Manitoba forage & grassland Association

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Backgrounder
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"HydroGeoSphere Modelling Platform Development for the Assiniboine River Basin"
Here in after referred to as: "The Aquanty Project"

Recent flood events in the Assiniboine River Basin have resulted in significant crop losses, property and infrastructure damage, leading to unprecedented Agri-Recovery claims above and beyond crop insurance. This project seeks to develop new risk management tools to reduce the impact of extreme flood or drought events for the agricultural industry within the Basin by identifying preventative measures, implementing risk prevention and mitigation activities, all with the intention of lessening the need for government disaster programming in response to such events.

This project will construct a hydrology model of the Assiniboine River Basin to model the effects of flood and drought on soils and topography as well as simulating various mitigation measures to lessen flood/drought event impacts on agricultural lands. The model will encompass the Assiniboine, Qu'Appelle and Souris sub-basins, as well as a more detailed drill down on the Birdtail watershed located in the upper reaches of the Assiniboine sub-basin.

The model will be multi-faceted, in that it will have the utility for assessing: flood, drought, and excess moisture risks to agricultural producers; flood risks to urban centers; as well as both flood and drought risk mitigation strategies within the ARB. The model will also serve as a tool to test the hydrologic sensitivity of the ARB to projected future climate conditions and different synthetic flood inducing snow melt and precipitation scenarios. It is anticipated that the model could become a standardized platform for a number of different stakeholders, including multiple levels of government, research institutes, and NGOs who want to perform targeted hydrologic analyses and research across a wide range of temporal and spatial scales within the ARB. Individuals such as primary agricultural producers and/or the business sector such as the oil and gas sector, may utilize the model on a much smaller scale, right down to individual fields or properties.

The project has two key objectives – (1) to develop the customized, user friendly integrated hydrologic model for the Basin, and (2) to develop a detailed model base assessment of how perennial forages, grasslands and wetlands influence the hydrologic characteristics of the Basin under conditions ranging from flood to drought, and may play a key role in moderating/mitigating the risks of flooding and drought.

Term of the Project: March 1, 2016 -March 31, 2018
Applicant/Recipient: Manitoba Forage and Grassland Association (MFGA)
Primary Funder/Program: Agriculture and Agri-Food Canada (AAFC), Growing Forward 2, AgriRisk Initiative
Secondary Funding Partner: Manitoba Agriculture, Growing Forward 2, federal-provincial-territorial Initiative.
Key Partner: The Assiniboine River Basin Initiative (ARBI)

Core Contractors:
1. Aquanty Inc : Aquanty Inc.'s core technology is the hydro geosphere (HGS) hydrologic simulation software. Aquanty Inc. uses a range of high performance computing resources to run physically complex simulations of water movement through surface water and groundwater flow systems.
2. ISM/IBM : ISM, sub-contracted to Aquanty Inc., will develop a web based data analytics system (based on the Cognos platform) to interpret the output from the HGS model for the ARB and its major sub-basins, and will provide user friendly interfaces for multiple stakeholders to interact with the HGS output.

Supporters:
Keystone Agricultural Producers (KAP),
Agricultural Producers Association of Saskatchewan (APAS),
Manitoba Beef Producers (MBP),
Manitoba Conservation Districts Association (MCDA),
Upper Assiniboine River Conservation District (UARCD),
Brandon University (BU),
Assiniboine Community College (ACC),
Manitoba Sustainable Development,
International Institute for Sustainable Development (IISD),
City of Minot, North Dakota,
Manitoba Habitat Heritage Corporation (MHHC),
Manitoba Canola Growers Association (MCGA),
Manitoba Agricultural Services Corporation (MASC), and
Prairie Improvement Network (PIN).

Governance: Project Management Team comprised of MFGA and ARBI will oversee project. Steering Committee of 12 key supporters will provide feedback and liaison to their organizations.

For More information:
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