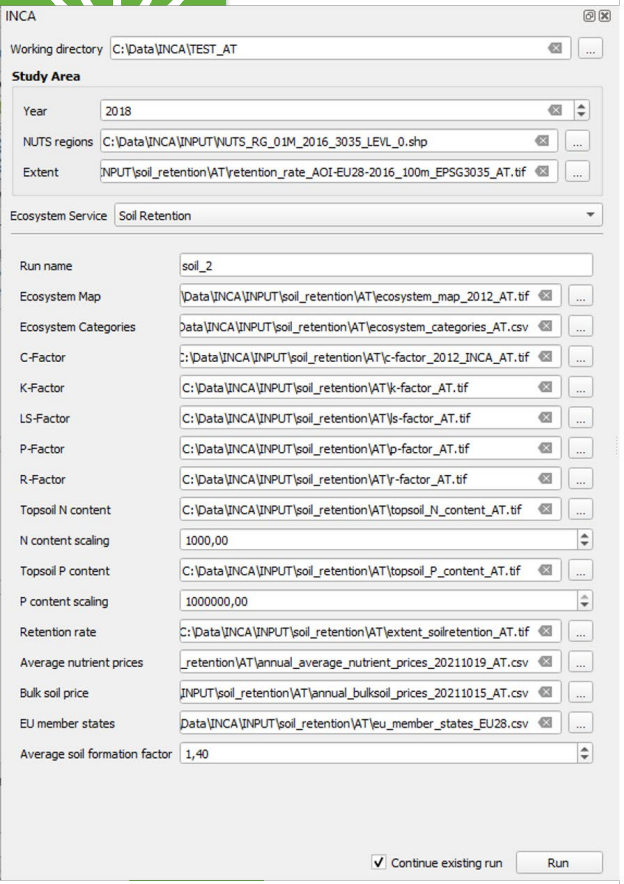
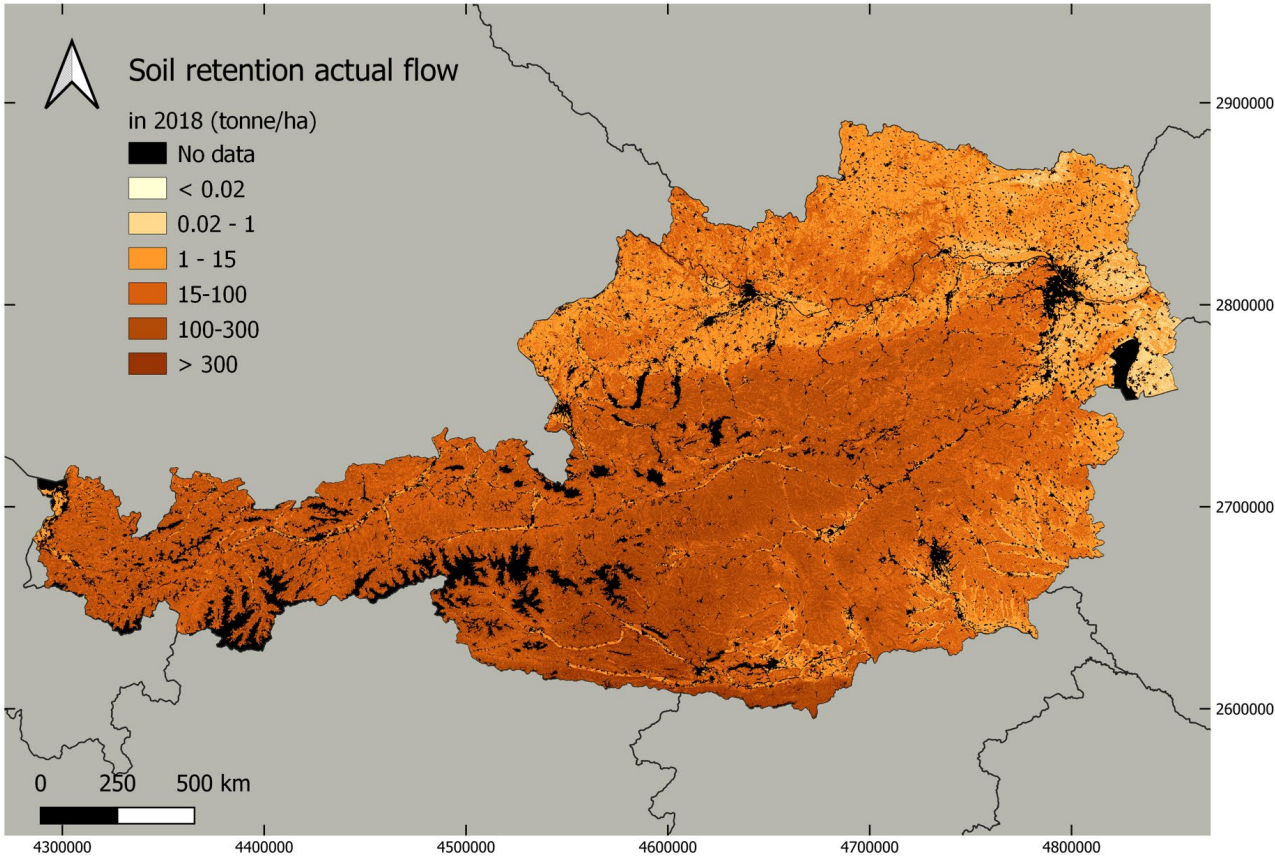
Example soil retention - flow @ NUTS





Example soil retention – SUT monetary

SUPPLY 2018

Economic Unit						Type of ecosystem unit									
Primary sector															
Agriculture	Forestry	Secondary Sector	Tertiary sector	Households	Global Society	Urban	Cropland	Grassland	Woodland and forest	Heathland and shrub	Sparsely vegetated land	Wetlands	Rivers and lakes	Coastal / intertidal	Total
soil retention *million EURO year 2018 (current)*						*MAES Level-1*									
AT							245								245
BE							62								62
BG							390								390
CY							37								37
CZ							229								229
DE							520								520
DK							35								35
EE							18								18
EL							765								765
ES							2,518								2,518
FI							27								27
FR							1,623								1,623
HR							233								233
HU							141								141
IE							45								45
IT							4,212								4,212
LT							51								51
LU							12								12
LV							33								33
MT							2								2
NL							11								11
PL							391								391
PT							411								411
RO							745								745
SE							75								75
SI							305								305
SK							156								156
EU							13,293								13,293

USE 2018

Economic Unit						Type of ecosystem unit									
Primary sector															
Agriculture	Forestry	Secondary Sector	Tertiary sector	Households	Global Society	Urban	Cropland	Grassland	Woodland and forest	Heathland and shrub	Sparsely vegetated land	Wetlands	Rivers and lakes	Coastal / intertidal	Total
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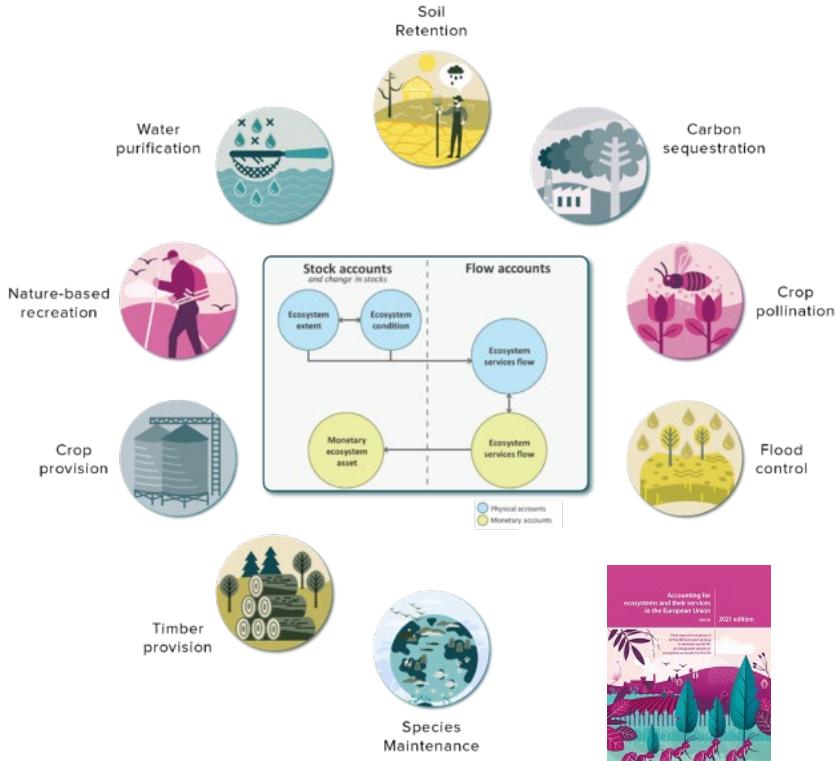
INCA Accounts series extended to 2018 using tool



https://ecosystem-accounts.jrc.ec.europa.eu/

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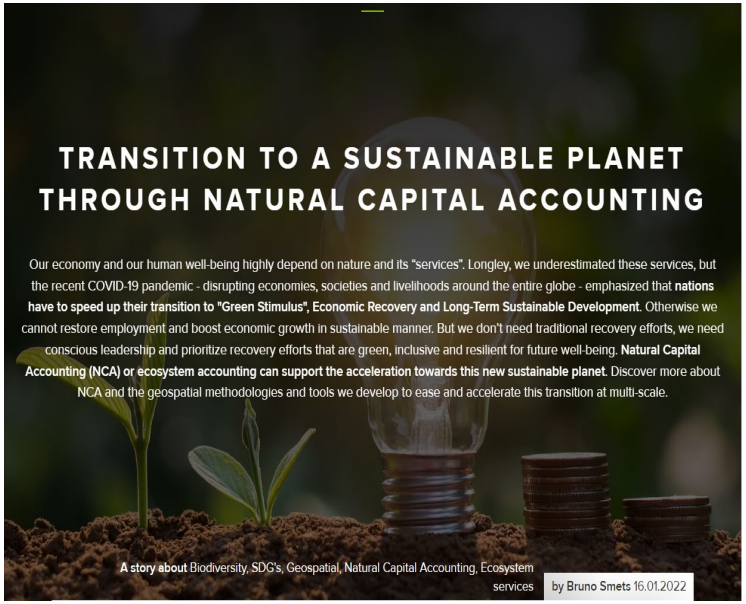
Take-away message on INCA tool

- Standardized reference tool for ecosystem accounting in EU following SEEA-EA
- Highly customizable by MS (proficient & expert users)
- Cost efficient, reproducible and scalable
- Validated and in-use (INCA EU 2018-series)
- Enables custom integration of new services
- Manuals (installation, user, developers)
- Open Source (end 2022) and free
- A first step to adopt FAIR principles
- Enables integration in other platforms (e.g. ArcGIS, ARIES)

You want to know more …



https://blog.vito.be/remotesensing/accelerating-nca

Topical collection "From the assessment to the accounting of Natural Capital. Development and progress through empirical applications"

Closed for submission Submission deadline: **15 April 2022**

Topical collection editors

Alessandra La Notte, Ioanna Grammatikopoulou, Sylvie Campagne

Topical collection information

Natural Capital Accounts (NCA) are meant to complement the System of National Accounts (SNA), which represents the main source of information to assess the wealth of a country. To make NCA operational within and together with SNA, accounting mechanisms and rules have to be consistently applied. An evolution is foreseen from pure ecosystem and ecosystem services assessment to their structured accounting. After the System of integrated Environmental and Economic Accounts –Ecosystem Accounting (SEEA-EA) was proposed in 2012 by the United Nations Statistical Division (UNSD) and recently adopted as a standard, there is a wide application of these accounting modules throughout the world. NCA is part of the wider SEEA accounting toolkit and is now the focus of considerable political commitment at Global, EU, national and regional scales. However, there is quite some uncertainty as to which accounts, which metrics can support which policy areas. With a broad range of application experiences (geographic, account types, policy priorities etc.), it is possible to enhance understanding of the relationship between the technical construction of the accounts and their use in decision making by end users. The goal of this topical collection is to present a number of applications of Ecosystem Accounting, that should ideally offer a series of insights to the discussion on how can natural accounts be composed, what are the challenges and what are the future development needs. It is also meant to identify the way forward – on accounts development, their use in policy areas, and how to interpret the results so that NCA can realize its potential.

Making the European INCA methodology for ecosystem accounting FAIR

Marcel Buchhorn ✉, *Bruno Smets* ✉, *Thomas Danckaert* ✉, *Maarten van Loo* ✉, *Steven Broekx* ✉, *Wim Peelaerts* ✉

https://oneecosystem.pensoft.net/special_issues

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BRUNO SMETS

Lead Natural Capital Accounting

Boeretang 200
2400 Mol - Belgium
bruno.smets@vito.be

remotesensing.vito.be

blog.vito.be/remotesensing