

WISE EIONET spatial data sets (Internal Version)

Technical Report

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Imprint

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Preamble

The WISE databases contain over 63 000 identifiers related to EIONET monitoring sites, surface water bodies, groundwater bodies, sub-units or riverbasin districts (Figure 1). This information is available in country data sets that can be downloaded from the [WISE Restricted distribution area](#).

Authorised reporters have access to this internal version to help prepared their WISE-5 delivery (the publicly available European dataset only includes non-confidential spatial objects with associated time series).

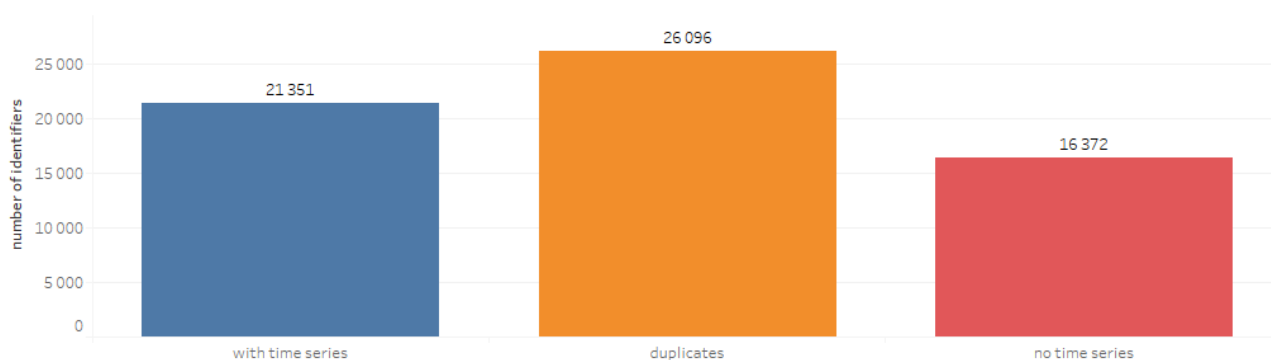


Figure 1. Number of EIONET identifiers in the WISE databases.

Over 21 000 EIONET identifiers have associated time series.

More than 90% of these identifiers occur in the EU countries and Norway. These countries have reported under the Water Framework Directive. Therefore, and where possible, the old EIONET identifier must be replaced by the current WFD identifiers. Prefilled EIONET data sets can be downloaded from the [restricted distribution area](#): the code of corresponding WFD successor needs to be filled in.

Over 25 000 EIONET identifiers have been identified as potential duplicates, based on the information reported by countries or using spatial analysis. These identifiers are superseded by other EIONET or WFD identifiers. Identifying duplicate identifiers allows the consolidation of time series that would otherwise be broken. Prefilled EIONET data sets can be downloaded from the [restricted distribution area](#): the code of corresponding EIONET or WFD successor is already filled in. Check if the replacement is correct. If it is not, fill the correct information and submit your data.

Over 19 000 EIONET identifiers have no associated time series and will be retired from the WISE register unless they are reported under WISE-5. (This is only required if time series are going to be reported).

Finally, 4754 identifiers for which no spatial information exists are used in time series reported during the WISE SoE 2015 and 2016 data calls. Starting with the WISE SoE 2018 data call, time series with unknown identifiers cannot be delivered. Explore the [dashboard](#) and make sure that your WISE-5 delivery includes all necessary identifiers. Add the necessary information to the prefilled shapefiles that you can download from the [restricted distribution area](#).

Please read the documentation available in http://cdr.eionet.europa.eu/help/WISE_SoE/wise5

Contact your [EIONET National Focal Point](#) if you need reporting permissions.

Contact wisesoe.helpdesk@eionet.europa.eu if you need technical support preparing your data.

Contact helpdesk@eionet.europa.eu if you have problems with your EIONET account.

Summary

1. This document describes the content of the EIONET files in the [WISE restricted distribution](#) area:
 - River basin districts
 - River basin district sub-units
 - Surface water bodies
 - Groundwater bodies
 - Monitoring sites
2. The data sets include information reported **until 2013** to the European Environment Agency under the following EIONET reporting obligations:
 - River quality (EWN-1): <http://rod.eionet.europa.eu/obligations/28>
 - Lake quality (EWN-2): <http://rod.eionet.europa.eu/obligations/29>
 - Groundwater quality (EWN-3): <http://rod.eionet.europa.eu/obligations/30>
 - State & Quantity of Water Resources (EWN-4): <http://rod.eionet.europa.eu/obligations/184>
 - WISE SoE - Emissions (WISE-1): <http://rod.eionet.europa.eu/obligations/632>
3. The structure of the *shapefiles* follows the model defined for spatial data delivered under the [WISE-5](#) reporting obligation. Detailed information about the structure and content of the spatial data is available in [CDR help](#) and specifically in the [WISE GIS Guidance](#).
4. For EU Member States, the EIONET data was consolidated with the data reported under the [WFD2010](#) reporting obligation (which is also available in the restricted area).
5. For 27 EU Member States and Norway that reported **until 2018-08-31**, the EIONET data was consolidated with the data reported under [WFD2016](#) (which is also available in the restricted area).
6. The EIONET spatial data also contains the information delivered under WISE-5 by Belgium, Croatia, Cyprus, Denmark, Iceland, Latvia, Norway, and Switzerland (**technically accepted envelopes only**).
7. The geometry of all spatial objects is published in WGS 84 (urn:ogc:def:crs:EPSG::4326). The geometry of the objects was not edited or corrected: topological and positional errors may exist.
8. Due to incomplete information, the *shapefiles* may contain:
 - empty geometries
 - 'NotApplicable' or 'Unknown' values in alphanumeric attributes
 - -9999 in numeric attributes
 - '9999-12-31' in attributes related to dates.
9. The *shapefiles* also contain attributes that provide ancillary information (see Table 1), but should be removed if the file is used to prepare a [WISE-5](#) delivery.
10. Additional information is available in the [WISE restricted distribution area](#), namely an extract the WFD2010 and WFD2016 data and the country boundaries.

How to use the pre-filled data sets to prepare a WISE-5 delivery

About the shapefiles

1. The shapefiles have the structure required by the WISE-5 reporting.
2. After you update the information in each shapefile, use the conversion tool in the http://cdr.eionet.europa.eu/help/WISE_SoE/wise5 page to create a GML file that can be uploaded to the Reportnet envelope. Remember to remove the ancillary attributes (Table 1) before converting the shapefiles to GML. (Empty shapefile templates can also be found in the help page).

Figure 2. Conversion tools in the WISE-5 help page.

Conversion tools from Shapefile to GML

The following tools should be used to convert each shapefile into a GML file that can be uploaded to the CDR envelope.
Note that each shapefile must be prepared according to a valid shapefile template (see above)

- [Shape2GML: Conversion tool for the RiverBasinDistrict shapefile](#)
- [Shape2GML: Conversion tool for the SubUnit shapefile](#)
- [Shape2GML: Conversion tool for the SurfaceWaterBody shapefile](#)
- [Shape2GML: Conversion tool for the SurfaceWaterBodyLine shapefile](#)
- [Shape2GML: Conversion tool for the GroundWaterBody shapefile](#)
- [Shape2GML: Conversion tool for the MonitoringSite shapefile](#)

Table 1. Additional fields present in the shapefiles: cYear, country, lat, lon, statusCode, statusDate, remarks and qcCheck.

Field name	Description
cYear	Integer field containing the value 2013 for the objects that have never been reported in WISE-5
country	Two-letter ISO code of the country (ISO 3166 alpha-2), except for Greece and the United Kingdom, for which the abbreviations EL and UK are used.
lat	Latitude, in decimal degrees, of an arbitrary point located within the geometry of the object (if available)
lon	Longitude, in decimal degrees, of an arbitrary point located within the geometry of the object (if available)
statusCode	Status code of the thematic identifier in the WISE register (refer to Status for further information).
statusDate	Date of reference for the status code (typically the date when the data was extracted for publication).
remarks	Additional information about the status code of the superseding object, if any.
qcCheck	Additional information about checks performed in the data.

About the identifiers

1. The EEA uses the **thematicId** to identify each object uniquely across Europe and within each identifier scheme ('eionetMonitoringSiteCode', 'eionetSurfaceWaterBodyCode', 'eionetGroundWaterBodyCode', 'eionetSubUnitCode', 'eionetRBDCode'). Read the [WISE GIS Guidance](#) for further information.
2. The identifier of objects (**thematicId**) must follow the required syntax:
 - Start with the ISO 3166-1 alpha-2 country code, except for Greece ('EL') and the United Kingdom ('UK');
 - Be followed by the national code, with a maximum of 40 characters;
 - Use only uppercase letters [A to Z] and digits [0 to 9].
 - The underscore character ('_') or the hyphen character ('-') may be used as separators within the code (but not to separate the country code from the national code, and not in the end of the code).
3. The national code that was used when reporting the object is stored in the **localId** column. The EEA does not use the national codes, because they are not unique. You may use the **localId** value to cross-reference the WISE-5 record with information residing in the national databases. There are no syntax requirements for the national code: use whatever you are using in the national systems.

Objects with status = 'retired'

1. Review all objects with status = 'retired'.
2. These objects are not used in EEA products, because they have no associated time series.
3. If you are not going to report time series associated with that object, you can simply delete that record (there is no need to report it back to EEA).
4. If you plan to deliver time series associated with that object (under WISE-1, WISE-3 or WISE-4), then it must be included in your WISE-5 delivery:
 - Fill in the missing information
 - Set the value to wEvolution = 'noChange' (and refer to the next section).

Important note:

When reporting time series under WISE-1, WISE-3 or WISE-4, the EU-28 countries and Norway should use WFD monitoring sites, water bodies, etc. The WFD objects are reported under the WFD Spatial reporting obligation, and it is not necessary to report them once again in WISE-5. Use EIONET objects only if strictly necessary (e.g. new monitoring sites recently established for Watch list substances or multiple reservoirs that are part of the same WFD waterbody).

Objects with status = 'superseded'

1. Review all objects with status = 'superseded'.
2. For each of these objects, a replacement identifier is proposed in the **successold** attribute. The successor can be:
 - another EIONET object reported at a later date (succeldSch LIKE 'eionet%')
 - a WFD object reported under the Water Framework Directive (succeldSch LIKE 'eu%')
3. If the replacement is correct, you can simply delete that record (there is no need to report it again).
4. If the replacement is incorrect, then:
 - If a successor exists, please provide its identifier and identifier scheme (it may be another EIONET object or a WFD object).
 - If a successor does not exist, simply delete the value in the **successold** attribute and in the **succeldSch** attribute.
5. If the replacement was incorrect, you'll need to check the value in the **wEvolution** attribute:
 - Keep the value wEvolution = 'deletion' if that object no longer exists (e.g. a monitoring site that was retired).
 - Set the value to wEvolution = 'noChange' if that object still exists (and refer to the next section).

All other objects

1. If an object has been replaced, please provide its successors (it may be another EIONET object or a WFD object). Use the **successold** attribute and in the the **succeldSch** attribute.
Set wEvolution = 'deletion'.
2. You may use the process in point 1 to correct any errors – for example if there are any wrong identifiers in the shapefiles, simply provide their correct identifier as a successor.
3. If the object has been deleted (e.g. a monitoring site that was retired) and was not replaced, then set wEvolution = 'deletion'. Remember to provide any missing value, especially the geometry (see point 3 and 4 below).
4. Check the missing values, especially the geometry: please complete the information as much as possible prior to delivering the data.
5. If there are new objects to be reported, simply add the necessary records and fill the values according to the instructions in the [WISE GIS Guidance](#).

Special cases

1. The data set may contain a *shapefile* named `GroundWaterBodyPoint.shp` – it contains information about groundwater bodies for which only the location of a point was known.

Groundwater bodies must be reported as polygons: use the `GroundWaterBody.shp` for that effect. You cannot report point or line geometries for groundwater bodies.

Note:

If a spatial delineation of the groundwater body is not available, you may use a convex hull based on the location of national sites monitoring the water body. Most GIS software will allow the creation of convex hull geometries; see for example [ArcGIS](#) or [QGIS](#). (EU-28 countries and Norway should always use WFD groundwater bodies, which have already been reported.).

2. The data set may contain a *shapefile* named `SurfaceWaterBodyPoint.shp` – it contains information about surface water bodies for which only the location of a point was known.

Surface water bodies must be reported as lines (use the `SurfaceWaterBodyLine` shapefile) or as polygons (use the `SurfaceWaterBody` shapefile).

Note:

If the geometry of surface water bodies is not available from a national data source, consider using a publicly available dataset such as [Ecrins](#) or [EU-Hydro](#). Strictly speaking, only the surface water bodies with associated time series (and their monitoring sites) need to be reported. (EU-28 countries and Norway should always use WFD surface water bodies, which have already been reported).

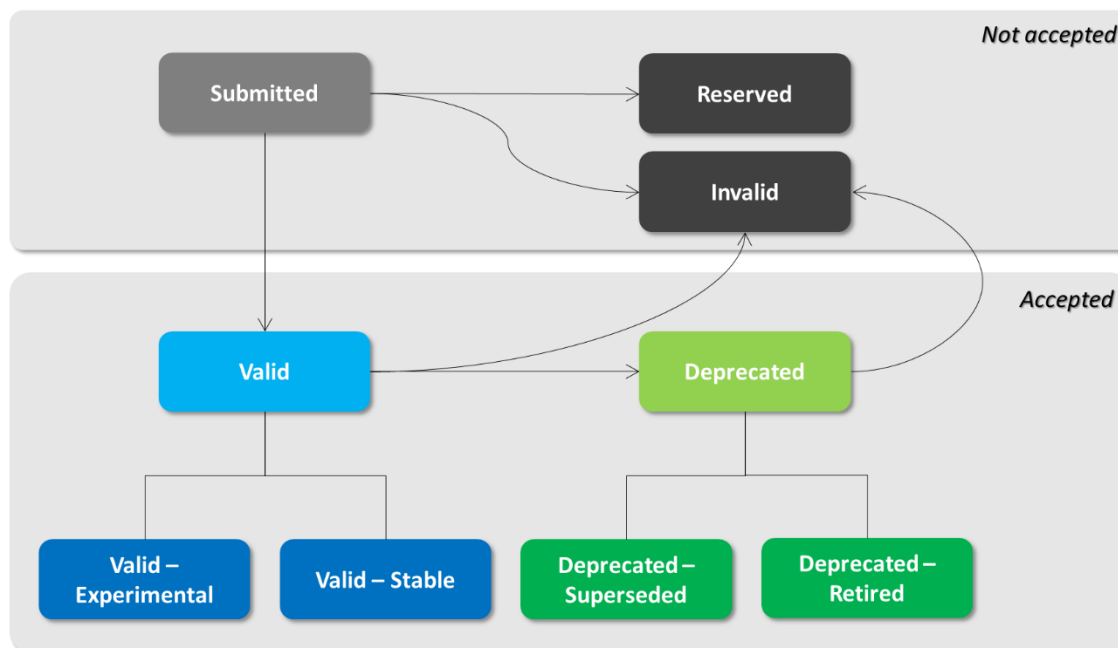
3. If the delineation of the main river basin is not available, you may report the entire country as a single River Basin District and its single SubUnit. This may apply to the following cases:

Country	Identifier	IdentifierScheme	Observations
AL	AL100	eionetRBDCode	Report the geometry.
	AL200	eionetRBDCode	Report the geometry.
	AL300	eionetRBDCode	Report the geometry.
	AL400	eionetRBDCode	Report the geometry.
	AL500	eionetRBDCode	Report the geometry.
	AL600	eionetRBDCode	Report the geometry.
	AL800	eionetRBDCode	Report the geometry.
BA			No information available. If necessary report the country geometry as a single RBD (e.g. BA1)
ME			No information available. If necessary report the country geometry as a single RBD (e.g. ME1)
MK			No information available. If necessary report the country geometry as a single RBD (e.g. MK1)
RS	RS1	eionetRBDCode	Report the geometry.
TR			No information available. If necessary report the country geometry as a single RBD (e.g. TR1)
XK			No information available. If necessary report the country geometry as a single RBD (e.g. XK1)

Annex 1. About the status value

The section provides an overview of the different statuses and of their use in the context of the identifiers register and of the data quality control. The different possible statuses are defined in <http://dd.eionet.europa.eu/vocabulary/datadictionary/status>. See also Figure 3.

Figure 3. Status.



Not accepted is an abstract status that includes:

- **Submitted** - Used for identifiers that have not been evaluated (e.g. passed quality control). Can be seen as an internal initial state.
- **Reserved** - Used for reserved identifiers that cannot be used for real spatial units.
- **Invalid** - Used for identifiers that cannot not be used in the current reporting.

The invalid state is applied to “wrong” identifiers – e.g. identifiers that were used in the past, but that do not follow the current syntax requirements for identifiers, or identifiers that the Data Provider flagged as being wrong. Invalid spatial identifiers can be replaced by other identifiers.

Not accepted identifiers cannot be used in the WISE-5 reporting. Using one of these identifiers in a data delivery will trigger a BLOCKER, i.e. the data cannot be delivered.

Accepted is an abstract state that includes valid and deprecated identifiers.

Valid identifiers include 'valid – **experimental**' and 'valid – **stable**' identifiers.

Deprecated identifiers include 'deprecated – **superseded**' and 'deprecated – **retired**' identifiers.

Depending on the requirements of each specific data flow or spatial data set, the data delivery may include any accepted identifier, or only valid identifiers, or only valid – stable identifiers, etc...

The default approach is that any accepted identifier can be used.

Valid – stable identifiers are syntactically correct, no issue has been detected in the spatial object previously reported by the Data Provider, and refer to an active valid real world entity (as far as the Data Requester knows).

Valid – experimental identifiers are syntactically correct identifiers that are proposed by the Data Requester (i.e. the EEA or DG ENV) to replace invalid identifiers.

These identifiers were never reported by countries. They are proposed as a replacement for an invalid identifier that was reported by in the past (e.g. an identifier that had special characters). If countries accept the change and use it in the reporting, then the identifier state will be changed to '**valid – stable**', '**deprecated – superseded**' or '**deprecated – retired**' (depending on what is reported, see definitions below).

Valid identifiers are syntactically correct identifiers reported by the Data Provider. However issues have been detected with the spatial object itself (e.g. the name is missing and/or the geometry needs to be checked), so the identifier cannot be marked as 'valid – stable'. Valid identifiers may replace 'deprecated' identifiers or 'invalid' identifiers (the same applies to 'valid – stable' or valid – experimental identifiers).

Deprecated – superseded identifiers are syntactically correct identifiers that have been replaced by another identifier (as reported by Data Providers in the normal reporting process, using the life-cycle information attributes).

Deprecated – retired identifiers are syntactically correct identifiers that are no longer used and have not been replaced (e.g. a monitoring site that is no longer operational and has not been replaced by a different one).

Deprecated identifiers are syntactically correct identifiers that were valid in the past. This status is only used when there is not enough information to know if the identifier has been superseded or retired.

Annex 2. Quick reference card

INSPIRE theme	INSPIRE element	#	WISE GML data element	RiverBasinDistrict	SubUnit	SurfaceWaterBody	SurfaceWaterBodyLine	GroundWaterBody	MonitoringSite	Shapefile field name
AM EF	geometry	1	geometry	1	1	1	1	1	1	shape
AM EF	inspireId	2	inspireIdLocalId	1	1	1	1	1	1	localId
		3	inspireIdNamespace	1	1	1	1	1	1	namespace
		4	inspireIdVersionId	1	1	1	1	1	1	versionId
AM	thematicId	5	thematicIdIdentifier	1	1	1	1	1	1	thematicId
		6	thematicIdIdentifierScheme	1	1	1	1	1	1	thematicIdSch
AM EF	beginLifespanVersion	9	beginLifespanVersion	1	1	1	1	1	1	beginLife
AM EF	endLifespanVersion	10	endLifespanVersion	1	1	1	1	1	1	endLife
(concept from SU)	predecessors	11	predecessorsIdentifier	1	1	1	1	1	1	predecessId
		12	predecessorsIdentifierScheme	1	1	1	1	1	1	predecessSch
(concept from SU)	successors	13	successorsIdentifier	1	1	1	1	1	1	successId
		14	successorsIdentifierScheme	1	1	1	1	1	1	successSch
EF	supersedes	15	supersedesIdentifier						1	predecessId
		16	supersedesIdentifierScheme						1	predecessSch
EF	supersededBy	17	supersededByIdentifier						1	successId
		18	supersededByIdentifierScheme						1	successSch
(concept from SU)	evolutions	19	wiseEvolutionType	1	1	1	1	1	1	wEvolution
AM EF	name	20	nameTextInternational	1	1	1	1	1	1	nameTxtInt
		21	nameText	1	1	1	1	1	1	nameText
		22	nameLanguage	1	1	1	1	1	1	nameTxtLan
AM	designationPeriod	25	designationPeriodBegin	1	1	1	1	1	1	desigBegin
		26	designationPeriodEnd	1	1	1	1	1	1	desigEnd
EF	operationalActivity	27	operationalActivityPeriodBegin						1	opActBegin
		28	operationalActivityPeriodEnd						1	opActEnd
AM	zoneType	29	zoneType	1	1	1	1	1	1	zoneType
AM	specialisedZoneType	30	specialisedZoneType		1	1	1	1	1	spZoneType
AM	relatedZone	34	relatedZoneIdentifier		1	1	1	1	1	rZonId
		35	relatedZoneIdentifierScheme		1	1	1	1	1	rZonIdSch
AM	relatedZone	36	relatedZoneTransboundaryIdentifier			1	1	1	1	rTrnsId
		37	relatedZoneTransboundaryIdentifierScheme			1	1	1	1	rTrnsIdSch
EF	featureOfInterest	38	featureOfInterestIdentifier						1	foild
		39	featureOfInterestIdentifierScheme						1	foildSch
EF	relatedTo	40	relatedToIdentifier						1	rSitId
		41	relatedToIdentifierScheme						1	rSitIdSch
EF	mediaMonitored	42	mediaMonitoredBiota						1	mediaBiota
		43	mediaMonitoredWater						1	mediaWater
		44	mediaMonitoredSediment						1	mediaSedim
EF	purpose	45	purpose						1	purpose
		46	catchmentArea						1	catchArea
		47	maximumDepth						1	maxDepth
		48	confidentialityStatus						1	confStatus
		49	sizeValue			1	1	1		sizeValue
		50	sizeUom			1	1	1		sizeUoM
		51	meanDepth			1	1			meanDepth
		52	horizons					1		horizons
		55	link	1	1	1	1	1	1	link