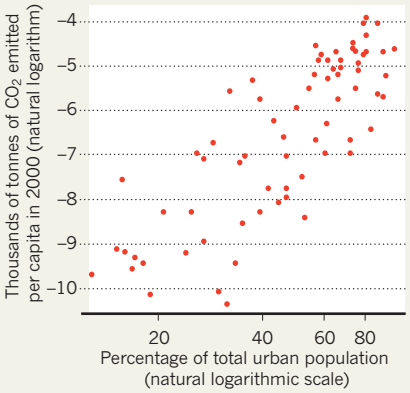
URBAN EMITTERS

A plot of 71 countries shows that urbanization correlates with higher carbon dioxide emissions.



SOURCE: UN GLOBAL REPORT ON HUMAN SETTLEMENTS 2011

co-investigator on the project who is based at Arizona State University in Tempe. Team members are due to present initial results at the San Francisco meeting this week.

Gurney's model incorporates real data about energy use: industrial activities at the level of individual buildings together with traffic patterns. Vehicles are classified by the type of fuel used and emissions produced, and are simulated moving throughout the city much as normal vehicles would. Gurney foresees a day when the combined results of the greenhouse-gas measurements and modelling will enable cities to pinpoint methane emissions from natural-gas leaks, for example, or identify neighbourhoods that would benefit from traffic initiatives or projects to make existing buildings more energy efficient.

"I've had mayors calling me, and they all pretty much say the same thing: where do we start?" says Gurney, who has already applied the model to Phoenix in Arizona and is now adapting it to Los Angeles. "If you are going to spend money," Gurney adds, "you need to know where to do it."

This is why Los Angeles has bought into the monitoring programme. Committed to reducing its emissions to 35% below 1990 levels by 2030, the city has pursued a range of initiatives, from cracking down on shipping emissions and ramping up renewable energy to installing more-efficient streetlights and synchronizing traffic lights. "We're doing what we can, but we want to make sure that what we are doing is actually working," says Romel Pascual, Los Angeles' deputy mayor for the environment.

NIST has invested about $1.1 million in the Los Angeles initiative in the hope of advancing the science and making it more applicable to other cities. The goal is to reduce the overall uncertainty in calculating emissions to 10%.

The final phase will extend this effort into space. The sensor currently installed on Mount Wilson is a prototype of a next-generation instrument that could eventually be launched on a satellite, says Charles Miller, a colleague of Duren's at the JPL. Tuned to near-infrared wavelengths, the sensor measures the proportion of the heat being absorbed by CO_2, and thus the CO_2 concentration in the atmosphere. Ultimately, Miller and Duren envisage a trio of geostationary satellites that would allow constant surveillance of greenhouse-gas emissions — not just over Los Angeles, but around the planet. "This is a completely wide open and untested area," Miller says, "but one with great promise." ■

CORRECTIONS

The News story 'Drug-pollution law all washed up' (*Nature* **491,** 503–504; 2012) incorrectly said that Axel Singhofen is a Member of the European Parliament (MEP). In fact, he is an adviser to Green MEPs who sit on the environment committee.

The World View 'Science should be ready to jump off 'the cliff'' (*Nature* **491,** 639; 2012) stated that the United States would raise only $2.2 billion in taxes this year. In fact, it will raise $2.2 trillion.