



# Making the Case

Gordon K. Squires  
Caltech/IPAC – TMT

- Preliminary definition/terminology: WEPOC
  - **W**orkforce (development of STEM-related workforce)
  - **E**ducation (formal, informal ; schools, colleges, universities, life-long learners, etc.)
  - **P**ublic
    - **O**utreach
    - **C**ommunications

- Support the full TIO partnership with workforce, education, public outreach and communications (WEPOC) planning and programs
- Develop support in Hawaii for TMT
- Engage community in La Palma / Spain

**WEPOC activities are along the critical path for TMT**

**This is true for many modern large science projects**

- TMT WEPOC ...
  - Involves all of the international partners
  - Is active during all phases of the project
  - Focuses on what TMT can uniquely enable
  - Focuses on needs of all the partners and TIO as a whole
  - Is active locally and globally

- Gordon K. Squires (TMT)
- Sandra Dawson (TMT)
- Janesse Brewer (ex-officio; 23.4 degrees)
- Mitch Aiken (Caltech)
- Wako Aoki (Japan)
- Eric Chisholm (Canada)
- Samir Dhurde (India)
- Lisa Hunter (UC)
- Yiping Wang (China)

## “Making the Case: Outreach and Communications for Large, International Science Projects”

- Outcomes from the workshop at Caltech/IPAC - TMT (Pasadena, California, USA) ; April 11-13, 2017
- <https://conference.ipac.caltech.edu/wepoc2017/>



The screenshot shows a web browser window with the URL <https://conference.ipac.caltech.edu/wepoc2017>. The page features a dark header with the title "Making the Case 2017" and the dates "April 11, 2017 - April 13, 2017". A navigation menu on the left includes links for Home, Registration, Venue, Program, Accommodations, Participants, Organizing Committees, and Abstracts. The main content area displays the title "Making the Case: Outreach and Communications for Large, International Science Projects" and a brief description of the workshop. A list of key questions is provided at the bottom.

**Home**  
Registration  
Venue  
Program  
Accommodations  
Participants  
Organizing Committees  
Abstracts

### "Making the Case: Outreach and Communications for Large, International Science Projects"

"Making the Case" is a workshop to be held April 11-13, 2017 at Caltech/IPAC in Pasadena, CA, USA. Thirty Meter Telescope (TMT) is a co-host for the workshop.

This three-day workshop will provide Workforce, Education, Public Outreach and Communications (WEPOC) leaders from high energy physics and astronomy projects a candid forum for considering fundamental questions for large, international science projects:

- What is the value of WEPOC to the projects and their communities?
- How, when and where should WEPOC be defined, developed and implemented?
- What are the barriers and challenges in developing strategic plans and



Comprised of Workforce, Education, Public Outreach and Communications leaders from high energy physics and astronomy projects from around the world:

- Saeko Okada (co-chair): Head of Communication and Outreach, J-PARC
- Gordon K. Squires (co-chair) Director of WEPOC, Caltech/IPAC-TMT
- Janesse Brewer, 23.4 Degrees
- William Garnier: Director of Communications, Outreach and Education, SKA Telescope
- Masaaki Hiramatsu: Education & Public Outreach Officer, NAOJ Chile Observatory
- Pedro Russo: President of the IAU Commission C2 Communicating Astronomy with the Public
- Hitoshi Yamaoka: Chief of Public Relations Office, NAOJ
- Katie Yurkewicz: Director of Public Relations Office, Fermilab





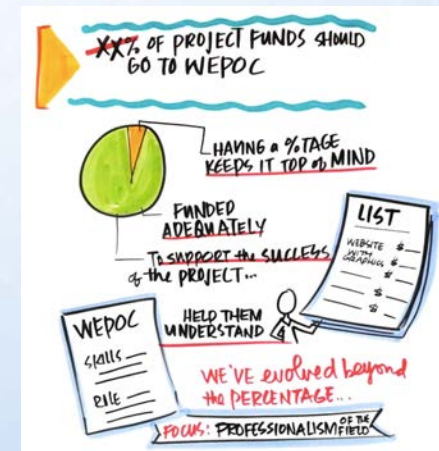
# Participants / Co-Authors



- Amanda Bauer — LSST
- Charles Blue — NRAO
- Janesse Brewer — 23.4 Degrees
- Whitney B. Clavin — Caltech
- Sandra Dawson — TMT Obs. Corp.
- Kristen Erickson — NASA Science
- Valeria Foncea — ALMA
- William Garnier — SKA Organisation
- Anna Godinho — CERN
- Saeko S. Hayashi — Subaru Telescope
- Masaaki Hiramatsu — National Astronomical Observatory of Japan
- Lisa Hunter — UCSC & UH
- Suzanne Jacoby — LSST
- Hussein Jirdeh — Space Telescope Science Institute
- Farnaz Khadem — Caltech
- Mark King — NASA, Marshall Space Flight Center
- Amanda Kocz — Giant Magellan Telescope
- Peter Michaud — Gemini Observatory/AURA
- Terry O'Connor — Science and Technology Facilities Council, UK
- Saeko Okada — J-PARC Center
- Jeff Rich — Carnegie Observatories
- Gordon K. Squires — Caltech/IPAC - TMT
- Kathy Svitil — Caltech
- Michelle Viotti — NASA/JPL
- Megan Watzke — Chandra X-ray Center
- Jon Weiner — Lawrence Berkeley National Laboratory
- Hitoshi Yamaoka — National Astronomical Observatory of Japan
- Katie Yurkewicz — Fermilab

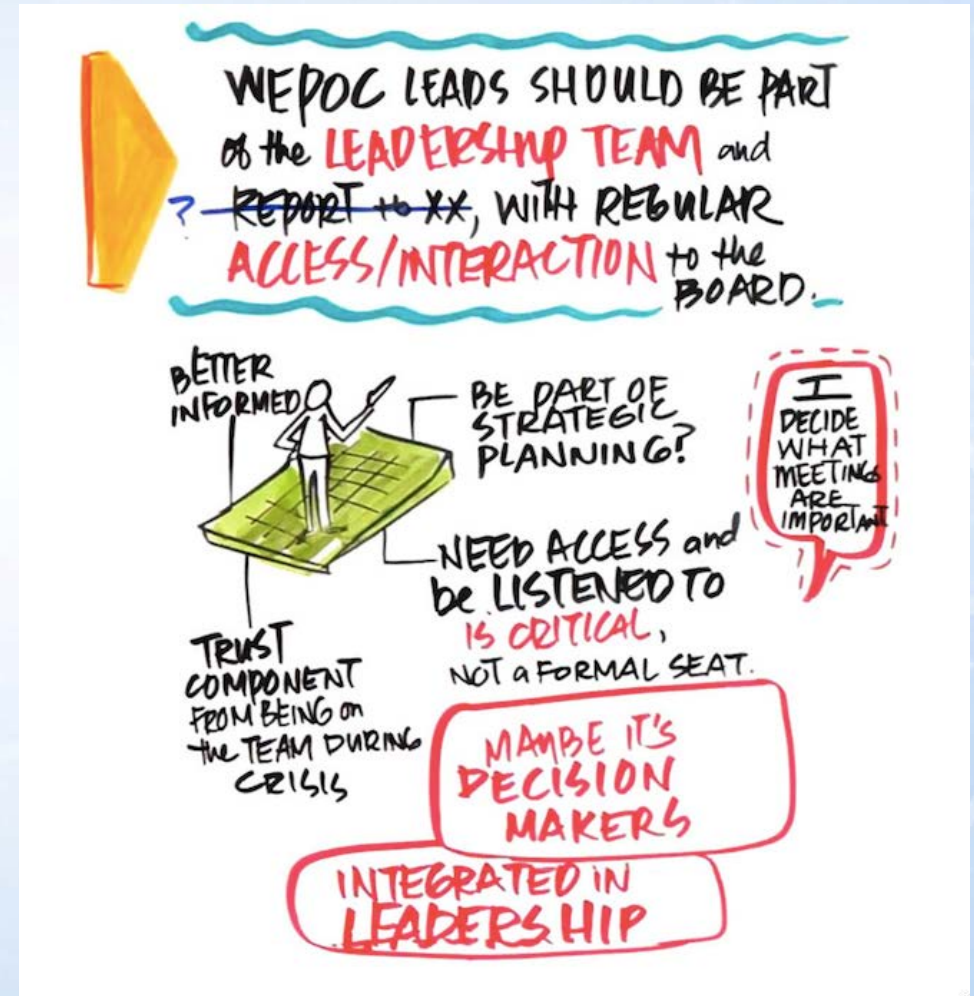
- Provide WEPOC leaders from high energy physics and astronomy a candid forum for considering fundamental questions for large, international science projects:
  - What is the value of WEPOC to the projects and their communities?
  - How, when and where should WEPOC be defined, developed and implemented?
  - What are the barriers and challenges in developing strategic plans and programs?
  - How do you make the case of the value of WEPOC to the international leadership in these projects?
  - For established programs, how do you continue to “make the case” for WEPOC and adapt and adjust for changing priorities, funding cycles, etc?

1. A phased WEPOC strategic plan should be initiated in the conceptual stage of the project, adequately resourced, and be aligned with the vision, mission, and strategy of the project and partners.



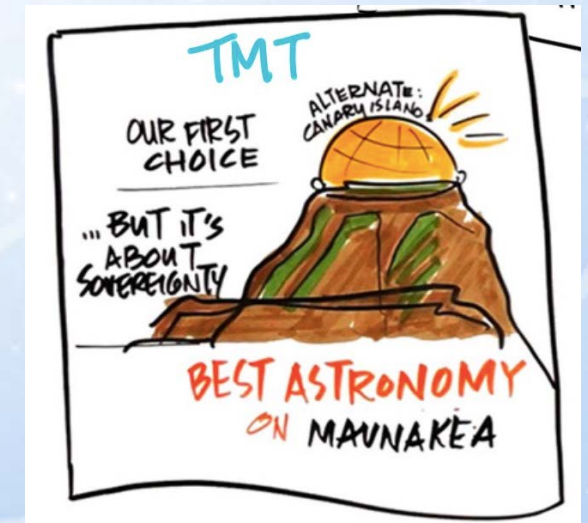
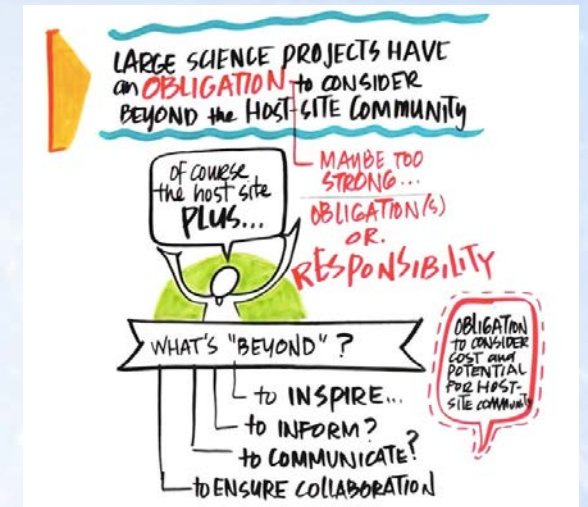
2. WEPOC leaders should be integrated into the leadership structure with access to the decision-making bodies.

3. WEPOC staff should hold relevant professional WEPOC qualifications and/or experience and undertake continuous professional development.



4. The project has a responsibility to consider the WEPOC requirements of all of its partners and the wider community.

5. WEPOC enables the project to fulfill an obligation to be respectful, responsive and an integral part of the site community.



6. Holding to a similar standard as the other elements of the science project, WEPOC programs should be reviewed by peers.

7. To improve performance and to ensure evidence-based outcomes, WEPOC should include evaluations appropriate to the individual WEPOC activities.

8. Successful WEPOC activities are inclusive and promote diversity.



- Publishable roadmap or whitepaper describing WEPOC potential contributions to large international science projects.
- Presentation to share with other colleagues in current and planned large, international science projects.
- Pathway for extending, and where needed, establishing formal or informal networks for science communication leaders working on international high energy physics and astronomy projects.
- A “manifesto” to be signed by Directors of major science projects, etc

*These outcomes are co-authored and endorsed by all of the participants of the workshop. More are welcome to join.*



# Astronomy Outreach in India

Samir Dhurde, IUCAA

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ASI-POEC, TMT WEPOC, LI-EPO, AstroSat TOT

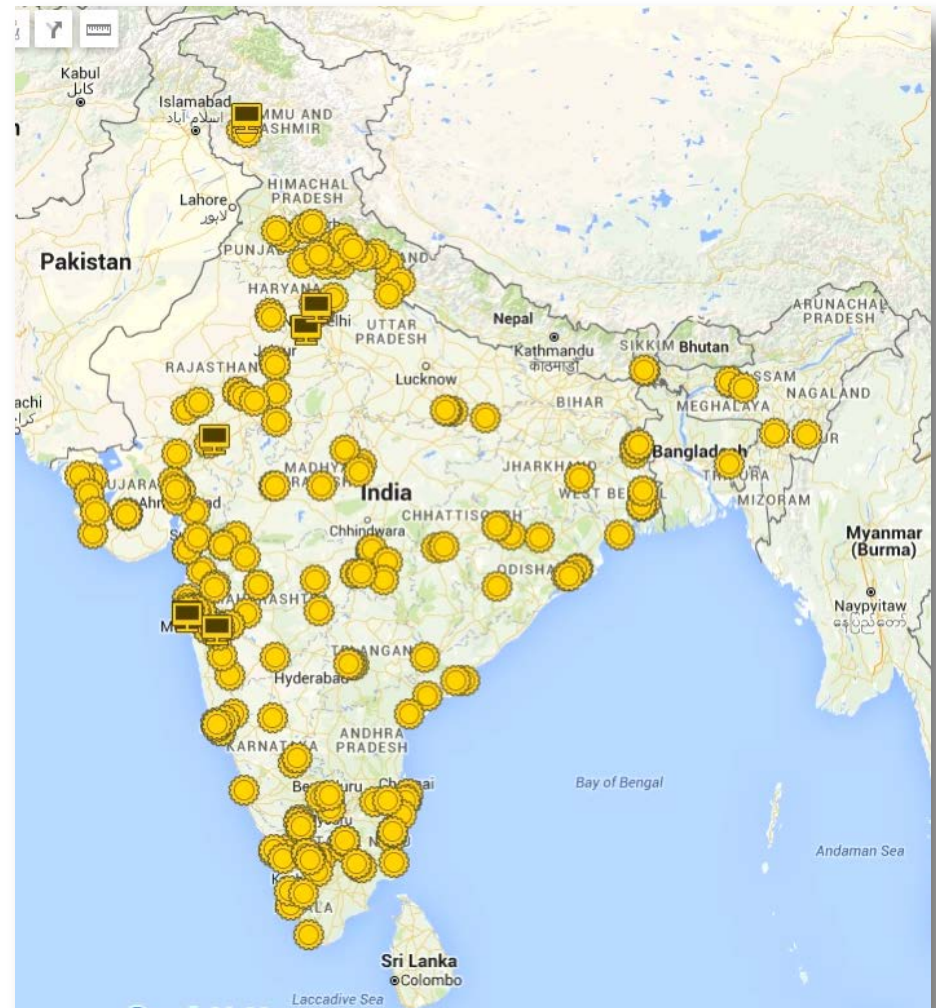


# Astronomy EPO in India

- India has a vibrant history of astronomy outreach and education for many decades, carried out by Astronomy Institutes and diverse local groups.
- National Science Day (28 Feb) is celebrated in every science institution in India (Those at GMRT and IUCAA are among the largest)
- There already exist informal networks of groups, usually confined to individual state.
- There have been informal national collectives formed for specific events, e.g. Total Solar Eclipses of 1995, 1999, 2009, IHY, IYA, Venus & Mercury transits, Comet ISON, etc.

# Outreach for Mercury Transit 2016

- Nationwide crowd-sourced public telescope viewing
- Live webcast from many locations in India
- Creation of open source resource material
- Reached around 1 lakh (0.1 million) people



# Science & Astronomy Outreach at IUCAA



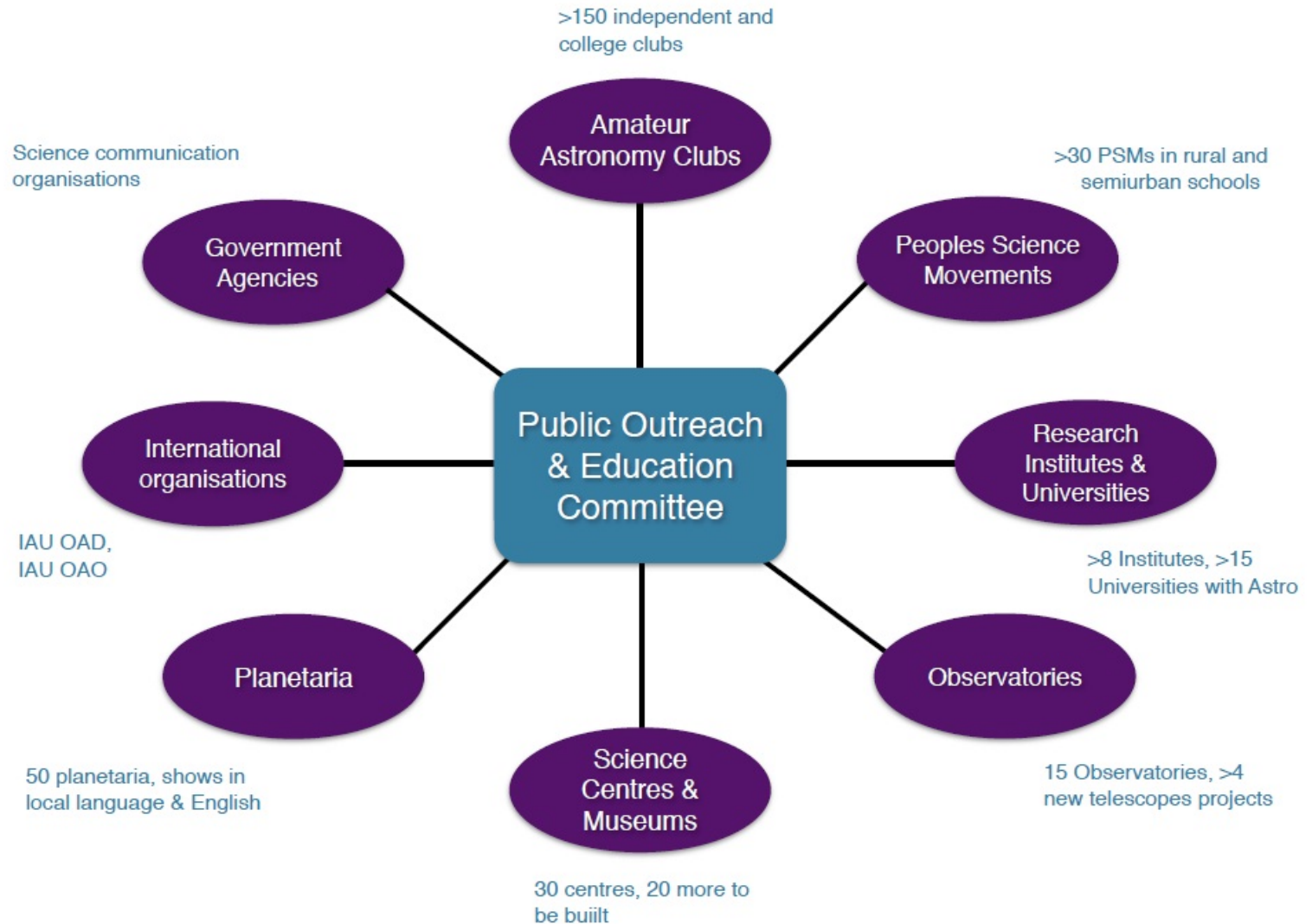
# Astronomical Society of India

The ASI set up the Public Outreach and Education Committee (POEC) in 2014 with a mandate to promote astronomy awareness and interest in the country

The current POEC has 9 members with varied backgrounds

- 4 professional astronomers
- 2 planetarium directors
- 2 astronomy outreach persons
- 1 person in a government science comm. organisation

# Survey of stakeholders



# POEC - activities

The POEC undertakes a wide variety of activities

- Creation of **resource material**
- Facilitating national **campaigns**
- Maintaining active **social media presence**
- Forming regional **networks of various kinds of stakeholders**
- Engaging with professional **astronomers and institutes**
- Highlighting ongoing **research and astronomy projects**
- Facilitate **outreach component to every professional meeting**
- Engaging with **students at various levels**
- Building a relationship with the **media**
- Engaging with **inter-disciplinary collaboration**
- Promoting astronomy as a **career and as an interest**
- Highlighting Indian outreach activities **internatioally**

# Future roadmap

## **Multilingual resource material**

- Comics
- List of low cost books
- Poster, tutorials, handbooks

## **Building networks**

- Newsletter
- State-wise phone based groups
- Social media

## **National campaigns**

- Zero Shadow Day
- Eclipse Dec '19, Jun '20
- IAU 100 yrs, 50 yrs Moon landing

## **Education and pedagogy**

- Teacher Training
- Workshop on astro experiments
- Festival of Measurement

## **Programs for students**

- Career brochure
- Event based campaigns
- ASTROSAT Pic of the Month

## **Involving astronomers**

- Liaise with the media
- Research News
- Facilitate public talks

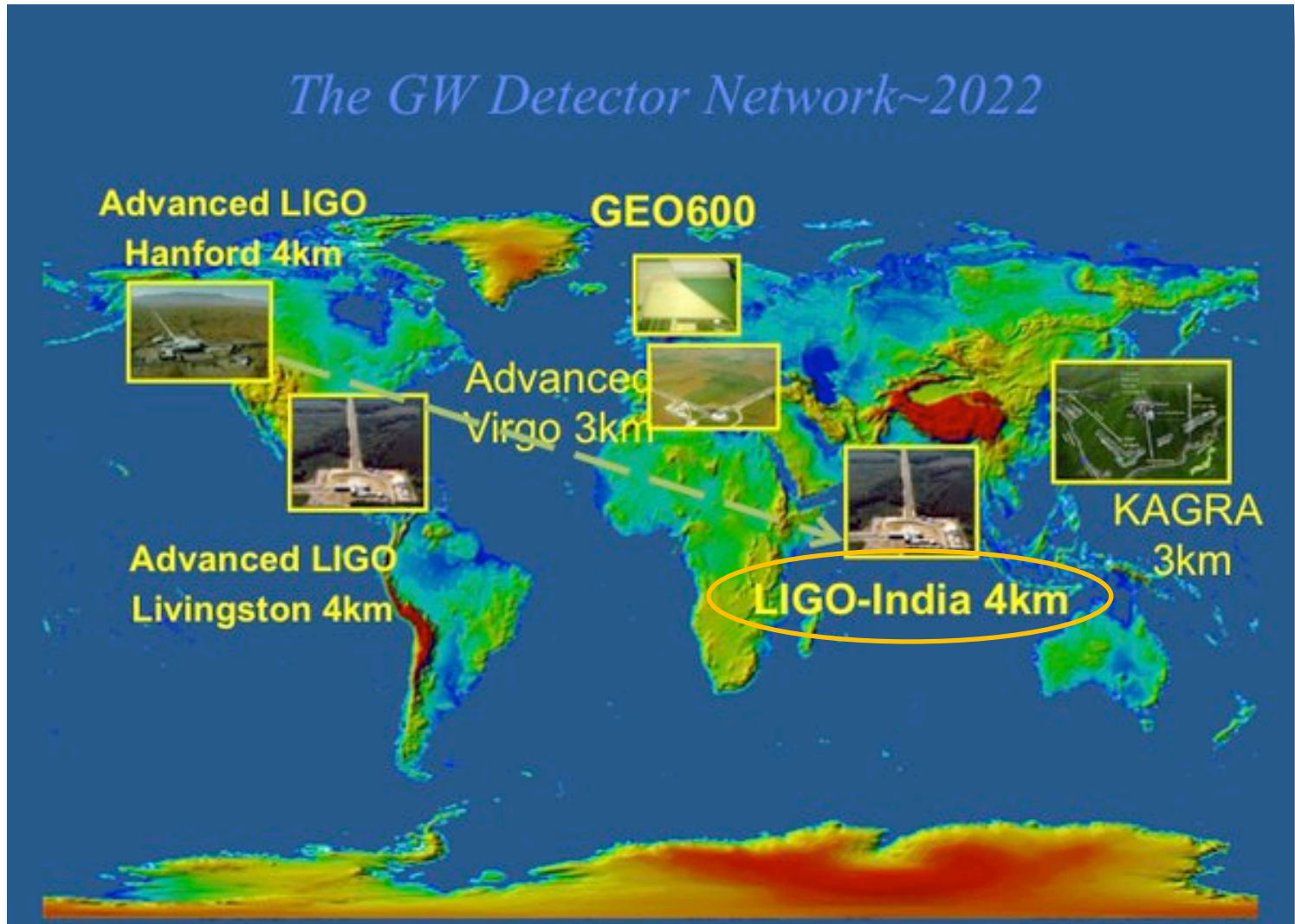
## **Internal Collaborations**

- • IAU: OAD & ROADS, OAO
- • UNAWWE
- • Neighbouring countries

## **Megaprojects Outreach**

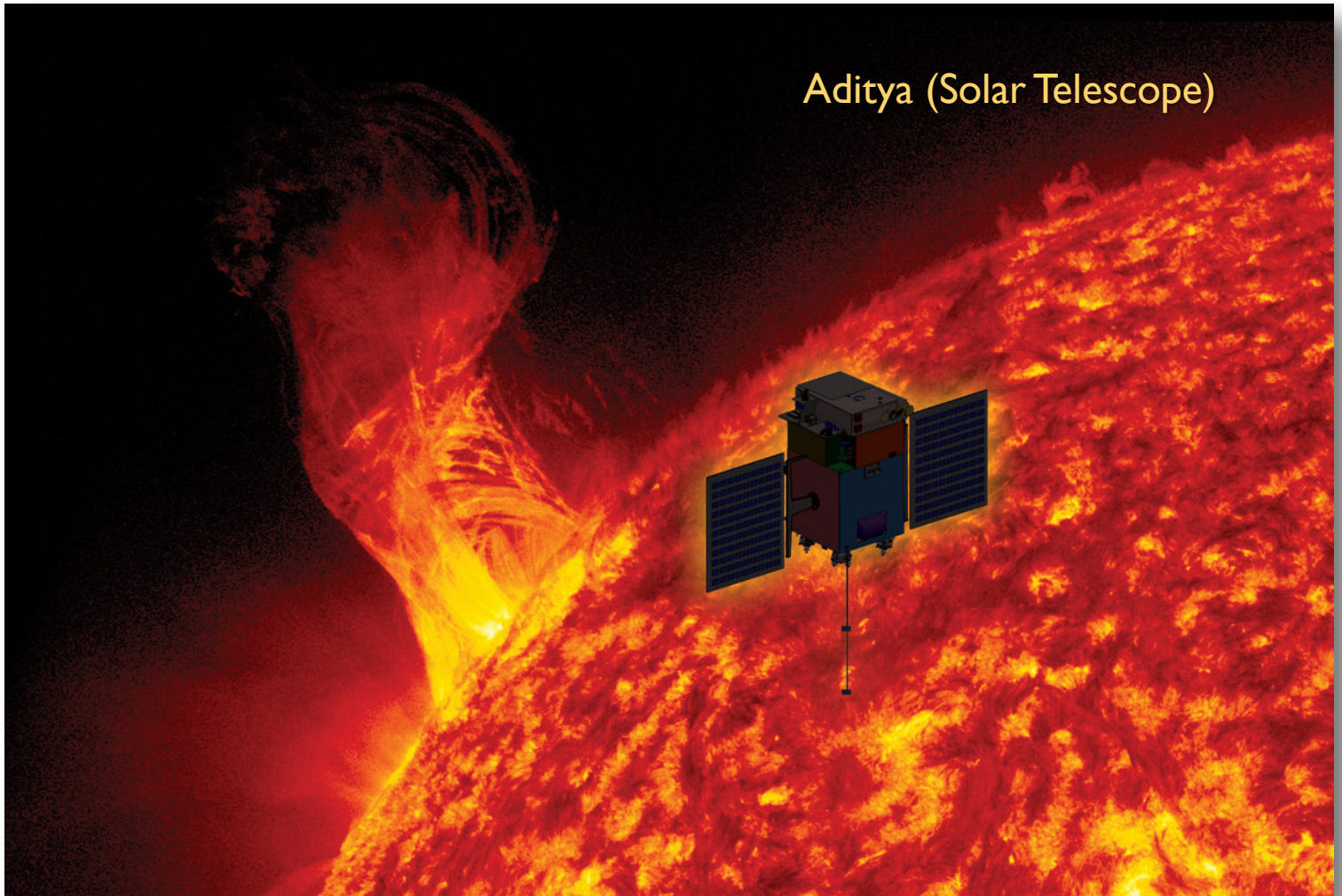
- TMT, LIGO-India, SKA, Aditya

# India - Astro Mega projects





# India - Astro Mega projects





- Part of Int'l TMT WEPOC advisory group
- Has national WEPOC advisory committee
- Contributing to workforce development programme design and implementation
- Helping survey partners' outreach infrastructure and make relevant resources
- Forming communication strategies
- Just had a meeting at IIA (3-5 Nov, 2017)

# TMT WEPOC 2017 @ Bengaluru

