



D.T3.4.1

SIMONA-tool beta version online

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Concepts and development of the IT Tool



- Purpose of the IT tool
- Concept and general considerations
- Phases the IT tool supports
- Main user stories
- Legal framework

Purpose of the IT tool



The SIMONA-Tool is a web application for

- supporting surveillance monitoring
- collecting, analysing sediment sample data,
- running risk evaluation and
- generating sediment quality reports.

Concept and general considerations



- WISE- 5 spatial data
- WISE- 6 reporting via Eionet CDR
- Eionet synchronisation
- CAS / EEA support

Phases the IT tool supports



- Field observation phase
- Laboratory analysis phase
- Monitoring phase
- Reporting phase



Main user stories



Browsing publicly available data

- Geolocation service for navigating by address
- Searchable database of registered monitoring sites
- Features on the map are associated to a popup
- Sediment quality status layer

The screenshot shows the Interreg Danube Transnational Programme SIMONA web application. The interface is divided into several sections:

- Search by location:** A search bar with the placeholder text "Search for an address".
- Layers:** A list of layers with toggle switches:
 - Water quality status (checked)
 - Monitoring sites (checked)
 - Surface water (checked)
 - Ground water (unchecked)
 - Surface water bodies (unchecked)
 - Sub units (unchecked)
 - River basin districts (unchecked)
- Quality standard:** A dropdown menu.
- Map:** A map of Budapest showing monitoring sites (blue dots) and various geographical features like roads and parks.
- Data Table:** A table with columns: Country, Name, INSPIRE Id, and Thematic Id. The table shows three entries for Austria (AT):

Country	Name	INSPIRE Id	Thematic Id
AT	ACHAU, BR	300012	AT300012
AT	SCHWECHAT, BL 369	300020	AT300020
AT	BREITENAU, BR HAUS-NR.184	300103	AT300103



Monitoring site details

- Risk evaluation results
- General geographic details
- Monitoring site observations
- Sediment samplings
- Laboratory results
- Assessments

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Home Map User Guide

Search by location
Search for an address

Monitoring Site Details

OVERVIEW GENERAL DETAILS SITE OBSERVATIONS SEDIMENT SAMPLINGS LABORATORY RESULTS ASSESSMENT

Demo standard

Substance	QS	Uncertainty	Status	Risk
Anthracene	1.5	1,16667	good	low
Arsenic	1.3	1,16667	bad	high
Benzo(a)pyrene	1.3	1,16667	good	low
Benzo(g,h,i)perylene	1.3	1,16667	good	low
Cadmium	1.3	1,16667	bad	high
Chromium	1.3	1,16667	bad	high
Copper	1.3	1,16667	bad	high
Dicofol	1.3	1,16667	good	low

All countries

Country

AT

AT

AT BREITENAU, BR HAUS-NR.184 300103 AT300103

Thematic Id

AT300012

AT300020

1 - 100 of 139198 items



Recording site observation

- On-site field observation
- Site identification supported by the GIS database
- Min/ avg/ max inputs for observed parameters

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Home Map User Guide

Site Observation

Search by location
Search for an address

Layers

Water quality status

Monitoring sites

Surface water

Ground water

Surface water bodies

Sub units

River basin districts

Quality standard

All countries

Country

AT

AT

AT

MONITORING SITE IDENTIFICATION

Monitoring Site: TORKOLAT FELETT

Observation date: 11/8/2021 5:22 PM

Downstream end (Longitude) Downstream end (Latitude) Upstream end (Longitude) Upstream end (Latitude)

Monitoring site length Monitoring site altitude

m m

WATER - HYDROMORPHOLOGY

Hydromorphologic classification Channel type Channel material

Average width of river channel in the site

m

Remarks

WATER - HYDROGRAPHY

Water depth

min avg max

cm

1 - 100 of 133198 items



Submitting sediment sample data

- Sediment sampling data linked to a monitoring site
- Measured and estimated values under:
- Weather conditions
- Water conditions
- Sediment conditions

The screenshot shows the 'Observation' form in the Interreg SIMONA system. The form is organized into several sections:

- SAMPLING IDENTIFICATION**: Includes a 'Sampling date' field set to '11/8/2021 5:22 PM'.
- WEATHER CONDITIONS**: Contains fields for 'Air temperature', 'Humidity', and 'Precipitation', each with radio buttons for 'measurement' and 'estimation'. 'Air pressure' and 'Wind speed' also have radio buttons for 'estimation'. 'Wind direction' has a dropdown menu.
- WATER CONDITIONS**: Includes fields for 'pH', 'Electric conductivity', 'Redox potential', and 'Dissolved Oxygen', each with a dropdown menu for units. It also has radio buttons for 'estimation' for 'Temperature', 'Nephelometric turbidity', 'Water flow rate', and 'Water depth'.
- SEDIMENT CONDITIONS**: Includes fields for 'Temperature', 'Electric conductivity', 'pH', and 'Redox potential'.

The form is displayed on a desktop interface with a sidebar on the left containing search and layer options, and a map on the right showing the location of the monitoring site.



Submitting sediment sample data

- Sediment sample data linked to a specific sampling
- Internal sample identification
- Unit of measure conversion
- Arbitrary number of samples

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Home Map User Guide

Search by location
Search for an address

Layers
Water quality status
Monitoring sites
Surface water
Ground water
Surface water bodies
Sub units
River basin districts
Quality standard

All countries
Country
AT
AT
AT

Sample

SAMPLE IDENTIFICATION	SAMPLING DETAILS	SAMPLE DESCRIPTION
Code HU101845839795	Sampling system	Sample volume dm3
Analysed matrix SS	Equipment Composite sample <input type="checkbox"/>	Weight g
Duplicate sample <input type="checkbox"/>	Number of sub-samples	pH 7.00
Duplicate sample identifier	Point sample <input type="checkbox"/>	Electric conductivity uS/cm
	Distance from river bank m	Redox potential mV
	Sample depth m	Temperature °C
	Depth of sediment sample cm	Texture
		Particle size description
		Odour

Thematic id
AT300012
AT300020
AT300103

1 - 100 of 130198 items



Uploading laboratory results

- Downloadable template
- Drag-n-drop spreadsheet upload
- Laboratory results are linked to stored sediment samples

The screenshot shows the Interreg SIMONA web application interface. The main content area is titled 'Monitoring Site Details' and has a 'LABORATORY RESULTS' tab selected. A 'Drop files here to upload' area is visible above a table of laboratory results. The table has columns for Substance, Quantity, UoM, and Uncertainty. Below the table, there are navigation controls and a list of monitoring sites.

Substance	Quantity	UoM	Uncertainty
Arsenic	11.3	mg/kg	0
Cadmium	2.12	mg/kg	0
Chromium	35.4	mg/kg	0
Copper	54.1	mg/kg	0
Mercury	0.06	mg/kg	0



Data analysis

- Status and risk classification
- Uncertainty assessment

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Home Map User Guide

Search by location
Search for an address

Layers

Water quality status

Monitoring sites

Surface water

Ground water

Surface water bodies

Sub units

River basin districts

Quality standard

All countries

Country

AT

AT

AT

BREITENAU, BR HAUS-NR.184

300103

AT300103

1 - 100 of 139198 items

Monitoring Site Details

TORKOLAT FELETT
Thematic Id: HU101845839

Overview GENERAL DETAILS SITE OBSERVATIONS SEDIMENT SAMPLINGS LABORATORY RESULTS ASSESSMENT

Start date	End date	Substance	QS	Year	Quantity	LOQ	Unit	Uncertainty	Exclusion
11/8/2008	11/8/2021	Arsenic	2.00	2010	76.6	0.1	mg.kg-1	3	
				2010	76.6	0.1	mg.kg-1	3	
				2010	76.6	0.1	mg.kg-1	3	
				2010	69.6	0.1	mg.kg-1	3	
				2010	69.6	0.1	mg.kg-1	3	
				2010	69.6	0.1	mg.kg-1	3	
				2011	0.06	0.1	mg.kg-1	1	

Status	Risk	Uncertainty
bad	high	1.16667



Managing quality standards

- Quality standard manager is available for region managers, national contacts and researchers
- Setting up QS values for each substances

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Home Map User Guide

Search by location
Search for an address

Quality Standard Manager

Layers

Water quality status

Monitoring sites

Surface water

Ground water

Surface water bodies

Sub units

River basin districts

Quality standard

MANAGE

All countries

Name	Description	Scope
Demo standard	Lorem dolor sit amet	global

Code	Substance	QS	Unit
CAS_50-32-8	Benzo(a)pyrene	2	mg/kg
CAS_191-24-2	Benzo(g,h,i)perylene	2	mg/kg
CAS_7440-43-9	Cadmium	2	mg/kg
CAS_7440-47-3	Chromium	2	mg/kg
CAS_7440-50-8	Copper	2	mg/kg
CAS_115-32-2	Dicofol	2	mg/kg

1 - 18 of 18 items

1 - 7 of 7 items

BREITENAU, BR HAUS-NR.184 300103 AT300103

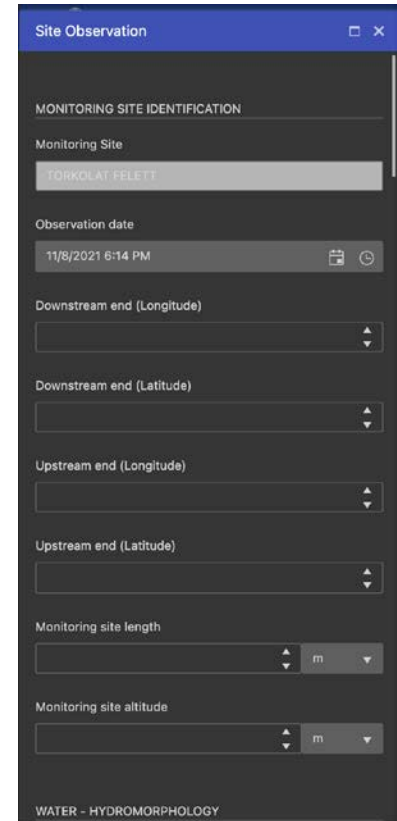
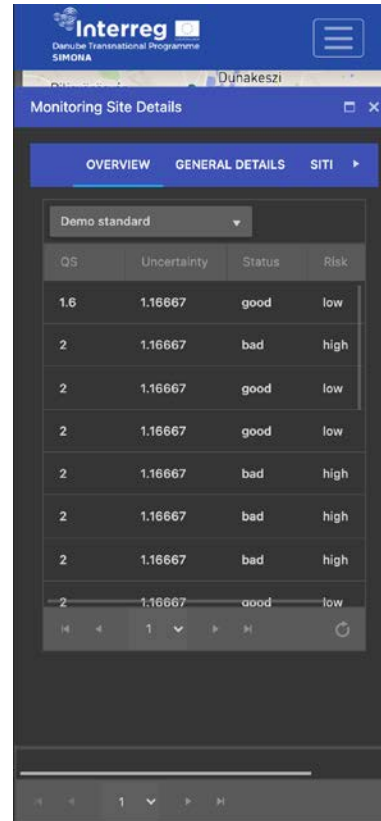
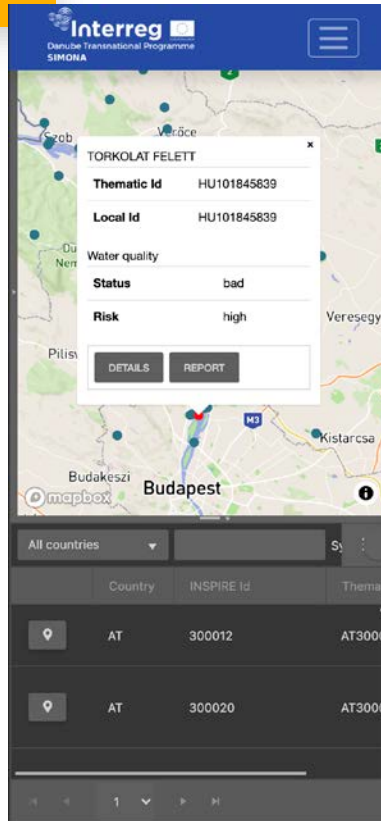
1 - 100 of 139198 items

https://simona.geonardo.com/map



Adaptive layout

- Panels automatically collapse on small devices
- Navigation bars are scrollable
- Forms' layout adapt to the screen size





API Client

- Listing monitoring sites
- Accessing sediment quality status information

The screenshot shows the GitHub repository page for 'emg-group / simona-api-client-php'. The repository is public and has 1 branch and 1 tag. The commit history shows a recent commit by 3 authors titled 'Documentation and unit testing added (#1)' with 2 commits, pushed 4 minutes ago. The file list includes 'src', 'test', '.editorconfig', '.gitattributes', '.gitignore', '.phplint.yml', '.phpmd.xml', 'LICENSE', 'README.md', 'composer.json', 'composer.lock', and 'config.json'. The right sidebar shows the repository's description as a 'PHP client of the SIMONA IT Tool's public API', with links to 'simona.emg.systems', 'water-quality', and 'sediment'. It also displays 'Releases 1', 'Public API covered Latest' (10 seconds ago), and 'Packages' (No packages published). The 'Languages' section shows PHP at 100.0%.

Legal framework



- Owner of the tool: MATE
- IP rights hold by GEO: nJinn
- Open source: no
- Openly available: yes