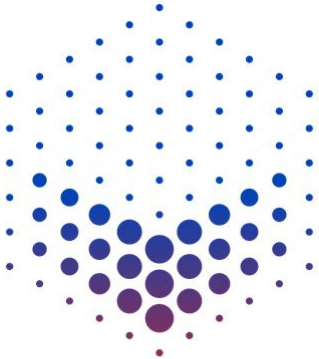
3D Collaborative Space Situation Awareness System **(3CSSAS)**

Bringing together best in class commercial technology and space science research to create an informed decision support system for space situational awareness

VIZWORX
VISIBLY BETTER SOLUTIONS

UNIVERSITY OF CALGARY

A **VizworX** and **University of Calgary** partnership



VIZWORX

VISIBLY BETTER SOLUTIONS

UNIVERSITY OF CALGARY

SDA

NATO Space Domain Awareness

The **Right** Data

At the **Right** Time

And the **Right** Place

Presented the **Right** Way

To enable the **Right** Decisions

Solution Approach

Built on world leading research

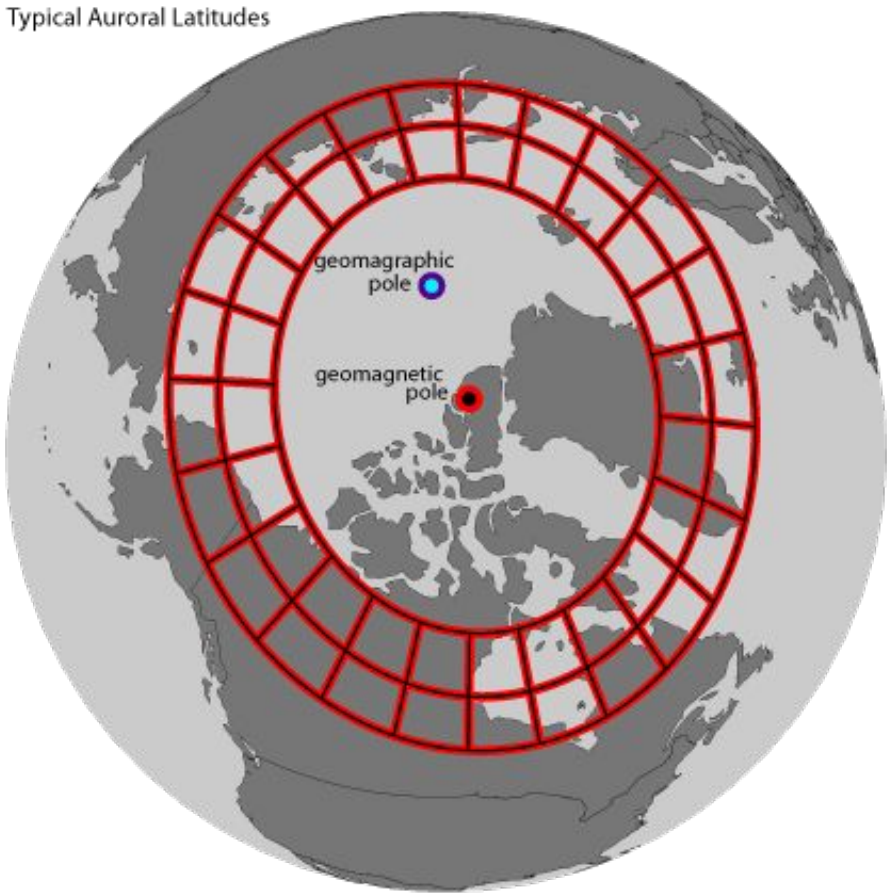
Leverage deep domain knowledge and expertise in space data and its applications to focus project outcomes

De-risk by using existing TRL 4-9 components

Use mature and tested IP to shorten development time and de-risk the project

Space Environment Characterization

Holistic data assimilative approach that simultaneously characterizes the ionospheric environment across a full range of altitudes (65 km to 700 km) that affect HF, GNSS and LEOs

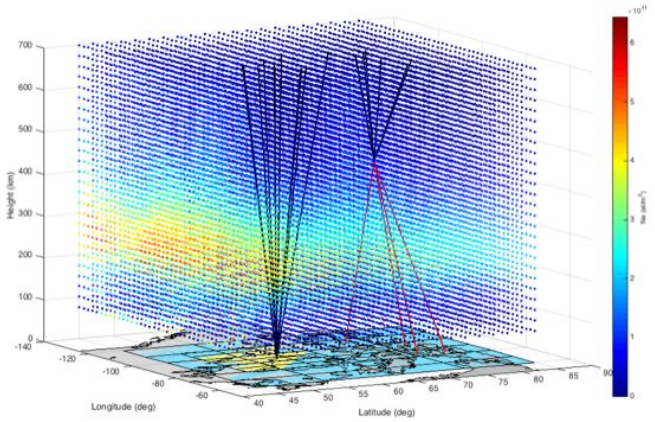


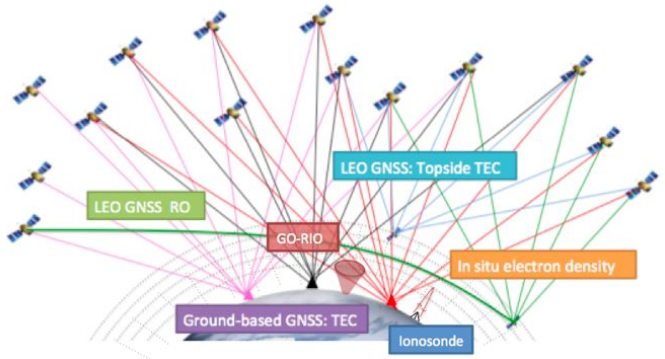
Multi-source data

Space environment monitoring

Satellite communication path quality determination

GNSS PNT perturbation assessment
(human-made and natural)

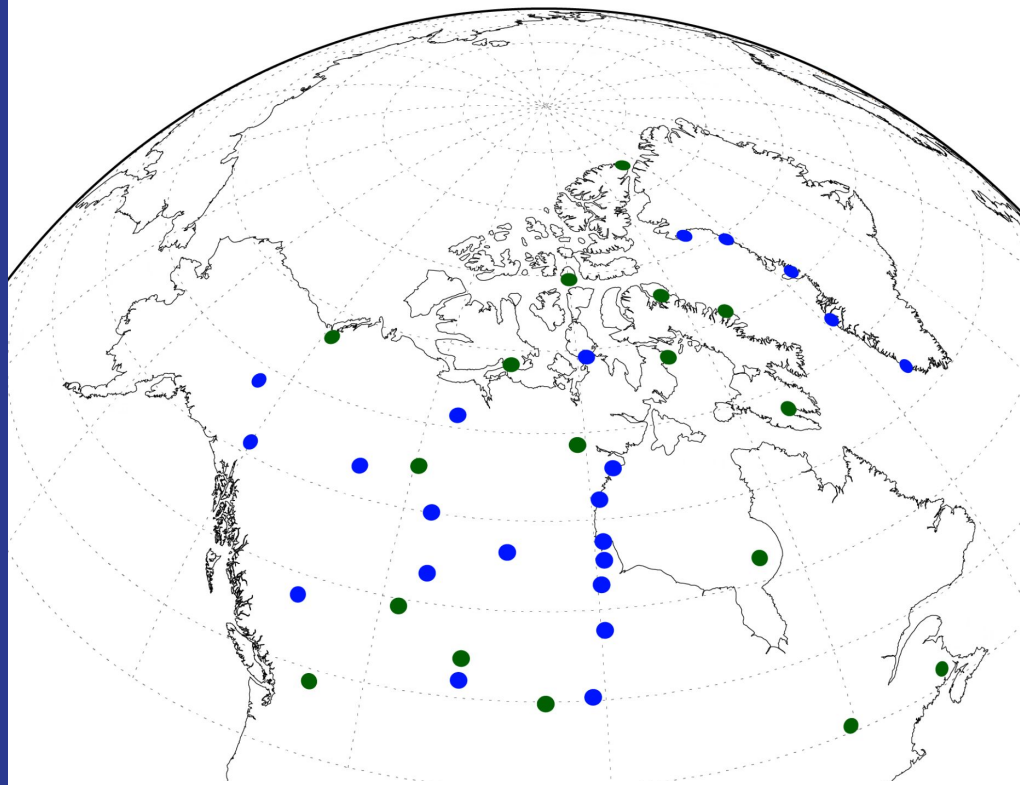




HF Propagation

Novel approaches to bottom side ionosphere modeling for generation of:

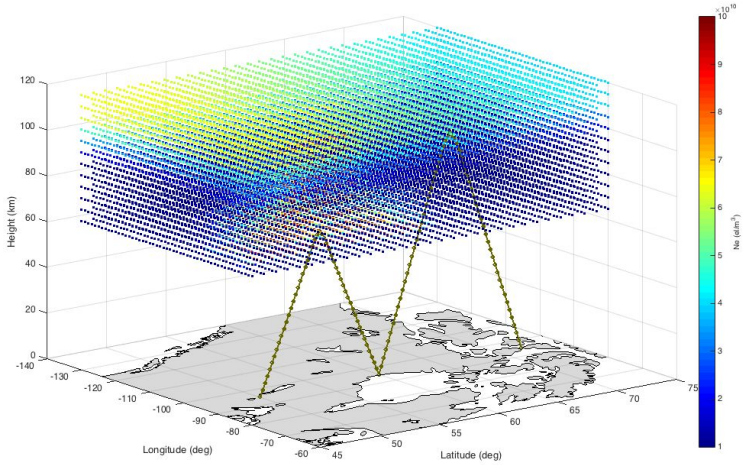
- HF performance metrics
- Feasible operating parameters
- Probability and risk indicators



Enhanced Polar HF communications

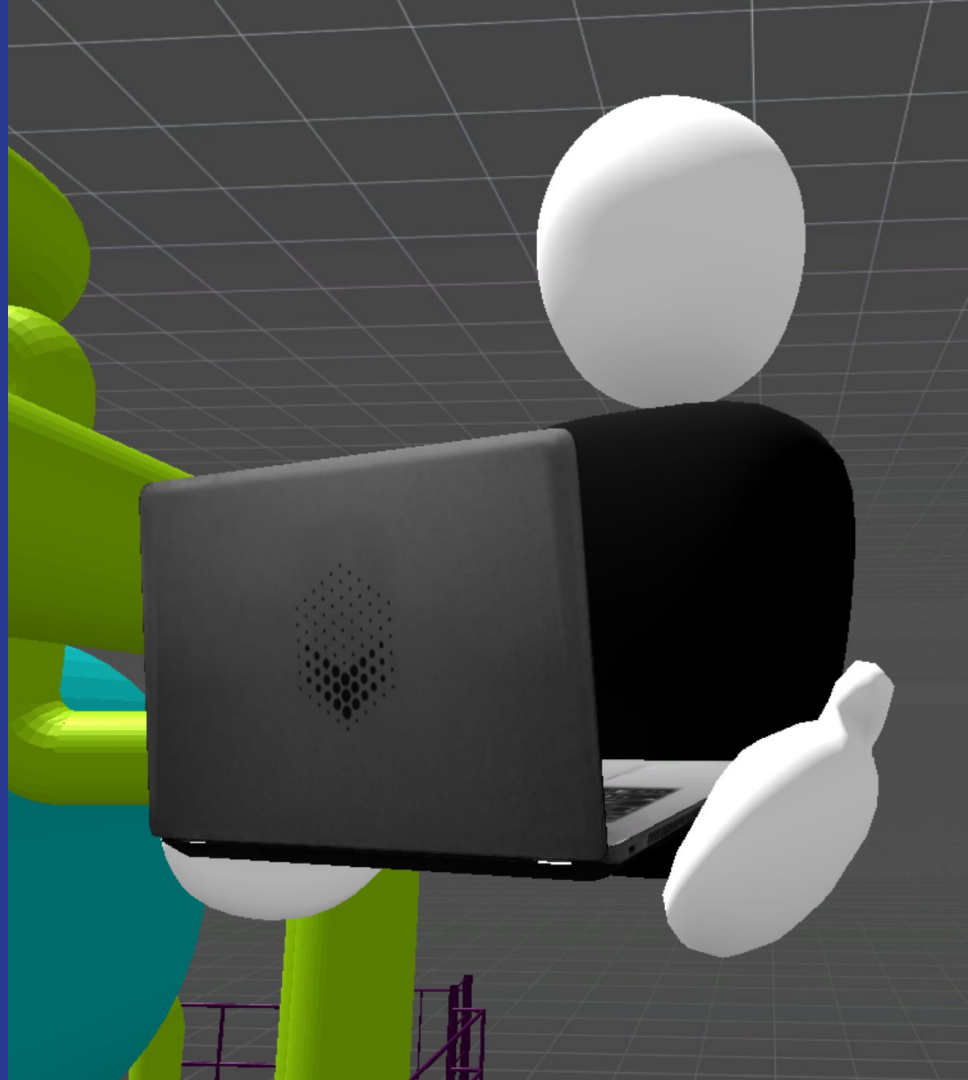
Tracking of LEO satellites & space debris

Tuning of over-the-horizon radar for optimal surveillance



Remote Collaboration

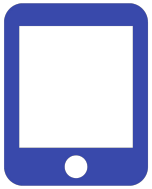
Any time, anywhere, any device access



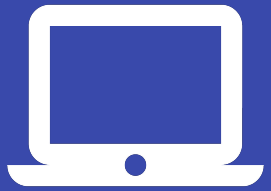
Whenever and wherever access to critical operational information

Augmented Reality

Virtual Reality



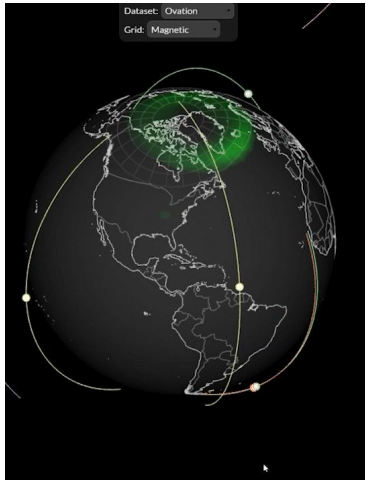
Mobile

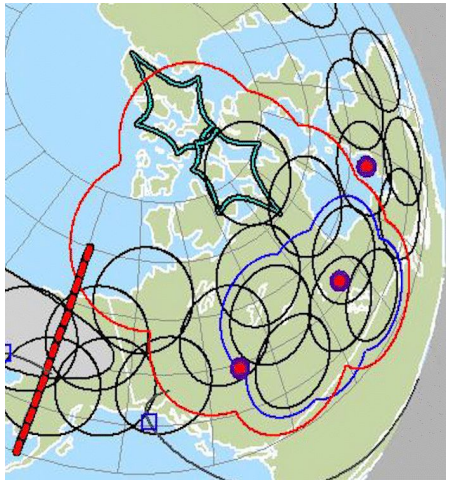


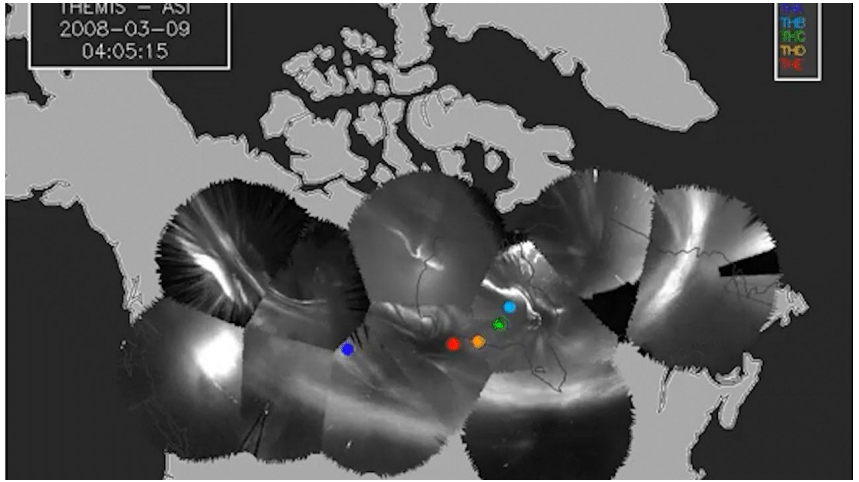
Web

Space Environment Visualization

Multi-modal space and terrestrial spatial representation and visualization, including ground sensor coverage, satellite coverage and terrestrial/aerial vehicle reception information

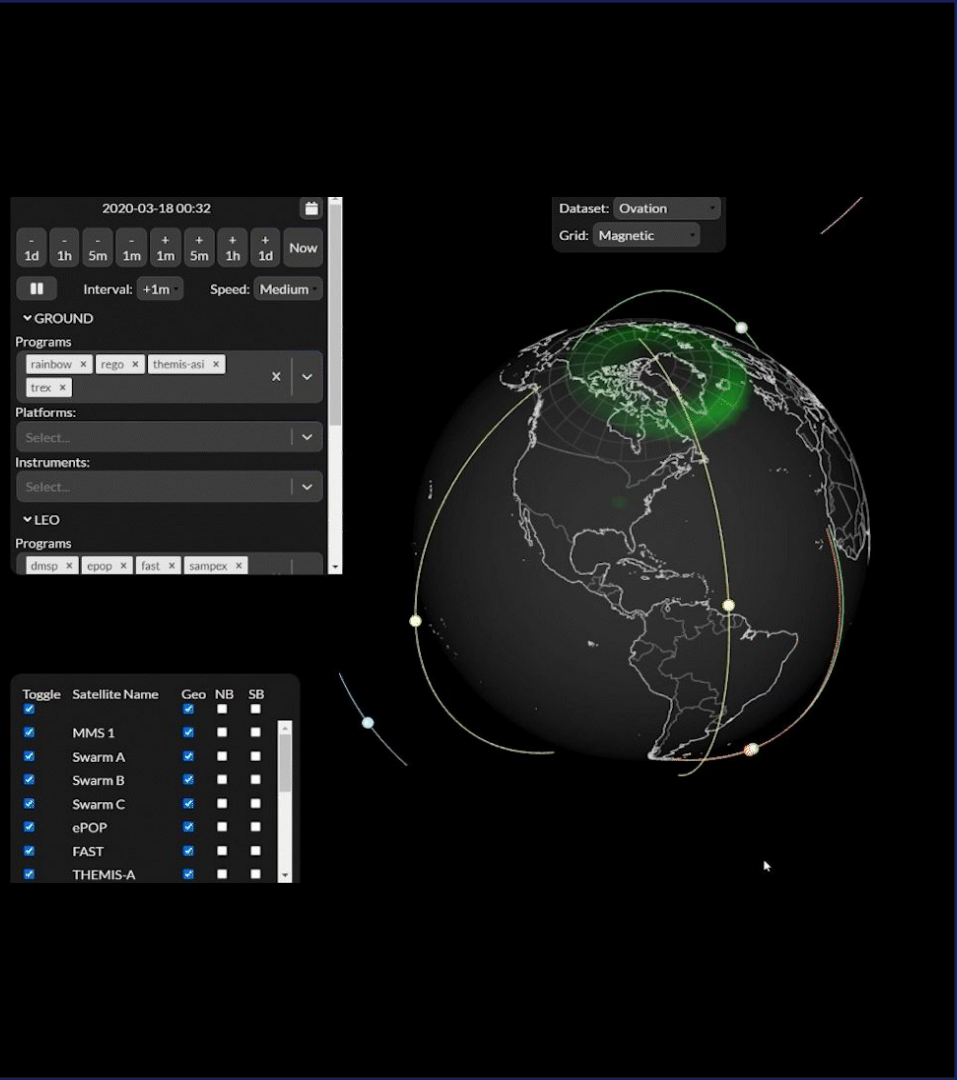






Multi-model interactive sensor coverage maps

Historical and current sensor coverage and space weather, with future predictive options



Virtual Operations Environment

Advanced command and control solutions utilizing the latest in immersive technologies and advanced visualizations

Multi-sensor fusion visualization

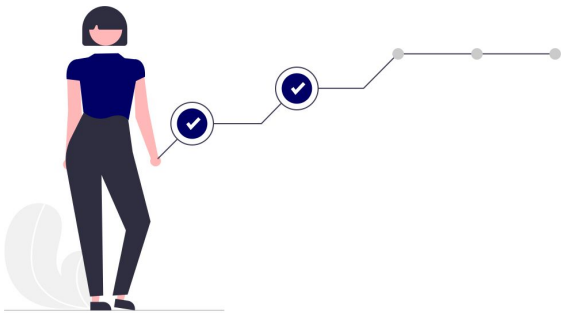
Enhanced comprehension with reduced cognitive loading

PROCESS

1 Project Scoping and Alignment

2 Initial Operational Capability

3 Final Operational Capability



To learn more, visit

vizworx.com/NATOInnovationChallenge2021

Contact us

VIZWORX

VISIBLY BETTER SOLUTIONS

UNIVERSITY OF CALGARY

Jeff LaFrenz | jeff.lafrenz@vizworx.com

Dr. Susan Skone | shskone@ucalgary.ca