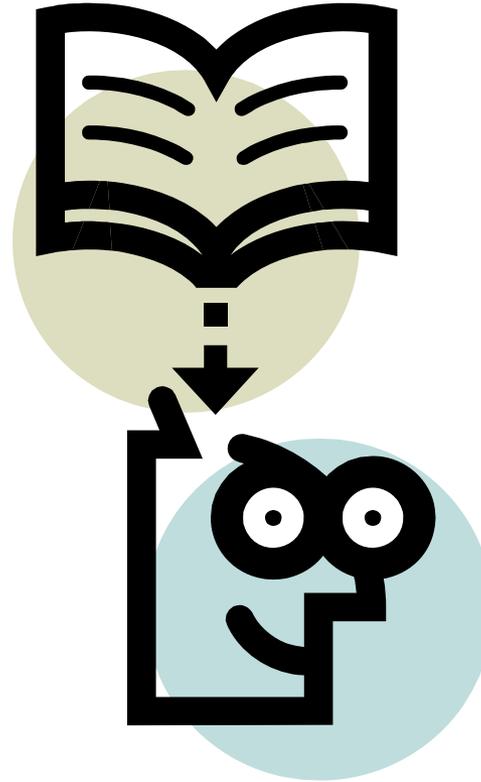


How to publish



Jeff McDonnell

Dept. Forest Engineering, Resources and Mgmt.

Oregon State University



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A quick recap of previous comments on publishing

- It's your only portable currency
- Key prerequisite for getting a job
- Main factor in promotion and tenure decisions
- Misc. other things we've discussed:
 - Write PhD papers sequentially and submit as they are finished (so simple yet so seldom done)
 - Consider writing a review paper as part of your set of PhD papers (can yield very high citation stats)
 - Publish in the best journals possible where work will be recognized and read
 - Develop a PhD brand identity
 - Do comment/reply on something recently published
 - Be careful about special issues



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Outline for this talk

- How journals work
- Paper writing 101
- Reviews and reviewing
- Wrap-up



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How Journals Work



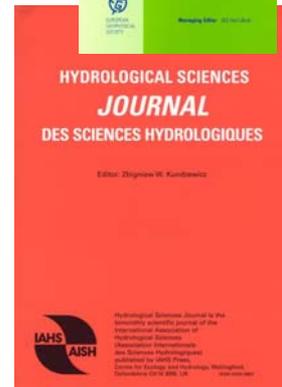
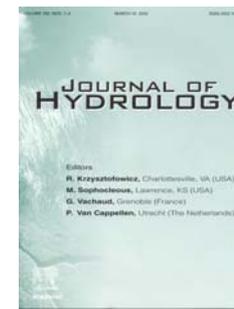
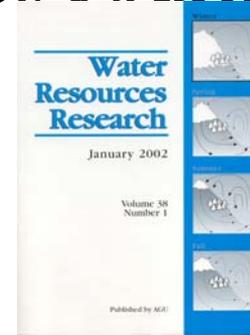
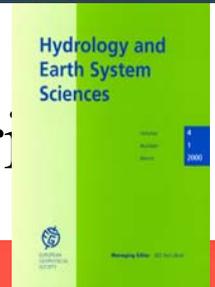
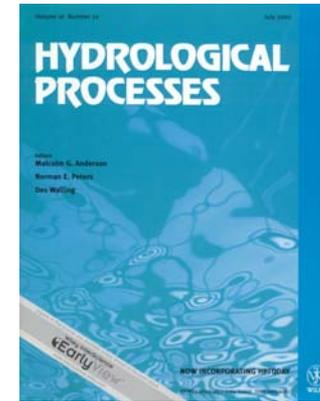
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How journals work

a few of the ones that I've had experience with

- Hydrological Processes
- Water Resources Research
- Journal of Hydrology
- Hydrology and Earth System Science
- ASCE Journal of Hydrologic Engineering
- Hydrological Sciences Journal
- Ecohydrology



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ISI Web of Knowledge

Journal Citation Index

10 Sept. 2008

- ~60 journals on the list
- Statistics
 - Impact factor
 - Immediacy Index
 - Articles published per year
 - Half-life
- How to view these stats
 - Exact numbers not so important
 - They change!
 - Top quartile important
- Key factoids for a P&T dossier:
 - JoH top impact factor in Civil engineering grouping
 - Etc (know these for your P&T dossier!)



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Top 10 info



Journal	Impact factor	Half-life
• Water Research	• 3.427	• 6.9
• HESS	• 2.270	• 4.7
• Journal of Hydrology	• 2.161	• 8.1
• Water Resources Research	• 2.154	• >10.0
• J Contam. Hydrol.	• 1.852	• 7.0
• Adv. Water Resources	• 1.817	• 5.6
• Hydrological Proc.	• 1.798	• 6.1
• Irrig. Sci.	• 1.797	• 9.5
• Env. Toxicology	• 1.728	• 5.4
• Hydrol. Sci. J.	• 1.604	• 6.5

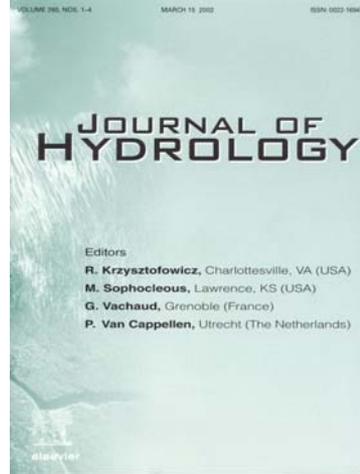


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Journal Organizational Structure

e.g. Journal of Hydrology, pre-Jan 2008



- The publisher
 - This person's role and power
 - Their objectives, their worries, \$\$\$\$\$\$
- Journal Editors
 - How they are appointed
 - What power do they have
 - Their concerns: Wait times! Impact Factor
- Associate Editors
 - How reviews are managed
- How it's all coordinated
 - Meetings to discuss progress
- A note on “the old days” when Nash was Editor

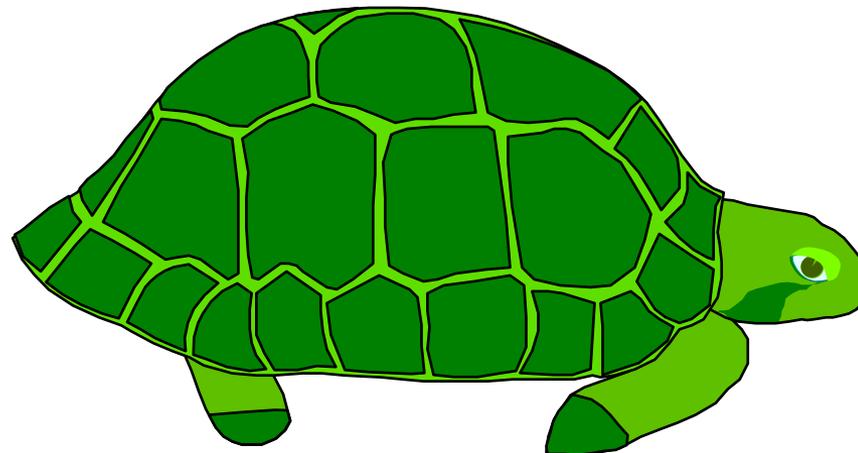
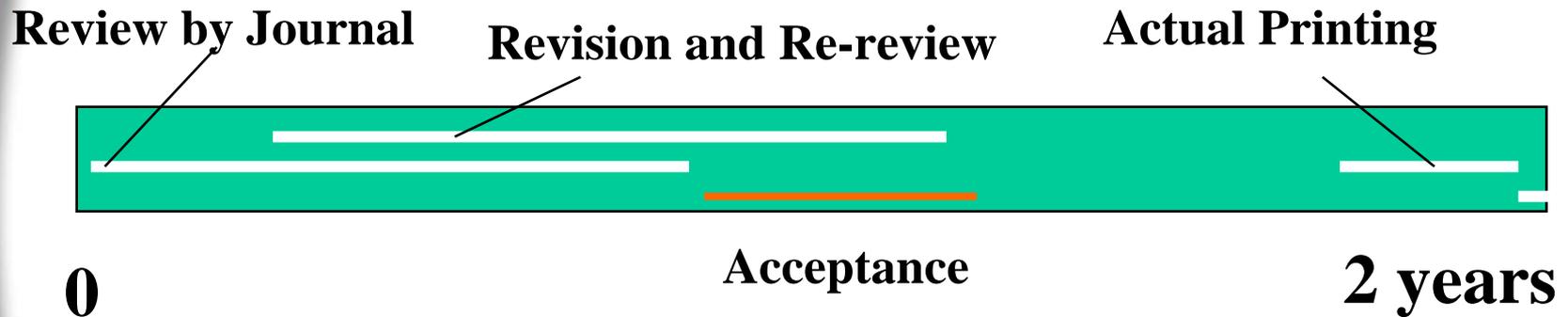


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Typical Time-Line After Submittal

very different for open source journals!



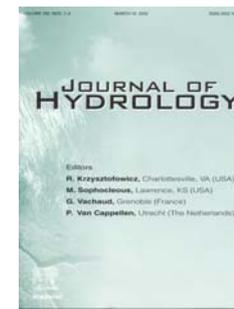
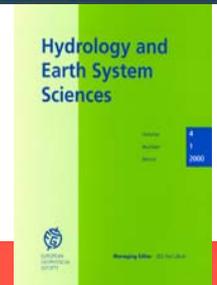
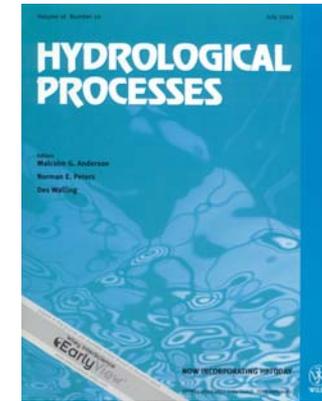
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Types of papers

- Review papers
- Regular submissions
- Data notes
- Invited Commentary
- Comment/Reply
- Technical Note
- Letters



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What you are striving for

sadly, most papers are not even cited!

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select your interest

Earth and Planetary Sciences

Journal of Hydrology

browse top 25 archive

Current April - June 2008

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Top 25 Hottest Articles

Earth and Planetary Sciences > Journal of Hydrology
April - June 2008

RSS Blog This! Colab Print Show condensed

- Assessing the impacts of climate change on the water resources of the Seyhan River Basin in Turkey: Use of dynamically downscaled data for hydrologic simulations**
Journal of Hydrology, Volume 353, Issue 1-2, May 2008, Pages 33-48
Fujihara, Y.; Tanaka, K.; Watanabe, T.; Nagano, T.; Kojiri, T.
- Spatial and temporal variability of precipitation maxima during 1960-2005 in the Yangtze River basin and possible association with large-scale circulation**
Journal of Hydrology, Volume 353, Issue 3-4, May 2008, Pages 215-227
Zhang, Q.; Xu, C.Y.; Zhang, Z.; Chen, Y.D.; Liu, C.I.; Lin, H.
- Impact of summer droughts on the water quality of the Meuse river**
Journal of Hydrology, Volume 353, Issue 1-2, May 2008, Pages 1-17
van Vliet, M.T.H.; Zwolsman, J.J.G.
- So just why would a modeller choose to be incoherent?**
Journal of Hydrology, Volume 354, Issue 1-4, June 2008, Pages 15-32
Beven, K.J.; Smith, P.J.; Freer, J.E.
Cited by Scopus (2)
- Development and application of the integrated SWAT-MODFLOW model**
Journal of Hydrology, Volume 356, Issue 1-2, July 2008, Pages 1-16
Kim, N.W.; Chung, I.M.; Won, Y.S.; Arnold, J.G.
- Modelling the water balance of a mesoscale catchment basin using remotely sensed land cover data**
Journal of Hydrology, Volume 353, Issue 3-4, May 2008, Pages 322-334
Montzka, C.; Canty, M.; Kunkel, R.; Menz, G.; Vereecken, H.; Wendland, F.
Cited by Scopus (1)
- Multivariate statistical analysis of geochemical data as indicative of the hydrogeochemical evolution of groundwater in a sedimentary rock aquifer system**
Journal of Hydrology, Volume 353, Issue 3-4, May 2008, Pages 294-313



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The facts



- Most papers are never cited!
 - A good paper in hydrology is cited 25 times
 - A great paper is cited 50 times
 - A benchmark paper is cited 100+ times
- Why are papers not cited?
 - Not well written
 - Weak science
 - Message not clear
 - Conclusions not supported by evidence
- In this electronic age, title now more important!
 - Check out the most-downloaded papers at HP and JoH



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A success story

Keith Beven, Lancaster Univ



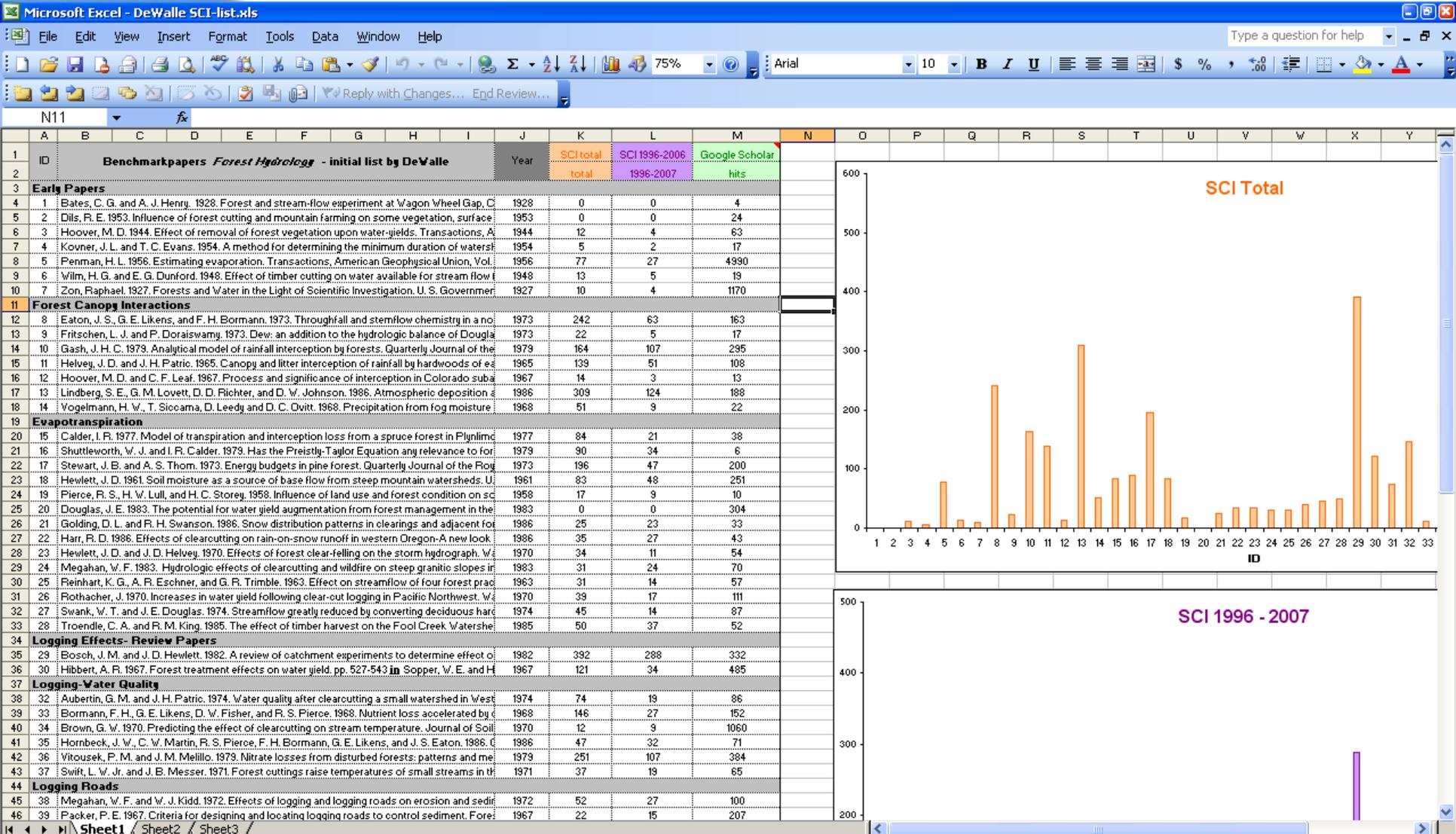
- Why is he the world's most cited hydrologist?
 - when there are so many other brilliant hydrologists out there?
 - Writing clarity (and very compelling)
 - Knows literature better than anyone
 - Writing theme(s) and core area
 - Uncanny knack to read where the field is headed
 - Pushes the field in new directions
 - Intellectual trailblazer



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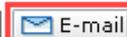
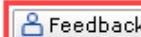
Citation stats of Benchmark Papers



H-Index

Dingwell, Donald B.

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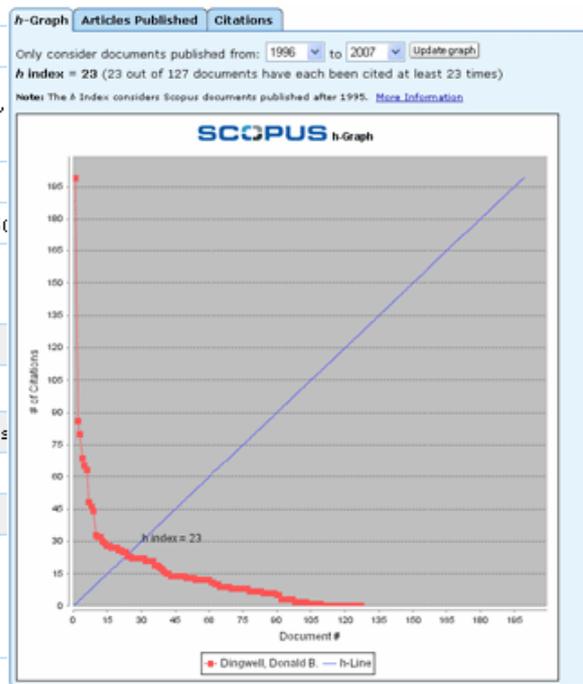
Personal

Name	Dingwell, Donald B.
Other formats	Dingwell, Don B. Dingwell, D. Dingwell, Donald Dingwell, D. B.
Author ID	7005060998
Affiliation	University of Munich, Department of Earth and Environmental Science

Research

Documents	187		Add to list
Cited By	1598		Citation tracker
<i>h</i> Index	23		<i>h</i> Index The <i>h</i> Index considers Scopus articles published
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From The Scopus Team [ScopusTeam@mail.elsevier-alerts.com]

How to write a paper



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A scientific paper tells a story!!

- You need a problem or something to catch the reader's attention
- You need a plot
- You need resolution of the problem at the end of the story.



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From Don Siegel

THE #1 NEW YORK TIMES BESTSELLER
**MONICA'S
STORY**



**ANDREW
MORTON**
Bestselling Author of *Diana: Her True Story*

A topdown approach

- Start with a story board approach much like a Hollywood writer would pitch a movie script to a director/producer
- Develop an outline with headings and subheadings
- Iterate on this many times, adding sub-sub-headings
- Identify key figures to tell the story
- Fill in the outline further
- Make writing assignments to co-authors
 - A divide and conquer approach
- Do not start any writing until
 - the outline is rock-solid,
 - figures are made
 - Subheadings = paragraph topics



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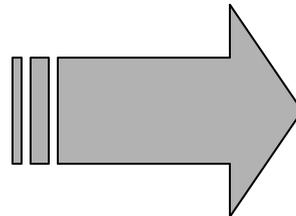
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An example

Round 1

Round 1

- Title
- Abstract
- Introduction
- Study Site
- Methods
- Results
- Discussion
- Conclusions
- References



Round 2: Introduction

- Importance of MRT
- Inability to measure
- Few studies to date (cite large and small rivers)
- New discoveries in MRT: L/G, soil controls as per Aberdeen workshop
- The Vitvar et al . technique
 - Untested
 - But if it could work.....
- Objectives
 - Test recession analysis vs MRT
 - Advantage of HJA multiple MRT, common soil char, extreme seasonality

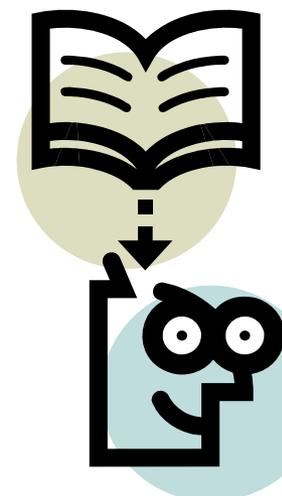


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Top-down approach

- Iterate on the headings and subheadings (Rounds 3-....)
- Iterate on many alternative title alternatives
- Figures
 - HJA location
 - Shank map analysis
 - MRT bar chart
 - Flow hydrograph with fit
 - Soil depth vs MRT-derived flow volumes
- Tables
 - Vitvar method catchment stats:
 - Sensitivity analysis numbers
 - Soil depth stuff?



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Knowing the literature

- Critical for framing your study in the first place!
- Valuable for Introduction and building to your objectives
- Essential for validating your questions
 - That no one else has already done this!
 - That these are the obvious “next step” questions to be addressed
- Important for Discussion—to define the relevance of your study vis-à-vis other work
 - How did you add incrementally to new knowledge

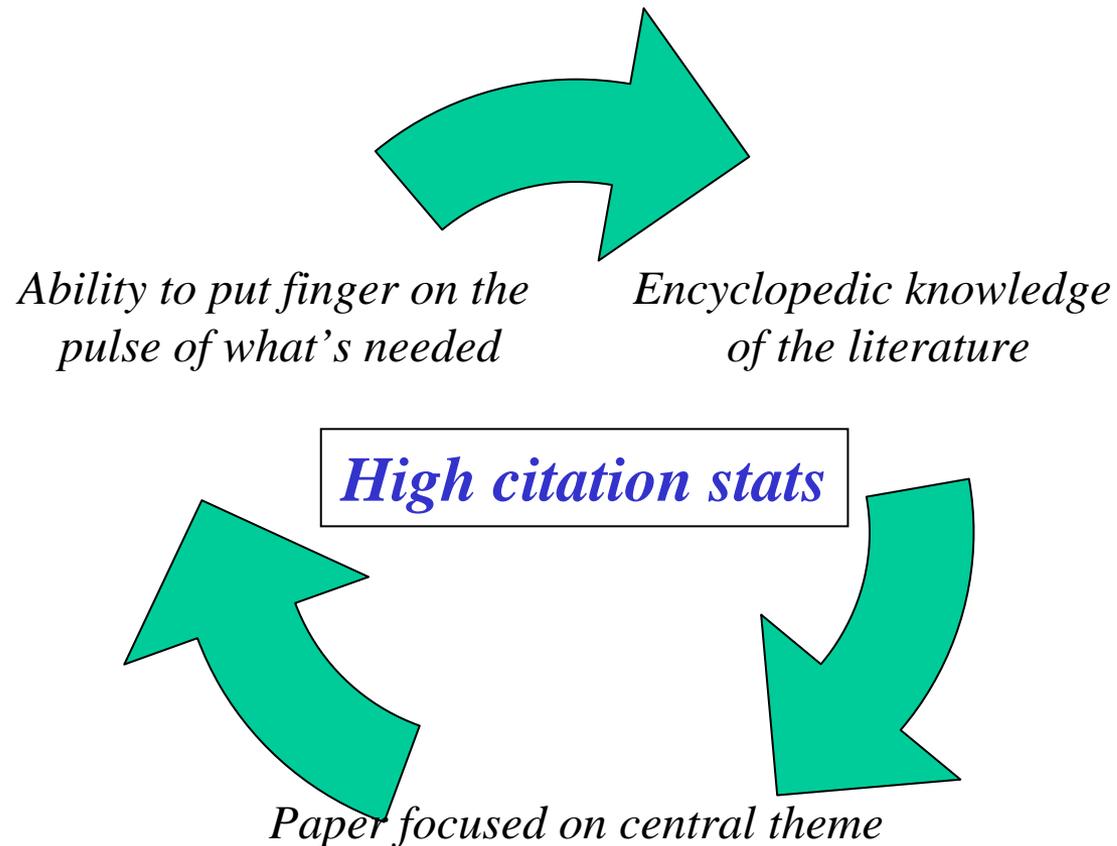


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A tightly coupled paper “success” loop



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Attributes of the best papers

- Resolve a controversy
- Separate Results and Discussion sections
- Discussion with sub-headings as questions
- Introduction builds to central questions
- All roads lead to central question
- Hypotheses/research questions crystal clear and results flow from these questions



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Paper structure and relative level of writing difficulty

- Title (difficult)
- Abstract (difficult)
- Introduction (Most difficult)
- Study Area or Background (easy)
- Methods (easy)
- Results (easy—just the facts)
- Discussion (Second-most difficult)
- Conclusions (easy)

From Don Siegel



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The Introduction

Explains the problem..

- Needs a “snappy” lead sentence to catch the reader’s attention. *Runoff processes on tile drained fields are poorly known.*
- Need to state up front what is the status quo, then what’s wrong with the status quo and then how your questions posed are the obvious way forward to go beyond the status quo
- Another way is to think of defining what we know, what we think we know, what we need to know.



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Introduction 'cont

- Very important to tie to the literature
- Use past studies as set-up for your work
- Objectives must flow from the set-up
- Reader must believe that these are THE obvious questions to ask for this point in time for the sub-discipline



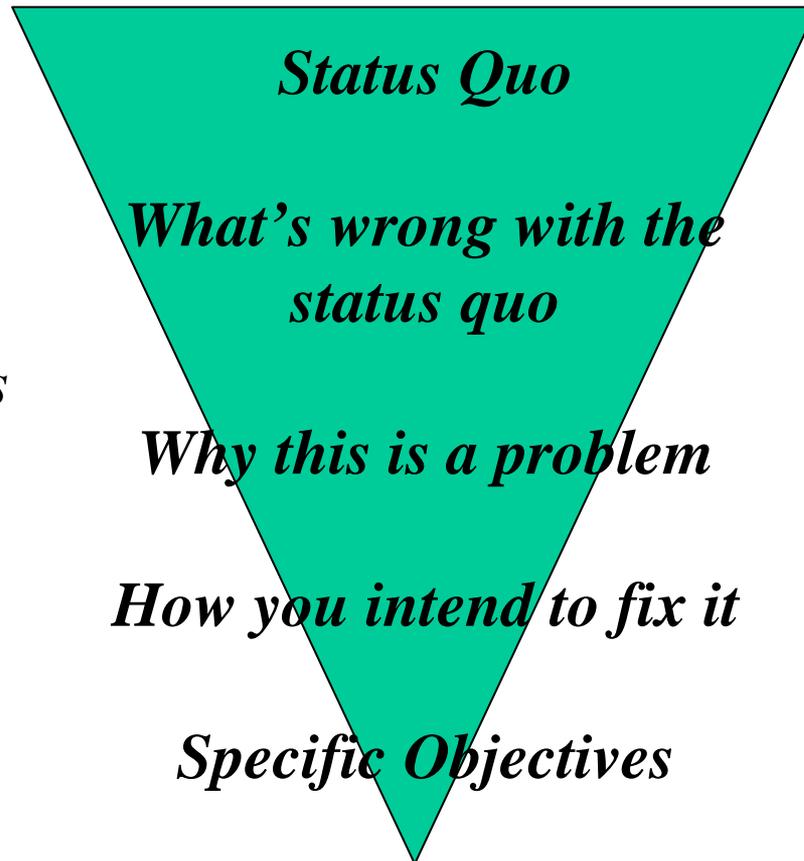
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Introduction

...as an inverted pyramid



*Very general
References*



*Very specific
references*

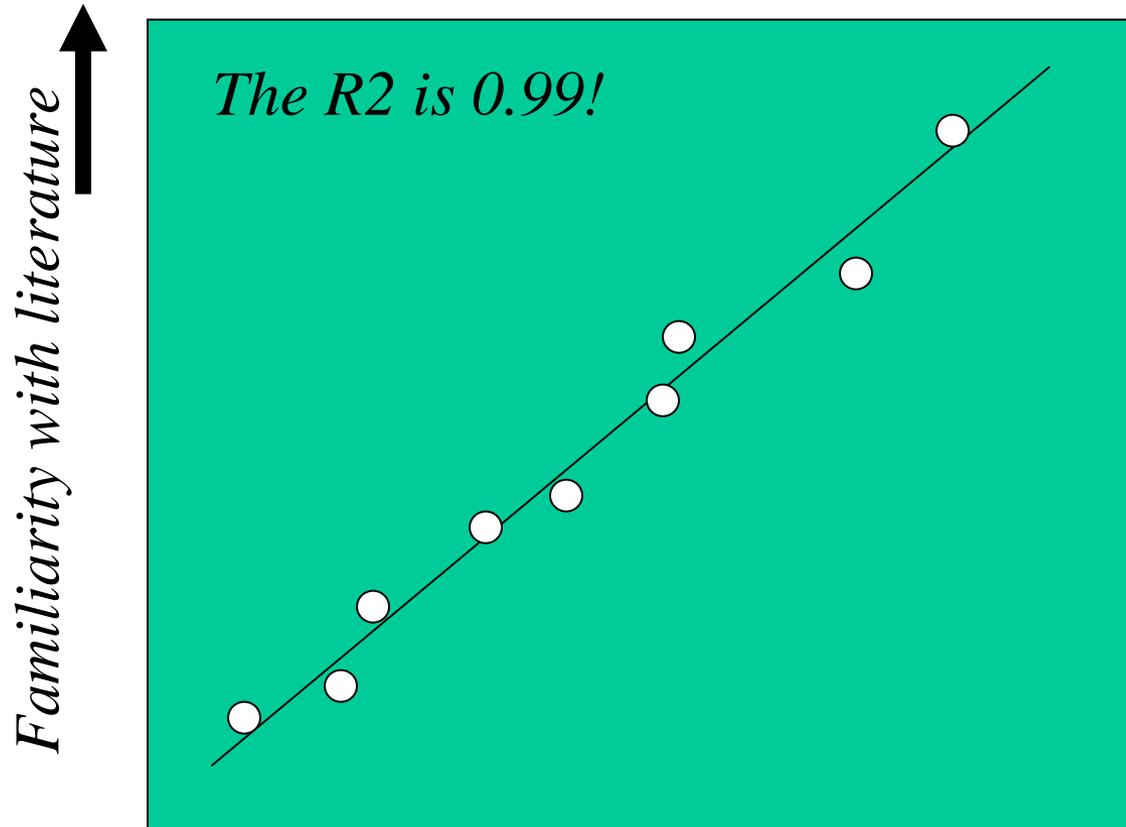
*# of references
increases*



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The reading-publishing connection



Ease and speed of writing
Impact of paper published
Citeability



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Discussion

- Presents the “WHY” and “HOW” of the story
- Includes how work agrees (or disagrees) with work of others.
- Easiest if structured around questions (as sub-headings)
- Good examples
 - Anderson et al 1997 WRR



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A bit on writing style

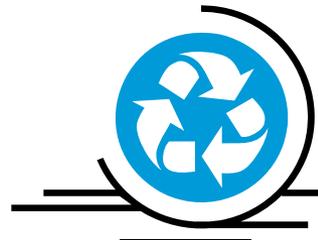
- Write in the active tense instead of passive tense: “We collected samples of blah...” instead of “Samples of blah were collected...”
- Avoid all jargon if at all possible. Never assume the reader knows any jargon.
- Write in simple sentences
- Subject and verb up-front in all sentences
- You can use personal pronouns: “We sampled...”



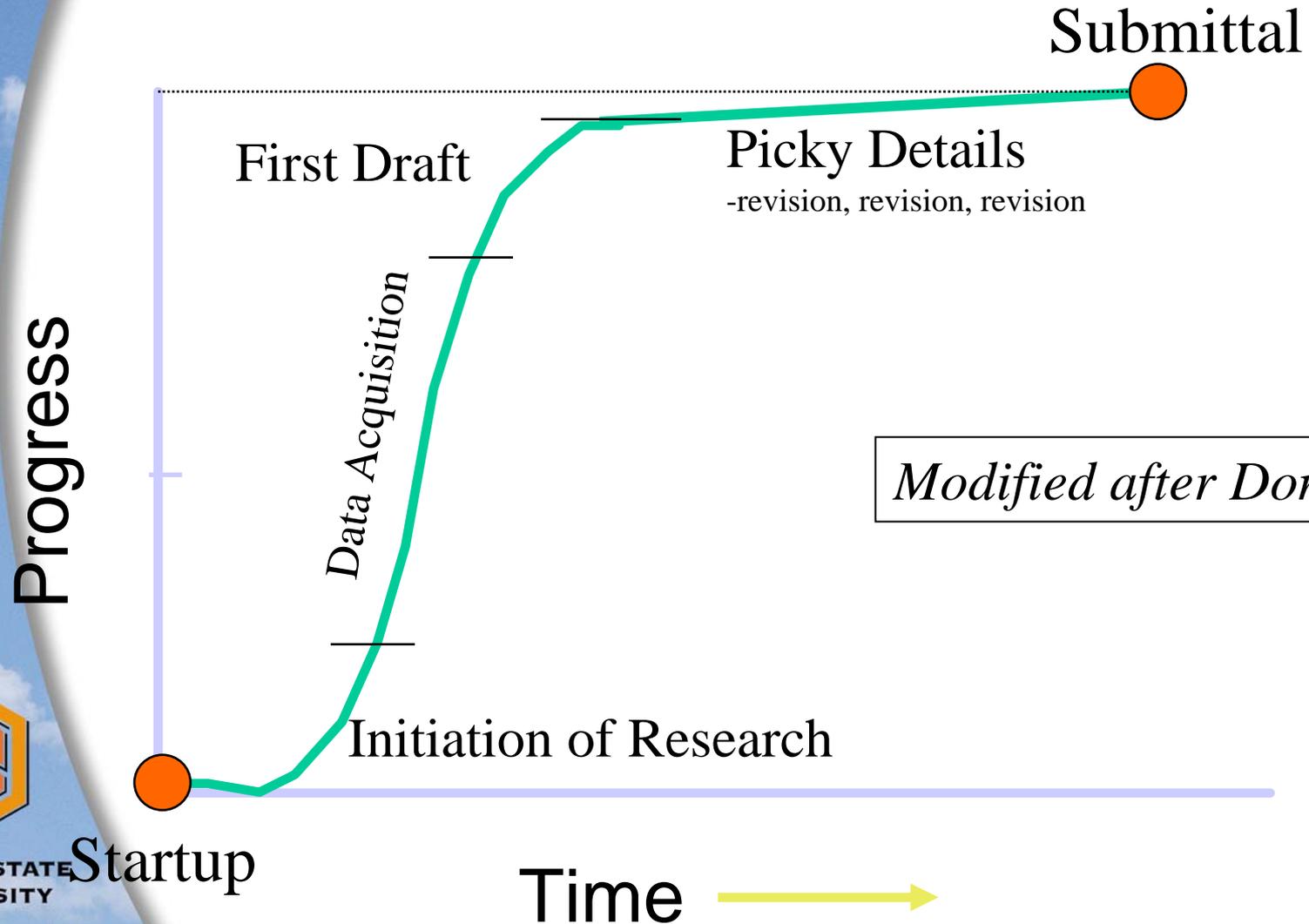
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Typical Paper Writing Timeline



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Reviews and reviewing



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The Reviewer

- A busy scientist with too many demands on her/his time.
- Will compare yours with the 2 or 3 others that they are currently reviewing
- Will read it in 60 min or less
- Will compose her review in less than 30 min



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Therefore, the paper must be extraordinarily well written

The Editor

- Will always side with the most critical review
- Risk intolerant
- Overwhelmed with papers
 - E.g. WRR 900+ submissions per year back when I was AE



What reviewers are asked

Referee reports

- Is original
- Is methodologically sound
- Follows appropriate ethical guidelines
- Has results which are clearly presented and support the conclusions
- Correctly references previous relevant work

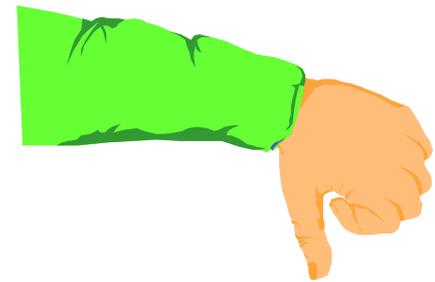
Need to:

- Anticipate review issues before submission
- Sometime finesse review comments



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Responding to reviews

- **At best, minor revision required (rare)**
- **Usually, more major revision**
 - Sometimes a re-review, sometimes a then rejection
 - Don't give up!
- **Sometimes outright rejection**
 - Don't give up!
- **Write a polite, appreciative letter back to the editor outlining the changes made**
 - Don't give up
- **Speed and detail in responding to review comments directly proportional to ultimate acceptance**
 - Don't give up



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Did I mention?

• Don't give up!

– Do not give up if rejected!!!!

- The Beven and Kirkby paper was rejected from JoH in 1978 as being “only of local interest”!
- HSJ was the outlet for the rejected paper
- Now one of the most cited papers of all time in catchment hydrology



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What an Editor might say

EDITOR'S REPORT

4- Major revision requested following reviewers' recommendations, with subsequent re-evaluation by reviewer #1

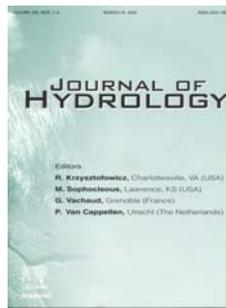
This manuscript contains some interesting material, but it should be considerably revised and fully rewritten before being acceptable for publication in this journal. In terms of editorial point of view, it suffers of the fact that it is by far too long with respect to its scientific interest and should be restructured as a short technical note. In terms of scientific point of view, the great weakness of the study is the lack of reliable alternative measurement of soil moisture. Due to the lack of information concerning calibration and resolution of the fairly confidential "Aqua-pro" system (I was unable to find any information on this device) and to the lack of absolute value of soil water content (no one with a background in soil physics would relate on "profile average soil moisture" higher than 50%..) results given in this manuscript are purely descriptive. Furthermore the discussion concerning the effect of measurement frequency on depth resolution is far from being convincing. Besides those two basic problems, both reviewers did a set of very thorough comments to help authors to improve their publication. I hope they will be in measure to resubmit accordingly.

.....and two more pages.....



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What you will be asked

Dear Dr. McDonnell,

I am writing with regard to the review of Mean recharge times and chemical modelling for transfers of mineral and Thermal multi-layered aquifers (Montrond-les-bains, Eastern Massif Central, France) (Dr ch renac). You agreed to review this article on .

I appreciate that your workload may not have enabled you to give this manuscript your consideration, but we would be grateful if you could let us know whether you could read this article and perhaps return a review in the near future. Critical refereeing is vital for ensuring the quality of the articles that we publish, and your input to this end would be gratefully received; we appreciate the work that the reviewers conduct for the journal.

Therefore I would be grateful if you would submit your review as soon as possible at <http://ees.elsevier.com/hydro/>.

Your username is: JMCDONNELL

Your password is: jmcdonnell

With kind regards,

*Dr. P. Bhattacharya
Associate Editor
Journal of Hydrology*



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answering their questions

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Corrected this to Garen and Marks, 2005.
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checking your words: critical!

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ARTICLE IN PRESS

No. of Pages 14, Model 6+

Assessing the controls of the snow energy balance and water available for runoff in a rain-on-snow environment 5

216	(Link and Marks, 1999a), Turkey (Şensoy et al., 2006) and	276
217	the Pacific Northwest (Marks et al., 1998; Marks and Winst-	277
218	ral, 2002; Van Heeswijk et al., 1996). The spatially distrib-	278
219	uted version (SNOBAL) has been successfully applied to the	279
220	Boise River Basin (Garen and Marks, 2005), the Wasatch	280
221	Range in Utah (Susong et al., 1999), the Boreal Ecosystem-	281
222	Atmosphere Study (Link and Marks, 1999b), the California	282
223	Sierra Nevada (Marks et al., 1999a), the Reynolds Creek	283
224	Experimental Watershed (Marks and Winstal, 2001; Winst-	284
225	ral and Marks, 2002) and the central Washington Cascades	285
226	(Mazurkiewicz, 2006). SNOBAL is a utility built in the Image	286
227	Processing Workbench (IPW) (Frew, 1990; Marks et al.,	287
228	1999b). The software operates in a UNIX environment with	288
229	a command line interface. In addition to SNOBAL, IPW util-	289
230	ities were used to calculate thermal radiation, relative	290
231	humidity to vapor pressure conversions and clear sky solar	291
232	radiation (Marks et al., 1999b).	292
233	SNOBAL forcing data	293
234	The required forcing data for the model are net solar radi-	294
235	ation, incoming thermal radiation, air temperature, precipi-	295
236	tation, wind speed, vapor pressure and ground	296
237	temperature. These forcing data were processed at 3-h	297
238	intervals for model runs.	298
239	Solar	299
240	The model requires net incoming shortwave radiation data	300
241	(0.3–2.8 μm), which were generated from each station's	301
242	measured incoming solar radiation. In order to account for	302
243	reflected shortwave radiation, a modeling approach was ta-	303
244	ken because direct measurements of albedo were not made	304

face albedo. This algorithm was derived to reduce the snow albedo over a 14-day period to a lower limit of 0.6 for visible and 0.4 for NIR wavelengths, an approach similar to that of Garen and Marks (2005). The coefficients in Eq. (2) were developed by calculating a logarithmic decay for snow albedo from unity to 0.6 for the visible spectral range over the 14-day period.

This approach was evaluated and compared to other published albedo decay models, to identify discrepancies in model performance and to see the effects of different albedo modeling decay approaches on the annual snow energy budget summary. Garen and Marks (2005) applied a square root decay function with lower limits for the visible and NIR, modeled from peak snow pack to melt out. Link and Marks (1999a) used a linear decay function from peak snow pack to melt out. These two approaches were applied to the UPLMET WY1996 dataset.

Longwave radiation (thermal) radiation (2.8–100 μm) was the only forcing parameter not measured directly at the climate stations. Longwave radiation input was estimated using a three-step process (Garen and Marks, 2005; Susong et al., 1999). First, clear sky longwave radiation was calculated following the Brutsaert method with the IPW command *trad* (Marks and Dozier, 1979). This technique used air temperature, vapor pressure and elevation to approximate downwelling atmospheric thermal radiation during clear sky conditions. An adjustment of thermal radiation was required in order to account for incoming longwave radiation from low, dense clouds which are common during winters in the PNW. A cloud cover factor was calculated using the



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How I review a paper

- Read it with a pencil in my hand
- Circle sections where comments are needed
- Number sequentially each section
- Following reading (same day!), go back to numbered areas and write-up comments
 - Spelling/grammar
 - Substantive
 - General
- Review has a beginning paragraph that starts with praiseworthy aspects of paper then segues with a “these favorable comments notwithstanding” ...
 - Then bullets with page/line numbers
- Summary paragraph ending with proposed fate of paper
- First WRR review took me >8 hr



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Wrap-up



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Why we publish

- You want to **write a paper that is cited**
- You want your **ideas to influence others**
- The very best papers impact other fields (but this is very rare)
- To do this:
 - Publish in the best possible journal
 - Write a paper that will *set the world on fire*
 - Do not give up if rejected!!!!



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On co-authorship

- Always err on the side of inclusiveness rather than exclusiveness
- Remember the AGU motto
- Person taking the lead on writing usually goes first
- Student usually first
- Number of authors on the paper inversely proportional to the workload of the senior author



Other questions you may have

- How to decide on appropriate # of publishable units
- Two part papers?
- Special issues?
- Self citation (see commentary by Mary Anderson in Groundwater)
- How much reviewing should you do
 - 3 reviews for every paper you publish
- Other?



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Conclusions

- Publishing
 - It is an obligation to your science
 - It is an obligation to your funder
 - If English is your first language, then you are very lucky indeed—you have no excuses
- Follow the topdown formula and it will make life much easier
- Practice helps a lot (your 3rd paper from your PhD thesis always has less redmarks than the first)
- Write when you feel inspired—don't force it.
 - Try a daily early morning writing hour



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