The Global Lake Temperature Collaboration (GLTC) is an international group of investigators with interest in and access to global lake temperature records (both in situ and satellite-based). This effort began in the fall of 2010 and currently has over 50 participants from 15 countries. SYNTHESIS OF GLOBAL RECORDS OF LAKE TEMPERATURE FROM BOTH IN SITU AND REMOTE SENSING DATA SOURCES IS ONGOING, AND THE GLTC GROUP CONTINUES TO WELCOME NEW COLLABORATORS (PLEASE VISIT OUR WEBPAGE FOR MORE INFORMATION, HTTP://WWW.LAKETEMPERATURE.ORG). AN INITIAL WORKSHOP WAS HELD FROM JUNE 1-5, 2013, SUPPORTED BY THE NATIONAL SCIENCE FOUNDATION (NSF; USA), THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA; USA), AND THE INSTITUTE OF AGRICULTURE AND NATURAL RESOURCES (IANN) AT THE UNIVERSITY OF NEBRASKA-LINCOLN (UNL; USA).

40 GLTC participants from 11 countries collaborated in Lincoln, Nebraska (USA) for the first GLTC workshop.

Lakes provide goods and services (e.g., recreation, fishing, drinking water) to humans worldwide.

Lake Baikal is the oldest, deepest, and largest lake (by volume) in the world, and Shaman Rock (above) provides an iconic view of the lake. Lake Baikal is home to a unique ecosystem, supporting species such as the Baikal seal ( inset photo) which is the only freshwater seal in the world. The seals build ice caves on the lake in winter.

Lake Saimaa (Finland)

Figure 1. Map showing the number of lakes from each continent that are included in the GLTC database and monitored by satellite and/or in situ data collection methods. Black dots indicate the location of the lake photos shown around the map.

Lake Mendota (Wisconsin, USA)

Figure 2. Histogram of lake surface temperature trends since 1885, using both collection methods. Overall, roughly 95% of the GLTC study lakes are found to be warming.

References


3. Sierwater, S.E., L.R. Coats, R., J. Perez time temperature. Lake Tahoe (USA)

Figure 3. Trends in lake surface temperature from 1985-2010 (°C/decade), as measured by satellite-based (circles) and in situ sensors (squares; n = 51). Satellite-based and in situ records show lake surface warming at a mean rate of 0.45 °C/decade and 0.5 °C/decade, respectively.

Acknowledgements

The GLTC would like to acknowledge NSF (grant 0918013-LEO), the NASA ROSES program, and NSF POSTDOC program for funding the 2012 workshop, website development, and outreach/community education. Principal investigator on the NSF and NASA grants are Peter Schneider (JPL), California Institute of Technology, and Christopher J. McElroy, University of Wisconsin-Madison and University of Montana (jointly). We would also like to thank the many Investigators that have dedicated their careers to lake research and monitoring, as well as the funding organizations that have supported their work.

1 Schneider and Hook (2010); Hampton et al. (2008); Coats et al. (2006).

2 Webster et al. (2003); 2002; Lara et al. (2006).

3 Schneider and Hook (2010); Ancell and Catton (2007); Lanters (2004).