

Preemptive Media :: AIR



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.....**AIR Bulletin**..... AIR Explained at Opening of Eyebeam's FEEDBACK Exhibition
Brooke demonstrates and discusses AIR for the online channel, FrictionTV, at Eyebeam in New York City.



AIR Live in NYC and San Francisco March-April 2008

AIR will be on exhibit simultaneously on the east and west coast of the US in March and April of 2008. How does the pollution compare in the city that never sleeps vs. the city by the bay? Are you rooting for the left coast or right coast? Join the experiment if you are in either city during those months by visiting either Eyebeam in NYC or Southern Exposure in SF.

AIR Goes to Brazil!

AIR travels to Belo Horizonte, Brazil, in NOV 2007. We will be conducting three walking tours during the Arte.Mov festival. Check back later to see the results and documentation.

AIR at the Warhol Museum, Pittsburgh

AIR devices will be on display in Pittsburgh during the "6 Billion Perps Held Hostage! Artists Address Global Warming" exhibition at the Andy Warhol Museum in Pittsburgh starting March 10, 2007. If you are in the area, check it out.

AIR First Run Ends

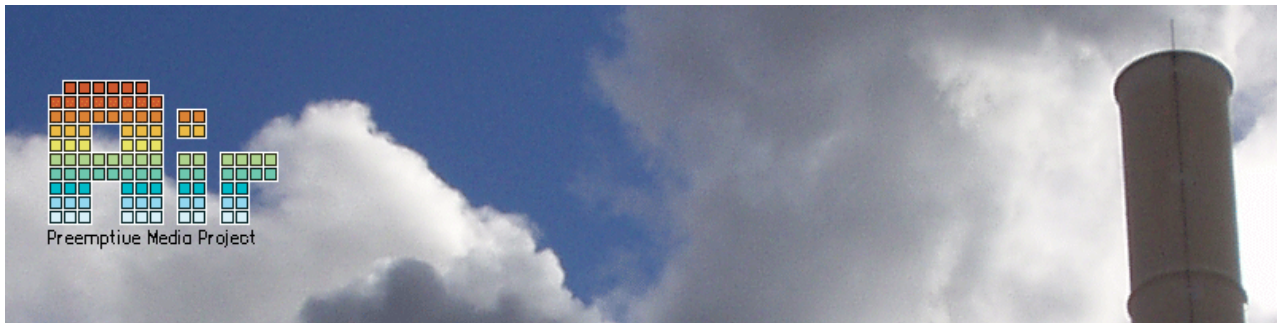
Thank you to all those who visited our headquarters and participated in *AIR*! We have stopped public distribution of the devices and will focus on making improvements to this ongoing experiment.

Project HQ Open + Data Vis Live

The *AIR* project launched on September 14, 2006 in Lower Manhattan at the *AIR* headquarters located in 125 Maiden Lane (map). The headquarters were open to the public on 9/15, 9/16 & 9/18-20 from 12-7 pm.

Workshop on 6/24

Thanks to everyone who helped us test the *AIR* devices on June 24 at Eyebeam in NYC. We have pics on the [events page](#)!



AIR :: Area's Immediate Reading :: LAUNCHES SEPTEMBER 14, 2006

"Allowing you to explore your neighborhood and urban environment for pollution and fossil fuel burning hotspots."

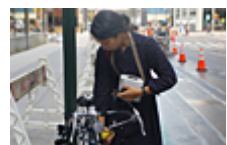
Photos from *AIR* headquarters in Lower Manhattan [[more photos](#)]

AIR is a public, social experiment in which people are invited to use Preemptive Media's portable air monitoring devices to explore their neighborhoods and urban environments for pollution and fossil fuel burning hotspots.

Participants or "carriers" are able to see pollutant levels in their current locations, as well as simultaneously view measurements from the other *AIR* devices in the network. An on-board GPS unit and digital compass, combined with a database of known pollution sources such as power plants and heavy industries, allow carriers to see their distance from polluters as well. The *AIR* devices regularly transmit data to a central database allowing for real time data visualization on this website.

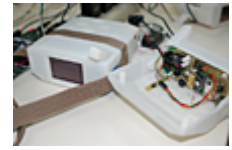
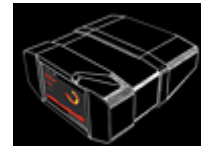
While *AIR* is designed to be a tool for individuals and groups to self identify pollution sources, it also serves as a [platform to discuss](#) energy politics and their impact on environment, health and social groups in specific regions.

The project launched September 14, 2006, in New York City. A preliminary [workshop](#) was held on June 24. Since 2006, Preemptive Media has exhibited and demonstrated *AIR* in Long Beach, CA; Pittsburgh, PA; Australia; Belo Horizonte, Brazil; and San Francisco, CA.



Technical Details

The *AIR* devices are equipped with sensors that detect carbon monoxide (CO), Nitrogen Oxides (NO_x) and ground level Ozone (O₃). Other gases are detected as well but will appear as noise to our system. Nitrogen oxides or NO_x is a generic term for a group of gases that contain nitrogen and oxygen in varying amounts. NO_x results from combustion, and the primary manmade sources are automobiles, electric utilities and other industrial, commercial or residential sources that burn fuels. NO_x occur naturally as well. A common NO_x is nitrogen dioxide (NO₂), which is one of the main ingredients in forming both ground-level ozone and acid rain. Ground level ozone can trigger serious respiratory problems in people and acid rain causes lakes and streams to become unsuitable for many fish. NO_x can be transported over long distances with the help of strong winds, which means its effects are not contained to locations near the polluting source. Carbon monoxide (CO) is also a by-product of combustion and is formed when the carbon in fuel is not burned thoroughly. People with heart disease are most likely to suffer from low exposure to CO and it can be deadly at extremely high levels. CO contributes to the formation of smog, or ground-level ozone. [1] CO and NO_x are not considered greenhouse gases, but they do impact the concentrations of methane, ozone, CFC substitutes (HCFC), which are main greenhouse gases. Therefore, they are considered indirect greenhouse gases. One study shows that the reduction of indirect greenhouse gases in conjunction with the main greenhouse gases is vital to control climate change. [2] Ground level ozone (O₃) is created by a chemical reaction between NO_x and volatile organic compounds (VOC) in the presence of sunlight. Ozone has the same chemical structure whether it occurs miles above the earth or at ground-level and can be "good" or "bad," depending on its location in the atmosphere. Ground-level ozone is the primary constituent of smog. Sunlight and hot weather cause ground-level ozone to form in harmful concentrations in the air. As a result, it is known as a summertime air pollutant. [3]



The Environmental Protection Agency (EPA) in the U.S. calculates air quality on five major air pollutants regulated by the Clean Air Act: ground-level ozone, particle pollution (also known as particulate matter or PM), carbon monoxide, sulfur dioxide, and nitrogen dioxide. The EPA has established an Air Quality Index (AQI) or standards to protect public health. The AQI tells us how safe the air is to breathe in a given region on a given day. [4]

The U.S. government bases its AQI on fixed monitoring devices that are highly sensitive but spread over a wide distance. While the sensors in our *AIR* devices are not high resolution (parts per million), they do move with an individual and indicate one's personal air intake. Our *AIR* devices show the changes of pollutant levels from block-to-block and at intervals of several minutes. Therefore, our device records the range of levels within a small geographical area experienced by a person over a short period of time. The *AIR* device has dual modes: a personal reading mode and compass mode. When the device is worn on the body using the strap or the screen is parallel to the ground, it is in personal reading mode and displays only the immediate CO and NO_x levels. As soon as you bring the device in front of your face and the screen is perpendicular to the ground, it switches into compass mode. At this point the device indicates the presence of any heavy,

industrial or commercial polluters along with their yearly emissions. Our source of information is the EPA's database of nation-wide polluters called the National Emissions Inventory. While in compass mode, if any other *AIR* carrier is in line of sight, an icon will appear on the screen along with that device's current readings and distance. References:

[1] Six Common Air Pollutants, Environmental Protection Agency,

<<http://www.epa.gov/air/urbanair/nox/hlth.html>>

[2] Effective Control of Global Warming by Simultaneous Reduction of NO_x and CO Emissions: Development of a Method for Assessing the Impact of Air Pollutant Gases on Global Warming, Dr. Hajime Akimoto & Dr. James Oliver Wild,

<<http://www.jamstec.go.jp/frcgc/eng/akimoto/010502/>>

[3] Ground Level Ozone, Environmental Protection Agency,

<<http://www.epa.gov/air/ozonepollution/>>

[4] Air Quality Index: A Guide to Air Quality and Your Health, AIR NOW,

<<http://airnow.gov/index.cfm?action=static.aqi>>