Satellite Mega-Constellations & Astro2020

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AAS

- Formed O/IR Interference working group under our Light Pollution, Radio Interference, & Space Debris Committee
  - Connections to IAU & IDA
- Key choice for AAS group: no NDA
  - Allows for straightforward communications outward to community, media interviews, etc.
  - Working well in this case because the Rubin Obs & AURA folks are inside NDA(s) and vouching for work being done

AAS Approach

- Visibility modeling (Pat Seitzer)
- Operator interactions
  - Individual companies (SpaceX, OneWeb, Amazon)
  - Industry trade groups (e.g., webinars, satellite conferences)
  - Aerospace professional associations (e.g., AIAA)
- Community convening/outreach
  - Workshop(s) together with NOIR Lab
  - Observatory directors
  - AAS mtg sessions
  - Newsletter & website
- US Federal Gov't outreach
  - Congress
  - WH & Agencies
- International coordination (RAS, ESO, IAU, UN)

Studying the Issue

- Modeling work by individuals and groups
  - Visibility modeling
    - Analytical (e.g., ESO paper)
    - Professional orbital software
  - Full BDRF (inside NDA)
  - Comparison to observation
  - What about IR?
- Aerospace Corp
- STPI (for OSTP)
- JASON (for NSF)
- GAO

Oops


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Europe's major telescopes 'can meet satellite challenge'

By Jonathan Amos
BBC Science Correspondent

5 March 2020


SPACENEWS

Senators ask GAO to review FCC oversight of satellite constellations

by **Jeff Foust** — April 10, 2020

AAS Perspective

- NSF/AST has stepped up
  - Expanded job description for spectrum managers
  - Charged NOIR Lab with leading activities
    - Lessons learned from vast NRAO experience?
  - NSB interest/involvement
  - Radio: Spectrum Innovation Initiative (SII)
- Partnership, not confrontation (cf. Tony Beasley)
- Near term goal: Voluntary guidelines for constellation design and observatory operations/software/instrument design

Partnership/Cooperation

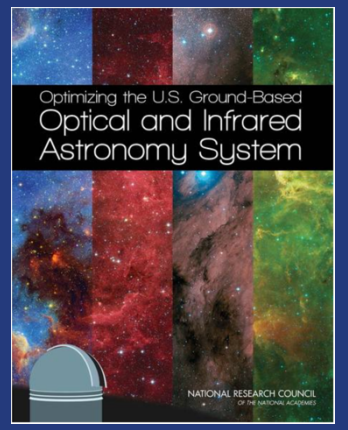
- Problem solving focus
- Things are going well with SpaceX to date, but that doesn't mean that other operators (especially non-US) will behave similarly
  - Keep focus on overcoming difficult technical challenges (on both ends)
  - Maintain awareness/engagement in regulatory sphere, especially international
- Recognize good corporate citizenship

Don’t Forget Radio

- O/IR starting from zero compared to the history/culture/regulatory framework in the Radio, so that’s been our focus of late
- Radio (NRAO, NSF spectrum managers, CORF, etc.) may have deep experience and some regulatory hooks, but that doesn’t mean that everything is fine in that part of the spectrum
- Make sure that you hear from them and factor in impacts

Suggestions for Astro2020

- Make some recommendations (not just findings) rather than leaving it to the reader
  - What are the potential impacts on cmte's recommended science priorities (OIR & Radio)?
  - It's about the system, not just Rubin Obs and similar surveys (be explicit)
  - Technology development efforts?
  - NSF organization/management
    - Assessment of spectrum innovation initiative?
  - NASA/SMD should care (not just orbital debris office)
  - NASEM organization (e.g., broaden CORF)
  - Anything for AAS?



Questions? Discussion?

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