

count items that might be TLE (including look-alikes, etc); to count identified TLE; to assess traffic flow; and to detect new installations.

Space technology

The Space Team examined the imaging instruments appropriate to its assigned verification tasks and projected the capabilities of instruments. These sensor performance data were developed into scenarios by combining them with orbital considerations and data on spacecraft buses and launch vehicles. It must be noted that neither the "national technical means" of the superpowers nor the military programs of any nation were considered in the course of the study.

To develop cost data regarding operations and data processing, it was found necessary to postulate a generalized architecture for the system as a technical assumption. Since in any reasonable configuration the space system was data-intensive, a portion of the capability was communications. Thus, consideration was given to support of the communications requirements of the entire verification system including such aspects as on-site inspection (OSI) and the verification data dissemination.

Aerial technology

The Aerial Team's approach was somewhat similar, but the presently available technologies and platforms are demonstrably a better match to the assigned problems. The conclusions of Team 2 were an early indication of an ability to support an Open Skies regime.

Land technology

The Land Technologies Team had the greatest diversity of operations and thus potential for innovation. As indicated above, the overall study encompassed treaty data validation, TLE destruction or disposal confirmation, and compliance monitoring, all of which are or can be addressed by terrestrial procedures.

Many of the technologies in respect to portal/choke-point monitoring, perimeter or line monitoring and area

surveillance are drawn directly from well-developed civil technologies. In the early stages of the Land Team's activity, working definitions had to be developed for OSI, with both visiting and hosting aspects of OSI operations being considered.

The Land Team was also charged with considering "tagging" technologies, because this is a highly cooperative and potentially intrusive operation similar to OSI. The definitions used in the study included cooperative signature enhancements on TLE as well as various transponding and/or otherwise readable identifiers.

The problems of TLE disposal were treated in some detail to determine the

optimum approach to validation of "disablement" or "disposal." This emphasis is, of course, a result of the immediacy of CFE I and the recognition of the high costs and environmental problems of effective disposal.

Conclusion

Although it is not appropriate to speculate on the final study conclusions and recommendations, it is clear that present and projected technologies available to NATO can be applied to the verification of conventional armament agreements, improving the effectiveness of the arms control process within a treaty environment. ■

Study on the Future of Verification

A new climate of East-West cooperation on security-related matters has emerged as the hallmark of recent years, resulting in a number of arms control and disarmament agreements. The process of verification cannot help but be affected by these developments; this will continue throughout the decade. However, exactly how current trends in arms control are likely to evolve and affect verification remains to be seen.

A recently-completed Canada-US research project explores this issue in depth. The genesis of the project — which was funded by EAITC's Verification Research Program — was the desire to examine the requirements, challenges and opportunities likely to face the verification process in the 1990s. Four distinguished scholars — two Americans (Ambassador Sidney Graybeal and Dr. Patricia McFate) and two Canadians (Dr. George Lindsey and Mr. James Macintosh) — were invited to:

- identify trends with respect to the verification of arms control and disarmament agreements (including confidence-building), both bilateral and multilateral;
- outline how these trends may be expected to evolve to the year 2000; and

- suggest profitable areas for further research in the field.

The resulting report, entitled "Verification to the Year 2000," represents an innovative, insightful and rigorous attempt to examine developments over the next ten years with respect to verifying arms control and disarmament agreements in both the bilateral and multilateral fields.

This report is also a significant example of Canadian-American cooperative research in verification. The Verification Research Program has, in the past, undertaken projects on a government-to-government level with several other countries including the US. This project, however, is one of the first in which representatives from Canadian and American industry, academia and government have come together under the auspices of the Program.

"Verification to the Year 2000" is being published as the fourth major study in EAITC's *Arms Control Verification Studies* series and will soon be available for distribution to specialists in the field. It should provide useful guidance for what promises to be an exciting decade in international security and arms control verification.