We aim at improving the quality of our Earth
by understanding the nature of its changes

isardSAT®

Research and Services in the Earth Observation Field
isardSAT counts with a team of 27 international experts in Earth Observation and remote sensing.

- Our headquarters are in Barcelona, and filials in Guilford (UK) and Gdynia (PL)
Earth Observation Service Provider

Disaster Risk Reduction
- Floods and droughts
- Storms

Support to Legislation
- Atmospheric Pollution
- Climate Change

Hydrology and Agriculture
- Crop Suitability
- Water Level
Breathe in knowledge.

Air quality knowledge for informed sustainable decisions.

Driven by science and technology and delivered by the lead providers.
1. Introduction
2. Markets
3. Products
4. About us
Let’s talk about Air Quality

• Globally, 92% of the population breathes air that breaches WHO limits.

• The UN agency has previously warned that tiny particulates from cars, power plants and other sources are killing 3 million people worldwide each year.

• More than 1 million people died from dirty air in China in 2012, at least 600,000 in India and more than 140,000 in Russia
1. Introduction
2. Markets
3. Products
4. About us
Discover what’s possible

Smart Cities

Manage emission sources to reduce the economic and societal impact of pollution.

Our Decision Supporting Tool simulates air quality scenarios to evaluate the impact of the actions helping to develop a smart city plan.

Customers

Ayuntamiento de Madrid / Ajuntament de Barcelona
Valluri Technology Accelerators

Environmental Regulation & Planning

Strategic planning for a higher resilience.

A monthly detailed estimate of air emissions, hourly high resolution maps of urban air pollution, a 3 days in advance hourly forecast in a high quality performance and our decision supporting tool for simulating air quality scenarios to evaluate the impact of the actions.

Customers

China National Environmental Monitoring Center
Environmental Pollution Weather Forewarning Center
Discover what’s possible

Mobile apps

High quality and globally available Air Quality datasets to make your app stand out from the crowd.

A 3 days in advance hourly forecast in a high quality performance among other products will distinguish your Air Quality, Weather and fitness Mobile Application.

Green supply chain

Track pollution created by supply chains. Identifying all actors along the supply chain whose activities contribute to emission hotspots can open the door to new solutions to fight pollution.

Databases can be used to identify key flows and industries in supply networks that contribute to the air pollution footprint.

Customers

Plume Labs
AirMatters

Customers

PwC
The Institute of Public & Environmental Affairs (IPE)
1. Introduction
2. Markets
3. Products
4. About us
Mapping concentrations at street level

Fill the gaps where you don’t have stations.

New trends in air quality monitoring ask for smart systems to make optimal use of the heterogeneous data sources!

- Hourly maps of NO2 and Particulate Matter (PM)
- Street level resolution (~ 25-50 meter)
- Historic data, now-casting, 48h forecast

<table>
<thead>
<tr>
<th>Air Pollutants</th>
<th>NO2, PM2.5 and PM10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spatial Resolution</td>
<td>Street level (about 50m resolution)</td>
</tr>
<tr>
<td>Temporal Range</td>
<td>Historic periods (as long as data is available), near-real time analysis, and 48h forecast.</td>
</tr>
<tr>
<td>Temporal Resolution</td>
<td>Hourly. Aggregation to e.g. daily or yearly averages also possible.</td>
</tr>
<tr>
<td>Update frequency</td>
<td>For near-real time analysis and forecast: asynchronous, whenever new or updated data becomes available.</td>
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AirQast for Smart cities

**Satellite (TROPOMI)**
Once a day
7 x 3 km$^2$ at best

**Alternative city network**
50 stations
less accurate

**Official urban network**
very sparse: 0 - 5 stations / city
but very accurate

**Citizen network**
100 - 1000 stations, depending on price
innacurate
Eindhoven

- 3 official measurement stations
- 19 experimental AiREAS stations

Amsterdam

- 19 official measurement stations for NO₂
- Occasional experimental measurement campaigns
- >120 Palmes diffusion tubes
Goal: connecting the dots
Spatial interpolation of observations

- Most important unknowns at the urban resolution are the air pollutant emissions.
- Approximate these by proxies, such as traffic and population density.
Data sources

- Hourly measurements (AiREAS)
- Hourly measurements (LML)
- Road maps (OpenStreetMap)
- Background concentrations (CAMS)
- Radio sondes (IGRA)
- Meteorology (KNMI)
- Population density (CBS)
- Traffic flow (NDW)
Combination of model simulation with meteorological situation and local emissions

Real-time information of air pollution, an analysis of the past period, and a 48-hour forecast.

Added value for areas lacking a strong official network and depending on measurements of lesser quality.
Products

AirQast.

Our products

FORECAST

3 days in advance hourly forecast in a high quality performance.

Let's talk about...
Qué nos aporta Copernicus?

- En nuestra predicción ensemble, utilizamos el pronóstico de la calidad del aire para Asia oriental de CAMS

- Utilizamos CAMS para estimar concentraciones horarias de NO2 y ozono a nivel de calle en ciudades, a partir de los datos de CAMS a 0.1 grado.

- Utilizamos condiciones de contorno globales de CAMS en modelos de forecast y reanalysis de AirQast, como SILAM.

- Los datos de reanálisis europeo de CAMS proporcionan datos de background en ciudades / regiones de la UE que no tienen acceso a la información de calidad del aire regional.

- Estamos usando el archivo global de CAMS para configurar un modelo de alta resolucion for Bangalore, como parte de un piloto para Smart Cities en India

- Sentinel-5P: Ozono, NO2, SO2, CH4, CO, AOD, HCHO
1. Introduction
2. Markets
3. Products
4. About us
We care about the air we breathe

Air Quality information based on satellite data delivered by the lead worldwide providers.

We are a multidisciplinary team including business developers, social scientists, engineers, satellite experts, software & tools developers, forecast modellers and communication and design specialists.

The organizations which are members of AirQast are:
Thanks

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