



## COMPUTER SCIENCE CORE SUPPORT TEAM

### BRIEFING NOTE

March 1, 2017

The Global Water Futures (GWF) computing team will develop a GWF cloud platform to enable the collection, management, processing, analysis and visualization of GWF data. The GWF cloud platform will support coupling of hydrological, water quality and economic models, and the development of user interfaces and scientific processing pipelines for these coupled models. The team will support software and human-computer interface technological innovation and provide software development support to establish a software platform for use by GWF scientists.

The GWF cloud combines high throughput processing and data management in an integrated platform. The GWF cloud is composed of three components:

- 1) PaaS (Platform-as-a-Service), which provides a data management platform for collecting, storing, integrating, sharing and managing GWF data
- 2) IaaS (Infrastructure-as-a-Service), which provides a distributed cyber-physical infrastructure to support high-throughput processing of GWF data, and
- 3) SaaS (Software-as-a-Service), which provides a software platform for analyzing, visualizing and supporting scientific workflows for GWF and provides a platform to support mobile end-user and citizen science applications

The GWF funded team will focus on the SaaS component and the Information and Communications Technology (ICT) staff will provide PaaS and IaaS support. The ICT staff will also ensure Compute Canada resources are utilized when appropriate and will work to determine what future Compute Canada infrastructure is needed to support the overall goals of the seven year GWF project.

The GWF computing team will liaise with the Data Management team to ensure the data is appropriately integrated into the GWF cloud.

The GWF computing team will liaise with research teams that are developing modelling tools and end-user applications to support the integration of their tools with the GWF cloud, including re-engineering existing tools as necessary for use as part of the cloud platform.

Three research scientists will be funded by GWF, with two located at the UofS and one at Waterloo. The UofS research scientists will be assigned to the UofS Digital Research Hub and supervised by Kevin Schneider. The Waterloo research scientist will be supervised by Jimmy Lin.



The UofS Digital Research Hub will provide project management support and U of S Information Communications and Technology staff will provide infrastructure and platform support.