CRAY®

Amazing forecasts.

Helen Roberts and the Met Office are safeguarding lives and livelihoods with advanced weather forecasts.

"As a child I was just fascinated by thunderstorms," says senior operational meteorologist Helen Roberts. "I was always peering out the window whenever we had a rumble of thunder. I absolutely loved them."

An enduring passion for weather led Ms. Roberts to the Met Office, where she's now a key member of the team responsible for communicating weather forecasts to broadcasters across the U.K.

"We're here to communicate the forecast and severe weather warnings with a view to protecting lives, increasing well-being and, as a result, increasing prosperity," is how Roberts describes her team's role.

Recognized as one of the world's most accurate forecasters, the Met Office uses more than 10 million daily weather observations, an advanced atmospheric model and a Cray® XC™ series supercomputer to create 3,000 tailored forecasts and briefings each day. Roberts and team distribute this information to broadcasters as well as through the Met Office's own channels.

This kind of forecasting prowess is attributable in large part to supercomputing. For example, the Met Office's Cray system can process 16,000 trilion calculations a second. It means they can run more ensembles and run them more frequently, which allows the meteorologists to really "pin down" the forecasts, giving them – and most importantly, the public – confidence in the reporting.

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This confidence allowed the Met Office to launch a program in 2015 to extend their lifesaving reach even further. The "Name our Storms" project called on the public to suggest names

for wind storms with the potential to cause major damage. The strategy worked. A post-storm season survey showed that as a direct result of naming these severe storms, more people were aware of impending severe weather, and a full 55 percent of respondents took steps to safeguard themselves.

The critical point here, though, is forecasting accuracy. Without accuracy, the public would quickly learn to ignore severe weather warnings. It's a delicate balance underscoring the need for top-notch science and top-notch supercomputing power. And it bears itself out in the numbers. An independent report estimated the Met Office's forecasts save as many as 74 lives and £260 million a year.

"Ultimately, our customer is the public," says Roberts. And ultimately, accurate forecasting keeps them safe.

MET OFFICE

The Met Office is the U.K.'s national meteorological service and a world leader in providing weather and climate services from day-to-day forecasts to severe weather warnings to long-range climate research.

SYSTEM DETAILS

- Cray® XC™ series supercomputer
- Cray® Sonexion® storage system
- 70 cabinets
- 15.7 PF peak performance
- 13,000+ compute nodes
- 464,000 cores
- 31 PB Sonexion capacity
- 1.45 TB/s of I/O bandwidth