

Global geochemical cycles



Niveau d'étude
Master 2



ECTS
6 crédits



Volume horaire
24h



Période de
l'année
Autumn

En bref

- > Langue(s) d'enseignement: English
- > Méthode d'enseignement: On site
- > Forme d'enseignement : Blended

Présentation

DESCRIPTION

Short Description: The course global geochemical cycle is given in English and addresses three major topics related to "GLOBAL GEOCHEMICAL CYCLE".

Long Description:

The first part of this course will focus on the global geodynamic cycles of volatile elements like C, H, N and S.

Contrasting with the cosmochemical view, a volatile element will be considered here as an element strongly partitioned into the vapor phase of a melt and is thus degassed to the atmosphere-ocean system during magma eruption. A part of this element can be transferred back to the mantle via subduction zone processes.

The study of volatile element geodynamic cycles will help in:

(1) Deciphering the long-term evolution of surface reservoirs (atmosphere, hydrosphere, crust) and mantle compositions

(2) Predicting the future of the different reservoirs

(3) Extrapolating previous distribution and initial states of the Earth

This course will present the methods and results to estimate the distribution of volatile elements in the main Earth's reservoirs, the fluxes exchanged between mantle and surface reservoirs, and the uncertainties leaving on these estimates.

The second one looks into the cycle of major and trace elements in the critical zone.

It focuses on Earth's surface processes and the way they play a role in the geochemical cycles of elements. It uses chemical potamology, i.e. the geochemistry of rivers, as a way to understand the global role of chemical weathering in the Earth's chemical engine. River biogeochemistry is used to understand the global cycle of the elements before human influence.

The third one focuses on the effect of the human influence on the cycle of heavily impacted metal ions or metalloids.

One of the most obvious effects of human activity on the environment is chemical contamination from anthropogenic sources. The large amounts of industrial pollutants that have been introduced into the air, soil and water over decades have caused changes in the natural elementary cycle. Anthropogenic contamination generally leads to enrichment in several elements, in particular in industrial areas. Thus, some elements and their isotopes can be used as geochemical tracers of anthropic impact.

Pour en savoir plus, rendez-vous sur > u-paris.fr/choisir-sa-formation

PRÉ-REQUIS NÉCESSAIRES

Knowledge in geochemistry, chemistry, geosciences.

CONTRÔLE DES CONNAISSANCES

2 exams

INFORMATIONS COMPLÉMENTAIRES

<http://www.ipgp.fr/en/master/global-geochemical-cycles-6-ects>

<http://www.ipgp.fr/fr/master/international-master-in-solid-earth-sciences>

En bref

CONTACTS

Name of the lecturer

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EN SAVOIR PLUS

<http://www.ipgp.fr/fr/admission-master>

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