ATIVIDADES DO ANO INTERNACIONAL DA LUZ - 2015 NO BRASIL QUE ESTÃO RELATADAS NO *FINAL REPORT OF THE INTERNATIONAL YEAR OF LIGHT AND LIGHT-BASED TECHNOLOGIES 2015 – UNESCO*

http://www.light2015.org/Home/About/IYL-Final-Report.html

1. Distribuição das atividades pelos diversos continentes (p. ix)

IYL 2015 involved a total of **13,168 activities of various types reaching 147 countries**, on all continents including Antarctica. Specific events (e.g. outreach, conferences) were carried out in 129 countries and a further 18 countries issued commemorative stamps or coins or supported IYL in other ways (e.g. in UNESCO or the UN). The figure below shows the distribution of the activities amongst the different UN Regional Groups.

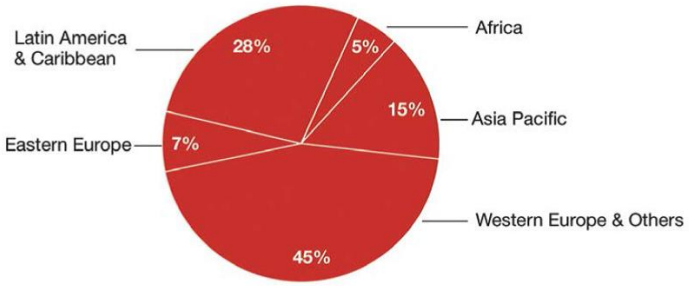

Figure 1. Distribution of IYL 2015 activities within the different UN Regional Groups.

Observação: O Brasil contribuiu com cerca de 22% das atividades, entre os 28% da América Latina e Caribe

2. Distribuição das atividades pelos diversos países (p. 26)

Global distribution of IYL 2015 activities.

Observação: O Brasil contribuiu com cerca de 3.000 atividades, aproximadamente 22% das 13.168 atividades realizadas no mundo.

3. Tipos de atividades realizadas no mundo (p. x)

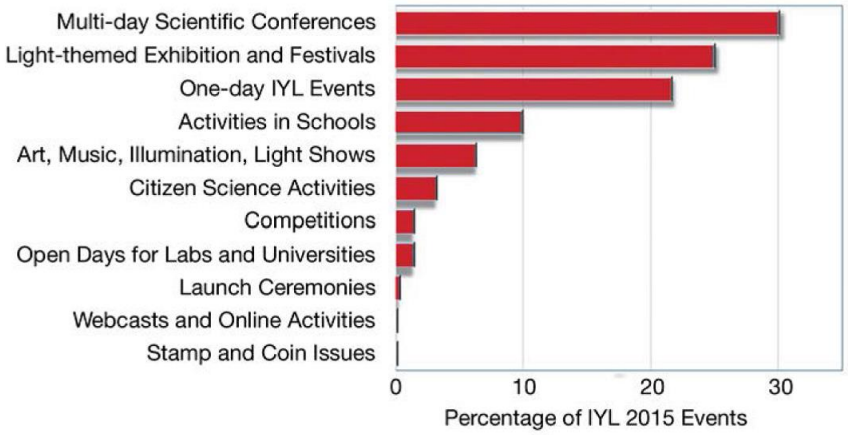

Figure 2. Indicative breakdown of IYL 2015 events by category.

4. Foto de indígena brasileiro (p. 29)

Desana indian observing through a telescope in the Brazilian National Week of Science & Technology. CREDIT: FAPEAM.

5. **Relato das atividades no Brasil (p. 93)**

Coordenação da SBPC e SBF.
Participação de outras sociedades científicas como SBQ, SAB, ABCMC, SBBq, SBMO.
Apoio: MCTI, CNPq, CAPES e algumas FAPs.
Principais eventos:
(1) 67 Reunião Anual da SBPC (julho, São Carlos). Tema: "Luz, Ciência, Ação!"
(2) Semana Nacional de CT (outubro). Tema: "Luz, Ciência e Vida)

Brazil

Primary National Organizer: Brazilian Physical Society and Brazilian Society for the Advancement of Science

Other National Partners: Brazilian Chemical Society, Brazilian Astronomical Society, Brazilian Society for Biochemistry and Molecular Biology, and Brazilian Society of Microwaves and Optoelectronics, among other societies and organizations.

Sponsors: Ministry of Science Technology and Innovation, CNPq and CAPES

Estimated number of IYL 2015 activities organized: About 3,000 specifically on light. Approximately 140,000 in the National Week of Science and Technology (SNCT), with the main theme: *Light, Science and Life.*

Number of people reached by IYL 2015 Activities: About 1,000,000 people in activities directly related to the IYL 2015. About 4 million in activities of the National Week of Science and Technology (SNCT) with the main theme: *Light, Science and Life.*

Observação: A página do Facebook da AIL 2015 no Brasil, coordenada pela SBPC alcançou 5713 likes (participantes) o que significa cerca de 60% da página internacional do IYL 2015 da UNESCO que atingiu 9.621.

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General overview of IYL 2015 Activities in Brazil

The International Year of Light 2015 (IYL 2015) opening in Brazil took place at the 21st National Symposium on Physics Teaching at the Federal University of Uberlândia (Minas Gerais) 26-30 January 2015. The opening conference, *Light, its importance and need for inclusion in physics teaching,* was given by Prof. Vanderlei Salvador Bagnato (University of São Paulo, São Carlos). At this event many other activities were held including round tables, scientific communications, and exhibitions of experiments on light and its applications.

Poster for the Brazilian National Week of Science and Technology 2015. CREDIT: SNCT.

The second largest IYL 2015 event in Brazil took place in São Carlos (São Paulo): the 67th Annual Meeting of SBPC, 12-18 July 2015, which had *Light, Science and Action* as its main theme. The activities on the theme of light in this meeting featured 19 conferences, seven symposiums, eight short courses, four round tables, and eight interactive exhibitions. A special workshop, *Light: Life and Science,* was attended by Alain Aspect, winner of the 2010 Wolf Prize in Physics, and many Brazilian scientists working in photonics, nanotechnology, and technologies for health. About 15,000 people attended the event, most of them children and high school and university students visiting the SBPC.

Several activities on light and chemistry occurred at the Annual Meeting of the Brazilian Chemical Society, 25-28 May 2015, Águas de Lindóia (São Paulo). Among them were the beautiful exhibition *Light, Image, & Science,* organized by a team of the Brazilian Chemical Society. The symposium *Shedding Light on Life* was organized during the meeting of the Brazilian Society for Biochemistry and Molecular Biology, 24-28 August, in Foz do Iguaçu, with scientists from the USA and Brazil participating. About 400 researchers and students participated in the 24th International Conference on Optical Fibre Sensors (OFS-24), Curitiba, 28 September-2 October, organized by the Brazilian Society of Microwaves and Optoelectronics. This event included a technical exhibition with 25 enterprises and the exhibition *Light: Beyond the Bulb*. This last exhibition was also shown at the Federal Technological University of Paraná 16-23 March 2015.

Two new planetariums were opened in 2015: (1) the planetarium of Sobral (Ceará), June 2015; (2) the planetarium of the Federal University of São Carlos (São Carlos, São Paulo), in October 2015.

The biggest event in Brazil related to the IYL 2015 was the National Week of Science and Technology (SNCT), with the main theme: *Light, Science, and Life,* 19-25 October and into mid-November. Approximately 140,000 activities in 1,055 cities or small towns were recorded on the SNCT site, involving 2,600 institutions such as universities, schools, research institutions, companies, government agencies, and NGOs. About 2,700 activities included the word "light" in the title. Many programs and scientific videos about light have been exhibited at the VerCiência—the International Festival of Science TV programs.

The magazine *Ciência Hoje das Crianças (Science Today for Children)* produced a special issue on light. Some

6. Relato das atividades no Brasil II, p. 94

scientific journals or magazines produced special issues on light and the IYL 2015: *Science and Culture* (Brazilian Society for the Advancement of Science), *Revista Virtual de Química* (Virtual magazine of the Brazilian Chemical Society) and *Revista Brasileira de Ensino de Física* (Brazilian Journal of Physics Teaching, Brazilian Physical Society). The activities of the IYL 2015 in Rio de Janeiro were closed with the *Light for Poets,* the series of weekly conferences for a general public. Moysés Nussenzveig, a well-known Brazilian physicist who has done important work in quantum physics and optics, participated in the Christmas conference *Light and Life* closing this event.

Sobral square where the solar eclipse was observed in May 29, 1919. Museum of the Eclipse and the new Sobral Planetary. CREDIT: Assessoria de Comunicação—Prefeitura de Sobral.

The IYL 2015 activities were massively followed online and the Brazilian national node social media channel were quite popular for obtaining information about IYL 2015 in the Portuguese language. The Facebook (FB) page, Ano Internacional da Luz 2015 no Brasil[1] daily published materials and information about events and activities on the IYL in Brazil and worldwide. It has the second largest share in the world with 5,048 organic followers (as of April 2016), about half of the number of followers of the international FB page. More information on the FB page of the IYL in Brazil: about 55% of the followers of the FB page in Brazil were young people (< 34 years); gender of followers: men 52% and women 48%; number of posts ≈ 800; reach: 1.800.000 (estimated); engagement (likes on specific posts, comments, shares) ≈ 120.000.

Activities of the National Week of Science and Technology—Rio de Janeiro, Brazil. CREDIT: SESC.

1. https://www.facebook.com/2015luz

7. Referências à Semana Nacional de CT 2015 que teve "Luz, Ciência e Vida" como tema (p. xi, 29 e 93)

21. Many countries chose light as the theme for important **national science education initiatives**. For example: the Week of Science in the Democratic Republic of Congo in April 2015; the National Science Week School Theme in Australia in August 2015; the *National Week of Science and Technology* (SNCT) in Brazil in October 2015; the *Fête de la Science* in France in October 2015; Mexico's 22nd *National Science and Technology Week* in November 2015. Other light-based themes were selected for national or regional focus in, for example, Argentina, the Canary Islands (Spain), the Czech Republic, and New Zealand. Regionally, the European Commission provided €2.85 million for Coordination and Support Actions in 30 European countries to promote the importance of **light science and careers in photonics** to young people, entrepreneurs, and the general public.

EDUCATION FOCUS

Teaching activities involving light and optics naturally lend themselves to student participation and can serve as a very effective gateway into science for young people. All countries participating in IYL 2015 included a strong focus on education, and indeed in some cases light was chosen as a major theme of centrally coordinated National and Regional Science Weeks. This was the case, for example, in: Australia, Brazil, Czech Republic, Democratic Republic of Congo, France, Germany, and Mexico.

It is worth describing the impact of several of these national initiatives in more detail: activities in Brazil in October–November 2015 included specific events with indigenous communities and visually impaired people;

Poster for the Brazilian National Week of Science and Technology 2015. CREDIT: SNCT.

8. **Referência a atividades sobre Ibn Al Haytham (ocorrida na Reunião Anual da SBPC e na Casa da Ciência – UFRJ) (p.xii)**

26. The works of **Ibn Al-Haytham** were frequently highlighted during 2015 in events organised by national committees, an international Ibn Al-Haytham Working Group, and Founding Partner 1001 Inventions. A 2-day conference on the *Islamic Golden Age of Science for the Knowledge-Based Society* took place from 14 to 15 September 2015 at UNESCO Headquarters in Paris, and included an exhibition from the Qatar National Library on the preservation of the cultural heritage of Islamic manuscripts. Overall, events on Ibn Al-Haytham took place in 29 countries: Algeria, Bahrain, Brazil, Canada, China, Egypt, Eritrea, France, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kuwait, Lebanon, Malaysia, Mexico, Morocco, Oman, Palestine, Qatar, Saudi Arabia, Senegal, Tunisia, Turkey, United Arab Emirates, United Kingdom, and United States of America.

9. **Referência ao VerCiência - International Festival of Science TV (p. 42)**

Cinema Festivals around the world also decided to align their themes with the IYL 2015, including the Science Film Festival (see page 43) and the IYL 2015 Film Festival. Other Festivals included: the *VerCiência International Festival of Science TV* in Brazil, the *2nd Ethnografilm Festival in Paris,* and the *CINEMISTICA 2015 Film Festival* in Spain.

Referência ao GalileoMobile (p.37)

The IAU also supported over 20 national or regional outreach efforts as part of *Cosmic Light* during 2015. Building on developments during the 2009 International Year of Astronomy, over 10,000 Galileoscopes were distributed during 2015 to science educators in the US, Puerto Rico, and Guam, and the *GalileoMobile* astronomy outreach project worked with a network of 20 schools in Argentina, Brazil, Chile, Colombia, Ecuador, and Peru.

10. Brasil: Board Member of the IYL 2015 (p. 3)

A resolution supporting IYL 2015 was prepared and was adopted by the UNESCO Executive Board at its 190th session which took place at the UNESCO HQ in Paris, France, 3-18 October 2012. The resolution was placed before the Executive Board by Ghana, Mexico, the Russian Federation (Board Members), and New Zealand (UNESCO Member State). UNESCO delegates from Ghana and Mexico introduced the proposal, and at the initiative of Saudi Arabia, the contributions of Ibn Al-Haytham were included as a key element of the planned celebrations. The resolution was adopted by the Executive Board joined by co-signatories from a further 27 Board Members: Angola, Bangladesh, Brazil, Burkina Faso, China, Congo, Cuba, Djibouti, Ecuador, Ethiopia, Gabon, Gambia, Kenya, Indonesia, Italy, Malawi, Nigeria, Peru, the Republic of Korea, Saudi Arabia, Spain, Thailand, Tunisia, the United Arab Emirates, the United States of America, Venezuela (Bolivarian Republic of), and Zimbabwe. Other Member States of UNESCO who declared support for the initiative were Hungary, Serbia, and South Africa. UNESCO's official support opened the gate to approach the UN General Assembly to officially endorse the International Year.

11. Brasil: Nó do IYL 2015

We identified 94 National Nodes that are listed below:

Bosnia and Herzegovina	Iran (Islamic Republic of)	Saudi Arabia
Brazil	Iraq	Senegal
Bulgaria	Ireland	Serbia

12. Contributors para o Final Report (p. 220)

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