ESF Network SEDIFLUX

Sedimentary Source-to-Sink-Fluxes in Cold Environments

SEDIFLUX NEWSLETTER

March 31st, 2005

- 2005 A -

Content

1. Main SEDIFLUX Website and SEDIFLUX Database

The main SEDIFLUX Website is now installed under http://www.ngu.no/landskap . Here you can find all relevant information on SEDIFLUX. The SEDIFLUX Database will be available here after April 15th, 2005.

2. SEDIFLUX Activities from January 2004 until April 2005

The following activities have been performed so far within the ESF Network SEDIFLUX. ESF SEDIFLUX will continue until end of 2006.

Meetings:

- First SEDIFLUX Steering Committee Meeting in Reykjavik, June 17th, 2004
- First SEDIFLUX Science Meeting in Sauðárkrókur, Iceland, June 18th-21st, 2004 (see http://www.nnv.is).
- Second SEDIFLUX Steering Committee Meeting in Clermont-Ferrand, January 19th, 2005
- Second SEDIFLUX Science Meeting in Clermont-Ferrand, January 20th – 22nd, 2005 (see http://geo.islande.free.fr/shifting).

Dissemination and Publications:

- SEDIFLUX Newsletter (2004A, 2004B, 2005A)
- SEDIFLUX Poster
- SEDIFLUX Flyer
- SEDIFLUX Introduction (Power Point)
- Main SEDIFLUX Website (http://www.ngu.no/landskap)
- ESF SEDIFLUX Website (http://www.esf.org/sediflux)
- Local Websites (Uppsala, Sauðárkrókur, Clermont-Ferrand)
- Published Reports on the first SEDIFLUX Science Meeting (by Olav Slaymaker (I.A.G. Newsletter) and Fiona S. Tweed (Jökull))
- Publications (Abstract Volume NNV (Sauðárkrókur Meeting; Eds.: Beylich, A.A., Sæmundsson, Þ., Decaulne, A. & O. Sandberg, see:

http://www.nnv.is/skrar/AbstractVolume-pdfversion.pdf), Information on SEDIFLUX: Beylich, A.A. et al., Zeitschrift für Geomorphologie, Suppl.-Vol. 138: 229-234, Several Abstracts, Information in Newsletters, etc.)

- Special Issue of the Journal GEOMORPHOLOGY (Ed.: Beylich, A.A.) (Sauðárkrókur Science Meeting) (in preparation)
- Abstract Volume, Clermont-Ferrand Science Meeting (Ed.: Etienne, S.: Shifting Lands. New insights into periglacial geomorphology. Seteun Publish., Clermont-Ferrand, 126 pp.), see: http://www.seteun.net/finalprogram.pdf
- Special Issues of the Journals (i) GEOMORPHOLOGY and (ii) GEOMORPHOLOGIE (Eds.: (i) Mercier, D. & S. Etienne; (ii) Etienne, S.) Clermont-Ferrand Science Meeting (in preparation)
  See Circulars/Calls by (i) D. Mercier & S. Etienne and (ii) S. Etienne !

Development of the SEDIFLUX Database and main SEDIFLUX Webpage:

- Collection of material for the SEDIFLUX Projects, Test Sites and Members Database (see form sheets in SEDIFLUX Newsletters 2004A and 2004B)
- See http://www.ngu.no/landskap

Proposals related to SEDIFLUX:

- Expression of Intent (EoI) SEDIFLUX for IPY (submitted)
- International Association of Geomorphologists (I.A.G.) Working Group Proposal SEDIBUD (Sediment Budgets in Cold Environments) (submitted)
- EU FP6 Marie-Curie RTN DYNAFLUX (Dynamics, Fluxes, Stability and Succession in Cold Environments) (in preparation)

3. SEDIFLUX Working Groups

Four Working Groups were initiated during the Second SEDIFLUX Science Meeting in Clermont-Ferrand, January 20th – 22nd, 2005. During the next SEDIFLUX Science Meeting in Durham, UK, December 15th – 19th, 2005, the four Working Groups will be presented and the Science Meeting participants will be invited to join one of the four Working Groups (see outlines below). All SEDIFLUX Members are kindly invited to join a Working Group.

The following **Key Topics** are addressed:

- Quantification and analysis of sediment sinks and Holocene sediment fluxes
- Quantification of present-day sediment fluxes
- Construction of Holocene and present-day sediment budgets in representative drainage basins
- Analysis of the significance of climatic controls on mass transfer processes
- Analysis of biotic-abiotic interactions at the earth surface in cold climates and relationship with sediment transfer processes
- Analysis of relationships between human impacts, vegetation cover and sediment transfer processes
- Analysis of effects of climate change on vegetation cover, biotic-abiotic interactions at the earth surface and sediment transfer processes

The following **Major Goals** are stressed:

- Provide a multinational and multidisciplinary forum for presentation, discussion and exchange of latest research results from different cold climate research sites
- Providing a multinational and multidisciplinary forum for discussion of methods, techniques and approaches, and the useful unification of methods, techniques and instrumentations in research catchments.
- Creation of comparable data sets on Holocene and present-day sediment fluxes and sediment budgets from different cold climate drainage basins using unified methods, techniques and instrumentations (ESF SEDIFLUX Handbook).
- Creation of data base and effective data management system
- Quantitative analysis of sediment budgets and controlling factors of mass transfers and budgets in different cold climate drainage basins
- Modelling effects of climate change and related vegetation cover changes by using the comparable data sets from different cold climate test catchments and by using space-for-time substitution

The following four Working Groups were initiated during the Second ESF SEDIFLUX Science Meeting in Clermont-Ferrand, France, January 20th-22nd, 2005:

I: Selection of critical test catchments
II: Analysis of geographical and geological setting of test catchments
III: Analysis of present-day fluxes
IV: Integration and data management

The four Working Groups are currently developing proposals for main chapters of an ESF SEDIFLUX Handbook, which will be the base for long-term sediment budget analyses in cold climate drainage basins.

WG I:
Selection of critical test catchments
Chairs:
Achim A. Beylich, Trondheim
Volker Rachold, Potsdam
Brigitta Erschbamer, Innsbruck

The focus of this WG is on:

- Providing the theoretical background for selecting catchments as clearly defined landscape units for quantitative source-to-sink studies and sediment budget analysis, landscape/ecosystem studies, and for discussing scale issues (spatial scales), up-scaling, representative test catchment and extrapolation.
- Providing criteria and guidelines for selection of catchments for long-term quantitative source-to-sink studies and sediment budget analyses.

Theoretical background:

- Literature Review

Guidelines and recommendations:
Criteria for selection of test catchments

- Representative test catchment including slope systems, fluvial systems and sinks
- Logistical accessibility of test catchment (also economic issues)

- Infrastructure in the catchment (logistic base, instrumentation possible?)
- Availability of data sets, both contemporary monitoring and historical archive (also selection of established ITEX test sites)
- Adequate size of catchment (comparability of different cold environments; different catchment sizes in same cold environment, up-scaling)
- Existing geomorphic process types in selected catchment
- Existing Sinks
- Given Topography
- Given Lithology
- Given Soils
- Given Vegetation
- Given Climate/Weather
- Existing human impacts (disturbances, hazards)

WG II:

Analysis of geographical and geological setting of test catchments

Chairs:

Samuel Etienne, Clermont-Ferrand

Bernd Etzelmüller, Oslo

Jeff Warburton, Durham

The focus of this WG is on:

- Estimating changes of the sediment budget due to climate change
- Identifying sources and sinks of sediments and provide methods for sediment budget and vegetation cover analyses and mapping
- Estimating precisely the volume of sediments in each landform
- Establishing a proposal of a common methodological chart

Theoretical background:

- Literature review

Guidelines and recommendations:

Methods for volumetric analyses and mapping of sources and sinks

- Identified deposits (sources and sinks)
    - Mass movement deposits
    - Gravity deposits
    - Running water deposits
    - Glacial deposits
    - Aeolian deposits
    - Lacustrine deposits
- Identified landforms (sources and/or sinks)
    - Moraines
    - Talus/screes
    - Fluvial, glaciofluvial terraces
    - Fans / lobes
    - Deltas
    - Rock faces
    - Block fields

WG III:

Analysis of present-day fluxes

Chairs:

Karl-Heinz Schmidt, Halle/Saale

Þorsteinn Sæmundsson, Sauðárkrókur

Vyacheslav V. Gordeev, Moscow

Andrew J. Russell, Newcastle-upon-Tyne

Focus:

- Monitoring and quantification of present-day sediment fluxes
- Analysis of temporal and spatial variability of sediment fluxes and denudation
- Analysis of climatic controls on sediment fluxes and denudation
- The role of extreme geomorphological events for sediment budgets in catchments
- Instrumentation of test catchments (slope systems and fluvial systems)

WG IV:

Integration and data management

Chairs:

Jukka Käyhkö, Turku

Fiona S. Tweed, Staffordshire/Stoke-on-Trent

Ulf Molau, Göteborg

Content and goals:

- Design (borrow & adjust an existing one) a conceptual sediment flux model for cold climates; integrating climatic zones, sediment sources, sinks, processes and pathways and identifying the gaps in our current knowledge of the system
- Design a specific SEDIFLUX / SEDIBUD model derived from work completed as part of the Network
- Design a database for research sites, with active links to respective projects

4. Coming Meetings

EUCOP II, June 12th - 16th, 2005, Potsdam, Germany:

Conference Session 05: "Hydrology and Sediment Fluxes in Permafrost Regions" Organized in Association with ESF SEDIFLUX

Session Co-chairs: Achim A. Beylich & Bernd Etzelmüller

More information: http://www.awi-potsdam.de/EUCOP/

Third SEDIFLUX Science Meeting, December 15th-19th, 2005, Durham, UK:

Contact: Jeff.Warburton@durham.ac.uk

More information on this SEDIFLUX Science Meeting will be sent out soon!

Fourth SEDIFLUX Science Meeting, October 2006, Trondheim, Norway:

Contact: Achim.Beylich@ngu.no

5. SEDIFLUX Publications and Reports

Beylich, A.A. (Ed.) (2005): SEDIFLUX. Special Issue. *Geomorphology* (in preparation).

Beylich, A.A., Etienne, S., Etzelmüller, B., Gordeev, V.V., Käyhkö, J., Rachold, V., Russell, A.J., Schmidt, K.-H., Sæmundsson, Þ., Tweed, F.S. & J. Warburton (2005): The European Science Foundation (ESF) Network SEDIFLUX – an introduction and overview. In: Beylich, A.A. (Ed.): SEDIFLUX. Special Issue. *Geomorphology* (in preparation).

Beylich, A.A., Etienne, S., Etzelmüller, B., Gordeev, V.V., Käyhkö, J., Rachold, V., Russell, A.J., Schmidt, K.-H., Sæmundsson, Þ., Tweed, F.S. & J. Warburton (2005): Sedimentary Source-to-Sink-Fluxes in Cold Environments – Information on the European Science Foundation (ESF) Network SEDIFLUX. *Zeitschrift für Geomorphologie N.F., Suppl.-Vol*. **138**: 229-234.

Beylich, A.A., Etienne, S., Etzelmüller, B., Gordeev, V.V., Käyhkö, J., Rachold, V., Russell, A.J., Schmidt, K.-H., Sæmundsson, Þ., Tweed, F.S., & J. Warburton (2005): Sedimentary Source-to-Sink-Fluxes in Cold Environments (SEDIFLUX): An Interdisciplinary ESF Network. *HeadWater2005,* Bergen (in press).

Beylich, A.A., Etienne, S., Etzelmüller, B., Gordeev, V.V., Käyhkö, J., Rachold, V., Russell, A.J., Schmidt, K.-H., Sæmundsson, Þ., Tweed, F.S. & J. Warburton (2005): The European Science Foundation (ESF) Network SEDIFLUX: Sedimentary Source-to-Sink-Fluxes in Cold Environments (2004 – 2006) – Introduction. *EUCOP II Abstracts* (in press).

Beylich, A.A., Etienne, S., Etzelmüller, B., Gordeev, V.V., Käyhkö, J., Rachold, V., Russell, A.J., Schmidt, K.-H., Sæmundsson, Þ., Tweed, F.S. & J. Warburton (2004): Information on the European Science Foundation (ESF) Network: Sedimentary Source-to-Sink-Fluxes in Cold Environments (SEDIFLUX). *Geophysical Research Abstracts,* **6**, 06798, 2004.

Beylich, A.A., Etienne, S., Etzelmüller, B., Gordeev, V.V., Käyhkö, J., Rachold, V., Russell, A.J., Schmidt, K.-H., Sæmundsson, Þ., Tweed, F.S. & J. Warburton (2005): The

European Science Foundation (ESF) Network SEDIFLUX: Sedimentary Source-to-Sink-Fluxes in Cold Environments. *NGF Abstracts and Proceedings*, no. 1, 2005: 11-12.

Beylich, A.A., Etienne, S., Etzelmüller, B., Gordeev, V.V., Käyhkö, J., Rachold, V., Russell, A.J., Schmidt, K.-H., Sæmundsson, Þ., Tweed, F.S. & J. Warburton (2004): The ESF Network SEDIFLUX: "Sedimentary Source-to-Sink-Fluxes in Cold Environments" – an introduction. Náttúrustofa Norðurlands vestra. NNV-2004-003. June 2004, 27-28.

Beylich, A.A., Sæmundsson, Þ., Decaulne, A. & O. Sandberg (Eds.) (2004) : First Science Meeting of the European Science Foundation ESF – Network SEDIFLUX. Sauðárkrókur, Iceland, June 18th – 21st, 2004. - Extended Abstracts of Science Meeting Contributions. Náttúrustofa Norðurlands vestra. NNV-2004-003. 103 pp. (http://www.nnv.is/skrar/AbstractVolume-pdfversion.pdf)

Etienne, S. (Ed.) (2005): Shifting Lands. New insights into periglacial geomorphology. *Seteun Publish*., Clermont-Ferrand, 126 pp.) (http://www.seteun.net/finalprogram.pdf)

Gordeev, V.V. (2005): The first workshop on the project "The European Science Foundation Network: Sedimentary Source-to-Sink-Fluxes in Cold Environments" (19-21 June, 2004, Saudarkrokur, Iceland). *Geomorphology, N1 (January-February*), pp. 109-110 (in Russian).

Slaymaker, O. (2004): Report on the First Science Meeting of the European Science Foundation Network SEDIFLUX held in Iceland from june 18 – June 21, 2004. *International Association of Geomorphologists Newsletter* No. 21 (3/2004) (http://www.geomorph.org)

Tweed, F.S. (2005): Report on the first SEDIFLUX Science Meeting in Sauðárkrókur, Iceland, June 2004. *Jökull*, **54**: 85-86.

Information on SEDIFLUX has also been published in different Newsletters (IAG Newsletter, Frozen Ground (IPA), BGRG, DAK Geomorphologie, Rundbrief Geographie, etc) and Abstract Volumes (LOIRA, HeadWater2005/Bergen, etc.).

6. Other News

The European Science Foundation (ESF) will have a stand at the EGU General Assembly, Vienna, Austria, at the end of April (25th-29th of April, 2005). ESF will include SEDIFLUX brochures, copies of the SEDIFLUX poster and a visual presentation on SEDIFLUX.

7. Next SEDIFLUX Newsletter

The next SEDIFLUX Newsletter (**SEDIFLUX Newsletter 2005 B**) will be sent out in **July 2005** by the SEDIFLUX Co-ordinator. You are invited to send contributions for this SEDIFLUX Newsletter to Achim.Beylich@ngu.no .

Dr. Achim A. Beylich
Geological Survey of Norway
Landscape and Climate
N-7491 Trondheim
Norway
Email: Achim.Beylich@ngu.no
Phone: ++47 73904117
Fax: ++47 73921620
http://www.ngu.no/landskap