LABORATORY OF
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DEPARTMENT OF BIOLOGY
UNIVERSITY OF BARI ALDO MORO

Università
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ALDO MORO

Composti Organici Volatili (VOC)

Dal controllo delle emissioni osmogene alla diagnostica medica

Gianluigi de Gennaro
Responsabile Scientifico del Laboratorio Olfattometrico dell'Università di Bari
Dipartimento di Biologia
Università degli Studi di Bari Aldo Moro

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Composti Organici Volatili (VOC)

Aldeidi
Chetoni
Acidi
Alcoli
Amine
Composti aromatici
Mercaptani
…

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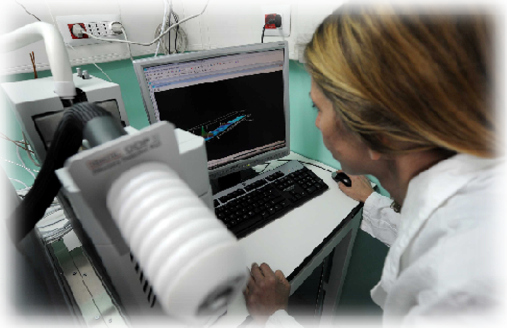
VOC&ODOR

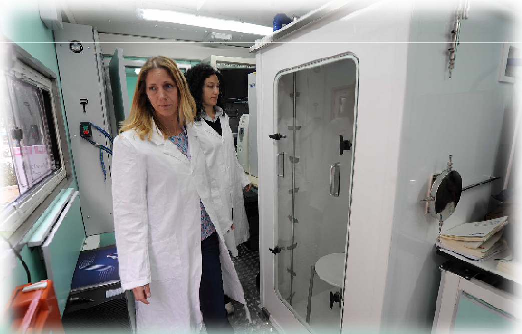
VALUTAZIONE DELLE EMISSIONI DI COMPOSTI ORGANICI VOLATILI E DEGLI IMPATTI ODORIGENI PRODOTTI DAI NUOVI MATERIALI E DALLE NUOVE TECNOLOGIE PER I SISTEMI PRODUTTIVI

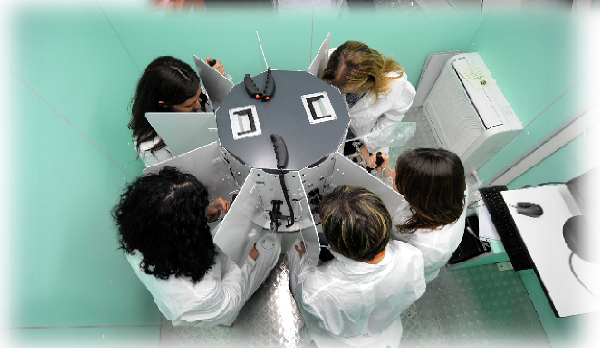
"Intervento cofinanziato dall'Accordo di Programma Quadro in materia di Ricerca Scientifica
II Atto Integrativo - PO Puglia FESR 2007-2013, Asse , Linea 1.2 - PO Puglia FSE 2007-2013 Asse IV"
Intervento "Reti di Laboratori Pubblici di Ricerca"
CODICE PROGETTO 52

Realizzatore dell'intervento:
Università degli Studi di Bari "A. Moro"

"Investiamo nel vostro futuro"



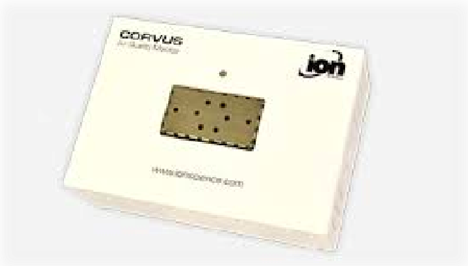




Confronto fra metodi

	Olfattometria dinamica	Altri Metodi sensoriali	Modelli	Analisi chimica	Popolazione (segnalazioni questionari)	Sensori multiparametrici (Naso elettronico)	Strumenti in continuo (proxy o marker)
Determinazione diretta e quantitativa della concentrazione di odore							
Valutazione effetto olfattivo							
Risultati obiettivi							
Sensibilità							
Misure in continuo							
Determinazione di singole specie							
Tempi di risposta							
Costi							
Campi di applicazione e Versatilità ai diversi contesti							

Monitor in continuo per marker e/o proxy



H2S

NH3

VOC

Metano

SO2

…

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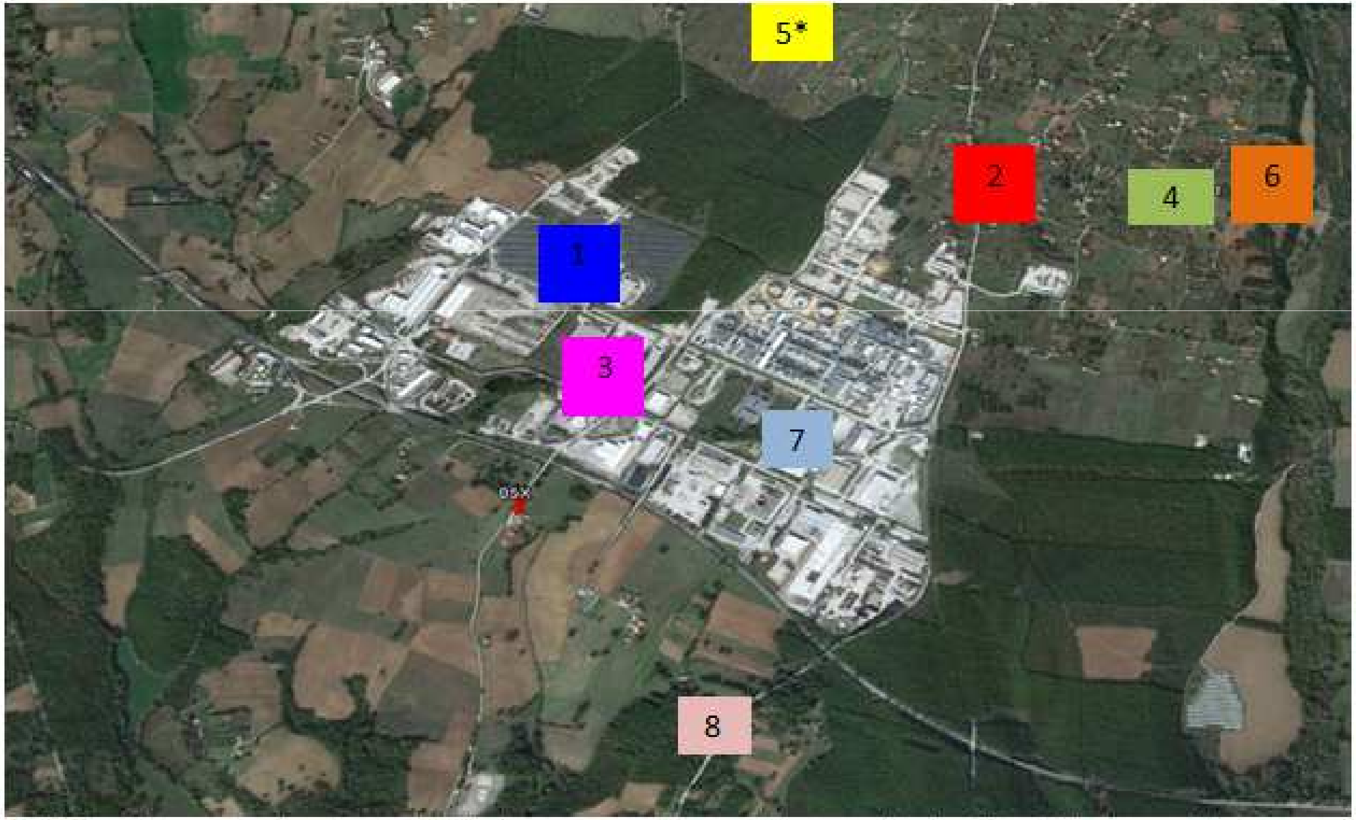
Rete PID – determinazione di VOC in continuo

Rete PID



* Pid 5 è posizionato approssimativamente, in aprile è stato spostato in paese a viggiano per evidenziare il fondo delle altre stazioni

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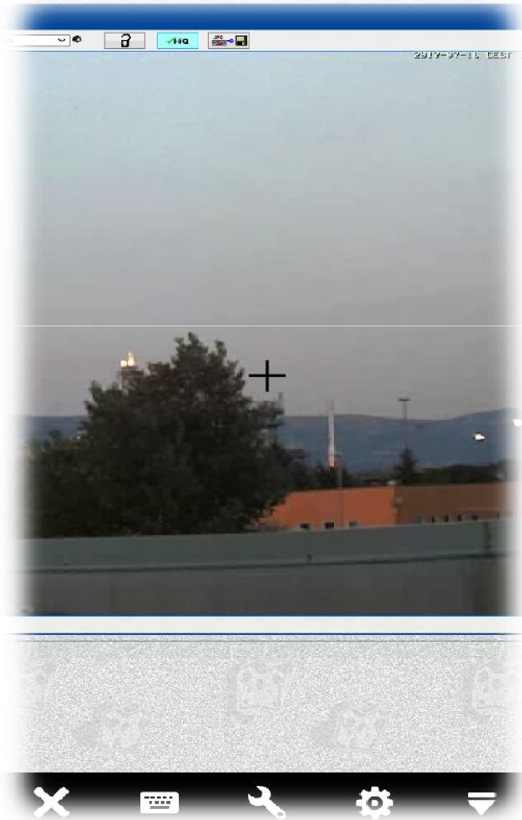
Sistema integrato



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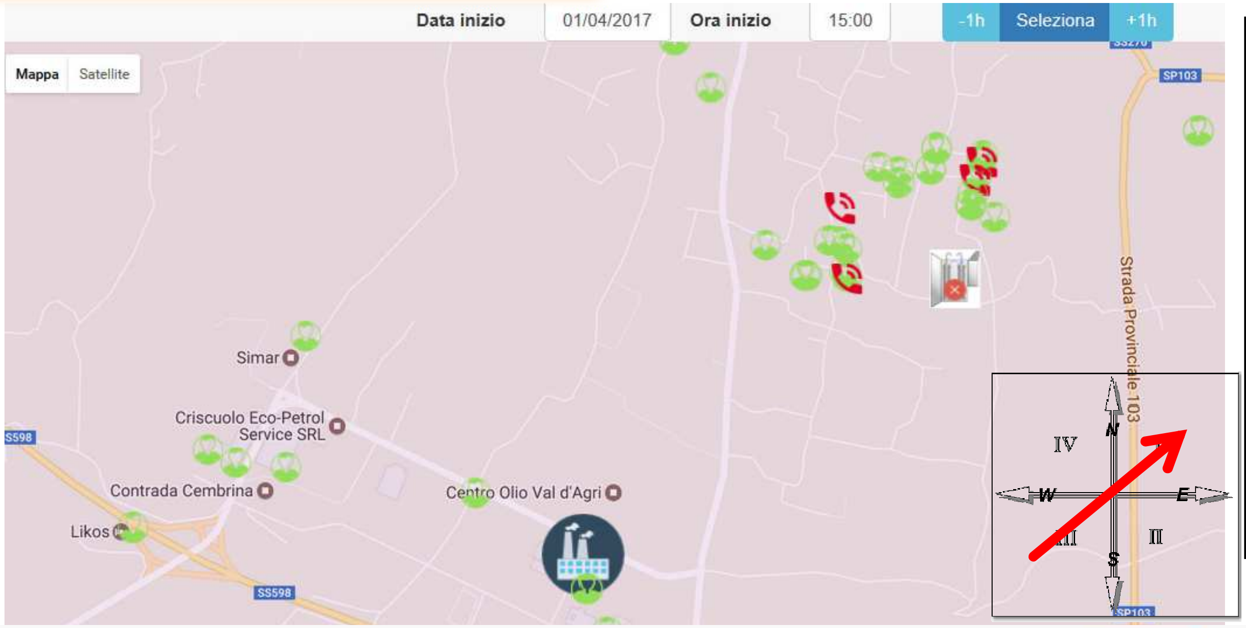

Georeferenziazione delle telefonate

Intensità di Odore

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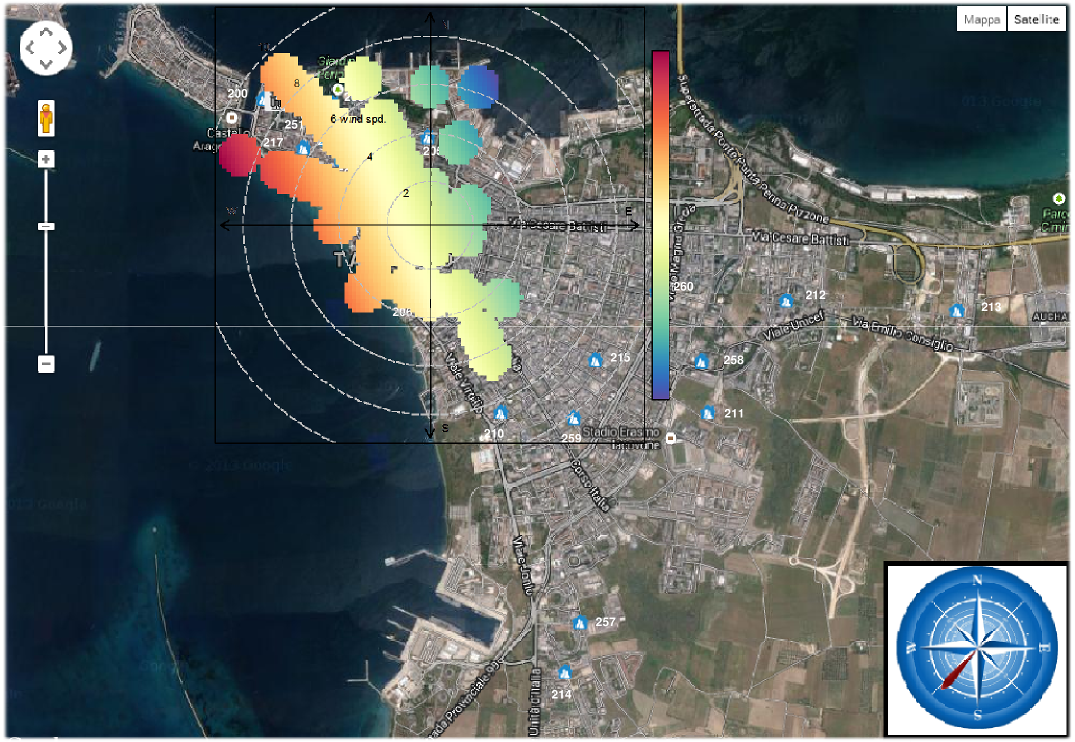
ARPA PUGLIA



International Journal of
Environmental Research and Public Health

MDPI

Article

Automated Collection of Real-Time Alerts of Citizens as a Useful Tool to Continuously Monitor Malodorous Emissions

Magda Brattoli [1], Antonio Mazzone [1], Roberto Giua [1], Giorgio Assennato [1]
and Gianluigi de Gennaro [1,2,*]

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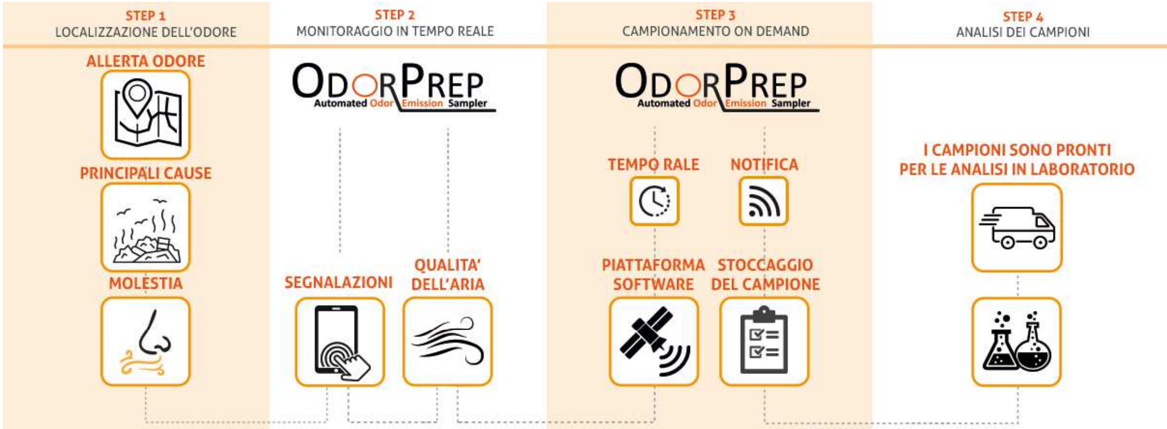
Campionamento 'on demand' - Olfattometria dinamica (EN 13725)



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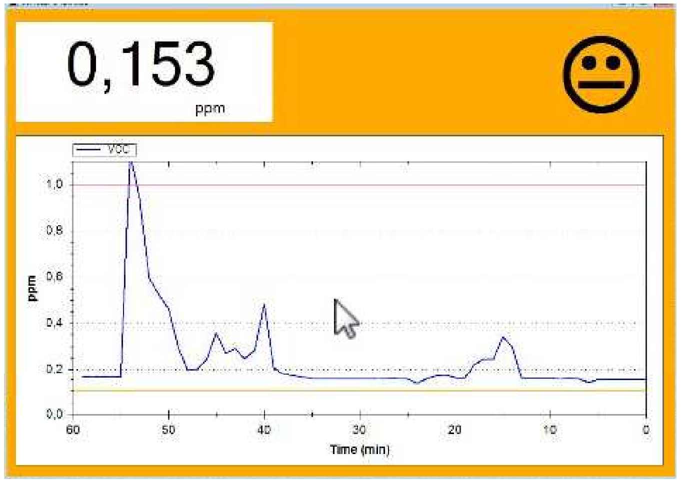
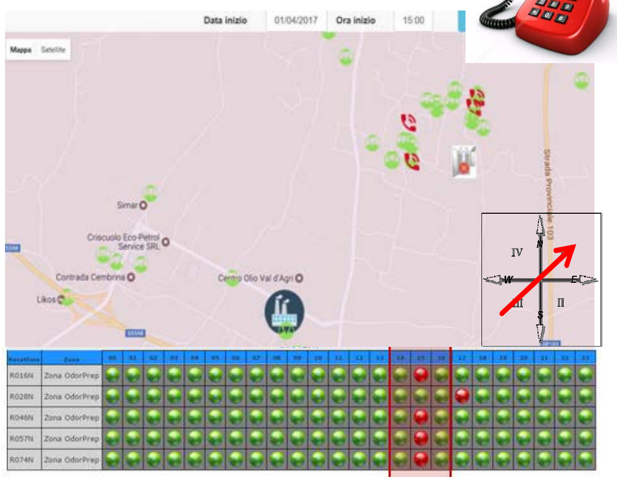
Impostazione Soglie





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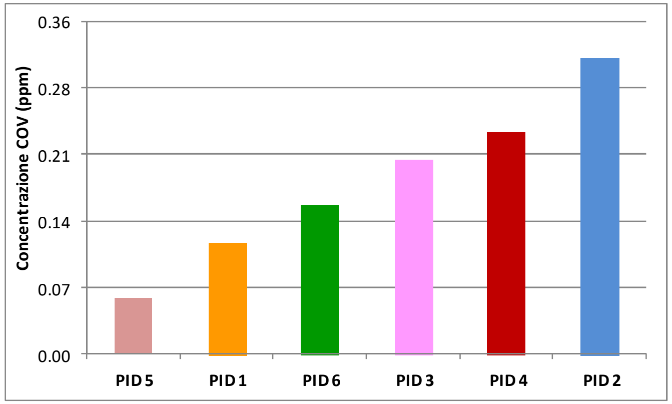

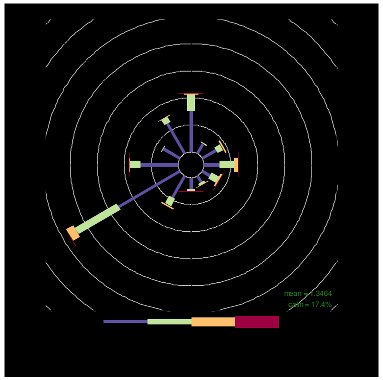

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Studio VIS Viggiano Grumento Nova

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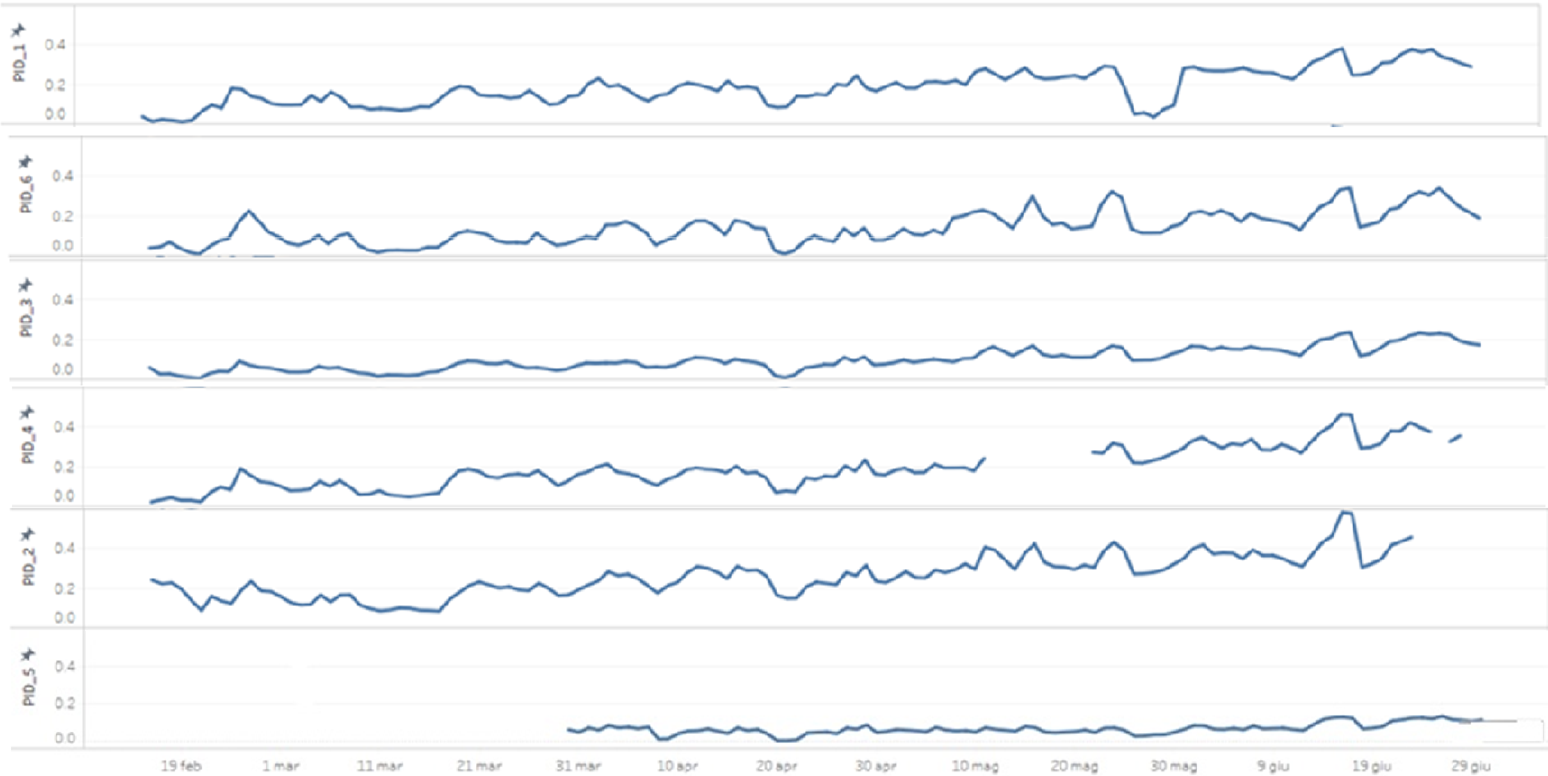
AUTOCONSISTENZA DELLA RETE DI MONITORAGGIO DEI PID



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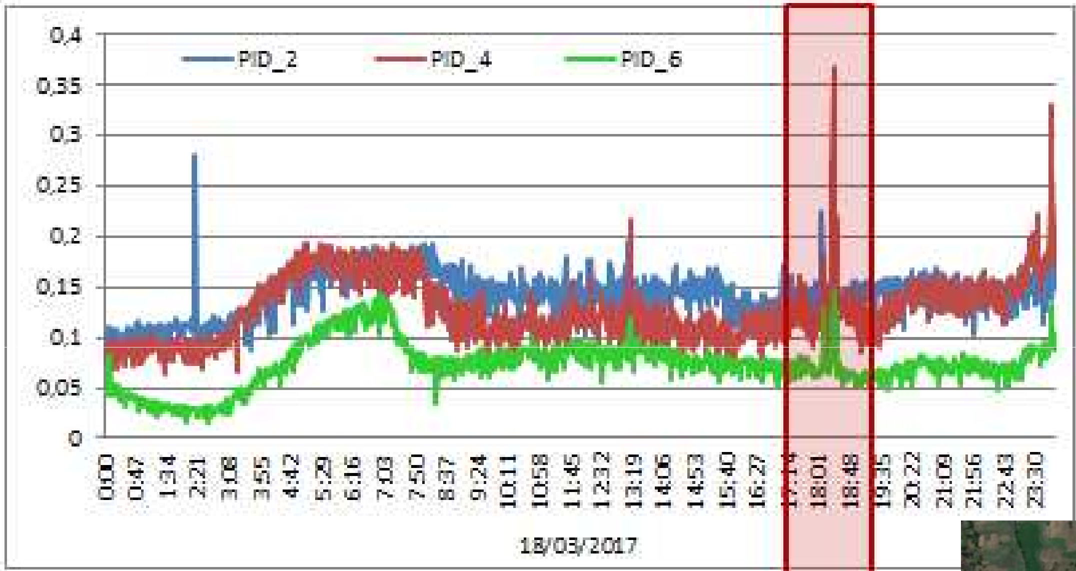
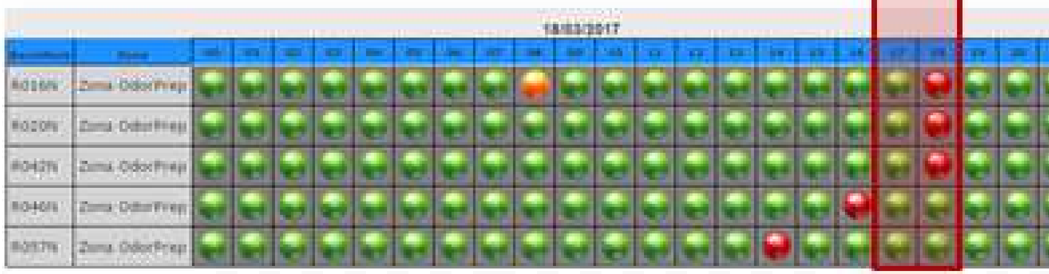
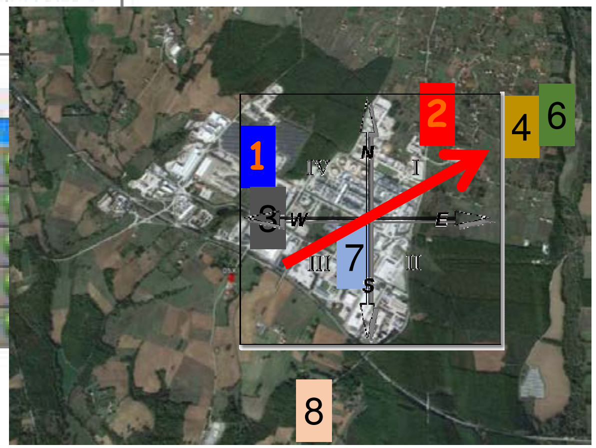
18 marzo



DIREZIONE VENTO: OSO





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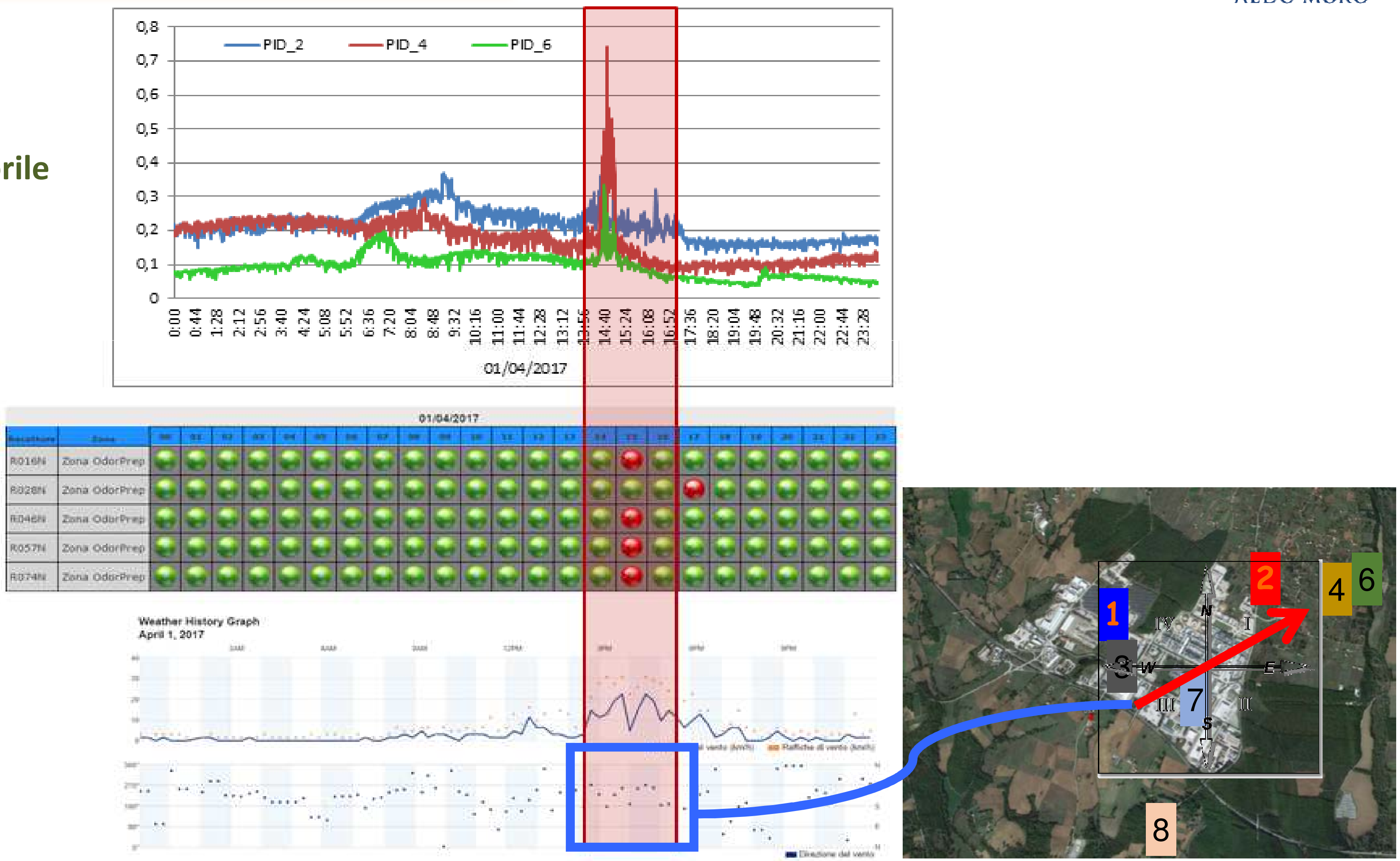
1 aprile



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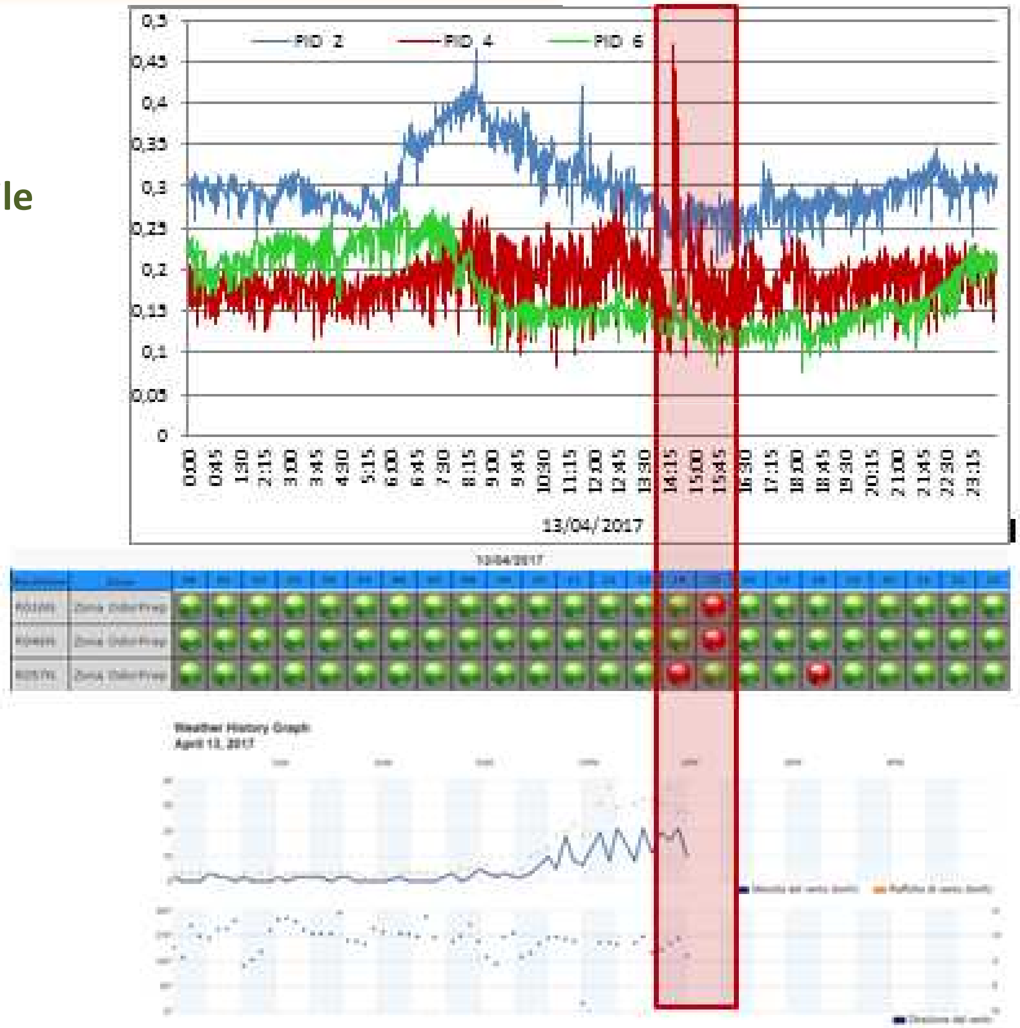
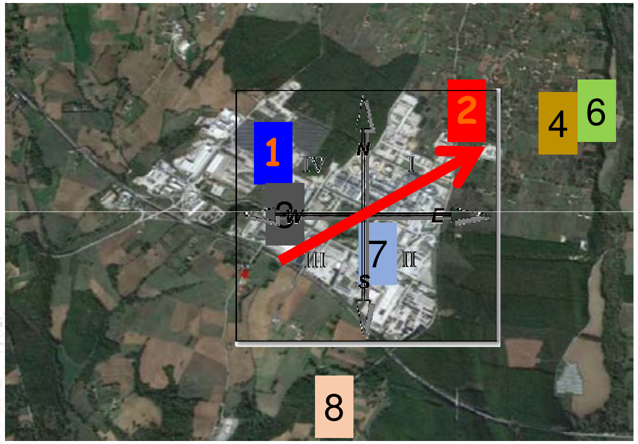
13 aprile





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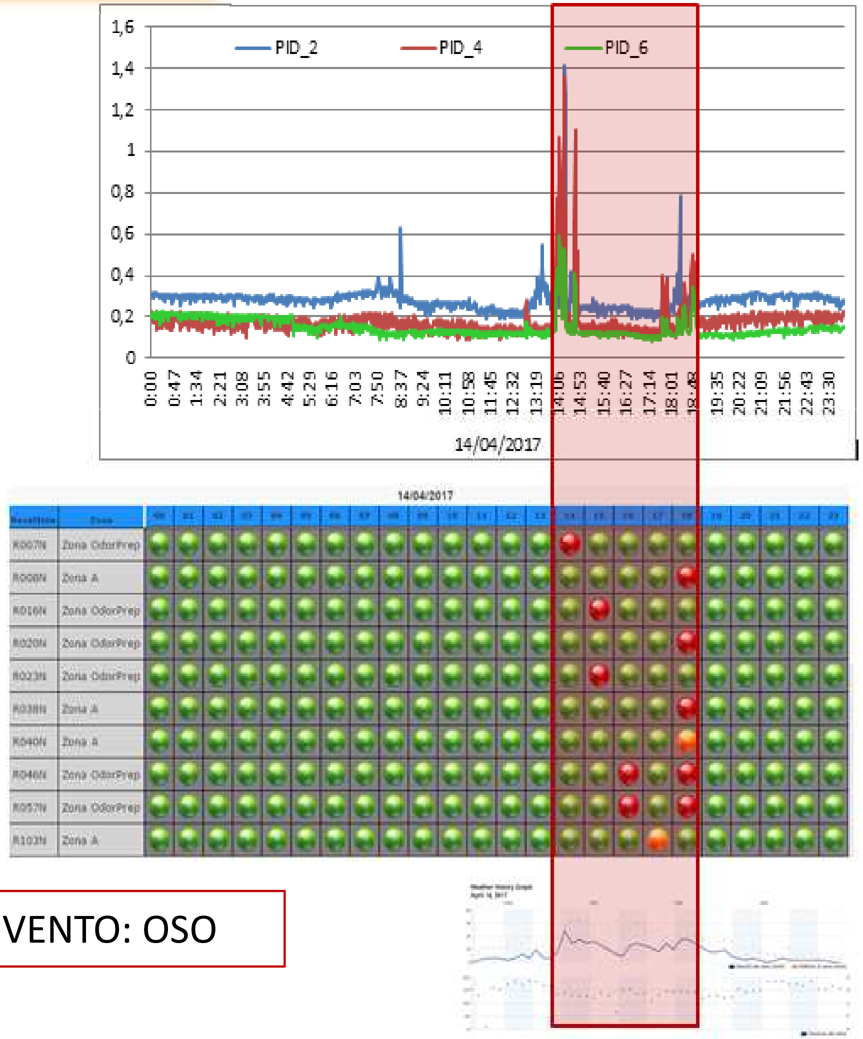
14 aprile



DIREZIONE VENTO: OSO

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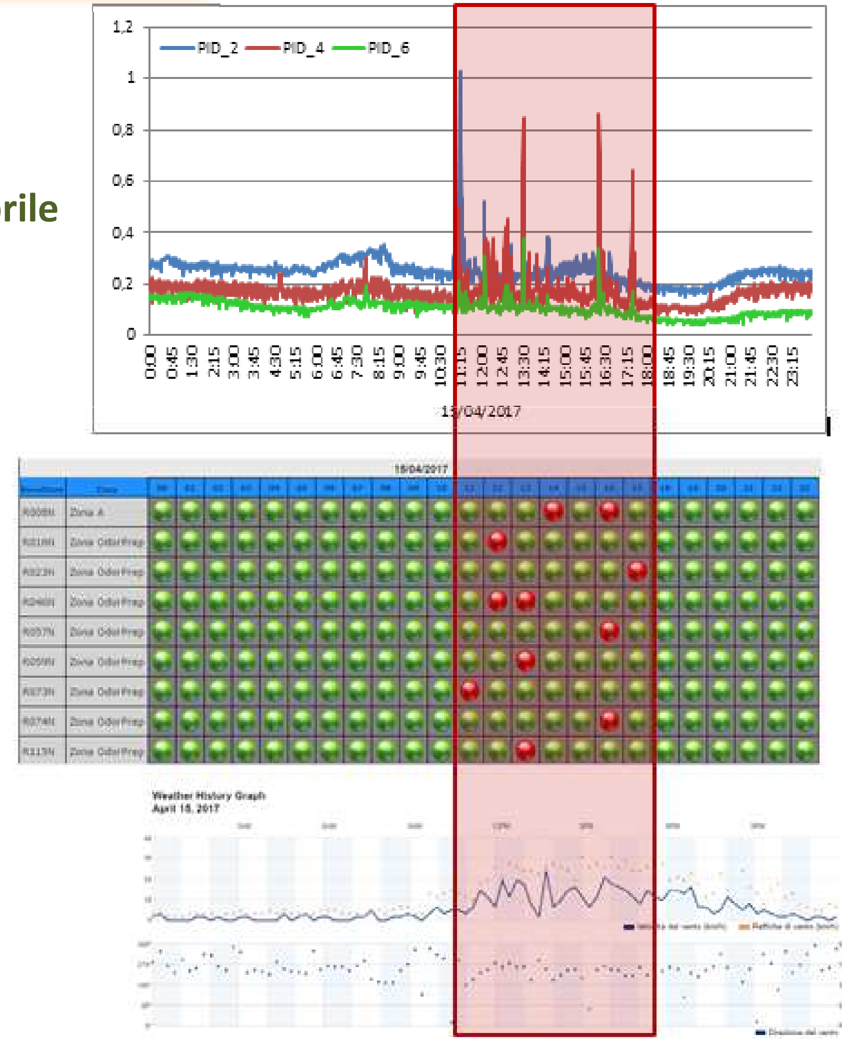
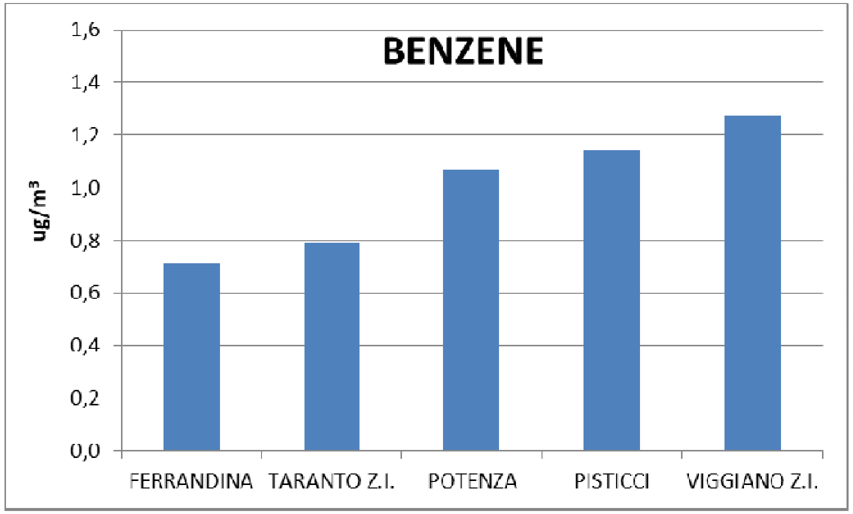
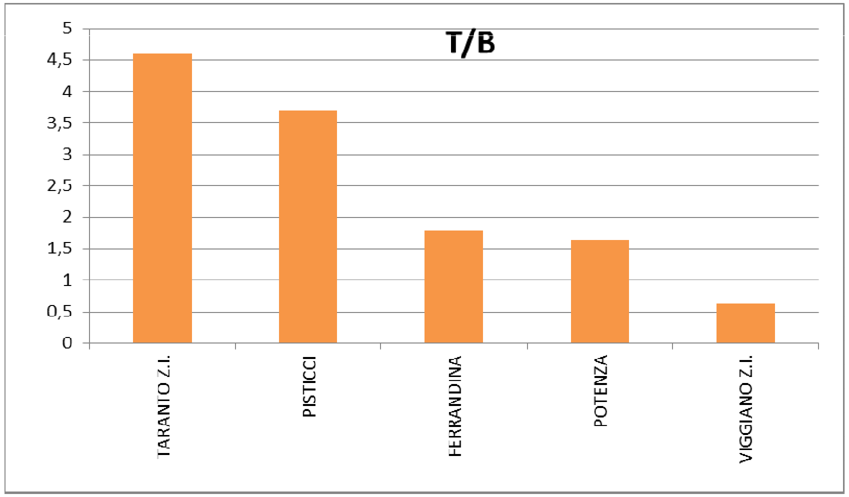
15 aprile





Valori delle concentrazioni di Benzene calcolati nel periodo Novembre 2016 - Giugno 2017 in diversi siti della Basilicata e della Puglia.

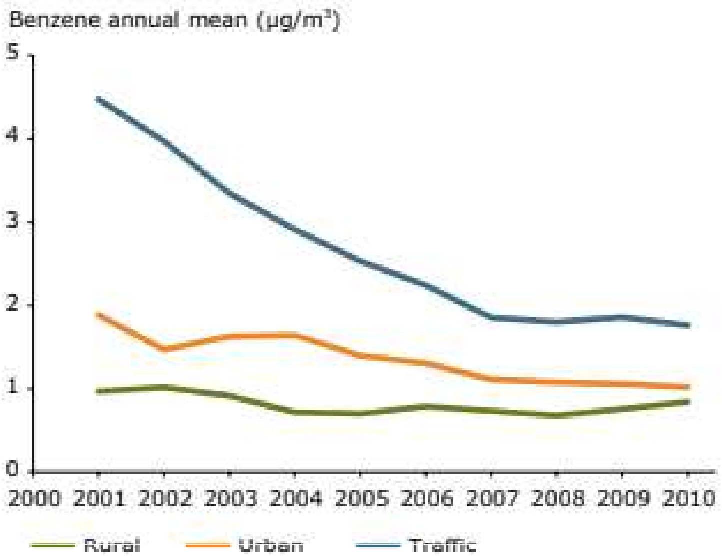


Valori dei rapporti diagnostici T/B calcolati nel periodo Novembre 2016-Giugno 2017 in diversi siti della Basilicata e della Puglia.

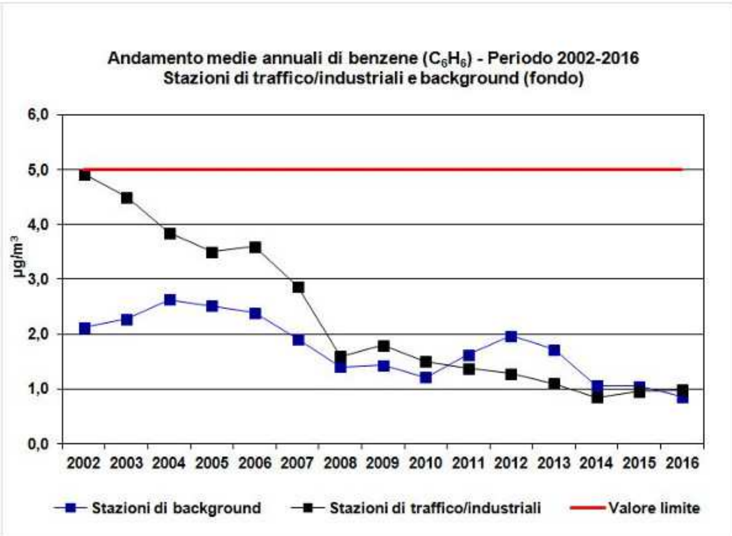
Anno	Centralina ENI "Masseria Puzzolente"	Centralina ARPAB "Viggiano 1 Zona Industriale"	Centralina ARPAB "Viggiano 1 "	Centralina ARPAB "Costa Molina SUD"	Centralina ARPAB "Grumento Nova"	Centralina ARPAB "Masseria de Blasis"	MEDIA Annuale
2015	0,40	1,40	0,68	0,38	0,69	0,57	0,71
2016	0,43	1,15	0,49	0,34	0,48	0,47	0,58
2017 (9 mesi)	0,30	1,24	0,80	0,60	0,37	0,43	0,66

Valori delle concentrazioni medie annuali di Benzene misurate nel periodo Gennaio 2015-Settembre 2017 in diversi siti della Basilicata (dati ARPAB)

La concentrazione media annuale di benzene misurata nel 2016 nell'area industriale di Viggiano dall'ARPAB è superiore a quella misurata nel 60% delle centraline censite da ISPRA nello stesso anno e nessuna di queste (121 centraline) è stata classificata 'fondo rurale'



Valori delle concentrazioni medie annuali di Benzene nell'arco temporale 2000-2010 in Europa.



Valori delle concentrazioni medie annuali di Benzene nell'arco temporale 2002-2016 in Veneto.

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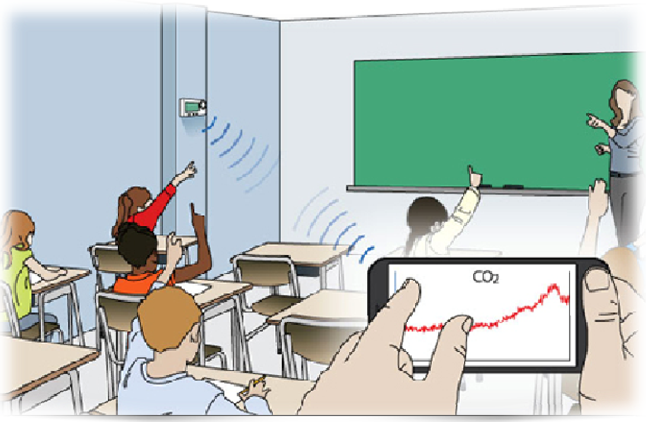
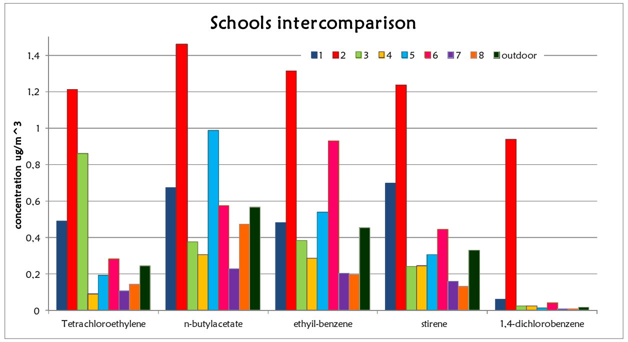
Inquinamento indoor





Int. J. Environ. Res. Public Health **2013**, *10*, 6273-6291; doi:10.3390/ijerph10126273

OPEN ACCESS
International Journal of Environmental Research and Public Health
ISSN 1660-4601
www.mdpi.com/journal/ijerph

Article

Indoor and Outdoor Monitoring of Volatile Organic Compounds in School Buildings: Indicators Based on Health Risk Assessment to Single out Critical Issues

Gianluigi de Gennaro *, Genoveffa Farella †, Annalisa Marzocca †, Antonio Mazzone † and Maria Tutino †

Department of Chemistry, University of Bari, via Orabona, 4, Bari 70126, Italy;
E-Mails: jenny_f89@hotmail.it (G.F.); annalisa.marzocca@uniba.it (A.M.); antonio.mazzone@uniba.it (A.M.); maria.tutino@uniba.it (M.T.)

Environ Chem Lett (2014) 12:467–482
DOI 10.1007/s10311-014-0470-6

REVIEW

Indoor air quality in schools

Gianluigi de Gennaro · Paolo Rosario Dambruoso · Annamaria Demarinis Loiotile · Alessia Di Gilio · Pasquale Giungato · Maria Tutino · Annalisa Marzocca · Antonio Mazzone · Jolanda Palmisani · Francesca Porcelli

Contents lists available at ScienceDirect
Atmospheric Environment
journal homepage: www.elsevier.com/locate/atmosenv

Indoor air quality in hair salons: Screening of volatile organic compounds and indicators based on health risk assessment

Gianluigi de Gennaro*, Lucrezia de Gennaro, Antonio Mazzone, Francesca Porcelli, Maria Tutino
Dipartimento di Chimica, Università degli Studi di Bari, via Orabona 4, 70126 Bari, Italy

Environ Sci Pollut Res (2014) 21:13186–13195
DOI 10.1007/s11356-014-2544-1

CHEMISTRY IN A SUSTAINABLE SOCIETY

Indoor air quality (IAQ) assessment in a multistorey shopping mall by high-spatial-resolution monitoring of volatile organic compounds (VOC)

M. Amodio · P. R. Dambruoso · Gianluigi de Gennaro · L. de Gennaro · A. Demarinis Loiotile · A. Marzocca · F. Stasi · L. Trizio · M. Tutino

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Clean Air in Hospital

Istituto Tumori
"Giovanni Paolo II"
I.R.C.C.S.
BARI

In tempo reale:

- CO_2
- VOC totali
- PM
- Presenze

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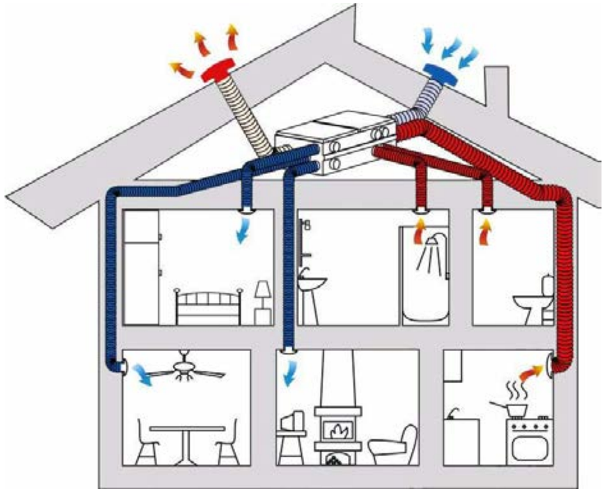
SISTEMI ABBATTIMENTO DEGLI INQUINANTI GASSOSI E PARTICELLARI



MECCANICI

VEGETALI

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Studio pilota finalizzato a dimostrare la capacità assorbente da parte delle piante epìfite Tillandsia dei Composti Organici Volatili (COV) negli ambienti indoor.

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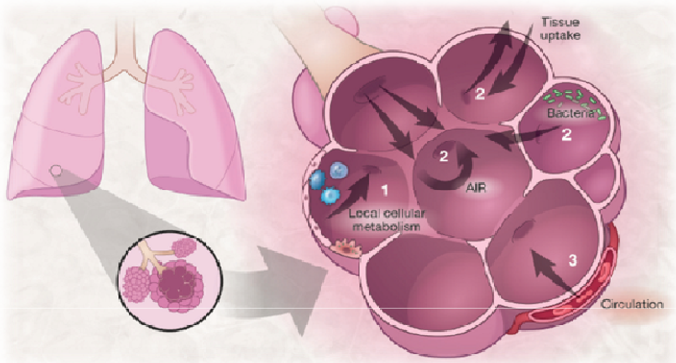
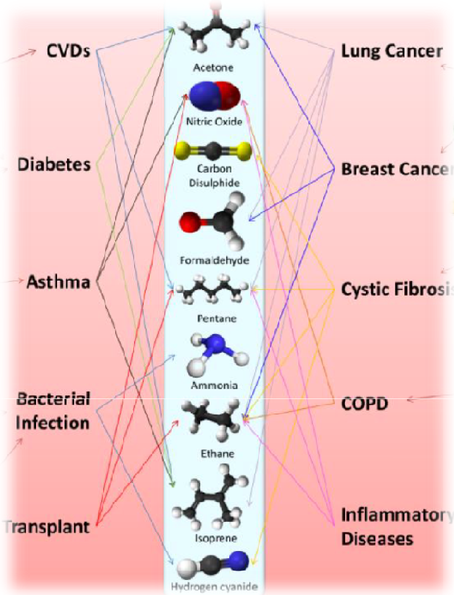
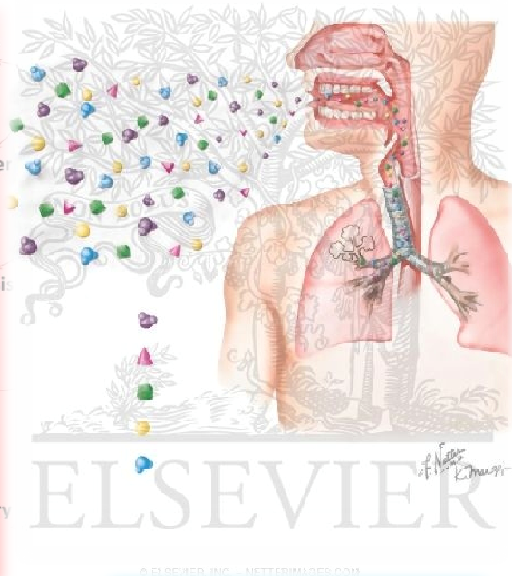
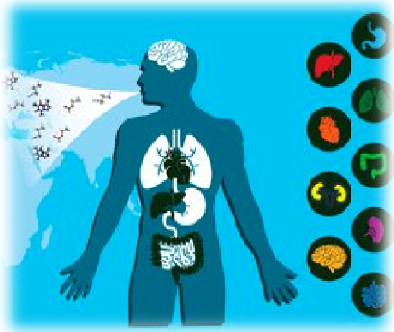
Breath analysis









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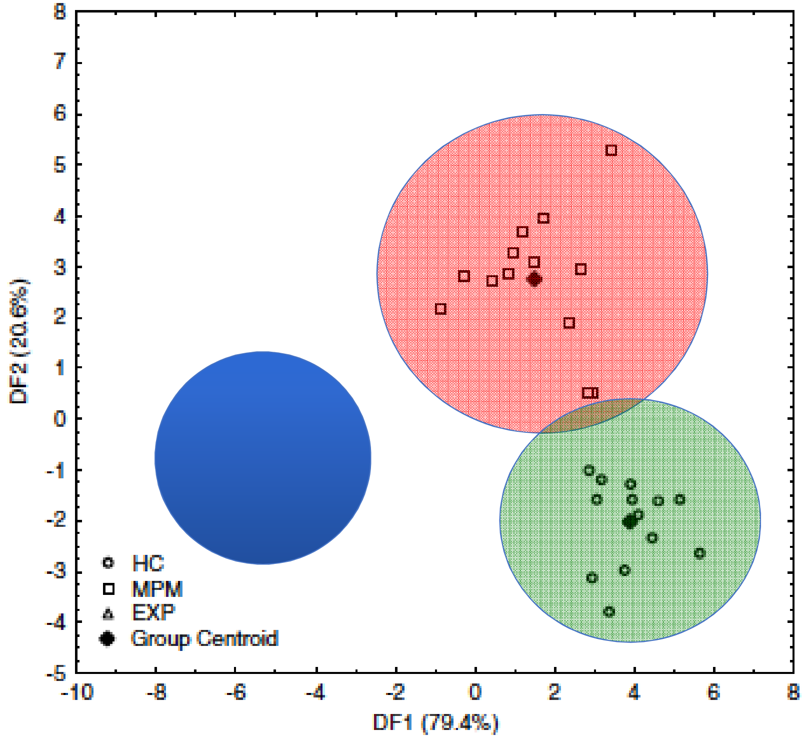
Anal Bioanal Chem (2010) 398:3043–3050
DOI 10.1007/s00216-010-4238-y

ORIGINAL PAPER

2010

Chemical characterization of exhaled breath to differentiate between patients with malignant pleural mesothelioma from subjects with similar professional asbestos exposure

G. de Gennaro · S. Dragonieri · F. Longobardi · M. Musti · G. Stallone · L. Trizio · M. Tutino



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2013

Original article

Exhaled volatile organic compounds identify patients with colorectal cancer

D. F. Altomare[1], M. Di Lena[1], F. Porcelli[2], L. Trizio[2], E. Travaglio[1], M. Tutino[2], S. Dragonieri[3], V. Memeo[1] and G. de Gennaro[2]

Departments of [1]Emergency and Organ Transplantation, [2]Chemistry and [3]Lung Diseases, University 'Aldo Moro' of Bari, Bari, Italy

	FOBT	**VOCs breath test**	Ct	RSS	Double contrast barium enema	Virtual Ct
Sensitivity (%)	33-40	**86**	97	70	70-85	84
Specificity (%)	97	**83**	100		86-97	83

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Breath analysis and lung cancer

BMC Cancer

BioMed Central

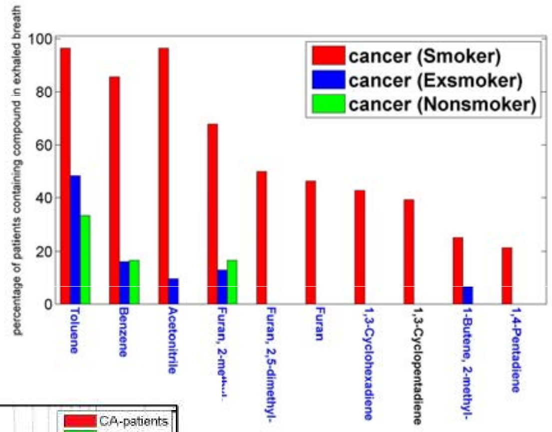
Research article

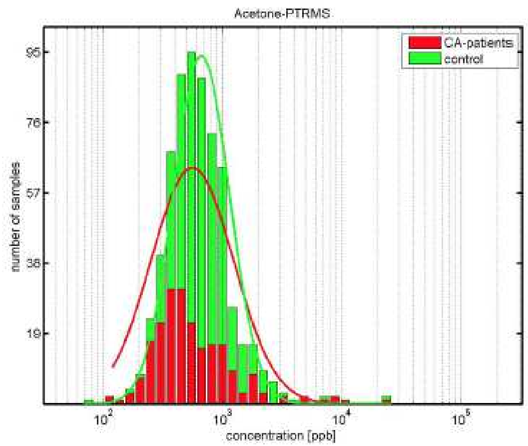
Open Access

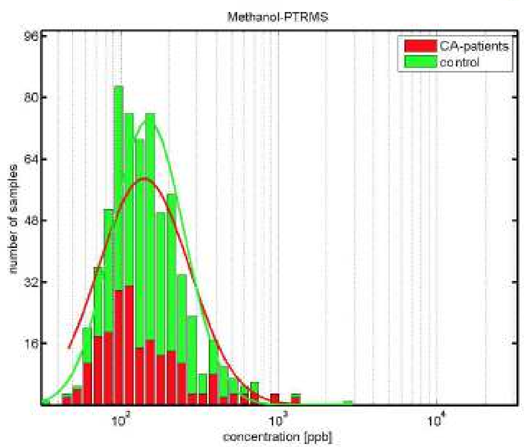
Noninvasive detection of lung cancer by analysis of exhaled breath

Amel Bajtarevic[1,2], Clemens Ager[1,2], Martin Pienz[1,2], Martin Klieber[1,2], Konrad Schwarz[1,2], Magdalena Ligor[1,2,6], Tomasz Ligor[1,2,6], Wojciech Filipiak[1,2], Hubert Denz[3,2], Michael Fiegl[3,2], Wolfgang Hilbe[4], Wolfgang Weiss[5], Peter Lukas[5], Herbert Jamnig[3], Martin Hackl[3], Alfred Haidenberger[7], Bogusław Buszewski[6,2], Wolfram Miekisch[8,2], Jochen Schubert[8,2] and Anton Amann*[1,2]

Address: [1]Department of Operative Medicine, Innsbruck Medical University, A-6020 Innsbruck, Austria, [2]Breath Research Unit of the Austrian Academy of Sciences, A-6850 Dornbirn, Austria, [3]Landeskrankenhaus Natters, A-6161 Natters, Austria, [4]Univ.-Klinik für Innere Medizin 5 (Hämatologie und Onkologie), Innsbruck Medical University, Anichstrasse 35, A-6020 Innsbruck, Austria, [5]Universitätsklinik für Strahlentherapie-Radioonkologie Innsbruck, Innsbruck Medical University, A-6020 Innsbruck, Austria, [6]Faculty of Chemistry, Nicolaus Copernicus University, PL-87100 Toruń, Poland, [7]Institution of Radio-Oncology, LKH Vöcklabruck, A-4840 Vöcklabruck, Austria and [8]Department of Anaesthesiology and Intensive Care, University of Rostock, D-18057 Rostock, Germany







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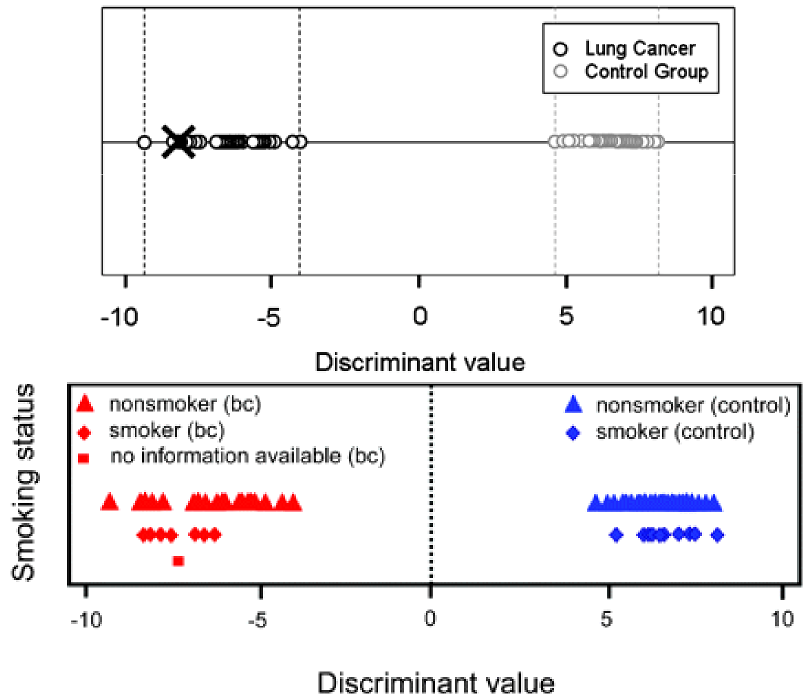
THORAX

Ion mobility spectrometry for the detection of volatile organic compounds in exhaled breath of patients with lung cancer: results of a pilot study

M Westhoff, P Litterst, L Freitag, W Urfer, S Bader and J-I Baumbach

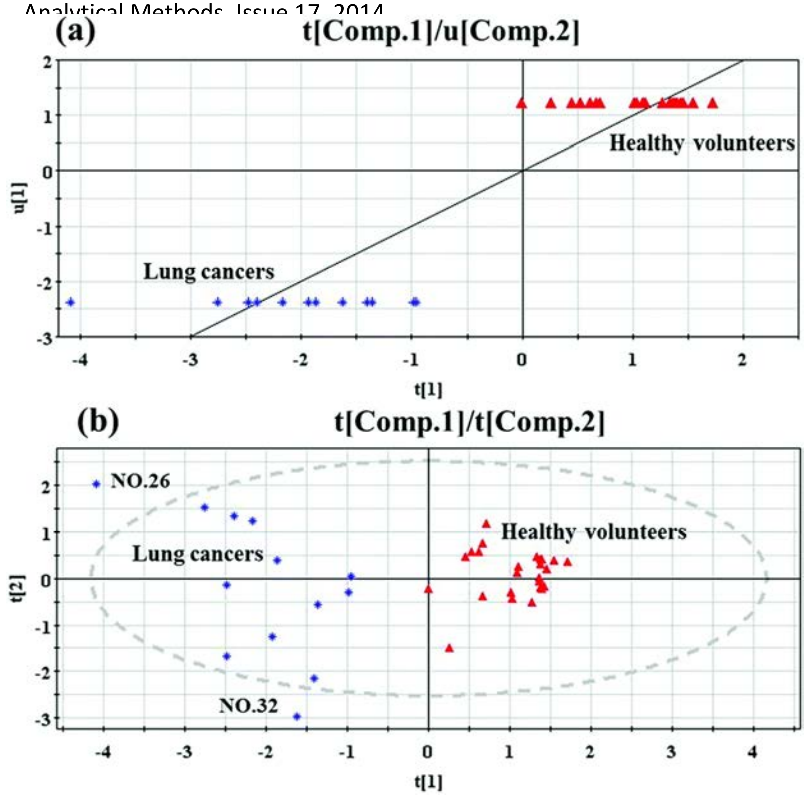
Thorax 2009 64: 744-748 originally published online January 21, 2009
doi: 10.1136/thx.2008.099465



Analysis of human breath samples of lung cancer patients a

Hongying Ma,a Xiang Li,*a Jianmin Chen,a Huijie Wang,b Tiantao Cheng,a
Kai Chenc and Shifen Xuc

Analytical Methods, Issue 17, 2014



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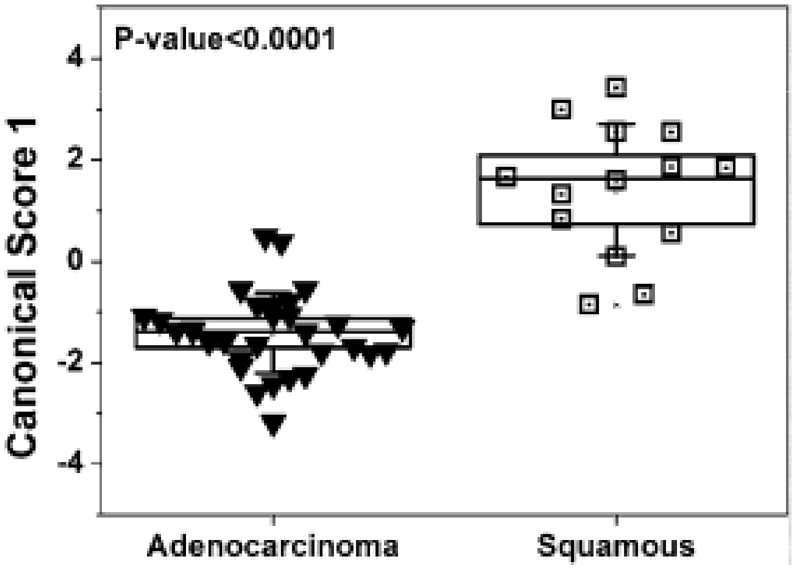
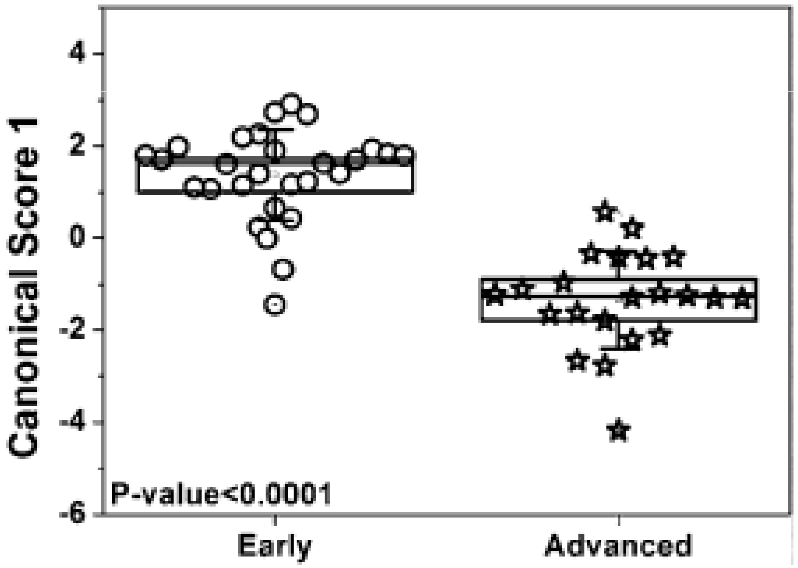
ORIGINAL ARTICLE

Non-invasive Breath Analysis of Pulmonary Nodules

Nir Peled, MD, PhD,† Meggie Hakim, MSc,‡ Paul A. Bunn, Jr. MD,§ York E. Miller, MD,||
Timothy C. Kennedy, MD,|| Jane Mattei, MD, PhD§ John D. Mitchell, MD,¶
Fred R. Hirsch, MD, PhD,# and Hossam Haick, PhD‡*





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Volatile fingerprints of cancer specific genetic mutations

Nir Peled[a,b,1], Orna Barash[c,1], Ulrike Tisch[c], Radu Ionescu[c,d], Yoav Y. Broza[c], Maya Ilouze[a], Jane Mattei[b], Paul A. Bunn Jr.[b], Fred R. Hirsch[b,*], Hossam Haick[c,*]
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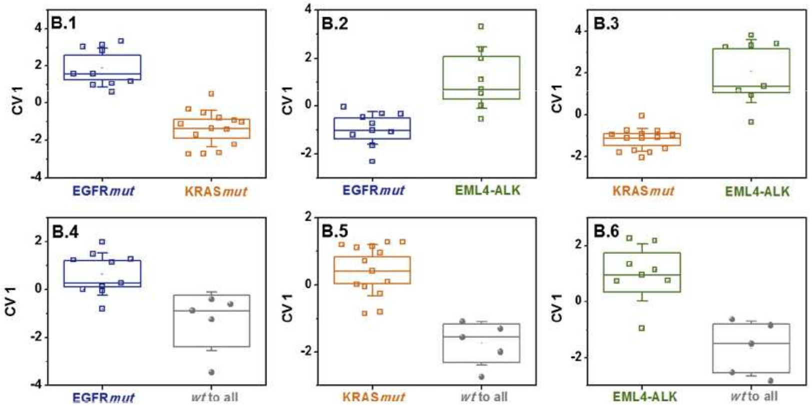

Exhaled Breath Analysis for Monitoring Response to Treatment in Advanced Lung Cancer

CrossMark

Inbar Nardi-Agmon, MD,[a] Manal Abud-Hawa, MSc,[b] Ori Liran, MSc,[a] Naomi Gai-Mor, MSc,[a] Maya Ilouze, PhD,[d] Amir Onn, MD,[c] Jair Bar, MD, PhD,[c] Dekel Shlomi, MD,[a] Hossam Haick, PhD,[c,*] Nir Peled, MD, PhD[a,d]

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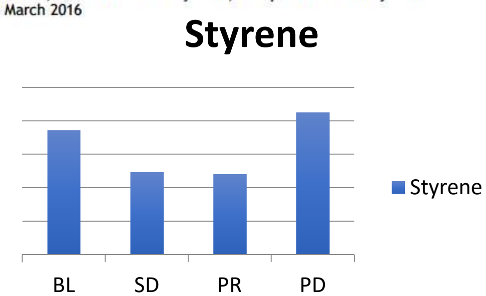

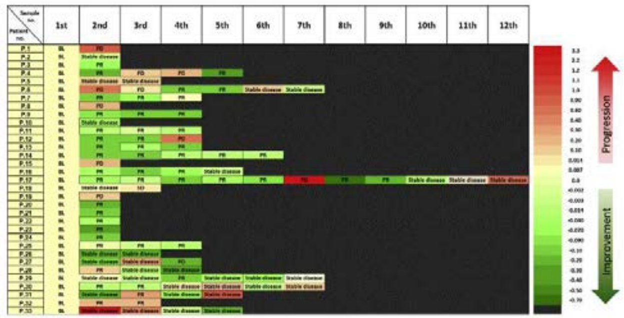

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Grazie

Gianluigi de Gennaro

Responsabile Scientifico del Laboratorio Olfattometrico dell'Università di Bari
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