Scans became a mammoth project

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Lyuba was not typical of the subjects Jason Polzin examines with X-ray, CT or MRI machines at GE Healthcare.

She had slightly shriveled skin the color of infield dirt. Her eyes were frozen shut, her trunk curled. Her 110-pound body carried a faint whiff of formaldehyde.

In truth, she looked quite good for a 42,000-year-old, especially one who apparently died after sinking into mud and suffocating.

To her admirers in the scientific world, Lyuba is the best-preserved mammoth ever discovered. To Polzin's two children, she was of considerably greater interest than the human volunteers and containers of fluid Dad had examined in 15 years at GE.

"I think every kid growing up is interested in dinosaurs and mammoths, that kind of thing," Polzin, GE Healthcare's chief technology leader, said Thursday. "My kids think this is the coolest thing I've ever done since I've been at GE."

Lyuba, a month-old baby at the time of her death, was discovered in 2007 by a reindeer herder searching for firewood in far northwestern Siberia. The herder spotted Lyuba in frozen soil and named her after his wife.

With an abundance of sophisticated equipment, GE Healthcare in Waukesha, Wis., offered a unique opportunity last week for the

scientists who have been pouring over the mammoth on loan for seven months to Chicago's Field Museum. It would be difficult to reserve time with the CTs and MRIs at hospitals, but for the mammoth's one day in Waukesha she had the machines to herself.

As an X-ray scanned Lyuba's modest frame, a dozen people watched through an observation window; cameras flashed and video cameras recorded the scene.

And Daniel Fisher, a University of Michigan professor who has studied mammoths for 30 years, marveled at her.

"There's a sort of awe-struck feeling to see her," he said. "For years I worked on skeletons and teeth and tusks, always having to infer what the full shape was. And then -- there it is!"

When Fisher first viewed Lyuba she did not smell as terrible as one might imagine. "A little sour," was how he described her. "A little off."

Although her soft tissue had dried somewhat, the mammoth was surprisingly well-preserved.

"When we opened her up in St. Petersburg (Russia), we saw inside her stomach," Fisher said. "Her stomach was filled with her mother's milk."

Granted 42,000 years can take a toll on milk, and what they found in Lyuba's stomach was "chemically more like fine curd cottage cheese," Fisher said.

So far, scientists have found evidence from Lyuba that mammoths had something called brown fat at the back of the neck. While typical white fat helps allow calories to be stored, brown fat serves a purpose closer to coal in a furnace. When the body senses cold it sends a signal to the

brown fat, Fisher explained, and the brown fat starts a metabolic sequence that produces heat and warms the blood.

The scientists studying Lyuba also have been trying to determine what caused her death. As best they can tell, she became trapped in mud along a river bank. As she struggled, her trunk filled with silt. Death appears to have been accidental.

The cause of death is important because the scientists hope to find that Lyuba was not ill or poorly developed, factors that might negate her value as a normal mammoth specimen.

Polzin knew such questions would make for interesting dinner table talk with his children, 11-year-old Bennett and Maggie, 7.

"It's really exciting," he said, "to think you're in the middle of helping to understand more about mammoths, what they're like when they're young, how rapidly they mature and grow."

By nightfall, Lyuba would be in her crate, in a van headed back to the Field Museum.