

## **A Collaborative Program for the 2020 great Solar Eclipse in Argentina**

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**Abstract.** This contribution presents the preparation, actions and experience related with the Total Solar Eclipse on Dec 14<sup>th</sup>, 2020 in Argentina. The event in a pandemic year, was followed for millions of persons virtually, but inside the totality path and beyond, the citizens scientists and teachers were the protagonists.

### **1. Introduction**

The program for the Total Solar Eclipse in Dec. 14<sup>th</sup>, 2020 in Argentina, mainly centralized in Neuquén province, were proposed and accepted at the end of 2019, with the following items as starting points of actions:

1. Provide tools and resources for the public before the astronomical event.
2. Assure educative and formative approaches to the subject in the case of teachers and professors at all educational levels.
3. Prepare high quality material for the public, as books, booklets, brochures, posters, but also as good website for reference and the use of social networks, mainly YouTube.
4. Contact the public before the eclipse, through open conferences, given by specialist in different topics connected with eclipses, light, Sun and space weather from the point of view of the natural sciences and with an historic perspective.

In this way, the challenge was to cover different aspect of education and outreach, assuring the cooperation between scientists, educators, politicians and general public in a cooperative job, in middle of a pandemics, in which the mobility would be reduced and the local people would be the real main actors in the activity.



Fig. 1. The amazing Total Solar Eclipse, credit INFOBAE.

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### **2. The Earth**

The path of the totality of the eclipse encompassed vast areas of oceans, but also crossed Chile and Argentina in the southern cone. This path in our country involved a vast uninhabited territory, but it allowed us to reach towns that are not always the protagonists of these natural events allowing very diverse activities.

Although cities such as Junín de los Andes, Aluminé, Sierra Colorada, Valcheta and Las Grutas were adequate for the observation along the way, it was decided to concentrate the greatest efforts in a city whose average cloud cover was the lowest, according to the weather statistics: Piedra del Águila.

From that moment on, a series of coordinated activities were deployed in the territory.

### **3. The Activities**

The activities planned for the event included:

- Creation of a website not only with information about the eclipse but also with unpublished material related to eye care and preparation for the observation before, during and after the eclipse.
- Preparation of brochures to be distributed throughout the country and available online.
- A series of 20 podcasts, prepared, scripted by the Team for the Eclipse, recorded on the radio of the Universidad del Comahue and distributed in all the country by Radio Nacional.

- A book by Paolantonio & Camino, [1].
- Detailed maps on the visibility of the total and partial eclipse, flyers and posters with details of the event, for both provinces of Neuquén and Río Negro.

#### 4. The people and the virtuality

Although the preparation activities for the eclipse started in 2019, 2020 surprised us with an absolutely unthinkable situation, a global pandemic that forced us to develop virtual communication strategies with people. Suddenly the internet and social networks became the most demanded resources. In this framework, several teacher training courses were proposed and among them the NASE [2] courses of the IAU were developed, of didactics of astronomy with an emphasis on topics related to the total eclipse. More than 60 teachers participated in this activity.



Fig. 2. Thousands of pair glasses were distributed along cities in provinces of Río Negro and Neuquén.

Virtuality took an unusual role in the face of quarantine. We decided, beyond the saturation of virtual meetings, to develop the cycle of conferences "Encounters at sunset", to address different aspects of the Sun and eclipses. The participation of professional astronomers from Argentina, Colombia, Chile, Mexico and Uruguay was counted. From the training courses and conferences given, the teachers prepared new materials for their students.

##### 4.1. The logistics

Another aspect to highlight was the logistics of distribution of 100,000 solar glasses, donated by Astronomers Without Borders, 200 tactile books ("Abre tus sentidos a los eclipses: Sudamérica") prepared by the University of Edinburgh (USA) and made by NASA and 10 the Light Sound [3], the

instrument to transform light into sound from Harvard University. The distribution was carried out from schools, hospitals, asylums for the elderly, city squares, reaching distant places in the middle of a pandemic, with the care recommended by International Organizations and local Ministries of Health.

Around 40,000 pairs of sunglasses were distributed in the totality area (see Fig.2) and more than 20,000 in the rest of the country.

The news began to spread in the media since 2019, but during the month prior to the eclipse, a significant number of interviews were conducted in the media and a team from Neuquén was prepared for the transmission of the event by streaming.

In this way we arrived at the day of the eclipse, with thousands of visitors in the localities where the eclipse was total, since by that days it was allowed to move along the country with permissions and care; and perhaps millions of people connected to the internet from all over the planet.

#### 5. Conclusions

People of different ages and experiences were part of one of the most impressive natural phenomena, sharing their personal experience through social media. Also transforming themselves into Citizen Scientists, by being interviewed by the press media that widely covered the event in all the cities of the totality and beyond. Using eclipse images to communicate the event "a moment of happiness" in the middle of the sadness of the pandemia, and recording the most used words on Dec. 14 during the total solar eclipse: "incredible", "spectacular", "unique".

Finally, we want to thanks everyone who made this experience possible, sharing knowledge as part of communicating Astronomy with the public and enjoying this special event.

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#### References

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