



## **Long term Simulation of the Glacial River Jokulsá í Fljotsdal Delta**

**S. M. Gardarsson** (1), and M. Stefansdottir (2)

(1) Associate Professor, University of Iceland, Engineering Research Institute, Department of Environmental and Civil Engineering, Hjardarhagi 2 - 6, IS-107 Reykjavik, Iceland. (sigmg@hi.is) (2) MS student, Civil & Environmental Engineering, University of Washington, 201 More Hall, Box 352700, Seattle, WA 98195-2700 (mariaste@u.washington.edu)

As rivers flow into stationary body of water, such as the ocean, lakes or reservoirs, the flow velocity drops to almost zero leading to sedimentation which forms a delta which increases with time. Hence, when reservoirs for glacier rivers are designed it is important to understand the behavior and development of the delta for the lifetime of the reservoir. The behavior of the delta influences how far upstream from the maximum reservoir level the influence of the delta extends which is dependent on how high the delta extends vertically. This influences the size of the area affected by the reservoir. The delta development also influences how fast the reservoir volume decreases with time, the lifetime of the reservoir as well as what sediment sizes will pass through the reservoir. The main goal of this project is to investigate how closely sediment transport models are able to simulate the forming of a delta into a lake from a glacier river. This is accomplished by using traditional sediment transport models to simulate the delta due to Jökulsá í Fljótssdal glacier river into the lake Lögurinn in Eastern Iceland, which is especially apparent example of a delta that has been forming since the glacier retreated from the lake about 6000-8000 years ago. The results of the simulations are then compared to the current conditions of the delta. It is especially interesting to investigate if the models are able to predict the height of the delta at the upstream end of the reservoir which then can be used to predict the influence of the delta upstream of the maximum reservoir level.