



## **TERENO (Terrestrial Environmental Observatories): Establishment of a alpine observatory for long term observations of the impact of global change factors on biosphere-hydrosphere-atmosphere interactions**

R. Kiese, H. Papen, H. Kunstmann, A. Marx, K. Butterbach-Bahl, and H.P. Schmid

Forschungszentrum Karlsruhe, IMK-IFU, Atmospheric Environmental Research, Garmisch-Partenkirchen, Germany  
(ralf.kiese@imk.fzk.de)

Long term observations are an indispensable pre-requisite to improve our knowledge of the complex biosphere-hydrosphere-atmosphere (BHA)-interactions and to detect and analyze the impact of Global Change parameters on these interactions as well as to develop, improve and validate BHA model systems.

FZK IMK-IFU will establish a Climate-Feedback Observatory at which the effects of predicted future changes in temperature and precipitation amount/distribution within the pre-alpine region on the complex BHA interactions will be studied applying a long term in-situ simulation experiment. For this a lysimeter network will be realized in which soil monoliths are transplanted along the existing natural gradient in temperature and precipitation within the alpine region. Details of this experimental approach will be presented.

The central objectives of the scientific work performed are:

Characterization and quantification of changes of the

- (i) coupled C-/N-cycles and C-/N-storage,
- (ii) biosphere-atmosphere exchange (trace gases/energy flux/albedo),
- (iii) vegetation and microbial biodiversity and of the temporal dynamics of matter turnover and exchange coupled to this change in biodiversity,
- (iv) seepage water quality/quantity