

Astro 2020

A large, stylized constellation diagram is the central visual element. It features a network of thin blue lines connecting various points, with several prominent, thicker blue lines forming a large 'X' shape. The background is black, and the diagram is populated with numerous small yellow dots of varying sizes, representing stars or data points. The overall aesthetic is clean and scientific.

Decadal Survey on Astronomy and Astrophysics

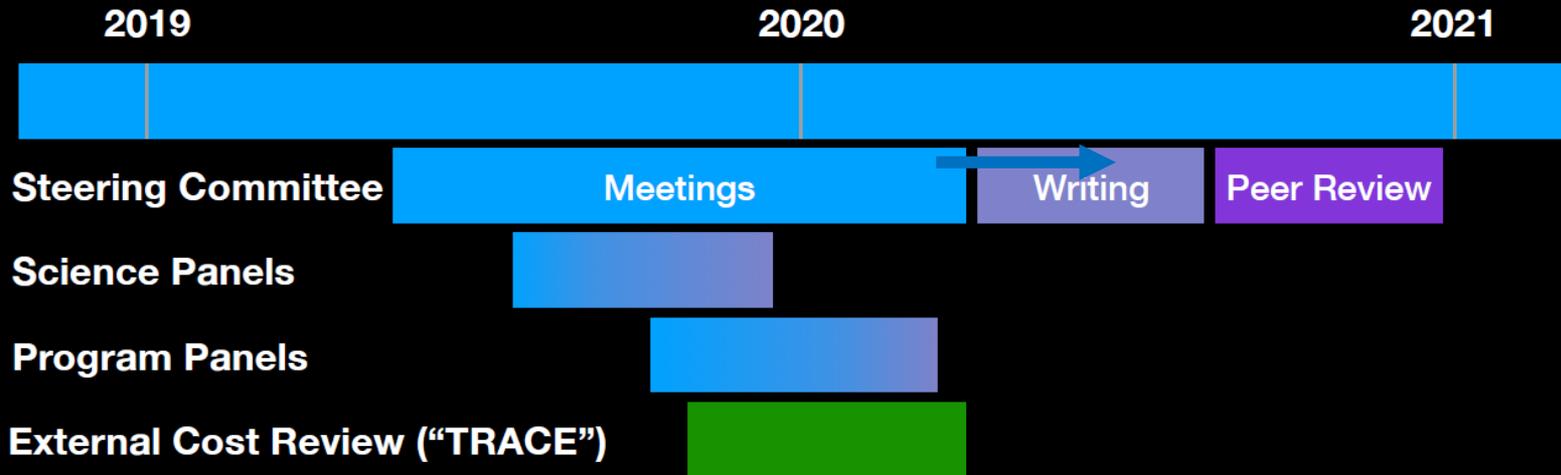
AAAC Briefing
26 September 2019

*The National
Academies of*

SCIENCES
ENGINEERING
MEDICINE

nas.edu/astro2020

Notional Decadal Survey Timeline



TRACE=Technical, Risk, & Cost Evaluation

Astro2020 Steering Committee Membership

Fiona A. Harrison, Co-Chair

California Institute of Technology

Robert C. Kennicutt, Jr., Co-Chair

University of Arizona and Texas A&M

Julianne Dalcanton

University of Washington

Pieter van Dokkum

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Stanford University

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International Society for Optics and Photonics (SPIE)

Rachel A. Osten

Space Telescope Science Institute

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Princeton University

Eliot Quataert

University of California, Berkeley

Wanda A. Sigur

Lockheed Martin, Retired

Rachel Somerville

Flatiron Institute/Rutgers University

Keivan G. Stassun

Vanderbilt University

Jean L. Turner

University of California, Los Angeles

Tim de Zeeuw

Leiden University

Ellen G. Zweibel

University of Wisconsin, Madison

Highlights from 1st Steering Committee Meeting (July 15-17)

- All three agencies asked for an ambitious program (i.e., above current funding levels); funding profiles TBD
 - the agencies also need a strong visionary case to justify the ambitious program
 - both messages echoed by Congressional and OMB staffers
- Agencies reiterated importance of providing decision rules
- Agencies clarified questions about statement of task and nature of advice needed on program components
- Closed session discussions focused on guidance to panels and technical/cost assessments (TRACE)

White Papers

- White papers are the primary method for community input and drive what the survey considers
- Science whitepapers ~590 submissions
 - submitted in March 2019, all read and discussed by science panels
- Activity and Project, and State of the Profession Consideration (APC) whitepapers
 - 300+ papers submitted July 10
 - ~250 APC white papers are relevant for program panels
 - ~70 papers address State of Profession
- Some topics inevitably straddle panel boundaries. We have attempted to assign general subtopics to a single panel
- All papers can be viewed at:
 - https://sites.nationalacademies.org/DEPS/Astro2020/DEPS_192906

Astro2020 Panel Overview

- 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 Chakrabarti, MIT)
- Panel on Exoplanets, Astrobiology, and the Solar System (Victoria Meadows, U Washington)

- Program Panel on Electromagnetic Observations from Space 1
- Program Panel on Electromagnetic Observations from Space 2
- Program Panel on Optical and Infrared Observations from the Ground
- Program Panel on Radio, Millimeter, and Submillimeter Observations from the Ground
- Program Panel on Particle Astrophysics and Gravitation
- Program Panel on An Enabling Foundation for Research

- Panel on State of the Profession and Societal Impacts

New for Astro2020

- Panel on An Enabling Foundation for Research:

laboratory astrophysics; theory, computation, simulation; data collection, archiving, and analysis; facilities, funding, and programs; general technology development; international and private partnerships, and relevant areas of public policy;

- Panel on the State of the Profession and Its Societal Impacts

gather information on the health and demographics of the astronomy and astrophysics community and make actionable recommendations to the Astro 2020 committee on the topics of demographics, diversity and inclusion, workplace climate, workforce development, education, public outreach, benefits to the nation, and relevant areas of astronomy and public policy

Panel Formation and Rosters

- First step was to recruit and appoint panel chairs, chairs worked with steering committee and NAS staff to fill panel rosters
- Every panel has a liaison (non-voting) member from the Steering Committee; this has proven to be very effective in facilitating communications within the survey, and identifying common questions and issues
- Science panels filled first, all have held first face-to-face meetings
- Program panels and SoP filled next, rosters complete (one finishing), awaiting formal NAS approval. Including the main committee ~150 individuals are serving on Astro2020 panels. Panel memberships are posted as they are approved.
 - strong efforts to achieve diversity of membership (e.g., demographics, institution size and type) across the full set of committees

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
 - 1st meetings completed, mainly white paper reviews, discussions, planning
 - 2nd meetings in Sept - Oct, to formulate key science priorities, plan reports
- Deliverables
 - key science questions and discovery areas (similar to Astro2010)
 - panel reports, but shorter than 2010

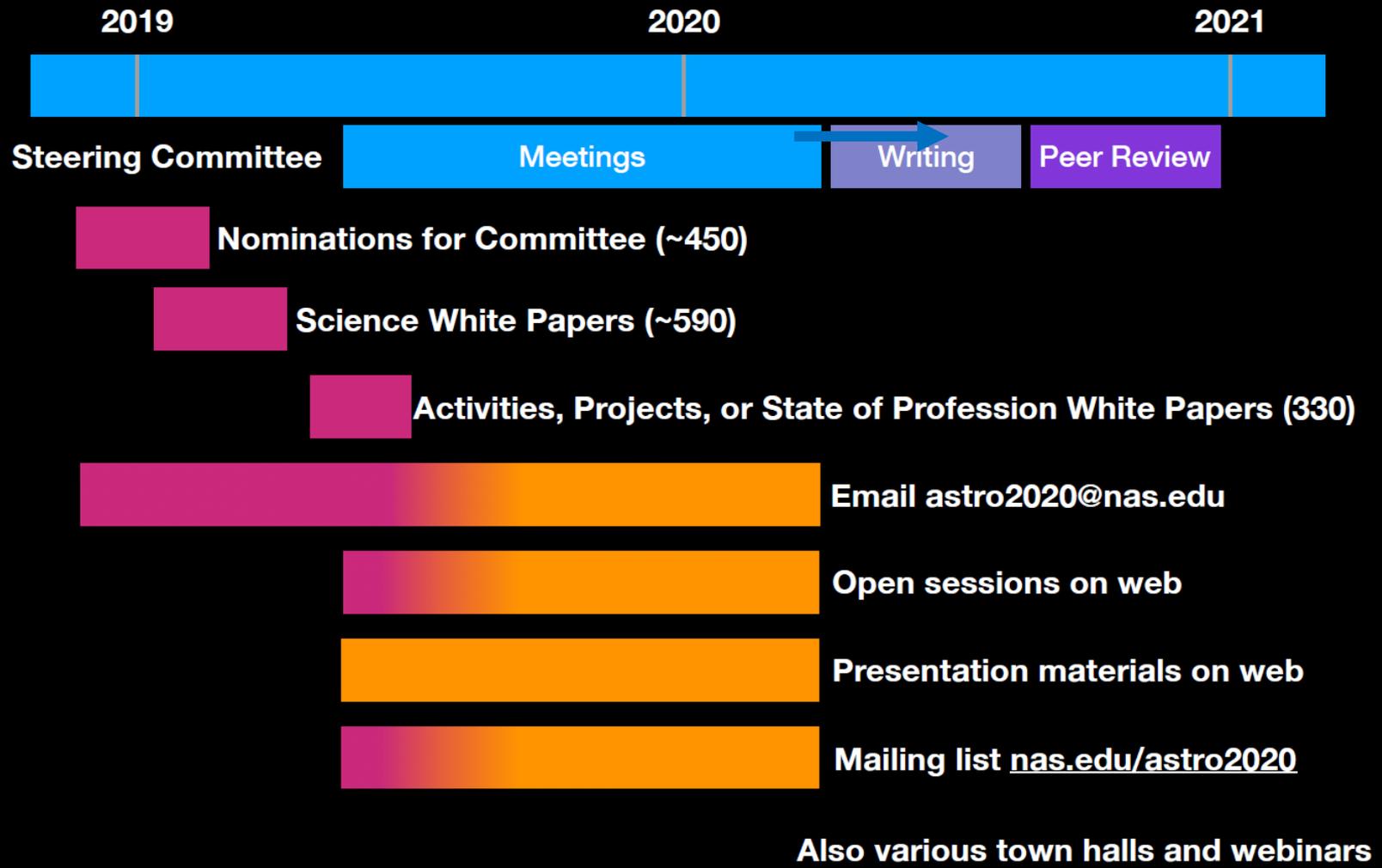
Program Panels

- Key goals and activities
 - assess proposed projects and activities against science priorities and technical readiness, risk, cost, and forward priority activities for ranking by the steering committee
 - recommend projects for TRACE analysis (Aerospace Corp) and use results in its assessments
 - 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
 - will receive briefings from science panels in December 2019
 - NASA has furnished concept studies for flagship and probe proposals, will pass on its internal assessments this fall

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

- Independent evaluation of project/activity concepts to help the program panels and committee assess feasibility
- TRACE process will provide an analysis of technology development needs and an estimated cost range
 - contractor required to have expertise on ground-based projects (can use a sub-contractor)
- Most concepts evaluated are early stage (pre-Phase A)
- Aerospace Corporation has been selected; details of process, RFIs, being defined in consultation with steering committee working group

Public Participation



Questions and General Discussion