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# Chinese, European atmospheric scientists: Sharing wisdom on tackling air pollution



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HOW would you spend 10 days?

For young men with the ambition to change the world, they can do a lot in 10 days. Recently, students proved that by traveling long distances and undergoing 10 days of intensive training to become the next generation of atmospheric scientists.

At a 10-day workshop organized by Fudan University's Department of Environmental Science and Engineering, some 140 students — Chinese and foreign — gathered in Shanghai to attend lectures given by top scientists.

The purpose of holding this school, officially known as "Third Sino-European School on Atmospheric Chemistry," is to "bring together young generation of scientists who represent the future," said Abdelwahid Mellouki, research director of Centre National de la Recherche Scientifique, Institut de Combustion, Aérothermique, Réactivité et Environnement in Orléans, France.

The school, held before in 2013 and 2015, has been a major platform for Chinese atmospheric scientists and their foreign counterparts to share their latest findings as well as groom the next generation of scientists.

As one of the five people who initiated this school, Christian George, senior research scientist at the Centre National de la Recherche Scientifique, Institut de recherches sur la catalyse et l'environnement in Lyon, France, said that air pollution was a universal problem that needed to be addressed at an international level.

To successfully combat pollution, "we have to have scientists talk to each other in a reasonable and efficient way," he said.

Developing connections and personal relationships between scientists, or indeed "friendship" as Mellouki put it, will come in handy one day.

There are already signs that these connections have borne fruit. The students from the 2013 school were building on their friendship, doing research together and addressing air particle pollution and cloud formation.

Scientists have channeled their collaborative energies into an exchange project known as MARSU, whereby European and Chinese students are sent to each other's country to conduct atmospheric research, like field campaigns to measure pollutants.

Asked in what way the 2017 school differs from the previous two schools, Hartmut Herrmann, Head of the Atmospheric Chemistry Department at the Leibniz-Institute for Tropospheric Research, said that the courses and lectures are influenced by the recent developments in China, such as the adoption of official policy for air



**Air pollution needs a global solution. — IC**

pollution abatement.

Mellouki said compared to the last two schools, "(there are) a lot more students discussing and participating a lot more actively than before."

George said it was something they all appreciate because "the level of Chinese students, their level of knowledge, expertise, way of behaving, openness, curiosity, (have) all increased a lot." He attributed this change to "the many actions Chinese universities are taking by being more open to the world."

## Like 'moon-landers'

When the topic veered toward air pollution in China, Herrmann stressed that increasing attention is now being paid to the harm caused by SOA, or secondary organic aerosols, which are originally airborne particles that contain organic compounds after a series of chemical reactions in the air.

Basically, organics stick to the particles and as people inhale them, they are like "moon-landers" landing on the lungs and spread across the body, which may cause serious health hazard, Herrmann said.

George said this SOA particles that people breathe causes heart ailments.

His concerns were confirmed by reports from world health authority indicating that polluted air is a cancer agent.

"Being exposed to that matter (PM2.5, PM10 and others) is one of the largest sources of mortality right now," he said.

Although the types of air pollutants are well-known in China, George said that better knowledge of the mechanism behind the formation of these particles and aerosols could be a step toward making better policies.

Of all the culprits, he singled out "urbanization" and emphasized the need to reduce its impact.

In his view, "urbanization means bringing together in one location many activities and many people. All types of activities are contributing at a certain level to the production of aerosols."

Despite the sheer scale of the problem, Herrmann was more optimistic.

He said the laws and regulations introduced in the past few years have signified China's resolve to combat VOCs (volatile organic compounds). These kinds of legislation are "his personal favorite."

"Control of VOCs is a big task for the future, but it started anyway," he said.