New lake surface temperature database will help to study climate change

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A group of York University investigators and their international counterparts have jointly created a database of lake surface temperatures, to help study ecological effects of climate change.

"There has been a significant need to put together a database like this, considering the rapid warming of lakes," observes Professor Sapna Sharma in the Department of Biology in the Faculty of Science who led the international effort.

As part of the Global Lake Temperature Collaboration (GLTC) project, Sharma and several of her undergraduate students, Anam Qudrat and Samantha Stefanoff, gathered a database of summer-mean lake surface temperature for 291 lakes and reservoirs around the world, including data collected from 1985 to 2009.

"Previously there were only satellite collected data available globally and we have doubled the data through in situ programs such as the Global Lake Ecological Observatory Network and long-term monitoring programs, which collect data from visiting these locations," Sharma adds.

Eighty two researchers from more than 20 countries were involved in the effort that began in 2011. They collected data from major lakes in North America, South America, Europe, Asia and the Oceanic region.

The database provides information such as air temperature, solar

radiation and cloud cover that define climate, and geomorphometric characteristics including latitude, longitude, elevation, depth and volume, which may influence lake temperature.

"Our plan is to include additional lakes, longer time periods, and vertical temperature profile data," says Sharma, adding, "This unique, global dataset will offer an invaluable perspective on lake thermal conditions in this ever-changing global climate."

The GLTC group's article summarizing the project was published today, March 17, in *Nature*'s *Scientific Data* journal.

Provided by York University