XVII Latin America Regional IAU Meeting

Final report to the IAU Executive Committee

Local Organizing Committee, March 2024



XVII Latin American Regional IAU Meeting

Montevideo, Uruguay November 27 to December 1, 2023

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Introduction

The LARIM started in 1978 and has been cycling through Latin America from Santiago (1978), to Mérida (Venezuela, 1981), Buenos Aires (1983), Rio de Janeiro (1984), Mérida (México, 1986), Gramado (1989), Viña del Mar (1992), Montevideo (1995), Tonantzintla (1998), Córdoba (2001), Pucón (2005), Isla Margarita (2007), Morelia (2010), Florianópolis (2013), Cartagena de Indias (2016), Antofagasta (2019) and back to Montevideo (2023).

Following its tradition the LARIM covered a wide range of topics related to all of the divisions of the IAU, including but not limited to, planetary systems, astrobiology, Sun and heliosphere, stars, stellar physics, stellar systems, star formation, interstellar medium, local Universe, Galaxies, AGN, cosmology, compact objects, high energy astrophysics, instrumentation, facilities, technologies, astroinformatics and big data, fundamental astronomy, history, education, outreach, heritage and astronomy for development.

The LARIM has witnessed tremendous advances in astronomy and has played a relevant role in bringing together scientists, and fostering collaborations at various levels and in different research areas. The XVII LARIM served as an opportunity to discuss not only the ongoing projects and results in the region but also to envisage possible collaborations that will strengthen astronomy in Latin America. Our community will meet again for the XVIII LARIM in 2025 at Riviera Maya in México.

Values and guidelines of the organization

In this section, we describe the general values and guidelines aligned with the historical objectives of the LARIM, as well as the main challenges of organizing the XVII edition.

The first LARIM after the COVID-19 pandemic

Originally scheduled for 2022, the XVII LARIM was rescheduled for 2023 due to the COVID-19 pandemic. As the first edition after the pandemic, which significantly altered working conditions worldwide, including the formats of participation in schools, workshops, and meetings, the organizers faced challenges and uncertainties. These challenges were particularly related to the expected number of participants, associated costs, and modes of participation.

The first step in the organization involved surveying the community's interest in participating in the XVII LARIM to estimate the number of expected remote and in-person participants. Conducted one year in advance, during December 2022, the survey request was disseminated through an email list comprising all participants from the previous two LARIMs (generously provided by the organizers) and a compendium of email addresses from colleagues. The resulting list was not publicly available.

The form was sent to around 500 potential participants, who were invited to share it with colleagues from Latin America and worldwide. A total of 398 answers were received from which 95% indicated that in-person participation was certain or almost certain. Only 5% indicated that in case of participation, it would be remote. Finally, 66% of potential participants expressed their intention of requesting financial support.

Selection of the venue

During the XVI LARIM in Antofagasta, Uruguay was unanimously approved to host the XVII LARIM. Several venues in the cities of Montevideo and Punta del Este were considered. Ultimately, the conference took place at the Centro de Conferencias of the Intendencia de Montevideo, located close to the city downtown.

The decision to choose this venue was based on the following factors:

- 1. It could accommodate the estimated number of participants (around 400).
- 2. It enabled the coverage of all parallel sessions within the same building.
- 3. A potential partnership with the Montevideo Planetarium, an institution under the Intendencia de Montevideo, which enhances the opportunities for a substantial support from the local government.
- 4. Montevideo serves as the main entrance to Uruguay by both plane and boat, resulting in lower transportation costs.
- 5. The city offers various tourist attractions, numerous hotels, and restaurants with a wide range of costs, all within walking distance from the Centro de Conferencias.
- 6. At the end of spring, historical weather records for Montevideo show a combination of lower rain probability and warm temperatures.

Taking these factors into account, along with the city's rich cultural expressions, the Centro de Conferencias of the Intendencia de Montevideo was considered the ideal venue.

In-person and remote participation

At the XVII LARIM, we strongly encouraged in-person participation and also allowed remote attendance in a limited format. Remote participation was possible in an attendance mode only, for conference plenary and all simultaneous session talks; to present a contribution, in-person participation was required. Due to very particular and personal reasons, two plenary speakers were allowed to present their contributions remotely. We used private Zoom accounts provided by

Universidad de la República for the broadcast. No issues due to connectivity occurred during the meeting and the videos from all sessions will be available online during the first trimester of 2024.

Official languages

Consistent with tradition, LARIM's official languages are Spanish, Portuguese, and English. Participants of XVII LARIM were encouraged to communicate orally in the official language they found most effective, ensuring broad accessibility during the meeting. Consequently, talks could be conducted in any of the official languages, though abstracts, slides, and posters were exclusively required in English.

All official announcements, the official poster, as well as the official webpage, were developed in English, Spanish, and Portuguese.

Excellence and representativeness

The SOC dedicated substantial efforts to ensure a high level of excellence in both plenary and contributed talks implementing a double evaluation for contributed talks and posters. Also, the SOC strived to achieve a fair representation across various dimensions, including topics, gender parity, and geographical representation. Additionally, efforts were made to balance the participation of both senior and early career researchers. The selection process and criteria used are discussed in more detail ahead.

Integrity and code of conduct

All participants were required to adhere to the IAU Code of Conduct during the XVII LARIM registration process. The LOC chair, the SOC chair and the SOC co-chair were responsible for addressing any related complaints. Notably, participants demonstrated impeccable conduct, and no complaints were received.

Economy and sustainability

A primary objective was to minimize organizational costs for the XVII LARIM, aiming to enhance participant numbers and particularly support the involvement of students and young researchers from the region, who typically receive limited financial assistance for attending meetings. As detailed in the following sections, the LOC took measures to assist colleagues from Argentina, whose participation, despite being near Montevideo, faced uncertainty due to a national challenging economic situation.

The XVII LARIM made significant strides in transitioning into a digital meeting, eliminating print materials such as bags, notebooks, and pencils, with only the program and name badge being printed. Interestingly, a considerable number of participants opted for the digital program over the printed version. As a result, substantial efforts were invested in developing corresponding online forms, databases, digital programs, and a digital book of summaries. The dynamic nature of these digital resources proved highly beneficial in adapting to unexpected changes during the event.

Official status

The XVII LARIM was granted the official status of an "Event of Importance for the City" by the Government of Montevideo, as secured by the LOC. This recognition facilitated special considerations from various departments of the Intendencia de Montevideo throughout the organization process. Additionally, it proved invaluable for the visa processing required for certain participants.

Participation of the Uruguay astronomical community

Uruguay has a rich tradition in astronomy, encompassing not only professional astronomers but also institutions dedicated to outreach, such as the longstanding Planetarium of Montevideo. Particularly noteworthy is the active involvement of the astronomy teacher's community, as Uruguay stands out as one of the very few countries incorporating an astronomy course at the high school level.

Recognizing the significance of their participation, the organization took measures to facilitate the involvement of high school teachers and other local individuals engaged in outreach activities. This awareness stemmed from the understanding that their participation would have a profound social impact on the meeting and Uruguay's society. For this purpose, efforts were made in three ways. Firstly, a limited participation of teachers in the LARIM sessions was permitted as registered students. Secondly, a dedicated Workshop on Virtual Astronomy for teachers was organized. Thirdly, the LOC provided strong support for the organization of the III Workshop on Astronomy Beyond Common Senses for Accessibility and Inclusion. The details of the latter two activities will be expanded in the following sections.

Furthermore, several authorities from the local academic community, particularly those in the field of physical sciences, participated in the opening session. The XVII LARIM was officially inaugurated by Dr. Monica Marin, the Dean of the Faculty of Science at the Universidad de la República.

Webpage and agenda of official announcements

The official webpage (https://rrla-larim-2023.uy/) was launched in April 2023 and underwent continuous updates until the conclusion of the meeting. The final modifications, scheduled for 2024, will encompass the inclusion of session videos and the link to the proceedings.

Furthermore, the meeting was extensively promoted within the astronomical community through emails and publications on Astronomy Meetings and IAU web pages. Social media platforms such as Twitter, Facebook, and Instagram were also utilized for official announcements and advertisements. All these communications adhered to a pre-established agenda.

Availability of information after the meeting

Since the early stages of the organization, the LOC emphasized the importance of ensuring that all meeting information remains publicly accessible long after the conclusion of the event, serving as a valuable historical record for future LARIM organizations. Consequently, the webpage will continue to be hosted, retaining comprehensive information about the meeting, including this report, the proceedings, and videos of each session. A brief report was already published in IAU Catalyst #10.

Conference organization support

The professional astronomical community in Uruguay is relatively small, consisting of 7 independent researchers and approximately 10 graduate students. Many of these had been actively involved as organizers, collaborators, and participants in various previous editions of the LARIM. Given the substantial responsibility of organizing the event, its academic relevance for Uruguay, the limited number of individuals available, and the absence of anyone able to dedicate exclusive time to the organization, the decision was made to enlist the services of a professional meetings organization company.

EasyPlanners, a local company with a successful track record in organizing previous meetings for our community, was selected for this purpose. Their expertise was crucial in handling specific aspects of the organization efficiently.

LOC, SOC, organizers and sponsors

The SOC

In 2022, Dr. Gonzalo Tancredi initiated the formation of the Scientific Organizing Committee (SOC), aiming for a well-balanced representation of colleagues from various Latin American countries. This was achieved by seeking candidates through national astronomical associations or representative institutions within each national community. The SOC members included: Gonzalo Tancredi (Uruguay, Chair), Cecilia Mateu (Uruguay, co-Chair), Andrea Costa (Argentina), Melina Bersten (Argentina), Reinaldo Ramos de Carvalho (Brazil), Lucimara Martins (Brazil), Julio Carballo (Chile), Verónica Motta (Chile), Camilo Delgado (Colombia), Miguel Chavez (México), Vladimir Avila (México) and Gladis Magris (Venezuela).

This diverse and dedicated group worked collaboratively to ensure a comprehensive and inclusive scientific program for the XVII LARIM.

The LOC

The LOC was predominantly composed of researchers and postgraduate students in Astronomy from the Universidad de la República, along with representatives from the Planetario de Montevideo and Observatorio Astronómico Los Molinos (DICYT, Ministerio de Educación y Cultura), key entities in astronomy outreach in Uruguay. In December 2022, Dr. Juan José Downes was appointed as the Chair of the LOC. The LOC members included: Juan José Downes (UdelaR, Chair), Rafael Bertolotto (UdelaR), Sebastián Bruzzone (UdelaR, CURE), Mauro Cabrera (UdelaR), Manuel Caldas (UdelaR), Bruno Domínguez (UdelaR), Tabaré Gallardo (UdelaR), Álvaro Guaimare (UdelaR), Andrea Maciel (OALM), Silvia Martino (UdelaR), Cecilia Mateu (UdelaR), Oscar Méndez (Planetario de Montevideo), Nicolás Pan (UdelaR), Santiago Roland (UdelaR, CURE) and Gonzalo Tancredi (UdelaR).

Throughout 2023 and during the days of the meeting, both the SOC and the LOC held regular meetings. Their efforts were complemented by the generous support of a group of bachelor Astronomy students from Uruguay, who contributed significantly to various tasks, contributing to the overall success of the conference.

Institutional organizers

The XVII LARIM received support and collaboration from the following institutional organizers:

- 1. International Astronomical Union
- 2. Facultad de Ciencias de la Universidad de la República, Uruguay
- 3. Sociedad Uruguaya de Astronomía
- 4. Planetario de Montevideo
- 5. Centro Universitario Regional del Este de la Universidad de la República, Uruguay
- 6. Observatorio Astronómico Los Molinos, Uruguay

Sponsors

The XVII LARIM was generously supported by the following sponsors:

- 1. Intendencia de Montevideo
- 2. Comisión Sectorial de Investigación Científica de la Universidad de la República, Uruguay
- 3. Programa de Desarrollo de las Ciencias Básicas, Uruguay
- 4. Instituto de Astronomía de la Universidad Nacional Autónoma de México

Academic content

The XVII LARIM featured plenary sessions, parallel sessions and two poster exhibitions. In the plenary sessions, invited speakers provided comprehensive reviews of the state-of-the-art in observational and theoretical astronomy, along with insights into astronomical facilities and data management.

Program overview

The program was arranged according to the 9 IAU Divisions. There were 28 parallel sessions, in groups of three, and there was at least one session per Division. The program and book of abstracts are available at: <u>program</u>.

The event featured a total of 392 presentations, comprising 20 invited plenary talks (including 8 review talks and 12 target talks), 140 contributed talks, and 232 posters divided into two poster exhibitions. The contributed talks were distributed across 28 parallel sessions, while the posters were displayed in two groups: one from Monday morning to Wednesday morning, and the other from Thursday morning to Friday afternoon. The distribution of contributions among the IAU divisions is illustrated in Figure 1.

The duration of talks varied: plenary review talks were allocated 40 minutes for presentation and 10 minutes for discussion, plenary target talks were allotted 20 minutes for presentation and 10 minutes for discussion, and contributed talks were scheduled for 12 minutes of presentation and 3 minutes for discussion. All posters adhered to the A0 standard format, featuring a vertical layout, and the LOC requested to include a QR code linking to a digital version.

Remarkably, the program adhered exceptionally well to the schedule, thanks in large part to the impeccable efforts of the students who were members of the LOC and were in charge of the transmission and presentation assistance. Their crucial role significantly contributed to this achievement. Additionally, the commitment of the participants to follow the schedule and procedures implemented by the LOC also played a key role in the overall success of the event.

Selection Procedures

For the selection of invited speakers the SOC asked each member to nominate between two and four potential speakers, preferably but not exclusively, in their areas of expertise trying to cover all Divisions of the IAU and keeping gender parity in mind. The criteria for the nominations were: outstanding research as well as excellence as speakers, and prioritizing, first, nominees based in Latin America (irrespective of nationality) and, secondly, latin-american nationals based in other countries, such that geographical representation was balanced both in review and in target talks. Because gender parity was encouraged at the nomination stage, it was not necessary to enforce it during the final selection process, which resulted in a final list with 55% female invited speakers.

For the selection of oral and poster contributions, all submitted abstracts underwent a rigorous refereeing process. The total number of 140 slots available for talks were distributed among the 9 IAU Divisions based on the proportion of abstracts received in each division. Each of the submitted abstracts was reviewed and given a score by two SOC members (that had no conflict of interest). Then, during a Zoom session the SOC members were divided in three groups: Divisions ABCDEF, Divisions GH and Division J. Each group discussed the top ranked contributions to agree on the selection of the contributions for the slots to be filled, plus a wait-list (~10% of the available slots per division) of contributions to be selected in case of cancellations. The quality of the submitted

abstracts as the main evaluation criterion for the ranking and at equal scores, priority would be given to female/non-binary over male authors, junior over senior researchers and countries with smaller astronomical communities over those with larger ones.

The (37) sessions were chaired by astronomers predominantly from Latin America, with the contribution of some colleagues from Europe and the USA. Chairs were preferentially selected among experts in each of the session's topics that had not been assigned talks during the meeting.

IAU Division	Plenaries	Talks	Posters	Total
A: Fundamental Astronomy	1	3	2	6
B: Facilities, Technologies and Data Science	3	8	8	19
C: Education, Outreach and Heritage	0	9	21	30
D: High Energy Phenomena and Fundamental Physics	0	9	12	21
E: Sun and Heliosphere	2	2	5	9
F: Planetary Systems and Astrobiology	3	15	31	49
G: Stars and Stellar Physics	5	32	58	95
H: ISM and Local Universe	1	16	22	39
J: Galaxies and Cosmology	5	46	73	124
Total	20	140	232	392

Table 1. Distribution of contributions among the IAU Divisions.

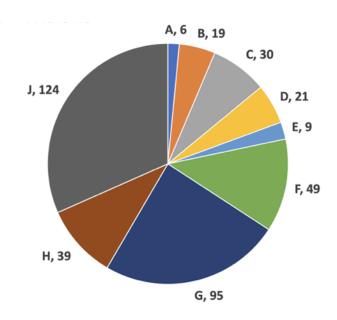


Figure 1: Distribution of all contributions (plenary talks, contributed talks and posters) among the IAU Divisions.

	Female	Male
Plenaries	55%	45%
Talks	37%	63%
Posters	43%	57%
Chairs	40%	60%
Participants	39%	61%

Table 2. Final gender distribution of participants per contribution type.

Plenary review speakers

Francisco Förster, Universidad de Chile (Chile); Luis A. Núñez, Universidad Industrial de Santander (Colombia); Marcelo Lopez Fuentes, Instituto de Astronomía y Física del Espacio (Argentina); Rodrigo Díaz, Universidad de San Martín (Argentina); Ingrid Pelisoli, University of Warwick (UK); Laurence Sabin, Instituto de Astronomía (Ensenada), UNAM (México); Karín Menéndez-Delmestre, Observatorio do Valongo (Brasil) & Yara Jaffe, Universidad Técnica Federico Santa María (Chile)

Plenary talks speakers

Gisela Ortiz León, Instituto Nacional de Astronomía Óptica y Electrónica (México); Marcio Meléndez, Space Telescope Science Institute (USA); Mariana Andrea Cécere, Instituto de Astronomía Teórica y Experimental (Argentina); María Paula Ronco, Instituto de Astrofísica de La Plata (Argentina); Tabaré Gallardo, Universidad de la República (Uruguay); Paula Coelho, Instituto de Astronomia, Geofísica e Ciências Atmosféricas, Universidade de São Paulo (Brasil); Denise R. Gonçalves, Observatório do Valongo, Universidade Federal do Rio de Janeiro (Brasil); Bruno Dias, Instituto de Astrofísica, Universidad Andrés Bello (Chile); Aldo Rodríguez-Puebla, Instituto de Astronomía, UNAM (Mexico); Jaime Forero Romero, Universidad de los Andes (Colombia); Alejandra Melo, Max Planck Institute for Astrophysics, Garching (Germany) & Aina Palau, Instituto de Radioastronomía y Astrofísica (Mexico).

Chairs

Cecilia Mateu, Mario Abadi, Mauricio Tapia, Mónica Rubio, Julio Fernández, Rosa Amelia González, Jesús Hernández, Mario Melita, Julio Carballo-Bello, Carolina Agurto, Camilo Delgado, Luis Aguilar, Daniela Lazzaro, Adrián Rodríguez, Eduardo Cypriano, Dante Minniti, Verónica Motta, Horacio Dottori, Patricia Arévalo, Beatriz García, Melina Bersten, Julio Chanamé, Vladimir Ávila-Reese, Andrea Sosa, Lucimara Martins, Gonzalo Tancredi, Javier Licandro, Félix Mirabel, Eleonora Sani, Julia Arias, Carlos Román-Zúñiga, Aldo Rodríguez-Puebla, Anthony Brown and Luis Núñez.

Proceedings

The proceedings of XVII LARIM will be published in the Revista Mexicana de Astronomía y Astrofísica Serie Conferencias (RevMexAA Conference Series edition), edited by the Universidad Nacional Autónoma de México. Generously, the publication charges for the proceeding will be covered by the RevMexAA. The editorial team comprises Gonzalo Tancredi, Cecilia Mateu, and Juan José Downes from Universidad de la República, Uruguay. As of the time of this report, the reception of contributions is ongoing, with the final publication anticipated in 2024.

Stand exhibition

During XVII LARIM, two stands were showcased: one dedicated to the LLAMA project, involving colleagues from Brazil and Argentina, and another by the Sociedad Chilena de Astronomía (SOCHIA). SOCHIA's stand highlighted the Adelina Gutiérrez travel grant, which aims to support graduate students from Chilean institutions for their participation in conferences, scientific schools, and internships both in Chile and abroad.

The possibility of participating with a stand was communicated to the registrants during the organization phase. The acceptance of each exhibition was decided by the LOC based on the potential relevance to the participants. The resulting stands offered valuable opportunities for networking and accessing information on funding opportunities.

Advertisement of academic opportunities

The XVII LARIM conference webpage prominently features announcements for a wide range of academic opportunities. These include upcoming meetings, internships, PhD programs, postdoctoral positions, job openings, and other academic prospects. The announcements are not only from the participants of the XVII LARIM conference but also from our colleagues associated with the IAU.

Participation and representativeness

Number of participants

The XVII LARIM had a total of 419 participants from 19 countries. For comparison, the attendance for the previous three LARIM conferences were as follows: 293 participants in XVI LARIM (Antofagasta), 372 participants in XV LARIM (Cartagena de Indias), and 462 participants in XIV LARIM (Florianopolis). It is worth noting that the attendance at the Antofagasta edition was notably impacted by socio-political issues in Chile during the meeting, as reported by the corresponding LOC. The official photograph of participants is shown in Figure 2.



Figure 2: Official photograph of the group of participants.

Career Level

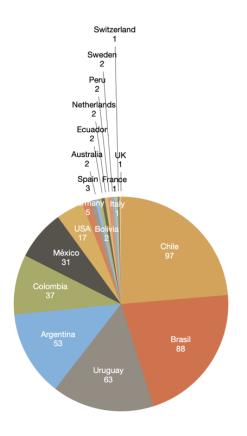
Of the 419 participants, 53% were students, comprising both graduate and undergraduate students, while 47% were researchers or postdoctoral fellows.

Nationalities

Of the 419 participants, 384 are affiliated to Latin American countries, 17 to the USA, 2 to Australia and 16 to European institutions. The distribution among the countries is presented in Figure 3.

Gender

Among the 419 participants, the gender distribution was noted as 40% female and 60% male. In terms of invited talks, the gender distribution was more balanced, with 55% female and 45% male representation. It is important to highlight that the registration form provided options for non-binary gender identification, although no participants chose to define their gender as non-binary. It is worth noting that the gender imbalance among participants partially mirrors the situation in Latin America science community.



Country	Participants
Chile	97
Brasil	88
Uruguay	63
Argentina	53
Colombia	37
México	31
USA	17
Germany	5
Spain	3
Australia	2
Bolivia	2
Ecuador	2
Netherlands	2
Peru	2
Sweden	2
France	1
Italy	1
Switzerland	1
UK	1

Figure 3: Distribution of participants according to the country of his/her institution.

Languages during the presentations

The LOC encouraged participants to freely communicate orally in the official language they found most effective, ensuring broad accessibility during the meeting. The only official restriction about language was that slides and posters must be presented in English. The results regarding the utilization of official languages during the various presentations are summarized in Table 3, providing insights into the linguistic dynamics and preferences observed throughout the XVII LARIM conference.

		Native language of speaker			La	nguage of the	talk	
Kind	Total	English	Portuguese	Spanish	Other	English	Portuguese	Spanish
Plenary review	8	1	2	5	0	7	1	0
Plenary talk	12	0	3	9	0	9	3	0
Contribution talk	140	8	33	89	10	81	52	1

Table 3. Native lenguaje of the speakers and usage of the three official languages during the talks.

Remote participation

The number of remote registrations received was very low, so the LOC decided to make the streaming free access and refund the registration fee at no cost. The broadcast was made via YouTube channels, one for each of the three rooms where each of the parallel sessions were being held with links publicly available in the corresponding section of the webpage. The streaming service operated stably and efficiently throughout the entire meeting. However, it is noteworthy that the uptake of this remote attendance option was also considerably low, with only around 50 participants accessing the broadcast throughout the week.

Communities affected by socio-political issues and countries not present

Unfortunately, due to well-known national economic difficulties, the number of participants from Argentina (53) was lower than expected considering the proximity to Uruguay of several Argentinian

universities and astronomical institutes. A central issue for those colleagues was the difficulty in obtaining or transferring dollars for registration fee payment. Together with Asociación Argentina de Astronomía, the LOC developed a procedure for Argentinians to pay registration in their national currency. While this initiative helped improve their participation, it is worth noting that the large Argentinian astronomical community typically attends in greater numbers when the LARIM venue is close to their country.

Regrettably, XVII LARIM did not have participants from Costa Rica, Honduras, Panama and Venezuela which are national members of the IAU. Other Latin American countries which are not national members of the IAU (Belize, Cuba, Dominican Republic, El Salvador, Guatemala, Haiti, Nicaragua, Guyana, Paraguay and Suriname) had not individual representatives in XVII LARIM.

This underscores the need to establish relationships with astronomers or scientists from related fields in these countries to enhance their participation in future LARIMs. By doing so, we can help expand the reach of astronomy in the region and foster the development of their own astronomical communities.

A particularly notable case is Venezuela, a community that has historically played a significant role in Astronomy and previous editions of the LARIM. Despite the participation of some Venezuelan astronomers, they are now affiliated with institutions in other countries. Unfortunately, no astronomers or students currently residing in Venezuela were able to attend, primarily due to well-known national economic difficulties.

These insights underscore the profound impact of economic factors on regional participation dynamics, reflecting the challenges faced not only by Astronomy but also by many other scientific and cultural disciplines within the region.

Registration types and rates

A total of 567 registrations were received by the deadline for abstract submission. Finally a total of 419 participants attended the meeting. Figure 4 shows the evolution of the number of registrations. The distribution of the different kinds of registrations among students and researchers is shown in Table 4.

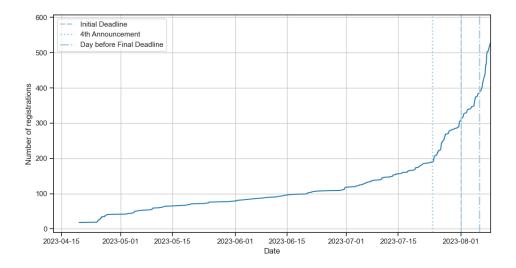


Figure 4: Evolution of registrants before deadline for abstract submission. Vertical dotted lines indicate the dates of the last official announcements before the deadline.

Kind of registration	Kind of registration Students Researchers	
Early	71%	61%
Regular	24%	34%
Late	4%	2%
Remote	1%	2%

Table 4. The distribution of the different kinds of registrations.

Assembly session

The Assembly session, held on Thursday, November 30th, had the participation of professors, researchers and students from most of the countries present at the LARIM. The membership to the IAU was not mandatory for participation. The session started with a comprehensive summary of the accomplishments of the XVII LARIM and then covered the following main topics:

Coordination of Latin American astronomical societies

On Wednesday, December 29th, representatives from several regional astronomical societies convened to discuss the coordination of Latin American astronomical societies. Attendees included representatives from the Asociación Argentina de Astronomía, Sociedade Astronômica Brasileira, Sociedad Chilena de Astronomía, IAU México - Sociedad de Física - División de Astrofísica, Sociedad Uruguaya de Astronomía, AstroCo - Capítulo de la Academia de Ciencias de Colombia, as well as representatives from the Observatorio Nacional de Quito in Ecuador and Universidad de La Paz in Bolivia.

During the meeting, the attendees proposed the creation of a Federation of Latin American Astronomical Societies, aiming to serve as a high-level entity with the primary objective of supporting the development of Astronomy and fostering collaboration throughout the region. The Assembly endorsed the establishment of the Federation.

Several potential activities were discussed for the future Federation, including evaluating the creation of a Latin American Astronomy Magazine, organizing an award for the best Latin American doctoral theses, establishing a Latin American Observatory, and exploring mechanisms to facilitate access to astronomical facilities for communities without their own resources.

Exchange programs

During the Assembly session, information was provided regarding exchange programs available for students, professors, and researchers at Latin American universities and institutes. Some of the programs highlighted include: AUGM (Asociación de Universidades Grupo Montevideo), OEI

(Organization of Ibero-American States for Education, Science, and Culture), CELAC (Community of Latin American and Caribbean States). Attendees were encouraged to explore and take advantage of these programs to further enhance their academic and professional development.

IAU General Assembly 2030

A representative from the Sociedad Chilena de Astronomía (SOCHIAS) (Dr. Bruno Díaz) presented the candidacy of Santiago de Chile as host of the IAU General Assembly in 2030 and requested support from the Latin American community. The assembly voted unanimously to support Chile in its candidacy and signed the following declaration:

"The Latin American astronomical community, convening at the XVII Assembly Latin American IAU Regional Meeting (LARIM) in Montevideo, Uruguay from November 27th to December 1st, 2023, hereby declares strong support for the application submitted by Chile to host the XXXIV IAU General Assembly in 2030. With 419 participants from 19 countries, with 40% of female astronomers, this meeting represents the largest astronomical event in Latin America. Having hosted the IAU GA in Argentina in 1991 and Brazil in 2009, the Latin American astronomical community believes that the time has come for this significant IAU event to be held once again in our southern continent. Recognizing Chile as the epicenter of numerous world-leading telescopes, including submillimeter radio telescopes, presently in operation, and anticipating the inauguration of two giant ELT telescopes by the decade's end, we believe this presents a unique opportunity for colleagues from our region to actively participate and contribute to an IAU General Assembly. A meeting of representatives of all Latin American countries was held on November 29th where Chile's candidacy was presented and supported unanimously. On November 30th the assembly of IAU members voted this support unanimously."

The next LARIM

Representatives from Universidad Nacional de México UNAM (Dr. Vladimir Ávila Reese, Instituto de Astronomía, UNAM and Dr. Rosa Amelia González, Instituto de Radioastronomía y Astrofísica, UNAM) put forward the Riviera Maya in Mexico as the host for the XVIII LARIM in 2025, which the Assembly unanimously approved as the venue for the next edition.

Furthermore, representatives from Ecuador expressed their intention to organize the XIX LARIM in 2028. The evaluation of Ecuador's proposal, along with other potential candidates, will be conducted during the XVIII LARIM in Mexico.

Parallel academic and outreach activities

As part of the parallel activities of the XVII LARIM, several outreach and educational initiatives were organized in Montevideo.

III Workshop on Astronomy Beyond the Common Senses for Accessibility and Inclusion

This workshop, dedicated to exploring innovative approaches to making astronomy accessible and inclusive, was held at the Montevideo Planetarium on November 29th and 30th. The workshop sessions were conducted in English, Spanish, and Portuguese to accommodate a diverse audience.

The workshop was led by Beatriz Garcia (Instituto de Tecnologías en Detección de Astropartículas, Mendoza, Argentina / CONICET, Argentina) and Santiago Vargas (Universidad Nacional de Colombia), under the auspices of Division C from the IAU and was specifically aligned with the objectives of IAU Division C Commission C1 Working Group 3. Both colleagues led the SOC and LOC and the latter also included members of the XVII LARIM LOC, ensuring seamless integration with the main conference activities. Detailed information about the workshop, including its objectives, agenda, SOC, LOC, and participants, can be found on the official webpage at webpage.

Public Talks

Alongside the scientific program, five outreach talks were conducted at various venues across Montevideo:

- 1. "Explorando Mundos Lejanos: Exoplanetas en el Universo y su Representación Cinematográfica"
 - a. Speaker: Dra. Carolina Charalambous, Pontificia Universidad Católica de Chile
 - b. Date: Monday, November 27th
 - c. Venue: Facultad de Ingeniería, Universidad de la República
- 2. "¿Por qué se construyen nuevos radio observatorios y cómo funcionan?"
 - a. Speaker: Dr. Alberto D. Bolatto, Universidad de Maryland, EEUU
 - b. Date: Wednesday, November 29th
 - c. Venue: Facultad de Ciencias, Universidad de la República
- 3. "Telescopios cósmicos: ¿qué sabemos sobre nuestro universo?"
 - a. Speaker: Dra. Verónica Motta, Universidad de Valparaíso, Chile
 - b. Date: Tuesday, November 28th
 - c. Venue: Planetario de Montevideo
- 4. "Agujeros Negros en el Universo"
 - a. Speaker: Dr. Felix Mirabel, Instituto de Astronomía y Física Espacial (IAFE), UBA,
 Lab. Astrofísica, Instrumentación y Modelación, CEA/CNRS/Université Paris-Saclay,
 Francia
 - b. Date: Wednesday, November 29th
 - c. Venue: Intendencia de Montevideo
- 5. "El observatorio ALMA: en busca de nuestro origen cósmico"
 - a. Speaker: Dr. Gianni Marconi, ESO, Chile
 - b. Date: Wednesday, November 29th
 - c. Venue: Planetario de Montevideo

These talks received significant attention from the media and attracted approximately 300 attendees in total. Recordings of the talks will be made publicly available on the conference webpage for broader dissemination and accessibility.

I Workshop of Astronomy in the Classroom

The "I Workshop of Astronomy in the Classroom" was held on December 14, a few days after XVII LARIM due to scheduling constraints. Aimed at high school astronomy teachers, the goal of the workshop was to introduce public access tools and catalogs commonly used in current astronomical research and provide practical experience through simple use cases. The workshop program consisted in two 3h-long sessions, with the morning session focused on Solar System Astronomy and the afternoon session on Stellar and Galactic Astronomy. The Solar System session provided an overview of the BOCOSUR project, a network of meteor detection deployed in high schools all over Uruguay, followed by a hands-on example using Python tools to retrieve and perform simple analyses of light curves from the Kepler mission. The Stellar and Galactic Astronomy session gave an overview of the Gaia mission and an introduction to Virtual Observatory tools, followed by a hands-on session using Topcat to retrieve Gaia DR3 data and produce color-magnitude and H-R diagrams for selected stellar clusters. Each of the sessions had expert UdelaR researchers and graduate students as instructors.

The workshop was held in person at the Informatics Room at the Instituto de Perfeccionamiento y Estudios Superiores (IPES), free of charge, and was attended by 39 high school teachers from the wider Montevideo area, as well as other parts of the country. The recordings, class materials and other general information about the workshop are publicly available at the event's <u>website</u>.

Each of the participants is responsible for teaching several high school Astronomy courses. Therefore, the information and practices shared during the workshop will be valuable for their formal educational activities, which will involve hundreds of high school students across the country.

Participation in the local media

The LARIM made a notable impact on the local media with coverage across various platforms that reached a national audience. The event was featured prominently on television, with three separate coverages during the opening ceremony, capturing the attention of viewers across the country. Additionally, LARIM maintained an active presence on social media platforms starting six months

before the meeting. Furthermore, the conference was highlighted through interviews on two radio stations. Overall, the comprehensive media coverage helped to raise awareness and promote the significance of the LARIM on a national scale. A concise report outlining the achievements of the XVII LARIM was published in issue #10 of IAU Catalyst (February 2024). Additionally, the video recordings of all scientific and outreach talks presented at the event will be made publicly accessible during the first trimester of 2024.

Image of XVII LARIM

The logo of the XVII LARIM, displayed on the cover of this report, is a unique composition created using images generated by deep learning models from DALL-E. These images were generated based on natural language descriptions that requested images inspired by constructivist paintings. Constructivism, an influential artistic movement, represents a significant contribution from Uruguay to the universal arts. Particularly, an iconic painting by Joaquín Torres-García displays a map of South America "upside down" and the sentence "Nuestro norte es el Sur" (Our north is the South), and the Sun including in the logo remind us a central part of the Uruguayan national flag.

Artistic intervention of the letters of Montevideo

As a symbolic representation of the XVII LARIM event, the iconic Montevideo sign located at the Rambla, the riverside boardwalk, underwent an artistic intervention. Each letter of the sign was adorned with an astronomical motif representing an IAU Division. The design culminated with the last letter featuring a sunset-themed motif. The artistic design was made by local artist Florencia Barragan, Roque Villamil and Ramón Cubilla. Many participants collaborated with the painting.

This creative endeavor resulted in a visually striking display that served as a tribute to the diverse fields of astronomy, creating a beautiful memory for participants and enhancing the visibility of the LARIM within the population of Montevideo. See Figure 5 for a visual representation of this stunning artistic display.



Figure 5: Night view of the Montevideo letters located at the Rambla was painted with an astronomical motif.

Social events

Official dinner and concert

The official dinner took place at Club Uruguay in the Plaza Matriz of Montevideo on Thursday at 20:00. Attendees enjoyed the performance of "Hugo Fattoruso & Quinteto Barrio Sur," a remarkable group of Uruguayan musicians known for fusing candombe, one of the most important musical movements in Uruguay, with Jazz.

The dinner had a cost of USD 50, which was considered low given the quality of service and Montevideo's standards. Approximately 30 percent of the total cost was covered by the organization. A total of 200 attendees of the XVII LARIM participated in the dinner.

Tourist Bus Tour

The LOC organized a tourist bus tour in Montevideo that took place on Wednesday, between 14:00 and 18:00. The tour was led by bilingual tour guides (Spanish-English) and explored the

most emblematic places in the Uruguayan capital. It had a cost of USD 20, it was rapidly sold-out

with a total of 50 persons participating. Additionally, all participants received a selection of tourist

information through the official website before the meeting.

Funding

Due to limited local financial support, the organization made efforts to keep costs as low as

possible in order to increase participation. In the following sections, we present rough estimates of

incomes and expenses as possible guidelines for future LARIM editions.

Income sources

The total financial income was USD 100,000 obtained from the following resources:

1. IAU grant: USD 22,000

2. Intendencia de Montevideo: USD 20,000 (The Intendencia gave the entire Conference

Center including technical personnel and mantenance staff for free.)

3. Universidad de la República: USD 6,000

4. PEDECIBA: USD 2,000

5. Registrations: USD 50,000

Expenses

The expenses include the following items:

1. Financial support for participants: USD 40,000

A total of 159 participants (38% of all participants and 46% of all support applications) received

financial support, which consisted of free registration, free lodging, or both. Students, early career

researchers and invited speakers were prioritized and the few researchers whose participation was

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uncertain due to lack of financial support from their institutions also received support. The total

USD 40.000 assigned to the financial support was divided into USD 27.000 for registrations and

USD 13.000 for lodging. The organization was able to grant support to all participants that had

been assigned talks and had requested some form of support (80 in total).

We stress that although Argentine colleagues pay the same fee as all participants, the special

procedure developed to facilitate their participation should be considered as partial financial

support. From an income perspective, the constraints in accurate changes make the LOC receive

approximately 50% of the normal cost of these fees.

2. Easy Planners: USD 22,000

This covers services such as the development of the webpage, the system for registration and

payment, and secretariat services during the meeting and the organization process for a period of

one year.

3. Coffee-Breaks: USD 20,500

The registration fee also covered coffee breaks, including one service in the morning and one in the

afternoon each day of the week.

4. Official dinner and bus tour: USD 9.000

The LOC partially supported the costs of the official dinner, concert, and bus tour to help increase

the number of participants at these social events.

5. Transmission: USD 2.500

This includes various technical features that facilitated the transmission of sound and images during

presentations, in-room as well as for the broadcast. The broadcast as well as the projection in

each of the sessions were in charge of a group of 4 LOC members. The Universidad de la

República provided private zoom accounts for large meetings.

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- 6. Poster panels and printed programs: USD 3.500
- 7. Expenses related to venue conditioning: USD 4.500
- 8. Cancellations

The impact of cancellations was minimal. Partial refunds were issued to 9 participants who canceled their participation after payment. These refunds followed financial penalties according to the registration guidelines published from the outset of the organization.

Acknowledgments

The success of the XVII LARIM would not have been possible without the contributions and support of numerous organizations and individuals. We extend our gratitude to:

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- Programa de Desarrollo de las Ciencias Básicas, Uruguay (Pedeciba)
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- Facultad de Ciencias de la Universidad de la República, Uruguay
- Instituto de Astronomía de la Universidad Nacional Autónoma de México
- Sociedad Uruguaya de Astronomía
- Planetario de Montevideo
- Centro Universitario Regional del Este from Universidad de la República, Uruguay
- Observatorio Astronómico Los Molinos, Uruguay
- Easy Planners manager and personnel
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- Members of the SOC and LOC for their dedication and efforts in organizing the meeting

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Contact information

This report was prepared by Juan José Downes (Universidad de la República, Uruguay) chair of the LOC with the valuable support of other members of the LOC. For specific inquiries related to different aspects of the meeting, please contact us at idownes@fcien.edu.uv.