

An aerial photograph of a residential area with a semi-transparent grey box overlaid on the left side containing text. The background shows houses, trees, and a road. A portion of the image is overlaid with a blue and yellow grid pattern, likely representing INSPIRE data.

The Core Reference Dataset: a simplified view on INSPIRE

Sonja Werhahn, BKG, 28.11.2018
Workshop “Use of INSPIRE data: past experiences and scenarios for the future”

Agenda

- What is the „Core Reference Dataset“?
- Prototype
- First lessons learned
- What comes next?

Core Reference Dataset (CRD) – the initial idea

Reference Data set at Master Level of Detail for Europe
make use of INSPIRE- / ELS-Data provided by NMCAs

but:

- Easy to use
- Limited content, only few themes, only basic attribute information
- Simplified data model
- Harmonised at international boundaries
- Centralised data production (at least at the moment)

CRD content (for first version)

Themes

- **Hydrography:** Watercourse, StandingWater, LandWaterBoundary
- **Transport Network:** Road Network, Railway Network including RailwayStationNode

Scale, positional accuracy

- **Multiscale approach:** data from 1:10.000 to 1:50.000 will be accepted
- **Positional accuracy:** about 5-15m (or better)

Coverage

- Priority 1: EU28
- Priority 2: other EEA 39
- Priority 3: other European countries

Data model: Based on INSPIRE but flattend data model (I)

1.) INSPIRE properties defined as data type

For CRD:

- Data types are resolved into a list of attributes
 - geographicalNames
 - width
- Data types are concatenated into a single attribute delimited by hash (#)
 - inspireId (namespace#localId)
 - hydroid (namespace#localId#ClassificationScheme)

2.) INSPIRE transport networks consist of Links, LinkSequences and LinkSets as linear feature types

For CRD:

- CRD uses only Links
- Some Attributes of LinkSets are transferred to the Links
 - railwayLineCode from RailwayLine to RailwayLink

Data model: Based on INSPIRE but flattend data model (II)

3.) INSPIRE transport properties are own feature types which are associated to the transport links by linear referencing

For CRD:

- No linear referencing
- The transport properties are assigned as attributes to the transport links

4.) Some INSPIRE attributes have multiplicity greater than 1 (e.g. [0.*] or [1.*]).

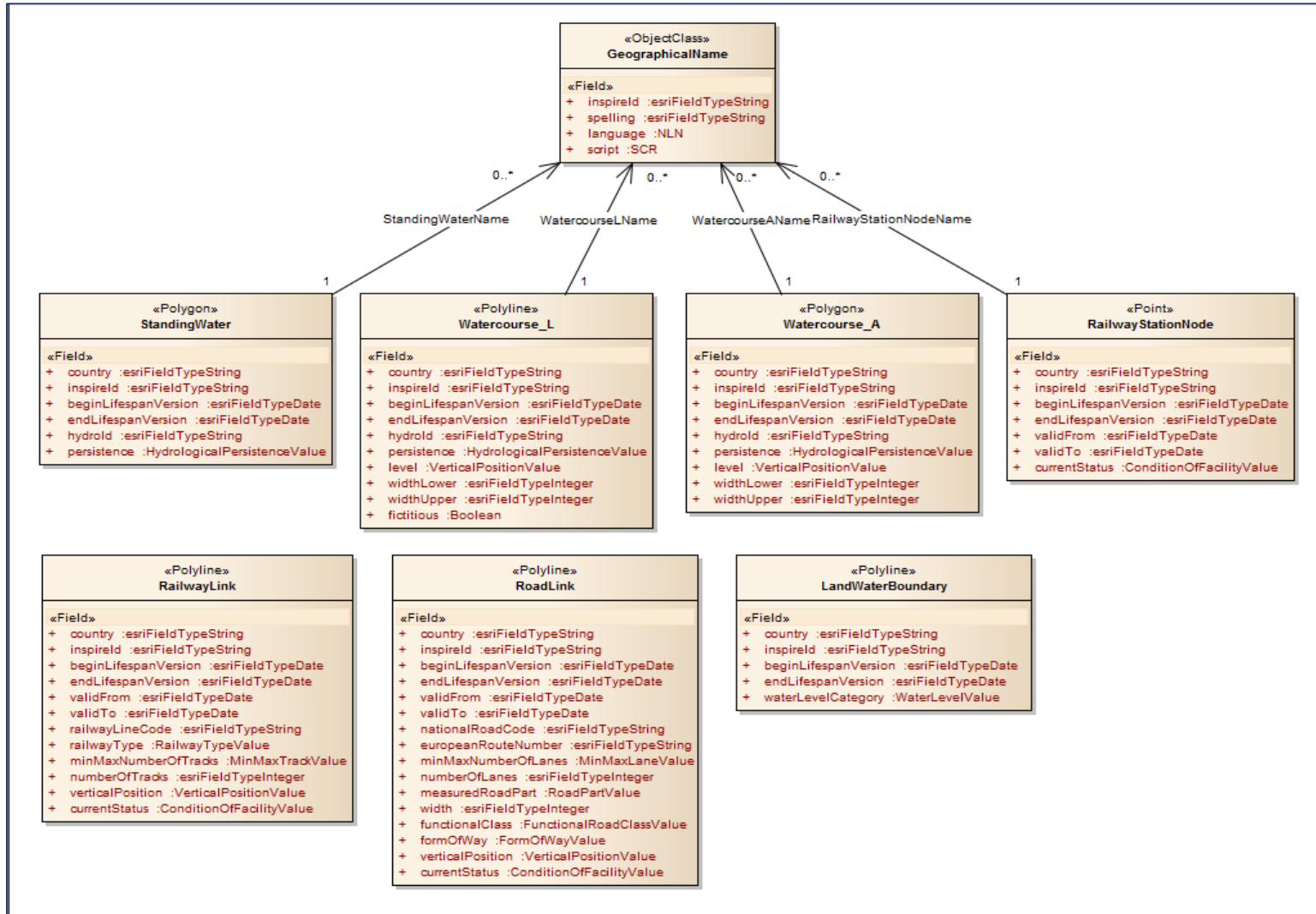
For CRD:

- all attributes have multiplicity [0...1] except GeographicalName

5.) Features may be of different geometric types (point, curve, surface)

For CRD:

- the feature type is split (e.g. Watercourse_L and Watercourse_A) or only one option is kept (only surface for StandingWater)



Centralised production:

At the moment done by BKG

First idea: collect data from INSPIRE / ELS-WFS-Services → difficult

Next idea: NMCAs deliver INSPIRE data to BKG (download zip, ftp, ...)

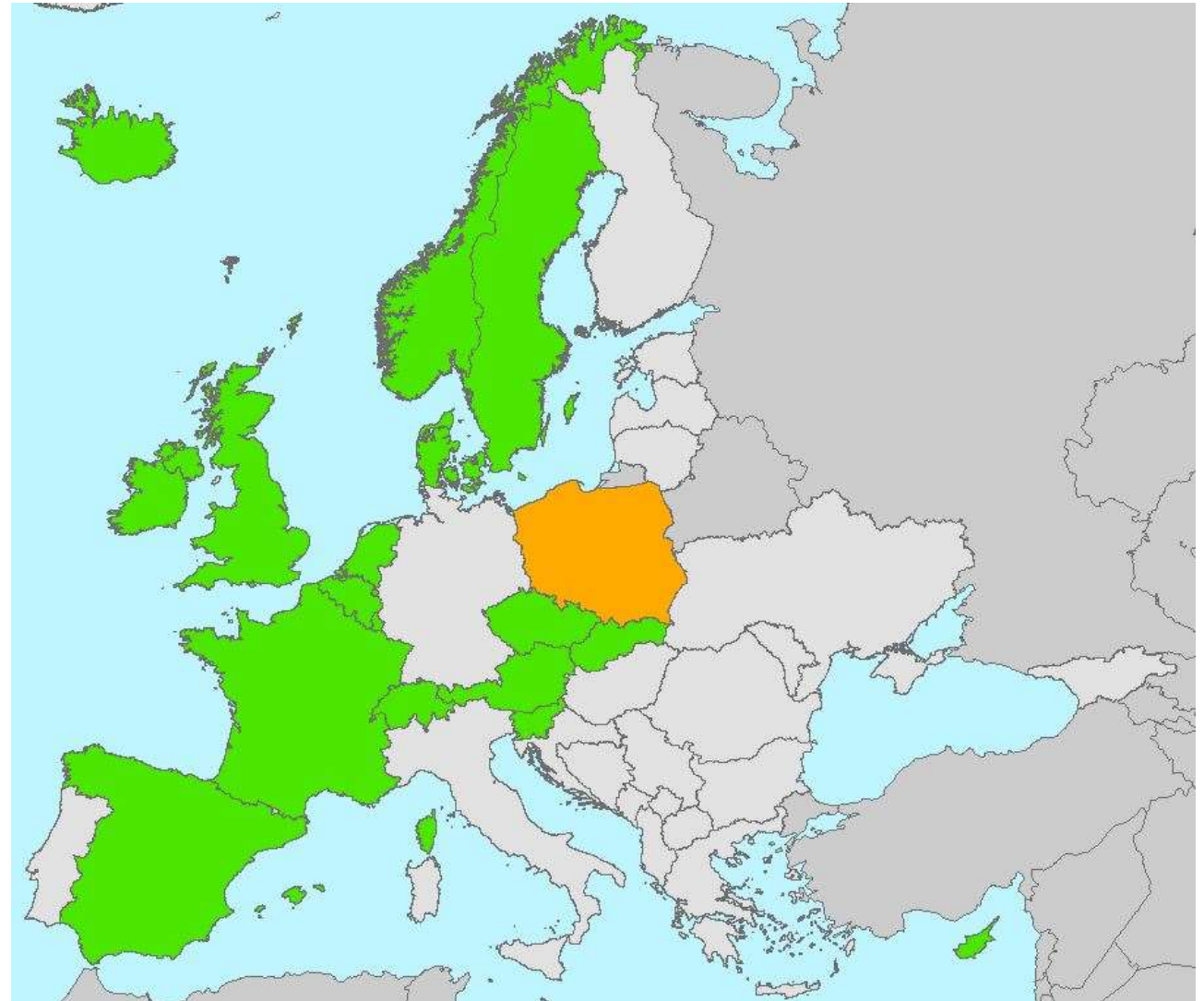
Additional option: NMCAs transform national data to CRD data model

- Data delivery by NMCAs (either INSPIRE or CRD) to BKG
- Quality checks → only simple checks, CRD relies on the quality checks done by NMCAs for the original data
- Edge matching → use edge matching tool by ERM, semi-automatic, International boundary will not be provided in CRD, only the connecting features
- Final assembly of CRD → documentation, metadata

Contributions to date

Status of contributions:

19 countries have delivered data
(green: delivered whole country /
orange: test data)



Statistics

Data delivery: Delivered INSPIRE / ELS data: 8

Delivered data in CRD data model: 7

Something in between: 4

Themes: some countries did not deliver Watercourse_A

one country could not deliver RailwayLink and RailwayStationNode

Attributes: Many Attributes empty

Statistics

Real attribute values

StandingWater

	Features		beginLifespan		endLifespan		HydroID	Persistence	Name
	total	Inspired	Version	Version					
AT	33604	100	100	0	0	100	4		
CZ	24029	100	100	0	0	100	48		
SK	5356	100	100	0	0	100	11		
BE	79143	100	100	0	0	100	0		
CY	201	0	0	0	0	98	0		
ES	139798	100	100	0	100	98	100		
FR	888616	100	0	0	0	100	1		
IE	265088	0	0	0	0	0	19		
IS	30331	0	100	0	0	0	0		
ND	706	100	0	0	100	100	71		

Watercourse_L

	Features		beginLifespan		endLifespan		HydroID	Persistence	Name	Level	WidthUpper	WidthLower	Fictitious
	total	Inspired	Version	Version									
AT	334326	100	100	0	0	100	22	100	98	100	100		
CZ	206996	100	100	0	0	100	38	0	0	0	100		
SK	92442	100	100	0	0	100	43	0	0	0	100		
BE	435751	100	100	0	0	100	0	0	100	100	100		
CY	1034	100	0	0	100	100	0	0	0	0	100		
ES	605029	100	100	0	100	82	100	0	94	94	100		
FR	2958434	100	0	0	0	100	29	0	0	0	100		
IE	251671	0	0	0	0	0	18	0	0	0	0		
IS	171030	0	100	0	0	0	0	0	0	0	0		
ND	15304	100	0	0	100	100	32	0	100	100	100		

Watercourse_A

	Features		beginLifespan		endLifespan		HydroID	Persistence	Name	Level	WidthUpper	WidthLower
	total	Inspired	Version	Version								
AT	461	100	100	0	0	100	75	100	0	0		
CZ	1429	100	100	0	0	100	84	0	0	0		
SK	744	100	100	0	0	100	0	0	0	0		
BE	8739	100	100	0	0	100	0	0	0	0		
CY	19	0	0	0	100	100	0	0	0	0		
ES	8676	100	100	0	100	59	100	0	100	100		
FR	124528	100	0	0	0	100	0	0	0	0		
IE	0	0	0	0	0	0	0	0	0	0		
IS	171030	0	100	0	0	0	0	0	0	0		
ND	0	0	0	0	0	0	0	0	0	0		

Statistics

Real attribute values



RailwayStation

	Features		beginLifespan		endLifespan		Current	
	total	InspireId	Version	Version	ValidFrom	ValidTo	Status	Name
AT	1.563	100	100	0	0	0	100	100
CZ	2.753	100	100	0	0	0	100	100
SK	412	100	100	0	0	0	100	100
BE	1.509	100	100	0	0	0	100	0
CY	-	0	0	0	0	0	0	0
ES	2.853	100	100	0	0	0	100	100
FR	4.082	100	0	0	0	0	100	5
IE	188	0	0	0	0	0	0	0
IS	-	0	0	0	0	0	0	0
ND	53	100	0	0	0	0	100	98

RailwayLink

	Features		beginLifespan		endLifespan		RailwayLine		MinMax		Current	
	total	InspireId	Version	Version	ValidFrom	ValidTo	Code	Type	NumberOf Tracks	NumberOf Tracks	Vertical Position	Status
AT	19.884	100	100	0	0	0	0	100	100	100	100	100
CZ	6.437	100	100	0	0	0	0	100	0	0	100	100
SK	38.351	100	100	0	0	0	0	100	0	100	100	96
BE	35.980	100	100	0	0	0	0	100	100	100	100	100
CY	-	0	0	0	0	0	0	0	0	0	0	0
ES	48.715	100	100	0	0	0	100	100	83	100	100	100
FR	103.211	100	0	0	0	0	0	100	0	100	100	100
IE	3.166	100	0	0	0	0	100	0	0	0	0	0
IS	-	0	0	0	0	0	0	0	0	0	0	0
ND	90	100	0	0	0	0	100	0	0	0	100	100

RoadLink

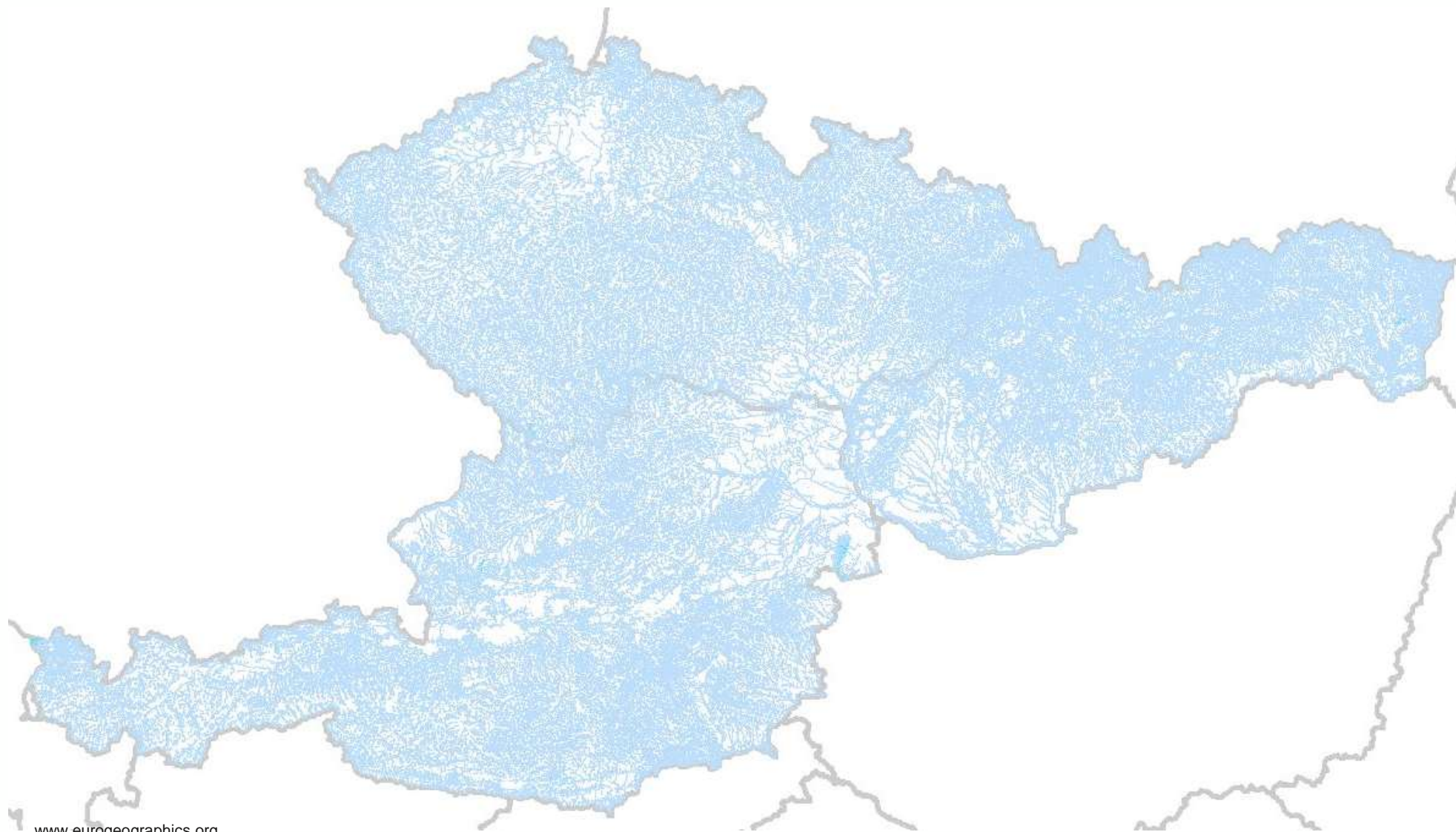
	Features		beginLifespan		endLifespan		National		European		MinMax		Functional		FormOf		Vertical		Current	
	total	InspireId	Version	Version	ValidFrom	ValidTo	RoadCode	Route Number	NumberOf Lanes	NumberOf Lanes	Measured RoadPart	Width	Class	Way	Position	Status				
AT	989.900	100	100	0	0	0	6	0	100	100	0	0	100	100	100	100				
CZ	454.252	100	100	0	0	0	28	0	0	0	0	0	100	0	100	100				
SK	811.864	100	100	0	0	0	13	0	0	0	100	53	100	100	100	98				
BE	1.440.635	100	100	0	0	0	11	1	86	86	86	86	100	100	100	86				
CY	93.582	0	0	0	0	0	4	0	0	100	98	0	97	100	99	100				
ES	9.381.753	100	100	0	0	0	47	1	0	30	0	0	100	100	100	100				
FR	18.472.876	100	0	0	0	0	15	0	0	54	100	54	89	100	100	100				
IE	313.455	0	0	0	0	0	31	0	0	0	0	0	100	100	0	100				
IS	58.043	100	100	0	0	0	100	0	0	0	0	0	0	0	0	0				
ND	27.038	100	0	0	0	0	34	0	0	0	0	0	100	100	100	100				

What are we doing at the moment?

- Create prototype with 3 countries → AT, CZ and SK
- Quality checking done
- Edge matching done
- First lessons learned

Prototype

Hydro



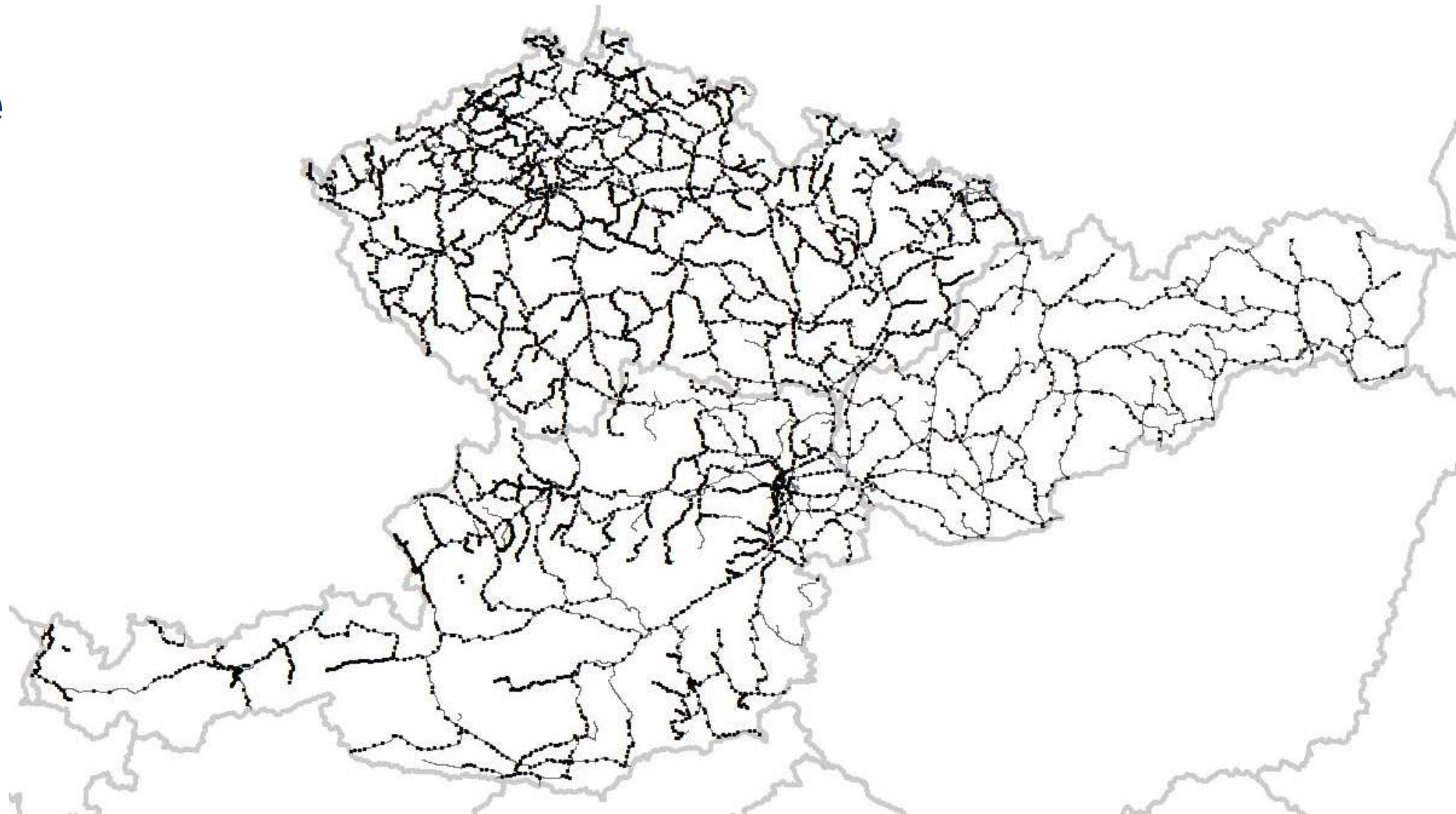
Prototype

Road



Prototype

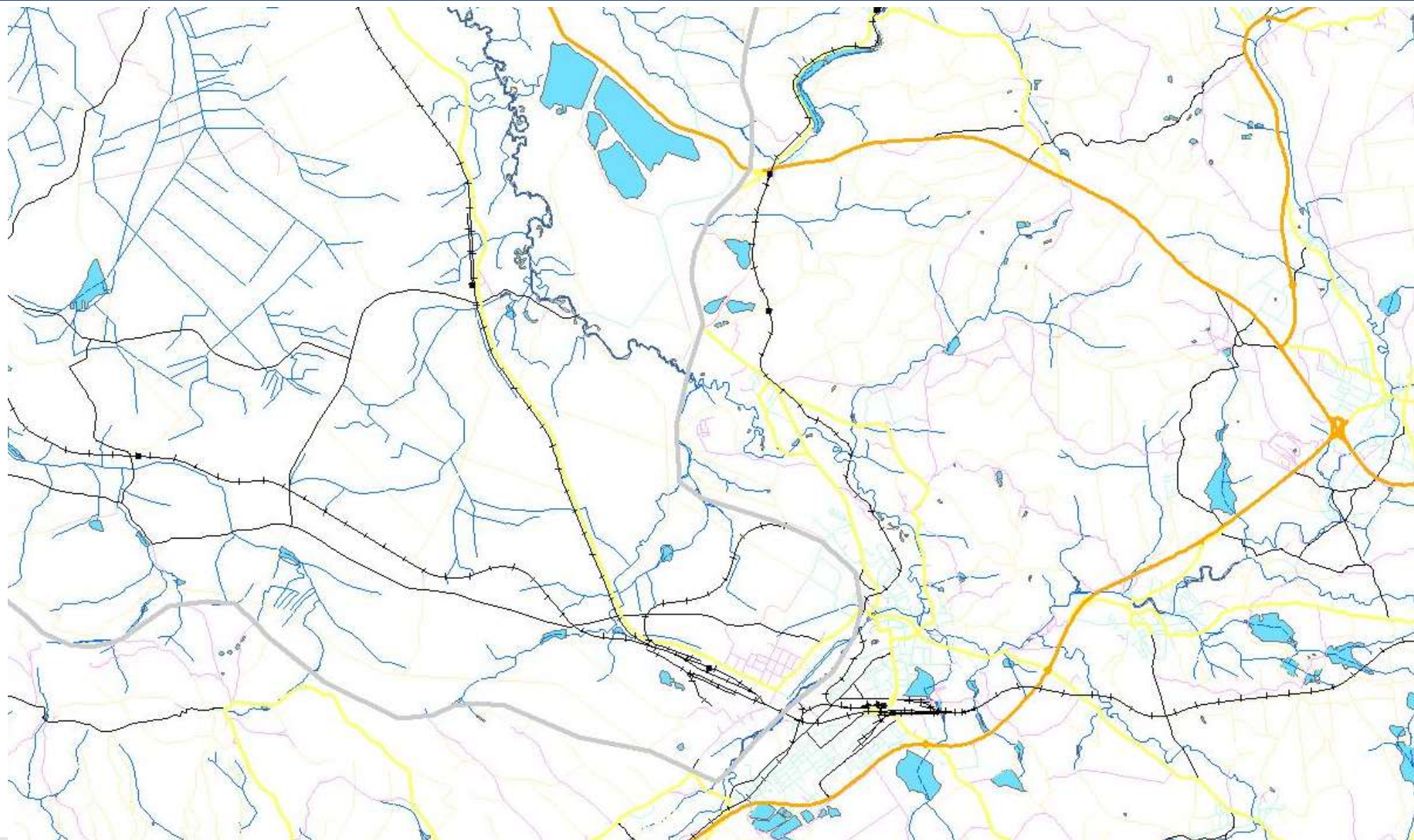
Railway



Prototype

50k

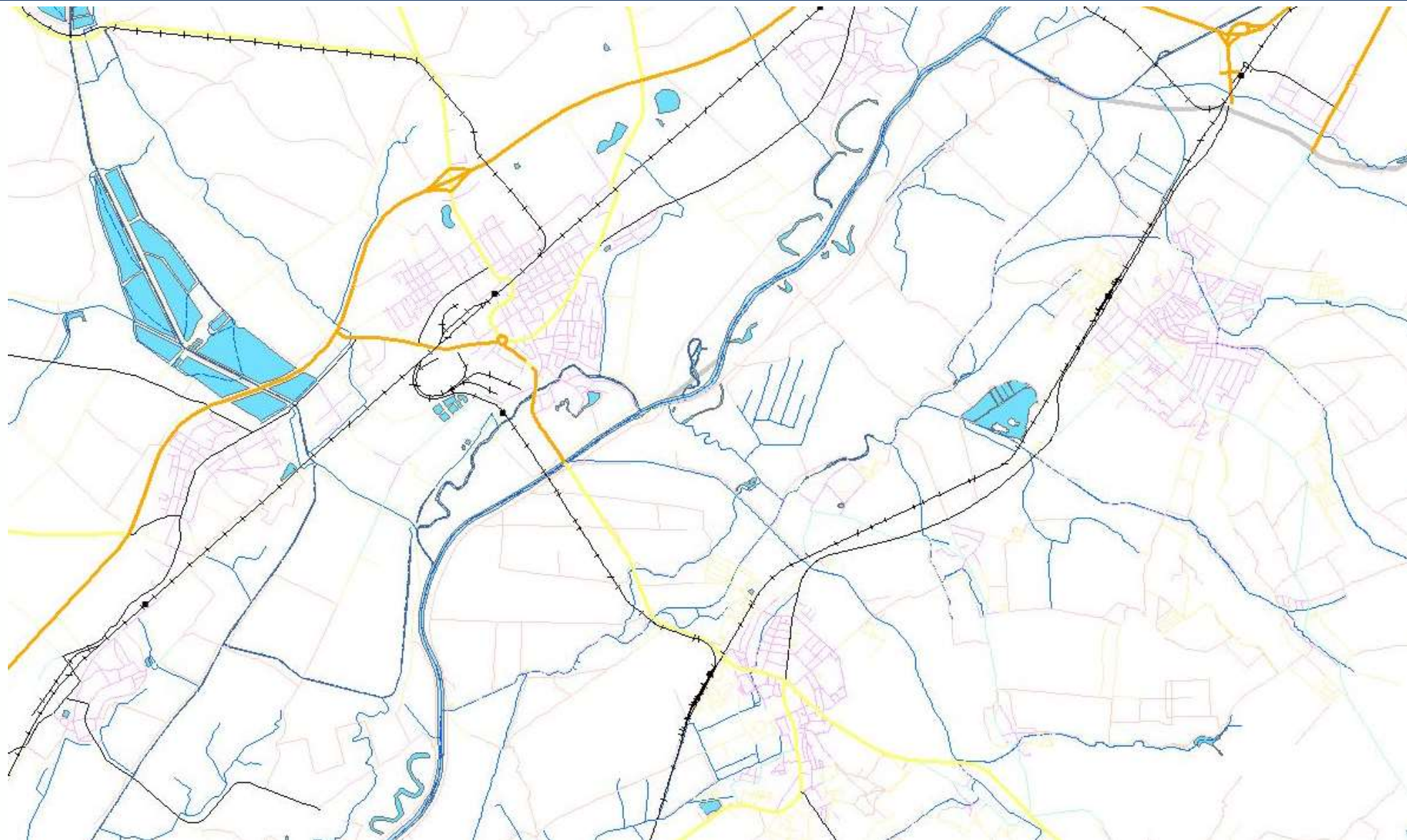
AT#CZ



Prototype

50k

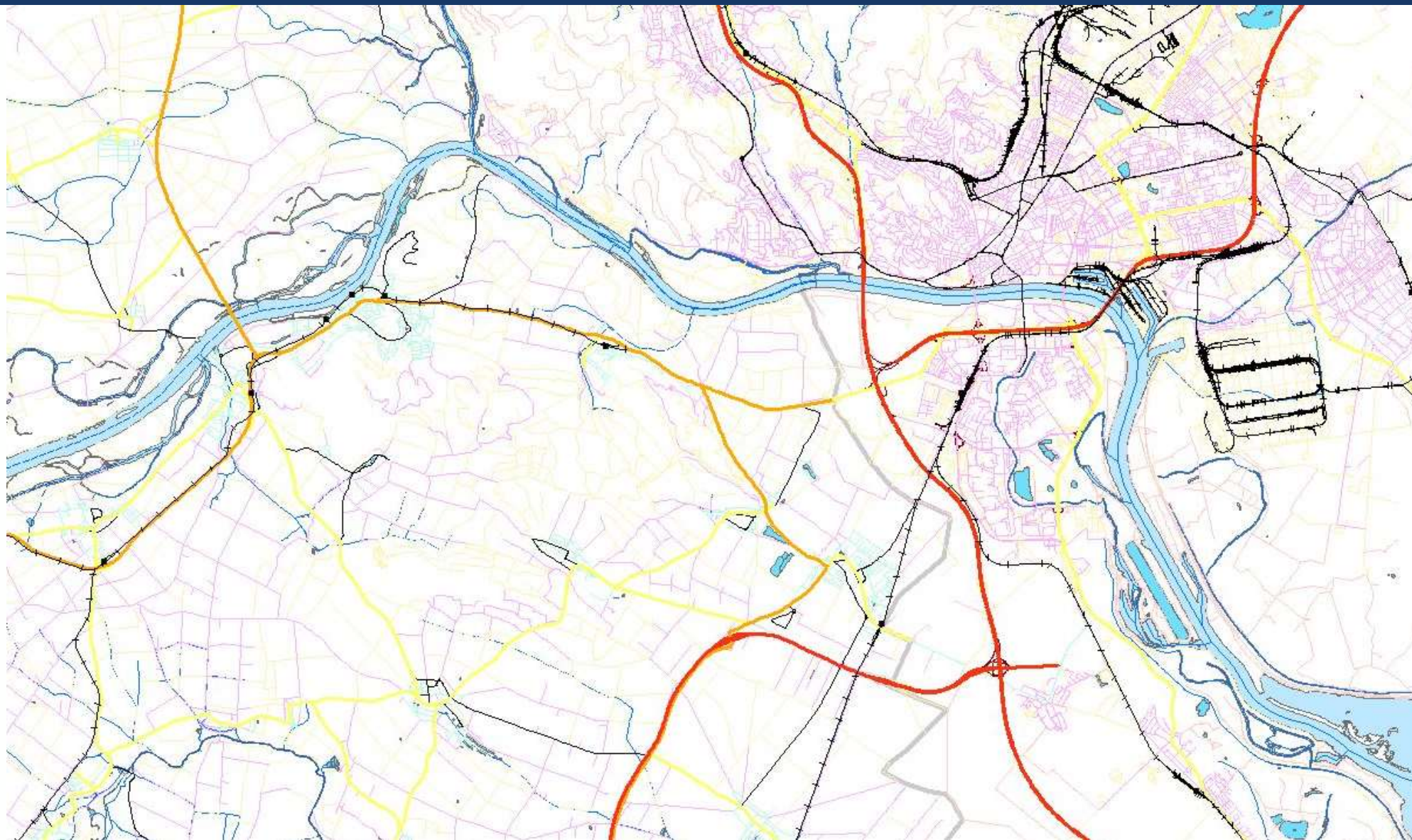
CZ#SK



Prototype

50k

AT#SK



First lessons learned

WFS services	<ul style="list-style-type: none">• Access difficult (because text only in national language)• Download of whole country not possible• Connections not stable → Ask NMCAs to deliver data directly to BKG or provide download possibility
Data	<ul style="list-style-type: none">• Not all information (attributes) available as INSPIRE data → some countries use additional data sources for CRD• Not all themes / geometry types are available (Watercourse as surface, railways)• Many attributes empty → almost no attribute was delivered by all countries
Data quality	<ul style="list-style-type: none">• Even simple quality checks show errors (short lines (<1m), simple geometry, no gap between adjoining surfaces) → report back found errors
Edge matching	<ul style="list-style-type: none">• Neighbouring countries use different boundary lines → shows importance of Eurogeographics International Boundary data set• Delivered data overlapping neighbouring country (surface watercourses) → ask NMCAs to deliver only data inside of boundary

Wishes for the future

Important for INSPIRE data when using more than one country:

- More content, not just “something”
- Agree on “core content” delivered by all countries
- Edge matched data
- (Internet pages in English)

→ easier to communicate if real use of INSPIRE data eg. as in CRD is apparent

What comes next?

- Prototype available by end of November 2018
- Final product ready by end of April 2019

Evaluation of production process / lessons learned

- From data delivery by NMCAAs
- From production process
- Feedback / requirements from (potential) users

Plans for the future

- Additional themes
- Additional coverage
- Regular updates of all themes

Thank you for your attention

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