

Journée OSUG : Quelles méthodes pour quelles instabilités ?

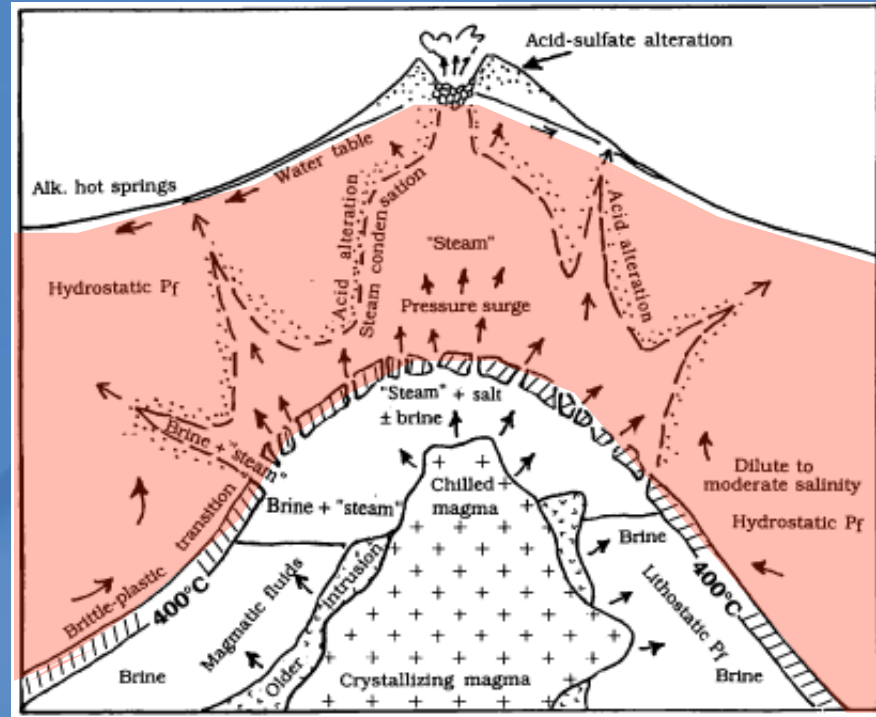
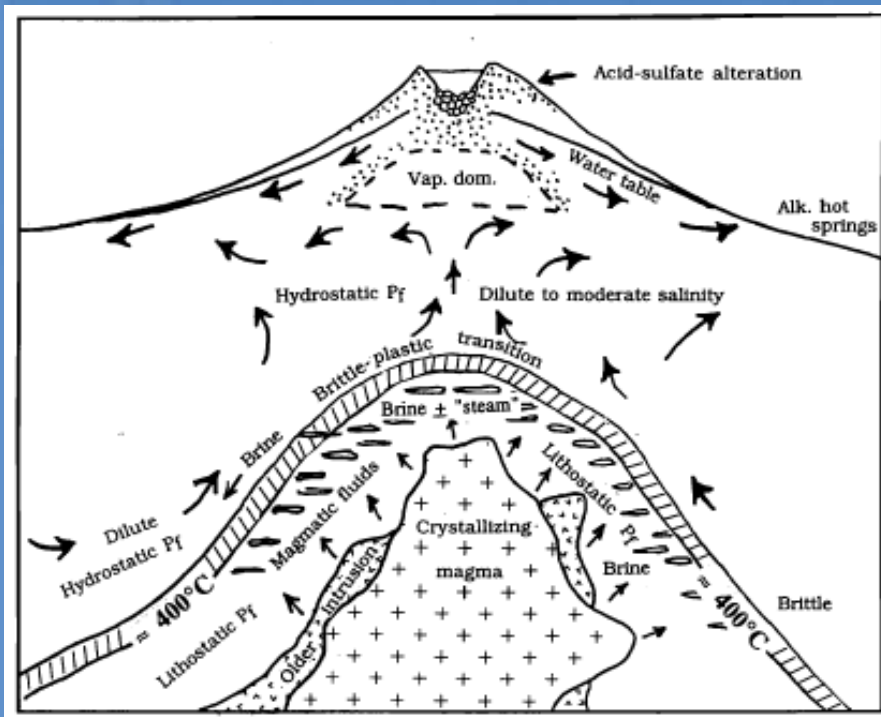
Instabilités d'ébullition dans les systèmes hydrothermaux

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IFSTTAR

Structure et Dynamique d'un système hydrothermal

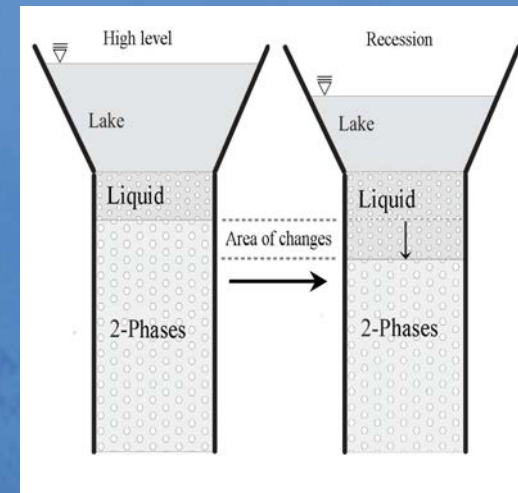
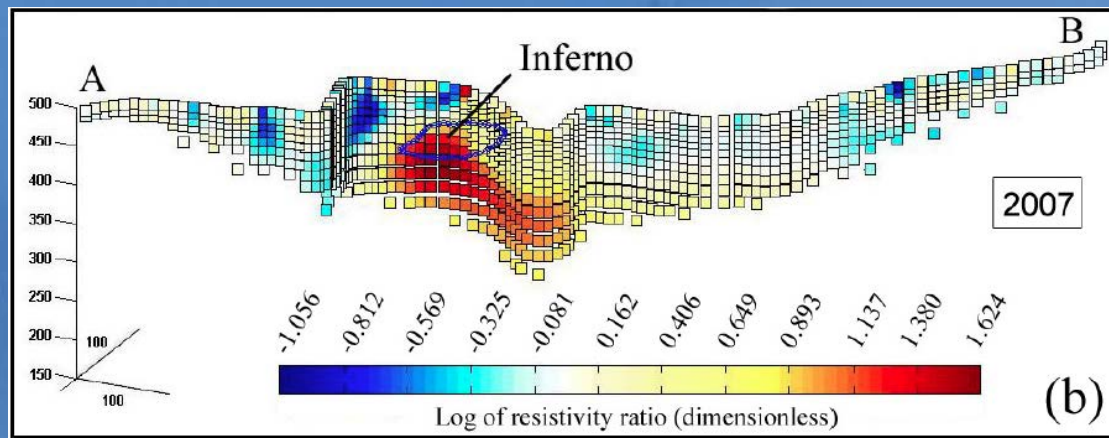
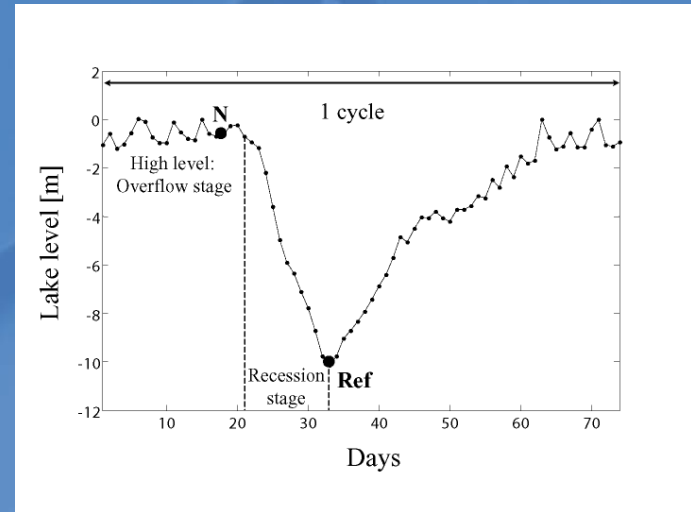


R. Fournier, 1999, 2007

- Etude des changements de phase à différentes échelles
- Quels types d'instabilités ? Quelles conséquences ?
- Comment les détecter ?
- Comment les étudier

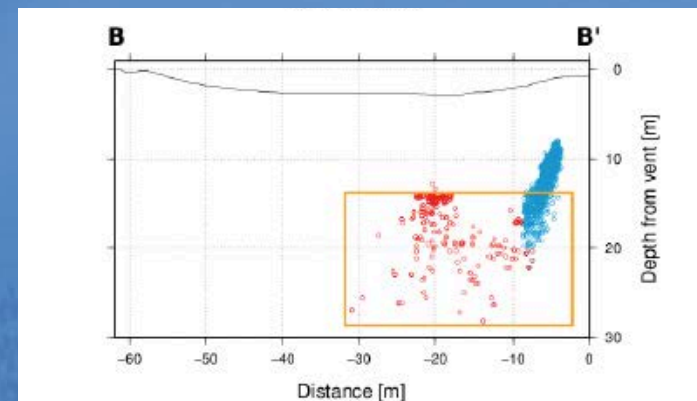
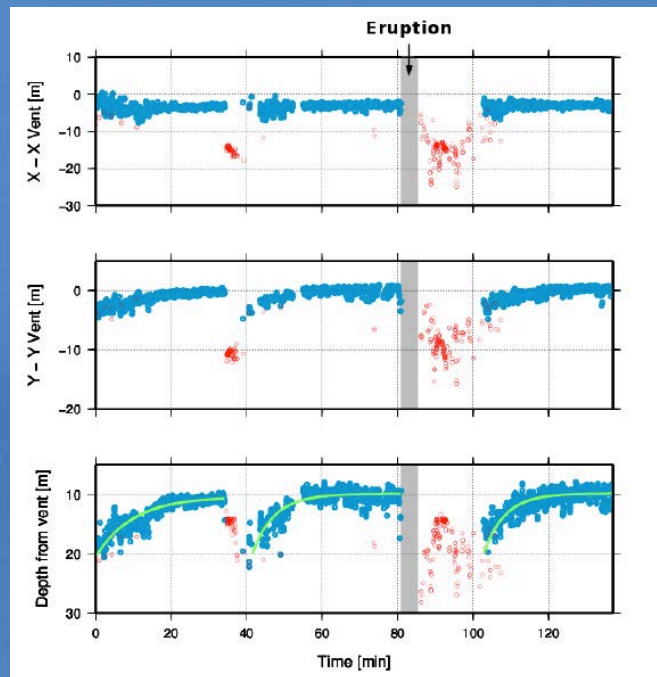
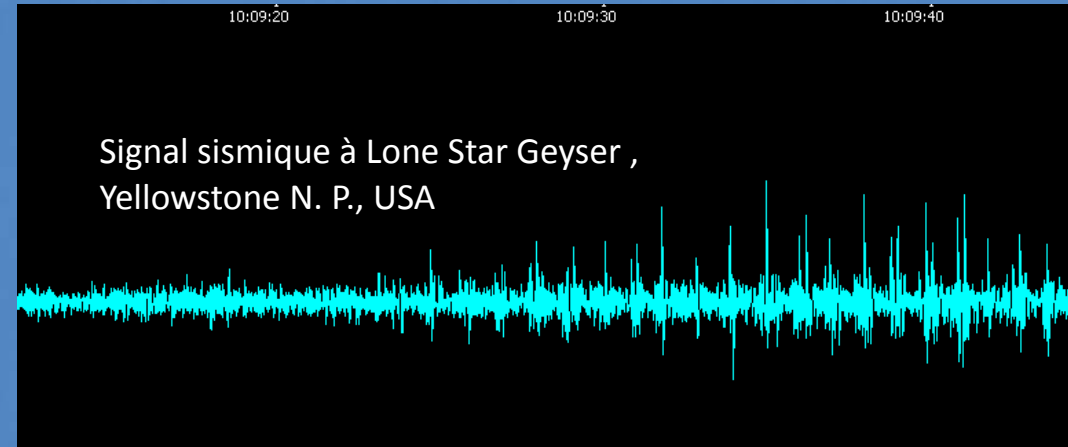
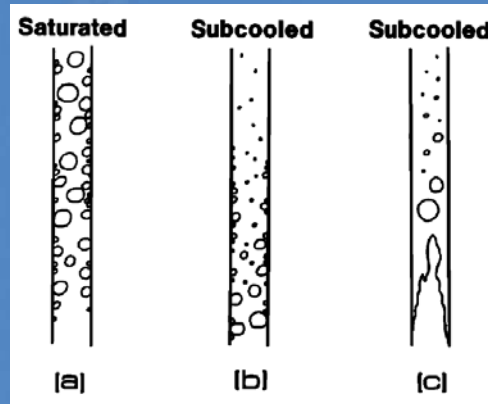
Suivre la dynamique avec une imagerie 4D de résistivité

Taille du système : centaines de mètres, $T \sim 40$ jours



Legaz et al., 2011

Détection de l'instabilité par le signal sismique



Expériences analogiques

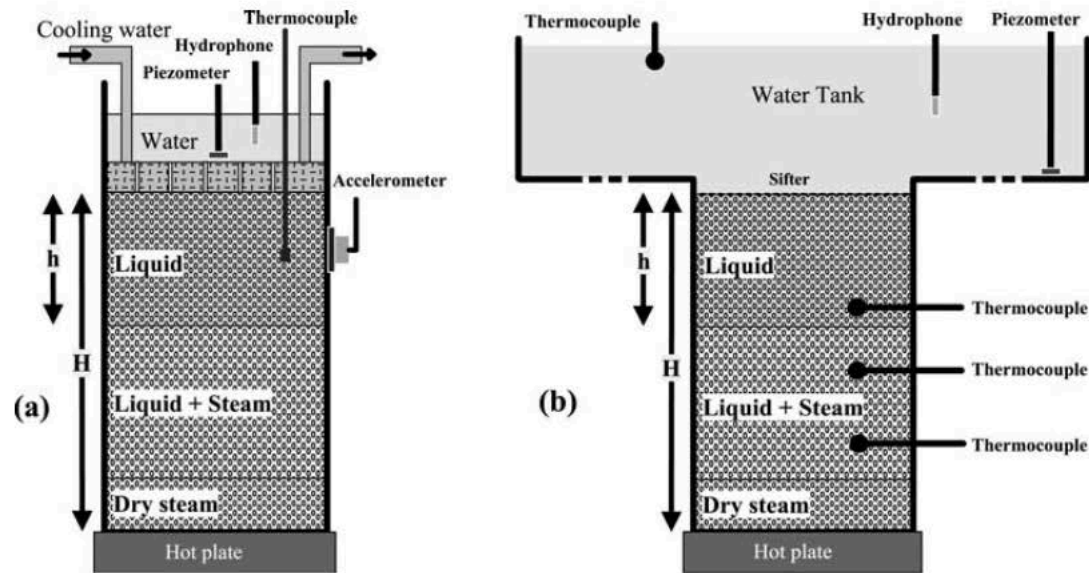
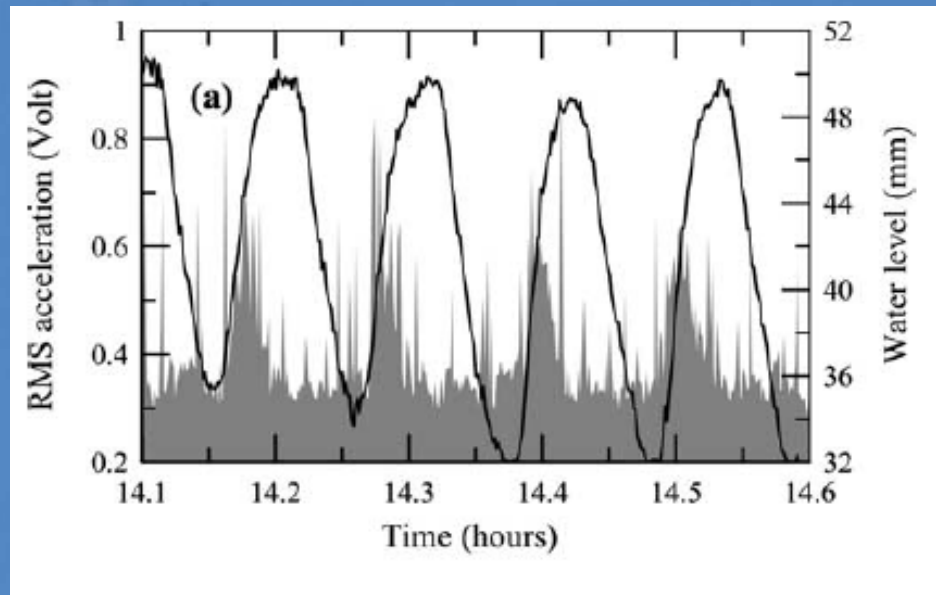


Figure 1. Sketch diagram of the analogue experiments: (a) acoustic experiment with fixed temperature, with the aspect ratio conserved; (b) simulation of boiling beneath a crater lake. The water tank size is not to scale.

Énergie acoustique et taux d'ébullition



Vandemeulebrouck et al., 2005

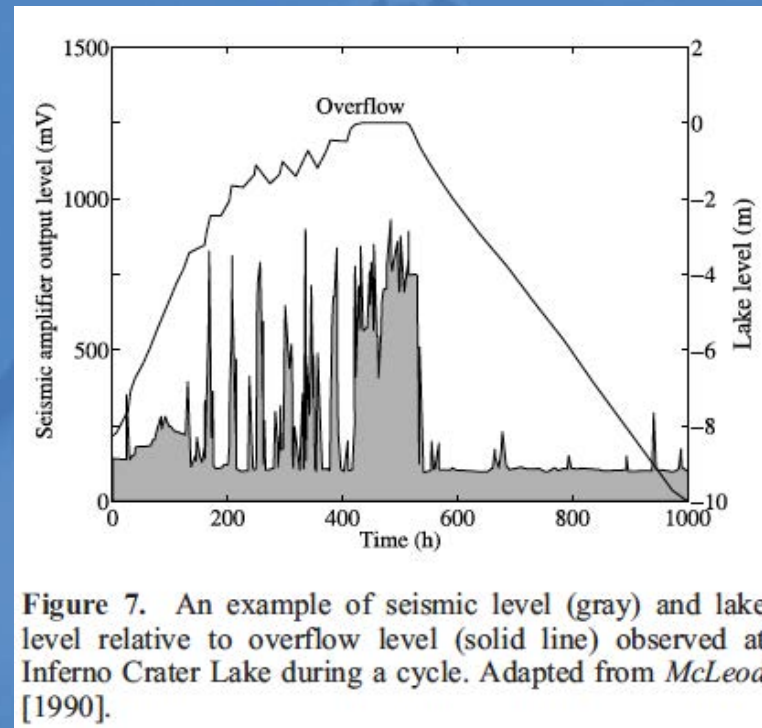
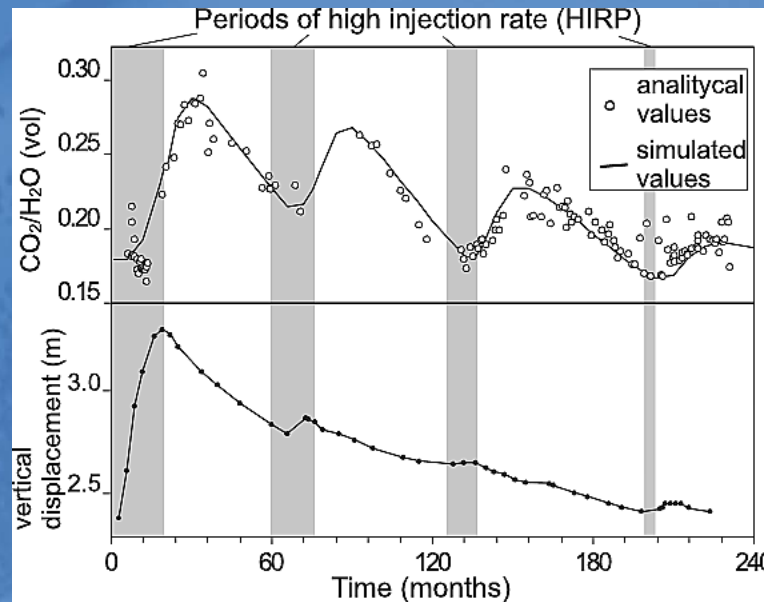
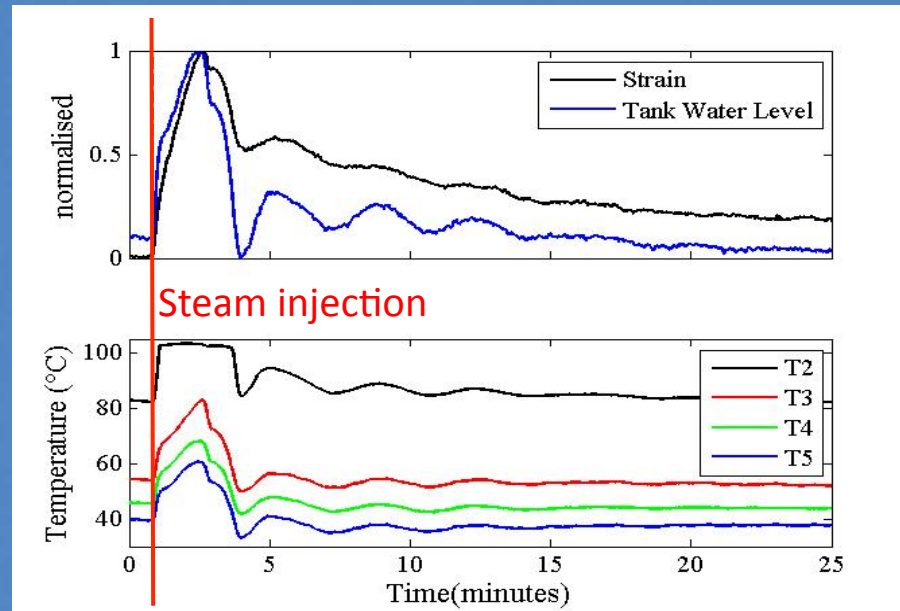
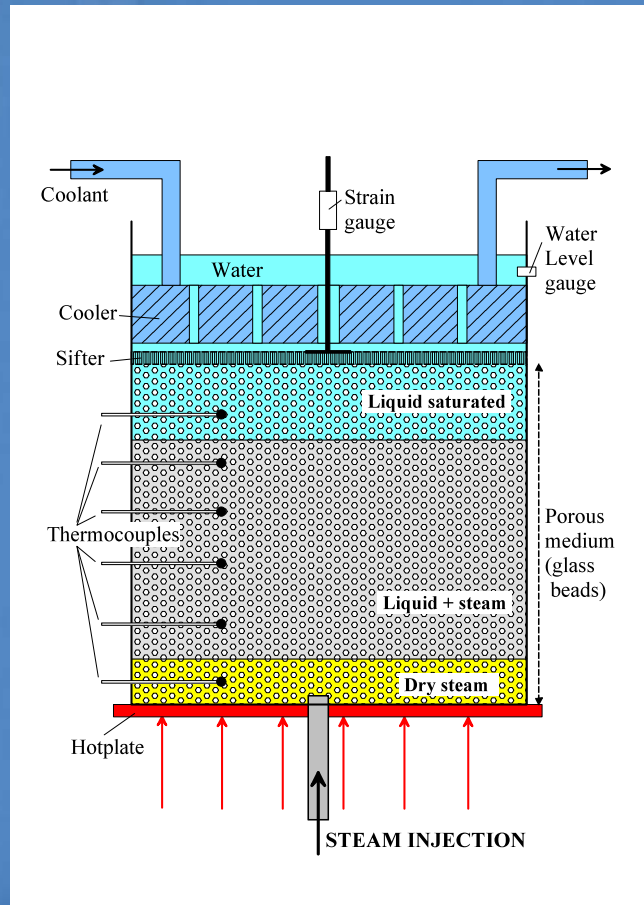


Figure 7. An example of seismic level (gray) and lake level relative to overflow level (solid line) observed at Inferno Crater Lake during a cycle. Adapted from *McLeod* [1990].

Simulation analogique d'une injection de vapeur



Chiodini et al., 2003