

PERMAFROST FEEDBACKS IN THE EARTH SYSTEM

Le **Groupement d'Intérêt Scientifique Climat-Environnement-Société** accueille à Paris pendant quelques jours le chercheur russe **Sergey Zimov**, spécialiste des pergélisols. A cette occasion, un séminaire sur l'ensemble des thématiques liées aux **pergélisols** aura lieu

le 27 mars 2008, de 9h30 à 17h00

à l'Amphithéâtre Claude Bloch

Orme des Merisiers - Bat. 772 (à côté du LSCE-Orme), 91191 Gif-sur-Yvette



Sergey Zimov

PROGRAMME

- 9.15** Welcome and workshop introduction
- 9.30** **Sergey Zimov**
Permafrost feedbacks in the Earth System
- 10.15** **Dmitry Khvorostyanov**
Modelling the fate of frozen carbon
- 11.00** **Sylvie Charbit and Stephano Bonelli**
130,000 years of ice sheet motion in the Northern Hemisphere
- 11.45** **Patricia Cadule and Pierre Friedlingstein**
Future simulation of the the carbon-climate system in the IPSL-CM4 coupled model
- 12.30** Lunch
- 14.00** **Sergey Zimov**
Keynote lecture : "Mammoth ecosystem and the future climate"
Mammoth Ecosystem sustained in the vast range of climatic parameters. Animals extinction in this ecosystem in most of the regions happened without direct connection with climate change, while plant diversity change happened only after the animals extinction. Mammoth ecosystem productivity was close to African savannahs. Direct calculations of skeletons in permafrost showed that in late Pleistocene on the north of Siberia on 1 square kilometers on average at once lived: 1 mammoth, 4 bison, 4 horses, 6-7 reindeers. Animals maintained there pastures themselves, so this ecosystem wasn't in big dependence on climate. Mammoth Ecosystem was the biggest organic carbon reservoir on our planet. In situ measurements of carbon content in frozen soils of this ecosystem and mathematical modeling showed that carbon storage in soils of this ecosystem and in frozen loess exceeded 2000 Gt. Substantial part of this carbon was released into the atmosphere in form of CO₂ and CH₄ on the Pleistocene-Holocene boundary. Residual in permafrost of Siberia and Alaska 500 Gt of carbon will be released into the atmosphere because of the current global warming. This process can be soften if pasture ecosystem will be reborn on the north again.
- 15.30** **Catherine Prigent**
Recent trends and variations in high latitude wetland areas
- 16.15** **Philippe Bousquet and Bruno Ringeval**
High latitude CH₄ emissions from wetlands, the atmospheric and ecosystem views
- 17.00** **Emmanuel Mouche**
Modelling the long-term dynamics of permafrost in Eastern France