Ecosystem Health and Function Challenge

Overview

The Department of Conservation invites innovators, to participate in the Ecosystem Health and Function Challenge. Selected solutions will develop novel sensors and methods of monitoring and/or enhancing our understanding of ecosystem/environmental health; and/or inform understanding of biophysical function/processes.

Examples of potential areas of interest to DOC include but are not limited to:

- Monitoring river/lake water quality and quantity – e.g. tracking lake algal blooms, Chlorophyll-a, suspended sediments, E. coli, river discharge/flow – with sufficiently fine spatial (<5m) and temporal (daily-weekly) resolution.
- Monitoring native forest canopy condition/health.
- Quantifying biogeochemical fluxes and budget (CO2, H2O, N2O, CH4 ...), vegetation growth simulation, biomass and yield estimates, soil-vegetation-atmosphere exchanges.
- Developing high resolution (<10m) thermal imaging capabilities for land surface temperature mapping – for example to inform crop health, soil moisture, drought, groundwater studies.
- Assessing near-shore marine productivity and/or habitat mapping.
- Quantifying and mapping near-shore turbidity, suspended sediments and harmful algal blooms.

Monitoring solutions should aim to be operationally viable/deployable at national scale in potential future phases. Conversely projects that address biophysical function/process should address poorly constrained and significant knowledge gaps. Solutions should focus on developing novel capabilities that exceed currently available satellite datasets in spatial, spectral, or temporal resolution, and thus provide greater insight than is currently available.

Selected proposals will receive flight opportunities aboard commercial orbital or suborbital platforms to validate their satellite sub-systems in space or in the stratosphere.

Successfully matured technologies demonstrated through the scheme may have the opportunity to be incorporated into a future sovereign national mission.

Challenge Objective

To identify and test cutting-edge, locally developed technologies that improve the monitoring and understanding of ecosystem health and biophysical function.

End User

The Department of Conservation

Desired Outcomes

The scheme seeks to develop capabilities to improve monitoring and understanding of ecosystem health and function. The aim is to develop technologies that can improve the efficiency, effectiveness, and scalability of current monitoring practices, and/or address critical knowledge gaps in ecosystem function.