



NATO Technical Activity: Sequencing for Environmental Aerosol Background Monitoring

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BACKGROUND

Biological threats, including naturally occurring and modified pathogens pose a challenge to NATO operations as deployed forces may encounter endemic diseases, imported diseases, or even biological agents that are intentionally released by hostile actors. In addition, climate change and development are expected to accelerate the emergence of zoonotic diseases, including those with pandemic potential.

Reliable and relatively fast methods for detection of harmful biological microorganisms in complex matrices are becoming more readily available through commercial, university/academic, and science and technology (S&T) defense activities. DNA/RNA sequencing can be used to identify any biological threat, but first, the composition of the natural background needs to be established. Biological aerosol backgrounds will vary based on location, season, time of day and meteorological conditions.

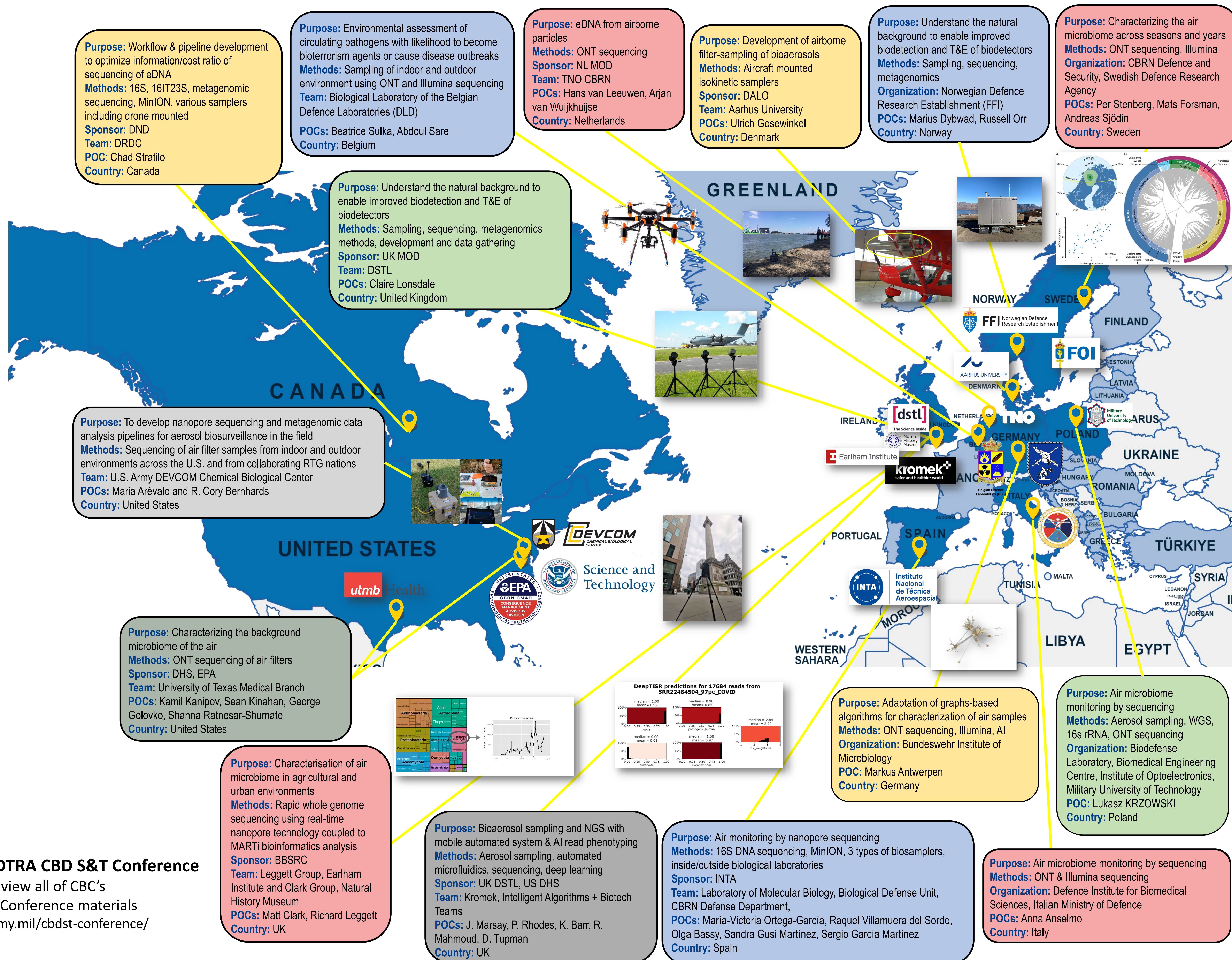
RESEARCH TASK GROUP (RTG)

NATO has established a Research Task Group (RTG) to bring together sequencing and aerosol experts in the defense community to address challenges associated with environmental aerosol monitoring using sequencing-based approaches. The RTG seeks to broadly characterize natural backgrounds by leveraging/strategizing the NATO nation activities in this area of research. Multiple on-going activities are captured below, and the group will meet regularly to review and collaborate on characterizing the existing airborne environment.



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NEXT STEPS

Member countries are currently leveraging existing projects and research institutes, and now sharing data, methods, and results for review and collaboration. Efforts are underway to jointly fund and execute future studies, to further capture the temporospatial variations in the airborne microbiomes, and improve sample acquisition, extraction, sequencing, and analysis strategies and throughput. With biannual in-person meetings, to ensure communication and collaboration, the RTG is working to improve the speed, specificity, and sophistication of environmental sequencing to detect a biological incident.



Acknowledgements: We would like to thank the NATO Science and Technology Organization (STO) and Collaboration Support Office (CSO) for their support. This research is funded by a variety of host nation funding sources. U.S. funding sources include DARPA and DHS. The views expressed in this abstract are those of the authors and do not necessarily reflect the official policy or position of NATO, the U.S. Department of Defense, or the U.S. Government.