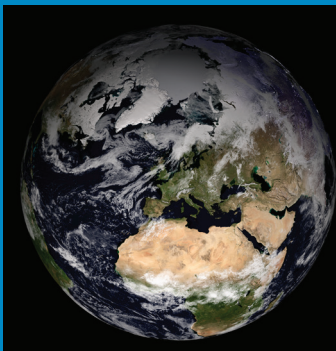


C2SM

Center for Climate Systems Modeling

Symposium The Water Cycle in a Changing Climate July 1–2 2013, ETH Zurich

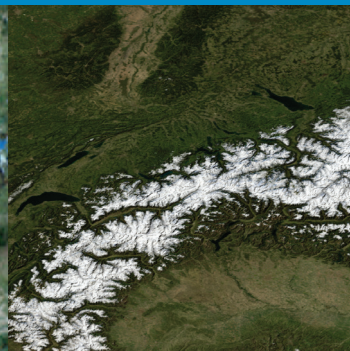
Climate change will fundamentally affect the Earth's water cycle. However, our understanding and our ability to predict changes in the water cycle are still limited. To face this challenge, the Center for Climate Systems Modeling (C2SM) organizes a symposium on the water cycle in a changing climate. The goal is to review our current understanding of the processes governing the water cycle and to explore new frontiers in using climate change information towards coping with emerging challenges.



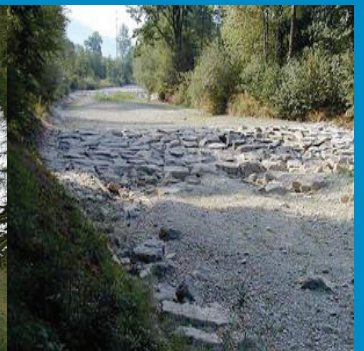
@ bluemarble.ch



@PLANAT



@bluemarble.ch



@C. Schär

Program Committee: C. Appenzeller (MeteoSwiss), I. Bey (C2SM), J. Fuhrer (Agroscope), N. Gruber (ETH), C. Schär (Chair, ETH), H. Wernli (ETH).

Organizing Committee: R. Buri, D. Lüthi (ETH), T. Rutishauser, H. von Waldow (C2SM)

Website: http://www.c2sm.ethz.ch/Symposium_Water-Cycle

Program

Monday July 1, 2013

08:45 Registration

09:30 Opening – Isabelle Bey and Christoph Schär

09:40 Session 1: Global aspects

Chairman: Nicolas Gruber

09:40 *Keynote speaker:* Predicting the water cycle in a changing climate. A vision for the future based on a seamless and stochastic perspective, **Tim Palmer**

10:10 *Keynote speaker:* The water cycle in a changing climate: recent projections of large-scale changes, **Christoph Schär, Reto Knutti, Jan Sedlacek**

10:40 Coffee break

11:15 Physical Constraints on the Water Cycle and Precipitation, **Tapio Schneider**

11:30 Impact of cloud microphysics on climate sensitivity and the hydrological cycle, **Ulrike Lohmann, Sylvaine Ferrachat**

11:45 The Earth radiation balance as driver of the global hydrological cycle, **Martin Wild**

12:00 Tropical precipitation anomalies following the 1991 Pinatubo eruption, **Angela Meyer, Ulrike Lohmann, Thomas Peter**

12:15 Precipitation changes associated with shifts in North Atlantic teleconnectivity, **Flavio Lehner, Christoph C. Raible**

12:30 Elusive drought: Uncertainty of short- and long-term CMIP5 drought projections, **Boris Orłowsky, Sonia Seneviratne**

12:45 Lunch & Posters

Monday July 1, 2013

14:00 Session 2: Impacts

Chairman: Jürg Fuhrer

14:00 *Keynote speaker:* To what extent can we reduce climate change impacts on freshwater resources by climate mitigation?, [Petra Döll](#)

14:30 *Keynote speaker:* The impact of climate change on Swiss water resources and consequences for the production of hydro-electricity in the future, [Bruno Schädler](#)

15:00 Glacier Evolution and Runoff in a Changing Climate, [Andreas Bauder](#), [Martin Funk](#)

15:15 Snow variability in Switzerland, [Simon Scherrer](#), [Elias Zubler](#), [Mischa Croci-Maspoli](#), [Christian Wüthrich](#), [Rolf Weingartner](#), [Christof Appenzeller](#)

15:30 Coffee break

16:00 Robustness and uncertainties in future hydrological regimes of Swiss catchments, [Nans Addor](#), [Ole Rössler](#), [Nina Köplin](#), [Luzi Bernhard](#), [Thomas Bosshard](#), [Rolf Weingartner](#), [Jan Seibert](#)

16:15 Impact of the CH2011 climate scenarios on water resources - An estimate for Switzerland, [Luzi Bernhard](#), [Sven Kotlarski](#), [Massimiliano Zappa](#)

16:30 Water governance and management under increasing uncertainty: A case study from the Upper Rhône Basin, [Margot Hill](#), [Simone Fatichi](#), [Andrew Allan](#), [Jürg Fuhrer](#), [Markus Stoffel](#), [Franco Romero](#), [Ludovic Gaudard](#), [Paolo Burlando](#), [Martin Beniston](#), [Elena Xoplaki](#), [Andrea Toreti](#)

16:45 Impacts of climate change on ecological and economical functions of rivers in Central Europe - Experiences from the KLIWAS research program, [Enno Nilson](#), [Maria Carambia](#), [Bastian Klein](#), [Peter Krahe](#)

17:00 Posters & Drinks

18:00 Symposium Reception

Tuesday July 2, 2013

09:00 Session 3: Regional to local aspects

Chairman: Christof Appenzeller

09:00 *Keynote speaker:* Downscaling from global scales - how far down the regional to local scale can we go?, [Clare Goodess](#)

09:30 *Keynote speaker:* Understanding and modeling heat waves and droughts in the Euro-Mediterranean region, [Philippe Drobinski](#)

10:00 Forcing and evaluation of water-cycle models with observations: A new suite of spatial climate analyses for Switzerland, [Christoph Frei](#)

10:15 Evaluation of the cloud-resolving climate model approach, [Nikolina Ban](#), [Jürg Schmidli](#), [Christoph Schär](#)

10:30 Coffee break

11:00 Beyond CH2011: A closer look on the precipitation change signal over Switzerland, [Andreas Fischer](#), [Denise Keller](#), [Jan Rajczak](#), [Mark Liniger](#), [Christof Appenzeller](#)

11:15 Spatio-temporal downscaling of precipitation in regions of complex orography, [Roger Bordoy](#), [Paolo Burlando](#)

11:30 Boundary layer water vapor deuterium excess as a proxy for surface evaporation characteristics, [Franziska Aemisegger](#), [Stephan Pfahl](#), [Harald Sodemann](#), [Heini Wernli](#)

11:45 Impact of ocean mesoscale eddies on local rain, [Ivy Frenger](#), [David Byrne](#), [Nicolas Gruber](#), [Reto Knutti](#), [Matthias Münnich](#), [Lukas Papritz](#)

12:00 **Closure of the Symposium** – [Nicolas Gruber](#)

12:30 **End of the Symposium**

Posters

Session 1: Global aspects

- G1:** Modelling anthropogenic aerosol radiative impacts on oceanic surface energy fluxes, [Tanja Dallafior](#), [Doris Folini](#), [Ana Sesartic](#), [Martin Wild](#), [Reto Knutti](#)
- G2:** Modeling aerosol effects on 20th century climate: A consistent picture?, [Doris Folini](#), [Martin Wild](#)
- G3:** Impact of secondary organic aerosols on the equilibrium response of the climate system, [Gabriela Sousa Santos](#), [Isabelle Bey](#), [Ulrike Lohmann](#)
- G4:** Feedback of aerosol processing in clouds on cloud water path and lifetime, [David Neubauer](#), [Ulrike Lohmann](#), [Corina Hoose](#), [Grazia Frontoso](#)
- G5:** Warm conveyor belts in a global climate model with a complex representation of aerosol-cloud interactions, [Kasja Witlox](#), [Hanna Joos](#), [Ulrike Lohmann](#), [Heini Wernli](#)
- G6:** The impact of ocean boundary conditions on the aerosol climate response in ECHAM5-HAM and CAM-Oslo, [Anna Lewinschal](#), [Gabriela Sousa Santos](#), [Annica Ekman](#), [Isabelle Bey](#)
- G7:** The role of cyclones and fronts for Southern Ocean precipitation and its variability, [Lukas Papritz](#), [Stephan Pfahl](#), [Irina Rudeva](#), [Ian Simmonds](#), [Harald Sodemann](#), [Heini Wernli](#)
- G8:** Lower tropospheric humidity: Climatology, trends and the relation to the ITCZ, [Alexander Läderach](#), [Christoph Raible](#)
- G9:** The influence of orographic stationary Rossby waves on precipitation climatology and on the erosion of large scale topography, [Robert Wills](#), [Tapio Schneider](#)
- G10:** Investigating changes in dryness by a comprehensive synthesis of available data sets, [Peter Greve](#), [Boris Orłowski](#), [Sonia Seneviratne](#)
- G11:** Towards a coherent framework for evaluating Lagrangian evaporative moisture source diagnostics, [Harald Sodemann](#)
- G12:** Predictability of changes in precipitation on different time scales and their impacts, [Irina Mahlstein](#)

Session 2: Impacts

- I1:** Half of the world's population affected by changes in the water cycle by the end of the century, [Jan Sedlacek](#), [Reto Knutti](#)
- I2:** Propagation of climate change effects on water resources across the catchment: The upper Rhone case study, [Simone Fatichi](#), [S. Rimkus](#), [Paolo Burlando](#), [R. Bordoy](#), [P. Molnar](#)
- I3:** Impact of input data on distributed hydrologic modeling under future climate change scenarios, [Bahareh Kamali](#), [Jamshid Mousavi](#), [Karim Abbaspour](#), [Hong Yang](#)
- I4:** The impacts of a climate-dependent parameterization of a conceptual hydrological model on discharge projections, [Silviya Nikolova](#), [Nans Addor](#), [Jan Seibert](#)
- I5:** An approach for transient consideration of forest change in hydrological impact studies, [Massimiliano Zappa](#), [Paul Schattan](#), [Heike Lischke](#), [Luzi Bernhard](#), [Esther Thürig](#), [Bernd Diekkrüger](#)
- I6:** Implications of climate change scenarios for agriculture in alpine regions – A case study in the Swiss Rhone catchment, [Jürg Fuhrer](#), [Pascal Smith](#), [Andreas Gobiet](#)
- I7:** Optimizing agricultural land management for climate change adaptation – A multi-functional approach, [Tommy Klein](#), [Annelie Holzkämper](#), [Pierluigi Calanca](#), [Jürg Fuhrer](#)
- I8:** Determination of processes causing the climate change signal in the surface water temperature of Lake Constance, [Gabriel Fink](#), [Martin Schmid](#), [Bernd Wahl](#), [Thomas Wolf](#), [Alfred Wüest](#)

Session 3: Regional to local aspects

- R1:** Extending water vapor trend observations over Boulder into the tropopause region: trend uncertainties and resulting radiative forcing, [Anne Kunz](#), [Rolf Müller](#), [Viktoria Homonnai](#), [Imre Janosi](#), [Dale Hurst](#), [Alexandru Rap](#), [Piers M. Forster](#), [Franz Rohrer](#), [Nicole Spelten](#), [Martin Riese](#)
- R2:** Precipitation forcing fields for the Alpine region: Methods and insights from a new transnational dataset, [Francesco Isotta](#), [David Masson](#), [Christoph Frei](#)
- R3:** A 2000-year long seasonally resolved record of floods in the Southern European Alps: An indication for future flood occurrence, [Stefanie Wirth](#), [Adrian Gilli](#), [Anaëlle Simonneau](#), [Daniel Ariztegui](#), [Boris Vannière](#), [Lukas Glur](#), [Emmanuel Chapron](#), [Michel Magny](#), [Flavio Anselmetti](#)
- R4:** Modeling future climatic time-series according to climate change scenarios, [Fabio Oriani](#), [Julien Straubhaar](#), [Philippe Renard](#), [Grégoire Mariethoz](#)
- R5:** Using soil moisture forecasts for sub-seasonal summer temperature predictions in Europe, [René Orth](#), [Sonia Seneviratne](#)
- R6:** Do land parameters matter in large-scale hydrological modeling? [Lukas Gudmundsson](#), [Sonia Seneviratne](#)
- R7:** On the predictability of hydrological droughts with a conceptual model, [Maria Staudinger](#), [Jan Seibert](#)
- R8:** 21st century climate change in Europe and the Alps: First results from a EURO-CORDEX COSMO-CLM ensemble, [Sven Kotlarski](#), [Goran Georgievski](#), [Klaus Keuler](#), [Nico Kröner](#), [Daniel Lüthi](#), [Christoph Schär](#)
- R9:** COSMO-NExT, the future short-range NWP system of MeteoSwiss, [Marco Arpagaus](#), [Petra Baumann](#), [Jean-Marie Bettems](#), [Oliver Fuhrer](#), [Daliah Maurer](#), [Martina Messmer](#), [Sandy Moody](#), [Pirmin Kaufmann](#), [Michael Keller](#), [Daniel Leuenberger](#), [Guy de Morsier](#), [Anne Roches](#), [Jürg Schmidli](#), [Francis Schubiger](#), [Philippe Steiner](#), [André Walser](#)
- R10:** Evaluation of cloud-resolving simulations of summer convection with SEVIRI and GERB satellite data, [Michael Keller](#), [Oliver Fuhrer](#), [Jürg Schmidli](#), [Reto Stöckli](#), [Christoph Schär](#)
- R11:** Does increased RCM resolution lead to a better representation of heavy precipitation?, [Ana Casanueva](#), [Jan Rajczak](#), [Sven Kotlarski](#), [Sixto Herrera](#), [Jesùs Fernández](#), [José Manuel Gutiérrez](#), [Christoph Schär](#)
- R12:** Sensitivity of extreme precipitation events in Switzerland to moisture variations – Simulations with the high-resolution numerical model COSMO, [Nicolas Piaget](#), [Felix Naef](#), [Heini Wernli](#)
- R13:** Climatology of extreme hourly precipitation in Switzerland, [Sophie Fukutome](#), [Mark Liniger](#), [Maria Süveges](#)
- R14:** Projections of extreme precipitation events in regional climate simulations for Europe and the Alpine region, [Jan Rajczak](#), [Pardeep Pall](#), [Christoph Schär](#)
- R15:** Stochastic modeling of future precipitation fields for Switzerland, [Denise Keller](#), [Andreas Fischer](#), [Mark Liniger](#), [Christof Appenzeller](#), [Reto Knutti](#)
- R16:** Assessment of future snow pack in two Alpine regions, [Sebastian Schlögl](#), [Christoph Marty](#), [Mathias Bavay](#), [Michael Lehning](#)
- R17:** The role of Mediterranean cyclones for producing large-scale wind and precipitation extremes, [Shira Raveh-Rubin](#), [Heini Wernli](#)
- R18:** Seasonal Evaporation Variability in the South Atlantic, [David Byrne](#), [Ivy Frenger](#), [Lukas Papritz](#), [Matthias Münnich](#), [Nicolas Gruber](#)
- R19:** Sea ice freshwater fluxes: An underestimated driver of the Southern Ocean water cycle and its recent changes, [Alexander Haumann](#), [Ivy Frenger](#), [Matthias Münnich](#), [Nicolas Gruber](#)

Personal notes



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Eidgenössisches Departement des Innern EDI
Bundesamt für Meteorologie und Klimatologie
MeteoSchweiz



Materials Science & Technology



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Eidgenössisches Departement für
Wirtschaft, Bildung und Forschung WBF
Agroscope

Contact

Center for Climate Systems Modeling (C2SM)

Dr. Isabelle Bey

Executive director

ETH Zurich

Universitätstrasse 16

8092 Zurich, Switzerland

+41 44 632 79 15

isabelle.bey@env.ethz.ch

www.c2sm.ethz.ch