POPULAR PHYSICS MYTH IS ALL AT SEA
Does the ghostly Casimir effect really cause ships to attract each other?
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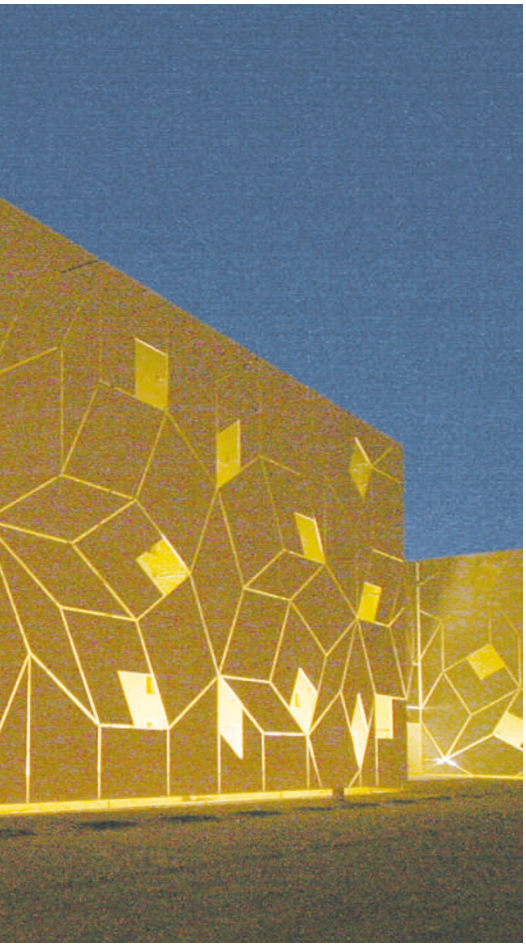

projects and ultimately reverse the current exodus of bright students from the region to Europe and the United States.

"It's an idea whose time has come," says Abdelwahab El-Affendi, a political scientist at the University of Westminster in London who attended the Doha meeting. "There are large numbers of Arab expatriate scholars, who are good in their own areas, but their talents are not being used to advance research in the Arab world."

One potentially divisive issue concerns the involvement of the region's research powerhouse: Israel. Delegates at the meeting said that they were keen to collaborate with Israeli colleagues, but that they did not know whether that could happen before peace was reached with the Palestinians. "I don't think that Israelis can be involved at this juncture," says El-Affendi. "We have to wait for a genuine peace process." ■

Jim Giles

Arctic stations need human touch

Arctic climate research is suffering as manned weather stations are being closed in Canada, Russia and the United States, some meteorologists complain.

Since 1990, around a quarter of the 500-odd manned meteorological stations in North America and Siberia have been shut in order to save money. Some have been replaced with automated monitoring stations, but other closures have completely halted data flow from those sites.

Among other variables, these stations measure winter precipitation and snow depth — key factors for assessing climatic and hydrological changes in the Arctic, where warming is more pronounced than at lower latitudes (see page 146).

"Each station less means we have one important grid point less for validating our models," says Konrad Steffen, an ice specialist at the University of Colorado in Boulder.

The reasons for the closures vary, but essentially come down to cost. A manned weather station can cost more than US$100,000 a year to operate. Automated stations, around 3,000 of which are scattered across the Arctic, cost approximately $30,000 a year, but can fall short in terms of data quality and reliability, many scientists say.

"It's just a terrible mess if there is no human around who can go out and check the equipment," says Jessie Cherry, a hydrologist at the University of Alaska in Fairbanks. "The main problems are mechanical failures, frozen gauges and under-catch of snowfall."

National weather services are required to report all weather observations to the World Meteorological Organization (WMO), a UN agency based in Geneva, Switzerland. But the WMO cannot stop governments from closing stations.

In Canada's far north, a switch to automated measurements and the closure of several manned stations has reduced by 50% the number of stations with records suitable for monitoring snow cover.

But Thomas Nichols, director-general of weather and environmental monitoring at the government agency Environment Canada, argues that the country is still collecting plenty of data. Canada has installed 45 automated Arctic stations over the past four years; some of these have been built at new locations, and others have replaced manned stations or ageing automated stations.

> "It's just a terrible mess if there is no human around who can go out and check the equipment."

But hydrologists say data from the automated stations can be suspect. "It is difficult to believe what you are seeing," says Cherry, who has just completed a hydrologic study in Siberia based on the 60-year record of seven Russian weather stations (see doi:10.1038/news060403-9). "Given the number of possible biases out there, we just don't trust the raw gauge data."

Decreasing monitoring ability on the ground is also limiting the value of satellite-based snow and ice observations, which need to be calibrated against ground measurements.

The situation is similar in Antarctica. Russia and South Africa have recently closed three manned stations there, which they plan to replace with automatic stations. Around 20 manned stations remain on the continent, along with 25 automatic ones.

Getting real-time data is a problem for the WMO's entire Global Climate Observing System (GCOS), says Phil Jones, a climate researcher at the University of East Anglia, UK. The GCOS collects data from about 1,000 terrestrial stations worldwide, 10% of which are in polar regions.

But each month, 30% of the stations don't send data, or send them late. "Data flow is alarmingly bad," says Jones. "It wouldn't take much effort to improve it, but some countries just don't seem to be concerned about data quality."

The lack of good data also troubles the Greenland research community. In northern Greenland, where glacier movement may be speeding up substantially, the scarcity of data is limiting scientists' ability to accurately model the phenomenon, says Eric Rignot, a glaciologist at NASA's Jet Propulsion Laboratory at the California Institute of Technology in Pasadena. "There are too many unobserved variables, such as glacier thickness close to the coast and meltwater movement," he says.

Scientists hope that the governments of Arctic countries will set up new manned monitoring facilities as a contribution to the International Polar Year, in 2007–2008.

The United States, Canada, Sweden and Russia have promised to support a number of projects aimed at improving Arctic monitoring (see page 127). ■

Quirin Schiermeier