

Field trip to Lake Monoun, December 9<sup>th</sup> to 17<sup>th</sup>, 2013  
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## Installation of solar power-driven deep water removal system at Lake Monoun

### Background

The first degassing pipes were installed in Lakes Nyos and Monoun in 2001 and 2003, respectively. In later years, additional degassing pipes were installed at both lakes. The degassing worked well, and the amount of CO<sub>2</sub> dissolved in the lakes decreased with time. Decrease in CO<sub>2</sub> concentration in bottom water made an activity of the degassing system weak, resulting in lowering of the height of fountains. At Lake Monoun, the degassing finally ceased in 2011.

It has been observed that CO<sub>2</sub>-rich fluid is still continuously added to the lake bottom at Lake Monoun. This implies that re-buildup of gas would resume in the lake bottom after cessation of gas removal. The current situation at Lake Monoun is shown in Figure 1. Gas re-buildup would start at Lake Nyos in the near future after degassing stops.

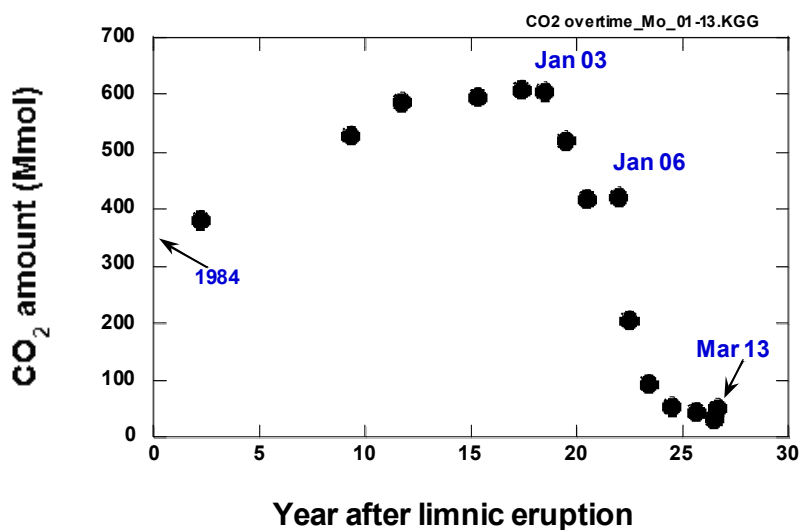


Fig. 1. Change with time in the amount of CO<sub>2</sub> dissolved in Lake Monoun.

Note a slight increase of the dissolved CO<sub>2</sub> amount in March 2013.

### Solar power-driven deep water removal system

Three degassing pipes still remain at Lake Monoun even after cessation of gas self-lifting. We will utilize one of these pipes for setting up the solar power-driven deep water removal system. We will insert a water pump into the existing pipe at a depth close to the mouth. The pump will be driven by electricity supplied from the solar panels that will be set on a new raft.

The new raft will be connected to an existing raft. With this system, we hope we can continuously remove CO<sub>2</sub>-rich bottom water out of the lake for a long period of time. We can apply this system to Lake Nyos after cessation of gas self-lifting of all degassing pipes.

Work plan

The materials of the system have already arrived at Yaoundé. Y. Yoshida and M. Kusakabe will arrive at Yaoundé on December 9<sup>th</sup> late evening. The field work at Lake Monoun shall begin from December 12th and end on December 15th. Since our working period is very limited, we hope a strong support by IRGM, e.g., a field car, man power, transportation etc.