



Astronomy and Astrophysics from Antarctica (AAA SRP)



John Storey

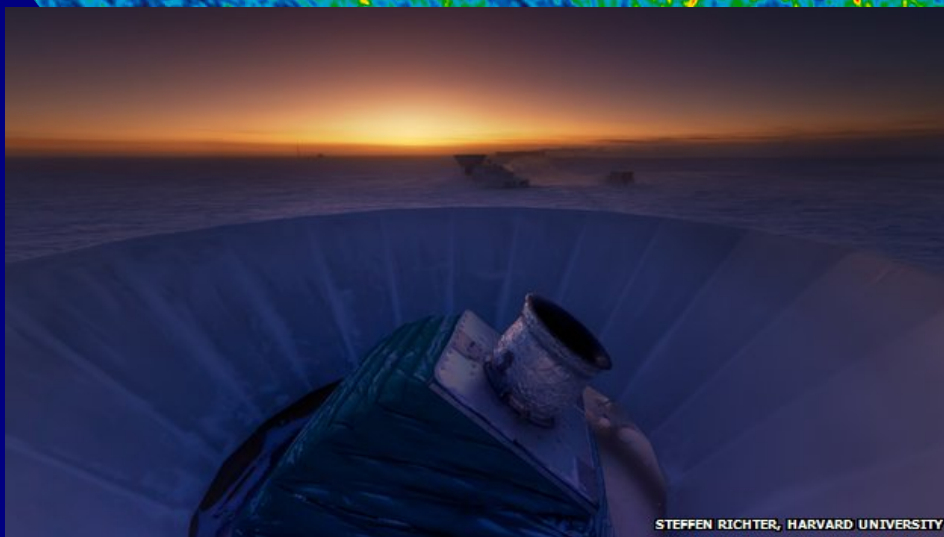
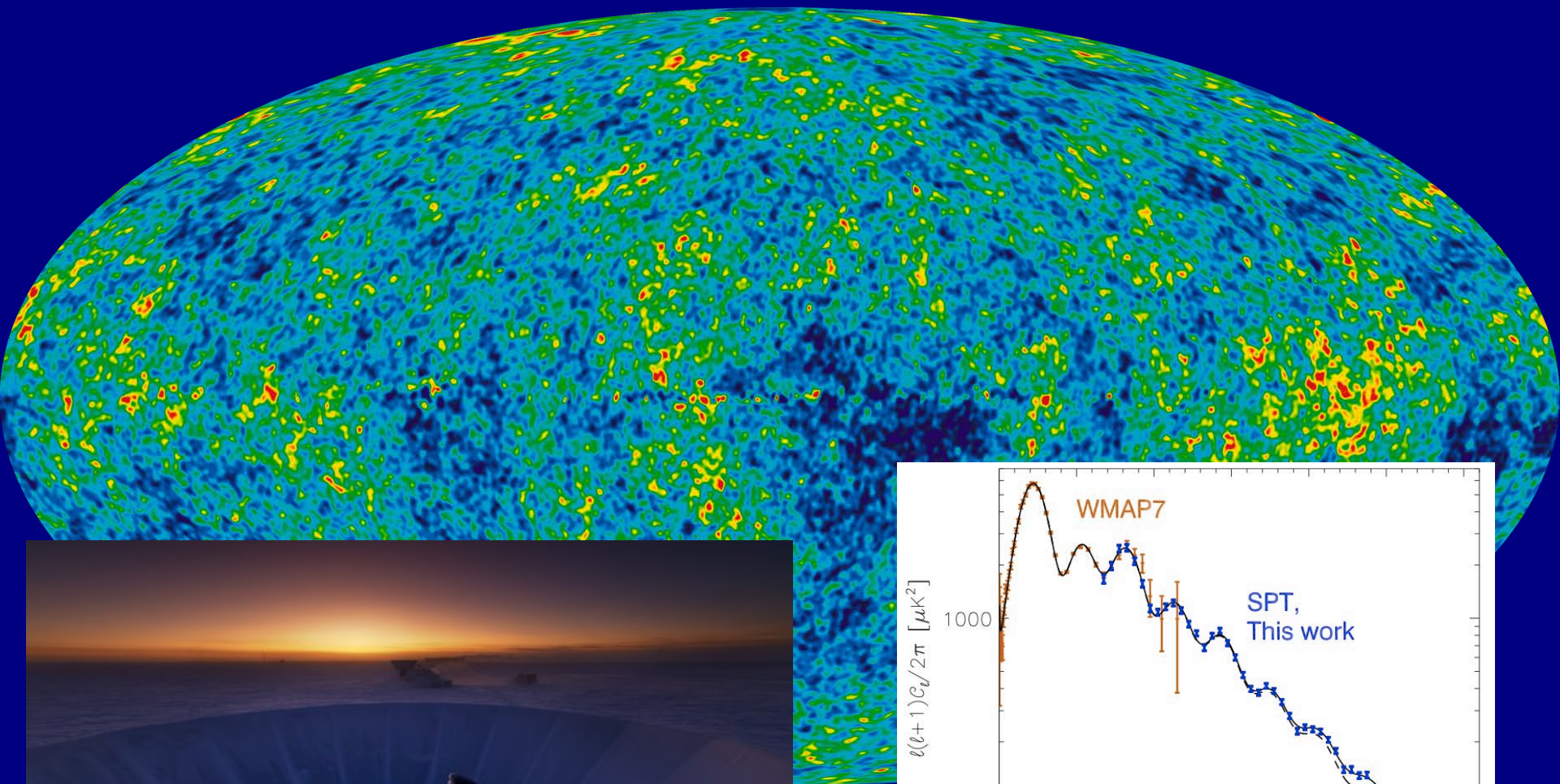
Image: Nic Bingham

Horizon Scan questions

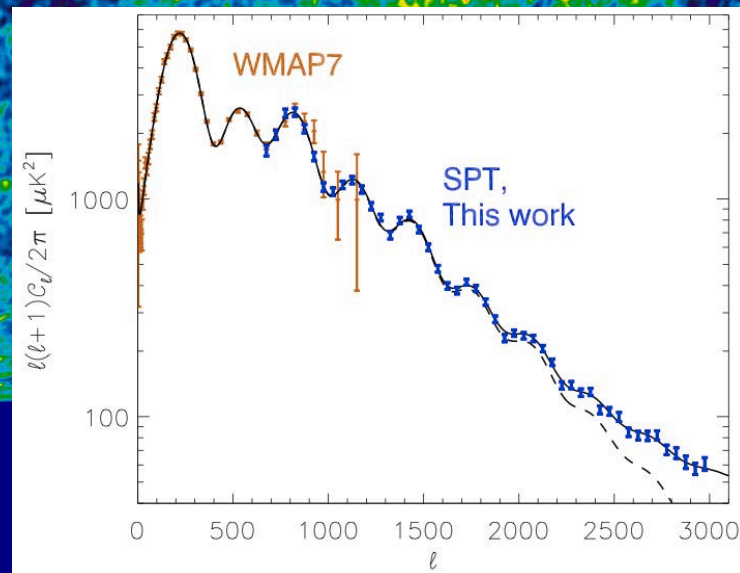
Question 69: What happened in the first second after the Universe began?

- *Question 70:* What is the nature of the dark Universe and how is it affecting us?
- *Question 47:* How do subglacial systems inform models for the development of life on Earth and elsewhere?

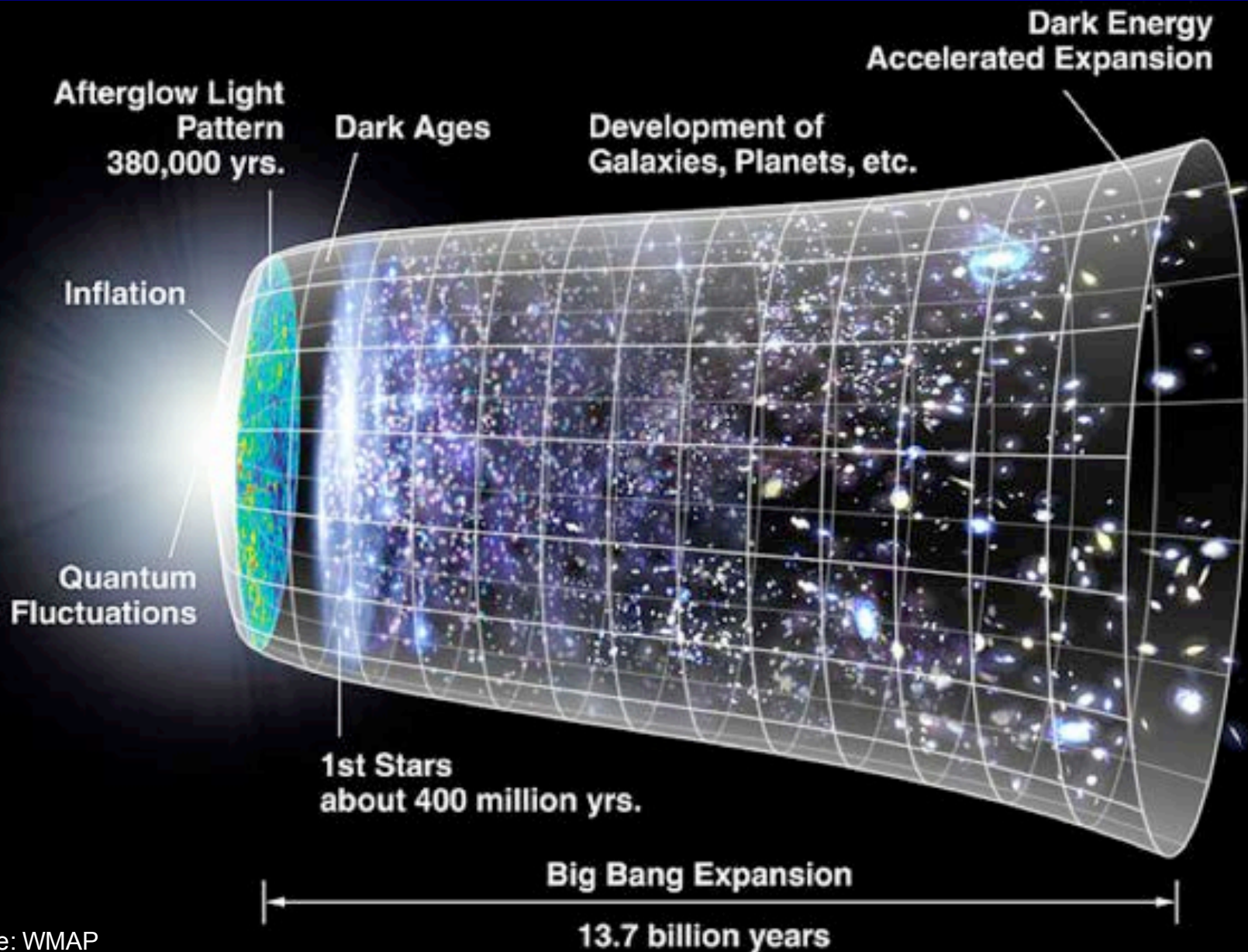
What happened in the first second after the Universe began?



STEFFEN RICHTER, HARVARD UNIVERSITY



What is the nature of the dark Universe and how is it affecting us?



Science highlights

1. The SUPERTIGER Instrument: Measurement of Elemental Abundances of Ultra-Heavy Galactic Cosmic Rays, W.R. Binns, W.R et al, *Astrophysical Journal* (2014), **788**, 18. Long-duration balloon launched from McMurdo.
2. A Joint Analysis of BICEP2/Keck Array and Planck Data, P.A.R. Ade et al., *Physical Review Letters* (2015) **114**, 101301. South Pole station and a spacecraft at L2.
3. The Carbon Inventory in a Quiescent, Filamentary Molecular Cloud in G328, M. Burton et al., *Astrophysical Journal* (2014), **782**, 72. Ridge A.
4. Meteorological Data for the Astronomical Site at Dome A, Antarctica, Yi Hu et al, *Pub. Astron. Soc. Pac.* (2014), **126**, 86. Dome A.
5. Transit Search from Antarctica and Chile – Comparison and Combination, T. Fruth et al., *Pub. Astron. Soc. Pac.* (2014), **126**, 237. Dome C and a Chilean observatory.

Ridge A, January 2014.





Display booth at the XXIX General Assembly of the International Astronomical Union (IAU) in Honolulu, August 2015.



Estimated exposure:

Over 3,500 people from at least 75 countries.

EACOA
East Asian Core Observatories
Association (EACOA)

Four Core Observatories in East Asian

Academia Sinica Institute of Astronomy and
Astrophysics (ASIA)
Korea Astronomy and Space Science Institute
National Astronomy Observatories, Chinese
Academy of Sciences (NAOC)
National Astronomical Observatory of Japan

Four Missions of East Asian
Core Observatories Association

- I. East Asian Observatory
- II. Follow-up Program
- III. East Asian Meeting on Astronomy
- IV. East Asian Young Astronomers Meeting



ASTRONOMY AND ASTROPHYSICS FROM ANTARCTICA (AAA)
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Astronomy and Astrophysics from Antarctica

THE INTERNATIONAL COUNCIL FOR SCIENCE • SCAR



OHY
ASTRONOMY
LIGHT SPEED
TO EXPOSE THE
COMMON
RESEARCH AND
HIGH-PERFORMANCE
ASTRONOMICAL
CCD CAMERA



AAA 2015

Third Workshop of SCAR AAA Scientific Research Program

7-10 August 2015

Kilauea Military Camp
Volcanos National Park
Hawaii



ASTRONOMY AND ASTROPHYSICS
FROM ANTARCTICA (AAA)



AAA workshop, August 2015, Volcano, Hawaii.

Image: Hirofumi Okita

“A white paper on the technological challenges and logistical needs of the Antarctic astronomy and astrophysics community” presented to COMNAP, Tromso, August 2015.

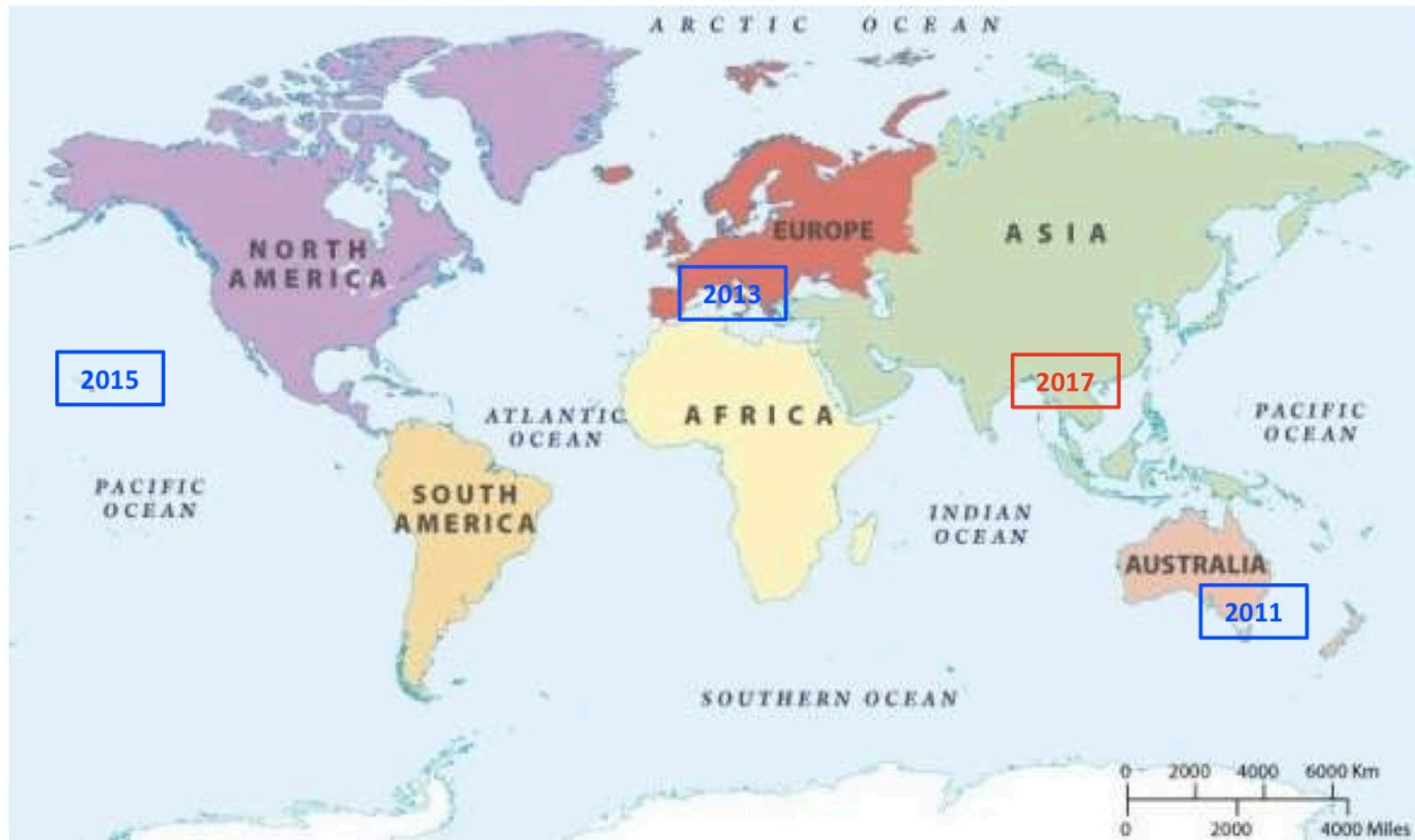


NARIT Astropark 2017

AAA2017



Geographical Diversity of AAA Meetings



Attract participants and observers from other SE Asian countries (RI, VN, MY)
Showcase NARIT's polar projects to the home community (incl. EVA workshop)

The future of AAA

When asked what SCAR AAA activities could best add value to their scientific activities, the overwhelming response of astronomers was:

- Low cost workshops
- Networking
- Travel grants - especially for students
- Facilitation of exchanges.

Future plans through to end, 2018

- Develop the concept of an Antarctic Plateau International Astronomical Observatory (APIAO),
- Extend the current site testing searchable database to become a data portal,
- Increase outreach activities directed towards the general public and the international astronomical community, especially in those countries with less developed astronomical programs in Antarctica,
- Maintain gender, sub-discipline and regional balance on all committees.

Membership of the AAA SRP Steering Committee, 2016 – 2018.

Name	Nationality	Gender
Jenni Adams	NZ	female
Michael Ashley	Australia	male
Elia Battistelli	Italy	male
Jennifer Cooper	USA/APECS	female
Nicolas Crouzet	Canada/France	male
Adriana Gulisano	Argentina	female
James Madsen	USA	male
<i>Anna Moore (Chief Officer)</i>	<i>USA</i>	<i>female</i>
Naomasa Nakai	Japan	male
Zhaohui Shang	China	male
Charling Tao	France/China	female
Lifan Wang	China	male

Dr Anna Moore (Caltech)

Chief Officer, SCAR AAA



Beyond AAA

What is the best structure for astronomy within SCAR? Some possibilities:

- AAAA
- A new, science-based SRP (eg to address the Horizon Scan questions)
- A new, cooperative SRP with another discipline (eg upper atmospheric physics)
- A new kind of SRP altogether

What should an SRP deliver?

Some possible answers:

- Coordination, Collaboration and Community building
- *Added value* to national and individual research programs
- A portal for scientists to connect with Antarctica
- An interface between scientists and logistics managers
- Visibility for SCAR

And another question:

What does it cost to achieve this?



Proxima Centauri, seen from its earth-like planet.

Artist: ESO/M. Kornmesser