NEWS IN FOCUS

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Arctic ozone levels hit a record low this year (blue area, right), compared with a relative high (red) in 2010.

ENVIRONMENT

Canadian ozone network faces axe

Arctic monitoring stations hit by budget constraints.

BY QUIRIN SCHIERMEIER

A key source of information about the health of the ozone layer above the Arctic looks set to be choked off.

In a year that saw the first genuine 'ozone hole' appear in the Northern Hemisphere, atmospheric scientists say they are shocked to learn that Environment Canada, the country's environment agency, has decided to drastically reduce its ozone science and monitoring programme.

Its network of monitoring stations provides about one-third of the Arctic's ozone measurements and this year contributed key data showing unprecedented depletion of stratospheric ozone over the Arctic. With regular *in situ* measurements going back to 1966, Canada also holds the longest-running record of atmospheric ozone levels in the

world — an archive that is also threatened.

The Canadian observation network comprises 17 stations — from London, Ontario, in the south to Alert in the high Arctic — which use several techniques to measure ozone (see 'The ozone network'). But atmospheric scientists and research institutes around the world, including Canada, Britain, Switzerland and Germany, have been told, informally, that the network will be shut down as early as this coming winter. This will be the end of *in situ* ozone measurements, including those made by balloons launched at least once a week from 11 of the stations. "This is devastating for the whole field," says Tom Duck, who conducts atmospheric research at Dalhousie University in Halifax, Nova Scotia.

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For more on the science of the ozone layer see:
go.nature.com/2xjzjcc

Environment Canada's ozone and radiation research group will also be substantially reduced as a result of staff cuts driven by financial constraints. A spokesman for the agency refused to confirm the cuts, saying merely that all government-funded programmes are currently being reviewed.

"This is a sad and abrupt end of many years of very successful collaboration," says Markus Rex, an ozone researcher at the Alfred Wegener Institute for Polar and Marine Research in Potsdam, Germany, who has previously worked with the Canadian network in international, Arctic-wide ozone measurement campaigns, dubbed Match. "I'm worried that the cuts will lead to an erosion of the Montreal Protocol, which obliges Arctic countries to monitor the ozone layer and maintain scientific ozone research."

The blow comes at a crucial time for monitoring efforts. In March, scientists reported that 40% of stratospheric ozone over the Arctic had been destroyed — the highest ozone loss previously measured was 30% in 2005. The record loss was due mainly to exceptionally low temperatures last winter in the Arctic stratosphere, which help to form ice particles at an altitude of around 18–25 kilometres. These particles host the chemical reactions by which long-lived chlorofluorocarbons catalyse the breakdown of ozone.

Although ozone loss is usually more pronounced above cooler Antarctica, ozone-depleted Arctic air can reach populated areas more easily. Because ozone helps to block potentially harmful ultraviolet radiation from the Sun, its depletion could raise the risk of health problems such as skin cancer in northern populations.

"Canada has been a linchpin of Arctic ozone observation," says Neil Harris, an atmospheric chemist at the University of Cambridge, UK, who heads the European Ozone Research Coordinating Unit. "It has contributed very substantial data to research that allows us to be diagnostic about what's happening in the Arctic stratosphere. If we were to lose one-third of our monitoring capability in the Arctic the overall loss in scientific value will be much greater."

Satellite observations are no substitute for *in situ* ozone measurements, adds Johannes Staehelin, an atmosphere researcher at the Swiss Federal Institute of Technology in ▶

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► Zurich who chairs the World Meteorological Organization's ozone science advisory group. Indeed, *in situ* data are essential for calibrating and validating measurements by satellites such as NASA's Aura and the European Space Agency's Envisat.

Staehelin adds that the Canadian agency has said it will no longer host the Toronto-based World Ozone and Ultraviolet Radiation Data Centre, an archive of data collected over several decades and used intensively by atmospheric scientists around the world. "It appears that the management at Environment Canada was not fully aware of the consequences of its decision," says Staehelin. Last month, the agency notified its staff that a total of about 300 jobs will be cut.

Canadian environmental research has already been hit hard by the looming closure of the Canadian Foundation for Climate and Atmospheric Sciences, which provides the majority of funds for climate and atmospheric science in the country. The charitable foundation has received no federal funding since 2003, and is expected to close next year.

"The funding crisis in this country is really hammering our ability to observe and protect the environment of Canada," says Duck. "I have already lost most of my group because I just can't pay them any more. If help doesn't come soon, many others will shut up shop." ■

SCIENTIFIC SOCIETIES

Nurse takes Royal Society's pulse

President plans wider role for Britain's national academy.

BY GEOFF BRUMFIEL

For Paul Nurse, few things are off-limits. Since taking over as president of Britain's Royal Society in December last year, he has been overseeing a strategic review that is likely to lead to the first change to the society's charter since it was signed by King Charles II in 1662.

The change is relatively minor (it extends the terms of office for the society's council members), but it gives a good indication of how he is likely to approach his five-year tenure. "I felt we should look at everything we do, root and branch," he says over morning tea in the society's august central-London headquarters.

Nurse wants the society to have a stronger voice on the big policy questions of the day. "The Royal Society has a responsibility to provide advice on difficult issues, even if they are contentious," he says.

He hopes to boost the society's role in government decision-making by fostering greater involvement of its roughly 1,500 fellows and foreign members in preparing reports,

potentially with the help of more policy staff. Nurse also wants to expand the number of authoritative and influential reports on key issues, such as nuclear power, climate change and the definition of life. The society has long produced such reports, most recently on the global scientific enterprise and on the potential threats and opportunities offered by geoengineering to mitigate climate change. But Nurse sees an opportunity to do more on a broader range of topics, with an eye for increasing the society's global reach. "I think the world would listen to us," he says.

Not everyone is convinced. "The first thing it should do is get a big bookshelf and put it in the basement to store the reports," says Daniel Greenberg, a journalist based in Washington DC who has devoted his career to studying the intersection of science and policy. The US National Academy of Sciences, which produces many more reports than its British counterpart, has relatively little influence

over the political process, he says. "Nobody in politics reads an academic report, slaps the side of their head and says 'Wow!'," he says.

Others suggest that the society could gain more influence by choosing its topics carefully. National Academy reports can sometimes shift the tone of a debate, says David Goldston, who was chief of staff on the US House Committee on Science from 2001 to 2006. And Robert May, a zoologist at the University of Oxford, UK, and former president of the society, points out that a 2002 report on foot-and-mouth disease helped to set up national vaccination strategies to prevent widespread cattle culling during future outbreaks. That report was successful in part because the society consulted closely with politicians and bureaucrats throughout, says May.

Nurse insists that the society will focus on "big areas that are important to our society" — not just those immediately relevant to policy-makers. Through conferences and studies, the society should also draw attention to the biggest mysteries in science, he says. "What is life? What is the beginning of the Universe? You know, that type of question." ■

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To read more about the history of the Royal Society, see: go.nature.com/ycthtz

CORRECTION

The news story 'Canadian ozone network faces axe' (*Nature* **477**, 257–258; 2011) originally stated that Environment Canada planned to cut 776 jobs. Although 776 employees will be affected by workforce changes, only about 300 posts are being eliminated.