

Minutes from the Working Group Discussions at the Third SEDIBUD Workshop in Boulder (MRS), September 9-13, 2008

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Discussions led by Achim A. Beylich

Workshop participants thank Nel Caine and Irina Overeem for the great organization of the Third SEDIBUD Meeting.

September 10, 2008

SEDIFLUX Manual

The progress of revising the SEDIFLUX Manual has been very slow. No revised version of the SEDIFLUX Manual, as announced during the Second SEDIBUD Workshop in Abisko, fall 2007, was available at the Third SEDIBUD Workshop in Boulder. The need for and interest in a potential second edition of the SEDIFLUX Manual was therefore critically discussed.

A review paper (Lamoureux *et al.*) based on Chapter 3 of the SEDIFLUX Manual “Contemporary sediment fluxes” was proposed by Scott Lamoureux before the Workshop. The group agrees that such a review paper is wanted. In addition, Jeff Warburton will lead a review paper based on Chapter 2 of the Manual “Storage elements”.

An update of the SEDIFLUX Manual is still supported by the group. Gaps were discussed and highlighted during the 2nd SEDIBUD Workshop in Abisko, and most of the material for preparing an updated version is already available. Therefore, an update of the Manual seems possible. Achim A. Beylich offers the possibility of an online publication (NGU Report). The SEDIFLUX Manual should be used by scientists who wish to define SEDIBUD key test sites.

The updated version of the SEDIFLUX Manual is therefore again decided, and should be available at the next SEDIBUD Workshop in September 2009 in Kingston, Canada. Jeff Warburton will continue to work on this updated version of the SEDIFLUX Manual.

The two review papers (Warburton *et al.*, Lamoureux *et al.*) shall be included in the planned special issue arising from this Boulder Workshop (see below).

Future of SEDIBUD

SEDIBUD was approved for a four years period (2005-2009). The interest in a potential prolongation of SEDIBUD was discussed.

SEDIBUD is developing guidelines and protocols in a long-term view. The concept for the working group has been in the context of a long-term programme. Extension of SEDIBUD should be possible after creating a global network of key test sites and defining research objectives. There is a general interest in the group to pursue such an extension of SEDIBUD. The preliminary list of future SEDIBUD workshops (see below) should support the ongoing activities of the group.

SEDIBUD Key Test Sites

John C. Dixon and Katja Laute will identify gaps within the existing set of SEDIBUD key test sites. Which cold environments are still missing? As already decided in Abisko, missing sites shall be added. There is general interest in a second edition of the SEDIBUD Key Sites Fact Sheets and Scott Lamoureux will prepare a second edition of the SEDIBUD Key Sites Fact Sheets volume.

Development of SEDIBUD Protocols

The SEDIBUD Protocols will be a tool for further discussion. Which are the data needed by modellers? Which data can we provide from each site? What can the modellers model for us? In how far can this help to answer our SEDIBUD research questions? The availability of data will also help to clarify the list of SEDIBUD key test sites.

James Syvitski explained that the identification of processes is essential, as well as the distinction of supply, transport and erosion by each processes. Values should be put on the processes. A complete budget needs the identification of processes with estimations or values.

Colin Thorn pointed out the main difference between geomorphologists and modellers: Geomorphologists are interested in the way the landscape is affected by processes, while the modellers are interested in sediment yields. Therefore, both sides have to adjust their thinking.

Global data, original data, local data are all valuable when applying models to the entire landscape; seven days of high quality data are as valuable as long-term data: process-based data/short term dataset or long term dataset are all valuable depending on the issue that has to be answered.

The main task is therefore to develop the protocols: which data will we collect from SEDIBUD key test sites for common research objectives? Not all key test sites will be able to provide detailed data.

September 11, 2008

Discussion and link with CSDMS

Linking activities and developing collaborations with modellers: Why? In which way? Which benefit for SEDIBUD? Are there concerns within the SEDIBUD group?

John Orwin pointed out that we need to clarify field measurements to define goals? Which measurements and data have to be collected?

Þorsteinn Sæmundsson emphasised the variety of measurements as well as the variety of catchment sizes. Which questions do we answer?

Irina Overeem pointed out that SEDIBUD has the potential to work towards and contribute to modelling, which is also a response to national and governmental needs and requests.

Jeff Warburton asked for the kind of information that CSDMS should be interested to get? Is there an interface model in CSDMS? Should that be possible to list aims and needs on available models and how they fit our research goals?

Irina Overeem responded that researchers submit the data that runs the models. All additional information is available on the CSDMS website, which is a vehicle to start with geomorphology. It is possible to sign up there.

John Orwin asked if this kind of process is individually driven.

Irina Overeem responded that the membership is linked by a mailing list access that facilitates contacts in between modellers and geomorphologists. CSDMS also hosts students for a couple of weeks.

Achim A. Beylich raised the question of the metadata database: which could be the connection with CSDMS?

Irina Overeem explained that the metadata database could be hosted there, not set up by CSDMS.

John Dixon pointed out that the test sites would feed data into a centralised database.

Achim A. Beylich therefore insisted on the necessity to prepare a SEDIBUD protocol to identify the sites that could contribute and start collecting data. What parameters should be included? The lead researcher at each SEDIBUD key test site will then be able to see if he/she can provide the data or not. That will clarify which sites are really able and willing to provide data.

Does SEDIBUD really need CSDMS to develop its database?

It could be an idea to have an individually driven cooperation with CSDMS regarding data use.

Cooperation with CSDMS can be in form of student exchange, hosting and training of students, invitation of modellers to forthcoming SEDIBUD workshops.

The protocols are developed with three categories: one corresponding to the catchment parameters, one to fluvial processes, and the third one concerning the slopes characteristics. The slope section has been developed to integrate a larger number of SEDIBUD proposed key sites.

Prerequisite data for SEDIBUD key test sites:

Basin Boundary Conditions

- Area (km²)
- Relief (absolute relative ; reference from the lowest gauging station) (m)
- Latitude & longitude
- Processes (dominant)
- Glaciation (Y/N)
- Permafrost (Y/N)
- Vegetation (categories from SEDIBUD database)
- Lithology (dominant type of the 6 listed in the world atlas of lithology)
- Human impact (Y/N)

Catchment

- Mean annual temperature (°C)
- Total annual precipitation (mm)
- Total annual discharge (mm)
- Annual suspended sediment yield (t/km²)
- Annual solute yield (atmospherically corrected) (t/km²)

Slope characteristics

- Slope aspect (orientation)
- Slope form (concave, convex, talus, cone...)
- Mean slope angle (°)
- Processes acting on slopes (rockfall, snow avalanche, debris flow, landslide, solifluction...)
- runoff distance (m) recognized from geomorphological evidence / historical records
- deposit volume (m³)
- triggering factors (rain, snowmelt, rain-on-snow, earthquake...)
- Connection to river (Y/N)

SEDIBUD Website: A lot of information regarding SEDIBUD Activities!

The already existing key test site database will be updated and extended accordingly to the new data provided by key test site lead researchers. A major effort had been done already (by Katja Laute) in developing the existing

SEDIBUD key test site database. This database has been available at the SEDIBUD website for several months but was not known to most workshop participants.

Publications

SEDIFLUX / SEDIBUD has been very active with respect to publication of special issues. Six special issues have been published so far and the special issue arising from the Second SEDIBUD meeting in Abisko is under review. A special issue arising from this Third SEDIBUD Workshop is planned (Beylich). This special issue shall be composed of the two review papers (Warburton et al., Lamoureux et al.) as well as contributions (papers and posters) from this workshop. Achim A. Beylich will contact *GEOGRAFISKA ANNALER* as possible journal for this publication.

Further Workshops (preliminary list):

September 2009: Kingston, Canada (Scott Lamoureux)

2010: Poland (Zbigniew Zwolinski)

March 2011: New Zealand (John Orwin)

2012: Iceland (Þorsteinn Sæmundsson)

2013: Kevo, Finland (Jukka Käyhkö)

Report from this Workshop

Armelle Decaulne will compile a Workshop Report to be submitted to the I.A.G./A.I.G. Newsletter.

Further Steps

- Preparing Report from this Boulder workshop (submitted to I.A.G./A.I.G. Newsletter) (Decaulne)
- Finishing Special Issue AAAR arising from the Abisko Workshop (Beylich, Lamoureux, Decaulne)
- Identification of gaps within the existing network of SEDIBUD key test sites (Dixon, Laute)
- Sending request for key annual data and additional catchment parameters to key test sites as well as to possible new key test site lead researchers (filling existing gaps) (Beylich)
- Updating and extending the existing SEDIBUD key test site database (Laute, Beylich)
- Special Issue from this Boulder Workshop (contacting *Geografiska Annaler*: Beylich): Review papers (Warburton *et al.*, Lamoureux *et al.*) and contributions from Boulder Workshop
- Finishing the updated version of the SEDIFLUX Manual (Warburton)
- Preparing Second Edition of the SEDIBUD Key Sites Fact Sheets volume (Lamoureux)
- Keeping CSDMS informed about SEDIBUD activities
- SEDIBUD Session at the IAG/AIG Conference in Melbourne, July 2009 (Beylich & Orwin)
- Next Workshop in Kingston, Canada (Lamoureux)