# EXPRESSION OF INTENT

## FOR ACTIVITIES IN IPY 2007-2008.

**Deadline for Submission - January 14, 2005**
Email to jcel@bas.ac.uk or Fax to +44-1223-221270

## 1.0 PROPOSAL INFORMATION

1.1 Title of proposed activity

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|---|
| Sedimentary Source-to-Sink-Fluxes in Cold Environments |

1.2 Acronym or short form title of proposed activity

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|---|
| SEDIFLUX |

1.3 Concise outline of proposed activity

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| Global Change, which in addition to environmental changes includes also anthropogenic aspects such as socio-economic changes, will cause major alterations in the Earth surface systems and the most dramatic environmental changes are expected to occur in the cold climate regions of the Earth. Cold climate landscapes are some of the last wilderness areas containing specialized and diverse plants and animals as well as large stores of soil carbon. Geomorphological processes, operating at the Earth`s surface, transferring sediments and changing landforms are dependant on climate, vegetation cover and human impacts and will be significantly affected by Global Change. In this context it is a major challenge to develop a better understanding of the complex ecosystems and the mechanisms and climatic controls of sedimentary transfer processes in cold environments. More reliable modelling of sediment transfer processes operating under present-day climatic settings is needed to determine the consequences of predicted climate change. It is necessary to collect and to compare data and knowledge from a wide range of different high-latitude and high-altitude cold environments and to develop more standardized methods and approaches for future research on sediment fluxes and relationships between climate and sedimentary transfer processes. In Europe, the wide range of different high-latitude and high-altitude cold environments provides great potential to investigate climate-process relationships and to model the effects of Global Change by using space-for-time substitution. The highly relevant questions to be addressed need a multi-disciplinary approach and the joining of forces and expertise from different scientific fields. Especially a closer cooperation between geoscientists and biologists / ecologists is needed. **The ESF Network "Sedimentary Source-to-Sink-Fluxes in Cold Environments" (SEDIFLUX)** http://www.esf.org/sediflux is bringing together leading scientists, young scientists and research teams from different fields. The large number of projects run by the ESF Network participants demonstrates the high level |

of research activity of scientists working on sediment fluxes in different cold environments. The Network forms a framework for an integrated and multi-disciplinary investigation of the research topic and is a catalyst for strengthening and extending contacts and exchange. Network activities include four Science Meetings in Saudarkrokur, Iceland (June 2004), Clermont-Ferrand, France (January 2005), Durham, UK (December 2005) and Trondheim, Norway (October 2006), SEDIFLUX Steering Committee Meetings attached to these Science Meetings, a Session co-organized by SEDIFLUX at the 2nd European Permafrost Conference in Potsdam, Germany (June 2005), Journal Publications (Special Issues), Publication of Abstract Volumes, Publication of a SEDIFLUX Handbook (guidelines for longer term geomorphic process monitoring and sediment budget analysis in several selected cold climate catchments worldwide), development of a SEDIFLUX Database, and the diffusion and dissemination of Network activities and outputs by using electronic media (webpages, newsletters, forum, etc.). A strong monitoring and operational data collection and more standardized methods will provide a baseline for the development of reliable models and for future research in the changing cold environments of the Earth. It is planned that the ESF Network SEDIFLUX (2004-2006) will continue and be extended worldwide as Working Group of the International Association of Geomorphologists (IAG) (from 2005 onwards). SEDIFLUX will be a key umbrella programme for polar research activities during IPY 2007/2008.

1.4 Which IPY 2007-2008 theme(s) will be addressed by the project (see Note 1)

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|---|---|
| **Theme 1 – The current state of the polar environment** | Y |
| **Theme 2 - Change in the polar regions** | Y |
| **Theme 3 - Polar-global linkages and interaction** | Y |
| **Theme 4 - Investigating new frontiers** | Y |
| **Theme 5 -The polar regions as vantage points** | Y |
| **Theme 6 - Human societies in polar regions** | Y |

1.5 What is the major target of the proposed activity (specify one – see Note 1)

| | |
|---|---|
| **Natural or social science research** | N |
| **Education/Outreach and Communication** | N |
| **Data Management** | Y |
| **Legacy** | N |
| **Other Targets** | N |

1.6 What significant advance(s) in relation to the IPY themes and targets can be anticipated from this project?

SEDIFLUX is focused on the challenge of developing a better understanding of the complex ecosystems and the mechanisms and climatic controls of sedimentary transfer processes cold environments. More reliable modelling of sediment transfer processes operating under present-day climatic settings will help to determine the consequences of Global Change (Themes 1 and 2). Collecting and comparing data and knowledge from a wide range of different high-latitude and high-altitude cold environments and modelling of process-climate relationships under present-day climatic settings makes it possible to model effects of Global Change and to compare polar regions with other cold climate environments (high-altitude cold environments) on Earth (Theme 3). SEDIFLUX is the first large network in process geomorphology, and also so far unexplored areas are investigated within the reseach projects of network participants (Theme 4). Human impacts on sediment fluxes are investigated, and the focus is also on the adaptation of indigenous and local people to effects of Global Change and its direct consequences, and on the development of a better risk assessment and more effective land management strategies (Themes 5 and 6). A strong monitoring and operational data collection and more standardized methods provide a baseline for the development of reliable models for future research in the changing cold environments (Target 3).

1.7 What international collaboration is involved in this project? (see Note 2)

SEDIFLUX is bringing together leading scientists, young scientists and research teams from more than 25 countries and from different scientific fields. SEDIFLUX forms a framework for an integrated, multi-national and multi-disciplinary investigation of the research topic and is a major catalyst for strengthening and extending contacts, exchange and collaborations. Apart from further collaborations and collaborative research activities, project and programme proposals both at the national and at the international level are initiated.

## 2.0 FIELD ACTIVITY DETAILS

2.1 Outline the geographical location(s) for the proposed field work (see Note 3)

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| The ca. 130 SEDIFLUX Network participants run a high number of research projects including field work in numerous cold climate environments worldwide. |

2 2 Define the approximate timeframe(s) for proposed field activities?

| **Arctic Fieldwork time frame(s)** | **Antarctic Fieldwork time frame(s)** |
|---|---|
| It is planned that the ESF Network SEDIFLUX (2004-2006) will from 2005 onwards continue and be extended as IAG Working Group. Field work within the research projects of SEDIFLUX participants will continue beyond IPY. | mm/yy – mm/yy |
| mm/yy – mm/yy | mm/yy – mm/yy |
| mm/yy – mm/yy | mm/yy – mm/yy |

2.3 What significant logistic support/facilities will be required for this project? Can these resources be usefully shared with other projects? (see Note 4)

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| The logistic support/facilities for projects of SEDIFLUX participants are provided within the individual projects of the SEDIFLUX participants. No major additional field logistic/facility support is required. Anyway, additional economic support for extended field campaigns, especially for field campaigns carried out by young scientists in selected target areas of SEDIFLUX, would be very helpful. Economic support for Workshops, to be held at established institutions/research station, especially for supporting participating young scientists, will be necessary. |

2.4 Will the project leave a legacy of infrastructure? (see Note 1)

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| SEDIFLUX is planned to continue beyond IPY as Working Group of the International Association of Geomorphologists (IAG) committed to the promotion of process geomorphological research in cold environments. The infrastructure legacy will include intellectual advances, established cross-disciplinary and multi-national collaboration arrangements between scientists and institutions, and development of contacts and exchange networks between mainly young scientists forming the new generation of polar scientists. |

2.5 How is it envisaged that the required logistics will be secured? (one or more options can be identified)

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|---|---|
| Consortium of national polar operators | Y or N |
| Own national polar operator | Y or N |
| Another national polar operator | Y or N |
| National agency | Y or N |
| Military support | Y or N |
| Commercial operator | Y or N |
| Own support | Y or N |
| Other sources of support | Y or N |
| Further details:<br>SEDIFLUX is a key framework for research activities during IPY and beyond IPY. The required field logistics will be secured by the individual research projects of SEDIFLUX participants (see also 2.3). | |

2.6 Has the project been "endorsed" at national or international level (see Note 5)

| | |
|---|---|
| Y | This Expression of Intent has been submitted as copy to the National IPY Committees of Norway, France, Finland, Germany and Iceland (by members of the SEDIFLUX Steering Committee). This EOI is also supported by the European Science Foundation (ESF). |

## 3.0 PROJECT MANAGEMENT AND STRUCTURE

3.1 Is the project a component (established over the IPY 2007-2008 timeframe) of an existing plan, programme or initiative or is it a new autonomous proposal?

| New Project | |
|---|---|
| SEDIFLUX is an existing activity (ESF Network 2004-2006). It is planned to continue and to be extended as a Working Group of the International Association of Geomorphologists (IAG) (from 2005 onwards) and will run beyond IPY. | |

3.2 How will the project be organised and managed? (see Note 6)

ESF SEDIFLUX has a Steering Committee with scientists from seven countries:

Achim A. Beylich, Coordinator of SEDIFLUX (Norway)
Samuel Etienne (France)
Bernd Etzelmüller (Norway)
Vyacheslav V. Gordeev (Russia)
Jukka Käyhkö (Finland)
Volker Rachold (Germany)
Andrew J. Russell (UK)
Þorsteinn Sæmundsson (Iceland)
Karl-Heinz Schmidt (Germany)
Fiona S. Tweed (UK)
Jeff Warburton (UK)

The ESF SEDIFLUX Steering Committee is responsible for the ESF Network activities and outputs (see 1.3).

3.3 What are the initial plans of the project for addressing the education, outreach and communication issues outlined in the Framework document? (see Note 7)

SEDIFLUX is bringing together leading scientists, young scientists and research teams from more than 25 countries and numerous different scientific fields. SEDIFLUX forms a framework for an integrated and multi-disciplinary investigation of the research topic and is a major catalyst for strengthening and extending scientific contacts and exchange. SEDIFLUX activities include Science Meetings, publications, and using electronic media for dissemination of SEDIFLUX activities and outputs (webpages, newsletters, forum, etc.). A major focus is on cross-disciplinary and multi-national exchange and communication between especially young scientists forming the new generation of polar scientists. SEDIFLUX is the first large network in process geomorphology.

3.4 What are the initial plans of the project to address data management issues (as outlined in the Framework document)? (see Note 8)

Data management is a major target of SEDIFLUX. A SEDIFLUX database is currently developed. A strong monitoring and operational data collection and more standardized methods will provide a baseline for the development of reliable models and for future research on sedimentary source-to-sink-fluxes in the changing cold environments of the Earth. SEDIFLUX is the first large network with data management in process geomorphology.

3.5 How is it proposed to fund the project? (see Note 9)

The SEDIFLUX participants run numerous research projects, which are funded by numerous different national and international funding agencies. SEDIFLUX forms an umbrella for these activities and is planned to continue and to be extended as Working Group of the International Association of Geomorphologists (IAG). ESF SEDIFLUX and IAG SEDIFLUX can provide funding for Science Meetings, Publications, Data management and Dissemination (see 1.3).

3.6 Is there additional information you wish to provide?

The planned IAG Working Group SEDIFLUX will extend ESF SEDIFLUX activities worldwide (from 2005 onwards). IAG SEDIFLUX will be headed by a core group of 4-5 members from the present ESF SEDIFLUX Steering Committee and will run beyond IPY.
SEDIFLUX is the first large network in process geomorphology, with more than 130 participants from more than 25 countries. IAG SEDIFLUX is planned to be a framework providing database and guidelines for longer term geomorphic process monitoring and sediment budget analysis in several selected cold climate catchments worldwide.

## 4.0 PROPOSER DETAILS

4.1 Lead Contact for the Expression of Intent

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4.2 List up to six other project members and their affiliation.

Name 1 Dr. Samuel Etienne
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## Accompanying Notes for submission of IPY 2007-2008 Expressions of Intent

**Note 1** – IPY projects can take a number of forms.
a) 1.4 - They may address one or more of the IPY 2007-2008 themes and if so will be expected to have component activities addressing education, outreach, data management and possibly legacy.
b) 1.5 - The main focus can be on science or on one or more aspects of education, outreach and communicating the Polar Year, an activity that addresses data management or that explicitly leaves a legacy (such as building a new polar facility or establishing new systems).
**Note 2 -** An important characteristic of IPY 2007-2008 projects will be their international structure in order to facilitate research impractical for a single nation to undertake. Whilst project components are likely to be primarily funded at a national level, the projects are expected to be established and coordinated internationally. The Joint Committee will be looking for evidence of international collaborations developing in the Expressions of Intent and established by the June 2005 full proposal deadline.
**Note 3** – The geographic locations need not be precise but logistic operators will want to broadly know where activities will occur, e.g. West Antarctic Ice Sheet, Weddell Sea, Svalbard, Greenland, etc. If you have more detail please supply.An IPY project can also be one that involves no field activities.
**Note 4** - This refers to major facilities and infrastructure and some examples (not comprehensive) are given below.

| | | |
|---|---|---|
| Ice-breaker | Multi-instrumented platforms | Snow terrain vehicles |
| Ice strengthened research ship | Helicopters | Existing field stations |
| Ship-based drilling capability | Fixed wing geophysical aircraft | New field station |
| Ship recovery of buoys etc | Fixed wing transport aircraft | Observatories |
| Submarines | Rockets | Fuel depots |
| Autonomous Underwater Vehicle | Satellites | Ice drilling capability |
| Remotely Operated Vehicle | Radars | Rock-drilling capability |

Please note if your project will share facilities with other IPY activities, or if there is capacity to support other projects as part of your activity (e.g. a marine biodiversity cruise could feasibly offer to deploy or recover buoys, moorings, etc., for an ocean/climate project)
**Note 5** - All IPY projects will ultimately be subject to assessment by National (and/or International) funding agencies. However it will be important to establish coordination of IPY 2007-2008 at the national and international level. Both National IPY Committees and International bodies supporting IPY 2007-2008 will have an important role in this. Contact with these bodies may occur before January 14 2005 but should certainly take place before the June 2005 deadline for full proposals.
**Note 6** – The Joint Committee for IPY 2007-2008 will be overseeing Polar Year activities but will not be managing the individual projects. It is anticipated that IPY projects will be self-managed, free-standing activities or be part of a planned or existing programme that has an established management structure. The JC will need to be satisfied that all proposals have realistic plans for structuring and managing activities. For the larger proposals the JC anticipates that a Project Steering Committee will be established.
**Note 7** – It will be a requirement of IPY proposals that there is a clear plan for Education, Outreach and Communication (EOC) activities in the full proposal for the June 2005 deadline. If initial ideas for EOC have been established these can be outlined in the Expression of Intent.
**Note 8** – It will be a requirement of IPY proposals that there is a clear plan for the management of project data, including its early availability to the community, presented in the full proposal for the June 2005 deadline. Initial ideas for data management should be outlined in the Expression of Intent, including which data organisations are likely to be involved, e.g. ICSU World Data Centres, Joint Committee for Antarctic Data Management, WCRP, etc.
**Note 9** – It is anticipated that funding for IPY 2007-2008 will be primarily obtained through national funding agencies but in some cases will involve international funding agencies (e.g. European Union) and in some cases will come from private sources. Certain projects will be part of programmes already funded and if so these can be identified here.