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Papers

- *Response of snow cover and runoff to climate change in high Alpine catchments of Eastern Switzerland*, M. Bavay, T. Grünewald, M. Lehning, Advances in Water Resources (2013)

- *Schneegrenze steigt um 500 Meter*, C Marty, M Bavay, Alpen, 6, pp50-51, 2012

- *Future runoff from a partly glacierized watershed in central switzerland: a 2 model approach*, F Kobierska, T Jonas, M Zappa, M Bavay, J Magnusson, SM Bernasconi, Advances in Water Resources (2012)

- *Drifting snow sublimation: A high-resolution 3-D model with temperature and moisture feedbacks*, CDG. Zwaaftink, H. Lowe, R. Mott, M. Bavay, M. Lehning, Journal of Geophysical Research-Atmospheres (2011), 116, DOI: 10.1029/2011JD015754

- *Micrometeorological processes driving snow ablation in an Alpine catchment*, R Mott, E Egli, T Grünewald, N Dawes, C Manes, M Bavay, M Lehning, The Cryosphere Discussions, 5, 2159-2196, 2011

- *Climate change effects on snow melt and discharge of a partly glacierized watershed in Central Switzerland (SoilTrec Critical Zone Observatory)*, F Kobierska, T Jonas, J Magnusson, M Zappa, M Bavay, T Bosshard, F Paul, ..., Applied Geochemistry, 2011

- *Quantitative evaluation of different hydrological modelling approaches in a partly glacierized Swiss watershed*, J. Magnusson, D. Farinotti, T. Jonas, M. Bavay, Hydrological Processes (2011), 25 (13), DOI: 10.1002/hyp.7958

- *HYDROSYS: On-site monitoring and management of water environment*, A. Jolma, A. Nurminen, I. Ferencik, V. Lehtinen, M. Kamalov, E. Kruijff, E. Mendez, E. Veas, M. Parlange, S. Simoni, S. F. Vidal, T. Papaioannou, M. Bavay, N. Dawes, T. Drummond, E. Rosten, O. Kaehler, J. Mykkänen, J. Jemai, extended abstract of the OpenWater symposium (2011), pp 57-58

- *Understanding snow-transport processes shaping the mountain snow-cover*, R. Mott, M. Schirmer, M. Bavay, T. Grunewald, M. Lehning, Cryosphere (2010), 4 (4), DOI: 10.5194/tc-4-545-2010

- *Pop-c++ and alpine3d: Petition for a new hpc approach*, P. Kuonen, M. Bavay, M. Lehning, in: Asimakopoulou E, Bessis N, editors. Advanced ICTs for Disaster Management and Threat Detection: Collaborative and Distributed Frameworks, IGI Global (2010), doi:10.4018/978-1-61520-987-3.ch015

- *Instrumenting the Earth: Next-Generation Sensor Networks and Environmental Science*, M. Lehning, N. Dawes, M. Bavay, M. Parlange, S. Nath, F. Zhao, in: T. Hey, S. Tansley, K. Tolle, editors. The Fourth Paradigm, Data-Intensive Scientific Discovery (2009), Microsoft Research

- *Alpine Changes in Snow Cover, Surface Hydrology and Runoff*, M. Bavay, M. Lehning, T. Jonas, H. Löwe, Hydrological Processes (2009), 23, p95-108, DOI: 10.1002/hyp.7195

- *Das Swiss Experiment und die Zukunft der Vorhersage von alpinen Naturgefahren.*, M. Lehning, M. Bavay, H. Löwe, M. Parlange, K. Aberer, Forum für Wissen (2007)

Abstracts

- *Flexible visualisations for SNOWPACK and Alpine3D*, N Dawes, I Iosifescu, M Bavay, C Groot, N Wever, Davos Atmosphere and Cryosphere Assembly, 2013

- *Numerical snow models and imperfect radiation measurements*, M Bavay, E Schmucki, C Fierz, M Lehning, Davos Atmosphere and Cryosphere Assembly, 2013

- *Snow cover runoff and stream discharge modelling during snow melt in Alpine terrain*, N Wever, C Fierz, M Bavay, M Lehning, Davos Atmosphere and Cryosphere Assembly, 2013

- *Improving stream flow discharge modelling during snow melt*, N Wever, C Fierz, C Mitterer, M Lehning, M Bavay, EGU General Assembly 2013

- *Application of large-scale computing infrastructure for diverse environmental research applications using GC3Pie*, S Maffioletti, N Dawes, M Bavay, S Sarni, M Lehning, EGU General Assembly 2013

- *Comparison of hydrologic response between a conceptual and a travel time distribution model for a snow-covered alpine catchment using Alpine3D*, F Comola, M Lehning, M Bavay, R Mutzner, B Schaefli, A Rinaldo, M Parlange, EGU General Assembly 2013

- *Open Support Platform for Environmental Research (OSPER) – tools for the discovery and exploitation of environmental data*, N Dawes, M Lehning, M Bavay, I Iosifescu, S Sarni, R Gwadera, D Scipion, J Blanchett, A Davison, A Berne, L Hurni, K Aberer, MB Parlange, AGU Fall Meeting, December 2012

- *Open Support Platform for Environmental Research (OSPER) – tools for the discovery and exploitation of environmental data*, N Dawes, M Lehning, M Bavay, I Iosifescu, S Sarni, R Gwadera, D Scipion, J Blanchett, A Davison, A Berne, L Hurni, K Aberer, MB Parlange, Forum für Wissen, Davos, November 2012

- *Snow-cover modelling in Alpine environment: a supportive tool for avalanche forecasting and other applications*, C Fierz, M Bavay, M Lehning, International Symposium on Changing Cryosphere, Water Availability and Sustainable Development in Central Asia. Sanya, China, November 10-12, 2012

- *Modeling the climate change impact on snow and runoff in the alpine space*, M Bavay, T Grünewald, M Lehning, International Symposium on Changing Cryosphere, Water Availability and Sustainable Development in Central Asia. Sanya, China, November 10-12, 2012

- *MeteoIO: A Pre-Processing Library for Numerical Models*, M Bavay, T Egger, C Fierz, M Lehning, International Symposium on Changing Cryosphere, Water Availability and Sustainable Development in Central Asia. Sanya, China, November 10-12, 2012

- *Permafrost simulations in the Dolomites using Alpine3D*, W Steinkogler, M Bavay, M Lehning, EGU General Assembly 2012

- *MeteoIO: A Pre-Processing Library for Numerical Models*, M Bavay, T Egger, C Fierz, M Lehning, EGU General Assembly 2012

- *From sensor networks to connected analysis tools*, N Dawes, M Bavay, T Egger, S Sarni, A Salehi, A Davison, H Jeung, K Aberer, EGU General Assembly 2012

- *Automated Model-driven Simulation and Visualization of Field Sensor Data*, T Papaioannou, S Sarni, K Aberer, M Bavay, M Lehning, S Simoni, M Parlange, EGU general assembly 2011

- *MeteoIO: A Meteorological Data Pre-Processing Library for Numerical Models*, M Bavay, T Egger, EGU general assembly 2011

- *Modeling the climate change impact on snow and runoff in the alpine space*, M Bavay, T Grünewald, J Magnusson, M Lehning, EGU general assembly 2011

- *Typical errors when calculating snow ablation in mountains*, R Mott, M Bavay, M Lehning, EGU general assembly 2011

- *Climate change effects on snow melt and discharge of a partly glacierized watershed in Central Switzerland*, F Kobierska, T Jonas, J Magnusson, M Zappa, M Bavay, T Bosshard, S Bernasconi, EGU general assembly 2011

- *Modeling the climate change impact on snow and runoff in the alpine space*, M. Bavay, T. Grünewald, J. Magnusson, M. Lehning, AGU general assembly 2011

- *Swiss Experiment: Design, implemention and use of a cross-disciplinary infrastructure for data intensive science*, N Dawes, A Salehi, A Clifton, M Bavay, K Aberer, MB Parlange, M Lehning, AGU Fall Meeting 2010

- *Climate change effects on snow melt and discharge of a partly glacierized watershed in Central Switzerland*, T Jonas, J Magnusson, F Kobierska, D Farinotti, M Zappa, M Bavay, AGU Fall Meeting 2010

- *Swiss Experiment: Providing diverse snow research data sets when and where they are required*, N. Dawes, M. Lehning, K. Aberer, M. Parlange, M. Bavay, M. Berne, International Snow Science Workshop 2009

- *Environmental Monitoring 2.0*, S. Michel, A. Salehi, L. Luo, N. Dawes, K. Aberer, G. Barrenetxea, M. Bavay, A. Kansal, K.A. Kumar, S. Nath, M. Parlange, S. Tansley, C. van Ingen, F. Zhao, Y. Zhou, 2009 IEEE 25th International Conference on Data Engineering (2009), 1-3, in IEEE International Conference on Data Engineering

- *MeteoIO: A Meteorological Data Pre-Processing Library for Numerical Models*, M. Bavay, T. Egger, L. Winkler, EGU general assembly 2010

- *Studying the impact of climate change on the discharge of an Alpine headwater catchment with a process-based modeling approach*, M. Bavay, M. Lehning, AGU fall meeting 2010

- *Scenario Calculations for Alpine Snow Cover and Runoff*, M. Bavay, M. Lehning, T. Jonas, H. Loewe, EGU general assembly 2009

- *Swiss Experiment: Application of a collaborative research platform to spatial interpolation validation*, M. Bavay, N. Dawes, M. Lehning, K. Aberer, M. Parlange, ICAM2009

- *Alpine Changes in Snow Cover, Surface Hydrology and Runoff*, M. Bavay, M. Lehning, T. Jonas, H. Loewe, AGU fall meeting, 15-19 Dec. 2008

- *Analysis of local meteorological forcing of snow cover variability and snow stability in Alpine terrain*, M. Schirmer, M. Bavay, M. Lehning, AK Klima, 2007

- *Natural Hazards & Risks – The Swiss Experiment Framework*, M. Bavay, M. Lehning, et all., Latsis Symposium "Research Frontiers in Environment and Sustainability", 2007

- *Swiss Experiment: a New Environmental Monitoring Platform in Alpine Environment*, V. Luyet, G. Barrenetxea, O. Couach, M. Krichane, T. Bertholet , T. Varidel , A. Berne, K. Aberer, A. Wombacher, J. Medico, D. Berod, M. Lehning, M. Bavay, M. Parlange, M. Vetterli, AGU Conference, San Francisco, California, USA, 10–14/12/2007

Papers and proceedings before SLF

- *Veloce: A Compact Pulser for Magnetically Driven Isentropic Compression Experiments*, M. Bavay, R. Spielman, G. Avrillaud, IEEE Transactions on Plasma Science (Oct. 2008), Vol 36, 5, DOI: 10.1109/TPS.2008.2003132

- *A Compact Pulser for Magnetically Driven Isentropic-Compression Experiments*, R. SPielman, M. Bavay, J. Mervini, G. Avrillaud, APS Meeting Abstracts (Jun. 2007)

- *Veloce: a Compact Pulser for Dynamic Material Characterization and Hypervelocity Impact of Flyer Plates*, G. Avrillaud, J. R. Asay, M. Bavay, M. Delchambre, J. Guerre, F. Bayol, F. Cubaynes, B. Kovalchuk, J. A. Mervini, R. B. Spielman, C. A. Hall, R. J. Hickman, T. Ao, M. D. Willis, Y. M. Gupta, C. J. Bakeman, Proceedings of the Conference of the American Physical Society Topical Group on Shock Compression of Condensed Matter. AIP Conference Proceedings, Volume 955, pp. 1161-1164 (2007).

- *A Compact Pulser for Magnetically Driven Isentropic-Compression Experiments*, M. Bavay, J. Mervini, R. Spielman, G. Avrillaud, M. Delchambre, J. Guerre, F. Bayol, F. Cubaynes, International Conference on Megagauss Magnetic field Generation and Related Topics, Santa Fe, USA, 5-10/11/2006

- *ECF2 : A pulsed power generator based on magnetic flux compression for K-shell radiation production*, P. L'Eplattenier, F. Lassalle, Ch. Mangeant, F. Hamann, M. Bavay, F. Bayol, D. Huet, A. Morell, P. Monjaux, G. Avrillaud, B. Lalle, BEAMS, Albuquerque, USA, 23-28/06/2002

- *The Magnetic Flux Compression scheme as a power amplification & pulse shaping stage*, M. Bavay, P. L'Eplattenier, Ch. Mangeant, F. Hamann, M. Mazarakis, Ph. Monjaux, F. Lassalle, F. Bayol, D. Huet, G. Avrillaud and B. Lalle, International Conference on Plasma Science, Banff, Canada, 26-30/05/2002

- *0D numerical modelisation and optimization of flux compression experiments*, P. L'Eplattenier, M. Bavay, G. Avrillaud et B. Lalle, Pulsed Power Plasma Science, 06/2001.

- *Numerical modelization and optimization of flux compression experiments*, M. Bavay, P. L'Eplattenier, G. Avrillaud, J. Vanpoperynghe, 12th APS on shock compression of condensed matter, 06/2001.

- *Magnetic Flux Compression Using Z Pinches*, R. Spielman, M. Douglas, S. Rosenthal, W. Stygar, M. Mazarakis, P. L'Eplattenier, JF. Leon, M. Bavay, G. Avrillaud, American Physical Society, 42nd Annual Meeting of the APS Division of Plasma Physics (10/2000)

- *VELOCE - A Compact Pulser for Magnetically Driven Isentropic Compression Experiments*, G. Avrillaud, M. Delchambre, J. Guerre, F. Bayol, F. Cubaynes (ITHPP), B. Kovalchuk (HCEI), M. Bavay, J. Mervini, R. Spielman (ITI), J. Asay, C. Hall, R. Hickman, T. Ao (SNL), M. Willis (KTECH), Y. Gupta, J. Asay, C. Bakeman (WSU), 15th APS Topical Conference on Shock Compression of Condensed Matter, Hawaii, 24-29/06/2007;

- *Compact Pulsed-Current Generator with Single Switch for Material EOS and Magnetic Diffusion Studies*, Ch. Mangeant, F. Lassalle, J. Petit, M. Bavay, International Conference on Megagauss Magnetic field Generation and Related Topics, Moscow, Russia, 7-14/07/2002

- *The Magnetic Flux Compression in the sub-microsecond regime for the generation of Very High Pressure and intense X-rays*, M. Bavay, P. L'Eplattenier, Ch. Mangeant, F. Hamann, Ph. Monjaux, F. Lasalle, M. Mazarakis, G. Avrillaud, B. Lalle, Power Modulator Conference, Hollywood, USA, 30/06-03/07/2002 see also the paper

Projects

- *Swiss Ex*, proposal, 1 year full time postdoc, then simple participant

- *Swiss Ex II*, participant

- *KTI Boschung*, 2 years, 1 year full time alone on the project, then just waiting for the next winter

- *Swiss Multi-Science Computing Grid (SMSCG)*, proposal, WP leader for 2.5 years

- *smscg II*, WP leader for 0.5 year

- *Hydrosys*, 3 years, participant

- *CLISP*, 1.5 years, participant in charge of a deliverable

- *Veneto Permafrost project*, assisting for a few months

- *IRKIS*, 2 years, operational nowcasting & forecasting of snow hydrology over the area of Davos

Proposals

- *Swiss Ex*, significant funding, heavy involvement - passed

- *Swiss Ex II*, significant funding, light involvement

- *ALPS*, significant funding, light involvement - failed

- *Hydrosys*, significant funding, light involvement - passed

- *Rosti*, significant funding, heavy involvement - failed

- *RoadRunner (Gebert Ruff)*, medium funding, heavy involvement - failed

- *On The Road Again*, no funding (but collaboration), light involvement - failed

- *smscg*, significant funding, heavy involvement - passed

- *smscg II*, light funding, light involvement - passed

- *Chinese collaboration*, multiple proposals, including 3x2 months full time paid by the Chinese Academy of Sciences - waiting