

SCIENCE AND TECHNOLOGY COOPERATION
BETWEEN CANADA AND THE FRG

In the summer of 1986, a small twin-engined aircraft loaded with sensitive electronic instruments made a number of research flights over Germany's Black Forest. On each flight, the crew focused their equipment on the carpet of green trees stretching to the horizon, searching for forest damage still invisible to the naked eye. The crew was gathering data on forest damage due to environmental stress factors such as acid rain. They used an experimental imaging spectrometer known as the Fluorescence Line Imager (FLI).

The flights, conducted over a six-week period, were part of an important environmental and remote-sensing research program linking governments and private companies in Canada and the FRG under the Federal Republic of Germany/Canada Science and Technology (S&T) Cooperation Agreement. This advanced research serves as an example of the benefits of this cooperation, and highlights the leading role played by Canada and the Federal Republic of Germany in remote-sensing research.

Data gathered in the test flights almost two years ago is still being analyzed in both countries and could have important implications for forest management procedures in the future.

The FLI is a state-of-the-art, remote-sensing device originally developed by Canada for monitoring marine productivity. Canadian and German researchers are at the forefront of developing techniques for monitoring chlorophyll fluorescence as a measure of productivity of the marine environment. In May 1988, scientists from both countries participated in a cruise off Newfoundland to gather reference data for interpretation of the correlation of the fluorescent signal with primary production in the sea.

Development of the FLI grew out of cooperative oceans research with the Federal Republic of Germany in the early 1970s. The advanced prototype of the FLI was demonstrated in ground vegetation applications in the 1986 airborne test in Germany's Black Forest. The long-term objective is to mount the FLI on satellites for terrestrial and marine observation from space.

Cooperation has involved the German Aerospace Establishment (DFVLR), and the GKSS Research Centre Geesthacht, both government-funded agencies, and Canada's Department of Fisheries and Oceans. The Government of Ontario also provided financial assistance to a Canadian company to develop and