

CarbFix CO₂ Injection Pilot Project, Iceland

www.carbfix.com

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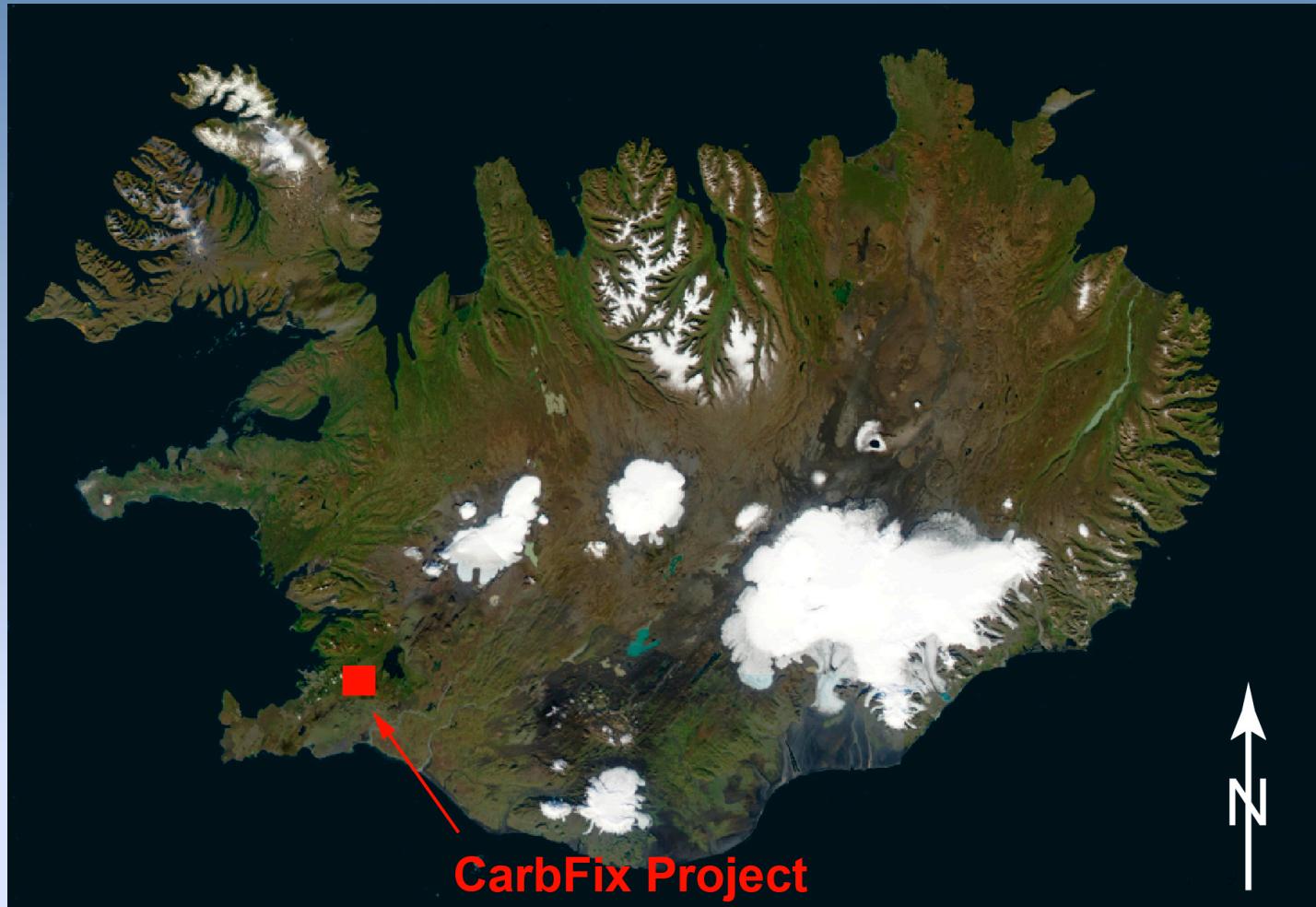
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LAMONT-DOHERTY
EARTH OBSERVATORY
THE EARTH INSTITUTE AT COLUMBIA UNIVERSITY

The CarbFix Project, Iceland

- in situ mineralization in basaltic rocks for permanent CO₂ storage



CarbFix Partners

European – U.S. Collaboration

- Orkuveita Reykjavíkur (Reykjavík Energy), Iceland
- University of Iceland, Iceland
- CNRS, University of Toulouse, France
- Columbia University, New York, USA

In situ CO₂ Mineralization



Calcium -
Magnesium
Silicate Rock



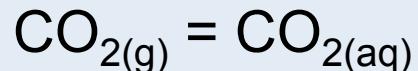
Dissolved
CO₂



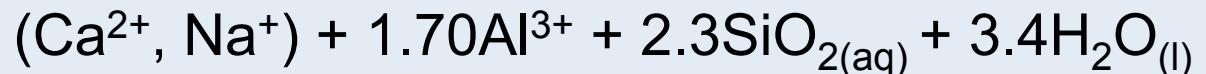
(Ca, Mg, Fe)
Carbonate

CO_2 -Fluid-Rock Reactions

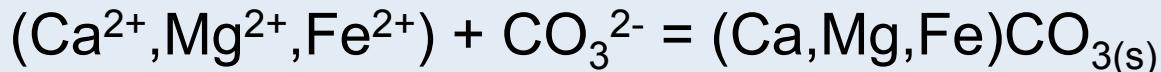
Dissolution of CO_2 and Dissociation

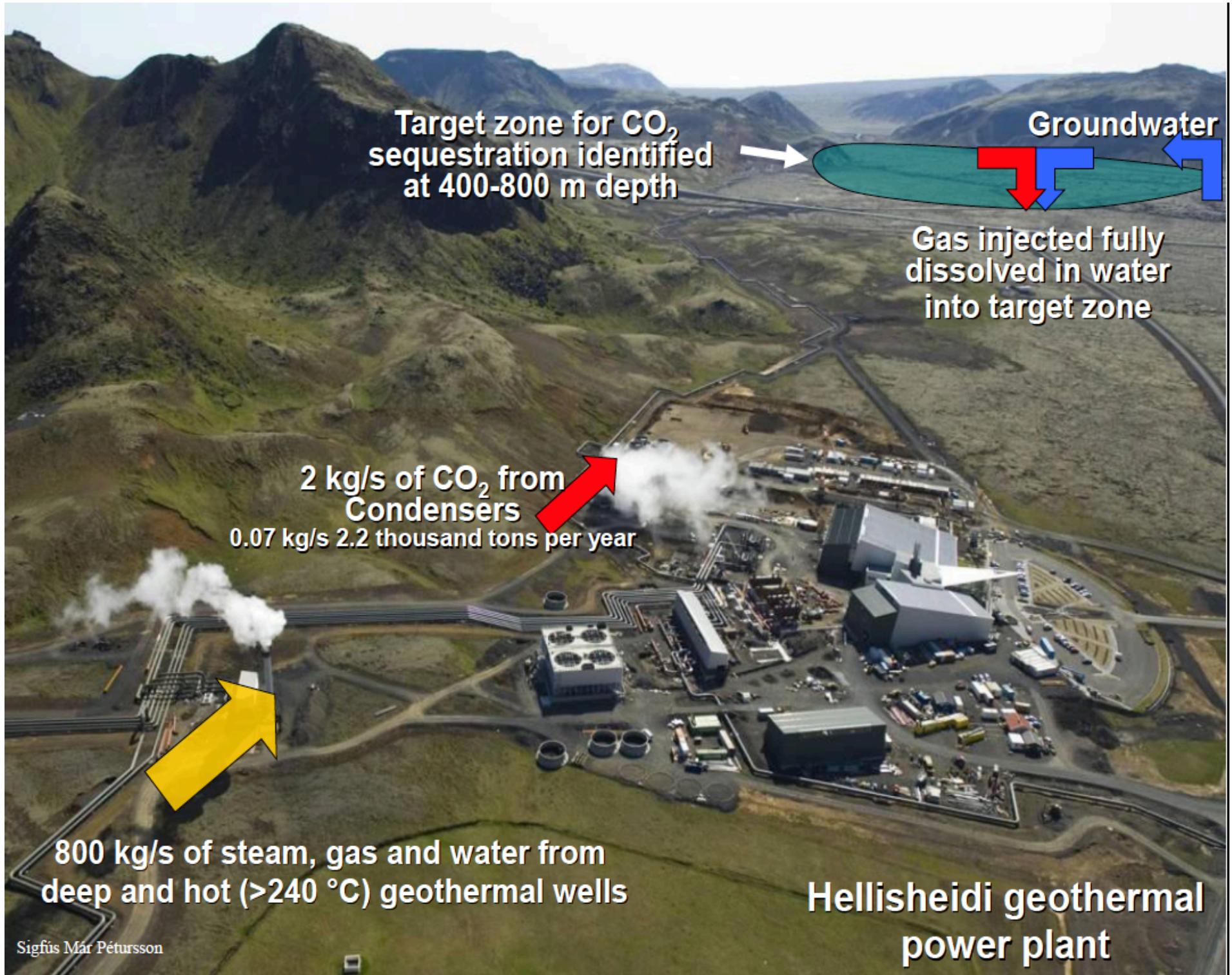


Mineral Dissolution



Mineral Precipitation







Credit: Sigfús Már Pétursson

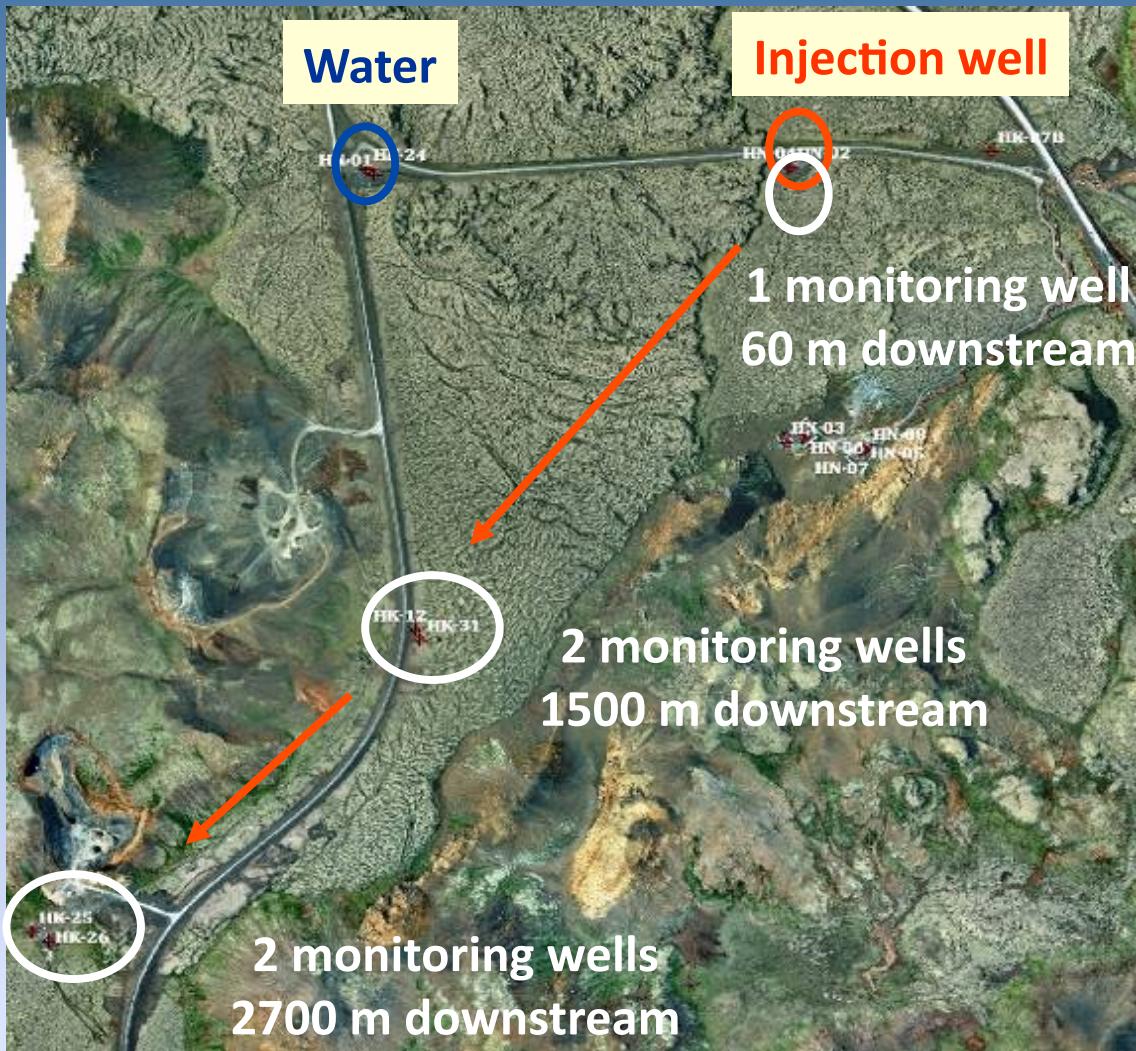


CarbFix Injection Site

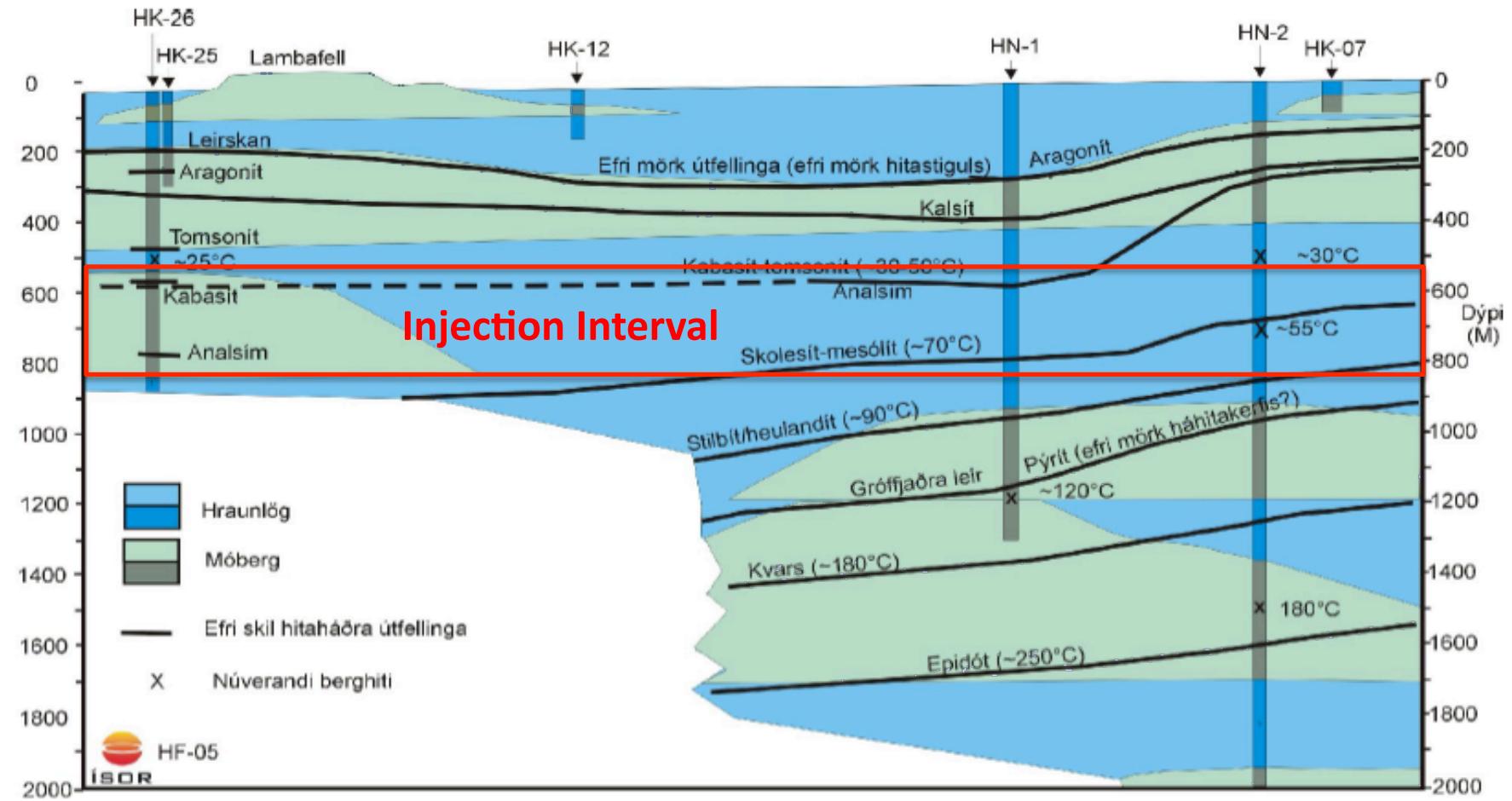
CarbFix CO₂ Injection Site



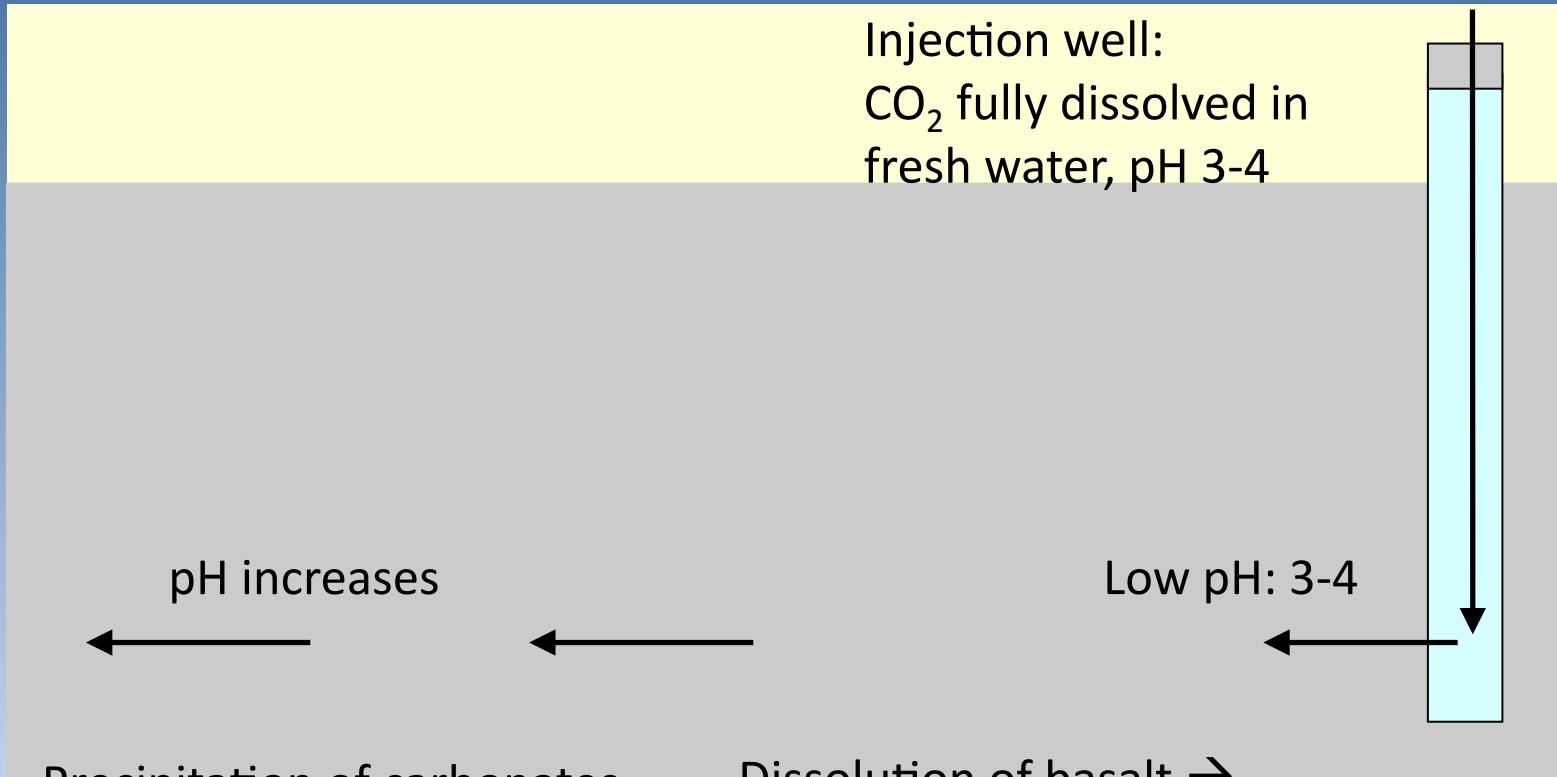
CarbFix Injection Site



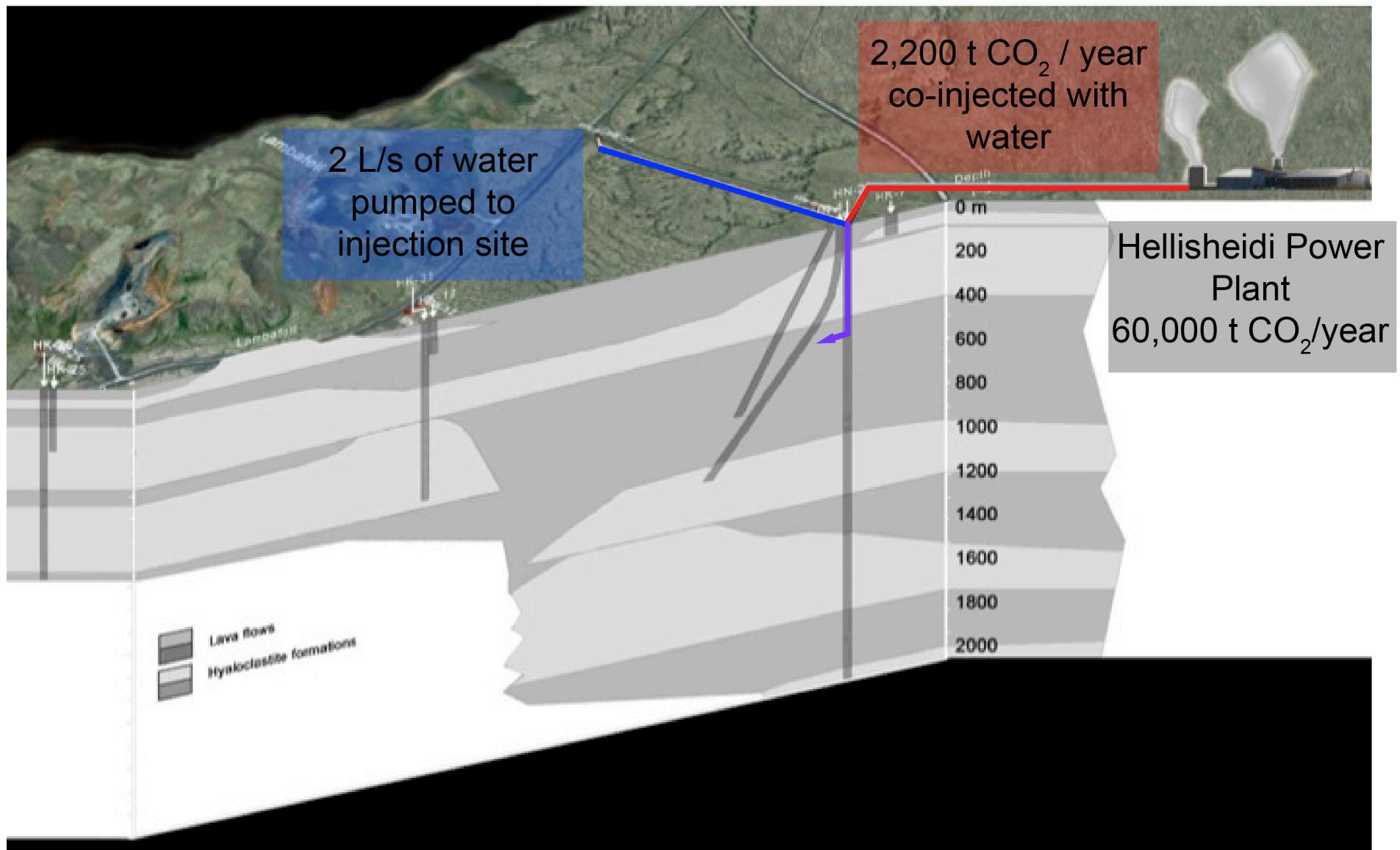
CarbFix Injection Site



A Conceptual Carbonation Model



- Reservoir may gradually clog up with calcite scaling
- Natural process in high-temperature systems



Alfredsson, 2009