

provinces and Territories. We have involvement from all those groups, plus universities in the private sector. Research is being carried out on the effects of increasing levels of carbon dioxide in the atmosphere. This year, socio-economic impact studies are in process to gauge the probable effects of CO₂ induced climate changes on food, agriculture and on Great Lakes water resources.

On March 1, this Government announced a start of a one-year experiment which may eventually enable the Canadian public to obtain monthly and seasonal forecasts of climatic conditions on a regular basis. During the trial period, and I think this is interesting, selected organizations such as provincial Departments of Tourism, municipalities and fishery groups will be asked by Environment Canada to evaluate the format and usefulness of these experimental forecasts. Just imagine, if you will, in planning your holidays for this summer that you would be able to determine what the weather will be like in Prince Edward Island when you want to go there, and we welcome you all to our province.

In October of last year, Canadian astronaut Marc Garneau carried out successful experiments using the super sunphotometer aboard the U.S. space shuttle. The instrument was developed through joint efforts of the Atmospheric Environment Services Research Directorate and Canadian industry. It provides information supporting our continued research on climate as well as the stratospheric ozone layer and acid rain.

Over the past several months, this Government has provided additional funding for the completion of the report on the possible environmental effects of nuclear war. The study was completed by the Royal Society of Canada in early February. It describes the likely effects of a nuclear conflict on climatic conditions in Canada and around the world and, in particular, the so-called nuclear winter effect. The report is now being reviewed by Environment Canada and other federal Government Departments. I am pleased to announce on behalf of the Minister that she will be distributing to each and every Member of this House a copy of the report as soon as it can be printed so Members will have the opportunity to be apprised of the latest scientific assessment of this potential human and environmental catastrophe.

The demand for weather service continues to grow. It is widely used among government departments, federal and provincial, and in fact there were over 15 million contacts with the service in the last year. It certainly points out the need of providing this kind of service to the public.

Since 1976, the number of requests for information at the service has more than doubled. During that same period, staff members for the service have decreased by 10 per cent and expenditures remained nearly constant in real dollar terms. This productivity improvement has resulted from automation of AES operations such as the collection of weather observation, preparation of forecasts, increased computerization of forecast methods and more rapid and widespread dissemination of products through an improved communication system. Obviously, the Government is providing better service and maintaining costs. In some areas, it was able to decrease costs

without imposing a further hardship on the Canadian taxpayer.

Improvements in the economies and the methods of delivering weather data and forecasts to the public have been achieved through a process of continuous review of staff deployment and technological improvements. In many cases, the service can be maintained at a lower level and still provide the objective of AES.

One way to improve efficiency, and I have already alluded to the fact that we can improve efficiency and productivity through automation, but one specific way that this has worked is the way in which AES has worked with high-tech companies in Canada. These companies have been able to build on the experience, and a number of them have a special but significant market niche for sophisticated scientific instrumentation which is now being sold in export markets. Because of the support of the Canadian Government, two of these high-tech companies building this equipment are now providing jobs to Canadian manufacturers who are selling this equipment abroad.

The Atmospheric Environment Service is responsible for the kind of weather reports and forecasts we hear daily. In fact, I would point out very quickly that they do provide in excess of 230,000 weather forecasts annually for 167 inland public forecast areas and all large population centres. They produce 130,000 marine weather warnings, advisories and forecasts annually for 101 marine regions. It produces 380,000 weather forecasts, amendments and warnings for 90 aviation areas and 170 airports. It also provides complete service for military operations.

There are some other things that the service provides which do not immediately come to mind, for instance, the long-range transport of air pollutants. AES provides the scientific leadership for the Canadian research effort concerned with the environmental impact of acid rain. In the area of toxic chemicals management, it looks at the persistent high concentration of toxic chemicals and how they would occur with increasing frequency over representative geographic areas. It provides scientific leadership in the areas of measurement, research and modelling.

Research on the following issues is also carried out: the danger to the earth's life-protecting stratospheric ozone layer which demands the use of certain chemicals, the effect of the build-up of atmospheric carbon dioxide caused by man's activities, even the effects of volcanic eruptions that may have long-lasting effects on man through climatic change and by significantly adding to the acidity of rain.

The National Weather Service, which I referred to, employs some 2,350 people from coast to coast and in remote Arctic locations. However, it enjoys the unselfish participation of twice as many unpaid volunteers who daily measure temperatures and precipitation for the National Climate Archives. That volunteer service is very important to this country as a whole.