## Influence of Meltwater Streams on Deglaciation in Gangotri Glacier, Garhwal Himalayas, India

Jose George Pottakkal\* and Alagappan Ramanathan

School of Environmental Sciences, Jawaharlal Nehru University, New Delhi, India Tel: +91-9971812337; Email: josepottakkal@yahoo.com

Gangotri Glacier in the Garhwal Himalayas, India is the source of the Ganges river. The terminus of this glacier has been monitored over the last two centuries mainly because of its importance not only to the fresh water resources downstream, but also because of its importance to the cultural ethos of the land. The rate of terminus retreat which accelerated back in the 1980s has been observed have reduced in the 2000s. However field observations suggest a possible thinning and intense fracturing in the lower ablation zone of this 29 Km. long glacier, with development of numerous supraglacial lakes and ponds that tend to coalesce or drain out instantaneously after gradually filling with water. A study has been conducted to understand the role of two large meltwater streams that drain into the tongue of the Gangotri glacier on this observed deglaciation. Dye tracer experiments conducted through the ablation seasons of 2008 and 2009 by injecting known amount of 'Rhodomine B' into these tributary meltwaters and measuring the signals below the terminus. These tracer experiments along with the monitoring of melt water chemical and physical parameters from various points both above and below the glacier terminus throw light into the role these two meltwater streams that drain the Raktavarn and Chaturangi groups of tributary glaciers and discharge sediment laden meltwaters into the Gangotri glacier play in accentuating the deglaciation process of the lowerer ablation zone of this glacier.