

# Astronomy Week in Madeira, Portugal

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## Summary

The outreach programme *Semanas da Astronomia* (Astronomy Weeks) is held in late spring or summer on the island of Madeira, Portugal. This programme has been attracting enough interest to be mentioned in the regional press/TV/radio every year and is now, without doubt, the astronomical highlight of the year on Madeira. We believe that this programme is a good case study for showing how to attract the general public to astronomy in a small (population 250 000, area 900 km<sup>2</sup>) and fairly isolated place such as Madeira. Our Astronomy Weeks have been different each year and have so far included exhibitions, courses, talks, a forum, documentaries, observing sessions (some with blackouts), music and an astro party. These efforts may contribute towards putting Madeira on the map with respect to observational astronomy, and have also contributed to the planned installation of two observatories in the island.

## The relevance of the Astronomy Weeks for Madeira

The *Semanas da Astronomia* began in 2001. The success of the programme has varied over the years. However the Weeks have attracted enough interest to be mentioned in the regional press/TV/radio every year. This could be a crucial element in improving how the public and regional authorities perceive the relevance of astronomy to attract general support for two observatories (optical and radio) that we plan to install on Madeira (e.g., Augusto, 2011).

## The Inception

The island of Madeira is famous for its astounding natural beauty, and notably for the World Heritage Laurissilva Forest. More than a million tourists visit each year, to enjoy the spectacular scenery that the island has to offer, and especially that found on

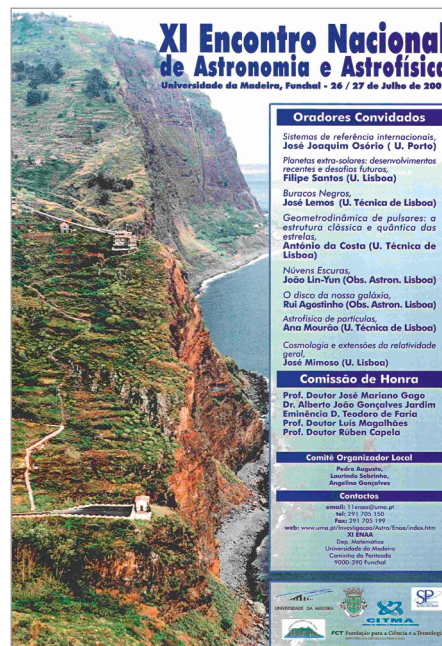


Figure 1. The poster of the XI Encontro Nacional de Astronomia e Astrofísica showing part of the south coast of Madeira.

the trails known as the Levada Walks, so that tourism is, by far, the main industry on Madeira. As a natural consequence, many (nature) themed *Festas* (festivals) now take place throughout the year. For example, the *Festa da Anona* (Festival of the Cherimoya – a type of pawpaw), *Festa da Vinha e do Vinho* (Wine Festival), *Festa da Castanha* (Chestnut Festival), *Festa da Flor* (Flower Festival), *Festa da Cereja* (Cherry Festival). In most cases the *Festas* last a whole week, albeit with an emphasis on weekends. So, why not a *Festa* of astronomy?

In 2000 the Astronomy Group of the Universidade da Madeira<sup>1</sup> took formal shape as we were already setting up the first ever national astronomical meeting in Madeira: the XI Portuguese National Meeting of Astronomy and Astrophysics<sup>2</sup> (Figure 1). Since the scientific programme was to last only two days (there are not so many astronomers in Portugal; although the vast majority of them did come to this

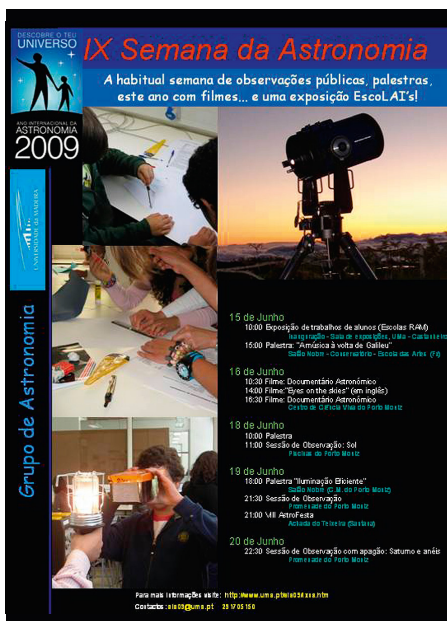


Figure 2. The poster of the IX Semana da Astronomia, held during the IYA2009 as an official event in that programme.

meeting), a Thursday and a Friday, we decided to convert the whole week into a *Festa da Astronomia* (23–27 July 2001<sup>3</sup>) during which time the closed meeting would take place, with most public activities taking place between Monday and Wednesday. We held three observing sessions. One in the day, for sunspots — the Sun was particularly active that year — and two at night, with telescopes and equipment set up on the terrace of the University building, and a wide selection of nine small astronomy courses (each 1.5 hours long), given by five different coordinators, covering all the main basic astronomical topics, and with catchy titles: “The Sun, our star”, “The amazing planets”, “The fascinating stars”, “The Milky Way, our galaxy”, “The majestic normal galaxies”, “Black holes”, “Fantastic active galaxies”, “The origin of the Universe”, “The big mysteries of astronomy”. The open part of the week concluded with a public talk entitled, “Is there alien life?”, which proved particularly attractive (an almost full auditorium). Finally, we started a tradition that lasted several years, with the characteristic look of our Astronomy Week posters.

### The natural consequence

Having had success with our first attempt at an Astronomy Week, the natural reaction was to try to repeat it in the following

year. However, the second attempt in 2002 would be riskier. Not only because a repeat of the initial success couldn't be guaranteed, but also because we would be lacking our greatest attraction: a meeting of national relevance. So we would have to fill up the last two days of the week with events. We had the idea of doing an all-night star party, hoping to make it the climax and finale of the week (as it still is today, taking place on the night of Friday into Saturday). That was our first *AstroFesta* (AstroParty) and this event was also our best chance of keeping the attention of the press for the second year running too<sup>4</sup> — 15–20 July 2002. It worked fine. Since the AstroParty was now the main event, we made sure that the public would not be disappointed: we set it up in the hills at a very dark site at an altitude of 1600 metres, but accessible by road (although a special permit was required from the Regional Forests Department). It was no accident that this was very close to the only site in Madeira with published results on its splendid observational quality (McInnes, 1981). However, that was not enough for us. We also made sure that no moonlight would disturb our observations of deep-sky objects; after all, we were taking our 30-centimetre automatic telescope up on the mountain, as well as a generator! We kept the day-time session to observe sunspots, but the night-time sessions were now replaced by the AstroParty. We reduced the number of astronomy courses offered from nine to five (five speakers, one of whom was new) with a resulting drop in public interest.

Finally, the presence of a visiting astronomer (Ivan Andronov, Odessa National University, Ukraine), on a three-month professorship at Madeira, motivated us to change the initial emphasis of the Week: the opening address was now given by the Rector, followed by a public talk (mid-week) given by our guest (on cataclysmic stars). Our hope was to have a repeat event with an international speaker every year but, unfortunately, this has not been possible.

### An established event

Each year we have experimented with new events, to keep the interest of the public (and the press). We tried changing the date to early June, so that schools were still in session (for both students and teachers)

since, when lectures finish on Madeira, students and teachers tend to “disappear” for the summer. We have also tried events at different times of day, to attract more working people (out of office hours) and university students: events early in the day were not getting much attention, nor were we successfully attracting the students (and unfortunately, this has only changed for the worse in recent years).

Over the years from 2003 to 2008, the AstroParty continued to be the most popular event. We have summarised the Astronomy Weeks III to VIII in Table 1. We maintained the number of courses offered and had roughly the same number of speakers, but public interest in these events diminished from year to year. We kept, for the first four years, the observation model of the previous years (sunspots + AstroParty). A turning point came in 2006, when hardly anyone attended either the AstroParty or the courses (despite choosing very focused themes like: “News from Saturn (Cassini)” or “The discovery of the first young radio galaxy in a super-galaxy”) and so we decided that we should get back to the city (the terrace of the University) to attract the public back again; and cancelled all the courses. In 2007 and 2008 we went back to night-time observations with great success (twice during the Week, in addition to the day-time observation session and the AstroParty). Since then the AstroParty (the landmark of the Astronomy Week) has remained popular. In 2007 and 2008 we offered a single, longer (six-hour) course, for free, on basic astronomy. This course was mainly targeted towards teachers, and was successful in 2007, but less so in 2008. We also radically changed the look of the poster in 2007; and we celebrated the inauguration of the Laboratory for Astronomical Instrumentation (the highlight that year). In 2008 we held an exhibition and officially presented the first confirmed 100+ events for the International Year of Astronomy (IYA2009) on Madeira (in the end we passed the 200-event mark<sup>5</sup>).

In 2005, the International Year of Physics, we devoted a week-long exhibition<sup>7</sup> to Einstein and his many contributions to astrophysics. That was another turning point for our Astronomy Week, and we held exhibitions every year until 2009 (although we hope to resume these in 2011: see more below). The start of the exhibitions



**Figure 3.** A group of 4–7 year olds waiting for the Sun to come out from behind the clouds, at Porto Moniz, during the IX Semana da Astronomia.

was combined with the official opening of Astronomy Week at the University, with an address by the Rector or another official representative.

### The International Year of Astronomy 2009

The year 2009 was the one to make it big. And we tried all we could. We designed a brand new poster (following the general template of all the posters for the initiatives<sup>8</sup> that we conducted for the IYA2009), see Figure 2. The Week took place from 15–20 June.

Since we had plenty of astronomy going on elsewhere for the public and schools on Madeira in 2009, we had to select a special programme for the Astronomy Week. We started by changing the place: eight

out of the eleven activities of the Week took place in Porto Moniz, in the northern part of the island. Only the AstroFesta, the exhibition (in their usual places) and the first novelty (a talk/performance on “Music by Galileo” at the music school in Funchal) did not take place in Porto Moniz. The second new event was a series of three astronomical documentaries that were shown with an expert commentary, one in English (for tourists). The third new event was part of the Dark Skies Awareness Cornerstone project of the IYA2009<sup>9</sup> and began with a talk on the subject<sup>10</sup>, followed the next day by a night-time observing session with an intentional blackout, to show people how much we lose of the night sky though bad artificial lighting. In addition, we ran the usual day-time and night-time sessions and a talk on astronomy, this time for 4–7 year olds (Figure 3). Finally, our exhibition was also different. Since, by this time, we had had roughly 900 school students who had passed through the Laboratory doing Hands-On Universe experiments, we could not resist showing off their best constructions — the theme for that year’s exhibition (Figure 4).

### The bad year of 2010

After so many versions of the programme, one year was bound to go less well. And that happened in the tenth year, when we were planning a flashback exhibition of the previous nine years of Astronomy Weeks. But the University of Madeira had other plans. In 2010 the Astronomy Group was formally

closed (and now still exists only through the work of volunteers like us) and there was a lack of interest from the University of Madeira in keeping up the “traditional” exhibition, and the Astronomy Week. We were forced to postpone the Week from May to November (22–26 November), when we were able to include the closing ceremony of the IYA2009 on Madeira — the highlight).

Even in this difficult year we still managed to include some new features, like a localised blackout around the University (including a section of a nearby major highway!) during a night-time session. The weather did not help either — rain and clouds. The same happened on another day when we conducted a day-time observing session. And, for the first time, we did not even leave Funchal for the AstroFesta, since there was an orange alert of wind and rain for the mountain site. With the Week taking place in Funchal again, we had a talk on black holes, a commented astronomical documentary, and a full National Science Day on the 24th, with the closing Ceremony of the IYA2009, where prizes were given to many collaborators from all parts of Madeiran society after a short summary talk, and a two-hour long forum on “The Universe” (from all perspectives). This forum was a new event and it worked really well, with scientists and laypeople together presenting their views.

### Summary: Highlights

As usual when dealing with the press or the public, we must have a strong programme to continue to catch their interest in the Astronomy Week every year. Hence, we have tried, almost every year since the first version of the programme in 2001, to add something to attract attention. We have been fairly successful.

In addition, there are some global statistics on the past ten editions of the Astronomy Week that give a hint of the variety. Excluding exhibitions, documentaries and night-time sessions (not every year) we have had 40 talks by nine different speakers, and the two of us contributed to only about half of these. Ten Sun-observing sessions had 50% success (the weather was poor in the other half) while only two out of nine AstroFestas were cancelled due to bad weather, indicating an excellent choice of site (Achada do Teixeira).

Week	Year	Dates	Moon phase during the AstroParty	Courses	Speakers
III	2003	15–20 July	Last quarter	7	7
IV	2004	19–23 July	Last quarter	3	3
V	2005	04–08 July	New	5	4
VI	2006	05–10 July	Full	5	5
VII	2007	11–15 July	New	0	0
VIII	2008	23–27 June	Waning gibbous	1	1

**Table 1.** A summary of the Astronomy Weeks from 2003 to 2008 (III to VIII). The dates are shown (all occurred in June or July), as well as the phase of the Moon (relevant for the AstroParty). Also the number of different astronomy courses and speakers is given.



Figure 4. The Astronomy Week exhibition during the IYA2009: a sample of the best constructions in made Hands-On Universe activities by some of the 900 students who have attended our Laboratory over the years.

### The future format (2011 onwards)

After our great IYA2009 regional experience, we have established relevant contacts with local authorities and we are now exploring possibilities for future events. A *necessidade aguça o engenho* (Necessity sharpens the tool), as we say in Portugal. So, we have moved out of the University and gone closer to the people, as we did during the IYA2009. We are now in the process of completely revolutionising the Astronomy Week. Starting in 2011, we plan to organise it in a different *concelho* (borough) every year. There are 11 in Madeira, including the other inhabited island, Porto Santo. For 2011 we have arranged a “contest”, open to all *concelhos* to select the one which would like to host all our activities, including the AstroParty (the site for this will be selected from the darkest in the borough, which will likely be among the highest sites). The runner-up might be then automatically selected as hosts in 2012, when a new competition will be opened up for 2013, and so on. So far, the local authorities are surprising us and showing a lot of interest in taking part in this challenge.

### Conclusions

Our *Semanas da Astronomia* programme has been running for eleven years. There has been coverage in the news in the local press/TV/radio every year, and is the astronomical highlight of the year in Madeira. It has become a regular feature of the cal-

endar, and is well attended by the public. Some global statistics on the past ten versions of the Astronomy Week show that we had 40 talks by nine different speakers, ten Sun-observing sessions, and nine AstroFestas. By numbers, these were the major events. We believe these informal education activities for the society might change the way Madeirans see culture, and broaden their perspective so that science is included.

The main conclusion is that it is worth “pushing” astronomy to the general public. People are clearly receptive, even if the impact varies from year to year. Local authorities might be more receptive to these activities than universities (at least in Portugal).

Our hope is that soon, Madeira, with its UNESCO World Heritage Forest, will become a reference point with respect to observational astronomy, just as McInnes (1981) suggested. And, as a consequence, that some of the million tourists a year will be of the scientific type.

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### Notes

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### Biographies

**Pedro Augusto** is Aggregate Professor at the University of Madeira, Portugal, currently on leave. He arrived on Madeira in 1997 and devoted all the time left from maths/physics teaching and administration to setting up an Astronomy Group. Intensive teaching on astronomy and the beginning of large scale Public Awareness of Astronomy at Madeira followed, culminating in IYA2009.

**Laurindo Sobrinho** is an Assistant Professor at the University of Madeira, Portugal. He has been a member of the Astronomy Group since its founding in 2000 (and the head of the group since September 2010). Over the years he has participated in many outreach activities within the areas of astronomy and science in general (lectures, observing sessions, exhibitions). In particular he was active on the organisation of IYA2009 in Madeira.