

Chapter 6 – CONCLUSIONS AND RECOMMENDATIONS

In the present report, we have summarized recent research and development, including but not limited to that carried out by NATO SET-118, and outlined future directions in 3D modelling of urban terrain. NATO SET-118 has provided value by facilitating coordination of this research and development in many dimensions, including sensor systems for generating the data, analytical and computational techniques for creating models from the data and metrics for assessing the models.

The information presented in this report indicates that the scientific and administrative factors to support rapid progress in research and development of 3D modelling of urban terrain are all in place. What is now needed is coordination among organizations (international, national, academia, industry) and coordination of near-term development and long-term research.

6.1 RECOMMENDATIONS

Comprehensive, internationally coordinated research and development programs are required to promote rapid progress. Specific recommendations are as follows:

- NATO member countries, especially those that participated in SET-118, should fund research and development programs with the objective of producing one or more theoretically founded prototype systems for compressed full 3D modelling of urban terrain within 5 years and one or more working operational system within 10 years. Compression factors that are needed are two to three orders of magnitude greater than the compression factors of the order of 10 to 20 that are available today.
- NATO member countries should continue to provide broad support for academic and industrial efforts in 3D modelling of urban terrain as well as in linkage of 3D modelling with geographic information systems and other systems that include items/factors beyond geometry, topology and texture.
- The strongly interdisciplinary nature of 3D modelling of urban terrain should be reflected in all efforts supported by NATO member countries.

6.2 A PATH TO THE FUTURE

Due to the shift of defence operations from classical, symmetric scenarios to current-day asymmetric, urban scenarios, the need for more accurate and comprehensive 3D models of urban terrain has strongly increased and is likely to continue to increase in the near and medium-term future. The many different directions of research and development in 3D modelling of urban terrain are evidence of the richness of this field. While all of these directions are important and interesting in their own right, the task is now to coordinate and focus basic research and development efforts in areas that will quickly lead to creating a class of models with acceptable or better accuracy and computational speed. The bottom line in security 5 – 20 years from now will depend on the vigour with which this research and development is pursued today.

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