



CropLife
EUROPE



Best Practices for GIS data sets – Organization and Version Control for Use in Risk Assessment

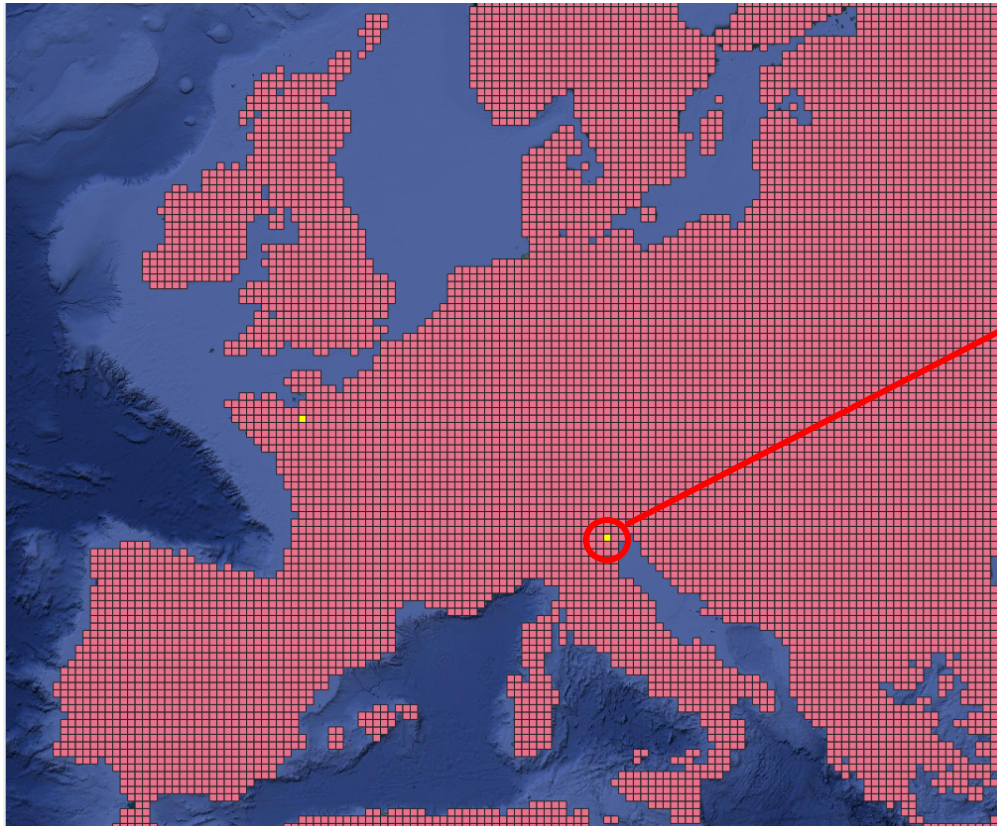
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3rd September 2026
XVIII SYMPOSIUM ON PESTICIDE CHEMISTRY

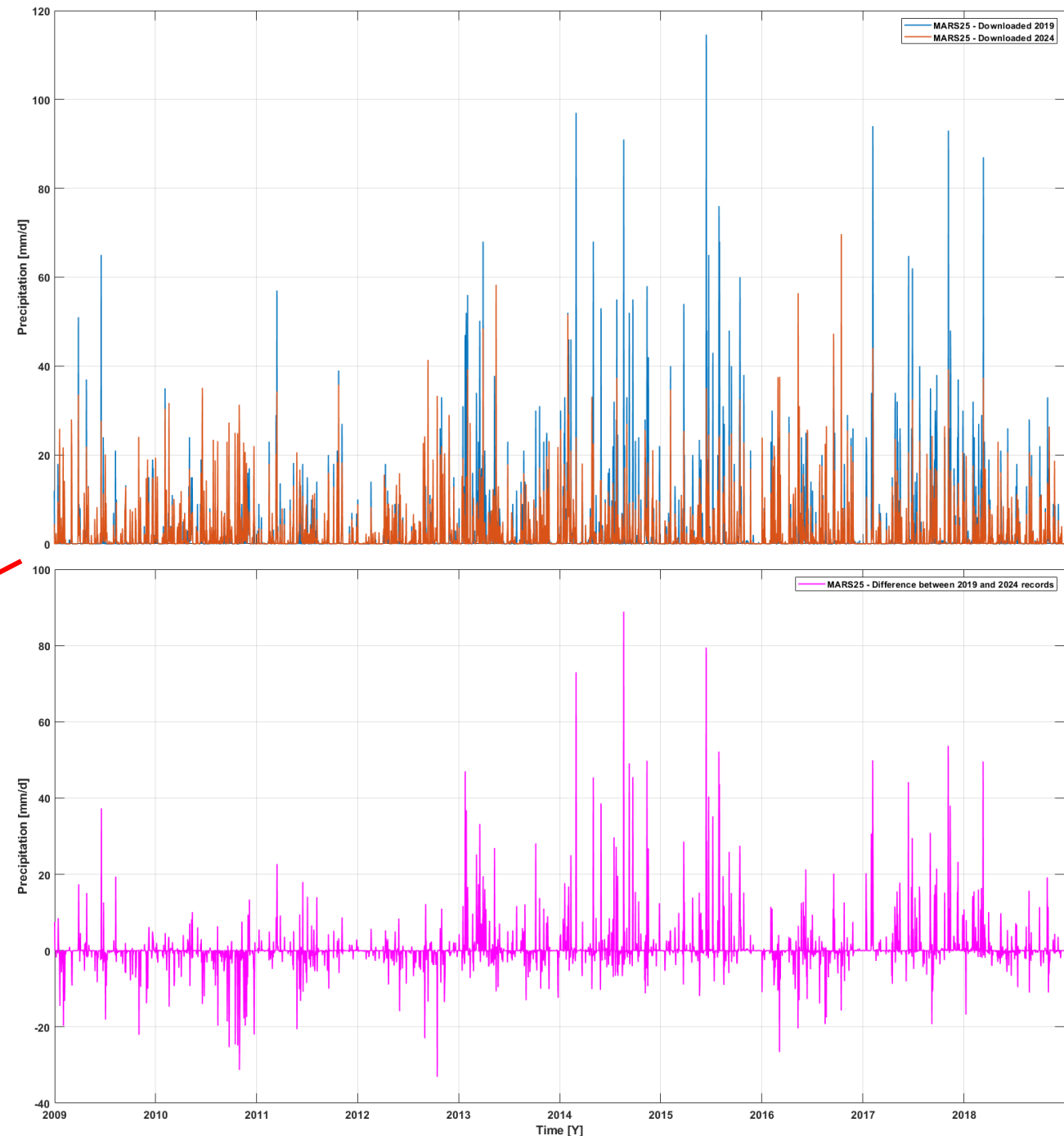
Background - Why do we need a version control for GIS data sets?

MARS25 – 2009/2018: data downloaded in 2019 vs data downloaded in 2024



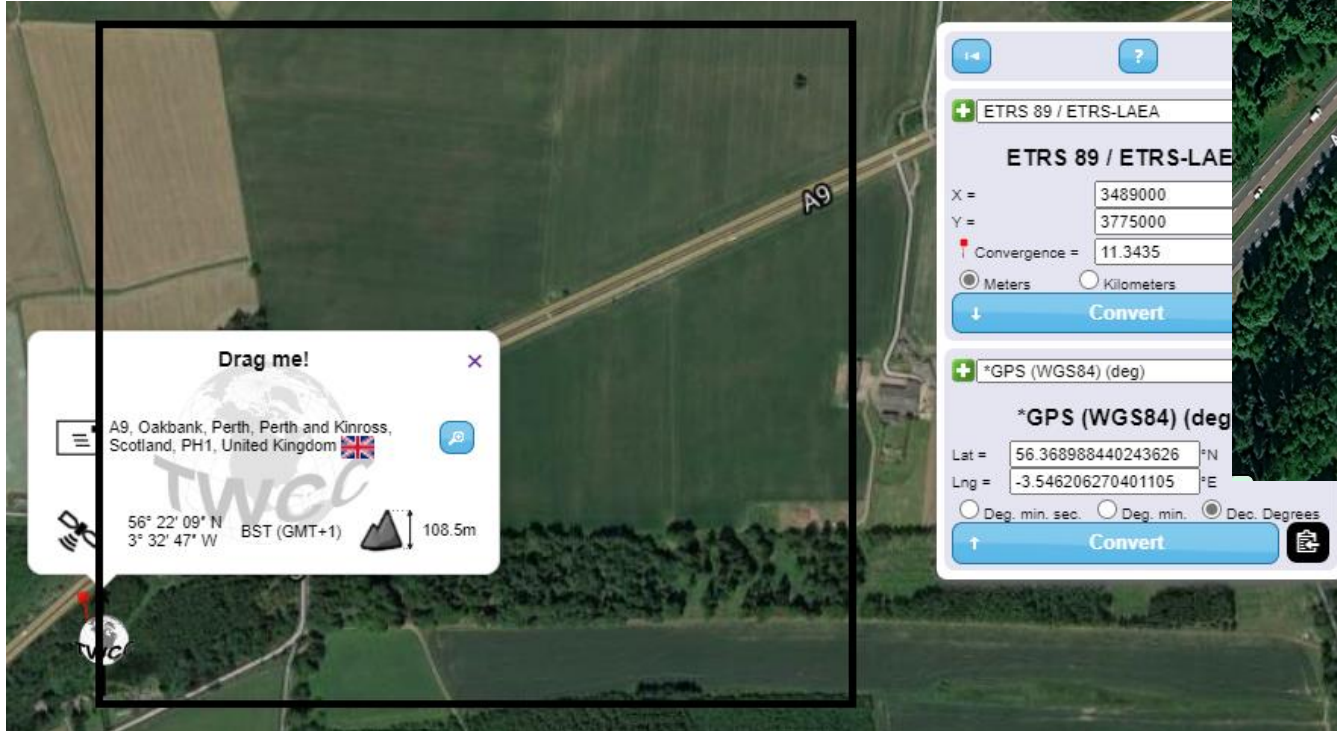
Issue: validity of GIS data set

GIS = Geo Information Systems



Background - Why do we need a version control for GIS data sets?

PERSAM tool for PECsoil calculation is using Corine Land Cover (2006) data as basis for crop coverage; Example: “vine”



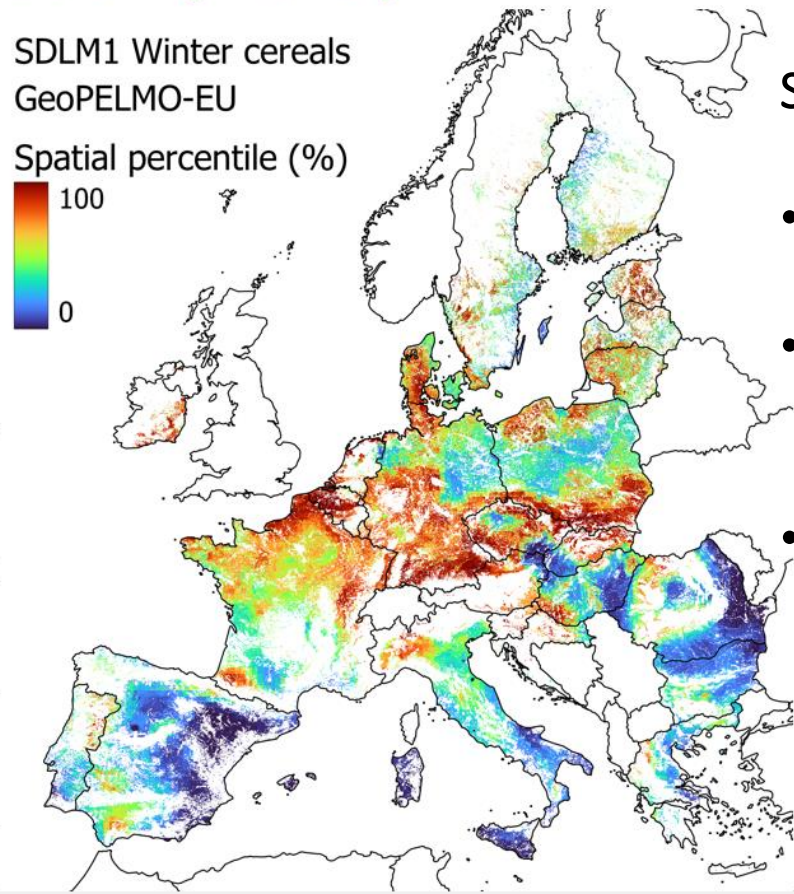
	United Kingdom
x (m)	3.489E+6
y (m)	3.775E+6
T _{arr} (° C)	8.813
ρ (kg/L)	1.403
θ (m ³ /m ³)	0.3485
f _{om} (kg/kg)	0.02116
pH	6.600
Crop cover (ha/km ²)	16.69

Issue: timeliness of GIS data set

GIS in plant protection products (PPP) risk assessments

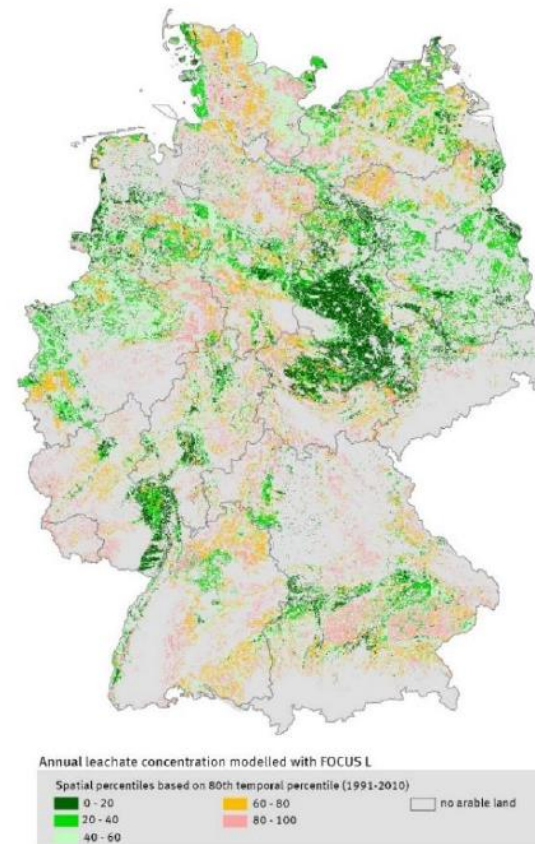
GIS is a valuable tool for evaluating the risks of PPP to human health and the environment

- Supports exposure and vulnerability mapping
- Integrates land use, soils, hydrography, climate and receptors
- Enables spatially informed decisions and mitigation
- Data quality directly affects assessment credibility



SETAC SDLM

- OM map (de Sousa et al. (2022))
- Climate data: MARS Agri4Cast V3.1 (1979-2022)
- ...



UBA GeoPELMO DE

- OM map (BÜK250 (BGR 2018))
- Climate data: DWD 2012 (1985-2010)
- ...

Source: own illustration, Fraunhofer IME.

GIS in plant protection products (PPP) risk assessments

GIS is a valuable tool for evaluating the risks of PPP to human health and the environment

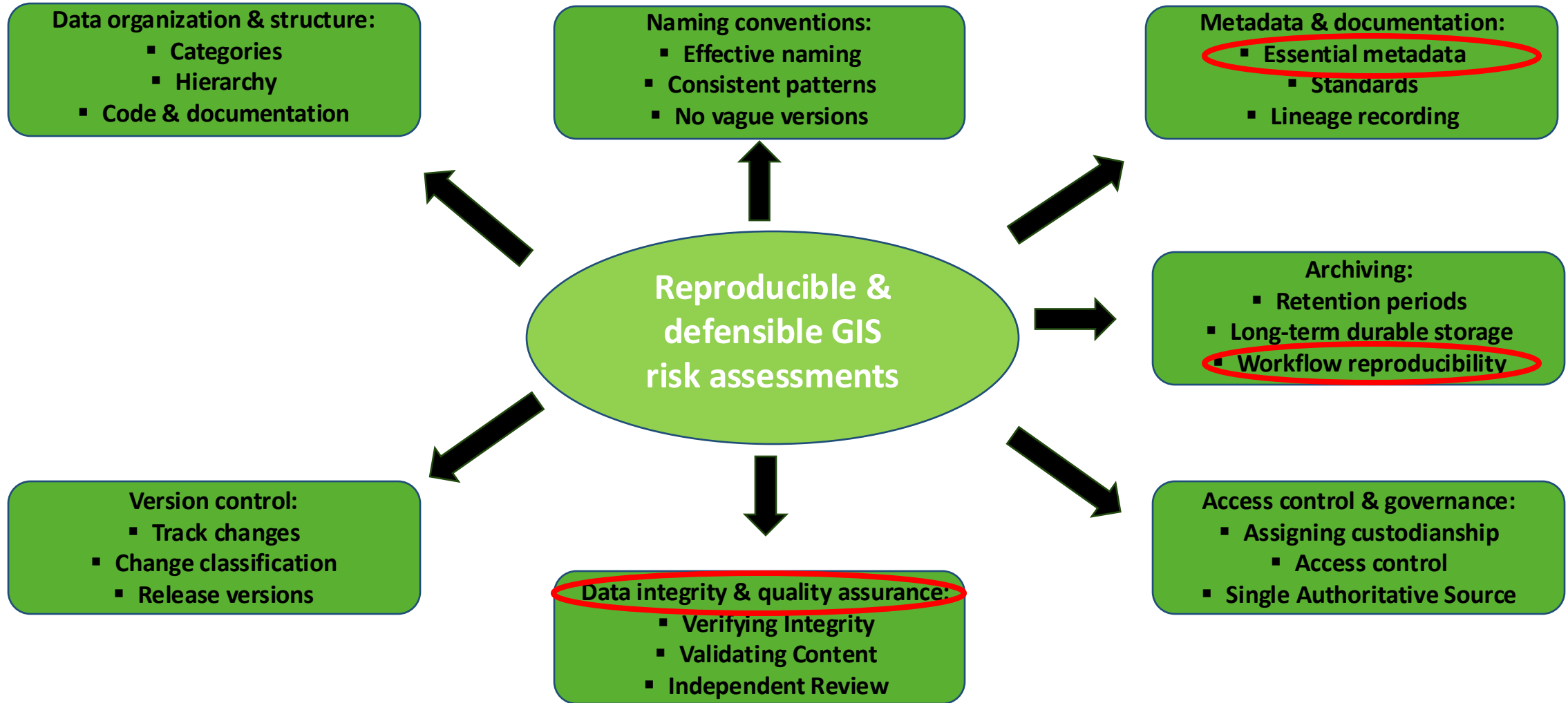
Current situation:

- Geodata are already an **integral part** of environmental risk assessments, supported by a range of established approaches and data sources. As the number of available geodata layers and GIS-based applications continues to expand, there is an increasing need for **greater alignment** in the evaluation and use of maps and geolayers, supported by a common overarching framework.

Why action is required:

- Geodata layers have become **key building blocks** of environmental exposure and risk assessments across tiers, compartments, and assessment steps. A harmonized mechanism for assessing and incorporating new datasets would help ensure **consistency, transparency**, and the timely uptake of **scientific advances**.
- EMW9 and EMW10 (2018, 2022) already identified issues/needs with geodata but **no progress** on solutions

Best practices framework for the use of GIS data sets



Best practices framework for the use of GIS data sets

Coprehensive metadata enables archived data can be accurately identified, understood, located, and retrieved over time, preserving its long-term usability and integrity.

Metadata Element	Intended Purpose
Title and description	Identifies the dataset and its intended content
Source and provider	Establishes provenance and authority
Date of creation / currency	Determines temporal relevance
Coordinate reference system	Ensures correct spatial alignment
Spatial resolution / scale	Indicates fitness for the decision scale
Spatial extent	Defines the geographic coverage
Processing history (lineage)	Records all transformations applied
Attribute definitions	Explains the meaning of each field
Access and use constraints	Documents licensing and restrictions
Responsible custodian	Assigns accountability

(Adapted from ISO 19115-1:2014: <https://www.iso.org/standard/53798.html>)

Data integrity & quality assurance

Version control preserves history, but QA ensures GIS datasets remain fit for regulatory use

1. Verify Integrity



Checksums detect corruption during storage and transfer.

2. Validate Content



Check geometry, attributes, CRS, completeness and value ranges.

3. Independent Review



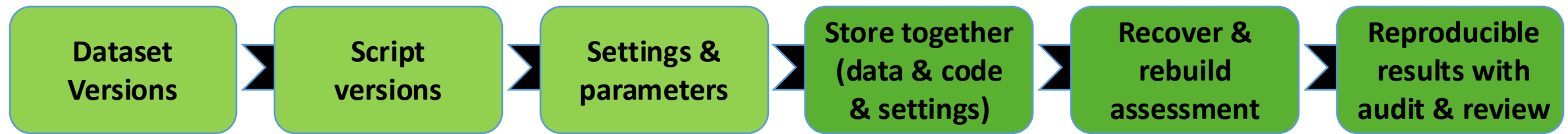
Critical datasets and workflows reviewed by a second independent expert.

 **Outcome:** Accurate, reliable, reproducible GIS datasets supporting defensible pesticide risk assessments

Best practices framework for the use of GIS data sets

Workflow reproducibility

- Key requirement: record exact versions and settings so the assessment can be reconstructed and reproduced at any time
- In case of publications: please provide a detailed workflow description as additional info



Responsibility for version control for GIS data sets

For example: FOCUS Version Control Group for modelling software in PPP registration

- Chaired by EFSA and hosted by the European Commission (EC)
- Members from authorities, academia and industry in the working group



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HIGHLIGHTS

24
Aug
2026

Soil biodiversity DNA archaea [dataset](#) and new [publication](#)

17
Aug
2026

[Dataset](#) on Soil porosity prediction across Europe and relevant [publication](#)

Workgroup members

FOCUS Version Control workgroup members:
(the persons indicated by a **yellow background** color asked and received access to this Version Control area)

Model	First responsible person	email	Substitute	email
MACRO	Fredrik Stenemo	Fredrik.Stenemo@sweco.se	Nicholas Jarvis	Nicholas.Jarvis@slu.se
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Model tester	Peter Rainbird	peter.rainbird@syngenta.com		
Soil exposure calculation tools'	Michael Stemmer	michael.stemmer@ages.at		
Chairman	Christopher Lythgo	Christopher.LYTHGO@efsa.europa.eu	Gabriella Fait	Gabriella.FAIT@efsa.europa.eu
Representative of scenario manager	Marc Van Liedekerke	marc.van-liedekerke@ext.ec.europa.eu		

Responsibility for version control for GIS data sets

Version control for GIS data sets

- Proposal: version control group also chaired by EFSA and hosted by the European Commission (EC):
 - Establishment of a single authoritative source
 - Ensuring reproducibility of regulatory decisions
 - Consistency across member states
 - Transparency and stakeholder trust
 - Independent scientific oversight
 - Alignment with existing FOCUS governance
 - Improved change management
 - Long-term sustainability
 - Greater efficiency for authority regulators and industry
- Authorities, academia and industry should all be represented in the GIS version control working group to ensure that spatial data set updates are scientifically robust, practically applicable, regulatory relevant, and broadly accepted by all stakeholders who develop, use, and evaluate GIS-based risk assessments.
- Need a dedicated multi-stakeholder effort and a clear mandate to EFSA/EC regarding version control.

Many thanks for your attention!

Any questions?