



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



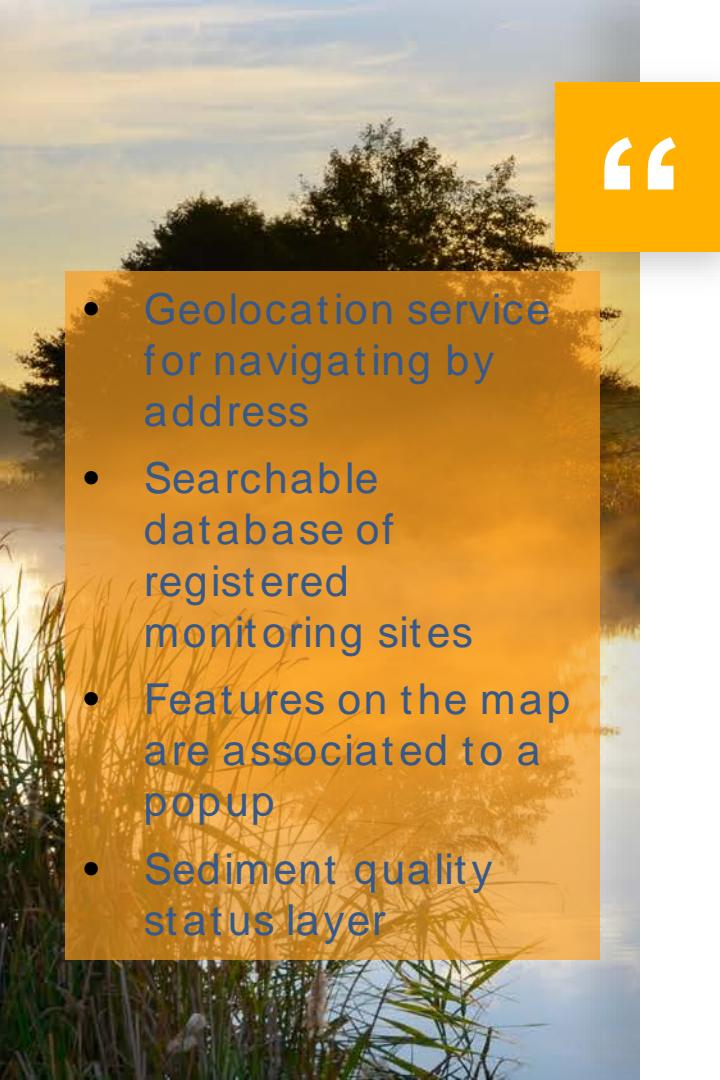
Phases the IT tool supports



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



Main user stories



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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 displays the SIMONA web application interface. At the top left is the Interreg logo. The main interface consists of three panels: 1. A sidebar on the left with a search bar (3) and a list of layers: Water quality status (selected), Monitoring sites, Surface water, Ground water, Surface water bodies, Sub units, and River basin districts (4). Below this is a 'Quality standard' section (5). 2. A central map of the Budapest region (2) showing various monitoring sites marked with blue dots. 3. A table at the bottom (6) listing monitoring sites with columns for Country, Name, INSPIRE Id, and Thematic Id. The table shows three entries for Austria (AT): ACHAU, BR; SCHWECHAT, BL 369; and BREITENAU, BR HAUS-NR.184. A footer at the bottom right indicates 1 - 100 of 139187 items.

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

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

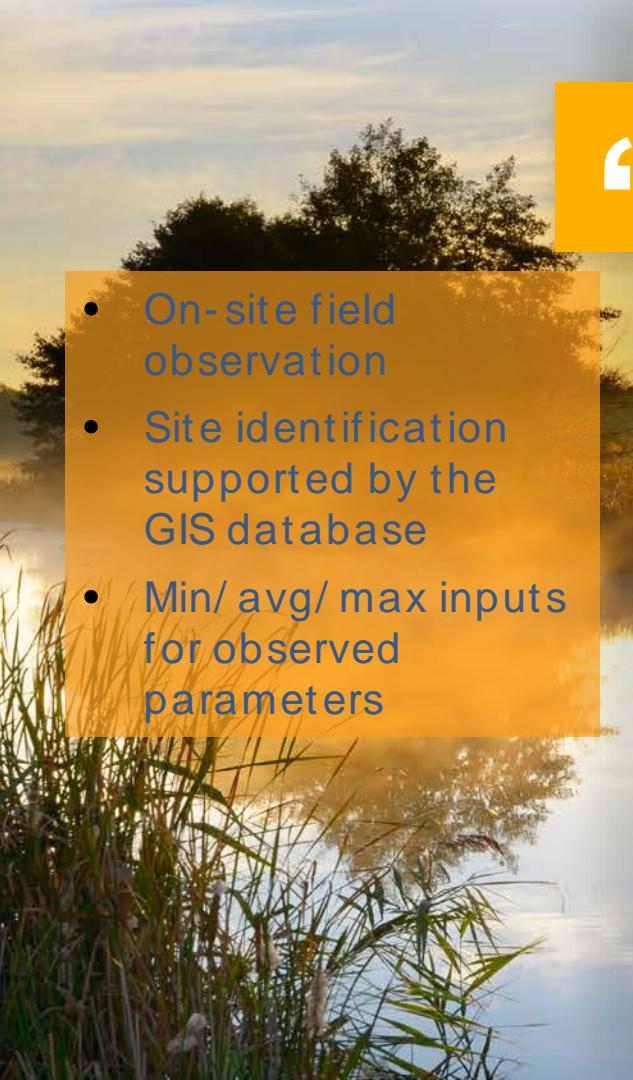
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Monitoring site details

The screenshot shows a web-based monitoring system interface. At the top, there's a header with the 'Interreg' logo and 'Danube Transnational Programme SIMONA'. Below the header, a search bar says 'Search by location' with a placeholder 'Search for an address'. To the right of the search bar, there are buttons for 'Home', 'Map', 'User Guide', and some icons. A map of the Torkolat Felett area is displayed, showing locations like Esztergom, Nyergesújfalu, and Pusztaszabolcs. A specific monitoring site is highlighted with a green dot. Below the map, a 'Monitoring Site Details' card is open, showing tabs for 'OVERVIEW', 'GENERAL DETAILS', 'SITE OBSERVATIONS', 'SEDIMENT SAMPLINGS', 'LABORATORY RESULTS', and 'ASSESSMENT'. The 'OVERVIEW' tab is selected, displaying a table of substance data. The table has columns for 'Substance', 'QS', 'Uncertainty', 'Status', and 'Risk'. The data includes:

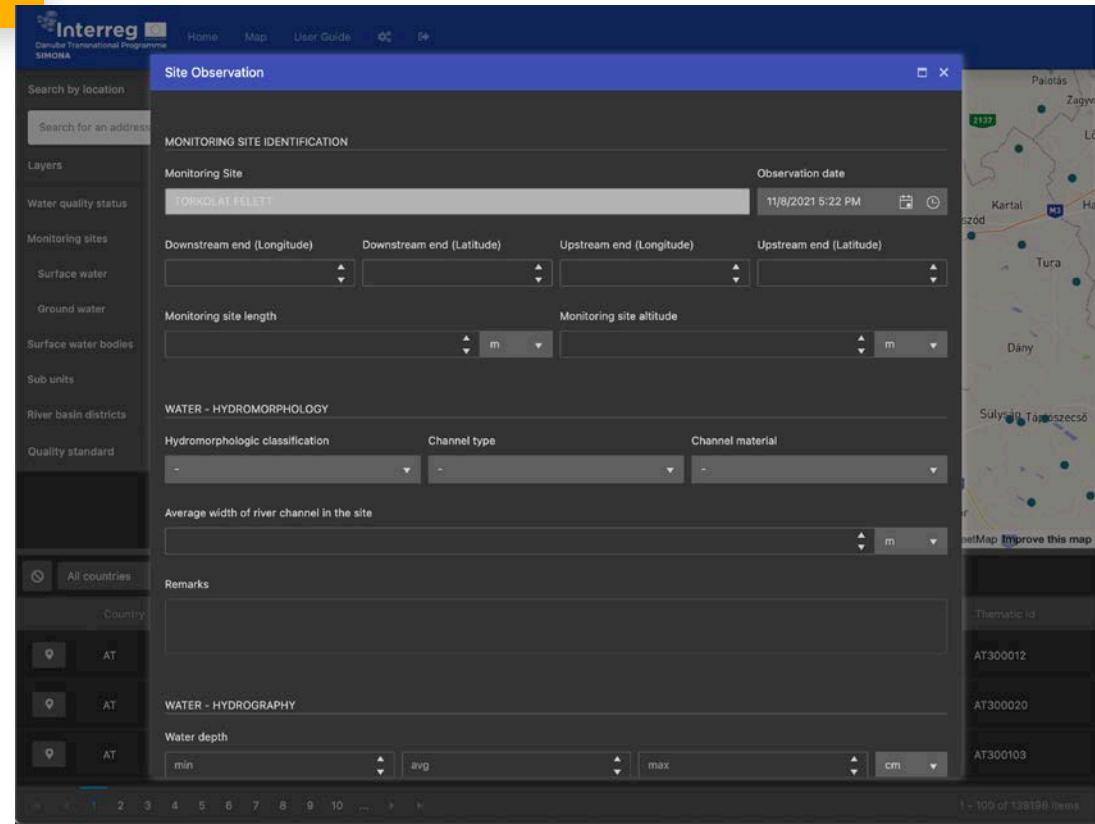
Substance	QS	Uncertainty	Status	Risk
Anthracene	1.5	1.16667	good	low
Arsenic	1.3	1.16667	bad	high
Benzo(a)pyrene	1.3	1.16667	good	low
Benzo(g,h,i)perylene	1.3	1.16667	good	low
Cadmium	1.3	1.16667	bad	high
Chromium	1.3	1.16667	bad	high
Copper	1.3	1.16667	bad	high
Dicofol	1.3	1.16667	good	low

Below the table, there are buttons for 'All countries', 'Country', and navigation arrows. The bottom of the card shows a footer with 'Nan - Nan of 18 items' and a refresh icon. To the right of the card, there's a sidebar with 'Thematic Id' dropdowns showing 'AT300012' and 'AT300020', and a footer with '1 - 100 of 139198 items'.

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

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Recording site observation



The screenshot shows the SIMONA software interface for recording site observations. The main window displays a "Site Observation" form with various input fields and a map on the right side.

Monitoring Site Identification:

- Monitoring Site: TÓKOLAT FELETT
- Observation date: 11/8/2021 5:22 PM
- Downstream end (Longitude): [Input field]
- Downstream end (Latitude): [Input field]
- Upstream end (Longitude): [Input field]
- Upstream end (Latitude): [Input field]

Monitoring site length: [Input field] m

Monitoring site altitude: [Input field] m

WATER - HYDROMORPHOLOGY:

- Hydromorphologic classification: [Input field]
- Channel type: [Input field]
- Channel material: [Input field]

Average width of river channel in the site: [Input field] m

Remarks: [Text area]

WATER - HYDROGRAPHY:

- Water depth:
 - min: [Input field]
 - avg: [Input field]
 - max: [Input field]

Map: A map of the Tókölát area showing monitoring sites marked with blue dots. Labels include: Palotás, Zugy, Lé, Sződ, Kartal, Haj, Tura, Dány, Sulyán, Táposzcsó, and M1.

Thematic id: AT300012, AT300020, AT300103

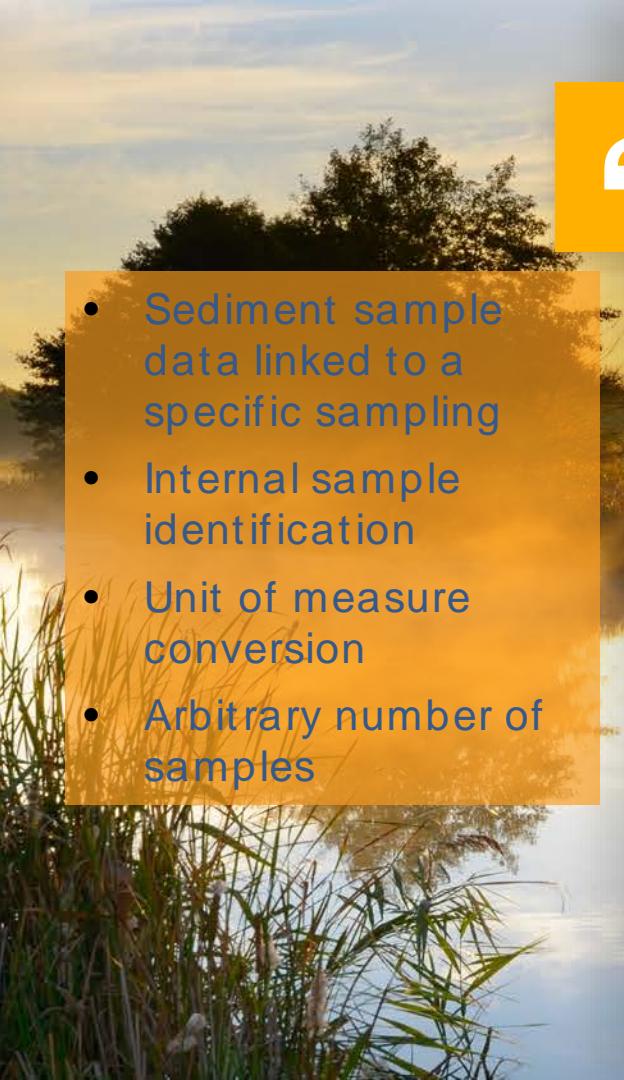
Page Number: 9

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

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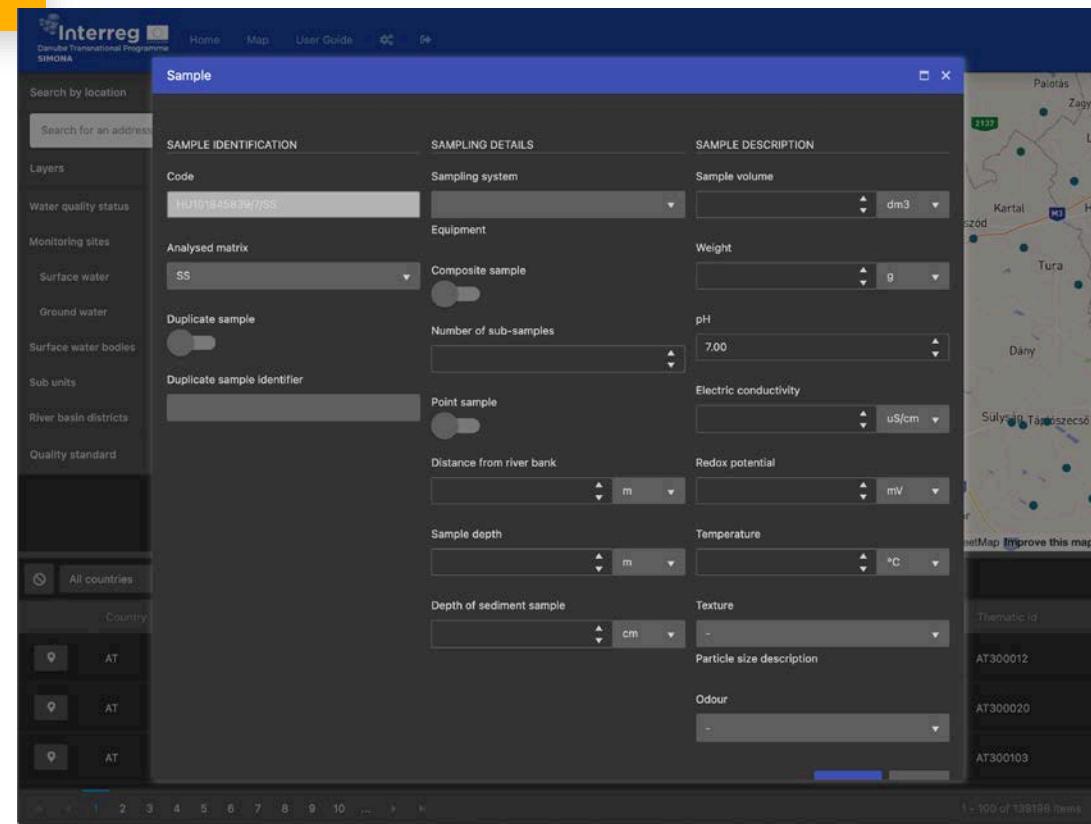
Submitting sediment sample data

The screenshot shows a computer interface for submitting sediment sample data. At the top, there's a navigation bar with the Interreg logo, Home, Map, User Guide, and other icons. Below it is a search bar labeled "Search by location" and a sidebar with categories like Layers, Water quality status, Monitoring sites, Surface water, Ground water, Surface water bodies, Sub units, River basin districts, and Quality standard. The main area is titled "Observation" and contains several sections: "SAMPLING IDENTIFICATION" (Sampling date: 11/8/2021 5:22 PM), "WEATHER CONDITIONS" (Air temperature: estimation, Air pressure: Select an option, Humidity: Select an option, Precipitation: estimation), "WATER CONDITIONS" (pH: Select an option, Electric conductivity: Select an option, Redox potential: Select an option, Dissolved Oxygen: Select an option), and "SEDIMENT CONDITIONS" (Temperature: Select an option, Electric conductivity: Select an option, pH: Select an option, Redox potential: Select an option). To the right of the form is a map showing monitoring sites across a river basin, with labels like Palotás, Zugy, Lé, Kartal, Tura, Dány, and Sulyán. A legend indicates "All countries" and "AT". At the bottom, there are page navigation buttons (1-100) and a note "1 - 100 of 138198 items".



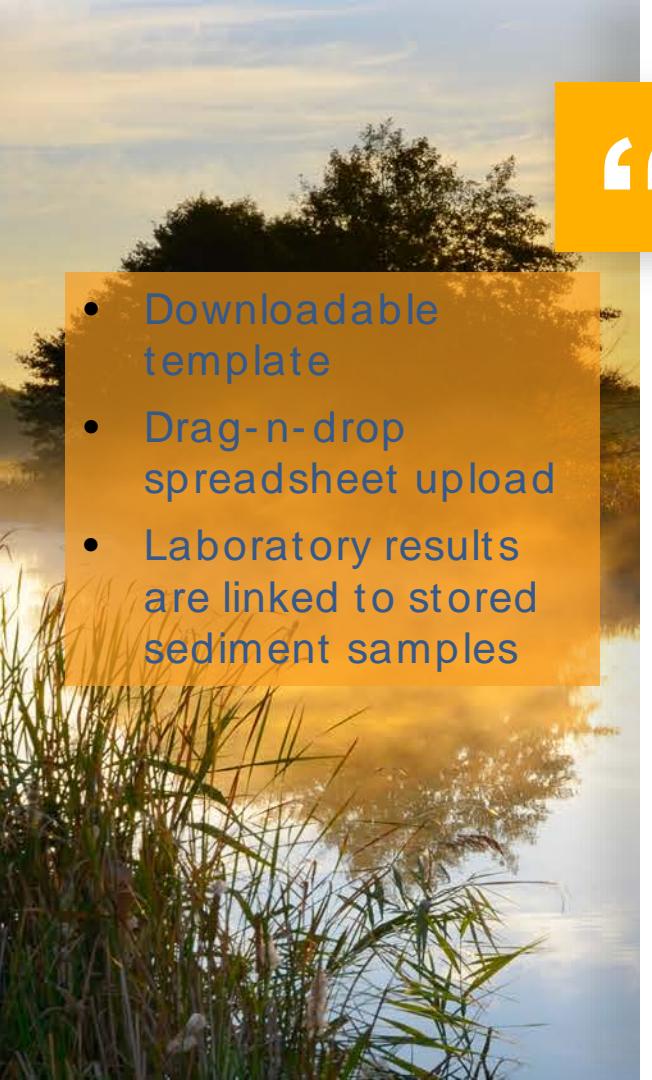
Submitting sediment sample data

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



The screenshot shows a software interface for submitting sediment sample data. The main window is titled "Sample" and contains several sections for inputting data:

- SAMPLE IDENTIFICATION:** Includes a "Code" field with the value "HU101458397/SS".
- SAMPLING DETAILS:** Includes "Sampling system", "Equipment", and "Sample volume" dropdowns.
- SAMPLE DESCRIPTION:** Includes "Analysed matrix" (set to "SS"), "Weight", "pH", "Electric conductivity", "Distance from river bank", "Redox potential", "Sample depth", "Temperature", "Depth of sediment sample", "Texture", "Particle size description", and "Odour" dropdowns.
- Left Sidebar:** Lists "Search by location", "Layers", "Water quality status", "Monitoring sites", "Surface water", "Ground water", "Surface water bodies", "Sub units", "River basin districts", and "Quality standard". It also shows a "Country" dropdown set to "AT" and a "Thematic id" dropdown with values "AT300012", "AT300020", and "AT300103".
- Right Sidebar:** Shows a map of Hungary with sampling locations marked, and a "Map" button with the text "Improve this map".



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Uploading laboratory results

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

The screenshot shows the SIMONA platform interface for uploading laboratory results. The top navigation bar includes the Interreg logo, Home, Map, User Guide, and search functions. A map of the Torkolat Felett area is displayed with various monitoring sites marked. The main window is titled 'Monitoring Site Details' and shows the 'LABORATORY RESULTS' tab selected. A central panel allows users to 'Drop files here to upload' or use a 'LABORATORY RESULTS TEMPLATE'. Below this is a table listing chemical substances and their concentrations:

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

The left sidebar provides navigation through layers, monitoring sites, surface and ground water, surface water bodies, sub units, river basin districts, and quality standards. The bottom of the screen shows pagination and item counts for the laboratory results and assessment sections.

- Status and risk classification
- Uncertainty assessment

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Data analysis

The screenshot shows the Interreg SIMONA platform's monitoring site details for Torkolat Felett. The interface includes a map of the area around Esztergom, Hungary, and a detailed table of arsenic concentration data from 2010 to 2011.

Monitoring Site Details

Year	Quantity	LOQ	Unit	Uncertainty	Exclusion
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

The screenshot shows the 'Quality Standard Manager' interface from the Interreg Danube Transnational Programme SIMONA platform. The interface includes a sidebar with navigation links like Home, Map, User Guide, and a search bar for locations. The main area displays a table of quality standards with columns for Name, Description, Scope, Code, Substance, QS, and Unit. A map of the Torkolat Felett region in Hungary is visible in the background.

Name	Description	Scope	Code	Substance	QS	Unit
Demo standard	Lorem dolor sit amet.	global	CAS_50-32-8	Benzo(a)pyrene	2	mg/kg
			CAS_391-24-2	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_3115-32-2	Dicofol	2	mg/kg
			CAS_200-44-0	Fluoranthene	2	mg/kg

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

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Adaptive layout

TORKOLAT FELETT

Thematic Id HU101845839
Local Id HU101845839

Water quality
Status bad
Risk high

DETAILS REPORT

QS	Uncertainty	Status	Risk
1.6	1.16667	good	low
2	1.16667	bad	high
2	1.16667	good	low
2	1.16667	bad	high
2	1.16667	bad	high
2	1.16667	bad	high
2	1.16667	good	low

MONITORING SITE IDENTIFICATION

Monitoring Site: TORKOLAT FELETT

Observation date: 11/8/2021 6:14 PM

Downstream end (Longitude):

Downstream end (Latitude):

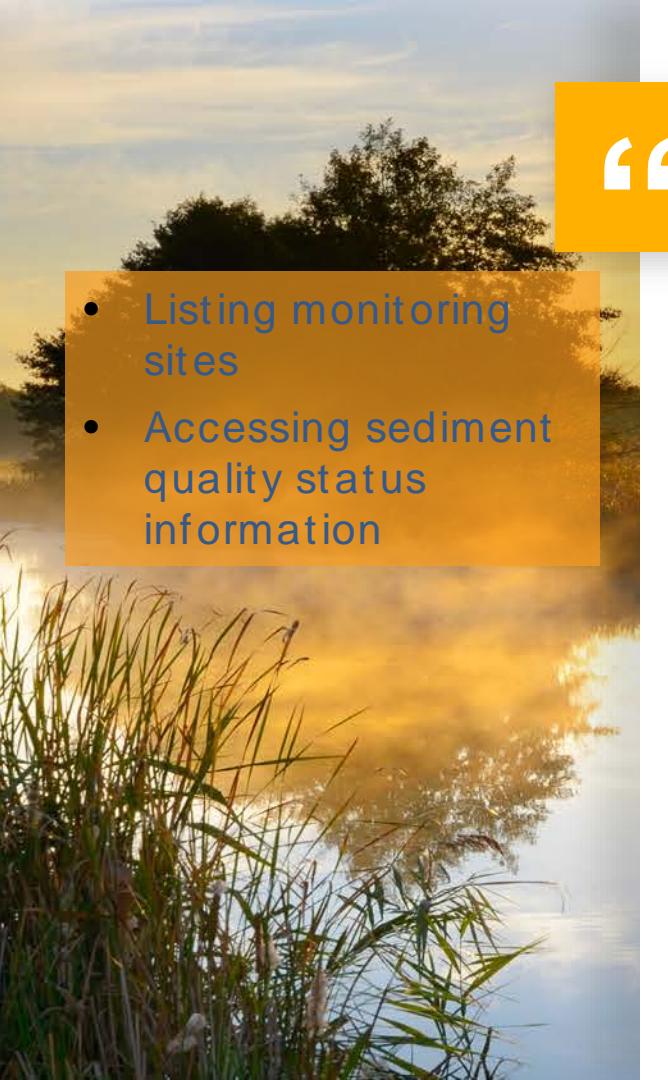
Upstream end (Longitude):

Upstream end (Latitude):

Monitoring site length:

Monitoring site altitude:

WATER - HYDROMORPHOLOGY



- Listing monitoring sites
- Accessing sediment quality status information

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API Client

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About PHP client of the SIMONA IT Tool's public API

simona.emg.systems

water-quality sediment

Readme

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SIMONA API client PHP



Legal framework



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