



Satellite Mega-Constellations & the Research Astronomy Community

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AAS Approach

- Formed O/IR Interference working group under our Light Pollution, Radio Interference, & Space Debris Committee
 - Connections to IAU & IDA
- Visibility modeling
- Operator interactions
 - Individual companies (SpaceX, OneWeb, Amazon)
 - Industry trade groups (e.g., SIA-AAS webinar in May, satellite conferences)
 - Aerospace professional associations (e.g., AIAA)

AAS Approach

- Community convening/outreach
 - Workshops together with NOIR Lab
 - Observatory director survey
 - AAS conference sessions
 - Newsletter & website
 - <https://aas.org/posts/advocacy/2020/06/impacts-large-satellite-constellations-astronomy-live-updates>
- US Federal Gov't outreach
 - Congress
 - WH & Agencies
- International coordination (RAS, ESO, IAU, UN)

Don't Forget Radio

- O/IR starting from zero compared to the history/culture/regulatory framework in the Radio, so that's been the Society's focus of late
- Radio community (NRAO, NSF spectrum managers, CORF, etc.) has deep experience and regulatory hooks, but that doesn't mean that everything is fine in that part of the spectrum

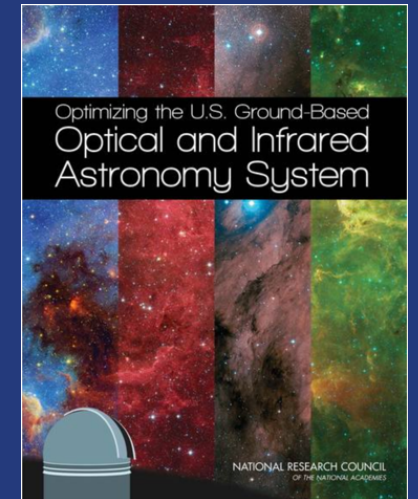
Studying the Issue

- Papers out and forthcoming
 - Modeling work by individuals and groups
 - Visibility and true BDRF
 - Comparison to observation
- Aerospace Corp
- STPI (for OSTP)
- JASON (for NSF)
- GAO?
- Astro2020 subcommittee



It's About the System!

- Not just about Rubin Obs and similar wide field instruments
- Era of multi-messenger astronomy
 - Alerts from LIGO and Rubin Obs
- Era of time domain astronomy
 - Alerts from Rubin Obs
- NASA missions critical in both “eras”
 - So not just an issue for orbital debris office
 - Impacts on NEO searches



Partnership, not Confrontation!

- Problem solving focus
- Things are going well with SpaceX to date, but that doesn't mean that other operators (especially non-US) will behave similarly
 - Keep focus on overcoming difficult technical challenges
 - Maintain awareness/engagement in regulatory sphere, especially international
- Recognize good corporate citizenship
- Near term goal: Voluntary guidelines for constellation design and observatory operations/software/instrument design
- Longer term: international regulatory framework together with industry; technology development on both sides
 - BUT regs aren't an end in themselves--cf: radio experience

Questions? Discussion?

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