How much does African dust add to Houston's pollution?

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A University of Houston professor is delving more deeply into how the migration of Saharan dust affects the city's air pollution levels, especially during the hottest months of the year.

Shankar Chellam, a professor of civil and environmental engineering in the Cullen College of Engineering, first began looking at the phenomenon after noticing varying levels of pollution outside plants along the Houston Ship Channel in 2008.

In a paper published last fall in the journal *Environmental Science and Technology*, he reported that a spike in pollution levels that year coincided with the arrival of the Saharan dust.

Chellam has received two grants worth $226,000 from the Texas Commission on Environmental Quality and the Texas Air Research Center to continue his work.

"The question we want to ask is, are we within the regulatory limits if we subtract out the Saharan dust?" he said. "How much does this contribute to our measurable ground level pollution?"

Clouds of African dust often migrate across the Atlantic Ocean, affecting Houston's air quality from May through late August. The dust hits other parts of the globe during other parts of the year.

Whipped up by sandstorms in northwest Africa and carried across the

Atlantic Ocean by trade winds, the dust arrives in the United States and, ultimately, Houston, within 10 days to two weeks. Here it mingles with pollutants produced by cars, trucks, petrochemical plants and other sources.

Chellam will use samples of the African dust collected in Barbados in spring 2013, just before it moved into the United States, along with the samples collected in Houston. The Barbados sample will serve as a control, since it doesn't contain the pollutants picked up in the United States.

Chellam and his co-investigators, including Joseph Prospero, professor emeritus of marine and atmospheric chemistry at the University of Miami, and Ayse Bozlaker, a post-doctoral researcher in Chellam's lab, will use the 2013 samples in an attempt to confirm the previous findings.

To determine the impact of the Saharan dust, Chellam and members of his lab identified the "fingerprint" of the African dust, allowing them to separate it from the other type of pollution in their samples: industrial dust, vehicle pollutants and smoke from wildfires, among other things.

Provided by University of Houston