PROFESSIONAL SURVEYORS CANADA
GÉOMÈTRES PROFESSIONNELS DU CANADA

September 30, 2020

Dear Mr. Donahue,

Thank you for this opportunity for Professional Surveyors Canada (PSC) to provide our feedback into charting a new course for Space Based Earth Observations (SBEO). Professional Surveyors rely upon SBEO for the purpose of land use planning and administration, resource sector support, and the countless other contributing sectors of the economy supported by the efforts of our membership.

The primary focus of PSC in terms of SBEO is in the midstream data-handling step of the earth observation value chain. The support of Natural Resources Canada's Geodetic Survey Division in the development and implementation of next-generation Precise Point Positioning (PPP) services for civilian use needs to be made a priority to enable innovation and investment into the Canadian economy. End users of these services include the health care, mining, forestry, aviation, hospitality, construction, emergency services, real estate, and government services sectors.

The current iteration of PPP service is in use by industry worldwide on a post-processing basis. This can be developed into a real-time or rapid-static absolute positioning service with the support of CSA. Such service will reinforce Canada's position as a world leader in geodetic positioning technology and will lead to capital invested and saved across all industries. Real time absolute position is an enabling technology essential for autonomous vehicle monitoring, the internet of things, automated construction, and smart cities.

Our response to the specific feedback you requested is provided below:

1. From your stakeholder perspective, what are the priority actions for advancing SBEO capabilities in Canada?

   Invest in pilot programs that reinforce real-time PPP solution technology with the goal of civilian level high-precision positioning services being available to all Canadians and all Canadian industries.

2. How can Canada maximize the potential of SBEO data to solve everyday problems for Canadians?

   Invest in PPP technology development to unlock applications that will serve to enhance and evolve Canadian industry. Being able to access centimetre level absolute position in real time is essential for some emerging applications and enabling for future innovation and ensuring consistent positioning in all of Canada's remote areas and communities.

3. What would allow Canada's commercial SBEO sector (upstream, midstream, or downstream) to reach its full potential in strengthening the economy and creating jobs?

   Investment in enabling positioning technologies, such as real-time PPP.

4. What can be done to facilitate a strong role for SBEO in maintaining Canada's leadership in scientific and research excellence?

PPP is used worldwide and is the global benchmark in absolute post-processed position. It is the geodetic equivalent of the Canadarm. We may not have a global positioning satellite constellation of our own, but we do excel in other areas such as geodetic positioning research, PPP, direct SBEO and continued international partnerships with the Canadian Space Agency. Further enhancement of our globally recognized PPP system into a rapid-static or real time absolute positioning system will keep Canada positioned as a global leader in geodetic positioning, technology, and research.

5. Are the SBEO best practices identified in this document aligned with your perspective as a stakeholder in the SBEO landscape?

Yes. Improving the absolute positioning system for professional surveyors and other stakeholders is a keystone in long term planning for the integration of SBEO with terrestrial metadata mapping and positioning data. PSC members are ready and willing to participate and contribute to the midstream process of the SBEO value chain.

In the spirit of a whole of government approach we would like to emphasise the importance of the NRCan Real Time Network monitoring program. Provincial governments and agencies rely upon the certification of real-time network base stations by NRCan and the continuance and upkeep of this program will allow for provincial and municipal governments to rely upon said certifications.

6. Given your position as a SBEO stakeholder, how do you see yourself contributing to, or benefiting from, addressing the challenges outlined in this paper?

As a partner of government and academia PSC can assist in setting the foundations required to achieve the overarching goals noted in the paper. Our international partnerships with counterparts in the USA, Australia and Europe bring an opportunity for international data sharing and exchange of expertise.

Thank you for this opportunity, and we look forward to the CSA fostering the innovation and evolution of SBEO in Canada.

Sincerely,

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