

# Astro 2020



Decadal Survey on Astronomy and Astrophysics

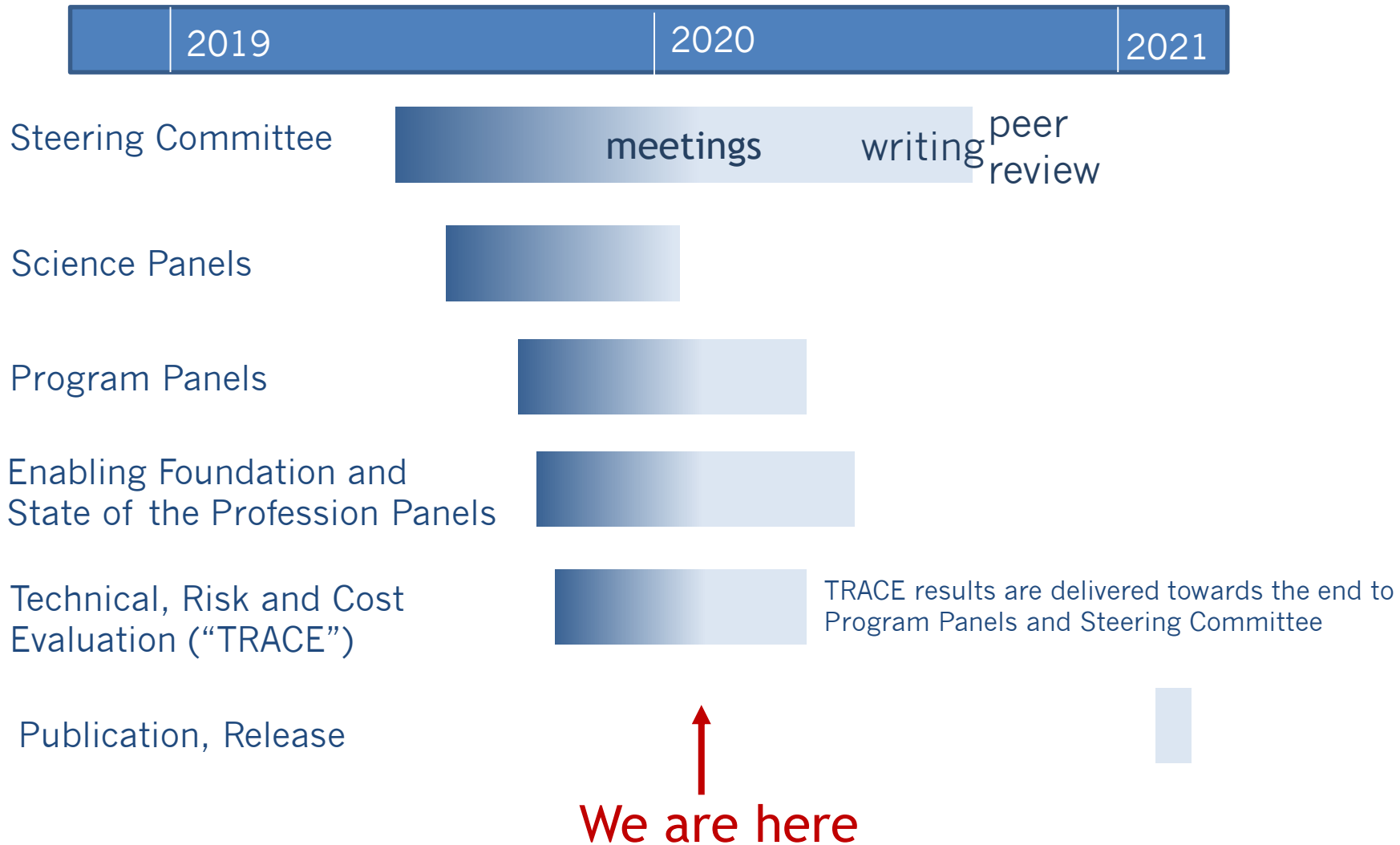
AAAC Update  
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*The National  
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[nas.edu/astro2020](https://nas.edu/astro2020)

# Decadal Survey Timeline



# Community Input

- White papers are the primary method for community input and drive what the survey considers
- Science whitepapers 573 submissions
  - Submitted in March 2019, all read and discussed by science panels
- Activity and Project, and State of the Profession Consideration (APC) whitepapers
  - 294 papers submitted July 2019
  - ~250 APC white papers assigned to one or more program panels
  - ~70 papers address State of the Profession and Societal Benefits
- All papers can be viewed at:
  - [www.nas.edu/astro2020](http://www.nas.edu/astro2020) → look under community input

# Survey Structure

- Steering Committee (20 members)
  - plan overall review process, in consultation with NAS
  - synthesize outputs from the 13 science, program, and state of profession panels into an overall decadal strategy and survey report
  - member serves on each panel to facilitate communication, coordination
- Science Panels (6 panels, 8-11 members each)
  - review all science white papers, review science advances since Astro2010, identify high-priority scientific questions and discovery areas for the coming decade
- Program Panels (6 panels, 12 members each)
  - review relevant project/program APC's, assess proposed projects in terms of science return and priorities, technical readiness, risk, cost
- State of the Profession and Societal Impacts (1 panel, 15 members)
  - review health and demographics of the astronomy and astrophysics community, identify milestones and actions for the coming decade

# Astro2020 Panels

- Panel on State of the Profession and Societal Impacts (Margaret Hanson, U Cincinnati, and Enrico Ramirez-Ruiz, UC Santa Cruz)
- Panel on Cosmology (Daniel Eisenstein, Harvard)
- Panel on Galaxies (Daniela Calzetti, U Mass)
- Panel on the Interstellar Medium and Star and Planet Formation (Lee Hartmann, Michigan)
- Panel on Stars, the Sun, and Stellar Populations (Sarbani Basu, Yale)
- Panel on Compact Objects and Energetic Phenomena (Deepto Chakrabarty, MIT)
- Panel on Exoplanets, Astrobiology, and the Solar System (Victoria Meadows, U Washington)
- Program Panel on Electromagnetic Observations from Space 1 (Marcia Rieke, U Arizona)
- Program Panel on Electromagnetic Observations from Space 2 (Steve Kahn, Stanford)
- Program Panel on Optical and Infrared Observations from the Ground (Timothy Heckman, Johns Hopkins)
- Program Panel on Radio, Millimeter, and Submillimeter Observations from the Ground (Andrew Baker, Rutgers)
- Program Panel on Particle Astrophysics and Gravitation (John Beacom, Ohio State U, and Laura Cadonati, Georgia Tech)
- Program Panel on An Enabling Foundation for Research (David Spergel, Flatiron Institute)

# Science Panels

- Key goals
  - provide scientific priorities that will be used to assess proposed missions, facilities, and projects, and develop an overall research strategy
  - provide a strong scientific case to justify an ambitious strategic plan
- Process and status
  - two face-to-face meetings, plus telecons as needed
  - meetings completed, preliminary results presented to steering committee and program panels last month
- Deliverables
  - identify four key science questions and a discovery area (similar to Astro2010)
  - panel reports under construction, will be reviewed and published with main Astro2020 report

# Program Panels

- Key goals, activities, and deliverables
  - assess proposed projects and activities against science priorities and technical readiness, risk, cost, and forward priority activities for ranking by the steering committee; comment on questions of programmatic balance within its area
- Process and status
  - three face-to-face meetings, plus telecons as needed
    - October 2019 - March 2020, 2<sup>nd</sup> meetings this month and February
    - received briefings from science panels in December 2019
  - reports from NASA flagship, probe concepts are available from the project teams; NASA has passed on its independent assessments
  - independent consultant (Aerospace Corp) providing technical, risk, cost assessments for large projects (TRACE)
  - panels will also present in-person briefings to steering committee and prepare written reports similar to science panels

# New for Astro2020

- State of the Profession and Societal Impacts
  - demographics, diversity and inclusion; workplace climate, workforce development; education, public outreach; relevant areas of public policy
  - emphasis for Astro2020 is to set milestones and identify actionable recommendations
- An Enabling Foundation for Research
  - laboratory astrophysics; theory, computation, simulation; data collection, archiving, and analysis; facilities, funding, and programs; general technology development; relevant areas of public policy
  - emphasis is to identify cross-cutting investments that can advance the overall science program
- Steering Committee is coordinating some general areas
  - e.g., international, public/private, agency partnerships; RFI/light pollution, general technology development; general public policy, benefits to the nation; program of record



# State of Profession and Enabling Foundation Panels

- Key goals, activities, and deliverables
  - charges for these panels are broad and their timelines somewhat longer, but outcomes are just as central to the main Decadal process
  - all relevant APCs (white papers) reviewed, along with heritage of data and independent studies from agencies, AAS, AIP, etc
  - key element is to assess the current landscape, but with more emphasis towards formulating actionable recommendations for agencies and the professional community
  - panels will deliver summary conclusions to Steering Committee and full reports, similar to other panels
- Process and status
  - three face-to-face meetings, plus telecons as needed
    - October 2019 - April 2020, both have held first meeting
  - SoP panel includes experts from social science, demographics, and STEM in addition to professional astronomers

# Community Engagement

- Chairs continue to host Town Halls, both live (e.g., Honolulu AAS) and via the web, to make process as transparent as possible
- SoP panel hosted a facilitated listening session at the AAS
- A second call for inputs on SoP has been issued, with an aim to encourage inputs (authored or anonymous) from across the profession

## CALL FOR INPUT

### **Astro2020 Panel on the State of the Profession and Societal Impacts**

Astro2020 is the first decadal survey of astronomy and astrophysics to establish a Panel on the State of the Profession and Societal Impacts. Its goal is to assess the health of the community, including topics such as demographics, diversity and inclusion, workplace climate, workforce development, education, and public engagement. Community input is critical for this endeavor, and we invite you to share your thoughts, ideas, and comments with the panel by completing [this form](#). This input will help the panel make actionable suggestions to the Astro2020 steering committee on what the profession should look like in 2030 and how that vision can be realized. Submissions can be made either anonymously or signed. Only comments received by **March 6, 2020**, will be considered by the panel.

# Questions?

*NB: Now that deliberations are under way, we cannot comment on specific projects, missions, proposals, or white papers/APCs.*

# Extra Slides

# Technical, Risk, & Cost Evaluation (TRACE; formerly known as CATE)

- Independent evaluation of project/activity concepts for technical risk, maturity and cost/schedule
- TRACE process will provide an analysis of technology development needs and an independent cost assessment
- Analysis (and the survey) recognizes most concepts evaluated are early stage (pre-Phase A)
- Process is accommodating the varying levels of definition and maturity of implementation plans