

Air Quality Prediction Service



Reducing the impact of high levels of pollution produced by industry on agriculture and residential communities is an ongoing issue for Environmental Regulators.

NICTA's Air Quality Prediction project has constructed predictive models that can help to determine how air pollution will evolve over the next 24 hours, enabling industry to take measures to alleviate pollution before it becomes an issue.

Project Background

NICTA undertook a pilot with the New South Wales Environment Protection Authority (NSW EPA) using data collected from existing environmental sensors in the Hunter Valley area.

There are 14 environmental sensors installed by the NSW EPA that monitor pollution and atmospheric conditions throughout the Upper Hunter Valley area. Data from these sensors is automatically uploaded to the NICTA developed EPA Air Quality Prediction Service. Through the use of machine learning, the predictive algorithms are then able to infer pollution levels up to 24 hours in advance including a confidence reading on the model's current performance.

For coal mining companies an indication of future air quality means they could take preventive measures to reduce pollution, which in the long-term will maximise production.

What is the technology?

Based on machine learning sensibilities, the predictive modelling tools of the EPA Air Quality Prediction Service will ultimately allow Government to access predictions of pollution for the next 24 hours via their handheld or tablet in the field.

NICTA's unique approach

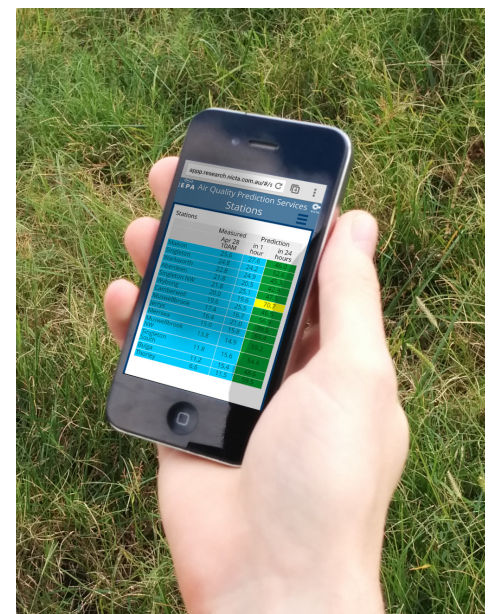
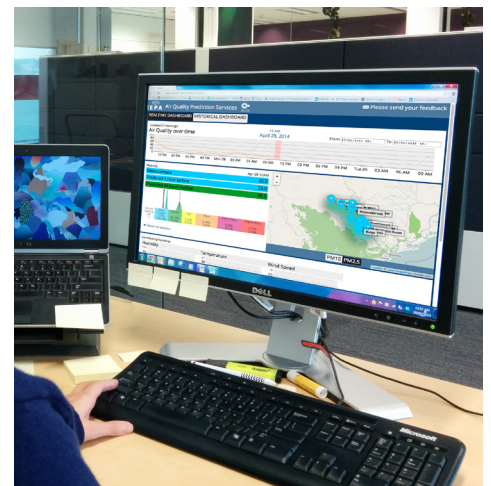
Sensors and the technology behind them are already well developed in Australia and internationally. Many government environmental agencies are able to collect data about pollution levels but are unable to accurately predict into the future.

The EPA Air Quality Prediction Service uses advanced analytical techniques to make the most of the data that is already being collected.

Collaborators



The EPA Air Quality Prediction Service modelling software is currently being piloted with the NSW EPA as an application delivered via the browser and available via desktop and mobile devices.



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The Air Quality Prediction Project is part of the Environment Business Team, creating and safeguarding an environmentally sustainable Australia.

Research Excellence in ICT
Wealth Creation for Australia

Leading the Way

NICTA is Australia's Information and Communications Technology (ICT) Research Centre of Excellence, driving innovation through high quality research, research training, commercialisation and contract research.

NICTA has the largest concentration of ICT researchers in Australia. Our research focuses on use-inspired basic research that benefits industry, the community and the national interest.

Since NICTA's inception in 2002, NICTA has built strong research capability in:

- Software Systems
- Networks
- Machine Learning
- Computer Vision
- Optimisation.

Our Business Teams are the market focus of our research capabilities:

- Broadband and the Digital Economy
- Infrastructure, Transport and Logistics
- Security and Environment.

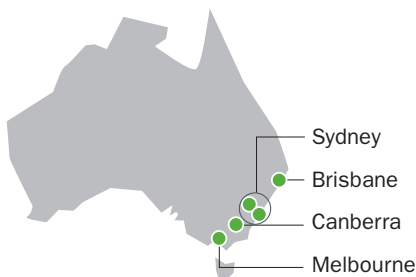
NICTA researchers work on Business Team projects supported by:

- An Engineering and Technology Development Team
- IP, Legal and other professional support.

Our work as a world-class research institute and Centre of Excellence in science and innovation brings together many of Australia's and the world's top ICT researchers. NICTA provides them with the facilities and support they require, making imagination to impact a reality.

NICTA's unique approach fosters and develops ICT research. We work closely with both industry and other research institutions to solve problems and make breakthroughs in ICT with real impact. NICTA's focus on use-inspired research means our projects have direct relevance to the challenges faced by business, government and individuals around the world. The result is breakthrough technologies that provide commercial opportunities and have a positive impact on Australia's export earnings.

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