

## A laboratory-free method to measure dissolved CH<sub>4</sub> in gassy lakes

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Saturation may be the main cause of gas explosion from lakes [1]. The lower solubility of methane (CH<sub>4</sub>) compared to CO<sub>2</sub> gives it a greater potential to destabilize a lake. This view is supported by findings in Lake Kivu where, CH<sub>4</sub> increase rate might trigger a gas explosion by the year 2100 [2]. The cost of standard way of estimating CH<sub>4</sub> concentration in lakes is high for developing countries. Accordingly, we propose a laboratory-analysis-free method that combines several techniques [3, 4] with a portable multi-biogas analyser. The method was tested at lakes Nyos and Monoun and gave good results. That type of cheap technique could be suitable for developing countries where the relatively high cost of analytical apparatus constitutes the major obstacle to setting up volcanoes related hazards surveillance systems [5].

[1] Issa *et al* (2013) *Geochem J.* **44**, 349-362 [2] Pasche *et al* (2011) *J. Geophys. Res.* doi:10.1029/2011JG001690 [3] Halbwachs *et al* (2004) *EOS* **85**, (30), 281-288 [4] Yoshida *et al* (2010) *Geochem. J.* **44**, 441- 448 [5] Scarpa and Tilling (1996) *Springer-Verlag Berlin Heidelberg*.