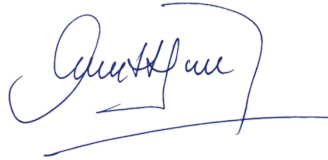


XVI LARIM Final Report

1. Meeting Number: XVI
2. Meeting Title: Reunión Regional Latinoamericana de Astronomía de la IAU or Latin American Regional IAU Meeting (LARIM)
3. Location (city, country): Antofagasta, Chile
4. Date: 3-9 November 2019
5. Number of participants: 293
6. List of represented countries: Argentina, Brasil, Chile, Colombia, Ecuador, Mexico, Uruguay, Venezuela, Canada, Spain, China, Italy.
7. Report submitted by: Patricia B. Tissera, Chair of Scientific Organizing Committee
8. Date and place: Santiago, 8 May 2020
9. Signature of SOC Chairperson:



Summary of XVI LARIM

Following the tradition started with the first IAU regional meeting that took place in Chile in 1978, latinamerican astronomers got together in the XVI LARIM, which was held in Antofagasta, on 3-9 November 2019.

A total of 293 registered participants attended, representing 11 different countries and of which 40, 58 and 2 per cent were female, male and prefer not to say, respectively. Financial support via the IAU grant was provided to 48 participants. The XVI LARIM was supported largely by the Regional Government of Antofagasta as well as international observatories present in Chile and national and regional organizations such as ALMA-CONICYT and Joint Committee ESO-Chile, achieving a status of “strategic regional event”.

The meeting was organized in plenary sessions and three parallel sessions. The 17 invited speakers reviewed and highlighted the state-of-the-art in observational and theoretical astronomy as well as astronomical facilities, data management, history and outreach in the plenary sessions. There were 152 contributed talks organized in three parallel sessions. The SOC applied a blind selection process to evaluate the abstracts. The sessions were led by 36 astronomers from all over LatinAmerica who acted as chairpersons. Additionally, a panel discussion on challenges posed by present and future observational facilities in LA was organized with the aim at exploring new avenues for collaboration as well as strengthening existing ones.

There were 129 posters exhibited during the 5 days of the scientific meeting. Prizes to selected posters on merit basis were awarded. With this activity students and young researchers were encouraged to actively participate in the event. To make this possible, the participation of senior astronomers as members of the selection committee was crucial.

The organizers agreed on a set of core values to guide their work and become central attitudes in this LARIM: Integrity, Excellence, Diversity and Sustainability. Several measures and activities were designed to honor these values. Additionally, an ample variety of outreach and spin-off activities for targeted audiences took place during the meeting.

The XVI LARIM was an opportunity to discuss not only the on-going projects and results achieved by researchers in the region but also to envisage possible collaborations which will strengthen astronomy in LatinAmerica. Our community will meet again in Uruguay for the XVII LARIM in 2022.

Scientific Organizing Committee

- Patricia Tissera (Universidad Andres Bello, Chile), Chair
- Amelia Bayo (Universidad de Valparaíso, Chile)
- Reinaldo de Carvalho (Instituto Nacional de Pesquisa Espaciais, Brazil)
- Carlos Feinstein (Universidad de La Plata, Instituto de Astronomía de La Plata, Argentina)
- Jaime E. Forero-Romero (Universidad de los Andes, Colombia)

- Arturo Gomez Ruiz (Instituto Nacional de Astronomía, Óptica y Electrónica, México)
- Guillermo Hagele (Universidad de La Plata, Instituto de Astronomía de La Plata, Argentina)
- Elena Jimenez Bailon (Universidad Autónoma de México, México)
- Elisabete M. de Gouveia Dal Pino (Universidad de Sao Paulo, Brazil)
- Monica Rubio (Universidad de Chile, Chile)
- Gonzalo Tancredi (Universidad de la República, Uruguay)
- Katherine Vieira (Centros de Investigaciones de Astronomía, Venezuela)

Local Organizing Committee

- Eduardo Unda-Sanzana (Universidad de Antofagasta), Chair
- Javier Alonso (Universidad de Antofagasta)
- Douglas Geisler (Universidad de Concepción)
- Paula Jofré (Universidad Diego Portales)
- Paulina Lira (Universidad de Chile)
- Francesco Mauro (Universidad Católica del Norte)
- Christian Moni (Universidad Católica del Norte)
- Alicia Reyes (Convention Bureau Antofagasta)
- Linda Schmidtbreich (European Southern Observatory)
- Manuela Zoccali (Pontificia Universidad Católica de Chile)

Invited speakers:

Review Speakers:

- Jorge Ballesteros - Mexico - Spatially-resolved chemical evolution of galaxies
- Omar Benvenuto - Argentina - Evolution of Low and Intermediate Mass Stars in Binary Systems with Neutron Star
- Giovanni Carraro - Italia - Modes of star formation and 3D structure in MW young star clusters and OB associations
- Cristina Chiappini - Germany - The Milky Way and Gaia
- Gabriela Gonzalez - USA- Gravitational Wave Astronomy
- Laura Perez - Chile - Planet-forming Disks in the Era of ALMA

Keynote Speakers:

- Paramita Barai - Brazil - Investigate Central Massive Black Hole Feedback in Galaxies using Cosmological Hydrodynamical Simulations
- Ulisses Barres de Almeida - Brazil - Science with the Cherenkov Telescope Array
- Mederic Boquien - Chile - The challenges of measuring the star formation rate of galaxies
- Jura Borissova - Chile - Embedded clusters in VVV and VVVX
- Gonzalo de Elia - Argentina - Dynamical effects of an eccentric giant planet on outer small body reservoirs
- Magdalena Gonzalez - Mexico - HAWC: recent results

- Antonela Monachesi - Chile - Deciphering accretion history of galaxies: Insights from stellar halos
- Paula Sanchez-Saez - Chile - ALERCE: Automatic Learning for the Rapid Classification of Event
- Silvia Torres-Peimbert - Mexico - 100 years of activity of the International Astronomical Union
- Mariana Vargas-Magaña - Mexico - Unraveling the Universe with Spectroscopic Survey
- Alberto Vasquez - Argentina - Solar Corona Tomography

Session Chairpersons:

Plenary sessions:

- Monday: Patricia Tissera (Chile) & Jura Borissova (Chile)
- Tuesday: Gonzalo Tancredi (Uruguay) & Jaime Forero-Romero (Colombia)
- Wednesday: Mariana Vargas (Mexico)
- Thursday: Antonela Monachesi (Chile) & Felix Mirabel (Argentina)
- Friday: Giovanni Carraro (Italy)

Parallel sessions:

Monday

- Morning sessions: AGN: Dominik Schleicher (Chile) Stars: Doug Geisler (Chile)
Instruments: Jacques Lepine (Brasil)
- Afternoon sessions: Galaxies: Iván Lacerna (Chile) Stars: Omar Benvenuto (Argentina)
AGN: Jorge Barrera-Ballesteros (Mexico)

Tuesday

- Morning sessions: Cosmology: Laurent Chemin (Chile) Stars: Rene Mendez (Chile)
Planetas: Julio Fernandez (Uruguay)
- Afternoon sessions: Galaxies: Paulina Troncoso (Chile) Stars: Barbara Rojas (Chile)
BigData/Numerical techniques: Lucas Bignone (Argentina).

Wednesday

- Morning sessions: Cosmology: Julie Nantais (Chile) Galaxies: Michael Fellhauer (Chile)
Milky Way: Tali Palma (Argentina)

Thursday

- Morning sessions: Stars: Barbara Rojas (Chile) Planets: Leandro Sesto (Argentina)
Galaxies: Katherine Vivas (NOAO)
- Afternoon sessions: Galaxies: Daniel Carpintero (Argentina) Stars: Katherine Peña (Chile)
Milky Way: Javier Alonso (Chile)

Friday

- Morning sessions: Galaxies: Mederic Boquien (Chile) Stars: Mariela Corti (Argentina)
Milky Way: Juan P. Caso (Argentina)
- Afternoon sessions I: Galaxies: Maria Argudo (Chile) MW: Jose Fernandez (Chile)
History: Myriam Pajuelo (Peru)
- Afternoon sessions II: Sun: Alberto Vazquez (Argentina) Galaxies: Maria Argudo (Chile)

Report to the IAU Executive Committee

The XVI LARIM IAU regional meeting was attended by 293 registered participants. The scientific meeting was organized in 17 plenary talks and 29 parallel sessions and a discussion panel. Nine general areas were defined: A. Planetary Systems and Bioastronomy; B. Stars and stellar systems; C. Interstellar medium and star formation; D. Galaxies and The Milky Way; E. Active Galactic Nucleus; F. Cosmology; G. High Energy Astrophysics; H. Instrumentation; D. History, education and outreach. The invited speakers represented these areas. Due to the social-political situation in Chile at the time of the meeting, there were some cancelations which left area D without an invited talk. This was compensated by outreach activities organized by the LOC. The plenary and parallel sessions were led by 36 scientists that acted as chairpersons.

Invited talks:

There were 6 invited reviews and 11 keynote speakers. The SOC made their best efforts to have a fair representation of topics, gender and countries. Regarding the invited speakers, there was approximately 60% female representation.

Panel session: Challenges of the present and future observational facilities in LA

A panel session was organized to discuss challenges in Astrophysics in Latin America considering the future observational facilities and the needs for infrastructure and human capital. The panel was composed by Z. Abraham (Brasil), R. Assef (Chile), M. González (Mexico) and N. Padilla (Chile). The discussion was focused on possible avenues to enhance the collaboration between groups in Latin America.

Contributed talks:

The SOC allocated 170 talks however due to the sociopolitical context, there were 152 contributed talks actually given. A 'blind' evaluation of contributed talks (and posters) was applied. Contributed talks were organized in 27 parallel sessions. The SOC balanced the participation of seniors and young researchers. The contributions of female participants represented 40% of the talks, which is comparable to the percentage of registered female participants.

The contributed talks were distributed as follows:

Galaxies: 20.9%

Milky Way: 15.8%

Stars and Sun: 28.8%

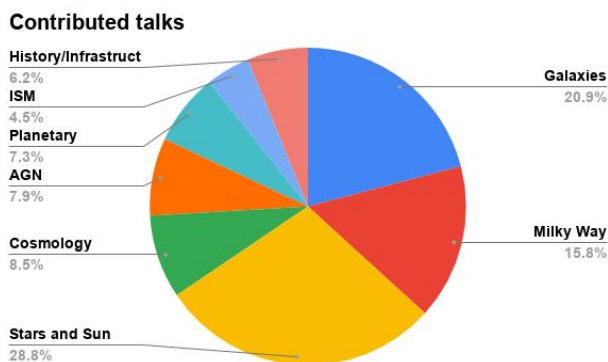
Cosmology: 8.5

AGN: 7.9%

Planetary System: 7.3%

ISM: 4.5%

History/Infrastructure/Data: 6.2%

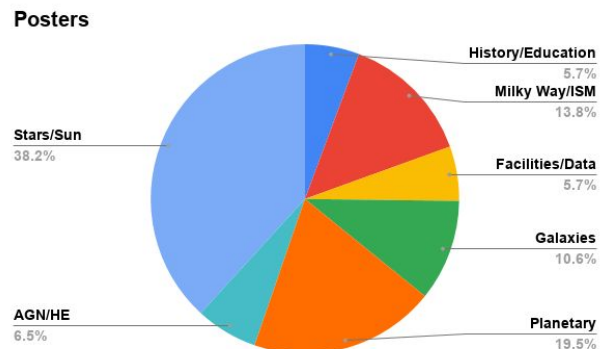


The contributions to the different areas were organized considering the actual demand of the participants.

Posters:

There were 129 registered posters. The pie chart shows the distribution according to the area.

To increase the exposure of young researchers and advanced students, the SOC organized a poster competition in each of the general scientific areas (2 prizes per area) based on scientific merit. The committee that selected the posters involved: G. Tancredi (Uruguay, Chair), P. Barai (Brasil), J. Barrera-Ballesteros (Mexico), U. Barres (Brasil), O. Benvenuto (Argentina), G. D'Elia (Uruguay), J. Forero-Romero (Colombia), C. Giuppone (Argentina), I. Lacerna (Chile), M.Pajuelo (Peru), T .Palma (Argentina), P.Sanchez (Chile), D. Schleicher (Chile), S. Torres (Mexico), M. Vargas (Mexico), A. Vásquez (Argentina) and K. Vivas (Chile). The winners were announced during the LARIM General Assembly. They received a present (coordinated by the LOC) and were given the opportunity to present their work in a two-minutes talk during the LARIM General Assembly.



Proceedings of LARIM XVI:

The SOC decided, for the first time, to publish the proceedings of the meeting **online**, in the Conference Series of the Boletín de la Asociación Argentina de Astronomía (indexed in ADS).

Next Venue:

The general assembly took place on 7th November 2019. The general assembly was attended by professors, researchers and students from most of the countries present at the LARIM. Dr. Gonzalo Tancredi proposed Uruguay as the venue for the LARIM XVII which will take place in 2022. The General Assembly approved the proposed site unanimously.

Public Outreach

Four public talks were offered during the meeting, together with several other activities organized by the LOC (see below).

Public talks:

Roy Slater (Chile): Ciencia y Pseudociencia: el método científico versus la charlatanería

Luis Rodríguez (Chile): Taller de creación de chistes astronómicos

Carla Fuentes (Chile): Astronomía desde otra perspectiva

Myriam Pajuelo (Peru): Misiones espaciales a asteroides

General comments:

The Chilean Astronomical Society (SOCHIAS) appointed a LOC and a SOC to organize LARIM 2019 on their behalf. The SOC had members from 7 different Latino-american countries. The number of participants was 293 (LARIM XIV and LARIM XV have 462 and 372, respectively). The organizers agreed on a set of core values to guide their work and became central attitudes in this LARIM: Integrity, Excellence, Diversity and Sustainability. Translating these values into actions led to some organizational decisions worth highlighting: LARIM 2019 aimed to be a paperless conference, to produce little and recyclable waste, to positively impact its surroundings (e.g. by daily cleaning the beaches nearby), and to reduce its carbon footprint whenever possible by carefully selecting providers. These had to demonstrate knowledge of the local culture and adherence to sustainable practices in their productive process. Childcare services were offered for parents attending the conference with their kids. Non-binary representations of gender were considered at the registration form already and permeated the writing of all the official announcements released by the organizers, consistently using gender-neutral language. All participants had to acknowledge and agree with the IAU code of conduct.

LARIM 2019 took place in a challenging sociopolitical context both at a continental and national level, with many people affected by political or economical crises in their countries, including Chile itself since mid-October. Some people decided to not attend LARIM 2019 due to safety concerns but in other cases because of lack of resources. The organizers provided a streaming service to any interested colleague in remotely attending a talk, without the need to pay a fee. Also, for people who had been allocated a talk but could not travel to Antofagasta, they were offered the possibility to remotely offer their talk. Given that a substantial fraction of the participants shared the concern about socio-political issues driving ongoing public demonstrations, room was provided to meet and discuss those issues, particularly in connection with Astronomy. About a third of the participants in LARIM 2019 joined a discussion during the Wednesday free-afternoon. The General Assembly of LARIM 2019 was inaugurated by the Chilean Minister of Science, Andrés Couve, who visited the venue and received a letter, summarizing proposals on the relation of science with those issues.

Participants in LARIM 2019 met with several local artistic expressions, letting the visitors sample the diverse cultural manifestations in the Region of Antofagasta. Daily interactions with actors portraying characters from local history took place, as well as a rock concert, folk presentations and a large-scale jazz-band show. An outreach programme of talks and workshops was offered to the public in a nearby cultural center, thanks to the volunteer work of LARIM participants. This bidirectional relation with the community was reinforced by daily visits from the public to the LARIM booth fair, by a strong presence in the frontpage of local newspapers and main news segments in TV channels after the successful Media Day, and by organizing the AstroCon!, a pilot event meant to act as a summit of different outreach efforts nationwide. Photos and videos of LARIM 2019 are available at <http://www.sochias.cl/larim2019/results/> illustrating the main activities of the event.

LARIM 2019 was supported largely by the Regional Government of Antofagasta, by several international observatories present in Chile and by other national and regional organizations, achieving a status of “strategic regional event”.