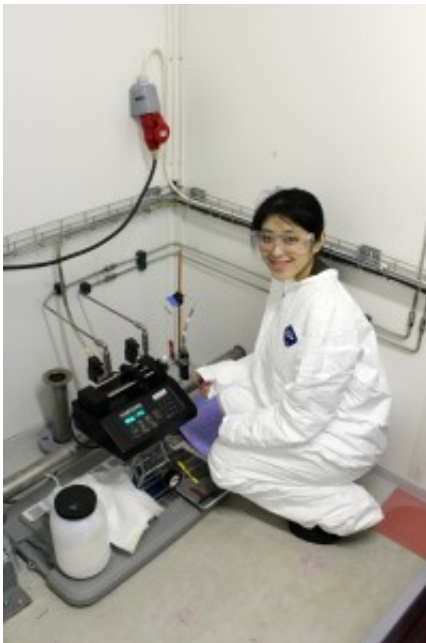


Researcher takes measure of carbon storage in Iceland

March 31 2014, by Christophe Jospe



Yinghuang Ji running the C14 tracer injection.

The idea of capturing carbon and storing it away offers an appealing solution to the "greenhouse gas" emissions from fossil fuels that are warming the planet. But how can we measure the process well enough to know what sort of impact the technology has?

Doctoral student Yinghuang Ji is working on it, along with Klaus Lackner, director of the Lenfest Center for Sustainable Energy. Yinghuang recently returned from Iceland, where she visited the Carbfix

geological [carbon storage](#) site. She's conducting her project, "Tagging Carbon Dioxide to Enable Quantitative Inventories of Geological Carbon Storage," otherwise known as the C14 project, in collaboration with Orkuveita Reykjavíkur (Reykjavík Energy). The work is funded by the U.S. Department of Energy.

The C14 project specifically works on tracer technology for the purpose of monitoring, verification and accounting at the CO₂ sequestration site. At Columbia, the C14 project team developed a tagging system that has been proved to be accurate and effective through laboratory-scale evaluations. The final milestone of the C14 project was the field test in Iceland, which put the tagging system into real use during the underground injection.

Carbon capture, utilization and storage is a promising path to lessening the impact of human-produced [greenhouse gas emissions](#). As related technologies come on line, projects that can demonstrate verifiable measurement are essential to building public trust.



Yinghuang taking a bailer sample with a technician from Reykjavic Energy.

Yinghuang is inspired to be part of this cutting-edge carbon management research. Her path to the field has been shaped by her past experiences.

"I grew up in a city with the biggest oil field in China (Daqing), and witnessed not only the rapidness of development but also the impacts on the environment that were both brought about by [fossil fuels](#)," Yinghuang said. "The aspiration of seeking alternative [energy](#) motivated me to pursue my major in energy and power systems during collage.

"However, as I explored further into the energy area, I realized that we are not running out of fossil fuels, (and) the main problem is actually the environmental impact. Therefore, I decided to do my research to save our climate."

The Iceland trip was a great opportunity for Yinghuang to advance her knowledge of CO₂ injection and the monitoring, verification and accounting of geological carbon storage. Moreover, the fieldwork also provided her hands-on experience in many practical issues, such as site characterization and selection, well operation and monitoring, as well as the whole process of [carbon sequestration](#).

"Fossil fuels will keep dominating the global energy consumption mix for at least the next several decades," Yinghuang said. "So, to eliminate climate change while maintaining our standard of life, [carbon capture](#), utilization and storage is a great need. The implementation of [these technologies] needs large capital investment and strong government regulations. I am optimistic about the research effort and look forward to seeing scaled-up progress ... in the U.S. and worldwide."

More information: Read the project facts online:
www.netl.doe.gov/File%20Library/Research/Coal/carbon-storage/core-rd/DE-FE0001535.pdf

Provided by Columbia University

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