Being a Responsible Author and Reviewer

Brooks Hanson
Director, Publications AGU
bhanson@agu.org
Peer review and scientific publications are:

• A shared **scientific and societal** responsibility among researchers, reviewers, editors, and publishers.

• A fundamental aspect of the integrity and accountability of science, as well as it’s advancement.

• Increasingly important in societal uses, and this role is codified.
The *Daubert* standard is a rule regarding the admissibility of expert witnesses' testimony in legal proceedings (1993)

The Supreme Court of the US defined as criteria for assessing expert scientific testimony:

1. Empirical testing: the theory or technique must be falsifiable, refutable, and testable.

2. **Subjected to peer review and publication**.

3. Known or potential error rate.

4. The existence and maintenance of standards and controls concerning its operation.

5. Degree to which the theory and technique is generally accepted by a relevant scientific community.
California Proposition 8 Decision


Kristin M. **PERRY**, Sandra B. Stier, Paul T. Katami and Jeffrey J. Zarrillo, Plaintiffs,

City and County of San Francisco, Plaintiff-Intervenor,

v.

Arnold **SCHWARZENEGGER**, in his official capacity as Governor of California; Edmund G. Brown Jr., in his official capacity as Attorney General of California; Mark B. Horton, in his official capacity as Director of the California Department of Public Health and State Registrar of Vital Statistics; Linette Scott, in her official capacity as Deputy Director of Health Information & Strategic Planning for the California Department of Public Health; Patrick O’Connell, in his official capacity as Clerk-Recorder of the County of Alameda; and Dean C. Logan, in his official capacity as Registrar-Recorder/County Clerk for the County of Los Angeles, Defendants,

Dennis Hollingsworth, Gail J. Knight, Martin F. Gutierrez, Hak-Shing William Tam, Mark A Jansson And Protectmarriage.Com—Yes On 8, A Project of California Renewal, as official proponents of Proposition 8, Defendant-Intervenors.

No. C 09-2292 VRW.

United States District Court, N.D. California.

August 4, 2010.

Mentions “peer-reviewed” 9 times and dismissed “expert-witness” testimony for defendants because publications were not peer-reviewed.
Opinion of the Court

NOTICE: This opinion is subject to formal revision before publication in the preliminary print of the United States Reports. Readers are requested to notify the Reporter of Decisions, Supreme Court of the United States, Washington, D.C. 20543, of any typographical or other formal errors, in order that corrections may be made before the preliminary print goes to press.

SUPREME COURT OF THE UNITED STATES

Nos. 10–9646 and 10–9647

EVAN MILLER, PETITIONER

v.

ALABAMA

ON WRIT OF CERTIORARI TO THE COURT OF CRIMINAL APPEALS OF ALABAMA

KUNTRELL JACKSON, PETITIONER

v.

RAY HOBBS, DIRECTOR, ARKANSAS DEPARTMENT OF CORRECTION

ON WRIT OF CERTIORARI TO THE SUPREME COURT OF ARKANSAS

[June 25, 2012]

JUSTICE KAGAN delivered the opinion of the Court.

The two 14-year-old offenders in these cases were convicted of murder and sentenced to life imprisonment without the possibility of parole. In neither case did the sentenc-
IPCC Mandate

The IPCC mandate is to assess, on a comprehensive, objective, open and transparent basis, the available scientific information in peer-reviewed literature.

Shelby Amendment/Data Quality Act (1999-2001)

Codified importance of peer review in justifying government regulations.
Some Important Resources

Many publishers have authorship and reviewing guidelines

http://publictions.agu.org
http://ethics.agu.org

Two other sessions on writing papers:
**TH33C:** How to author a scientific manuscript in geomorphology
**Wednesday,** 12:30-13:30, Moscone West-2006.
**Publishing Your Research,** Thursday, 12:30-13:30, Marriott Marquis- Salons 1 and 2.
What Editors Want

AN AUTHOR’S GUIDE TO SCIENTIFIC JOURNAL PUBLISHING

Philippa J. Benson & Susan C. Silver

Benson and Silver instruct readers on how to identify the journals that are most likely to publish a given paper, how to write an effective cover letter, how to avoid common pitfalls of the submission process, and how to effectively navigate the all-important peer review process, including dealing with revisions and rejection.

Available on Amazon
Free Resources Available Here:
http://serc.carleton.edu/NAGTWorkshops/index.html
Preparing for an Academic Career in the Geosciences

As you prepare to begin your career as a geoscience faculty member, you’re probably wondering how to land a job you’ll enjoy, as well as what you can do now to lay the groundwork for a successful career in academia. This page is a gateway to resources you can use to achieve your goals. This collection of resources is an outgrowth of the annual Preparing for an Academic Career in the Geosciences Workshops.

Laying the Foundation

The two articles listed below are written from the perspective that, to be successful, it helps to plan ahead. The articles outline a method for thinking about what you can do now to prepare for the next stage of your academic career.

- The Next-Stage Approach to Preparing for an Academic Career, from Rick Reis’ "Tomorrow’s Professor Mailing List."
- The Next Step: Using the Future to Motivate the Present, from Rick Reis’ "Tomorrow’s Professor Mailing List."

The Job Search

Define your job search and learn about the job search process, including applying, interviewing, and negotiating. If there are factors that make your job search unusual (you are part of a "dual career couple," or are GLBT, or have a disability), learn how other people like you have addressed that situation.

Preparing to Teach

Explore possible ways to get teaching experience, design the courses you will teach, plan your day-to-day teaching, and document your teaching strengths and accomplishments.

Moving Your Research Forward

Design a research plan suitable for the next career stage: get your current work published, find collaborators beyond your Ph.D. advisor, and think ahead to your next research project(s).

Preparing for an Academic Career Workshops

Each summer, we offer a multi-day workshop, designed specifically for graduate students and post-doctoral fellows who are interested in pursuing academic careers. Participants meet informally with other participants and with workshop leaders from a range of educational settings, share ideas and strategies for stress- and time-management, and develop a self-inventory of preferred options for the next career stage and a personal action plan. Session topics focus on becoming both a successful teacher and researcher. Find out about the 2015 workshop or read about previous workshops.
Preparing for an Academic Career in the Geosciences: Previous Workshops

Some of the presentations/materials in the workshop:

- How to write peer-reviewed papers while balancing teaching and research.
- Preparing for academic interviews.
- Finding and making the most of a post-doc on the path to an academic career.
- The academic job search.
- Writing your first research grant proposals.
- Setting up your research lab.
- Early career time management.
- Managing your career: Choices, balance, and action planning.
- Fostering a creative work environment for your graduate students.
- Finding and being a mentor.
- A practical strategy for designing effective and innovative courses.
- Developing undergraduate research projects.
- Strategic early career planning.
- Building collaborative relationships for research.
- Becoming a good departmental college/university citizen.
- Moving your research forward to new settings.
Responsible Authorship
Plan and prepare long before you submit—when you start your work

- Authorship—propose at the beginning of your work and discuss throughout. Keep records.
- Agree on authorship in writing (email).
- If you are a co-author, participate; meet your obligations.
- Data availability, samples, and curation—Think about these at the beginning of your work, before you start collecting data and samples.
Authorship

• Set expectations when you ask for or receive data or analyses in writing.
• Communicate with all authors fully.
• Share your knowledge fully when you agree to be an author. It is a partnership.
• Be responsible and timely—in edits and comments on a paper and in analyses.
• Follow authorship guidelines.
• You can communicate with editors!
Also...

• Make sure all authors have seen and approved the paper and agreed to be an author.
• It is unethical to submit your paper to more than one journal at a time—represent the novelty of your contribution fully at submission AND revision.
• Prepare your data early to be available at publication.
• Put your best package together (don’t hold back data).
• It can be OK to speculate/infer if the assumptions are identified and brief.
Some general guidelines:

- Treat others (authors, reviewers, editors) as you would like to be treated.
- Manuscripts, correspondence, and reviews are confidential. These are provided to you in good faith. Do not post reviews or make them public without permission.
- Being a co-author means sharing openly with your other authors, including other papers you are working on, and vice versa—set expectations.
- Act in mutual good faith.
Abuse of coauthorship:

Its implications for young scientists, and the role of journal editors

There are many kinds of coauthorship. Perhaps the healthiest is where all coauthors of a paper have shared in all phases of the gathering of alternative forcefully and directly to the practicing scientists in a way they cannot ignore.

One might ask, "Besides nominally defrauding the scientific community and indicating a lack of respect for the data and for science, what real harm does such honorary authorship cause?" I see at least two interrelated problems.

First, the honorary authors can do injustice to the real authors, who are presumably more junior in rank and status. The honorary authors reap an inflated bibliography; they parade a false depth and breadth of knowledge and research capability, as well as an illusion of productivity. Moreover, when it comes time for promotion, funding, awarding of honors, or other such peer-reviewed activities, these honorary authors receive unearned extra credit; they go to the top of the ladder and become the perceived leaders in the field.

Second, honorary authors who get undeserved credit and reach higher levels than they would otherwise will more rapidly join the scientific elite and become the cynosures. They and their behavioral patterns become the role models for success that the young may seek to emulate. Is this the outcome our society desires or can tolerate in the long run? I think not.

Journal editors have an important role to play in helping to break this undesirable pattern of events because, for most scientists, publication of technical articles in refereed journals is the most visible path to success. The abusive practice of honorary authorship could be substantially reduced by vigilant editorial perception. By judicious use of editorial imperatives, journal editors can promote more ethically acceptable role models for younger scientists and students. Editors are in a position to convey this to another. It is never too early to become concerned, yet never too late to start heading in the right direction.

ACKNOWLEDGMENTS
I thank Tom Dutro, Paul Barton, and Julian Hemley for their comments.

Suggested Further Reading
Greenberg, Dan, 1986, Fraud and the scientific method: New Scientist, November, p. 64.
Beyond authorship: attribution, contribution, collaboration, and credit

Project CRediT
(Contributor Roles Taxonomy)


http://casrai.org/CRediT

Amy Brand  Digital Science
Liz Allen  Wellcome Trust
Micah Altman  MIT Libraries
Marjorie Hlava  Access Innovations
Jo Scott  Wellcome Trust

Key points
- As the number of authors on scientific publications increases, ordered lists of author names are proving inadequate for the purposes of attribution and credit.
- A multi-stakeholder group has produced a contributor role taxonomy for use in scientific publications.
- Identifying specific contributions to published research will lead to appropriate credit, fewer author disputes, and fewer disincentives to collaboration and the sharing of data and code.
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Conceptualization</td>
<td>Ideas; formulation or evolution of overarching research goals and aims.</td>
</tr>
<tr>
<td>Methodology</td>
<td>Development or design of methodology; creation of models.</td>
</tr>
<tr>
<td>Software</td>
<td>Programming, software development; designing computer programs; implementation of the computer code and supporting algorithms; testing of existing code components.</td>
</tr>
<tr>
<td>Validation</td>
<td>Verification, whether as a part of the activity or separate, of the overall replication/reproducibility of results/experiments and other research outputs.</td>
</tr>
<tr>
<td>Formal Analysis</td>
<td>Application of statistical, mathematical, computational, or other formal techniques to analyse or synthesize study data.</td>
</tr>
<tr>
<td>Investigation</td>
<td>Conducting a research and investigation process, specifically performing the experiments, or data/evidence collection.</td>
</tr>
<tr>
<td>Resources</td>
<td>Provision of study materials, reagents, materials, patients, laboratory samples, animals, instrumentation, computing resources, or other analysis tools.</td>
</tr>
<tr>
<td>Data Curation</td>
<td>Management activities to annotate (produce metadata), scrub data and maintain research data (including software code, where it is necessary for interpreting the data itself) for initial use and later re-use.</td>
</tr>
<tr>
<td>Writing – Original Draft</td>
<td>Preparation, creation and/or presentation of the published work, specifically writing the initial draft (including substantive translation).</td>
</tr>
<tr>
<td>Writing – Review &amp; Editing</td>
<td>Preparation, creation and/or presentation of the published work by those from the original research group, specifically critical review, commentary or revision – including pre- or post-publication stages.</td>
</tr>
<tr>
<td>Visualization</td>
<td>Preparation, creation and/or presentation of the published work, specifically visualization/data presentation.</td>
</tr>
<tr>
<td>Supervision</td>
<td>Oversight and leadership responsibility for the research activity planning and execution, including mentorship external to the core team.</td>
</tr>
<tr>
<td>Project Administration</td>
<td>Management and coordination responsibility for the research activity planning and execution.</td>
</tr>
<tr>
<td>Funding Acquisition</td>
<td>Acquisition of the financial support for the project leading to this publication.</td>
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</table>
Notice to all authors upon submission

Dear Dr. XXXXX

You are listed as a coauthor on the above manuscript, which has recently been submitted to *Science*. According to *Science* policy, all authors must have seen and approved the submission of their manuscript. If you have seen the manuscript and approved its submission, no action is necessary.

If you have not read this paper and do not approve its submission to *Science*, please let us know as soon as possible. Please refer to the manuscript number listed above in any correspondence (you can just reply to this message).
Some representative responses:

• I had indicated to Dr. XXXXX that it was not necessary to include me as an author as all we did was provide a reagent.

• I cannot approve of this paper as I have not read it and as I did not know of its existence. Could you send me a copy of this text?

• Please remove my name from the list of authors.

• I do not approve of the submission of manuscript number 11xxxxx. I had serious issues with a prior version, which were not addressed in the present version.

• I have transmitted some concerns about Manuscript Number 11xxxx to my lawyer.
• Adverse responses about 1/week or 0.5% (despite warning on submission)

• Less at AGU but main problems have been similar authorship issues.
AGU Data Policy

AGU Position Statement (since 1997): Earth and Space Science Data Should Be Widely Accessible in Multiple Formats and Long-term Preservation of Data is an Integral Responsibility of Scientists and Sponsoring Institutions

• AGU Publications’ policy is the same as most other leading journals (see http://copdess.org ). Data related to a publication must be available.

• Data are part of the paper and should be widely accessible

• Prefer domain repositories, or if not available general repositories or supplements if absolutely necessary.

• Data used to generate or displayed in figures, graphs, plots, videos, animations, or tables in a paper should be deposited.

• New code/computer software used to generate results or analyses.

• No ‘unpublished’ or ‘in press’ references

• Cite or point to each data set in a repository as a reference (best practice and provides credit)
IGSN

• Globally unique and persistent identifier for physical samples in the Earth Sciences
  – guaranteed to be unique via a centralized control mechanism operated by IGSN e.V.
  – resolves to virtual sample representations (sample metadata profiles) managed at federated IGSN Allocating Agents.
Distinguish yourself in three easy steps

ORCID provides a persistent digital identifier that distinguishes you from every other researcher and, through integration in key research workflows such as manuscript and grant submission, supports automated linkages between you and your professional activities ensuring that your work is recognized. Find out more.

1. Register
   Get your unique ORCID identifier Register now!
   Registration takes 30 seconds.

2. Add your info
   Enhance your ORCID record with your professional information and link to your other identifiers (such as Scopus or ResearcherID or LinkedIn).

3. Use your ORCID ID
   Include your ORCID identifier on your Webpage when you submit publications, apply for grants, and in any research workflow to ensure you get credit for your work.
Peer Review Workflow

Submission → Plagiarism detection → evaluation by editor(s) → Reviewers Selected → Peer review → Acceptance 😊

peer review → Minor → Evaluation by editor(s) → Revision → Back to submission

peer review → Major → Rejection 😞
The Purpose of Peer Review is to:

- Help editors select the best possible papers for advancing science within the scope of the journal
- Help guide editors and authors in what needs to be done to improve and communicate the work

Some manuscripts can’t be changed enough easily to meet the criteria of the journal, or may be better suited elsewhere. These get rejected.
Reviewers...

- Are asked to provide an overall evaluation and detailed comments in a timely manner
- Can provide confidential comments to the editor
- Must keep the manuscript confidential
- Need to be professional and comment on the science and its communication (personal criticism of the authors is not ok)
- Decline to review if the manuscript is too close to work they are doing; disclose other COI’s
Approaching peer review as a reviewer

- Read reviewers instructions
- Treat the review seriously. Take time to read and write carefully.

Be respectful, constructive and concrete. “This makes no sense” isn’t helpful; instead: “it’s not clear how Figure x leads to conclusion y” gives an author something to change.
Keeping sane as a reviewer

Focus on the science and the argument. Style is secondary. Provide a summary.

Know when to stop. If something hasn’t improved in two rounds of review, suggest rejection or let it go.

Remember that you advise the editor. Don’t fret if he/she makes a different decision than yours.
Recognizing Reviewers

- AGU and a few other publishers are now partnering with ORCID to recognize reviews formally.
- Reviewers for AGU journals are listed each year.
- Top reviewers selected by editors and recognized in Eos.org
- Author and reviewer reception at Fall Meeting.
Editors (associate editors or editors) synthesize reviews, make recommendations (reject, major revision, minor revision, publish); Editors make final decision.

- Manuscripts are almost never accepted at first submission
- Revisions may be sent for another round of review
- You can contact the editor or AGU staff if you have questions
Approaching peer review as an author

- Don’t take anything personally.
- Read your reviews to learn how to make your manuscript better. You can learn something even from a “bad” review.
- A negative review is not the same as a bad review.
- Take your reviewers seriously. They are a sample of your readers.
- If a reviewer misunderstood, first assume that your explanation isn’t clear.
Responding to Reviews

• Remember, reviews are meant to be a critique of where the conclusions need further support.
• If you are not sure what is expected, ask the editor to clarify.
• Be respectful, even if the review isn’t. The editor selected the reviewer (and it may be someone you recommended!!).
• The reviewers are exactly the scientists you are trying to reach. If they misunderstood your point, it’s a good indication that it wasn’t explained well.
• Respond to major points after each review. If you don’t follow the reviewers’ suggestions, explain why clearly. You can disagree, but explain why.
  – Reasons may be: the reviewer misunderstood; the comment is out of scope for this paper (but clarify it).
If your paper is rejected 😞...

- Many papers are rejected, either initially or after review.
  - *Science/Nature*—acceptance rate is 6%.
  - *Geophysical Research Letters* is 30%
  - Other AGU titles 50-60%

- In most cases, resubmission and acceptance at the same journal is unlikely unless it is specifically requested in the letter.

- If before review, the editors may have decided that the scope of the paper was not correct—usually best to submit elsewhere.

- If after review, unless you are convinced that the reviewers completely misunderstood the paper, revise and submit elsewhere. Usually the decision is based on the reviewers’ overall assessment, not particular comments in a review.
Becoming a Reviewer

• Editors are looking for good reviewers.
• Get your work known by submitting to major journals and presenting at major meetings.
• Be a responsible and respectful author.
• Update your profiles in GEMS and other editorial systems.
• Contact editors in your discipline, especially at meetings.
• When asked to review, be a responsible and timely reviewer.
Reviewing also helps your writing

- **Reviewing develops your critical skills.**
  - You see and learn from the common mistakes.
  - You learn what the journal requires of author responses to criticism.
  - You become aware of the need for attention to detail.
  - You recognize the typical problems with figures.
  - You appreciate more the importance of the abstract.
  - You see the latest advances before others.
  - Your opinion influences the science.
- Be a good reviewer! It is time well spent that will benefit your writing.

"If you can't say anything peer reviewed about your work, don't say anything at all."
The Editors’ Roles:

• Our main job is to help you, and your science.

• We aim to optimize our journals and our science. This means making decisions when we feel there is enough information to decide if a paper if a fit for our journal or not, not after a perfect or complete peer-review.

• To be Sensible: We are aiming for the highest standards. That means having to reject papers including sometimes without review (if the paper is obviously poor) and sometimes after two or three reviews if it is not improving enough.

• Outreach: We discuss with and listen to ideas from people, and encourage them to submit papers to AGU and are looking for good reviewers.

• Respect: Editors work to treat everyone with respect. We often spend much of our time on the papers that may have great potential but are poorly presented.
• Largest Earth and space science publisher
  – 19 journals, 3 are gold open access; rest allow authors to select open access.
  – 6000 papers published each year
  – 500 open access papers each year
  – Many special issues and collections
  – Submissions growing by 10% this year
• Long reputation for quality and impact
• Everything from biogeochemistry and elemental cycles to climate to space physics; from the formation of solar systems to Earth’s future
• All papers freely available after 24 months
Why Submit to an AGU Journal?

• High quality
• High visibility and impact (written up in Eos, AGU social media, 1,000,000 downloads per month)
• Rapid decision times (<4 weeks for some journals, <8-9 for most)
• Rapid publication times
  – Online in a few days
  – Final version in 3-4 weeks.
• Academic editors in touch with their communities
• Open-access journals and options
• Easy submission
### AGU is Committed to Efficient Decisions: Median Days From Submission to First Decision in 2015

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<td>EARTH’S FUTURE</td>
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AGU Journals: Manuscript Types

- **Research Article**: High-quality original scientific research
- **Review**: Overview and syntheses of recent research—usually in *Reviews of Geophysics* (contact editors first).
- **Technical Report, Methods and Data**: Description of data measurements or methods with some new insight or application. Ideal for *Earth and Space Science*.
- **Others**: Commentary, editorial, comments/reply (contact editors first)
AGU Promotes our Science

Covers
Press Releases
Blogs
Social Media
Altmetrics on every paper
Eos: Research Spotlights
Links to fall meeting presentations
Commentaries
Editors’ Vox

Latest issue cover of GRL
Chang E-3 lunar mission
Research Spotlights

North America Does the Wave (Slowly)
3 November 2015 | Nancy McGuire
Data-driven modeling helps explain how convection currents in Earth's mantle influence the rise and fall of surface features, but these models are in an early stage....read more

Birthplace of Pacific Tropical Cyclones on the Move
2 November 2015 | Terri Cook
A study says the point of origin for cyclones in the western North Pacific is moving closer to land because of warming of the tropical troposphere....read more

The Curious Case of the Halloween Ghost Electrons
30 October 2015 | Mark Zastrow
When solar storms pouded Earth during Halloween in 2003, scientists were eager to measure their effects. But new research shows one satellite was seeing "ghost" particles that probably weren't real....read more
Thank You!

Questions?