Foreword

We are pleased to bring you the second System Analysis and Studies (SAS) issue of the NATO Science and Technology Organization (STO) Review – the peer-reviewed Journal of the NATO STO.

This special edition contains a selection of the papers that were presented at the 17th NATO Operations Research & Analysis (OR&A) Conference held at the Johns Hopkins University Applied Physics Laboratory, Laurel, Maryland, USA, from 30 to 31 October 2023, including the one that was awarded the best full paper distinction.

This event brought together approximately 220 participants, both physically and online, of the NATO OR&A community from NATO commands and agencies, national defence analysis and research organizations, centres of excellence, academia, and industry to discuss the conference theme "Changing Character of Defence and Deterrence: The Power of Analysis." The conference theme focused on how OR&A helps us cope with increasingly complex security challenges and the demand for sustainable operations, while leveraging new technology.

This special STO SAS edition features a selection of the best publicly releasable full papers from the conference, which were peer-reviewed by leading international military OR&A experts. Other full papers, as well as all short papers that were presented at the conference, are published in the peer-reviewed conference proceedings.

This special issue contains the following three full papers:

- The best full paper award "Zero emission technology: Potential energy carriers for the Norwegian Armed Forces in a decarbonized future" by Even K. Tønsberg and Brynjar Arnfinnsson, discusses the operational benefits and limitations of exploiting green energy in a military context.

- In "BEAM: A new simulation to evaluate strategies and forces for military campaigns" by Mark Gallagher, Elizabeth Comar, and Stephen Sturgeon, the Bilateral Enterprise Analysis Model (BEAM) is introduced. This new joint campaign modeling tool enables easy analysis of military theatre strategy, force structure, and/or infrastructure changes in a complex military environment, based on an innovative Quasi-Monte Carlo scheme.

- Finally, "Understanding arms races for autonomous military capabilities using a system dynamics simulation model" by Laura Wilmes and Rob van Waas investigates the arms race dynamics between a hegemon and a rising nation fielding new autonomous military systems.

In our view, these three papers clearly demonstrate that OR&A can help NATO and the nations cope with increasingly complex security challenges and the demand for sustainable operations, while leveraging new technology.

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