

PRESS KIT

ICAIR, THE CUMULATIVE AIR INDEX

ICAIR (Cumulative Air Index) is an index that cumulates four regulated pollutants (NO₂, O₃, PM2.5, PM10) at the spatial resolution of 25 meters over the entire region (HD modeling with measurement assimilation).

- ▶ There is an **hourly version** with a 24h forecast: **ICAIRh**
- ▶ It also exists in an **annual version**: **ICAIR365**

This new index takes into account the cumulative effects of different pollutants, making it possible to highlight **areas of multiple exposure**.

Let's take a look back at the creation, contributions and added value of the new AtmoSud index.

GENESIS OF THE CUMULATIVE AIR INDEX

AtmoSud has been working for several years on producing a cumulative index to better reflect exposure to multiple air pollutants. In 2021, when the WHO released its new guidelines, the Observatory created a working group with all its members (state, local authorities, economic actors, associations) dedicated to the development of a new cumulative air index.

Taking into account the cumulative effects of pollutants allows to have a closer view of the multiple exposure of populations to pollution. With conventional indexes, such as the ATMO index, it is the majority pollutant that determines the level of pollution. In the Southern Region, ozone being the main pollutant in summer, it is the one the indexes are based on. With ATMO, peri-urban areas appear more polluted than urban areas. On the other hand, if we choose to focus on the accumulation of the 4 pollutants, we see that the city center areas are generally the most exposed. The cumulative air index was imagined as complementary to existing indexes, allowing for a better representation of pollution across the territory particularly thanks to the spatial and temporal resolution it offers.

- ▶ The **ATMO** index offers a value for the **entire city**, yet pollution is not homogeneous. **ICAIR**, in its generic form, has a spatial resolution of 25m, that is, squares of 25 meters size over the entire region. This information better shows the spatial distribution of pollution, especially near sources and in places where dispersion is low, narrow streets for example.

- ▶ The **ATMO** index provides a value for the whole **day**, while pollution varies over time depending on source dynamics and weather. ICAIR in its **hourly** form, **ICAIRh**, maps the pollution throughout the day (from hour H to H+24h)

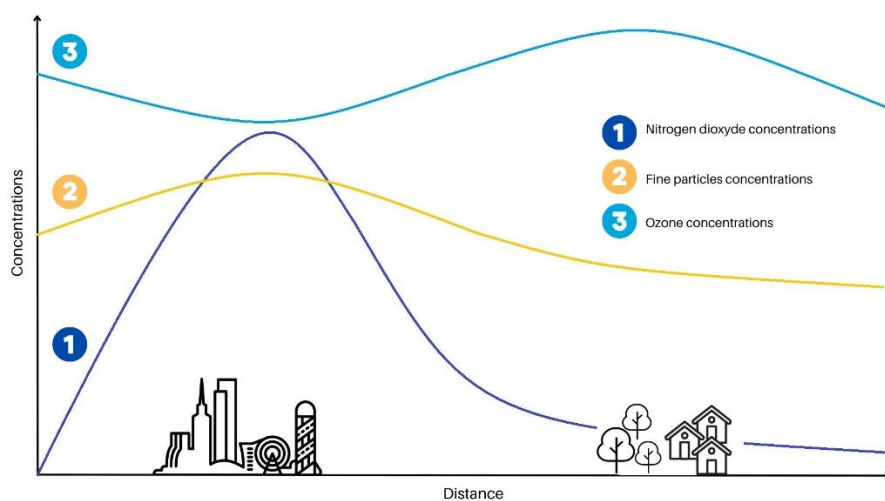
Many elements led AtmoSud to launch this complementary index

- ▶ The desire to disseminate a reference information with high spatial and temporal resolution
- ▶ To disseminate information rendering the most complete information on the state of outdoor air quality
- ▶ To generate complementary information from regulatory information
- ▶ To produce useful information for citizens to better understand pollution phenomena
- ▶ To produce useful information for actors to help with the implementation of chains of action

After many years of work, ICAIR is presented on January 24, 2023, for the 50th anniversary of AtmoSud, in its hourly version (ICAIRh). ICAIR, with its spatial and temporal resolution, gives the possibility to open up to **participatory sciences**. AtmoSud is now **able to assimilate data from citizen sensors and smart cities in its maps**.

THE BENEFITS OF ICAIR

ICAIR takes into account the cumulation of 4 pollutants (PM10, PM2.5, O3 and NO2), to calculate a unique air quality assessment value.



On this diagram, ozone (O_3) (3), nitrogen dioxide (NO_2) (1) and fine particles (**PM10 and PM2.5**) (2) concentration curves represent a typical day.

Ozone concentration is generally the highest level, with a lower level in the city, compared to the suburbs and the countryside.

If we only considered the major pollutant, the city could appear to be less polluted than peri-urban areas.

With ICAIRh, each pollutant concentration will be taken into account in the final air quality level assessment. And by making a curve combining the three pollutants, we realize that urban areas are actually more polluted than peri-urban areas. ICAIRh represents the “multi-exposure” of populations.

AN INDEX TO ADAPT OUR DAILY ACTIVITY TO AIR QUALITY

ICAIRh is an hourly index. It translates, hour by hour, pollution throughout the region. This hourly index uses the European Index threshold, adds to it the principle of cumulation, and allows to schedule activities depending on the level of pollution.

Colour	Recommendations
	Air quality is good. Enjoy your usual outdoor activities.
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	Enjoy your usual outdoor activities.
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	Consider reducing outdoor activities if you experience symptoms.
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ICAIRh

The applicable colour scale is a colour gradient as shown here. Depending on the level of pollution, some activities will be more recommended than others in certain areas (peri-urban rather than urban for example).

Recommendations based on those of the European Environment Agency



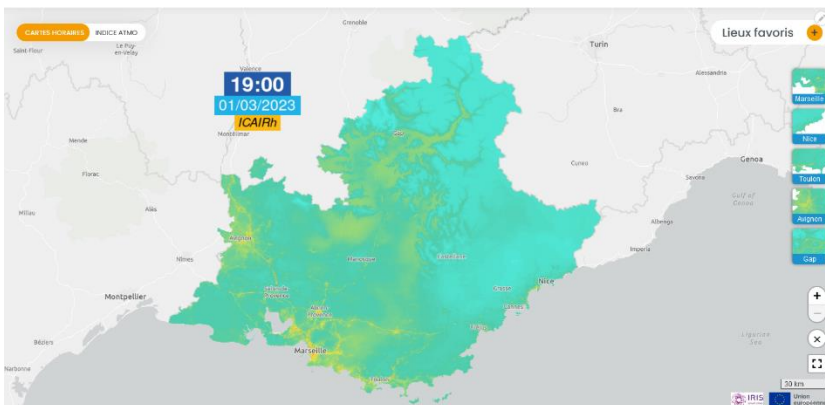
24h of a summer day
ICAIRh



24h of a winter day
ICAIRh

ICAIRh, PREDICTIVE AIR QUALITY IN REAL TIME, CLOSEST TO YOU

Throughout the territory



The atmosud.org website gives you the possibility to have an overview of the air quality hour by hour from D to D+1 on the entire territory. There are several display options :

- ▶ Cumulation of four pollutants (PM10, PM2.5, O₃ et NO₂)
- ▶ Pollutant by pollutant
- ▶ Display of the air mass
- ▶ Animated or fixed version

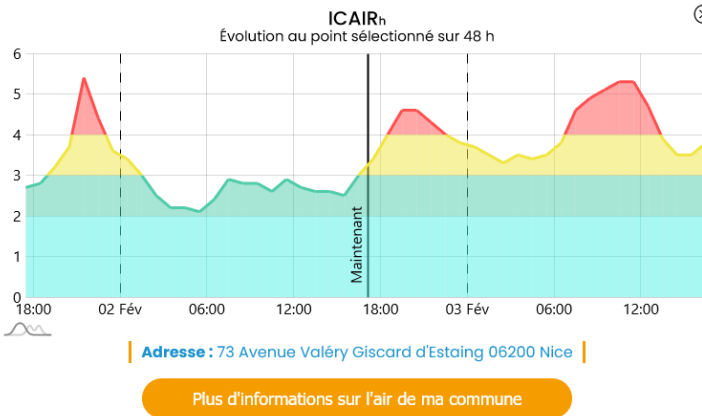
Close to the agglomerations



Local zooms allow for a clear view of pollution in and around the main agglomerations of the Region:

- ▶ Marseille
- ▶ Nice
- ▶ Toulon
- ▶ Avignon
- ▶ Gap

In a specific location



By clicking on a point on the map, it is possible to select a specific address, and to know the evolution of the air quality over 48 hours.

The user can also reference «favorite» places in order to access the information more quickly.

Here, ICAIRh tells you the air quality will be better before 5pm. It is therefore recommended that you avoid the late afternoon to practice your activities.



NEW
Geolocated air quality is available (in the Région Sud)

Scan this QR code to see the air quality exactly where you are situated. ICAIRh automatically geolocates you and gives you a complete information.