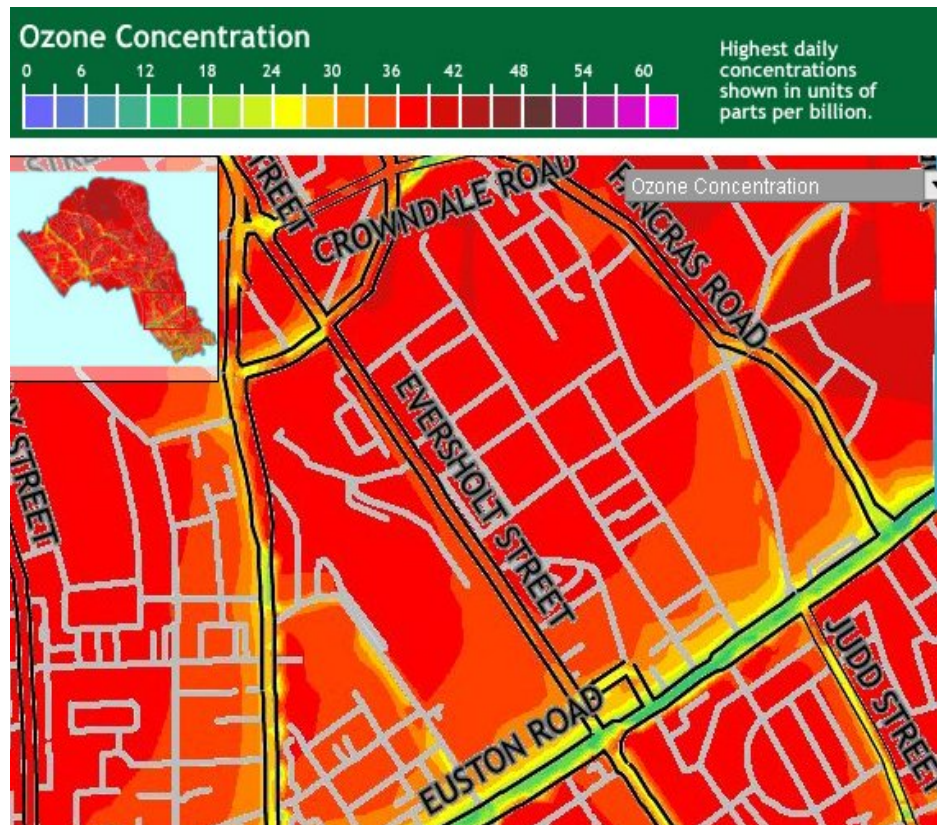


*air*TEXT Air Quality Forecasting System

Dr. David Carruthers
CERC



**TOWARDS
eENVIRONMENT**
*GMES Meeting
Prague
March 2009*





*air*TEXT

- A downstream service of GMES PROMOTE supported by ESA
- Based on expertise gained in development and implementation of CERC's high resolution *yourAir* air quality forecasting system in urban/roadside locations including:
 - City of York
 - CUBA (Bristol and surrounding local authorities)
 - M4NTAIS (South Wales)
 - Budapest (DASY)
 - Strasbourg (Numtech)
 - Shenyang, China (Shenyang EPB)
 - Wakefield (Northern England)
 - **London**
- ***air*TEXT is implementation of *yourAir* in London**



airTEXT/yourAir: System and Data Requirements

Input

- Forecast meteorology
- Forecast regional (background) concentrations
- Ground based monitoring – assimilation, validation
- Emission inventory – high resolution
- Land use
- Surface topography

System engine

**LOCAL
FORECASTS
ADMS-Urban**

Output

- Colour contour image of forecast overlaid on image
- Text and number summaries
- Alerts to TV, the public, health professionals
- **Send alert via SMS, e-mail or voice mail**

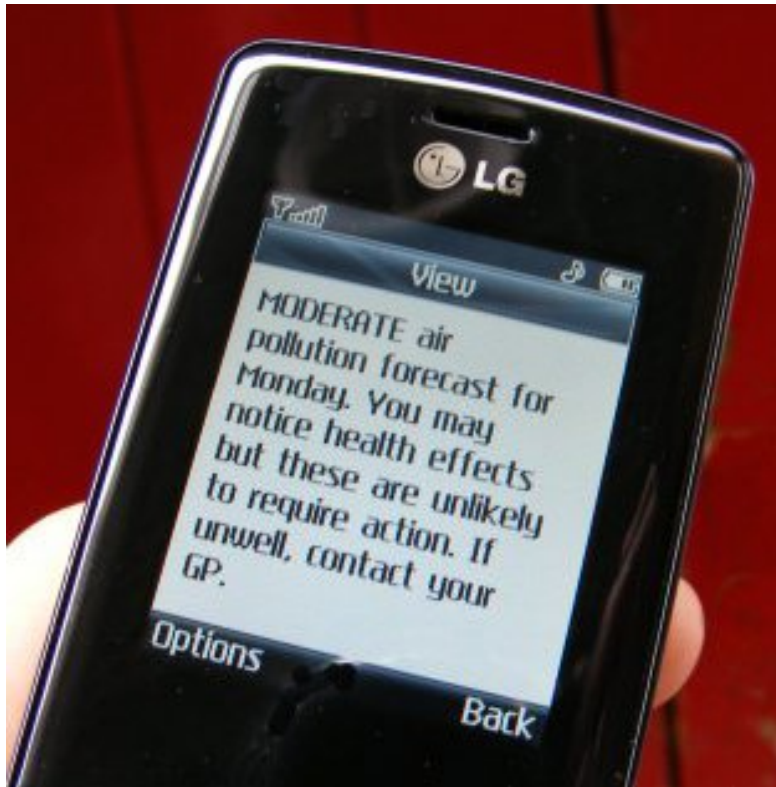


London's *airTEXT* : the service

- Launched London-wide (& Slough) in March 2007 at London City Hall
- Supported by Greater London Authority, DEFRA, Environment Agency, Health Protection Agency, 26 London Boroughs – in addition to ESA (PROMOTE)



London's *airTEXT*: the system

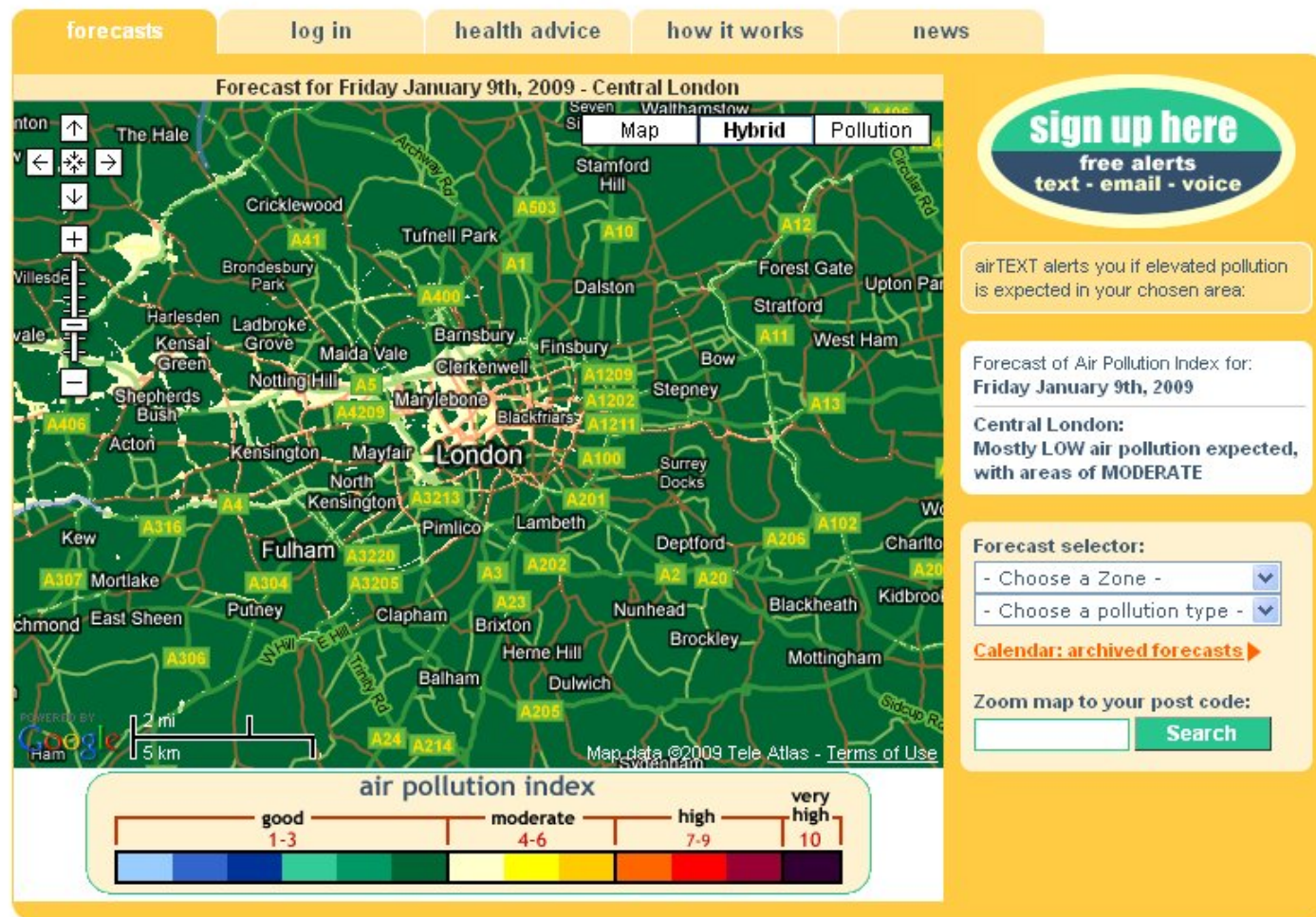


- System covers all of London
- Almost 5,000 subscribers
- Street level pollution contours posted to web - Google Maps
- Alerts sent by email, text message or voice message
- Subscribers can receive alerts the evening before or the morning of an alert
- Alert sent if MODERATE, HIGH or VERY HIGH pollution predicted
- Subscribers can login and change their details e.g. holiday periods

London's *airTEXT*: the system



Log In | Sign Up
Font: Normal | Larger+ | Larger++ | Text Only



[Forecasts](#) | [Contact Us](#) | [Partners](#) | [Press](#) | [Terms & Conditions](#)

An ESA PROMOTE service in conjunction with CERC. Copyright © CERC. All rights reserved.



CERC

airTEXT - User accounts

Phone Number:

Register

Unsubscribe

Log In

- If you have already registered, or you signed up on the website or by another means, you can log in below.
- Enter your last name (you can use capitals or lower case letters) and year of birth (use 4 digits, yyyy format).
- If you receive emailed alerts, enter your email address when the box appears below.
- If you get phone alerts, enter your phone number when the box appears below. Do not add spaces, dashes or other characters.

Last Name:

Post Code:

Year of Birth (yyyy):

How do you get alerts?

- ☐ Email
☐ Phone

Log In

- Change your alerts to a different method
- Change the phone number or email address you get the alerts at
- Pause the alerts while you are away on holiday
- Unsubscribe altogether from alerts

sign up here
free alerts
text - email - voice

airTEXT alerts you if elevated pollution is expected in your chosen area:

Forecast for:
Tuesday 24 March, 2009

Central London:
LOW air pollution expected everywhere

ERC

airTEXT

- Current advertising campaign: newspaper, tube and bus
- A study started in June 2008, being undertaken by the University of Brighton, to assess the epidemiological effects of receiving air quality forecasts and to assess the service provision

BE IN THE KNOW BEFORE YOU GO...

Do you have asthma, breathing or heart problems?
Air pollution can affect your health.

Get **FREE** air pollution alerts for London straight to your home phone, mobile or by email.

Text **AIRTEXT** to **84142*** or register online at:
WWW.AIRTEXT.INFO


* You will be charged at your standard text rate.

POLLUTION INDEX

LOW	MODERATE	HIGH
1-2	3-4	5-6

airTEXT is a service provided by the London boroughs

CERC **PROMOTE** **asthma UK**

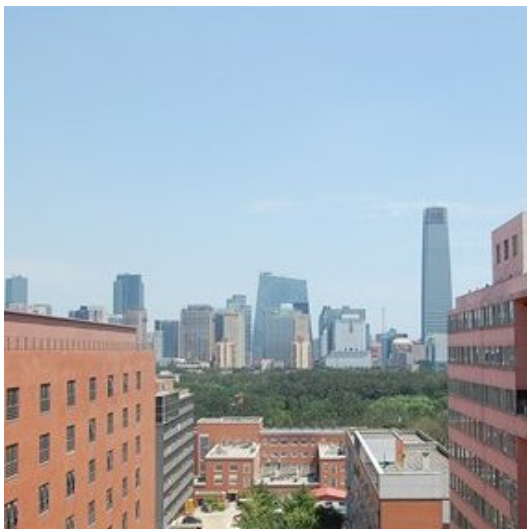


BeijingAir: yourAir in **Beijing**

Beijing's air quality

Caused concern in the run up to the Olympics....

Good



Worse



Bad



BBC July 2008



CERC July 2008

CERC



BeijingAir

- *Beijingair* air quality forecasts were created under the DRAGON project
- DRAGON is a cooperation project between
 - the European Space Agency and
 - China's Ministry of Science and Technology
- The project partners were:
 - CERC
 - Beijing Capital Normal University
 - the Dutch Met Office (KMNI)
- The launch was hosted in Beijing by Beijing Environmental Protection Bureau





BeijingAir

- Within 3 months the data were acquired, the system including a dual language web site set up and operational forecasting began
- The system was installed at Beijing Capital Normal University and at the offices of the Beijing Environmental Protection Bureau as well as in Cambridge, UK. Training was delivered at both venues.
- *BeijingAir* delivered forecasts throughout the Olympic and Paralympic period with great reliability



BeijingAir: website (in Chinese)

BeijingAir 北京 • DRAGON 龙计划

北京空气质量预报

合作方登录
English | 中文
字体: 正常 | 较大 | 特大 | 文本格式

预报

对健康的影响

新闻

数据资源

系统原理

合作方登录

日期2008年09月09日 - 北京



BeijingAir 提供北京街道尺度的天气 预报:

空气污染指数 预报:
2008年09月09日

北京: 空气质量良或轻微污染

选择日期:

- 北京
- API
- ☐ 2008年 10月 13日 (星期一)
- ☐ 2008年 10月 14日 (星期二)
- ☐ 2008年 10月 15日 (星期三)

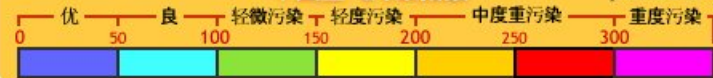
归档的空气质量预报

空气污染指数:

空气质量状况分级标准及其对健康的影响采用中国环境监测总站的定义和说法。

中国空气污染指数

[点击查看说明]



预报 | 联系我们 | 合作方 | 媒体 | 条款

欧洲航天局, 剑桥环境研究公司DRAGON2项目 版权所有 © 剑桥环境研究公司

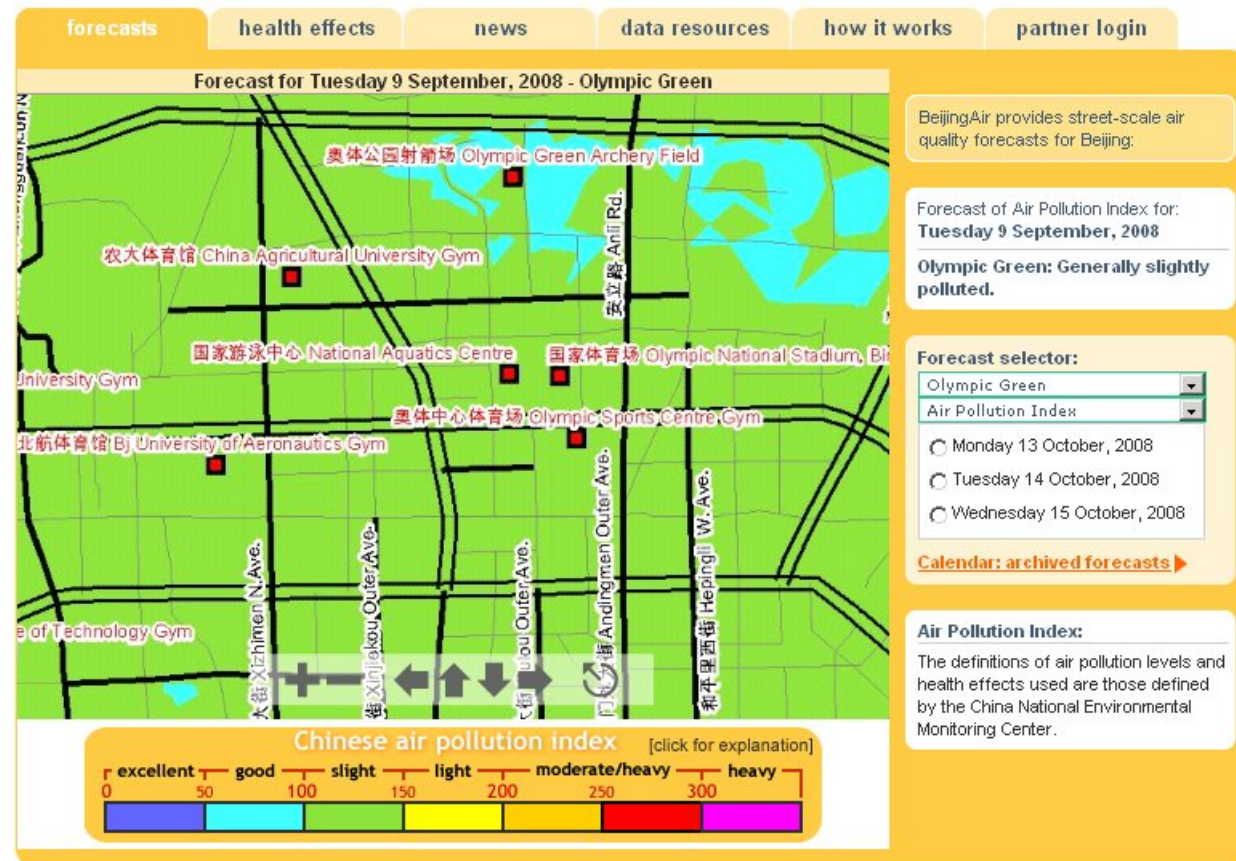


BeijingAir: website (zoomed in)

BeijingAir 北京 • DRAGON 龙计划

Air quality forecasts for Beijing

Partner log in
English | 中文
Font: Normal | Larger+ | Larger++ | Text Only



Forecasts | Contact Us | Partners | Press | Terms & Conditions
An ESA DRAGON 2 service in conjunction with CERC. Copyright © CERC. All rights reserved.



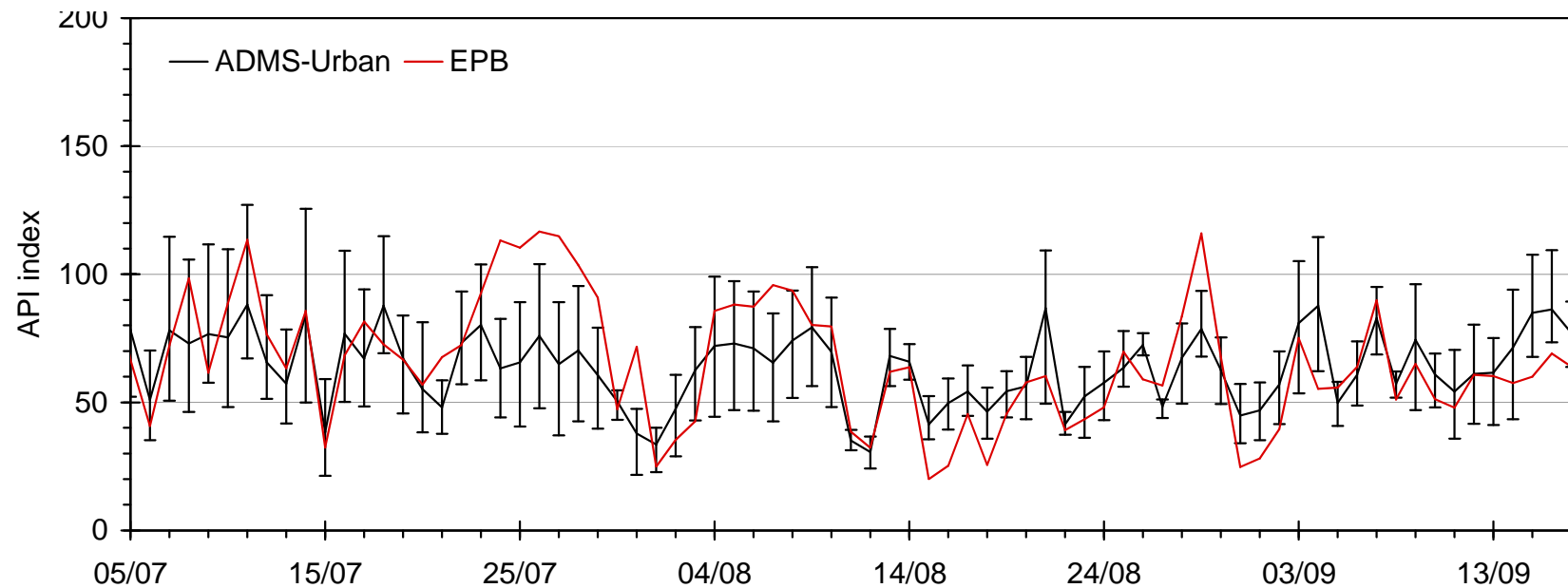
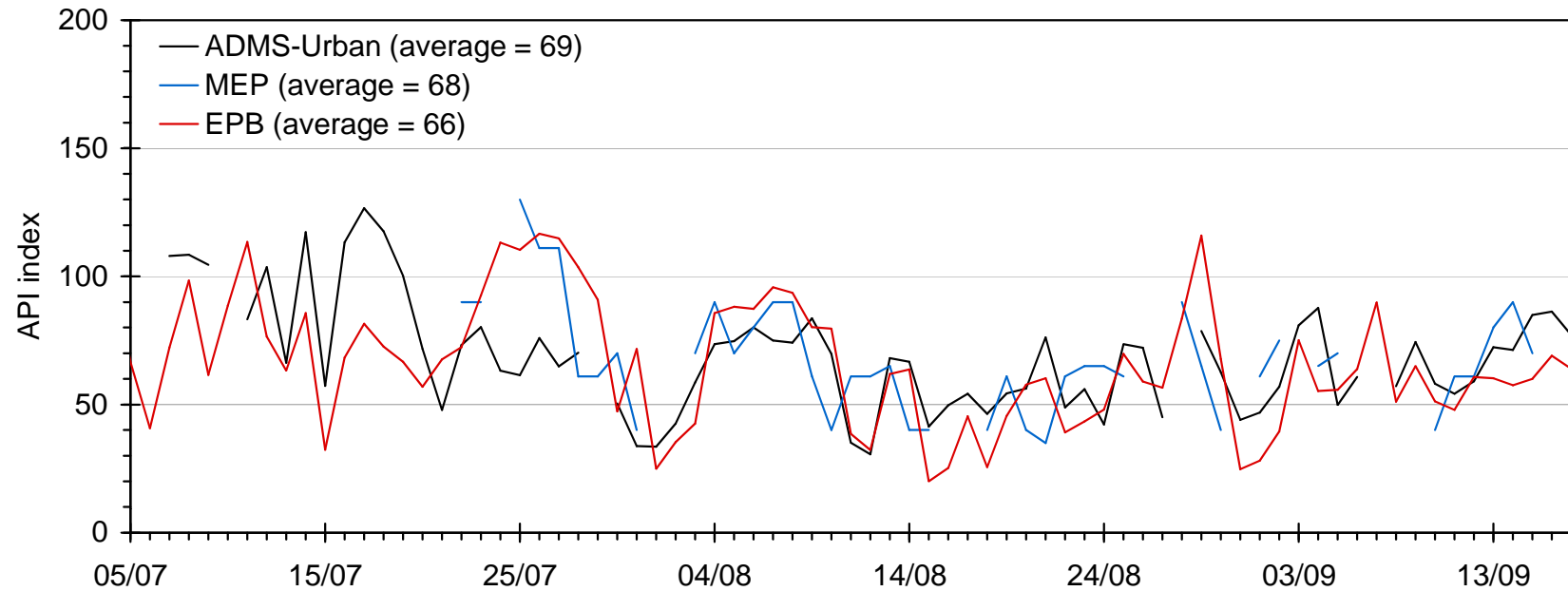


BeijingAir performance

- Data compared
 - ADMS-Urban (*BeijingAir* forecasts)
 - in **live mode** (published on-line)
 - in **hindcast mode** (model rerun afterwards)
 - MEP (forecasts by the Ministry of Environment Protection)
 - CHIMERE (forecast concentrations by the CHIMERE model)
 - EPB (monitor observations in Beijing)
- Period of comparison: 5 July to 19 September
(before and after the emission cut, Olympics, Paralympics)
- Points of comparison: Beijing (average over 11 monitors)

BeijingAir performance: live & hindcast

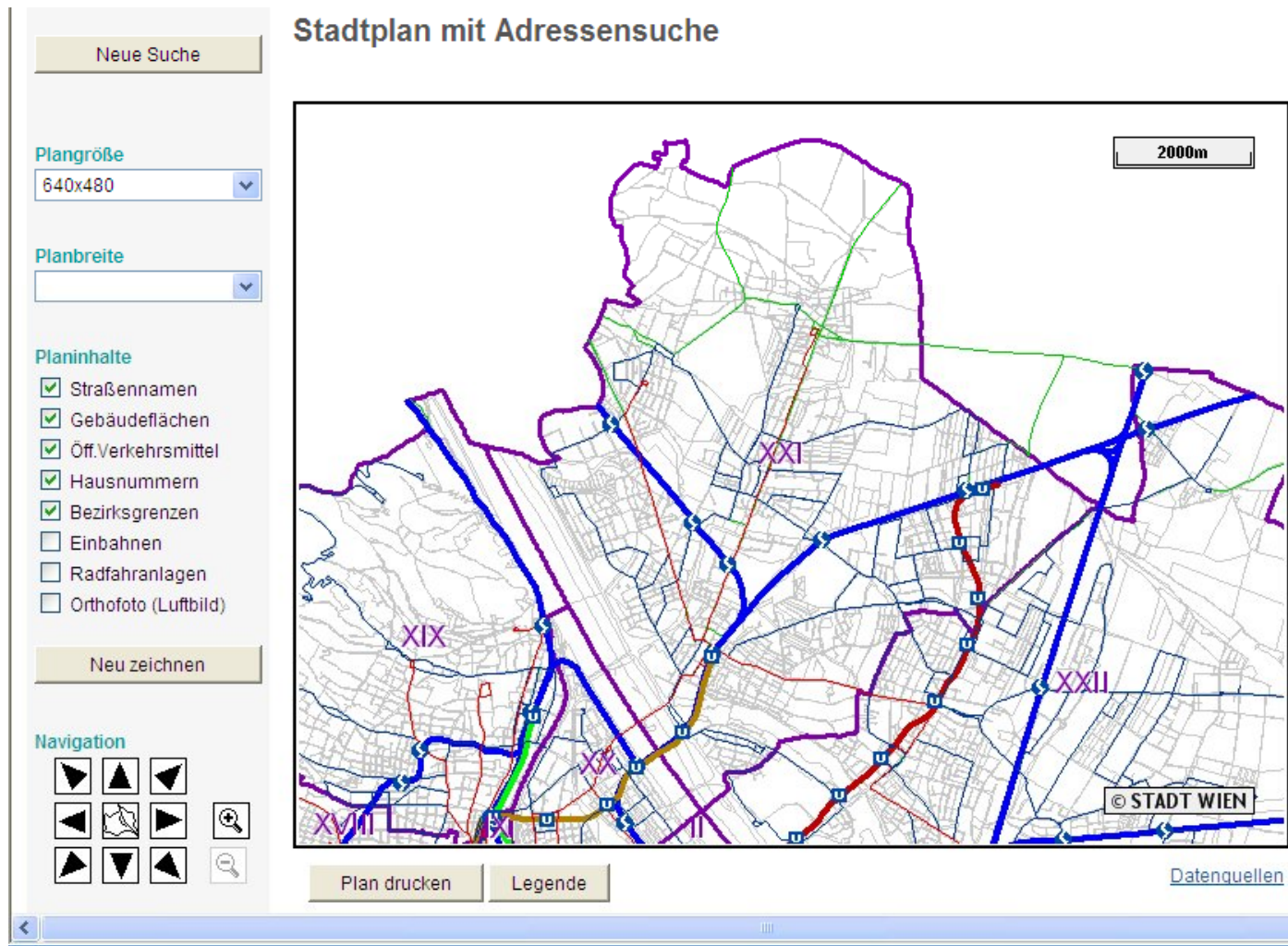
Daily API, ADMS-Urban forecasts, MEP forecasts, EPB observations



yourAir: ongoing developments within
PROMOTE

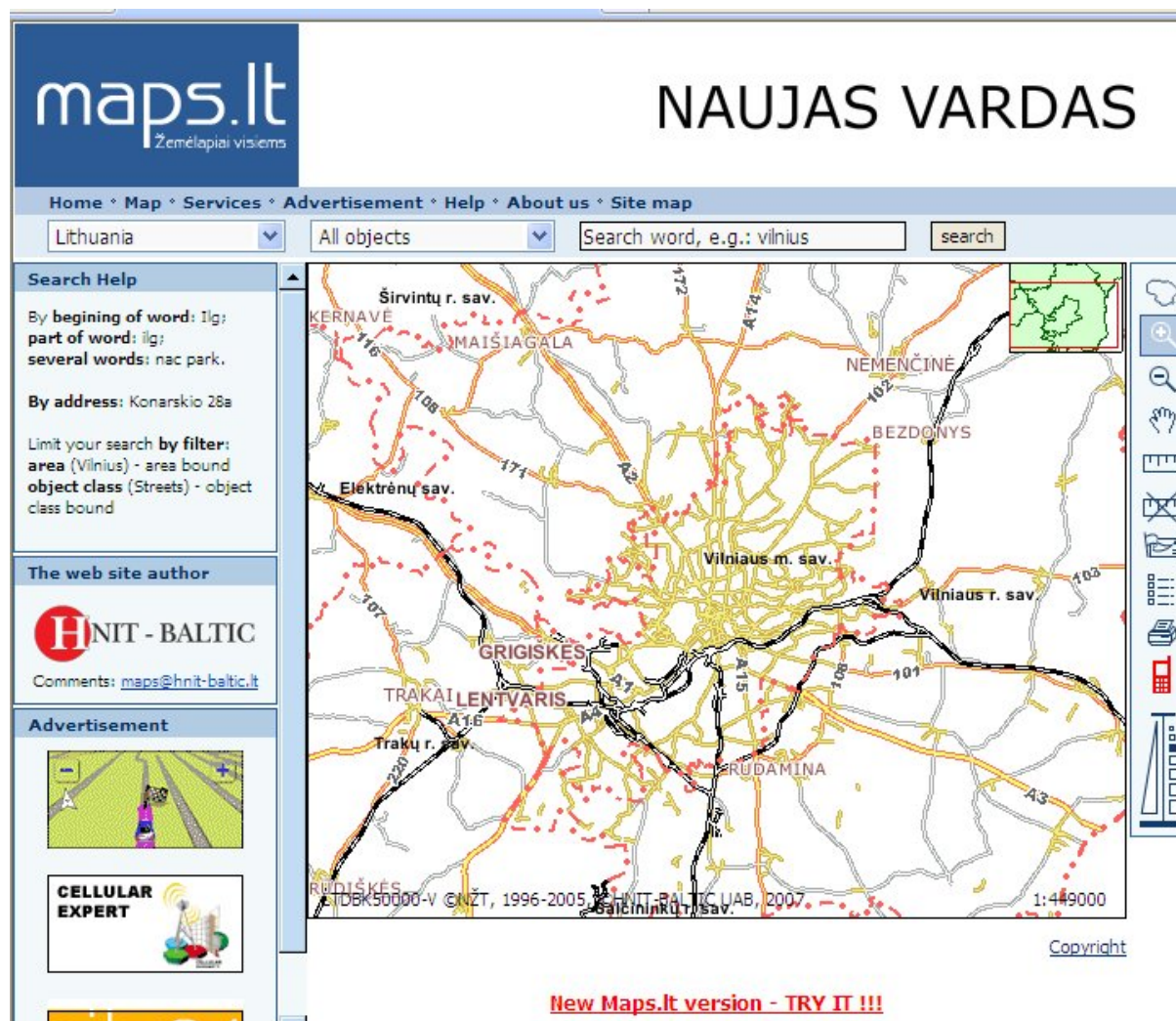
Vienna (Austria)

- Under development, working with UBA (Environment Agency) and City of Vienna



Vilnius (Lithuania)

- Under development, to link to Municipality web site and maps



Thank you

www.cerc.co.uk