Leveraging Radio Astronomy for Science Education and the Public Understanding of Science

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IAU Office of Astronomy for Development

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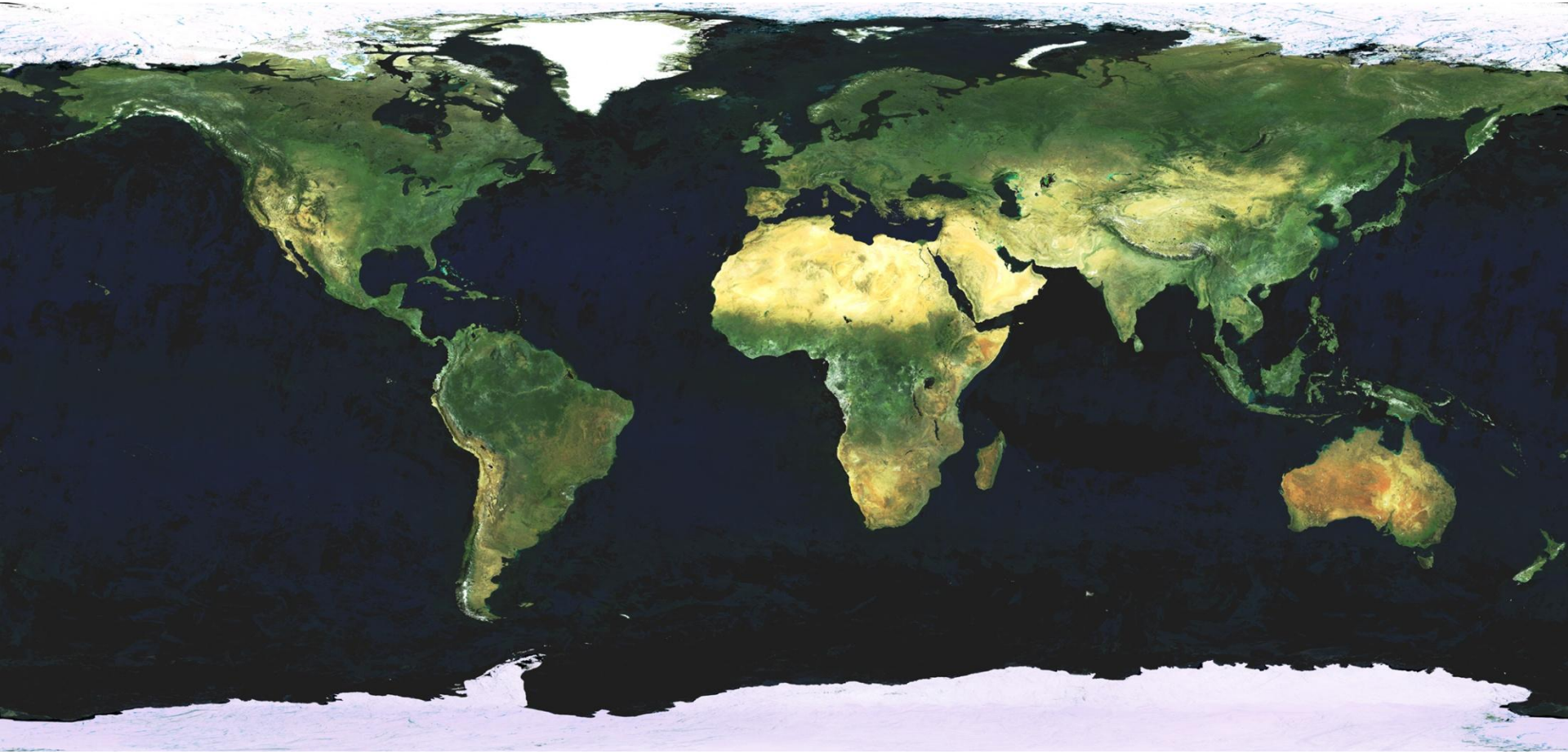
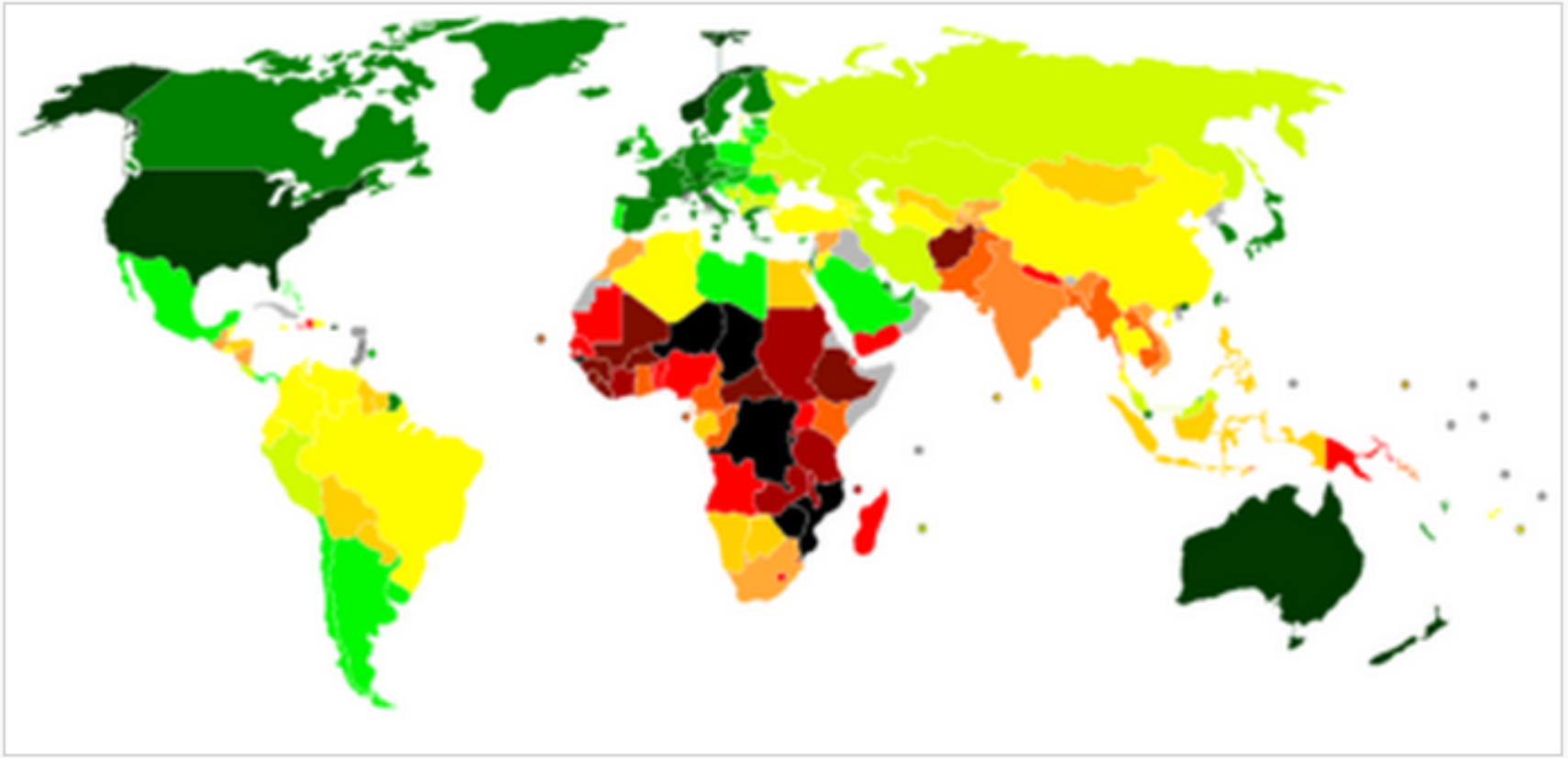
www.astro4dev.org

National Research Foundation | South African Astronomical Observatory

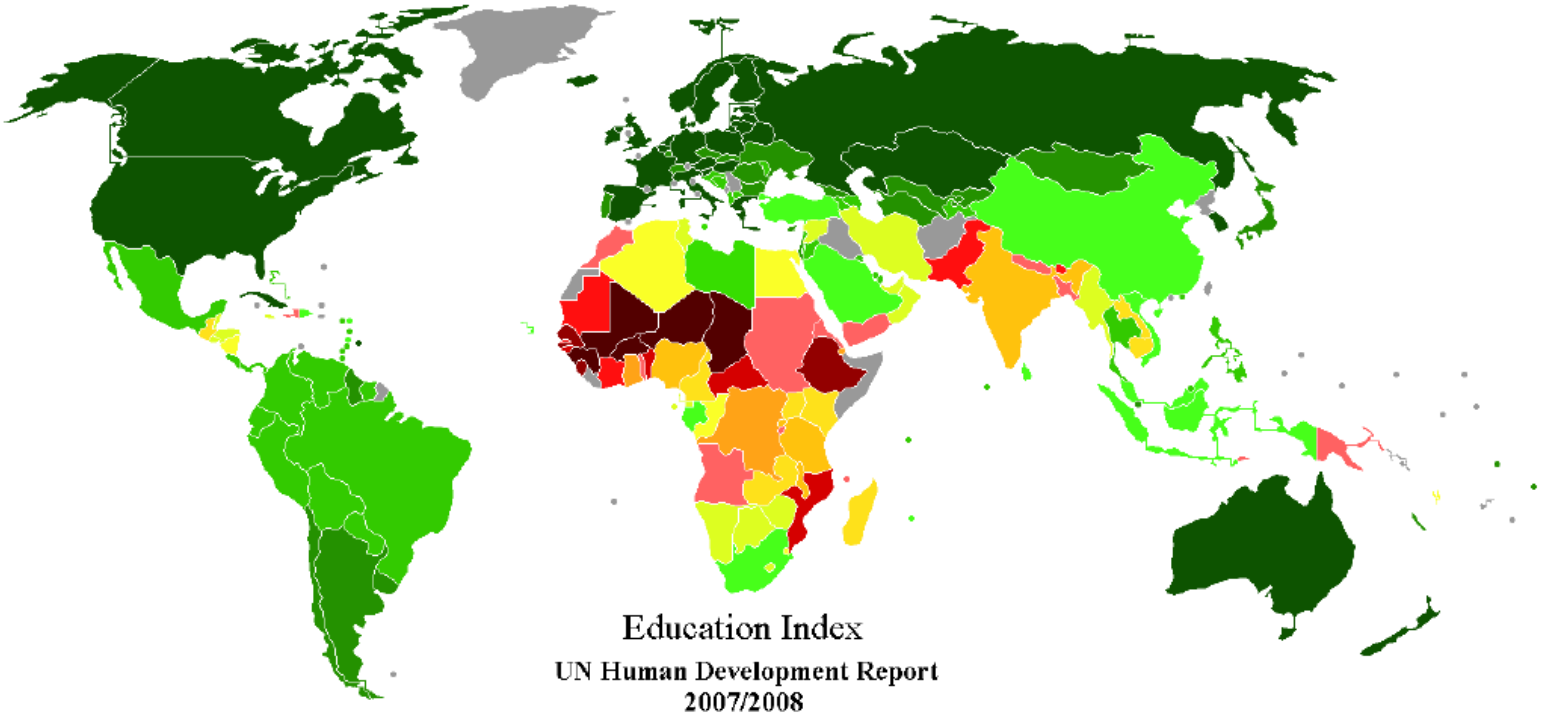
science & technology
Department:
Science and Technology
REPUBLIC OF SOUTH AFRICA





World map indicating the Human Development Index (based on 2010 data, published on November 4, 2010)[1]

0.900 and over	0.650–0.699	0.400–0.449
0.850–0.899	0.600–0.649	0.350–0.399
0.800–0.849	0.550–0.599	0.300–0.349
0.750–0.799	0.500–0.549	under 0.300
0.700–0.749	0.450–0.499	Data unavailable



Education Index

UN Human Development Report
2007/2008

High

- 0.950 and over
- 0.900–0.949
- 0.850–0.899
- 0.800–0.849

Medium

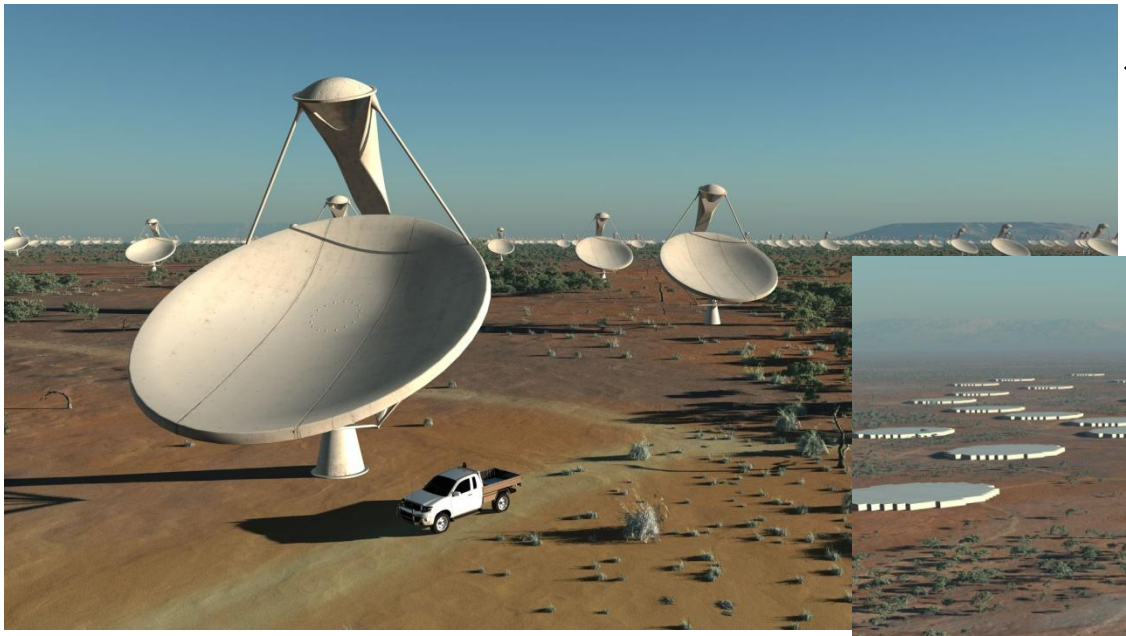
- 0.750–0.799
- 0.700–0.749
- 0.650–0.699
- 0.600–0.649
- 0.550–0.599
- 0.500–0.549

Low

- 0.450–0.499
- 0.400–0.449
- 0.350–0.399
- under 0.350
- not available

SKA in Africa

MeerKAT / SKA



Africa (mid-frequency)

Australia (low-frequency)

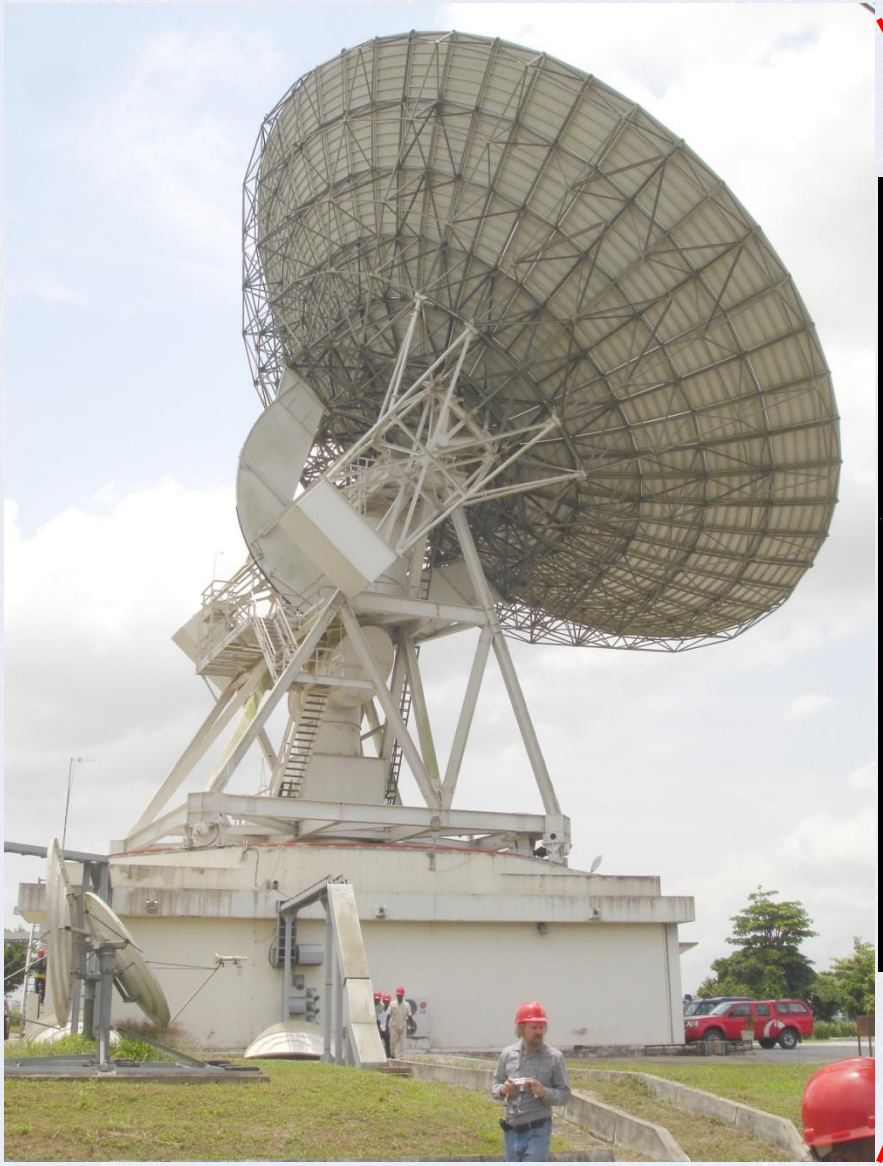
National Research Foundation | SAAO South African Astronomical Observatory

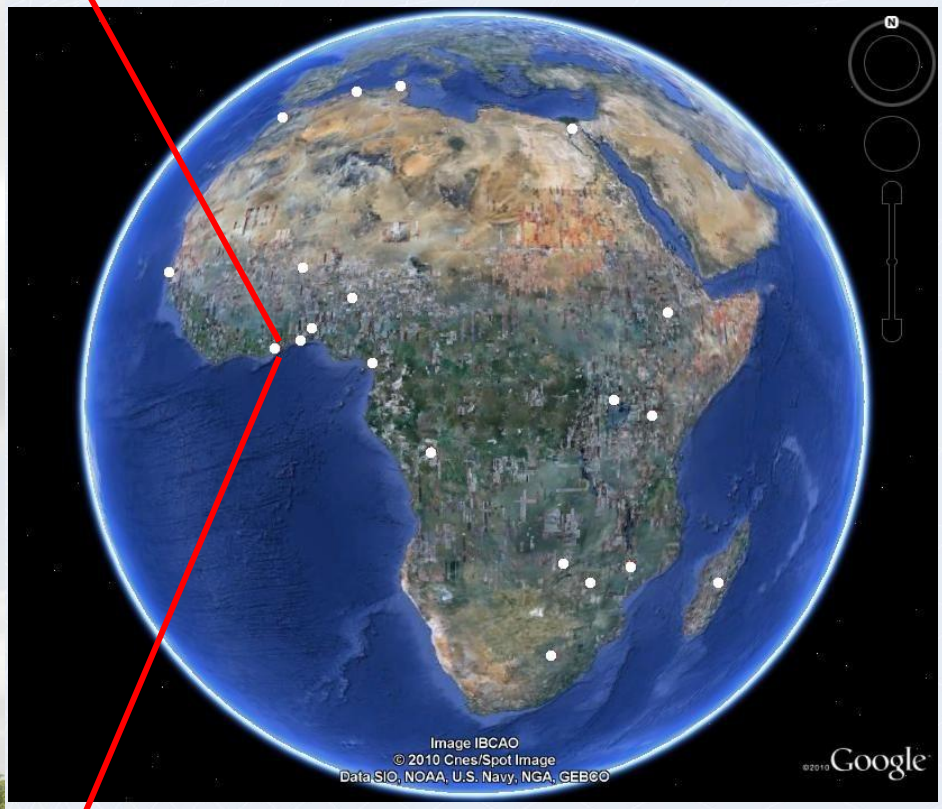
SOUTHERN AFRICAN LARGE TELESCOPE

Southern African Large Telescope

HESS II inaugurated in Namibia 28 Sept 2012

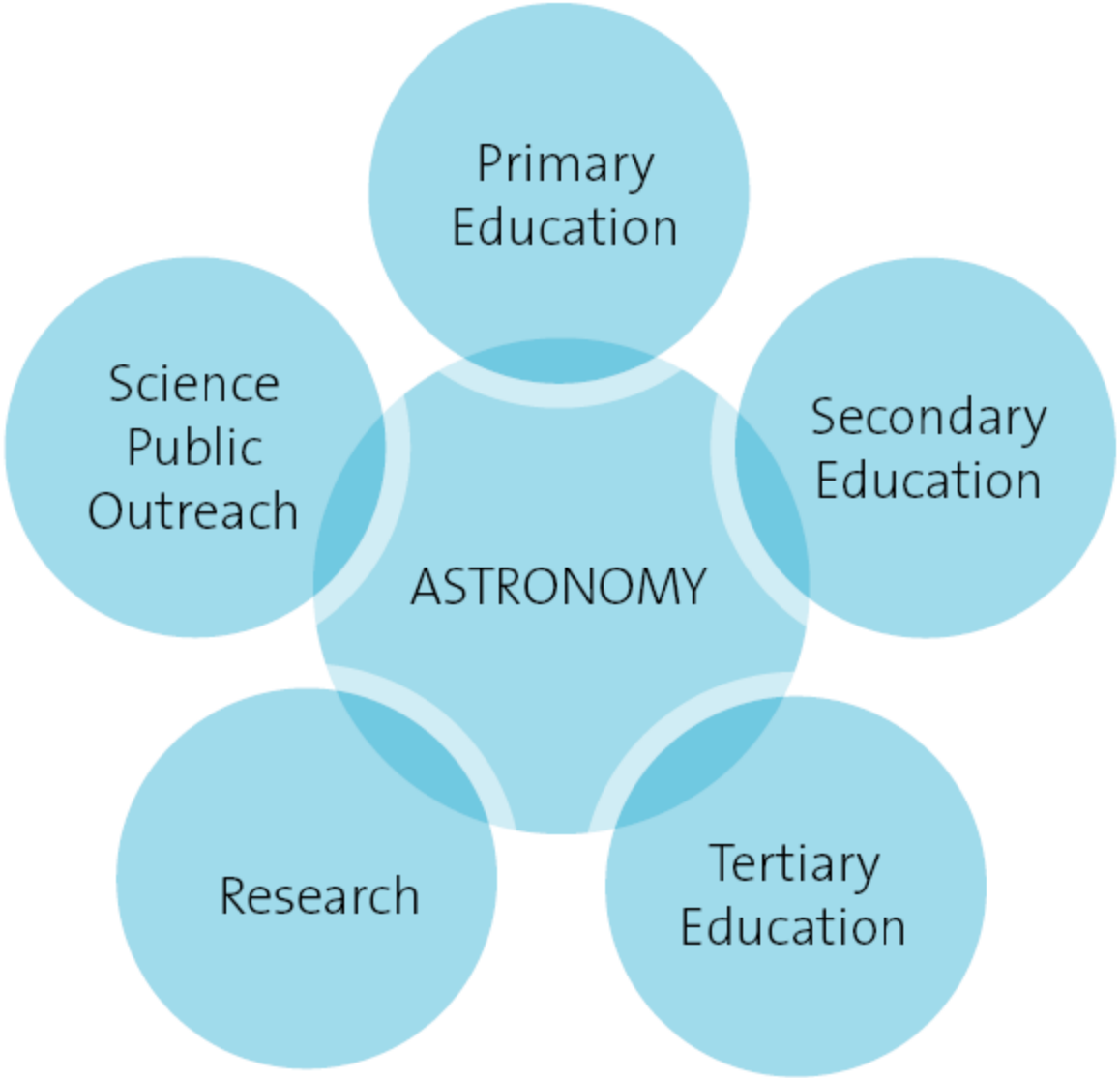
African VLBI Network






Astronomy for Universities and Research
Astronomy for Children and Schools
Astronomy for the public
Libya – 0.4m on truck
Morocco - 2m
Algeria - CRAAG
Egypt - 1.9m
Burkina Faso – 1m
Ghana Nkutunse
Ethiopia - EAOSSRC
Nigeria Radio Telescope
Kenya AVN dish
Astronomy in Africa
Moz - Maluana
HESSII - Namibia
HartRAO
Mauritius Radio Telescope
MeerKAT/SKA
SAAO/SALT

Astronomy impacts all areas of education…



Potential Impact of Radio Astronomy: Examples

Universities and Research

- Visiting astronomer programmes or exchange programmes
- National or regional astronomy schools and workshops
- Astronomy education research equipment and laboratory small grant
- Sabbatical leave visit programme
- Undergraduate astronomy courses
- Technology internships e.g. instrument specialists
- University twinning programmes

African European Radio Astronomy Platform

Potential Impact of Radio Astronomy: Examples

Children and Schools

- Teacher training and development
- Resource development e.g. games, small detectors
- Robotic telescopes for school projects
- Mobile education projects e.g. Astrobus
- Planetarium shows
- Astronomy education research
- Curriculum evaluation

African European Radio Astronomy Platform

Potential Impact of Radio Astronomy: Examples

Public Understanding of Science

- Journalist and amateur astronomer training
- Citizen science projects
- Develop/Identify models for good outreach activities
- Traditional/Cultural astronomy for outreach
- Creation of images and multimedia resources
- Stargazing events and telescope making workshops
- Astro-tourism activities
- Outreach awards

African European Radio Astronomy Platform

Making it happen…

International Astronomical Union
Office of Astronomy for Development

IAU

OAD

NRF National Research Foundation | SAAO South African Astronomical Observatory

science & technology
Department:
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REPUBLIC OF SOUTH AFRICA

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The IAU Office of Astronomy for Development

IAU President & Gen Sec

OAD Steering Committee

OAD

Regional Coordinators

Astronomy for Universities and Research

Astronomy for Children and Schools

Astronomy for the public

"Astronomy for a better world!"

EU-UNIVERSE AWARENESS

The Netherlands, Spain, Italy, Germany, United Kingdom, South Africa

SEVENTH FRAMEWORK PROGRAMME

Vision

- Use **perspective**, **inspiration** and **fun** of space to:
  - Introduce young children to the *excitement* of science & technology
  - Enhance their understanding of the world and demonstrate *power of critical thinking*
  - *Broaden* children's minds
  - Stimulate world *citizenship*

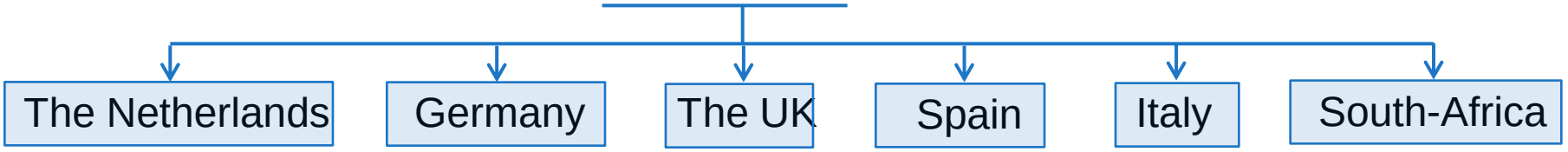
• EU Universe Awareness

- Space-based programme with social goals
- Exposing ***disadvantaged*** young children (ages 4 to 10) to the ***inspirational*** aspects of astronomy



EU-UNAWE

•**FP7:** in 2011 E.U. awarded UNAWE 1.9 million euros to fund the 3-year program **EU-UNAWE** in **6 countries**



1.International Network

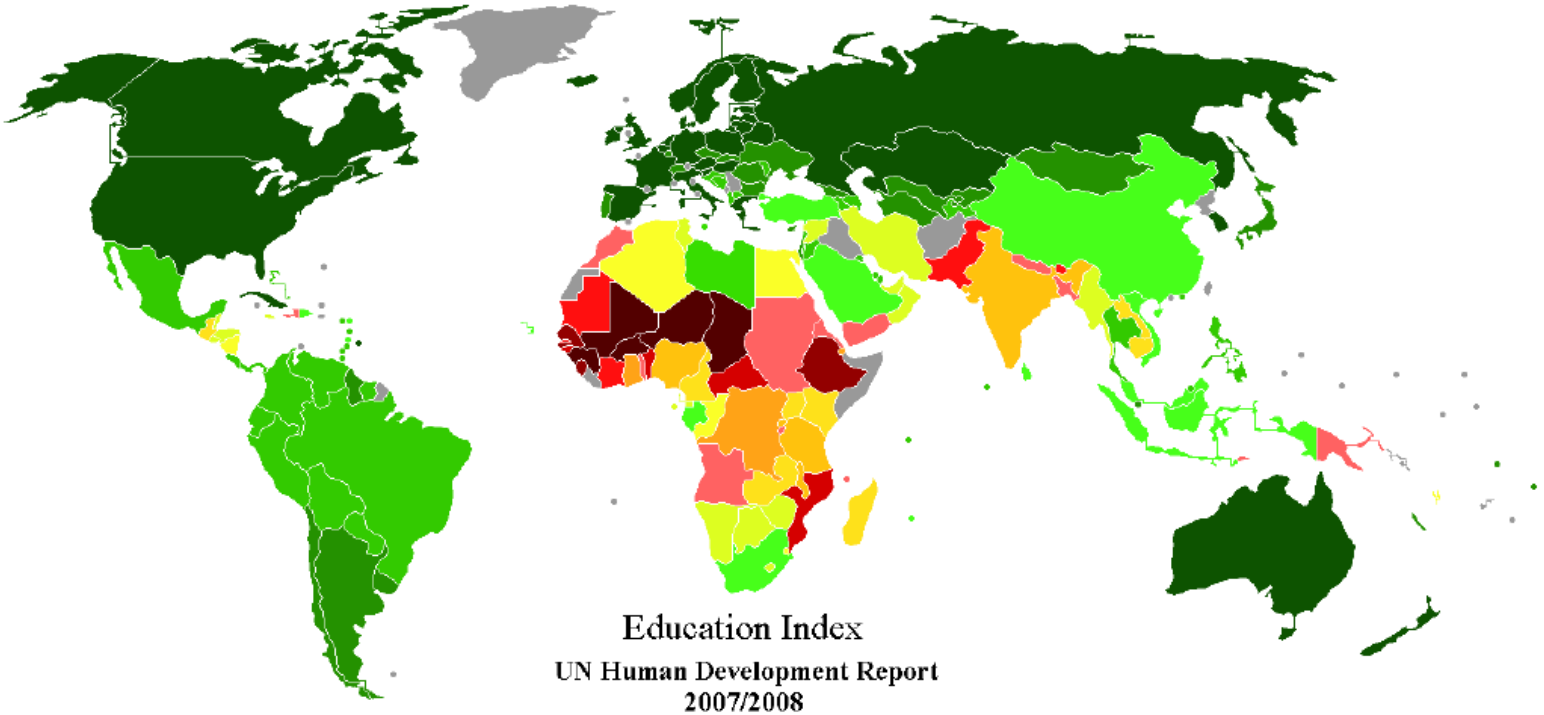
- Platform for teachers and development of professionals worldwide
- Exchange of ideas, experience and materials
- Coordinators and managers in each participating country, tailored to each country/community

2.Educational Material

- Games, cartoons, songs, hands-on material
- Needs to be FUN and INTERACTIVE

3.Teacher Training

- Give teachers the confidence to introduce astronomy and other science topics in their classrooms
- Teacher = strong multiplier



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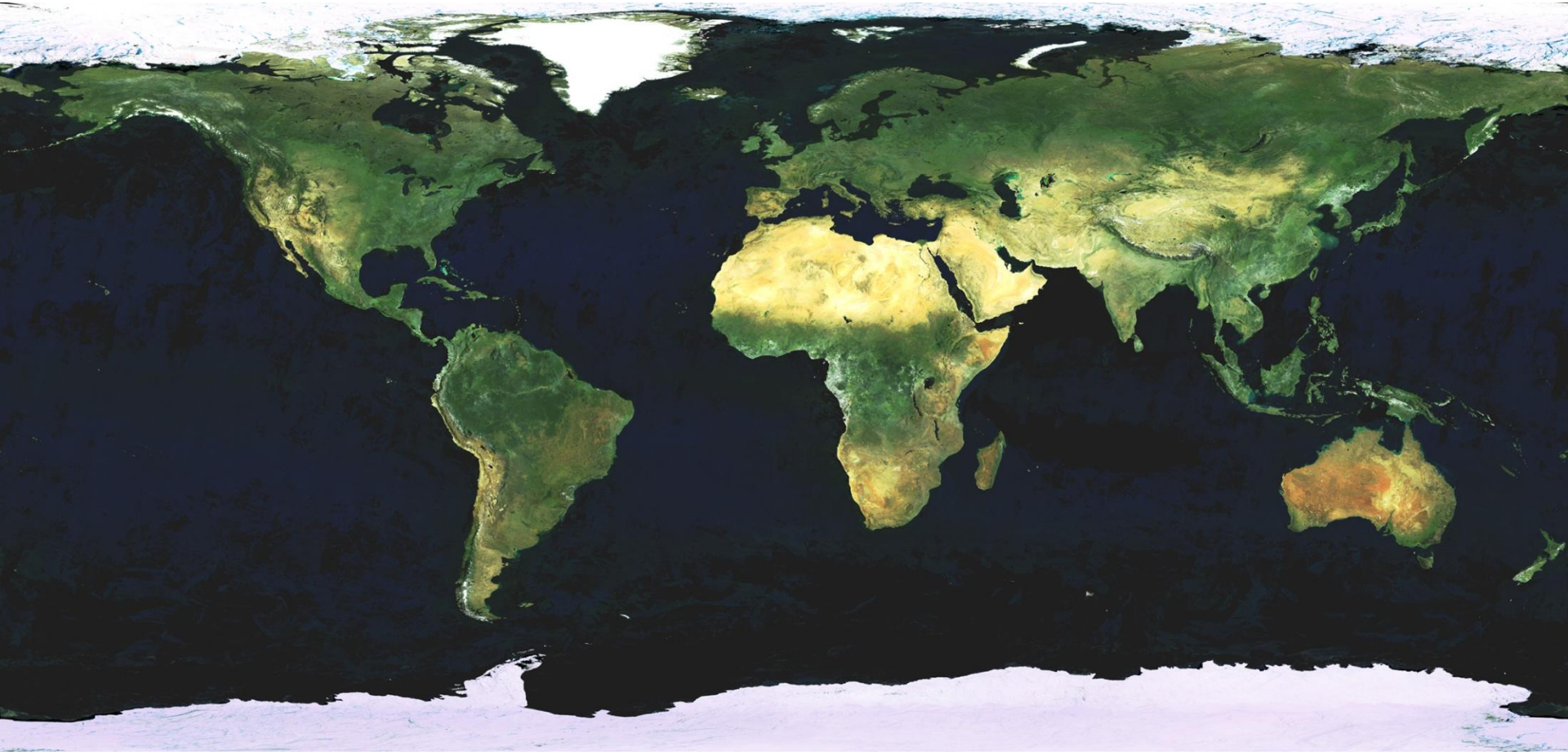
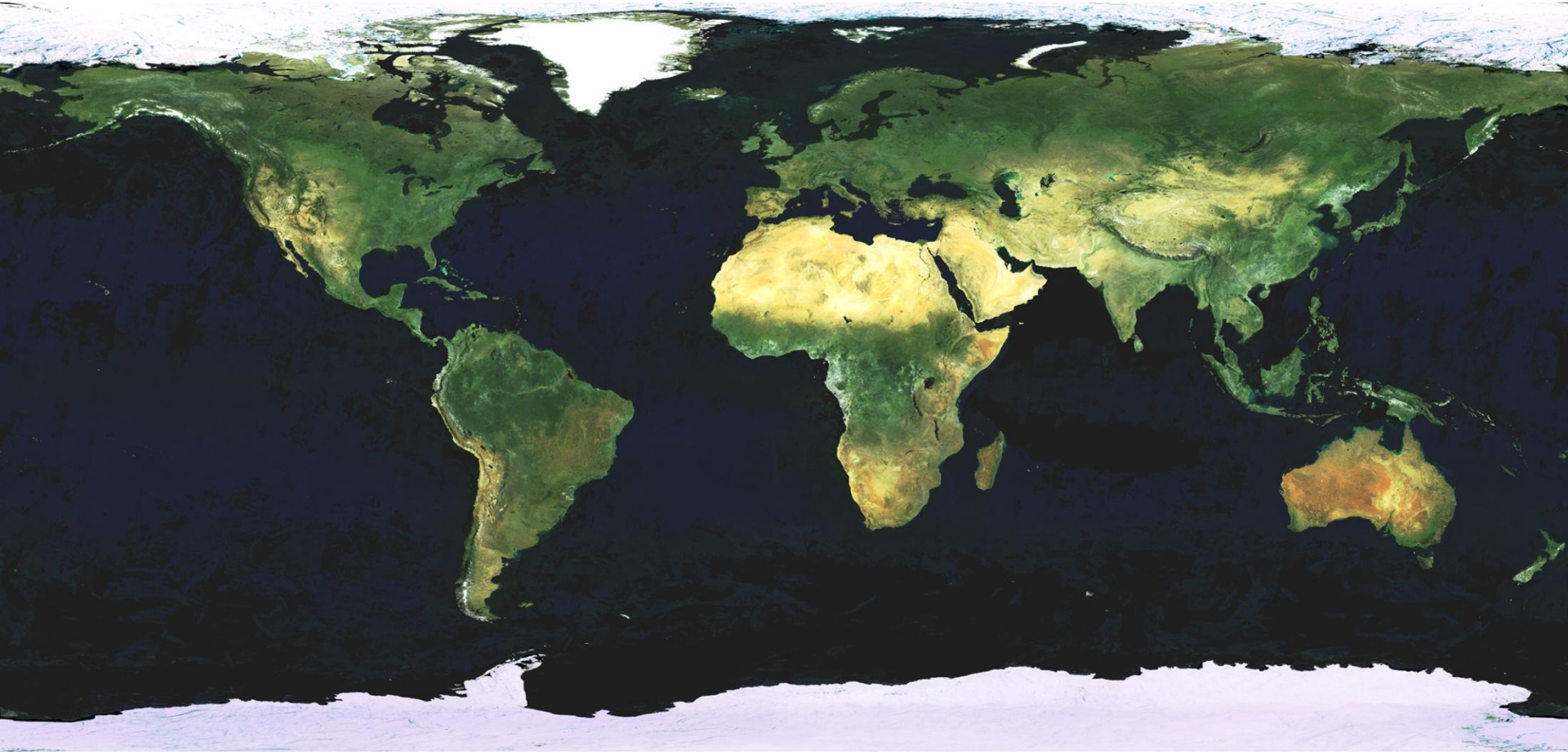
and what about the funding...?



The question is not whether we can afford to use radio astronomy for science education and public understanding of science, but how can we afford not to?

President Jacob Zuma at KAT-7

(Radio) Astronomy for a better world!



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