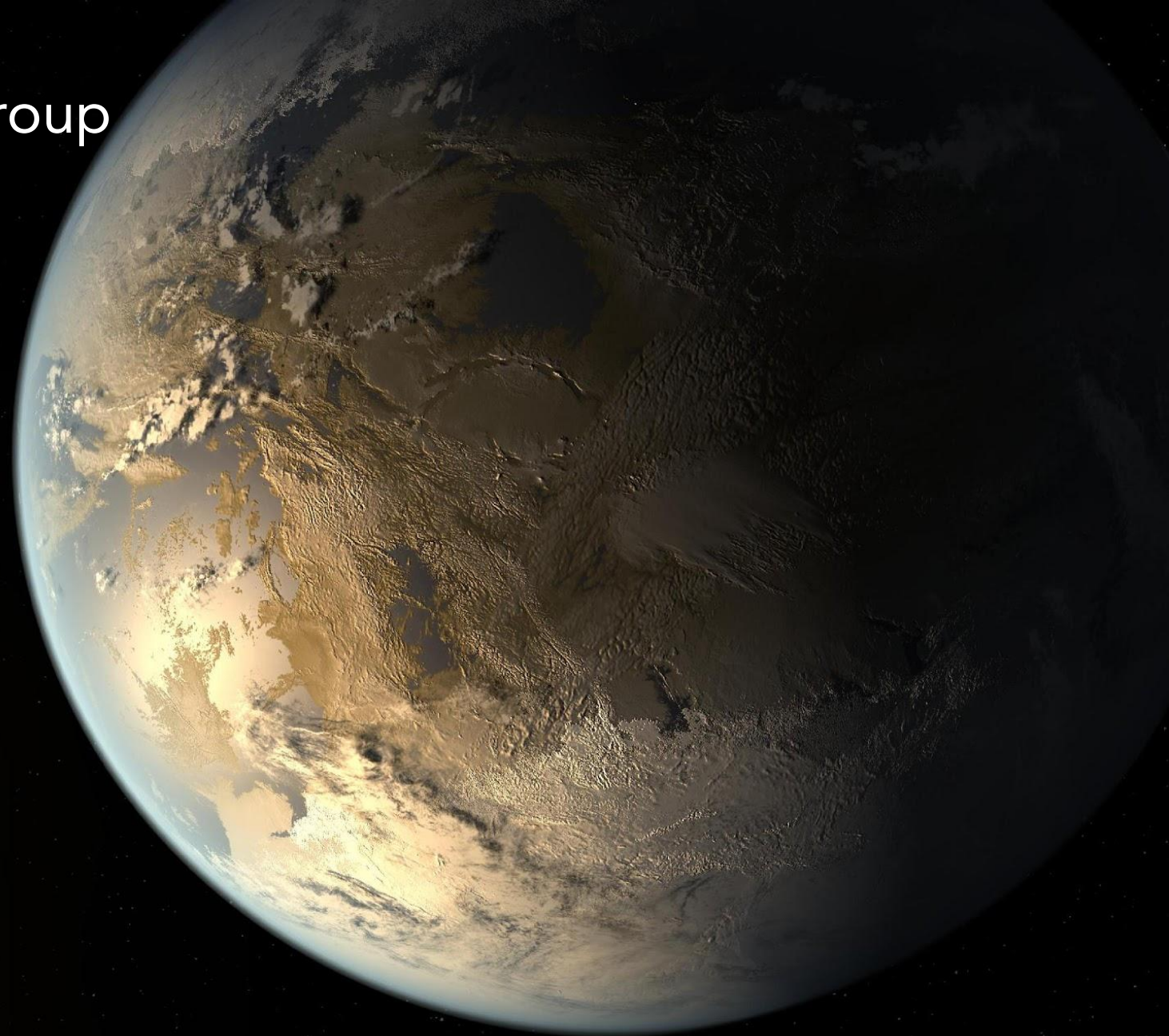


Exoplanet Program Analysis Group (ExoPAG) Report:

Michael Meyer (ExoPAG EC Chair)
October 15th, 2021.



Astrophysics Advisory Committee Meeting

Credit: NASA

ExoPAG Executive Committee

Michael Meyer (Chair)

University of Michigan

Natasha Batalha

NASA-Ames

Jacob Bean

The University of Chicago

Michael Bottom

The University of Hawaii

Ofer Cohen

University of Massachusetts Lowell

Knicole Colon

Goddard Space Flight Center

John Debes

Space Telescope Science Institute

Tiffany Kataria

JPL/Caltech

Ilaria Pascucci

The University of Arizona

Josh Pepper

Lehigh University

Dmitry Savransky

Cornell

Laura Schaefer

Stanford University

Douglas Hudgins (Astrophysics)

NASA HQ

Hannah Jang-Condell (ExEP DS)

NASA HQ

Doris Daou (Planetary Liaison)

NASA HQ

Richard Eckman (Earth Liaison)

NASA HQ

Galen Fowler (Heliophys Liason)

NASA HQ

Our newest members!

ExoPAG Activities (since June 2021 APAC):

- Report out to NExSS/P/AG and PSAC.
- APD Cross PAG activities:
 - Cross PAG SAG on barriers to participation.
 - APD Sessions proposed for SACNAS and NSBP.
 - Discuss tech gap synergies and NASA Open Science.
- Review ExEP Science Gap List 2021
- Cancel Community Forum this fall (Astro2020 delay).
- New SAG TORs under development.
- Concerns about XRP selection rate & JWST Cycle #1.
- Planning for ExoPAG 25
 - to be held in Salt Lake City w/ AAS.
 - Remote participation will be supported.
- Discussions regarding NASA Open Science Initiative.

PLANET HOP FROM
TRAPPIST-1
Credit: NASA

VOTED BEST "STUDY ABROAD" DESTINATION

Exoplanet Exploration Program Science Gap List

<https://exoplanets.nasa.gov/exep/science-overview/>



EXOPLANET EXPLORATION PROGRAM
Science Gap List
2021

Karl Stapelfeldt, Program Chief Scientist
Eric Mamajek, Deputy Program Chief Scientist

CL#21-0379 JPL Document No: 1792073

PLANET HOP FROM
TRAPPIST-1
Credit: NASA

VOTED BEST "STUDY ABROAD" DESTINATION

Current Status of SAGs and SIGs:

<https://exoplanets.nasa.gov/exep/exopag/overview/>

Close Year	SAG or SIG	Title	Lead
----	SIG 2	Exoplanet Demographics.	Christiansen & Meyer
----	SIG 3	Exoplanet Solar System Synergies.	Meadows & Mandt
----	SAG 21	Stellar Contamination on Transit Spectra (report end of year).	Rackham & Espinoza
----	SAG 22	Exoplanet Host Properties Database (report submitted for EC review)	Pepper, Stark, & Hinkel
----	SAG 23?	To be finalized...	TBD

All are very active and open to participation if any community members would like to know more!

Credit: NASA

SIG 2 - Exoplanet Demographics

Chairs: Jessie Christiansen (NExSci/IPAC) & M. Meyer (UM)

- Monthly telecons discuss new demographic results from multiple techniques (radial velocity, microlensing, transit, direct imaging).
- Curating a list of open questions/ongoing projects for the community.
- *Draft report on value of public database of demographic products, covering all techniques, to be submitted this fall (update at ExoPAG 25).*

SIG 3 ExoSS Goals, Progress, Plans



Chairs: Victoria Meadows (UW/NExSS/ExoPAG), Kathy Mandt (JHU/APL/OPAG)

Goal: To provide a forum for interaction between the Solar System and exoplanet communities on topics of mutual interest, and to work to identify ways in which NASA and the scientific community could enhance these interactions.

Status: The SIG3 is active and open to all.

- Promoted community-led Planetary Decadal activities: List of lists - <https://bit.ly/3fu6ang>
- Monthly SIG3 Tutorial/Journal Club to explain key concepts to each other
- ExoSS Slack Channel – all are welcome! (Email: meadows@uw.edu)
- Gathering community input on key ExoSS synergies: <https://tinyurl.com/yxbnyfwu>
- Recruiting members from diverse science communities (e.g. DPS and PEN).
- ***Promote potential collaboration between the exoplanet and Solar System communities, such as a future Exoplanets in Our Backyard 2 (fall 2022).***

SAG 21: The Effect of Stellar Contamination on Space-based Transmission Spectroscopy

Coordinators: Néstor Espinoza & Ben Rackham.

Report at ExoPAG 24 (June 24). Final written report due before end of year.

SAG 22 – Exoplanet Host Properties

Coordinators: Joshua Pepper, Chris Stark, & Natalie Hinkel

Draft of report submitted to ExoPAG EC. Will report out at ExoPAG 25.

Both SAGS were large and very active. Reports are expected in fall of 2021 for APAC review at next meeting.

Science Analysis Group proposals under consideration:

- Draft TORs for a new exozodi SAG based on the results from the HOSTS survey, new results from ALMA, recent high contrast imaging of debris disks in reflected light, studies of dust in the Solar system (and beyond), and archival results from Spitzer/Herschel (cf. SAG-1 report):
 - Do we need a renewed effort to assess risk to exoplanet imaging missions presented by zodiacal light?
 - Status: Under development by J. Debes for review by EC with plans to issue call for potential leadership roles to community.
- Analysis of synergies between ground- and space-based technology (wavefront control and diffraction suppression), as well as science algorithm development, in the context of high contrast imaging.
Status: Waiting for guidance from Astro2020.

Draft Agenda for ExoPAG 25:

- Astro2020 Discussion:
 - To understand recommendations (not to editorialize).
 - Will invite members of the Executive Committee for discussion.
 - How can ExoPAG support APD in response?
- EPRV Report and Research Coordination Network.
- SAG22 Final Report.
- SIG-2 White Paper.
- Discussion of Debris Disk SAG.
- JWST Update.
- Roman Space Telescope Exoplanet Science Opportunities.
- Presentations by Junior Scientists.
- Update on Exoplanet Explorers.

Back-up



Credit: NASA

What are “ExoPAG Findings”?:

- Process for whole community to contribute to analyses forwarded to Astrophysics Division leadership as input.
- We do not give “recommendations” but “findings” based on analysis.
- Three findings approved in January 2020 and one in March 2021.
<https://exoplanets.nasa.gov/exep/exopag/exopagFoundingDocuments/exopag-findings/>
- Ideas for new findings solicited from community (e.g. ExoPAG email and at Business Meetings) and discussed at community forum (e.g. Summer ExoPAG).
- Those with community support are reviewed by ExoPAG EC and top 1-3 findings put forward to ExoPAG for a vote (more than 2/3 support needed to “pass”).
- Ideas not adopted (or selected for vote) can be kept and re-discussed in future.
- Affirmation of findings generally scheduled for winter ExoPAG meeting.

ExoPAG Proposed Finding:

On the value of investing in interdisciplinary exoplanet science of scale over longer periods of performance.

"Whereas exoplanet science is inherently interdisciplinary, requiring expertise in heliophysics, earth science, planetary science, and astrophysics, among other disciplines, as well as deep and broad knowledge in theory, computation, observation, experiment, statistics, and instrument development, and whereas interdisciplinary research can require longer timeframes and greater resources to take full advantage of such diverse expertise within a collaboration, and whereas existing opportunities of scale that permit longer periods of performance to support interdisciplinary research teams are restricted to areas that specifically address the goals of the astrobiology program,

We find that longer term programs of scale (e.g. five year periods of performance and up to several million USD awards) would enable NASA to rapidly and efficiently address linked sets of the Exoplanet Exploration Program Science Gaps, for example 01-03, 02, 04-06, and 07-08-10, which contribute significantly to achieving NASA's strategic goals, provided that such new opportunities did not come at the expense of existing programs which are also extremely valuable to help NASA achieve its strategic goals."

Exoplanet Explorers Program Launched!

Steering Committee (all are members of ExoPAG EC):

T. Kataria (JPL), N. Batalha (NASA-Ames), J. Christiansen (IPAC), & J. Pepper (Lehigh)

Early career (grad students & postdocs) cohort for speakers series.

Half-hour monthly seminar series.

Stipend for presentation and weekly interaction with cohort.

Monthly professional development interaction with senior scientists in the field.

Additional professional development workshops to be decided by cohort.

Proposals due November 5, 2020! To be selected by ExoPAG EC.

Pilot Program January-June 2021.

For more information: <https://exoplanets.nasa.gov/exep/exopag/exoexplorers/>

