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(308427)

Environmental Information System and Odour Monitoring based on Citizen and Technology Innovative Sensors
First results

V. Hutsemekers[1,2], J. Delva[2], A-C Romain[1,2] and al

Consortium

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Partner		Country	Contact
Coordinator	SPACEBEL S.A	Belgium Research center	Ph. Ledent
	University of Liège	Belgium University	AC Romain
	Odometric sa	Belgium Spin off	J. Delva
	APS technolgy scrl	Belgium Society	B. Stevenot
	TECHNISCHE UNIVERSITAET GRAZ	Austria University	U. Uhrner
	KTT-IMA-SARL	France society	W. Kunz
	Henry Tudor	Luxembourg C Recherches Public	Ph. Valoggia

+ industrials, NGO, administration

Scope

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SCOPE of the OMNISCIENTIS project (FP7, start in October 2012)

- Mitigate the odour annoyance

  considering the stakeholders:

  - the source of nuisance,
  - the citizens living in the neighbourhood,
  - the authorities at various levels

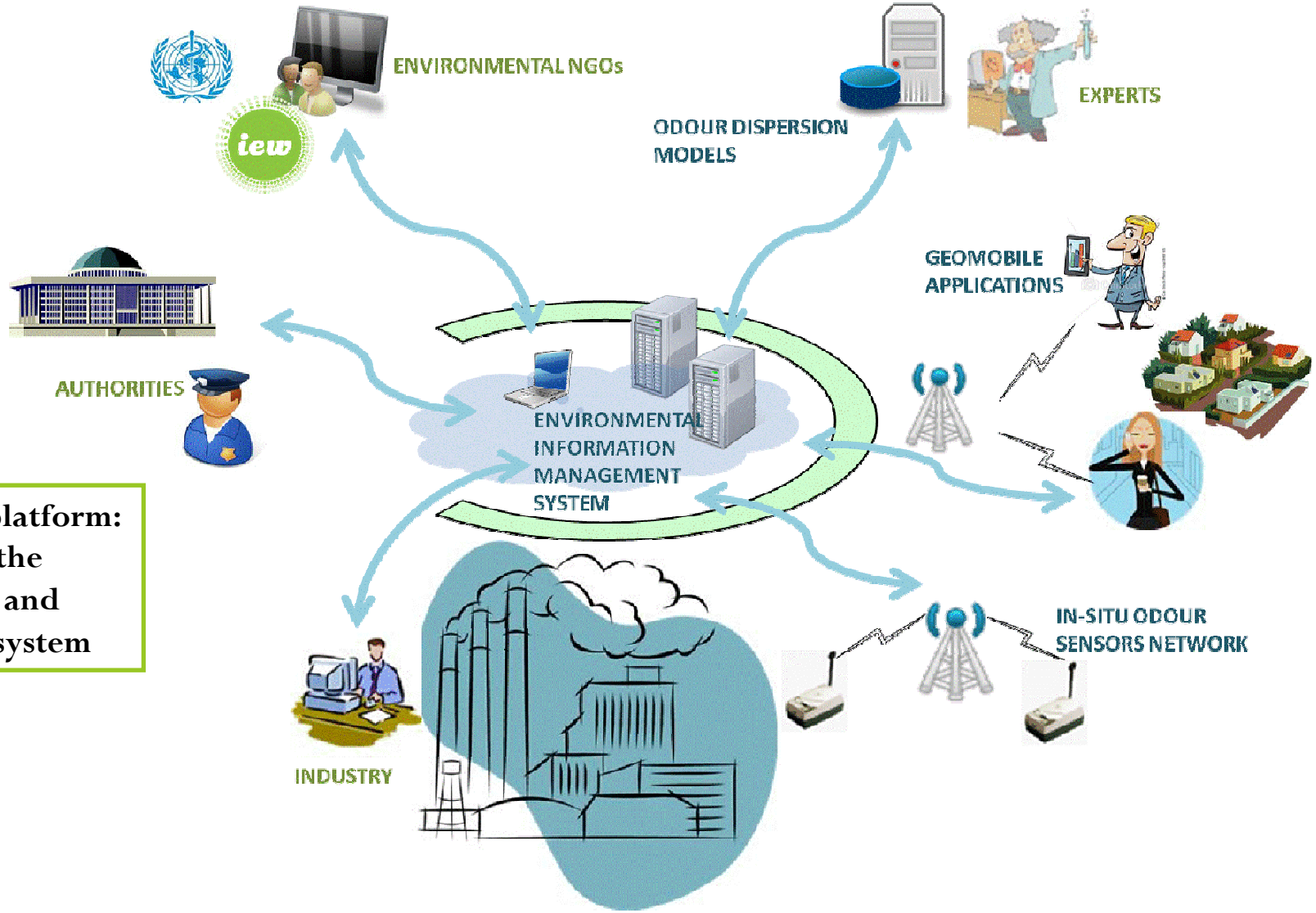
- Develop an <u>Odour Environmental Monitoring Information System</u>

CHALLENGE

integration of citizens as "**community-based**" observation providers

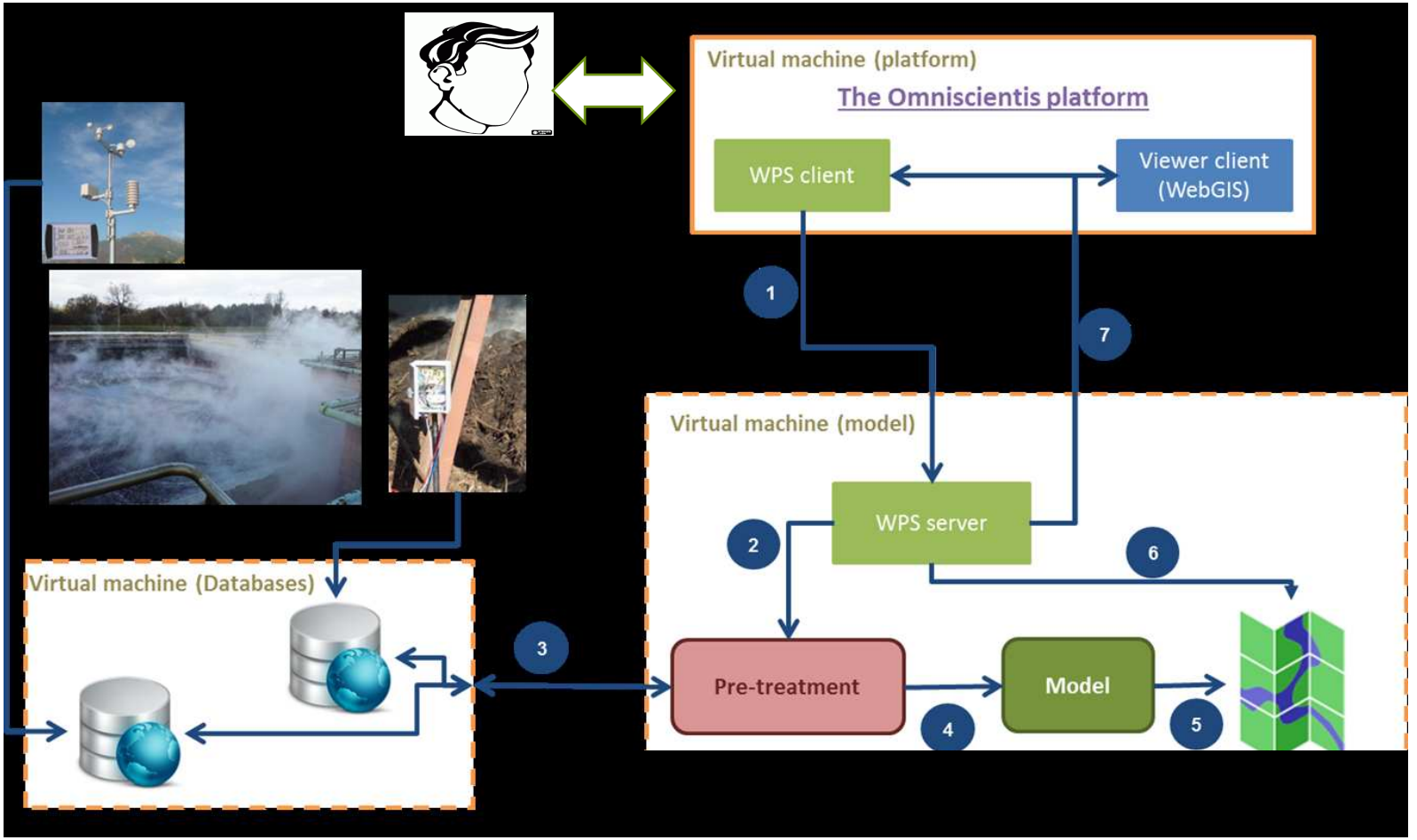
- giving the odour perception and discomfort in real time
- getting the feed-back in real time from a learning monitoring system

Odour Monitoring Information System (ODOMIS)



web-based platform: the heart of the Information and monitoring system

Platform: Interaction scenario client-enoses-dispersion model

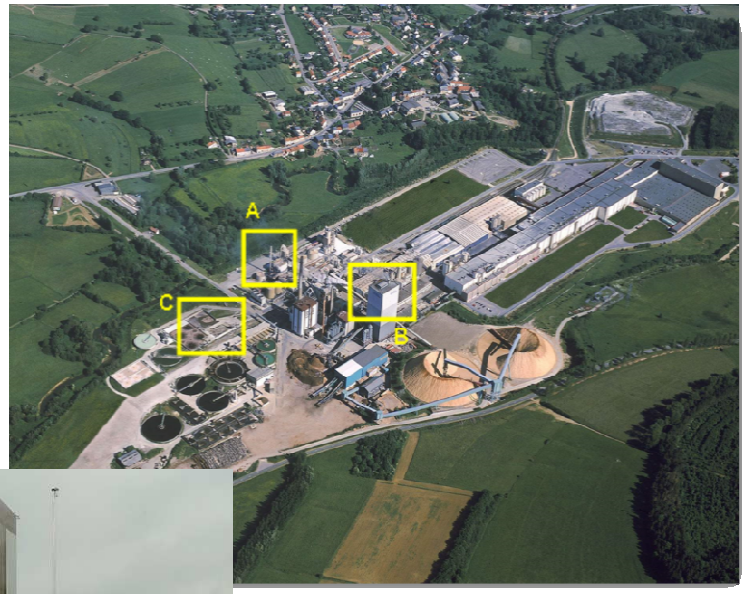


WPS: Web Processing Service

Partner: Spacebel

Pilot Cases

Pulp Paper mill in Belgium



Pig farm in Austria

Odour Inputs for the dispersion model

Odour **emission** data

Partners: ULg-Odometric

to estimate the Global Odour Rate versus time (fluctuations), continuously with

- Real time process data (valve openings, flow rate, …)
- Odour flow rate measurements in the stacks (ou_E/s)
- E-noses in the proximity of area sources, in the ambient air or in the stacks
- Chemical sensors (ie. electrochemical) and TRS analyser (for the paper mill only-UV fluorescence)

+ **Meteorological** data

Odour Inputs for the dispersion model

Odour **immission** data

Partners: ULg-Odometric-Tudor

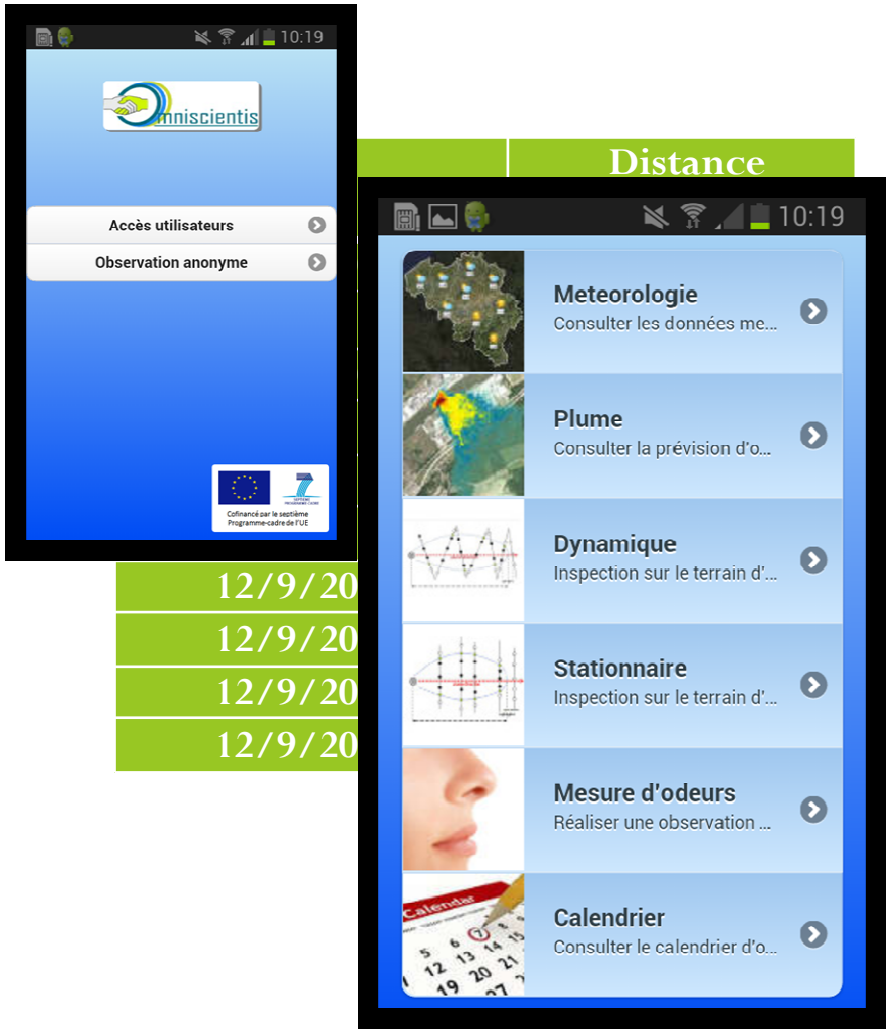
to validate (improve) the dispersion model by

- Experts: field inspection (CEN/TC 264/WG 27)
- 32 watchmen (trained citizens, measurements twice a day, 4 days a week)
- Untrained Citizens

With **Geomobile application**

Partner: Spacebel

ODOMAP



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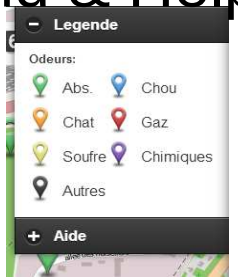
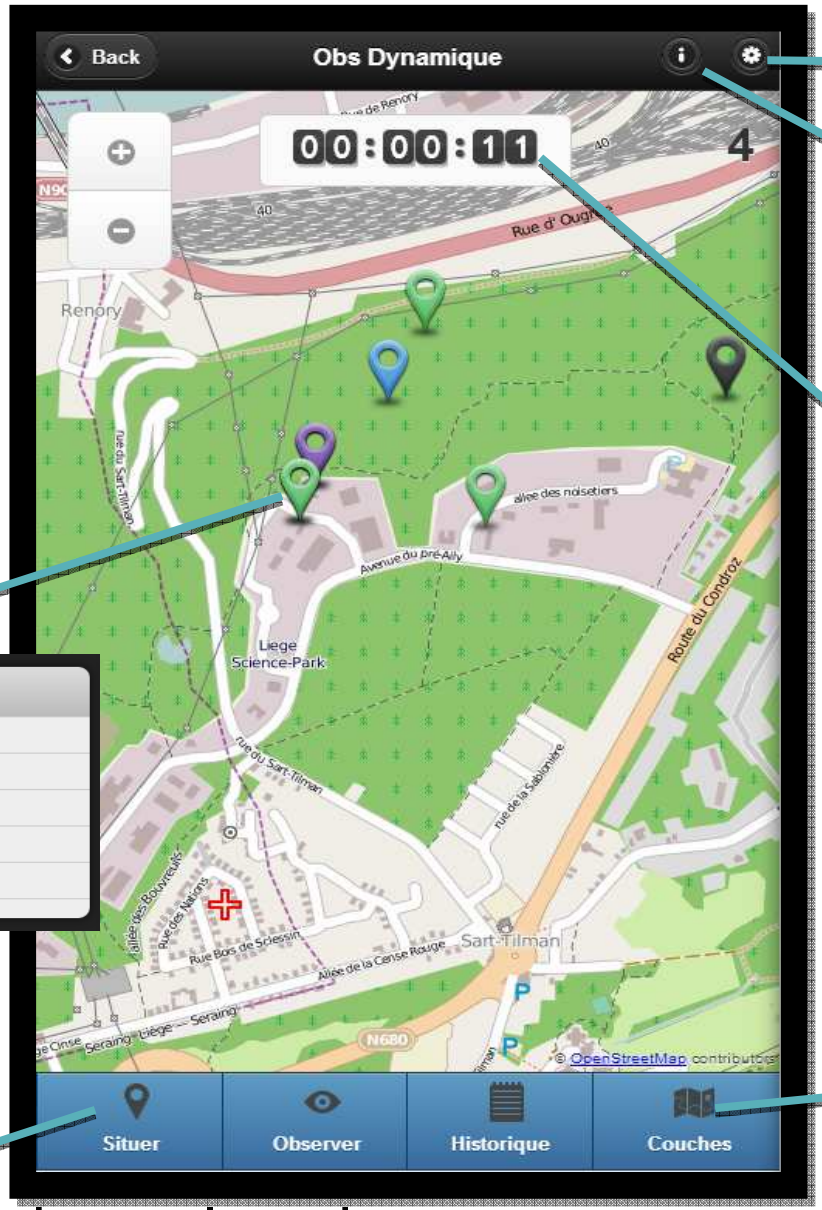
Options

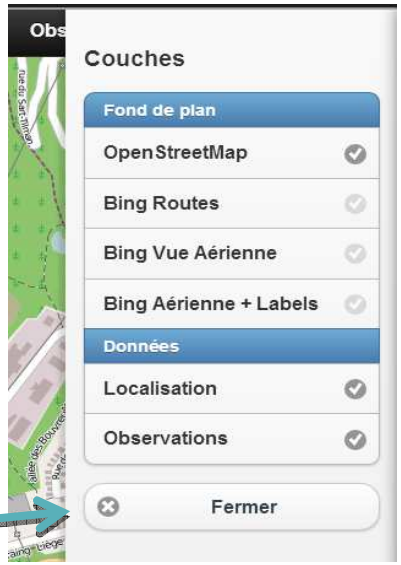
Legend & Help



Chrono

Details





Layers

Automatic geolocation:

GPS, WiFi or network, best option available.User can also locate himself manually

Odour prediction: the dispersion model

Instant Odour Plume Maps

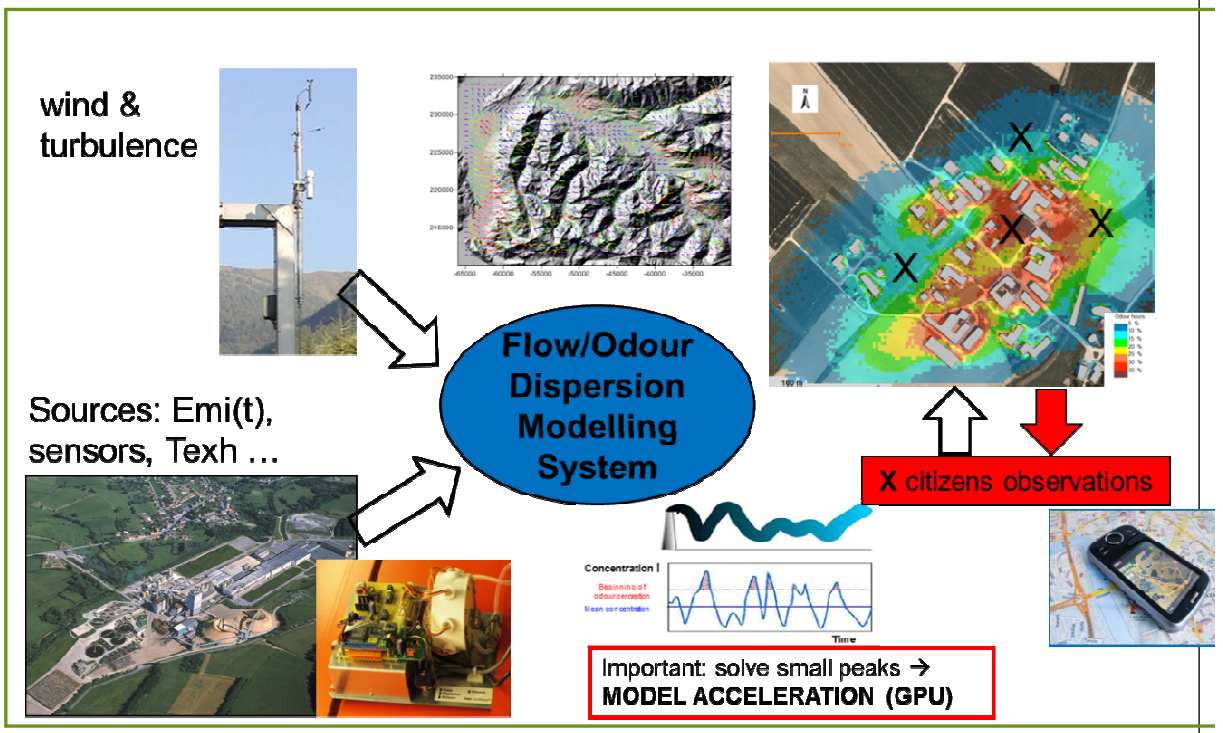
Partners: TUG-KTT-iMA

need to represent fast the peaks with new specific odour dispersion model

Dispersion model "GRAL-System"

Lagrangian dispersion model

modified to be applied for odour

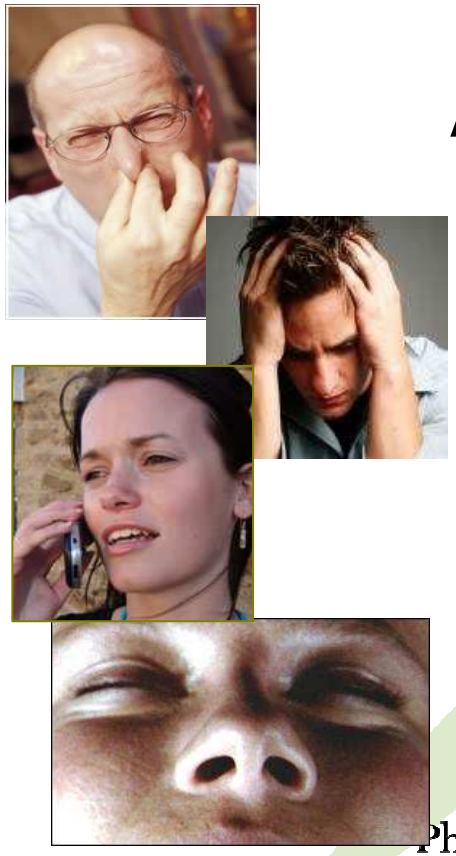


A living lab Approach

Not only technically driven solutions but also socio-scientific approaches

Partners: Ulg-Odometric-Tudor

A progressive approach



Expected benefits

For the stakeholders

- Get the citizens in the loop : “give a voice to neighbours”
- Help industries in tuning nuisance generating processes- objectivation
- Generate uncontroversial data and support local Authorities in decision making
- Improve odour data input for legislative framework
- Improve citizens well being

Conclusion and perspectives

Current state after one year

☑Platform is running
☑Geomobile Apps is operational on smartphone (also web), used by the watchmen, citizens and experts
☑Input odour data are collecting (e-noses; real time process data;…)
☑E-noses data, ODOMap data, process data are in the WPS, sending info in real time to the platform
☑Living lab is ongoing

Next steps

➢Integrate the input odour data to obtain the instantaneous global odour rate
➢Finalize the odour adapted GRAL dispersion model and implement it in the WPS
➢Connect the meteorological data, the input odour data, the stakeholders data to the dispersion model
➢ Validate the tool "ODOMIS"

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Thanks for your attention

A-C ROMAIN
acromain@ulg.ac.be
Environmental monitoring group
Polluted atmospheres
Department of environmental sciences
Faculty of Sciences, ULg
Arlon (Belgium)

www.**campusarlon.ulg**.ac.be/

Project Coordinator: SPACEBEL
Mr Philippe LEDENT, Angleur – Belgium
philippe.ledent@spacebel.be
+32 4 361 81 11

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