

EGU21-8897

<https://doi.org/10.5194/egusphere-egu21-8897>

EGU General Assembly 2021

© Author(s) 2021. This work is distributed under the Creative Commons Attribution 4.0 License.



## A Continuous Data Production Approach to Flow Estimation in Canada

Francois Rainville<sup>1</sup>, **Alain Pietroniro**<sup>1,2</sup>, Andre Bouchard<sup>1</sup>, Amber Brown<sup>1</sup>, and Douglas Stiff<sup>1</sup>

<sup>1</sup>National Hydrological Services of Canada, Water Survey of Canada, Canada

<sup>2</sup>University of Calgary, Department of Civil Engineering, Calgary, AB, Canada

The world has entered an era of immense water-related threats due to climate warming and human actions. Changing precipitation patterns, reducing snowpack, accelerating glacial melt, intensifying floods and droughts have made the need for timely hydrometric information indispensable. Climate change thus introduced requirements for adaptive management and timely water resource information at the municipal, regional and national levels. Over the last 10 years, it became evident that demands from users had moved towards best available hydrometric data in near real-time. As with most hydrometric services around the world, the WSC was a legacy and archive-driven organization that published approved data on an annual basis. Real-time data was an after-thought simply equated with the application of rating curves onto telemetry water levels, while hydrographers remained focused on approving data months after the facts. To address this challenge, the Meteorological Service of Canada's National Hydrological Services, and specifically the Water Survey of Canada (WSC) has developed a near real-time continuous data production system to meet the evolving needs of stakeholders. To meet this challenge, WSC developed solutions where data would be improved as field-measurements were being acquired. Corrections to data and rating curves are applied within hours of field discharge measurements, allowing for near-real time publication of corrected discharge information. Moreover, station conditions and performance are constantly monitored with "eyes-on-data" production tools that allow the program to optimize its field visits, costs and data publication. These tools were developed in-house to enable effective network time-management while communicating important information with partner agencies. This was made possible with a cloud-based hydrometric data production system and modern telecommunications tools. As a result of this work, the improved near real-time data became the catalyst to revamp a multi-decade approach to final data approval. This improved overall efficiency and is now leading to less delays in the approved data production cycle. This paper describes the design and implementation of the continuous data production system adopted at WSC and highlights some of the benefits noted since program implementation. This paper also identifies future investments that could help the sustainability of this new system in the long term.