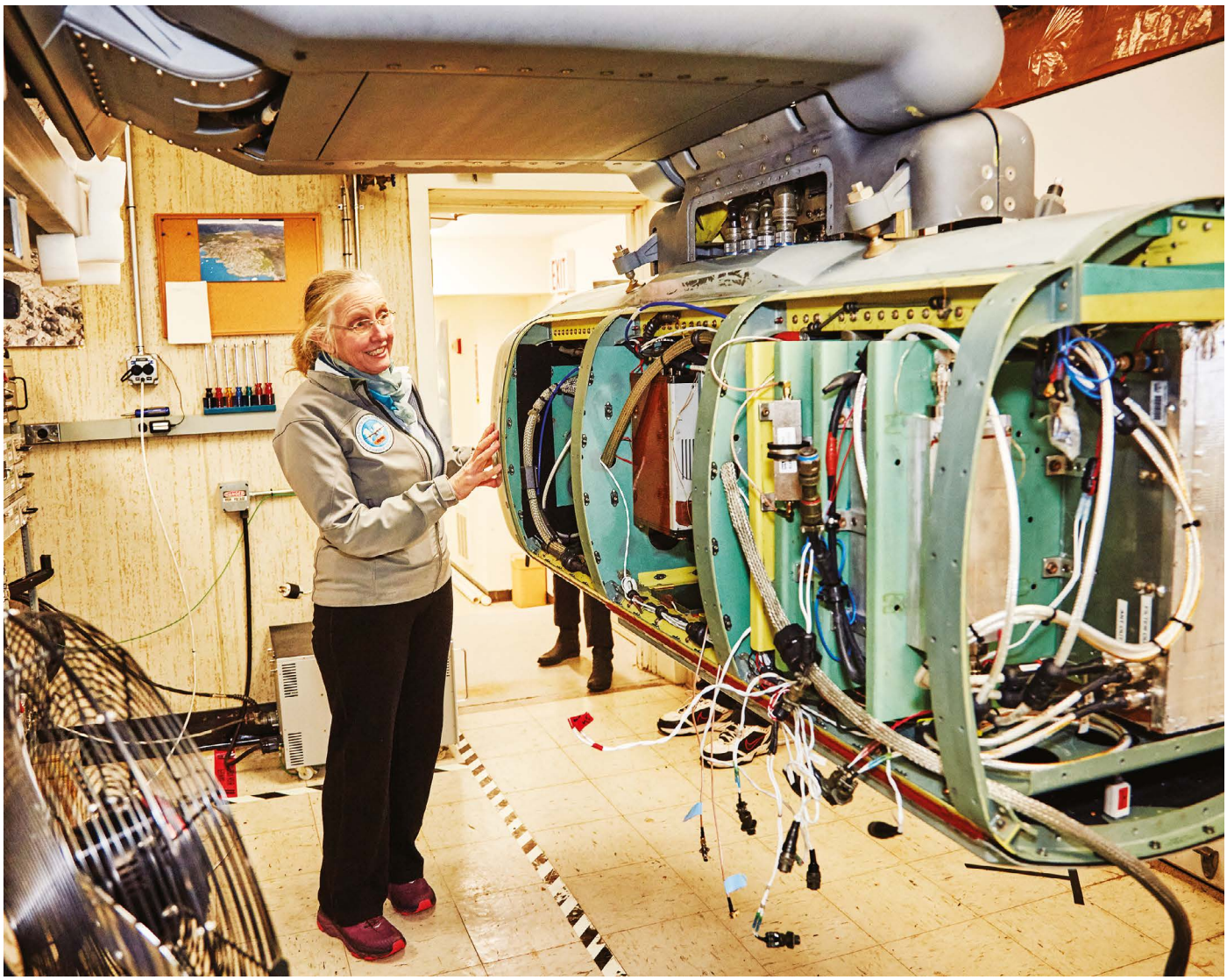

Where I work
Robin Bell

Photographed for *Nature* by Beth Perkins.

I'm a geophysicist, and the goal of my research is to understand how ice at the poles of our planet works — how ice sheets flow, melt, grow. To do that, I'm always working on different ways of looking at them.

The instrument in this picture is called the Ice Pod, and my team and I built it so that it could be clipped onto a military cargo plane and used as an ice-imaging machine. Here, you can see all the guts. It has a laser that measures the surface of the ice, and two radars to determine the ice's thickness and internal layering. It has a magnetometer that measures Earth's magnetic field, so that we can look for volcanoes and other structures beneath the ice sheet. And it has a visual and an infrared camera that allow us to see whatever we're flying over and measure its surface temperature. We attach the Ice Pod to the military planes that take us to Antarctica and Greenland.

Often, groups of researchers study just ice, rock or the ocean. Our approach has always been to look at all of these as an integrated system. The Ice Pod lets us look at the solid Earth, the ice and the ocean at the same time.

Last year, we published the first big paper from this work, in which we identify a major tectonic boundary in Antarctica (K. J. Tinto *et al. Nature Geosci.* **12**, 441–449; 2019). We also mapped the underwater topography, which steers the currents. That changed where we think the ice shelf is vulnerable to warming waters. From space, you can see where it's melting. But if you can't look below the surface, you can't see the whole story. To understand how the ice on the planet will change in the future, we have to understand how the entire ice sheet works.

In these remote places, you realize how obliged you are to collect every bit of data that you possibly can. It's not like sitting in your lab where, if you make a mistake, you can try again. You're in a precious place where you're looking at things that no one has looked at before.

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