



EGU 2008

Hydrological Sciences Business Meeting

Wednesday April 16, 2008

Alberto Montanari
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Agenda EGU08 HS

1. Welcome by the Division President
2. Foreword by the EGU President
3. Agenda
4. Report on the election of the EGU President
5. Report on the 2007/2008 Division activities
6. Scientific Programme of the EGU Assembly 2009
7. Sub-divisions
8. Candidates for Division positions, Division Awards and Medals for 2009.
9. Division Publications and Editor Awards
10. Any other business



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European Geosciences Union (EGU)

Report on the election of the EGU President 2009-2010

- The President Elect of EGU is involved in the Council for 4 years
- The election of the President takes place every 2 years. Last election was in Dec 2007-Jan 2008. Next election will be in Dec 2009. Current President-Elect is Tuija Pulkkinen (Finland).
- With about 8000 people attending the EGU meeting and about 2800 members, only 363 voted for the election of the President.
 - Pulkkinen 184
 - Dingwell 179
- Need to assure more participation at the Union and Division elections. Please become a EGU member, please take the time to vote.
- To be a member and to participate to the life of the Union is important in order to assure a better development of HS.



European Geosciences Union (EGU)

How to become an EGU member

- Membership can be applied for on the EGU web site (http://www.copernicus.org/EGU/membership-and_subscriptions_statement.html).
 - Regular membership: 20 euros.
 - Student membership: 10 euros.
- Membership is free for anyone purchasing on COSIS for an amount of 100 euros or more. However, it is mandatory to return the invitation and to mark „Yes – I accept the invitation for a free membership in the EGU for this year“. Please do it!
- NEW: Members are kindly requested to indicate their affiliation to up to three Divisions of the Union. **Please affiliate to HS.**



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EGU 08 - Hydrological Sciences papers

Total number of HS papers (only HS-led sessions)

2004 650 papers

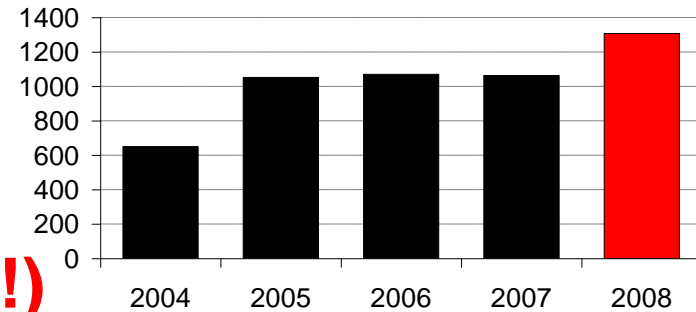
2005 1052 papers

2006 1070 papers

2007 1063 papers

2008 **1307** **papers (!)**

Total number of papers submitted at HS-led sessions



HS is the first division of EGU2008

Congratulations to all the conveners. Many thanks to all of you

2008: 44 HS sessions + 5 IS sessions lead by HS

papers

avg. papers per session

Orals

406

8.2

Posters

901

17.3

Total

1307

25.5



Preliminary 2008 programme

- 71 Session in the call for papers

Thoughtful discussions during programme preparation and finalisation

- 49 Sessions in the final programme

Statistics on submitted abstracts

1307 abstracts submitted to hydrology division

46 sessions with more than 14 abstracts (1 block)

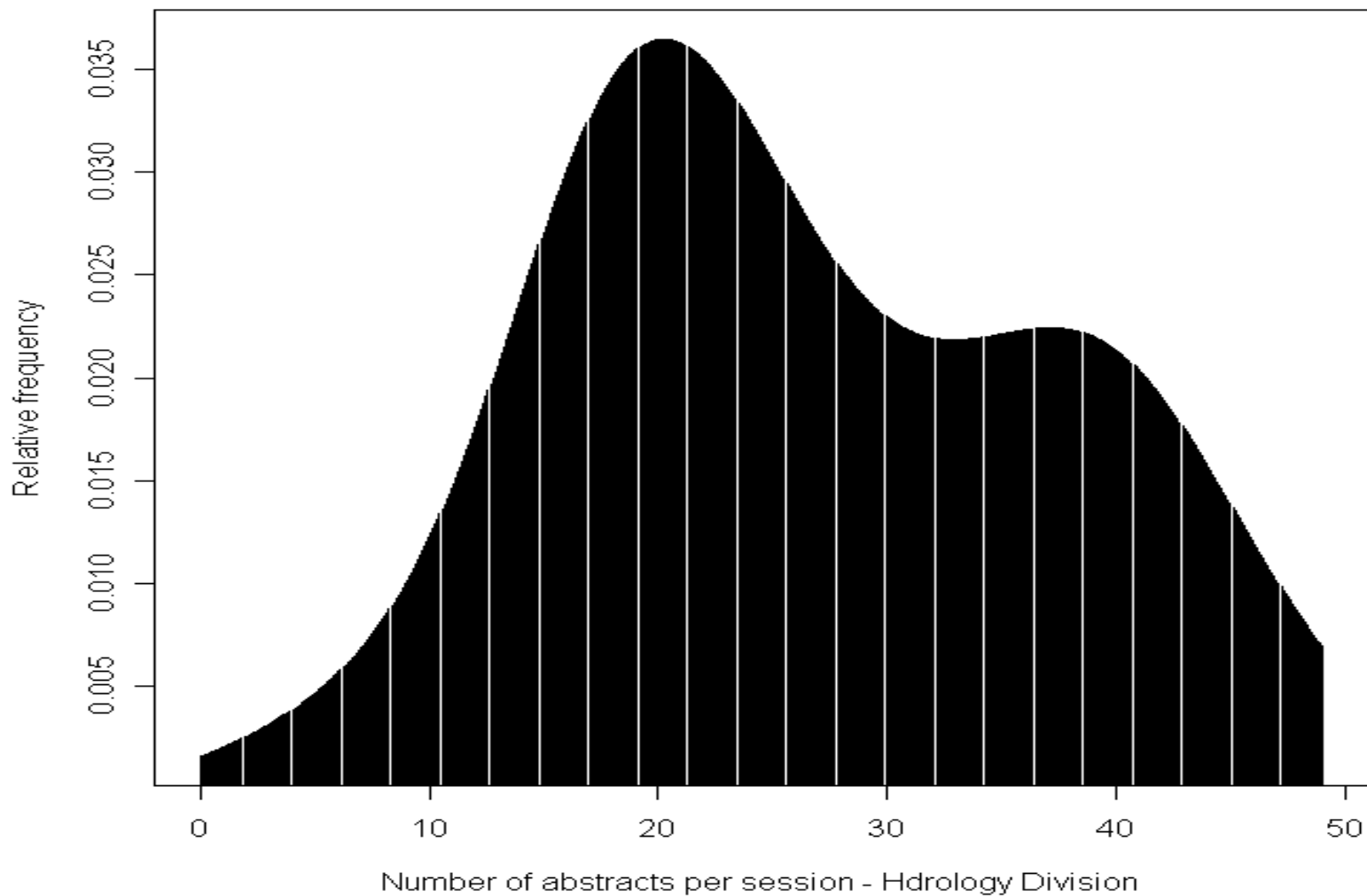
30 sessions with more than 20 abstracts

21 sessions with more than 27 abstracts (2 blocks)

10 sessions with more than 38 abstracts

2 sessions with more than 47 abstracts (3 blocks)

Frequency distribution of number of submitted abstracts





EGU08 – Scheduling

Criteria

- Avoid overlap among similar topics
- Conveners' requests (all satisfied!).
- Poster sessions scheduled after oral blocks
- Uniform distribution of poster sessions during week
- Minimise overlap among divisions
- Rotation of topics scheduled on Monday and Friday
- Posters clustered in the 5th block

Constraints

- Number of time blocks and rooms
- Schedule poster after orals (not possible on Friday)

IS sessions

- Worked well – Good cooperation among divisions (requires a relevant effort)



Hydrological Sciences

Young Scientists Outstanding Poster Paper award (YSOPP)

Thanks to Andreas Güntner,
outgoing HS coordinator of YSOPP.

Welcome to Thom Boogard, next HS coordinator
Congratulations to Andreas Güntner, assuming the
role of YSOPP coordinator at the EGU level





YSOPP

Young Scientists' Outstanding Poster Paper Award

Coordinators for HS:

Andreas Güntner

GeoForschungsZentrum Potsdam, Germany

Thom Bogaard

Delft University of Technology, Netherlands



Hydrological Sciences

Young Scientists Outstanding Poster Paper award (YSOPP)

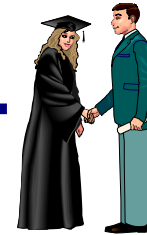
coordinator: Andreas Güntner / Thom Bogaard

- Procedure
- Presentation of awards for 2007 conference

Other divisions have followed the Hydrology
Example



YSOPP procedure



Participating posters:

- EGU 2005: 40
- EGU 2006: 78
- EGU 2007: 24
- EGU 2008: 49



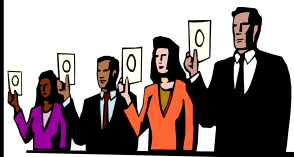
Top 1 to 3 posters:
YSOPP winners



Ranking based on
evaluation by the judges



Poster evaluation
(scientific, presentation, discussion)



4 judges per poster assigned by
convener and coordinator

Registration by PhD student after acceptance of abstract



YSOPP – for the award winners

Short presentation at the EGU web site

Free conference access to next EGU Assembly

Invitation for a paper in HESS, free of page charges

YSOPP 2007 winners

Tomonori Kume (not present)
 Kasuya Research Forest
 Kyushu University
 Sasaguri Fukuoka 811-2415
 Japan



Impacts of soil drought on transpiration in a tropical evergreen forest in northern Thailand

○Kume T (Kyushu Univ.), Takizawa H, Yoshifuji N, Tanaka K (FRCGC), Teatsahin C (Kasetsart Univ. 🇹🇭), Tanaka N, Suzuki M. (Tokyo Univ. 🇯🇵)

1. Introduction

- Tropical seasonal forests in Southeast Asia have considerable impacts on global and regional water cycling (Kanae et al. 2001. J Hydromet; Mabuchi et al. 2005. J Clim).
- Drying trends have been pointed out in this region resulting from marginal decrease in rainfall and greater frequency of ENSO (Mehi & Wright 2004. Phil Trans R Soc Lond B).
- To clarify a possible impact on ecophysiological processes of severe drought in tropical seasonal forests,

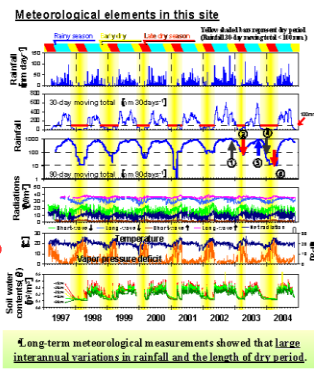
1. Sap flow and water potential measurements was conducted in larger and smaller sized trees in a hill evergreen forest in two years with long-term meteorological and soil moisture measurements.
2. Size-related impacts of soil drought resulting from inter-annual variations in rainfall on transpiration were examined.

2. Materials & Methods

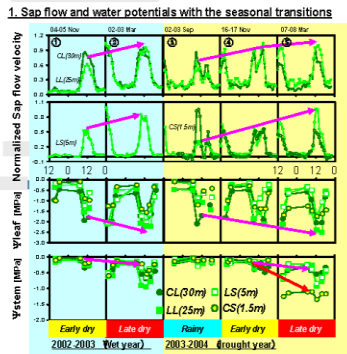
Materials: *Cinnamomum porrectum* (CL:30, and CS:1.5 m) *Litocarpus elegans* (LL:25, and LS:5 m) in a hill evergreen forest near ChiangMai City in Thailand under monsoonal influences.



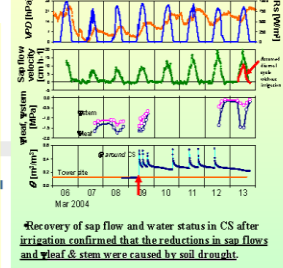
Measurements:
 Leaf and stem water potential measurements (Ψ_{leaf} , Ψ_{stem}) by pressure chamber were conducted in the rainy, the early and the late dry seasons in 2003, 2004, total five times.
 Sap flow measurements by heat-pulse method or stem heat balance method were conducted simultaneously.
 Meteorological and soil moisture measurements were also conducted. In addition, we performed partial irrigation!



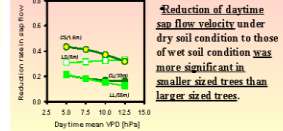
3. Results



2. Recovery of water status in CS after irrigation



3. Size-related impacts of soil drought



4. Discussion & Conclusions

● The apparent impacts of soil drought were not detected in the late dry season in wet year.

● The impacts of soil drought were more significant in a sapling than larger sized trees in the drought year.

● Intensive Selective cutting in this forest might cause

- Saplings would be exposed to higher atmospheric evaporative demand.
- Saplings would also suffer from severe soil drought in prolonged dry seasons.
- Fatal leaf desiccation or dysfunction.
- These might possibly cause an irreversible change in forest structure and species composition.

● Deeper roots could be a reason for reduced impacts of soil drought.

● Shallower roots could be a reason for significant decrease in water use.

● Saplings shaded by upper canopy trees might survive even in severe drought year.

Measured rootable soil depth: 4.5 m

Late dry 2003 (Wet year): $\Psi_{soil} > -0.1 \sim -0.2$ MPa

Late dry 2004 (Drought): $\Psi_{soil} > -0.1 \sim -0.2$ MPa

YSOPP 2007 winners

Christian Schmidt

Department of Hydrogeology

Helmholtz Centre for Environmental Research - UFZ

Permoserstraße 15

04318 Leipzig / Germany



Quantification of water fluxes at the stream-groundwater interface using mapped streambed temperatures

Christian Schmidt, Marti Bayer-Raich, Mario Schirmer
UFZ-Helmholtz-Centre for Environmental Research, Department of Hydrogeology, Leipzig, Germany, christian.schmidt@ufz.de

1 Introduction and Objective

The quantification of water fluxes through the streambed with fine spatial resolution on a large scale can be crucial to understanding near-stream flow dynamics and accurately assessing the distribution of contaminant transport across the groundwater/surface-water interface.

The objective of our study was to develop a methodology to determine the magnitude of groundwater discharge with fine spatial resolution along a reach of a stream. We show that streambed temperatures can be used to delineate patterns of groundwater discharge to a stream and to quantify the water fluxes in fine detail on the scale of stream reaches with lengths of hundreds of metres.

2 Basic Concept

The horizontal and vertical temperature distribution in the streambed is a result of heat transport by the flowing water (advective heat flow) and by heat conduction through the sediment grains and the pore water (conductive heat flow) of the saturated sediments. On the basis of mapped streambed temperature profiles, the vertical water fluxes through the streambed can be quantified. For example, in summer, relatively low streambed temperatures are related to groundwater discharge zones.

3 Field Methods and Analytic Procedure

■ Streambed temperature mapping
The streambed temperatures were measured by temporarily inserting a multilevel stainless steel temperature probe with attached data logger to a depth of 0.5 m along longitudinal transects. Along the probe five temperature sensors are placed in a way that the temperatures are simultaneously measured at 0.1 m, 0.15 m, 0.2 m 0.3 m and 0.5 m below the streambed surface.

■ Analytic procedure
We applied a simple steady-state analytical solution of the one-dimensional heat diffusion-advection equation to quantify water fluxes for each temperature profile (Bredheeff and Papadopoulos, 1965):

$$\frac{T(z) - T_s}{T_s - T_0} = \exp\left(\frac{-q \cdot D \cdot z^2}{K_s \cdot L}\right) - 1$$

The vertical Darcy velocity q is obtained at each temperature profile by minimizing the error between the observed and modeled temperatures.

4 Field Application Schachtgraben, Wolfen, Germany - Reach Length 220m - Summer

The Schachtgraben is a main-made stream at the edge of the forested regime. It is characterized by a diffuse groundwater contribution with a variety of organic, inorganic and nutrient-enriched sediments. To understand degradation and sorption processes in the streambed it is crucial to characterize the flow patterns between groundwater and stream water.

5 Field Application Schaugraben, Falkenberg, Germany - Reach Length 750m - Winter

The Schaugraben is a small stream that drains an agricultural used catchment. The discharging nitrate-rich groundwater influences the nitrogen dynamic in the channel. The quantification of the water fluxes is crucial for understanding the nitrate transport and turnover in the catchment.

6 Our Message

Mapping temperature gradients between the aquifer and the surface water is a simple and effective method to investigate flow patterns at the groundwater-surface water interface with high spatial resolution on the scale of stream reaches.

Selected References: Bredheeff, J.J. and Papadopoulos, I.S. (1965) Rate of Vertical Convective Movement Estimated from the Earth's Thermal Profile. *Water Resources Research* 1(2), 325-328.

Conant, S. (2004) Delineating and quantifying ground water discharge zones using streambed temperatures. *Groundwater* 42(2), 242-257.

Lehmann, W. Use of Temperature Profiles to Assess the Dominant Rate of Vertical Ground Water and Vertical Porewater Convection. USGS water supply paper 2237, 1969, USGS.

Rehder, C., Bayer-Raich, M., Schirmer, M. (2006) Characterization and quantification of groundwater-stream water interactions using multiple depth streambed temperature measurements at the reach scale. *Hydro. Earth Syst. Sci.* 10(6), 843-850.

Acknowledgements:

This work was supported by the European Union FP6 Integrated Project AquaTerra (Project no. 526420) under the thematic priority "Sustainable Development, Global Change and Ecosystems".



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6th EGU Assembly: Vienna, April 2009

Organising sessions

- Meeting in Vienna (but EGU is planning to move in 2010)
- Programme should be clear
- Minimise duplication of and overlap among sessions
- Rotation of topics and conveners
- One visionary session
- Encourage *poster only* sessions
- Open forum in splinter meeting rooms



Parallel orals/posters?

2007 business meeting: 4 oral blocks/day

2008: poster sessions clustered in the fifth time block, in order to allow people to attend the oral sessions

2009: 4 or 5 oral blocks?

My suggestion: 4 oral blocks with poster in the fifth block



EGU HS 2009 programme

It's better not to increase the number of sessions anymore – **Our first priority is the clarity of the programme.**

But....

- Do we need to dedicate more attention to some topics? Please feel free to suggest and volunteer to organise sessions.
- Sessions which do not reach a minimum number of papers (18/20) are merged or scheduled as poster only.
- Conveners should be motivated to enlarge our community
- **Let's be even more opened to young scientists!**



Approximate schedule of EGU 2009 programme preparation

- **May:** preparation of skeleton programme by subdivisions.
- **Mid of June:** publication of the skeleton programme on the web – open call for sessions.
- **September:** finalisation of the programme by subdivision chairs and EGU programme committee.
- Please contact the relevant subdivision chair if you would like to propose a session for EGU 2009.



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Subdivisions to:

- screen all session proposals
- merge proposals as appropriate

- Please join the HS subdivisions if you are interested in being involved in the session planning

- Please submit session proposals to the relevant chair



HS open Subdivisions

Precipitation & climate: D. Koutsoyiannis (chair)

Catchment hydrology: J. Seibert (chair)

Erosion, sedimentation & river processes: F. Gallart (chair)

Estuaries, wetlands & eco-hydrology: F. Laio (chair)

Unsaturated zone: W. Durner (chair)

Groundwater: E. Zechner (chair)

Remote sensing & data assimilation: W. Wagner (chair)

Water Policy & management: N. van de Giesen (chair)

Hydroinformatics: D. Solomatine (B. Abrahart from May 2008, chair)

Hydrological forecasting: J. Szolgay (chair)



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HS MEDALS

- Dalton Medal 2008 awardee: M. Kirkby
- Darcy Medal 2008 awardee: H.H.G. Savenije

Medal Committees:

President, Past president (chair), past three medalists

Call for proposals:

G. Bloeschl (bloeschl@hydro.tuwien.ac.at)



CANDIDATES FOR HS POSITIONS

- Candidates for the Division presidency (2-year term, max 2 terms).
Proposals to be sent to the EGU President Gerald Ganssen (gerald.ganssen@falw.vu.nl) by September 1.
- Candidates for:
 - Division scientific programme chair (A. Montanari)
 - Division outreach chair (G. Bloeschl)
 - Division publications chair (H. Savenije)

The EGU Council recommends to the division to nominate the officers above in order to reduce the duties of the Division President.



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Hydrology and Earth System Sciences
An Interactive Open Access Journal of the European Geosciences Union

EGU Hydrological Sciences Division Journal

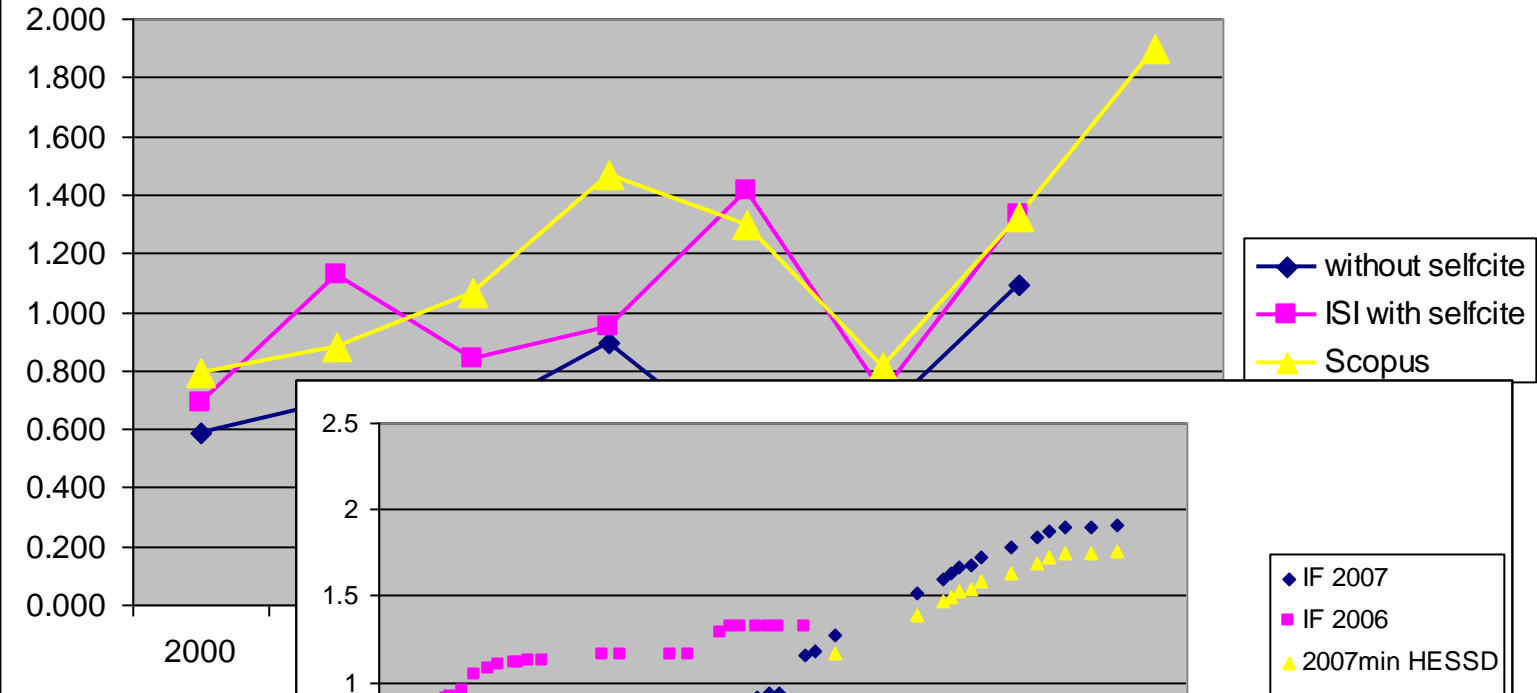
*Hydrology and Earth System
Sciences (HESS)
electronic*

Executive Editors:

Hubert Savenije, Murugesu Sivapalan, Jesus Carrera

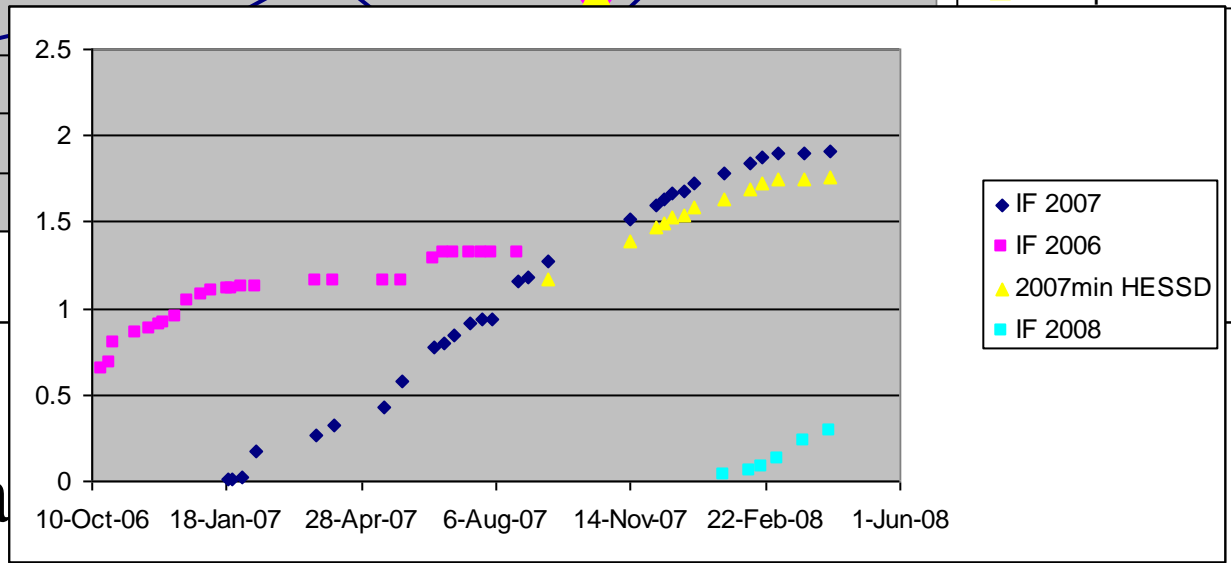
HYDROLOGICAL SCIENCES

HESS Impact Factor



days

• Impa



0



Hydrology and Earth System Sciences (HESS)

- Outstanding Editor Award
Proposed by the HS Division – Assigned for the first time in 2008 to honour two outstanding Editors of HESS



Hydrology and Earth System Sciences

An Interactive Open Access Journal of the European Geosciences Union

2008 HESS OUTSTANDING EDITOR AWARD



Prof. Dr. Nunzio Romano

In recognition of his excellent service
as Editor of
Hydrology and Earth System Sciences
in the period 2005 - 2007

2008 HESS OUTSTANDING EDITOR AWARD



Prof. Dr. Kurt Roth

In recognition of his excellent service
as Executive Editor of
Hydrology and Earth System Sciences
in the period 2005 - 2007



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Other business

Topical conference in 2009?

*EGU promotes the organisation of
Topical Conferences*

Should we organise a Topical Conference focusing on hydrology in Autumn 2009? Ideal attendance: 70-150 people

Please send any proposal to:
alberto.montanari@unibo.it
by May 31st, 2008

