
Sinai Observatory
A Regional Center of Excellence
The Sinai initiative group

Relevant UN document:

Recommendations at 4th UNESA workshop on BSS (Egypt 1994):

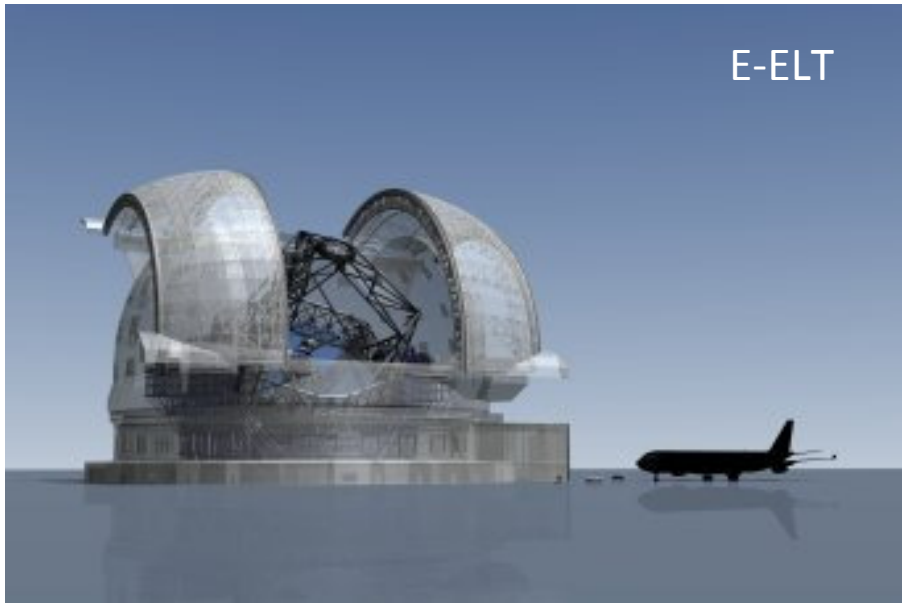
"…participants noted that the goals associated with basic space science in West Asia are related to the desire to educate their own basic space scientists as well as the engineers, managers and technicians needed for self-reliant development and management of the resources of the continent through the tools and knowledge acquired in the pursuit of basic space science as defined by the following areas of research: (a) astronomy and astrophysics; (b) solar-terrestrial interaction and its influence on terrestrial climate; (c) planetary and atmospheric studies; and (d) origin of life and exobiology. The participants stressed that the pursuit of basic space science, even under the current difficult economic conditions, represents an important effort to maintain cultural values and at the same time stimulate the modernization of society. The fact that basic space science relates to subjects which extend beyond the geopolitical distribution of the world, assures that it also presents a very powerful means of fostering inter-regional collaboration. " (AA/AC.105/580)

Sinai Initiative Group Meeting: 24 August 2012 (Beijing)

(this is part of the team; only the members that were in Beijing and were free to attend)

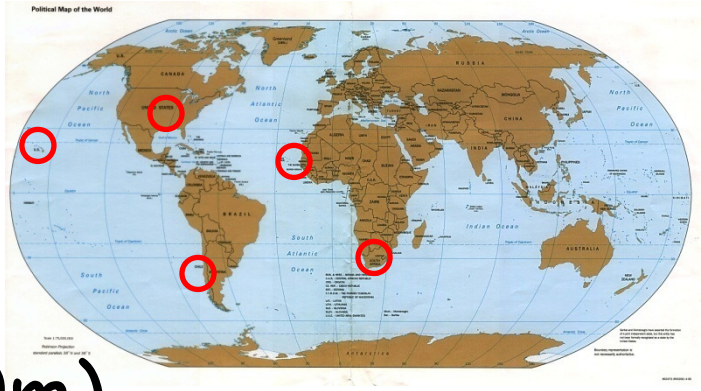
World Astronomy

- Presently 13 telescopes of 8m or larger aperture are operational
- Under construction or in planning stages are 4 giant telescopes:
  - GMT (7x8.4m)
  - TMT (30m)
  - E-ELT (42m)
  - LSST (8m)



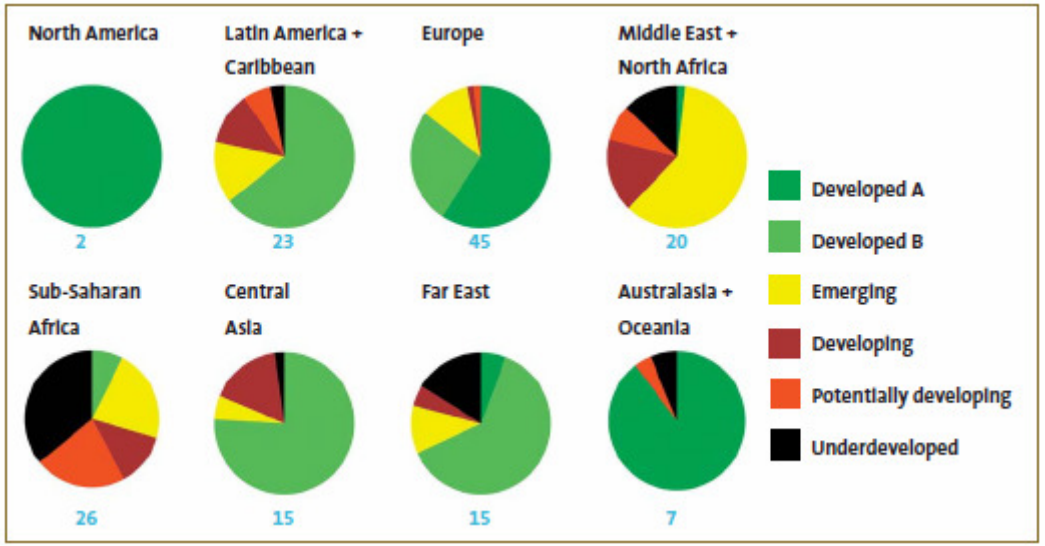
Geographical distribution of large telescopes

- Canarias: GranTECan (10.3m)
- Chile:
  - ESO (4xVLT@8M)
  - NOAO: Gemini S (8.1m)
- South Africa: SALT (~10m)
- North America: LBT (2x8.4m), HET (9.2m), Gemini N (8.1m)
- Hawaii: Keck (2x10m), Subaru (8.3m)



Astronomy in West Asia and North Africa

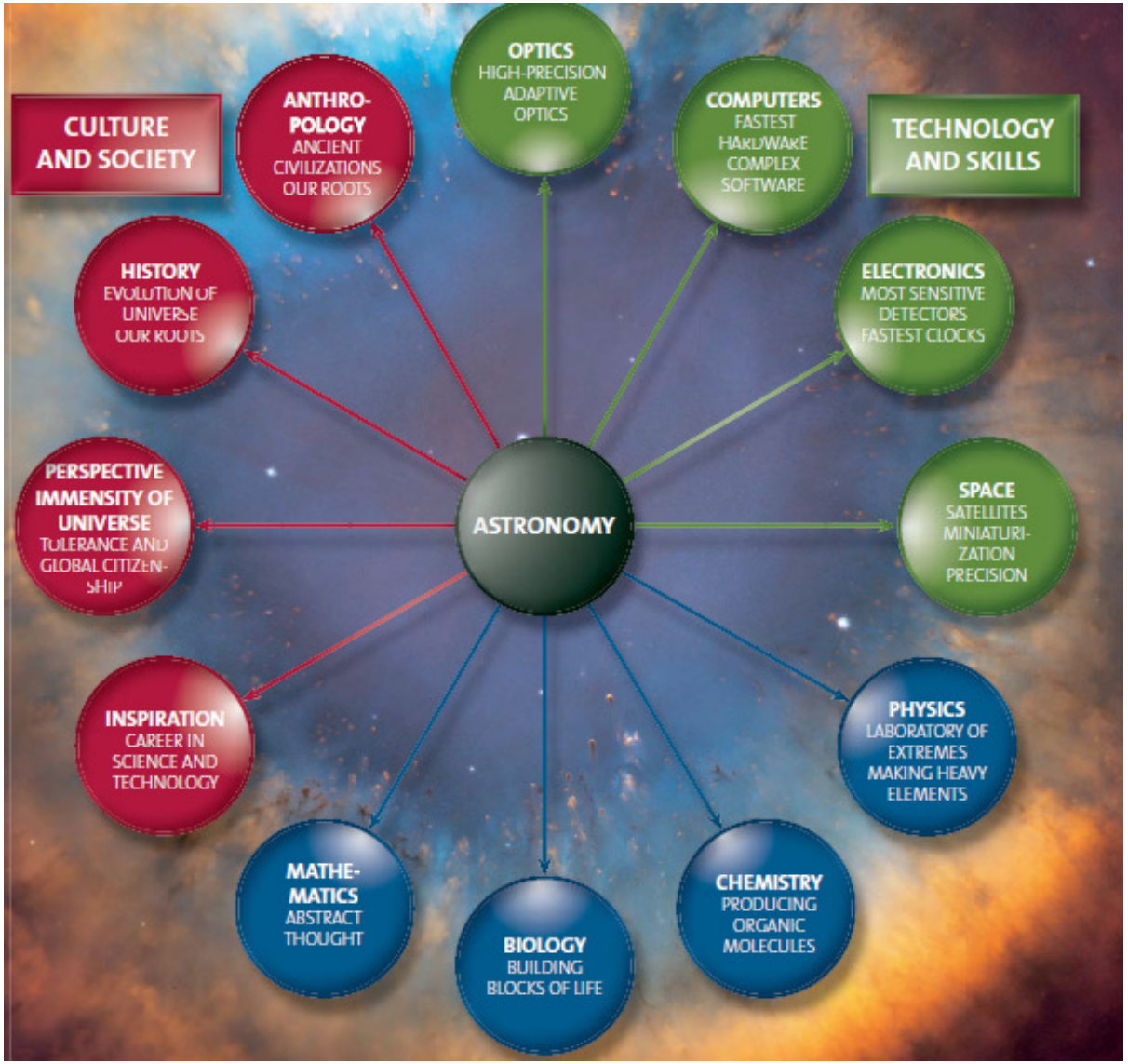
- Presently 202 full IAU members in all countries from Afghanistan to Libya, for a population of 370 million (0.5/Mpersons)
- IAU OAD classifies regional development by N number of IAU members per million inhabitants and frontline research facilities:
  1A (N>4) = Developed; 1B (N<4 but frontline astro-facility) = Developed; 2 (0.5<N<4) = Emerging; 3 (non-IAU) = Developing; 4 (non-IAU & no astronomers) = Potentially developing; 5 (non-IAU & no astronomers & weak secondary education) = Underdeveloped

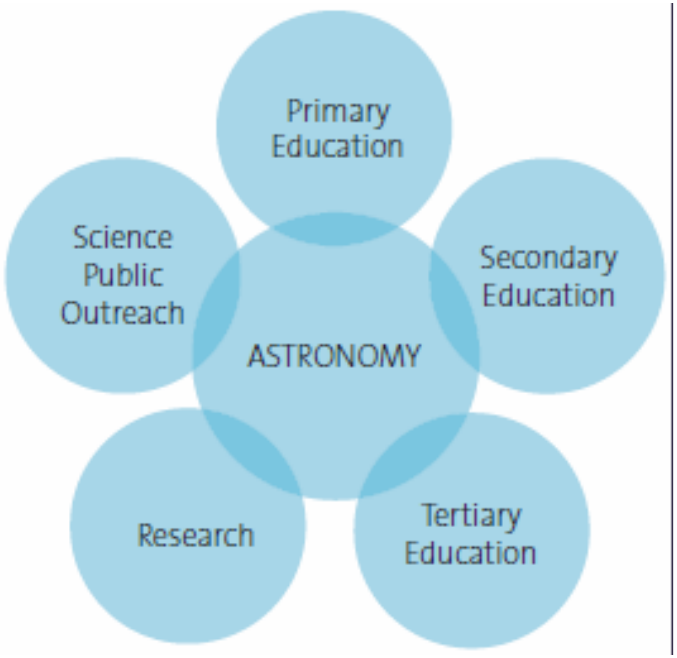


- Adopting this IAU definition, the region, is "Emerging"

From the IAU Strategic Plan (updated 2012)

Astronomy for society

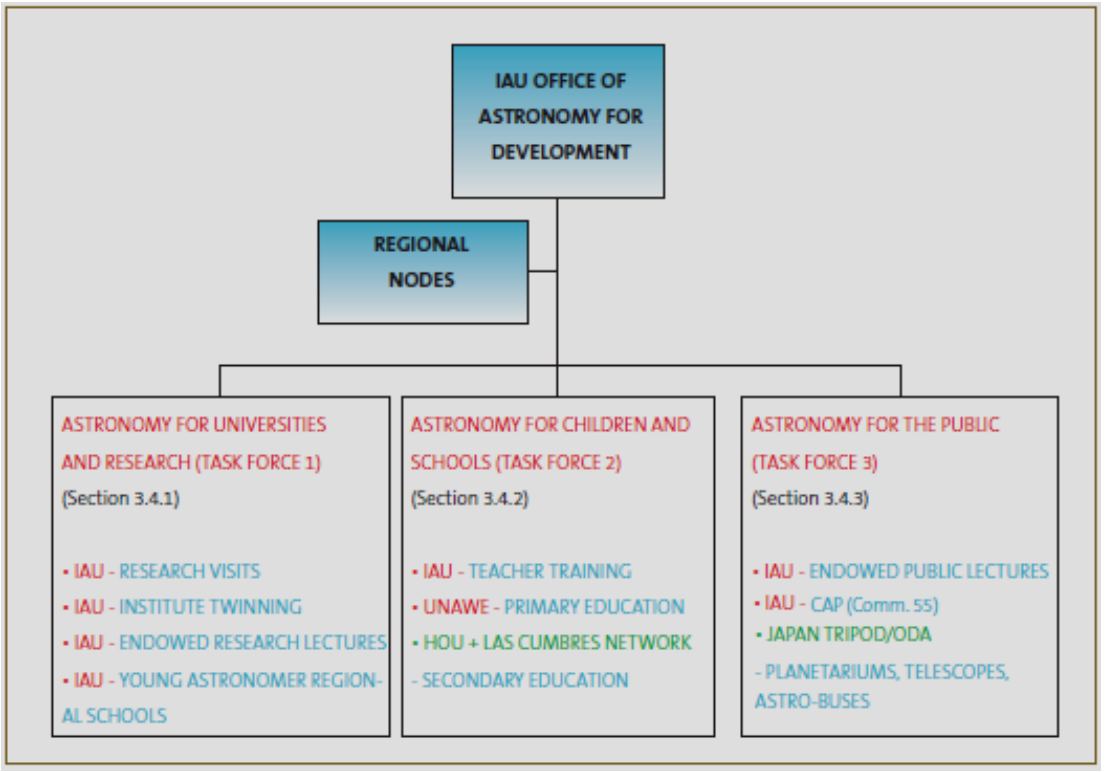


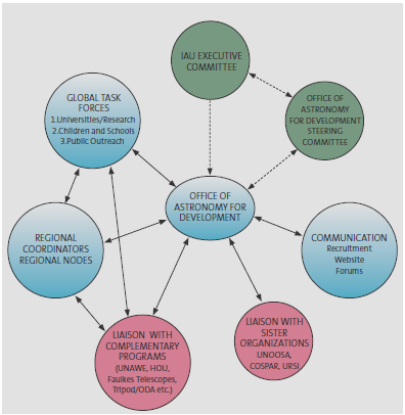


From the IAU Strategic Plan (updated 2012)

Office of Astronomy for Development

- Created by the IAU Executive Committee
- Mandate
- Office (@SAAO) and activity
- Achievements





From the IAU Strategic Plan (updated 2012)

Observatories in WA & NA

- NRIAG (Egypt) @ Kottamia with a 1.9-m reflector
- Bakirlitepe (Turkey) with a number of telescopes, the largest being a 1.5-m
- Wise (Israel), with a number of telescopes the largest being a 1.0-m
- Conclusion: while developed countries offer their scientists assured access to 4-m and larger telescopes, and are constructing giant telescopes, the field is stagnating in the WA & NA

SALT as an example

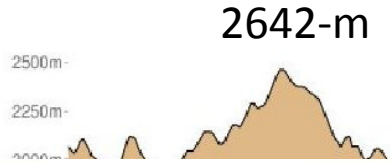
(Southern African Large Telescope)

- South Africa had SAAO but decided to build SALT in 1998.
- Decision driven by the possibility to upgrade HET and obtain a ~10-m telescope for a fraction of the cost of a similar classical telescope
- SALT brought to South Africa:
  - A major astronomical telescope (scientific excellence and national prestige)
  - Significant technological uplift for the local high-tech industry
  - Collateral benefits in the form of SKA, PhD level education, public outreach, astro-tourism, etc.

Choice of WA&NA observing site

- Must follow a thorough site testing campaign
- Preferred locations are high mountain peaks raising significantly above their neighborhood
- Other non-astronomical requirements are tectonic stability, and willingness from the part of the hosting country to provide territory (ESO, La Palma) and infrastructure
- Given the central position of Egypt in the WA&NA regions, and the Sinai geography, the proposed site is the Santa Catherina peak

St. Catherine mountain



Interest group meeting at the IAU GA

- Email discussions for over one year
- One-to-one discussions during the first week of the GA (Beijing)
- General meeting of the present members of the interest group on Friday August 24
- All participants agreed that the idea should be pursued despite of difficulties
- Possible problems: Egypt economy, security in Sinai, etc. Probably all can be overcome

Work plan

- Evaluate site testing results from NRIAG campaign (in 1989?)
- Initiate new site testing campaign with help from major observatories (ESO, NAOJ, NOAO, etc.)
- Adopt SESAME model for including all WA & NA countries
- Establish @site small telescope then progress to SALT+ ("Sinai Observatory")

SESAME : SYNCHROTRON-LIGHT FOR EXPERIMENTAL SCIENCE AND APPLICATIONS IN THE MIDDLE EAST

SESAME observers: France, Germany, Greece, Italy, Japan, Kuwait, Portugal, Russian Federation, Sweden, Switzerland, the United Kingdom, and the United States of America.

SESAME Members

Proposed recommendation:

The participants at the 2012 United Nations/Ecuador Workshop on the International Space Weather Initiative,

took note of the result of a meeting of the Sinai Observatory Initiative Group that took place during the 2012 General Assembly of the International Astronomical Union, Beijing, China, that proposed to develop a center of excellence dealing primarily with astronomy to serve scientists from the region of Western Asia. The core activity of the center would be the operation of a first-class major astronomical telescope. The meeting proposed that the prospective location of the observatory might be Mt. Catherina in central Sinai, pending the conclusion of a site testing exercise,

and considering the continuing efforts of the Basic Space Science Initiative of the United Nations Programme on Space Applications of the Office for Outer Space Affairs, to advance observational astronomy world-wide, as expressed in the recommendations at 1994 Workshop on Basic Space Science (A/AC.105/580),

and considering the situation of this field in West Asia and North Africa countries in comparison with the rest of the world,

the participants at the 2012 United Nations/Ecuador Workshop support the advancement of observational astronomy by the establishment of an astronomical observatory in the Sinai Peninsula as a Center of Excellence, particularly for countries in the region of Western Asia, as proposed at the above 2012 General Assembly of the International Astronomical Union.