

Introduction

Scores of artificial "eyes" are, at this moment, peacefully surveying our planet from outer space. Circling the Earth at different altitudes, these man-made sensors, commercial and military, belong to several countries and watch for various things: some passively gather data for intelligence purposes, some monitor the growth of crops, some watch the weather, some hunt for minerals. Among the multitude of applications for which satellites are employed, one has acquired increasingly critical importance with respect to reaching arms control and disarmament agreements: the use of space-based remote sensing for verification purposes.

Up to now, it has been the United States and the Soviet Union that have adapted their space-based surveillance capabilities to arms control verification, mainly with respect to their bilateral agreements. It is now becoming more and more apparent that other nations, some already with a stake in space, recognize a responsibility to become more closely involved in certain aspects of space surveillance.

One of the major undertakings of the Verification Research Program of the Department of External Affairs over the past several years has been to bring together a team of experts from government, universities and

industry to focus Canadian space technology and know-how on its application to the process of arms control verification. A distinctly Canadian concept, termed PAXSAT ('pax' being Latin for peace), has emerged from these investigations. It centres on assessing the feasibility of applying space-based remote sensing technology to the tasks of verification in the context of multilateral arms control and disarmament.

PAXSAT research has concentrated on two potential applications of space-based remote sensing to multilateral arms control verification. The first is space-to-space remote sensing (PAXSAT 'A') which deals with verification of agreements involving space objects. The second, space-to-ground remote sensing (PAXSAT 'B'), focusses on how to assist in the verification of agreements involving conventional forces. This brochure will examine the PAXSAT concept in general terms, outlining the context of multilateral arms control verification and some of the major assumptions underlying the PAXSAT projects.