

# THE SEISMOGRAM

News and info to help our student and early-career scientists advance their careers

Seismological Society of America:  
Advancing Earthquake Science Worldwide

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## A Rising Star: Meet Annemarie Baltay



*The research geophysicist at the USGS Earthquake Science Center and newest recipient of SSA's annual Charles F. Richter Early Career Award shares what she has learned so far in her career. (To read more about Baltay's research, visit the [awards section of the SSA website](#)).*

**My current work in brief:** I couple basic seismological principles with ground-motion observations to understand what is physically happening during an earthquake and what we expect the ground motion at a location to be. I strive to connect the fields of earthquake seismology and empirical motion prediction modeling. My goal is to include more earthquake physics into ground-motion prediction and, at the same time, use the wealth of ground-motion data to inform us about the physics of

earthquakes. Lately I've been working to apply basic seismological theory and ground-motion observations to earthquake early warning, to determine the possible products we at the USGS can deliver to the public.

**Why seismology:** I have always enjoyed math and had an interest in the natural world. As an applied mathematics major, I took a bunch of classes in geology and geophysics. I didn't like rocks, but I really liked seismology—it's very observational and analytical.

**An exciting career moment:** The first time I visited the USGS in Menlo Park, I walked down the hall and read all the name tags on the door. I was floored that those names matched the authorship of all of the background papers in earthquake and ground-motion seismology that I had read. And that they were real people sitting there, accessible, available and excited to talk.

**And another:** Watching a post-doc get a faculty job. It's really exciting to help younger scientists.

**Toughest part of my work:** The last 10 percent on papers and projects. The initial discovery and research is so exciting, and then a new idea comes up, and I get swept up! It's very hard to push the paper out the door, but I'm trying to work on completing papers faster.

**To succeed in seismology, today's graduate students need:** An analytical background—not just math and physics but also statistics, a curiosity about the natural world, drive to figure out how to help

people by applying analytical tools and desire to collaborate across sub-specialties to attack the interesting problems.

**Advice for students:** Take background classes now—it's harder to take them as you get on in your career. Reach out and start collaborations. Ask people about their research.

**Once you have an advisor:** Figure out their connections and how you can harness them. The field is small and friendly—talk with people. Make sure your specific interests are aligned; if not, figure out what the middle ground is.

**Tips for selecting and applying for postdoctoral positions:** Don't be afraid to try a new project; you gain valuable breadth. Talk to researchers early and often if you think you're interested in working with them. Sometimes it can take a while to create a postdoc position.

**On the SSA Annual Meeting:** It's a great bridge between earthquake science and engineering. As an earthquake seismologist, I look forward to interacting with earthquake engineers at the Annual Meetings. Everyone—seismologists and engineers—is excited to be at the SSA meeting and looking forward to collaborations; it's not a chore! It's a very collegial atmosphere, people sharing cutting-edge research in both areas and helping each other—that's unique to SSA.

**The best collaborations:** Pick someone you can work with. Even if the project might not be that exciting to start, you'll enjoy collaborating with that person and will develop a lifelong connection. The good ideas can come later!

**Publishing tips:** Try to come up with creative and interesting questions, then figure out how you can sell this idea, why it is interesting to others. Sometimes we get stuck in our own analysis, but try not to get bogged down in how good your work is, how it compares with others. Try to write something down. Connect an observation back to something important. Be excited and try to convey it.

**Most promising developments in today's career landscape for geophysicists:** We have so much data and computational power recently, to run tons of simulations and validate with data. The challenge, I think, is trying to sift through all of the observational data and find the interesting trends and tidbits that inform our science!

**Achieving work-life balance:** Don't let work overwhelm your personal life. Just as work deadlines are great for getting papers written, research done or a poster made, set some personal "deadlines," such as dinner with friends or a weekend away. When that date arrives, put your computer away and enjoy the time. Don't bail out—you'd never cancel important work deadlines—the research can wait! As my postdoc advisor, Tom Hanks, often says, "That's enough for today!"

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## Apply for an SSA Annual Meeting Travel Grant

*Wish to travel to the Annual Meeting next April? Your wish may be granted.*

SSA provides Travel Grants to help its international and student members and those living in European Seismological Commission member-states take part in the Society's flagship event. Travel grants cover the cost of meeting registration and provide a modest cash award (for the 2017 meeting, U.S.-based students received \$800 and international-based students received \$1,500, in addition to the waived registration fee).

All applicants must submit an abstract as first author and be prepared to present their work in either an oral or poster session at the meeting. Student applications require a letter of support from a

faculty advisor. Applications will be accepted from 1 November through 30 November 2017.

Last year SSA received a record number of applicants for the donor-funded grants. “SSA is excited that our members have donated funds to help other members attend the annual meetings—members who would not otherwise financially be able to do so, especially students,” says SSA Past-President Ruth Harris, who has chaired the selection committee for the past two years.

“These travel grants are highly competitive, so applications need to be complete to have a chance to receive a positive rating,” she points out. “Essential ingredients for a successful application include everything that is listed on the SSA application website: SSA membership, an interesting abstract, an advisor letter that rates the student/postdoc highly; and a letter that states why the funds are needed, what they might be used for and how the rest of the travel will be paid for (e.g., I need approximately \$800 total to buy my plane tickets and three nights lodging at the meeting hotel, double occupancy. I have limited funds to pay for the remainder of my expenses.).”

Past winners like Anton Biryukov have enjoyed the opportunity to get face-to-face with top researchers in their field. Biryukov, a doctoral candidate in earth sciences at the University of Calgary, landed a Travel Grant for the 2017 Annual Meeting where he enjoyed “a long chat with Rob Herrmann [of Saint Louis University], a true legend in seismology, who was willing to help me out with a few questions on my research.”

For more information on how to apply for a Travel Grant and connect with your academic heroes, visit [seismology2018.org](http://seismology2018.org).



2017 Travel Grant recipients at the SSA Annual Meeting in Denver, Colorado

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## Advice for My Younger Self

*We asked a few veteran SSA members, “What do you wish you’d known at the beginning of your career?” Here’s their advice for students and early-career members.*

“1) Even though it's all-consuming at the time, after a few years nobody will care what your thesis was about. You'll probably barely care yourself. Your degree is a fishing license, and the real fun begins when you go fish!

2) There is staggering job satisfaction available outside academia and pure research. Off-piste science is awesome.”

Rich Briggs  
*Research Geologist, USGS, Geologic Hazards Science Center*

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“That’s a tough question. I’m not sure exactly what I’d say, but maybe I can think about in terms of what I think I’d tell my kids. I think I would encourage them to understand what they’re passionate about and to get to know and enjoy working on their weaknesses. I would also encourage them to respect the ideas, methods, behaviors and beliefs of others no matter how unusual or different from their own.”

Oliver Boyd  
*Research Geophysicist, USGS Geologic Hazards, Northwest Region*

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“Pick things to do that you are really enthusiastic about. You’ll do them well and succeed.”

Peggy Hellweg  
*Operations Manager, UC Berkeley Seismology Lab  
SSA Secretary*

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“I have always appreciated the importance of learning from scientists who have different approaches, expertise and different cultures (both professional and social). The necessity to retain our curiosity, to be forever interested and fascinated by the work carried out by colleagues, should never stop, and especially should not be overshadowed by our personal focus on what we ourselves we are developing, testing and imagining.”

Stefano Parolai  
*Director of the Center for Seismological Research, National Institute of Oceanography and Experimental Geophysics*

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“Keep focused on long-term goals and don’t get bogged down in the short-term aspects of the job. This translates to setting goals with a one-year to five-year timeframe.”

Laurie Baise  
*Professor and Chair, Civil and Environmental Engineering, Tufts University*

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“Don’t be afraid to switch your main professional interests every now and then; you don’t have to retire doing what you did for your M.S. (or Ph.D.) project. Striking out for new horizons (every ten years or so) helps avoid tunnel vision and can refuel your enthusiasm for seismology.

I have worked in academia and applications on instrument calibration, induced seismicity, moment tensors and fault plane solutions, dynamic stability of

underground waste repositories, blast vibrations, site effects, intraplate seismicity, (historic and www-based) macroseismic, archaeoseismology... it never got boring.”

Prof. Dr. Klaus-G. Hinzen

*Earthquake Geology and Archaeoseismology, Cologne University*

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SSA welcomes your feedback on the content as well as your ideas for future issues at [seismogram@seismosoc.org](mailto:seismogram@seismosoc.org). Send us your thoughts, and be on the lookout for the next issue in December!



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