

# Committee on Employment

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## Balancing Research and Service at NOAO

When I left graduate school to take up a postdoc at the Cerro Tololo Inter-American Observatory in Chile (a division of NOAO), I had experience in research and in teaching, but very little with the inner workings of an observatory. I had been on a few observing runs, but never visited a major observatory, CTIO included. I was excited by the opportunity to learn about the technical aspects of observational astronomy – to experience first-hand how the tools on which our work depends are developed and maintained, while at the same time getting my research career going. My first impression of CTIO was that the staff were extremely dedicated to the mission of the observatory – providing first-rate facilities for the US astronomical community in the southern hemisphere – but at the apparent expense of their own research. As my main ambition was still to do research, I at first felt a little out of place.

As I got to know CTIO better, however, I found that most of the staff were, after all, dedicated to their research. All felt strongly that having a scientific staff active in research was absolutely essential for the observatory. Observatory operations, user support, and future planning all require expert scientific input. NOAO felt that having staff motivated by their own scientific self-interest was the most natural way to provide excellent support. Although the observatory considered service and research to be roughly equally important, maintaining the balance between them could be tricky, as I learned when I was later hired as a CTIO staff astronomer. Our hallway discussions and meetings were invariably dominated by observatory matters, as these were often the most pressing, while personal research tended to be done in relative quiet, and could thus be disrupted; hence my initial impression that research was getting short shrift. Over time, though, I found that there are some ways to help maintain that balance, as I learned from others and from my own trial and error:

**Align your service responsibilities with your research goals:** It may sound obvious, but making sure that your service overlaps with your research is key to making sure that you have enough time for research. A good and easy way to start is to make sure that the observatory's facilities feature prominently in your own research, and to offer to help support or be the instrument scientist for an instrument that you frequently use. This is good for both you and the observatory, as your own experience and needs can be used to help improve the experience for all users of the instrument. At CTIO, I was Hydra instrument scientist and on the team that supported the Mosaic imager, both of which I was using in my research. I had a strong interest in working out the kinks with Hydra, because I knew how frustrating it was to have my night lost due to repeated instrument failures. My

efforts paid off in that I got the data I needed from Hydra, and, because others came to see me as the Hydra “expert”, was able to join some very fun and productive collaborations that also needed Hydra.

If your research begins to outgrow the capabilities of the instruments that you support, then it's time to start thinking of ways to upgrade them, or consider new instruments (or facilities) that would do your science better. Working on science cases for facilities that remain in the distant future can be very helpful in guiding your research, as you will come up with very exciting ideas that will probably require significant groundwork to be done with current facilities. I am currently very excited by the ability of ground-based adaptive optics to study the high surface brightness bulges and disks of nearby galaxies, an interest which arose entirely because I contributed to the science case for a GSMT.

**Talk to people:** Talking to others about their research is a good way to maintain focus on your own. Make an effort to chat with users that you support about what they aim to do with their telescope time, and how your observatory's facilities fit in to their program. Offering to organize colloquia or seminars for a period is a good way to meet other astronomers, especially if your budget includes buying them lunch or dinner. In Chile, going out to eat with visiting astronomers was an especially good way to establish close relationships with them, since besides being an opportunity for you to talk to them about their research, it was a chance for them to get a local's perspective on Chilean culture. Serving on the observatory TAC is another good way to grow bonds with fellow astronomers, while also giving you an overview of a broad section of the current observational enterprise.

Working with students and/or postdocs is also very useful, although it means removing yourself a step from the actual work in exchange for the reward of helping someone else to learn and discover. At CTIO, we had three-month visits by undergraduate REU students every southern summer, and several graduate students and postdocs on extended visits. They were an integral part of the scientific culture, as they were the only people at the observatory fully dedicated to research.

**Streamline your service work:** If parts of your service tasks become routine, they can sometimes be made more efficient, leaving you more time for research. For instance, for new users of Mosaic and Hydra, we would generally have a staff member present for part of the first night to help get the observers going, which involved 1.5 hours driving from La Serena each way. We eliminated the need to drive to the summit by installing videoconferencing equipment in the control room and downtown, and running the instrument user interface within a remote desktop environment. This

way, the support astronomer downtown could be virtually present in the control room, having access to nearly all of the same screens available to the observer, while saving the large overhead of travel to the summit.

### **Avoid over commitment:**

This is easier said than done, of course, but bears mentioning. In particular, it is important to avoid taking on too many service responsibilities that have no overlap with your research. The truth is that every observatory has a number of tasks unrelated to anyone's research that need to be done by staff astronomers, *e.g.* editing newsletters, overseeing web page updates, maintaining documentation, and serving on internal committees. Doing this work is important for the success of the observatory and thus should not be refused lightly if you are asked to help. However, this does not mean that you have to shoulder the burden indefinitely. If a task does not have an easily defined point of completion, then you might ask from the beginning to have a time limit on your involvement, after which your responsibilities are handed off to someone else.

### **Define your success by your research accomplishments:**

You may find that many of your service responsibilities give you a lot of satisfaction. For instance, getting a broken instrument working again, discovering and explaining issues with data obtained from the observatory's facilities, helping users understand their strange data, or finishing off reports from committees on which you've served can all give you

a strong sense of accomplishment. If you wish to remain scientifically active, however, it's important that you not become content with these accomplishments, but judge yourself mainly by the success of your research, which in many cases can be more difficult and tiresome to achieve. If you find yourself drawing much more satisfaction from your service work than your research, then you might consider reducing your research time in exchange for a larger service load. Indeed, observatories depend heavily on having a portion of their staff dedicated primarily to service for their success. If you envision yourself mainly as a research astronomer, however, don't be tempted to focus more on service, where you have achieved success, because you feel stuck in your research. Work through it.



*When working as a staff astronomer at an international observatory, such as the Cerro Tololo Interamerican Observatory shown above, it can be tricky to balance your service duties with your own research. Knut Olsen offers a few common sense strategies. Image provided by NOAO AURA/NSF.*

In summary, working as an NOAO staff astronomer has been rewarding and exciting. It is place to gain a good technical understanding of telescopes and instruments, be involved in providing access and developing cutting-edge facilities, and have the opportunity to contribute to initiatives of national importance to astronomy. If you can maintain the balance between research and service, it's also a great place to have a productive scientific career.

*The AAS Committee on Employment is pleased to highlight useful resources for astronomers, and welcomes your comments and responses to this and previous columns. Please check out our website ([www.aas.org/career/](http://www.aas.org/career/)) for additional resources and contact information for the committee members.*