LUVOIR

LARGE UV / OPTICAL / INFRARED SURVEYOR

Study Lead Center : Goddard Space Flight Center

Study Scientist : Aki Roberge (GSFC)

NASA Astrophysics Subcommittee Meeting

Washington, DC

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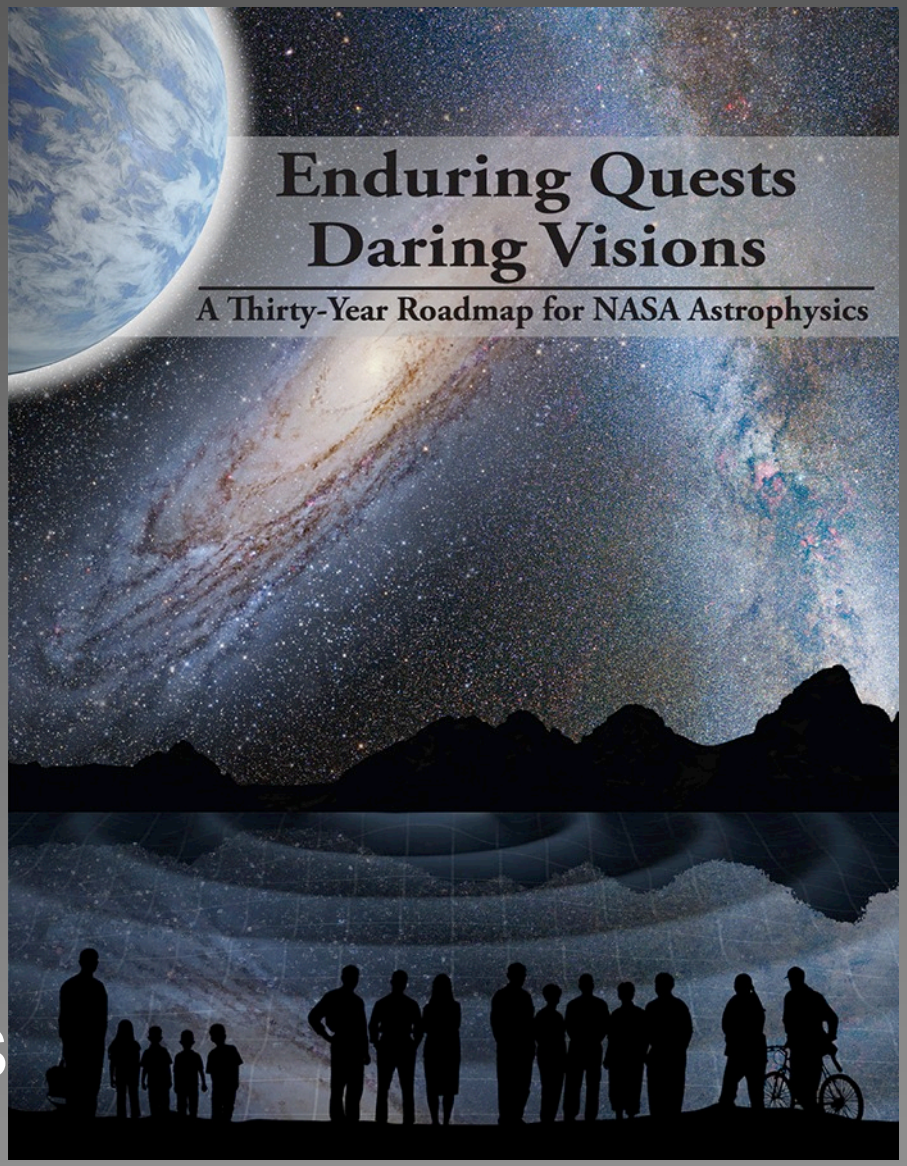
What is LUVOIR ?

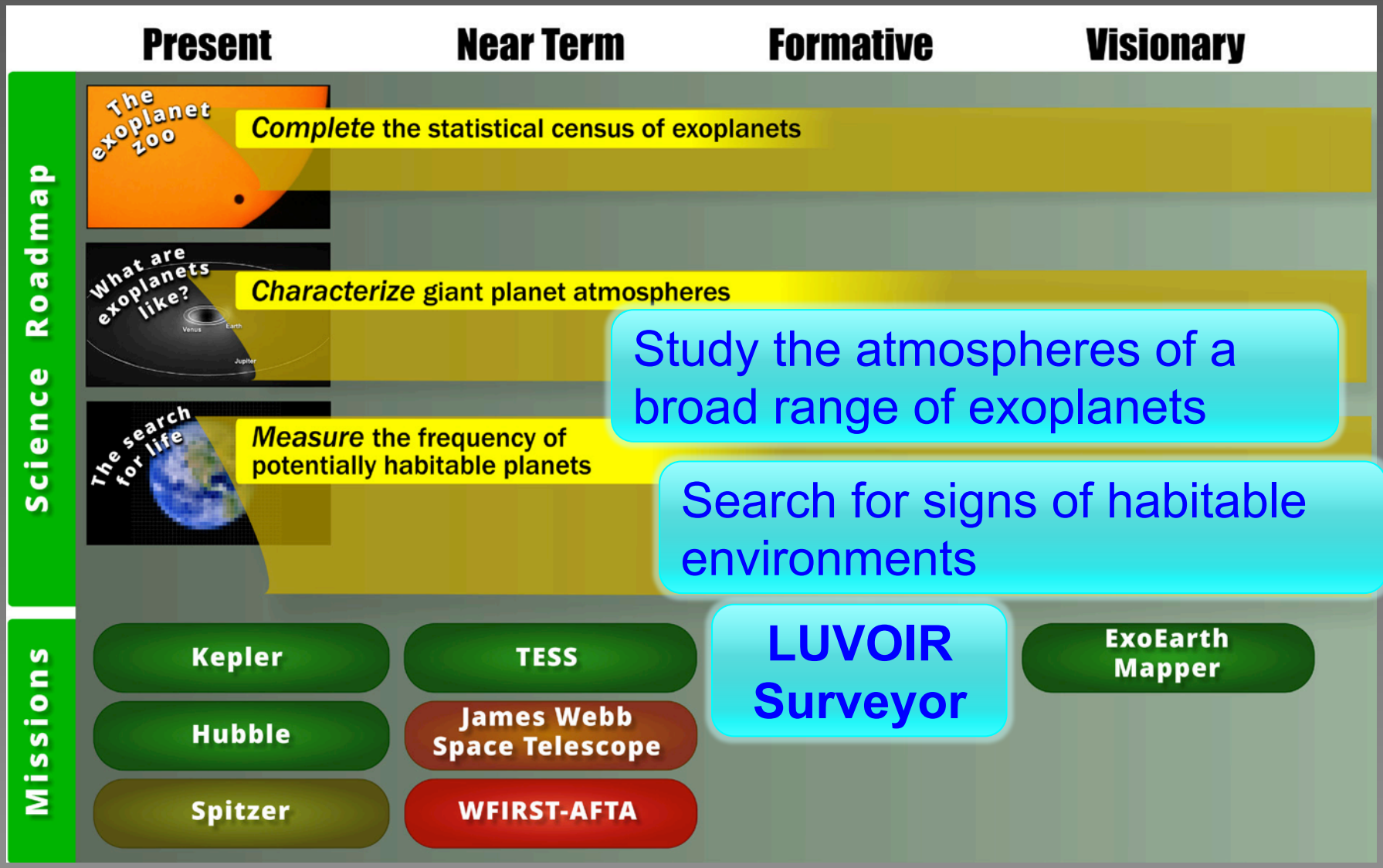
- General purpose, multi-wavelength observatory with broad science capabilities
- Born out of the 2013 Astrophysics Visionary Roadmap
  - Other LUVOIR-like concepts: ATLAST, HDS



Leap forward in cosmic origins science

	Present	Near Term	Formative	Visionary
Science Roadmap	Stars & planets: *Discover* nearby planetary nurs			Measure protoplanetary disk structure
	Local galaxies: *Map* the entire Milky Way			Uncover the archaeology of all nearby galaxies
	Black holes: *Find* the first black holes			Characterize early black holes & their feedback
	History of galaxies: *Image* the first black holes			Characterize the first starlight & map the epoch of reionization
Missions	Hubble	LSST	LUVOIR Surveyor	Gravitational Wave Mapper
	Spitzer	Extremely Large Telescopes		X-ray Mapper
	Herschel	James Webb Space Telescope		ExoEarth Mapper
	ALMA	WFIRST-AFTA		Cosmic Dawn Mapper

Leap forward in exoplanet science

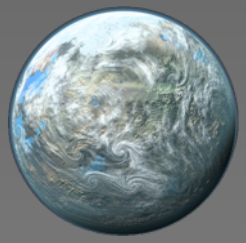


Study the atmospheres of a broad range of exoplanets

Search for signs of habitable environments

LUVOIR as envisaged by the PAGs

- Notional ! – all to be determined by the STDT
- Primary science goals
  - Broad range of cosmic origins science
  - Direct imaging of Earth analogs, search for biosignatures



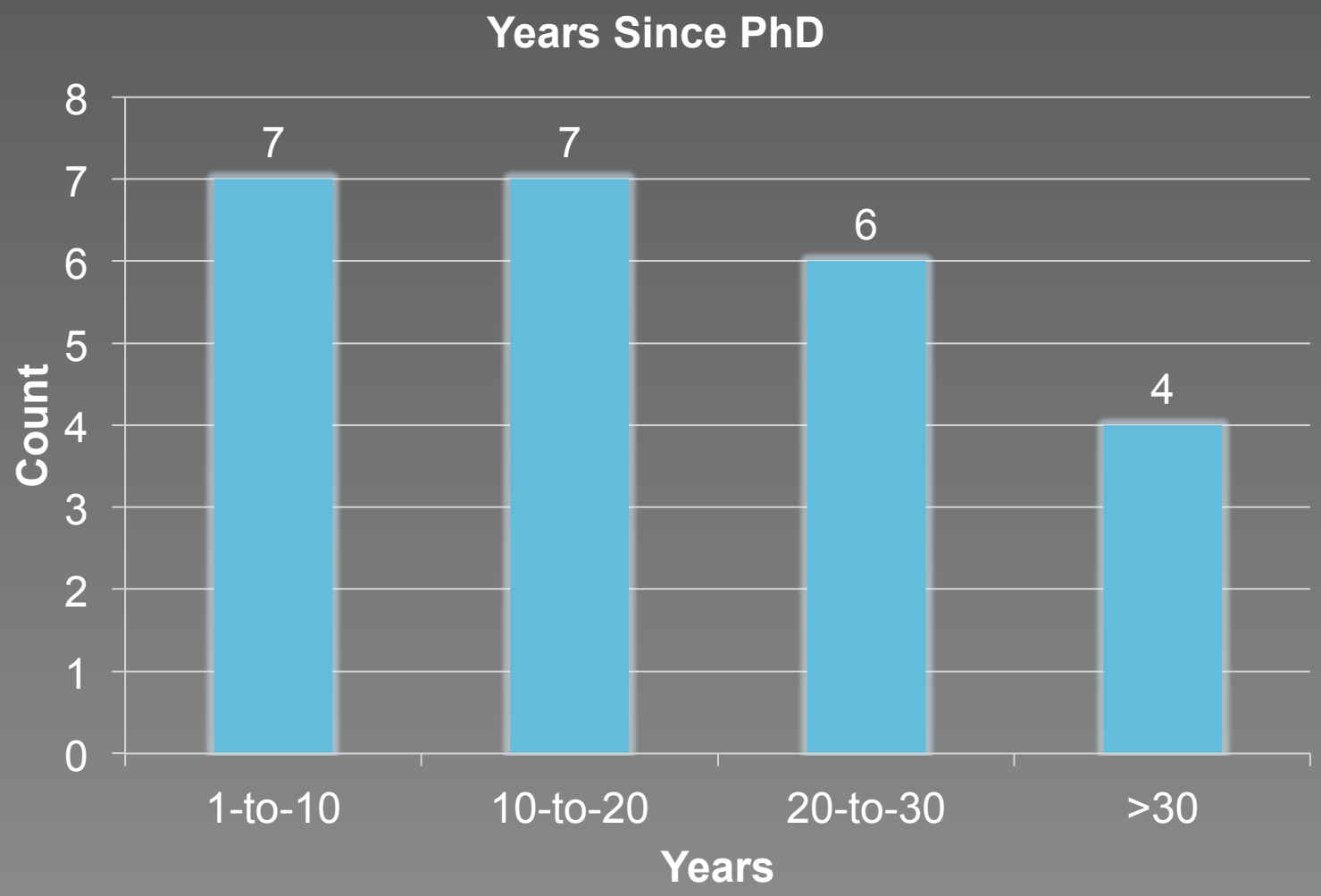
- Capabilities
  - FUV to NIR wavelength sensitivity
  - Some suite of imagers and spectrographs
  - High-contrast capability (~ 10^{-10})
  - Aperture diameter of order 8 – 16 m

STDT members

136 STDT nominations, 24 voting members selected

Debra Fischer (Chair)	Yale	Bradley Peterson (Chair)	Ohio State
Jacob Bean	Chicago	Leonidas Moustakas	JPL
Daniela Calzetti	U Mass	John O'Meara	St. Michael's
Rebekah Dawson	Penn State	Victoria Meadows	Washington
Courtney Dressing	Caltech	Ilaria Pascucci	Arizona (LPL)
Lee Feinberg	NASA GSFC	Marc Postman	STScI
Kevin France	Colorado	Laurent Pueyo	STScI
Jay Gallagher	Wisconsin	David Redding	JPL
Olivier Guyon	Arizona	Jane Rigby	NASA GSFC
Walter Harris	Arizona (LPL)	Aki Roberge	NASA GSFC
David Schiminovich	Columbia	Britney Schmidt	Georgia Tech
Mark Marley	NASA Ames	Karl Stapelfeldt	JPL

STDT seniority demographics



Additional study team members

Aki Roberge	NASA GSFC	Study scientist; also on STDT
Shawn Domagal-Goldman	NASA GSFC	Deputy study scientist
Julie Crooke	NASA GSFC	Study manager
Mario Perez	NASA HQ	Program scientist
Erin Smith	NASA HQ	Program scientist
Susan Neff	NASA GSFC	COR program chief scientist
Deborah Padgett	NASA GSFC	COR program chief scientist
Nicholas Cowan	McGill	CSA observer
Marc Ferrari	LAM	CNES observer
Thomas Henning	Max Planck	DLR observer

QUESTIONS?
NASA