

- Faculté des sciences
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Groundwater chemistry and microbiology (3GH2202)

Filières concernées	Nombre d'heures	Validation	Crédits ECTS
Master en hydrogéologie et géothermie	Cours: 28 pg	Voir ci-dessous	3

ph=période hebdomadaire, pg=période globale, j=jour, dj=demi-jour, h=heure, min=minute

Période d'enseignement:

- Semestre Automne

Equipe enseignante

Prof. Daniel Hunkeler

Contenu

There are several motivations to investigate the hydrochemical composition of groundwater. The hydrochemical composition determined whether groundwater is suitable for a certain utilization (e.g. drinking water, irrigation). However, the hydrochemistry of groundwater can also provide unique information on the functioning of groundwater flow systems. The hydrochemical composition of groundwater often varies depending on recharge mechanisms, flow paths through aquifer systems and the residence time in aquifers. In the course, this second motivation to investigate the hydrochemistry is in the foreground. However, the course also lies the foundation for a subsequent course on groundwater contamination.

In the course, we explore the main hydrogeochemical processes that control the content of inorganic compounds in groundwater. We will discuss methods for groundwater sampling, field measurements and laboratory analysis. Finally, we will explore how we can use hydrochemical data to evaluate the functioning of groundwater flow systems using case studies.

Forme de l'évaluation

Written exam in exam session (1h)

Repetition: Written exam in exam session (1h)

Documentation

- Course presentations
- Script describing the major hydrogeochemical processes that control the groundwater composition
- Documentation for the case studies

Forme de l'enseignement

- Field trips to acquire hydrochemical data to be discussed in the course
- Lecturers and exercises
- Use of computer codes to model and evaluate data
- Case studies with presentations by students