



LIFE 15 IPE IT 013

The Data Sharing Portal

Stefano Cattani
Servizio Innovazione Digitale
Arpae Emilia-Romagna

prepAIR 1st Midterm Conference
Milano 11 July 2019

Action C1: “Implementing the data sharing infrastructure and the AQ model”

The objective of this action is to implement the infrastructure to produce and disseminate air quality information. This will include monitoring, assessment and forecast of pollutant concentrations in Po Valley and Slovenia; products will be addressed to prepAIR partners, stakeholders and citizens.

Coordinator: Arpae Emilia-Romagna

Area of implementation:

Emilia-Romagna, Piemonte, Lombardia, Veneto, Valle d'Aosta, Friuli Venezia Giulia, Trento and Slovenia

Participants:

Environmental Agencies of the regions involved

Action:

- **Project/implement the IT infrastructure to produce and disseminate air quality information (near realtime observed data). Products for PREPAIR partners, stakeholders and citizens.**
- **Sw for gathering data and building/managing snapshot database**
- **Air quality models for forecast and hindcast (Arpae Emilia-Romagna)**
- **Data fusion software for merging data from models and stations**



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The Data Sharing Portal (two layers)



Layer 1: (Open) Data Portal

News

Milano, 11 July 2019 Prepair 1st Midterm Conference
EVALUATING AND MONITORING

- A common emission dataset for the Po Basin Area (Elisabetta Angelino, Alessandro Marongiu, ARPA Lombardia)
- A web-based platform for monitoring Air Quality Plans (Francesco Tanzillo, ART-ER)
- What future for the air quality in the Po Basin? A scenario based perspective. (Michele Stortini, ARPAE Emilia-Romagna)
- Air Quality Scenarios in Slovenia (Rahela Zakbar, ARSO)
- The Data Sharing Portal (Stefano Cattani, ARPAE Emilia-Romagna)

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- Data fusion software for merging data from models and stations.

About PREPAIR DATA SHARING
CKAN API
CKAN Association
OPEN DATA

Powered by ckan
Language: English

Layer 2: Visualization Portal

PrepairAIR Stations data visualizer Daily model and observations 7 days models and observations

Stations data visualizer

Select the date range (max 30 days):
2019-07-01 - 2019-07-1

Note: data of the latest two days may not be complete

▼ Pollutants -
▼ Owners -

→ Show data

Click on a marker to show its boxplot for the selected parameters

Download data

Map showing the Po Basin area with various cities and regions labeled. Legend: Svizra, Graubunden/Grigioni/Grischun, Trentino Alto Adige/Südtirol, Friuli Venezia Giulia, Slovenia, Hrvatska, etc.

(Open) Data Portal

The Data Portal <https://prepair-data.datamb.eu> meets the requirements of standard EU Open Data Portal



Eight environmental agencies are hosted, each with an “organization” account and its own managed space. The endpoints of data sources are published by “organizations”. It’s avoided data replication.

The “organization Prepair” delivers some products:

- the AQ monitoring data collections
 - near real time snapshot database from monitoring networks
 - data from special stations network (Action A4/D6)
- the output of AQ models and meteorological data set

The Data resources (endpoints) can be reached by free search, or by a “level tree”

(Open) Data Portal - Home Page (level 0)

[Datasets](#)
[Organizations](#)
[Groups](#)
[About](#)

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Milano, 11 July 2019 Prepair 1st Midterm Conference

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About PREPAIR DATA SHARING

CKAN API

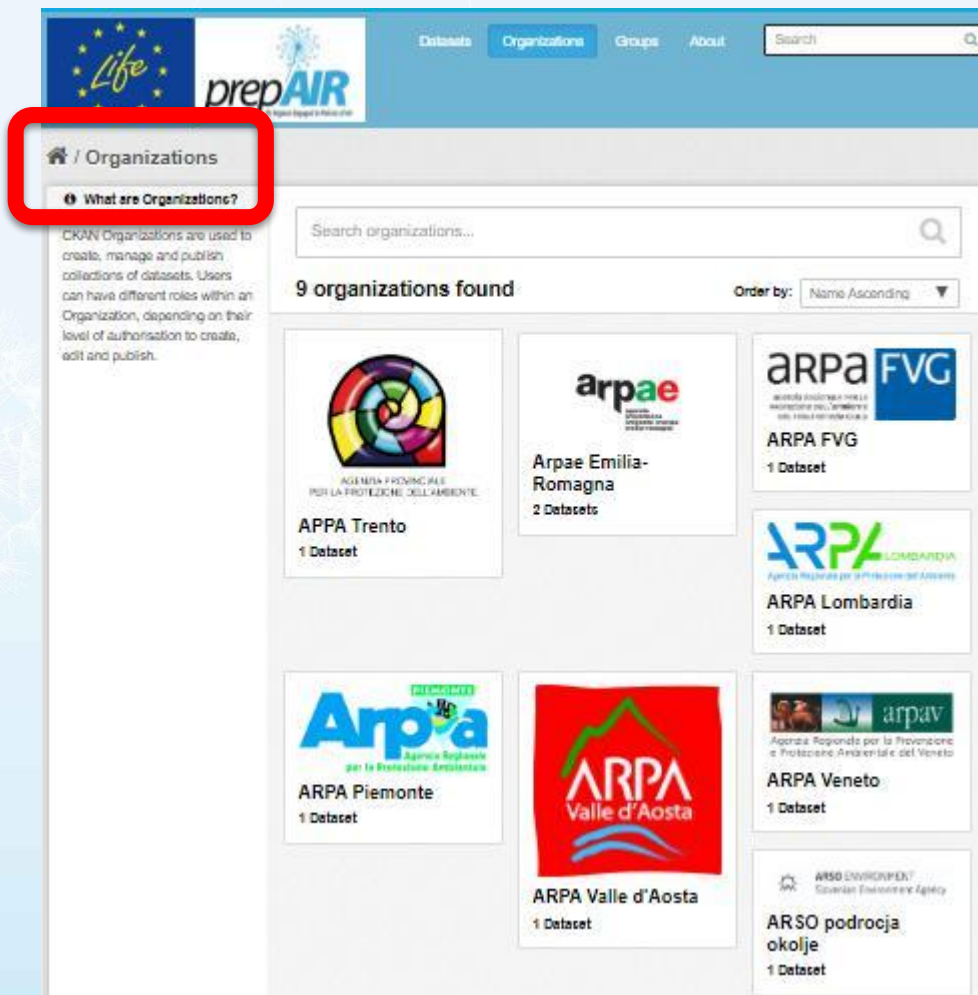
CKAN Association

[OPEN DATA](#)

Powered by  ckan

Language:

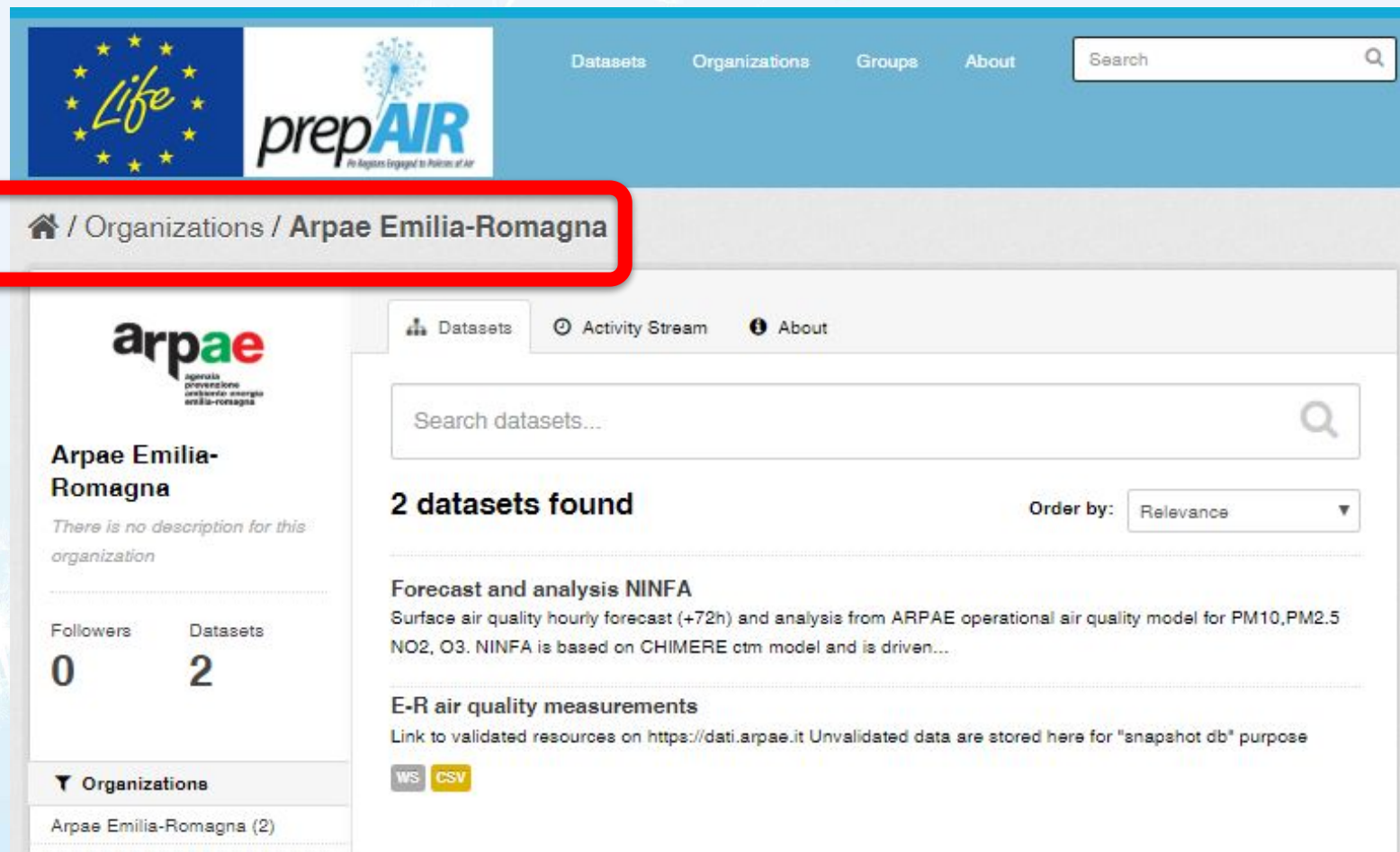
(Open) Data Portal - Organizations (level 1)



The screenshot shows the 'Organizations' page of the (Open) Data Portal. The page features a blue header with the 'Life' and 'prepAIR' logos, and navigation tabs for 'Datasets', 'Organizations', 'Groups', and 'About'. A search bar is located in the top right corner. The main content area is titled 'Organizations' and includes a sub-header 'What are Organizations?' which explains that CKAN Organizations are used to create, manage and publish collections of datasets. Below this, a search bar for organizations is present, followed by a list of 9 organizations found, ordered by Name Ascending. Each organization card displays its logo, name, and the number of datasets it has published.

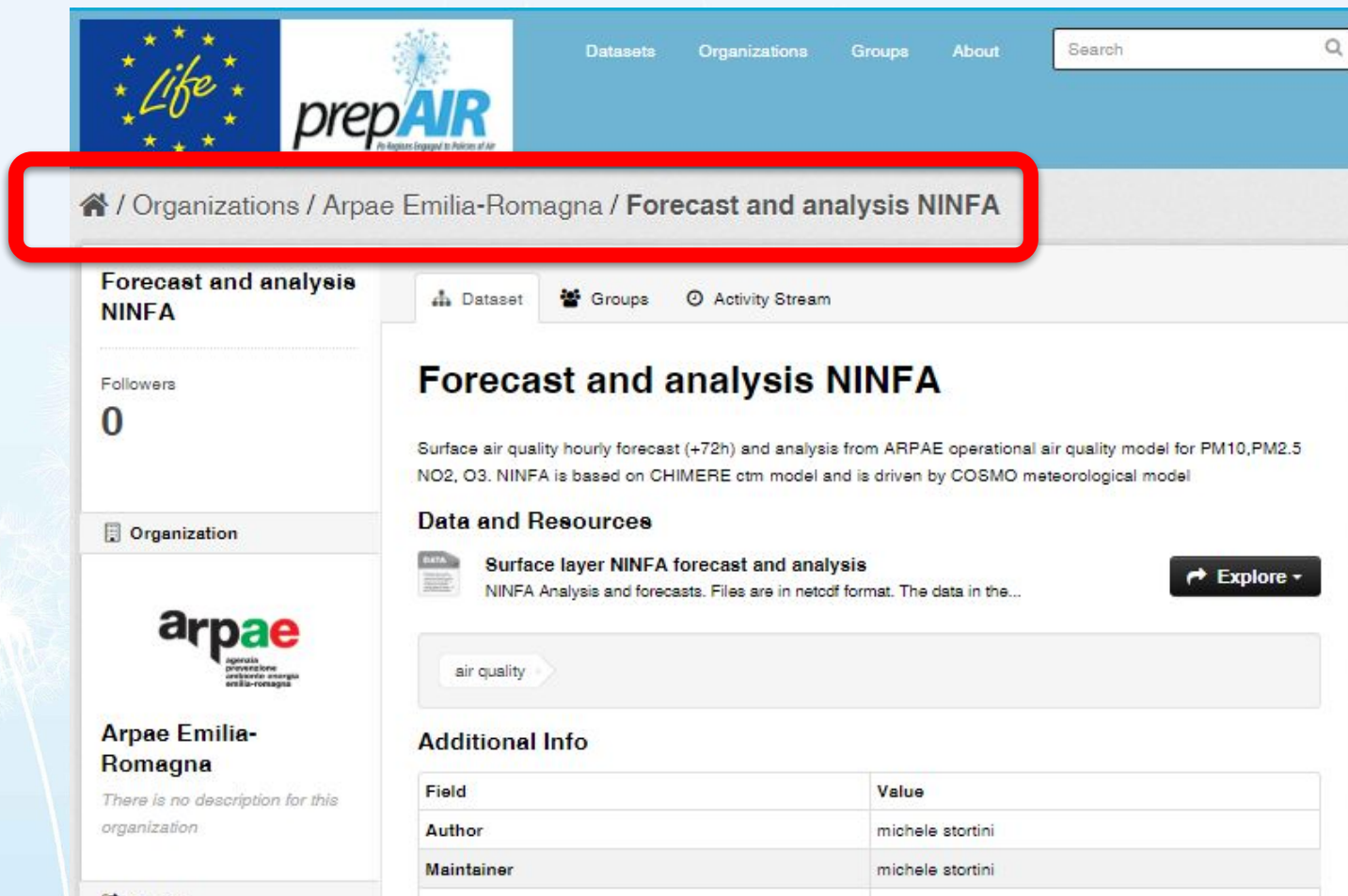
Organization	Datasets
APPA Trento	1 Dataset
Arpae Emilia-Romagna	2 Datasets
ARPA FVG	1 Dataset
ARPA Lombardia	1 Dataset
ARPA Piemonte	1 Dataset
ARPA Valle d'Aosta	1 Dataset
ARPA Veneto	1 Dataset
ARSO področja okolje	1 Dataset

(Open) Data Portal - Organizations (level 2)



The screenshot displays the (Open) Data Portal interface. At the top, there is a navigation bar with the LIFE logo, the prepAIR logo, and links for Datasets, Organizations, Groups, and About. A search bar is also present. Below the navigation bar, the breadcrumb path is shown: **Home / Organizations / Arpae Emilia-Romagna**, which is highlighted with a red rectangular box. The main content area shows the Arpae Emilia-Romagna organization profile. On the left, there is a sidebar with the Arpae logo, the organization name, a note that there is no description, and statistics for Followers (0) and Datasets (2). The main content area has tabs for Datasets, Activity Stream, and About. A search bar for datasets is provided, followed by the text "2 datasets found". The datasets are listed with the title "Forecast and analysis NINFA" and a description: "Surface air quality hourly forecast (+72h) and analysis from ARPAE operational air quality model for PM10, PM2.5 NO2, O3. NINFA is based on CHIMERE ctm model and is driven...". Below the description, there is a link to validated resources and a note about unvalidated data. At the bottom, there are buttons for "WS" and "CSV".

(Open) Data Portal - Organizations (level 3)



Home / Organizations / Arpae Emilia-Romagna / **Forecast and analysis NINFA**

Forecast and analysis NINFA

Followers
0

Organization

arpae
agenzia protezione ambiente energia Emilia-Romagna

Arpae Emilia-Romagna
There is no description for this organization

Forecast and analysis NINFA

Surface air quality hourly forecast (+72h) and analysis from ARPAE operational air quality model for PM10, PM2.5, NO2, O3. NINFA is based on CHIMERE ctm model and is driven by COSMO meteorological model.

Data and Resources

Surface layer NINFA forecast and analysis
NINFA Analysis and forecasts. Files are in netcdf format. The data in the... [Explore](#)

air quality

Additional Info

Field	Value
Author	michele stortini
Maintainer	michele stortini

(Open) Data Portal - Organizations (level 4)




[Datasets](#)
[Organizations](#)
[Groups](#)
[About](#)

[Home](#) / [Organizations](#) / [Arpae Emilia-Romagna](#) / [Forecast and analysis NINFA](#) / **Surface layer NINFA ...**

[Go to resource](#)

Surface layer NINFA forecast and analysis

URL: https://drive.google.com/open?id=1WW8twAxVb3zBcHu5-PMsK-aMi34t4j_5

NINFA Analysis and forecasts. Files are in netcdf format. The data in the file name is the day of the model run. "ana" means analysis for yesterday, "d0" means forecast for today, "d1", means forecast for tomorrow, and "d2" means forecast for the day after tomorrow. I.e. out.20180920_ana_NINFA.nc means analysis for 2018-08-19 product on 2018-08-20

Each file contains O3,PM10,NO2,PM25 hourly concentrations at surface level

There are no views created for this resource yet.

[Resources](#)

Surface layer NINFA ...



































[Social](#)

Additional Information

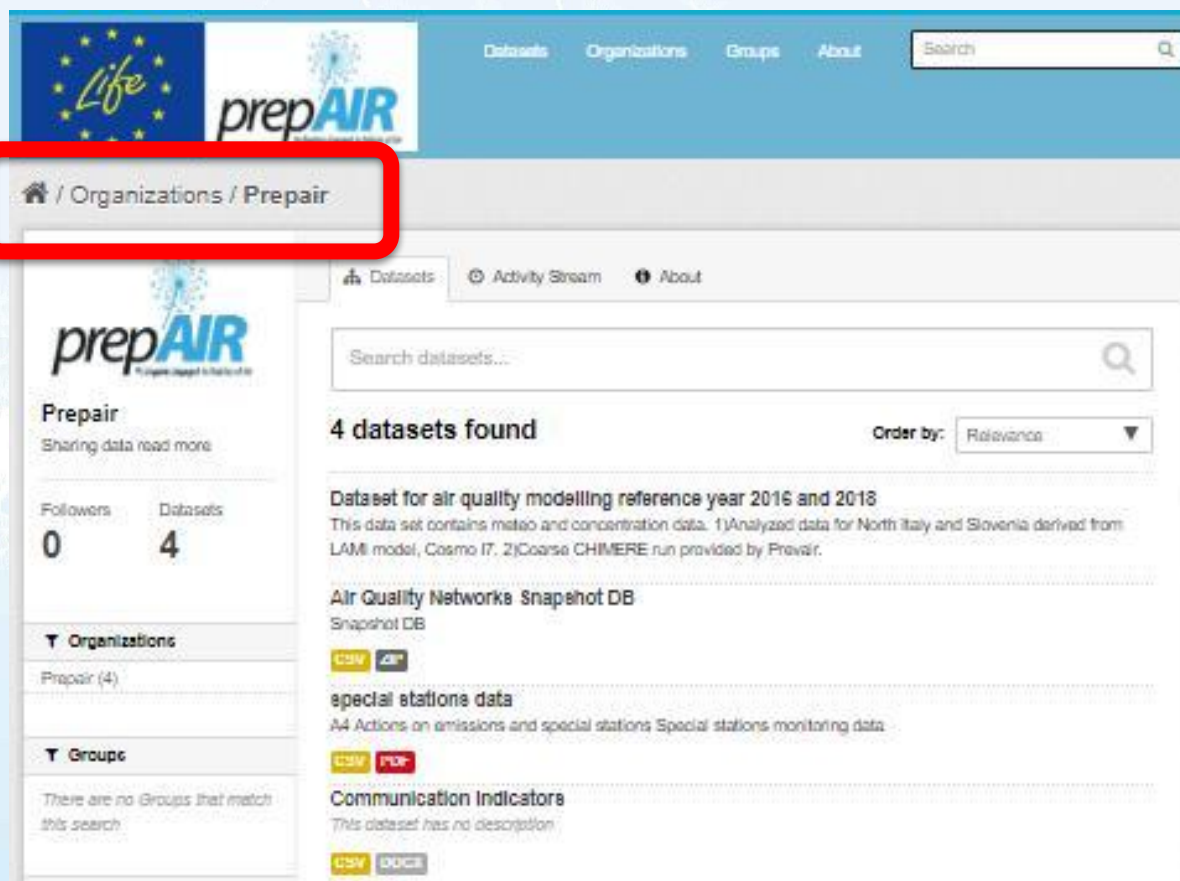
Field	Value
-------	-------

(Open) Data Portal - Organizations (level 5)

THE DATA!

Nome	Proprietario	Ultima modifica	Dimensioni file
 out.20190710_d2_NINFA.nc 	Drive SIMC	10:05 Drive SIMC	4 MB
 out.20190710_d1_NINFA.nc 	Drive SIMC	10:04 Drive SIMC	4 MB
 out.20190710_d0_NINFA.nc 	Drive SIMC	10:03 Drive SIMC	4 MB
 out.20190710_ana_NINFA.nc 	Drive SIMC	10:03 Drive SIMC	4 MB
 out.20190709_d2_NINFA.nc 	Drive SIMC	9 lug 2019 Drive SIMC	4 MB
 out.20190709_d1_NINFA.nc 	Drive SIMC	9 lug 2019 Drive SIMC	4 MB
 out.20190709_d0_NINFA.nc 	Drive SIMC	9 lug 2019 Drive SIMC	4 MB
 out.20190709_ana_NINFA.nc 	Drive SIMC	9 lug 2019 Drive SIMC	4 MB
 out.20190708_d2_NINFA.nc 	Drive SIMC	8 lug 2019 Drive SIMC	4 MB
 out.20190708_d1_NINFA.nc 	Drive SIMC	8 lug 2019 Drive SIMC	4 MB
 out.20190708_d0_NINFA.nc 	Drive SIMC	8 lug 2019 Drive SIMC	4 MB
 out.20190708_ana_NINFA.nc 	Drive SIMC	8 lug 2019 Drive SIMC	4 MB
 out.20190707_d2_NINFA.nc 	Drive SIMC	7 lug 2019 Drive SIMC	4 MB
 out.20190707_d1_NINFA.nc 	Drive SIMC	7 lug 2019 Drive SIMC	4 MB
 out.20190707_d0_NINFA.nc 	Drive SIMC	7 lug 2019 Drive SIMC	4 MB
 out.20190707_ana_NINFA.nc 	Drive SIMC	7 lug 2019 Drive SIMC	4 MB
 out.20190706_d2_NINFA.nc 	Drive SIMC	6 lug 2019 Drive SIMC	4 MB

(Open) Data Portal - Prepair Org (level 2)



The screenshot displays the web interface of the (Open) Data Portal for the Prepair organization. The top navigation bar includes links for Datasets, Organizations, Groups, and About, along with a search bar. The breadcrumb trail, highlighted with a red box, shows the path: Home / Organizations / Prepair. The left sidebar features the prepAIR logo, the organization name 'Prepair', and statistics: 0 Followers and 4 Datasets. Below this, there are sections for Organizations (listing Prepair (4)) and Groups (stating 'There are no Groups that match this search'). The main content area shows '4 datasets found' and lists the following datasets:



- Dataset for air quality modelling reference year 2016 and 2018**
This data set contains meteorological and concentration data. 1) Analyzed data for North Italy and Slovenia derived from LAM model, Cosmo I7. 2) Coarse CHIMERE run provided by Prepair.
- Air Quality Networks Snapshot DB**
Snapshot DB
Formats: CSV, XLSX
- special stations data**
A4 Actions on emissions and special stations Special stations monitoring data
Formats: CSV, PDF
- Communication Indicators**
This dataset has no description
Formats: CSV, DOCX



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(Open) Data Portal - Prepair Org (level 3)





DatasetsOrganizationsGroupsAbout


Search

Home / Organizations / Prepair / Air Quality Networks ...

Air Quality Networks Snapshot DB

Followers
0

Organization



Prepair
Sharing data read more

Social


Google+


DatasetGroupsActivity Stream


Air Quality Networks Snapshot DB

Snapshot DB

Data and Resources

 **Snaphost Database** [Explore](#)



 **Network configuration**
Link to update info... [Explore](#)

 **Snapshot history** [Explore](#)

Additional Info

Field	Value
Last Updated	4 giugno 2019, 14:36 (UTC+02:00)
Created	6 marzo 2018, 10:45 (UTC+01:00)

(Open) Data Portal - Prepair Org (level 4)



DatasetsOrganizationsGroupsAbout

Search

Home / Organizations / Prepair / Air Quality Networks ... / **Network configuration**

Network configuration

Go to resource

URL: <https://docs.google.com/spreadsheets/d/10Nv76MyTDPqrBFTwYo3THlukU9LOVHdxgr3be64tXSM/export?format=csv>

Link to update info: <https://docs.google.com/spreadsheets/d/10Nv76MyTDPqrBFTwYo3THlukU9LOVHdxgr3be64tXSM/edit>

There are no views created for this resource yet.

Resources

Snapshot Database

Network configuration

Snapshot history

Social

Google+

Twitter

Facebook

Additional Information

Field	Value
Last updated	June 21, 2018
Created	June 21, 2018
Format	CSV
License	Creative Commons Attribution
created	12 months ago
format	CSV
id	88040cad-8086-4b28-8021-828fd11e5ca5
package id	7dae1700-97a5-48dc-b71e-df8e66a8db42
position	1
revision id	d68d2326-a703-4dee-85e3-5cf96b85b0ee
state	active



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(Open) Data Portal - Prepair Org (level 5)



THE DATA!



Network configuration												
File Modifica Visualizza Inserisci Formato Dati Strumenti Componenti aggiuntivi Guida Tutte le modifiche sono state salvate in Drive												
100% € % 0.00 123 Arial 8 B I & A												
	A	B	C	D	E	J	K	L	M	N	O	P
1	snapshot_id	owner	latitud	longitud	station_name	station_heig	station_europe	station_local_c	station_sta	station_en	type_of	station_type
2	2000003	ARPA ER	44,79240	10,33100	CITTADELLA		IT0804A	803401				
3	2000004	ARPA ER	44,78860	10,33660	MONTEBELLO		IT1105A	803405				
4	3000018	ARPA ER	44,30070	10,43100	FEBBIO		IT1672A	803515				
5	3000025	ARPA ER	44,69960	10,62280	TIMAVO			803518				
6	4000002	ARPA ER	44,63700	10,90570	GIARDINI		IT0721A	803613				
7	4000012	ARPA ER	44,80040	10,88430	REMESINA		IT1152A	803603				
8	4000110	ARPA ER	44,54220	10,81990	SAN FRANCESCO	131	IT1920A	803625	2007-05-10		Traffic	urban
9	4000155	ARPA ER	44,54040	10,79240	PARCO EDILCARANI	118	IT2073A	803628	2011-01-01		Background	urban
10	5000007	ARPA ER	44,82390	9,83040	LUGAGNANO		IT1923A	803320				
11	5000033	ARPA ER	45,04880	9,69330	GIORDANI-FARNESE		IT1923A	803320				
12	5000066	ARPA ER	44,73470	9,36690	CORTE BRUGNATELLA	765	IT2074A	803323	2011-01-01		Background	rural
13	6000011	ARPA ER	44,21600	12,05750	ROMA		IT0755A	804010				
14	6000014	ARPA ER	44,14140	12,24470	FRANCHINI-ANGELONI		IT1670A	804012				
15	6000031	ARPA ER	44,09690	12,40330	SAVIGNANO		IT1908A	804013				
16	6000036	ARPA ER	43,92740	12,22480	SAVIGNANO DI RIGO		IT2027A	804015				
17	7000002	ARPA ER	44,35540	11,72070	DE AMICIS		IT1029A	803705				
18	7000024	ARPA ER	44,46720	11,41660	SAN LAZZARO		IT1163A	803714				
19	7000041	ARPA ER	44,50010	11,28610	VIA CHIARINI	56	IT2075A	803719	2011-01-01		Background	suburban
20	8000002	ARPA ER	44,84250	11,61310	ISONZO		IT0187A	803803				
21	8000038	ARPA ER	44,73300	11,29970	CENTO		IT1917A	803811				
22	9000014	ARPA ER	44,42780	12,18660	ZALAMELLA		IT0895A	803921				
23	9000070	ARPA ER	44,28390	12,33220	DELTA CERVIA		IT1928A	803923				
24	10000001	ARPA ER	44,05210	12,57570	FLAMINIA	3	IT1044A	804004	1996-03-01		Traffic	urban
25	10000059	ARPA ER	44,01390	12,42100	VERUCCHIO	78	IT1916A	809902	2008-09-18		Background	suburban
26	10000074	ARPA ER	43,90720	12,40120	SAN LEO			809904				
27	1024802:ARPIEM	ARPA Piemont	45,02981	7,59760	Beinasco (TRM) - Aldo Mei							
28	1059802:ARPIEM	ARPA Piemont	44,84754	7,71400	Carmagnola - I Maggio							
29	1090804:ARPIEM	ARPA Piemont	45,07258	7,57793	Collegno - Francia							
30	2012803:ARPIEM	ARPA Piemont	45,56418	8,05122	Biella - Lamarmora							
31	3043800:ARPIEM	ARPA Piemont	45,71353	8,60232	Castelletto T. - Fontane							
32	3108801:ARPIEM	ARPA Piemont	45,59350	8,64508	Oleggio - Gallarate							
33	3118800:ARPIEM	ARPA Piemont	46,01173	8,26900	Pieve Vergonte - Industria							



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(Open) Data Portal - Prepair Org (level 3)






[Datasets](#) [Organizations](#) [Groups](#) [About](#)

[/ Organizations / Prepair / special stations data](#)

special stations data

Followers
0

Organization




Prepair
Sharing data read more


Social
[Google+](#)
[Twitter](#)
[Facebook](#)


License
Creative Commons Attribution
[OPEN](#) [DATA](#)


special stations data
A4 Actions on emissions and special stations: Special stations monitoring data


Data and Resources


 Folder of XLS [Explore](#)


 MI Pascal PM10
Link to view the spreadsheet:... [Explore](#)


 MI Senato PM10
Link to view the spreadsheet:... [Explore](#)


 Bologna PM10
Link to view the spreadsheet:... [Explore](#)


 Schivenoglia PM10
Link to view the spreadsheet:... [Explore](#)

 VI Ferrovie PM10
Link to view the spreadsheet:... [Explore](#)

 Documentation
This document... [Explore](#)

 TO-Lingotto PM10
Link to view the spreadsheet:... [Explore](#)

 Aosta PM10
Link to view the spreadsheet:... [Explore](#)



arpae
agenzia
protezione
ambiente energia
emilia-romagna

Visualization Portal

THE UPPER LAYER (VISUALIZATION AND ANALYSIS OF DATA)

The Visualization Portal is a highly interactive tool to **analyze the data from Data Portal:**

<https://prepair-vis.datamb.eu/>

The visualization products are (*until now, but in progress...*):

- Stations data visualizer (on interactive map)
- Daily and hourly models and observations (also on 7 days basis)



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Station data visualizer (Home Page)



PrepAIR

Stations data visualizer

Observations ▾



Stations data visualizer

Select the date range (max 60 days):

2019-02-26 - 2019-03-05

Data of the latest two days may not be complete

Select pollutant

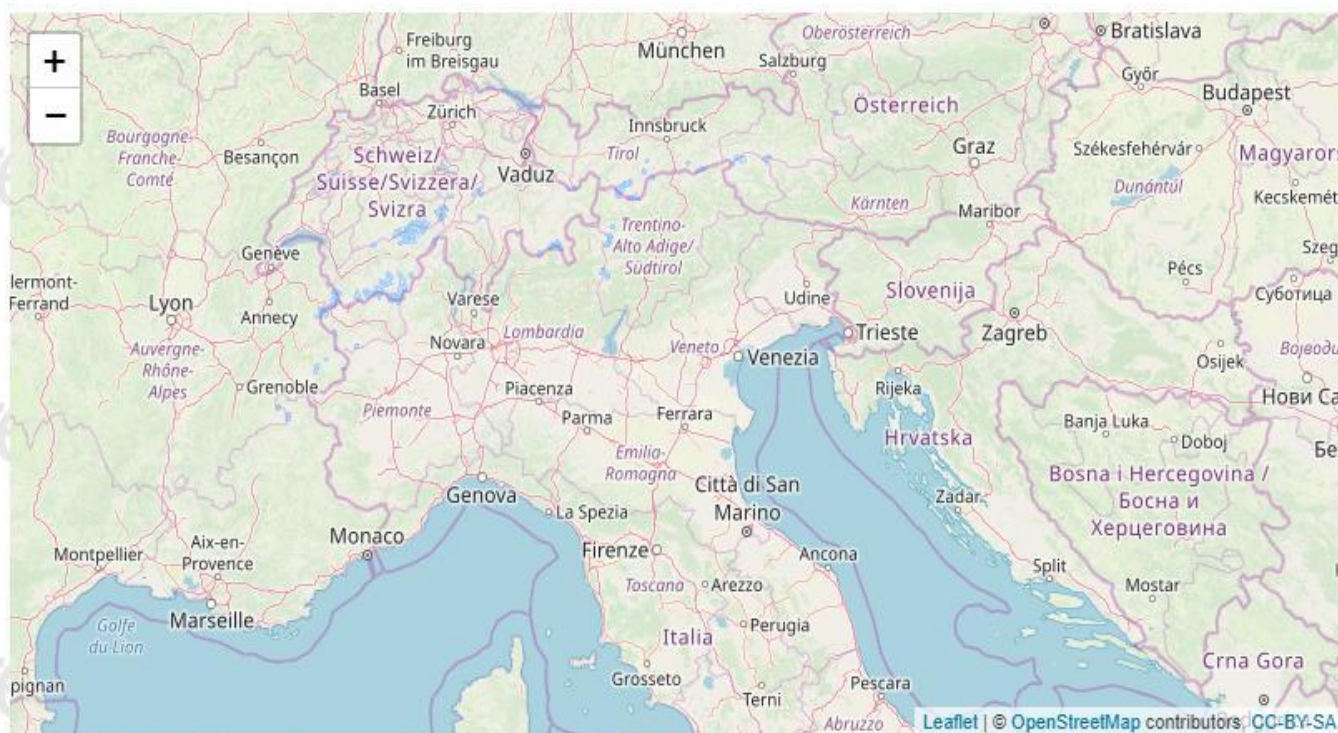
All ▾

Select owner:

All ▾

Click on a marker to show its boxplot for the selected parameters

Extract data



PrepAIR

Stations data visualizer

Observations ▾



Stations data visualizer

Select the date range (max 60 days):

2019-02-18

- 2019-02-24

Data of the latest two days may not be complete

Select pollutant

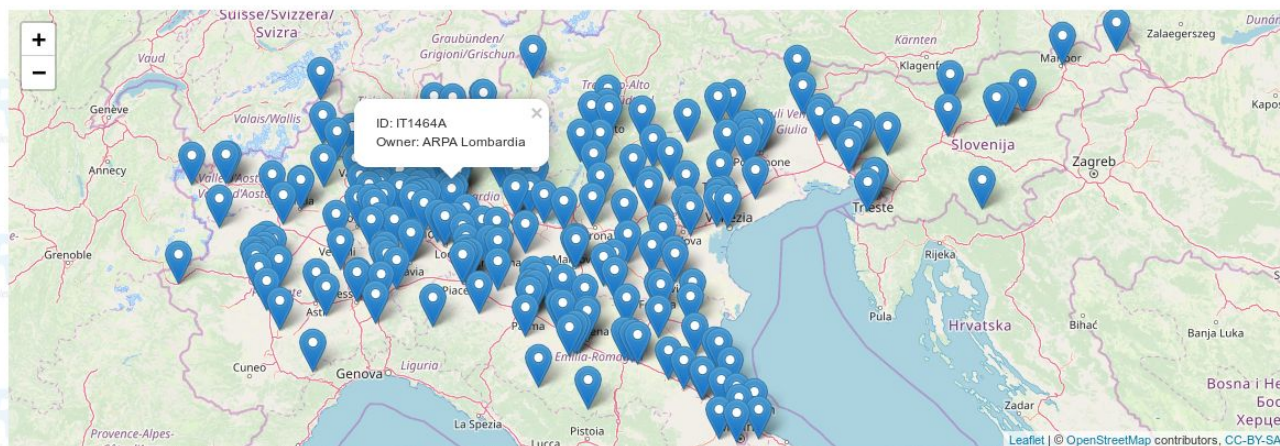
All

Select owner:

All

Click on a marker to show its boxplot for the selected parameters

Extract data



Owner: ARPA Lombardia - Station: IT1464A



Daily observations

Select date:

2019-02-21

Data of the latest two days may not be complete

Select pollutant:

PM10

PM10 - PM25 = Daily mean

O3 - NO2 = Daily max

Select owner:

All

Select color palette type:

discrete

Show stations:

yes

Show model:

yes

Select model type:

ana

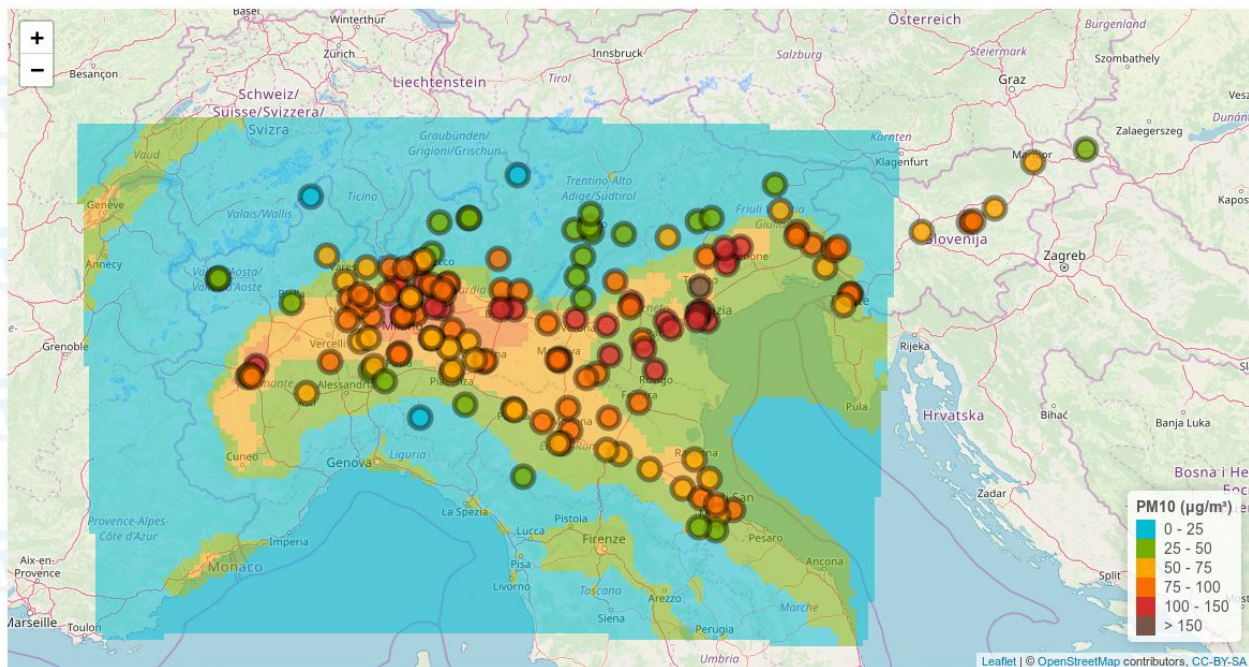
ana = analysis of the selected day

d0 = forecast for the selected day

d1 = forecast for the selected day + 1

d2 = forecast for the selected day + 2

Extract data



PrepAIR Stations data visualizer Observations ▾



O3 daily maximums of the 8-hour moving average

Select date:

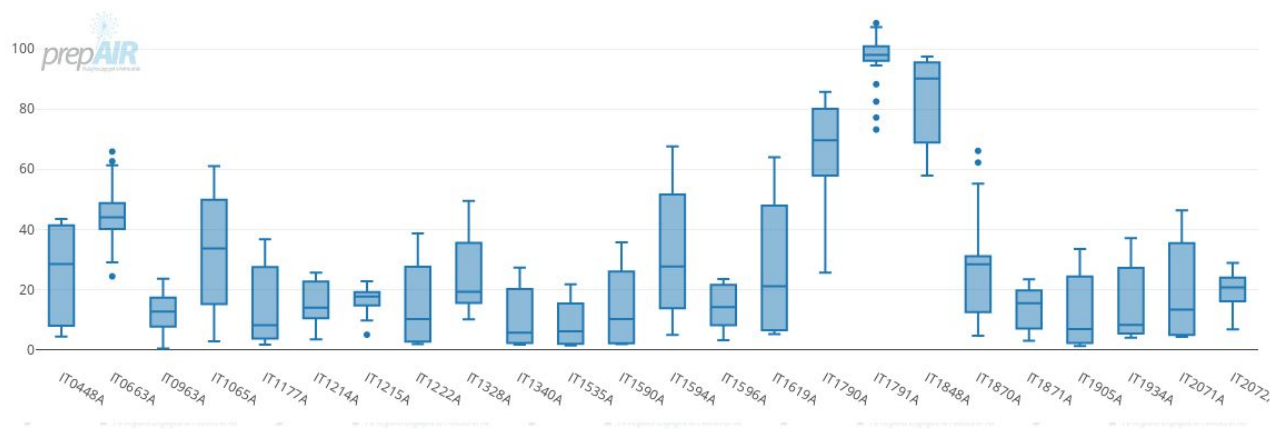
2019-02-21

Data of the latest two days may not be complete

Select owner:

ARPA Veneto ▾

Extract data





LIFE 15 IPE IT 013



PrepAIR Stations data visualizer Observations

Weekly boxplot

Select date:

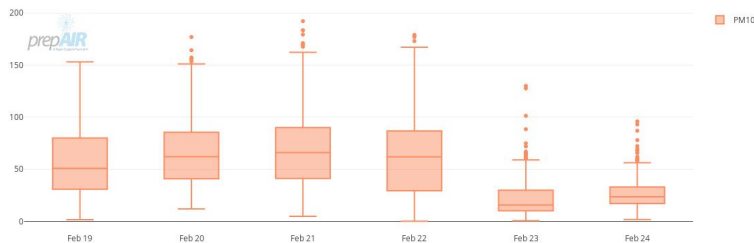
2019-02-24

Data of the latest two days may not be complete

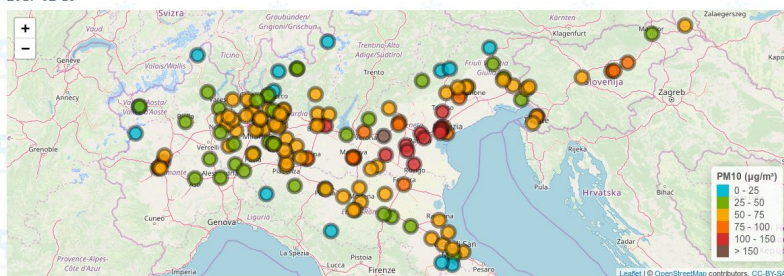
Select pollutant:

PM10

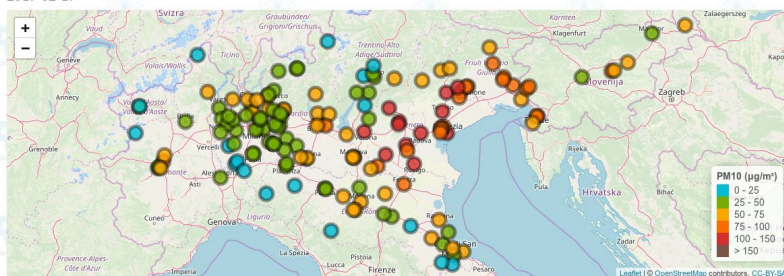
Extract data



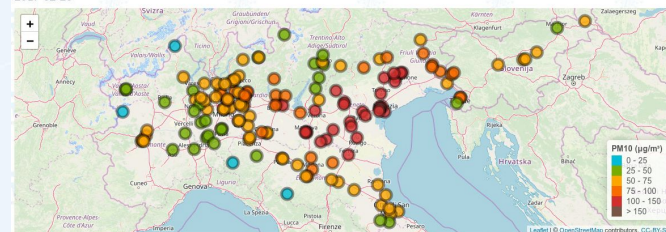
2019-02-18



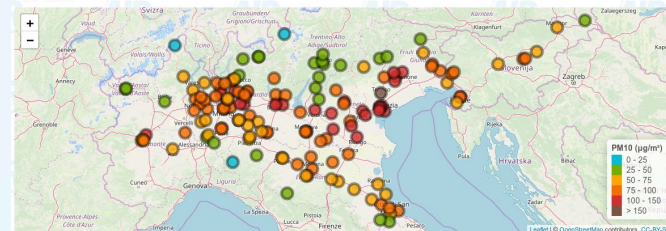
2019-02-19



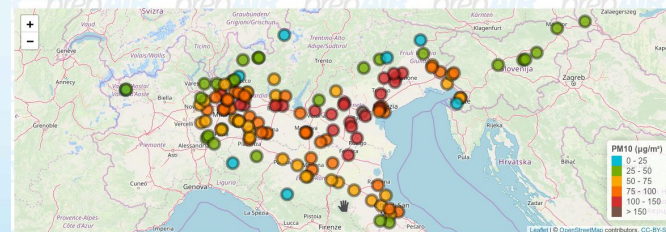
2019-02-20



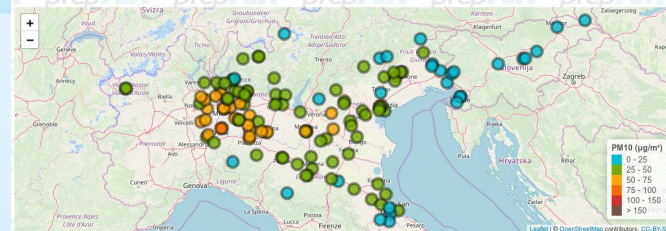
2019-02-21



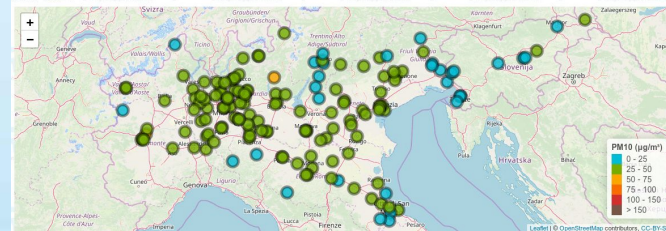
2019-02-22



2019-02-23



2019-02-24



SW platforms of prepAIR Data Sharing Portal are **Open Source**





With the contribution
of the LIFE Programme
of the European Union

LIFE 15 IPE IT 013



TO DO: Integration with official site
www.lifeprepare.eu

THANK YOU

www.lifeprepare.eu – info@lifeprepare.eu



REGIONE DEL VENETO



PROVINCIA AUTONOMA DI TRENTO



Slovenian Environment Agency



Comune di Bologna



Comune di Milano



CITTÀ DI TORINO

