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Re: Roman/WFIRST¹ Community support

Dear Paul:

Thanks for the good discussion at the Roman/WFIRST PDR a couple of weeks ago.

I was making the point that the community support for Roman/WFIRST was far less than for JWST at a comparable time, and you compared JWST in 2008 to Roman/WFIRST now (with the then JWST launch of 2014), and noted that you thought that the (lack of) support was similar.

I was thinking about this afterwards and realized that we have a much more like-for-like situation that exemplifies the difference in community perception. This comparison is for times when both missions were subject to cancellation. For JWST that cancellation was in July 2011 by the House Appropriations CJS Chair, while for Roman/WFIRST that was a couple of years ago when OMB zeroed out Roman/WFIRST in the 2019 PBR in its ~Feb release. In both cases these cancellations occurred about 7 years before what was the announced launch date at that time.

Let us compare what happened in these two situations.

First, JWST: In 2011, when the announcement occurred in July, there was the organized effort by AURA, STScI scientists and science team members, and some others, including me as JSTAC Chair, to carry the message forward and get the JWST budget restored. What was very encouraging, and very effective, was that there was also a spontaneous reaction from the astronomical community with a great deal of support for getting JWST funding restored. And this support did not just come from the astronomical community. It also included support from significant elements of the physics community and its organizations. There was, for example, the letter from 32 Nobel Prize winners. Furthermore, what was truly amazing was that there was widespread support from teachers, school kids, planetarium folks, science writers, etc. The outpouring of support was dramatic, being both broadly-based and deep. Social media was not as fully developed in that time, but it was still a vibrant source of feedback and comments. And all of this went on for months. It was not a one-week or a two-week flash that died away. The spontaneity, and then the sustained pressure, was really dramatic and impressive.

Then Roman/WFIRST: Broadly the same situation arose in early 2018 for Roman/WFIRST when the mission was cancelled by OMB some 7 or so years before launch. So what happened in early 2018 when Roman/WFIRST suffered the same fate (though the hand on the chopping block was different). There was an organized effort focused around Princeton and an effort by AURA again to assemble an academic coalition along with the few industrial partners in Roman/WFIRST, to get the funding restored for Roman/WFIRST. What was the unsolicited astronomy community

¹ Occurrences of "WFIRST" have been replaced by "Roman/WFIRST" for alignment with the mid-2020 name change to Nancy Grace Roman Space Telescope, widely abbreviated to "Roman" by NASA, while retaining consistency with the original document's use of WFIRST. Some reformatting has been required, but the text remains the same.

reaction? Or the science community reaction? The reaction from the broad public? There was a huge difference relative to JWST in that there was essentially *NO* spontaneous support that came from the astronomy community, or from the broader scientist community. There was certainly no push from Nobel Prize winners and community groups, such as planetarium folks and teachers and school kids. The concern from the broad astronomical that Roman/WFIRST might disappear was basically zilch.

If AURA had not really stepped up and put in a large effort to support this mission in Congress I actually think Roman/WFIRST probably would have disappeared and that the broad astronomy community reaction would not have been that negative or concerned.

I do think there is an important lesson in this. The broad science community just does not see the Roman/WFIRST mission as very interesting. Nor do they see it as being of real and tangible benefit to them.

I have to say that this had also been my reaction to Roman/WFIRST for some time. At most I supported it because I thought that it was very unwise for us not to push forward on a Decadal Survey recommendation, even though I thought it was a poor recommendation in 2010 and that it did not improve much as we went forward. And I am far from the only person who defines the value of Roman/WFIRST in this way ("let us not mess up the Decadal process"). My sense is that the Midterm-Decadal committee gave their support to Roman/WFIRST in significant part for this reason. The support on that committee for Roman/WFIRST as a scientific enterprise was not high. The WFIRST/AFTA Implementation committee back in 2014 apparently was not enthusiastic in its support also.

I really only got more enthusiastic about Roman/WFIRST in the last couple of years when I realized that it could be a great tool for the community to complement and synergistically work with JWST to enhance the overall scientific productivity of the two missions. But as the science case is currently configured and being carried forward I do not see Roman/WFIRST as the Great Observatory that complements JWST. To be blunt, as currently structured, Roman/WFIRST appears to be just an overly expensive PI mission whose science may well not be front-line in 2026+. After 4 years of JWST discoveries and science, I suspect that an awful lot of people would be wondering why we are spending time on surveys that were defined in 2010 instead of responding to contemporary wide-field science that would enhance the missions and capabilities of the 2025-2030 era.

I am giving you my honest opinion here, just as I did in a very good discussion that I had with Dominic Benford and Jeff Kruk a couple of weeks ago at one of the lunch breaks during the Roman/WFIRST PDR. I really appreciated that we had that discussion and I appreciated their willingness to both hear me out and to push back. That was very useful.

As much as I would like to see Roman/WFIRST become a wide-field Great Observatory, I think that Roman/WFIRST as currently structured with a limited science framework is going to continue to be of little interest to the broad scientific community. This worries me. I really do think that Roman/WFIRST can be a superb Great Observatory, driven by a contemporary GO program selected in the 2025 timeframe through fully open and competitive peer review. But that is not the case currently. The SITs are basically being positioned to be the dominant players with the broad community being cast as feeding off the archival left-overs. Nice, but not exactly what we like to see from a mission that costs in the Great Observatory class.

I am very happy to do what I can to support this mission, but I really think that we are in for a very rough time getting broad astronomy community support unless the way this is portrayed to the

community, and ultimately seen by the community, changes to Roman/WFIRST being a mission of GO opportunities for the best science in the mid-2020s post-JWST launch.

I have been thinking about what might help to further that objective of developing the support for Roman/WFIRST, and removing the perception that this is just a very expensive PI mission dominated by a few teams who will get all the funding and essentially all the scientific glory. I will write up some thoughts regarding how the perception could be changed in another communication for you.

I am very happy to discuss this further. I want this mission to succeed as one of our Great Observatories.

Sincerely

A handwritten signature in black ink, appearing to read "Garth Illingworth", with a long horizontal flourish extending from the end of the name.

Garth Illingworth

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