« *Nuits des étoiles* » events (1991-2008) and their impact on the French astronomical leisure landscape

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Abstract: The popular event entitled "*Nuits des étoiles*" has become in France the summer encounter with the sky. More than 400 events are set up for three consecutive days each year: several thousands of voluntary organizers invite more and more people to observe the heavens and discover astronomy. Each summer, those collective star parties reach about one hundred thousand people, several millions of sky maps are printed and distributed by newspapers and the associated TV live program broadcast by *France 2* channel interested 1 to 3 millions spectators. Since 1991, "*Nuits des étoiles*" helped to develop organizations on the local level and increased the stakeholders' interest in general public awareness. It contributed in France to strengthen and professionalize an astronomical leisure offer.

Keywords: awareness, popularization, TV, planetarium, amateurs, Nuits des étoiles

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1. Introduction

Involved for years in the development of collaborative events to strengthen the French astronomical leisure landscape, the authors worked between 1986 and 1991 to create a national event able to enhance general public's desire and the means to look at the starry nights during holidays. In 1987 and 1998 they succeeded in organizing two editions of "*National shooting stars observing nights*" co-produced by *Association française d'astronomie* (AFA – French Association for Astronomy) and *Association nationale sciences techniques jeunesse* (ANSTJ – French national federation of science clubs and scientific leisure activities). 35 clubs in different areas of France were involved in organizing local star parties.

The "*Nuit des étoiles filantes*" (hereafter *NEF*) really became a well-known national operation in 1991 due to the involvement of *France 2* TV channel. *France 2* accepted to fund and produce a 4-hour live program offering duplex links with three observation sites. The personal involvement of *France 2* special operation manager Pierre Henri Arnstam, producer of the huge health fundraising *Telethon* program, was the decisive factor that made it possible. It was obtained by the authors with the help of scientists (Hubert Reeves and Daniel Kunth), and scientific journalists (Alain Cirou). The initial organizing consortium headed by AFA and ANSTJ was composed of more than one hundred local organizations. The arrival of *France 2* also decided *Radio France* and several important newspapers to join. Some funds to help the coordination of the star parties events were also obtained from the French ministry of higher education and research.

After that first year, *NEF* became a yearly event that the authors organized each summer in the name of AFA and ANSTJ (renamed *Planète Sciences* in 2004). The original idea was to choose the best day of the year to benefit of the Perseid shower maximum, but it was also necessary to allow good conditions for beginners' observations. So, the date had to be chosen each year to avoid full moon period. For TV programs and availability of clubs animators a Friday night was preferred. As those factors implied that the events could not be systematically synchronized with

Perseid maximum, the name was shortened to "***Nuit des étoiles***" in order to suppress the former explicit reference to shooting stars. To give the opportunity to mass media and local organizers to offer new up-to-date contents, a different thematic focus was put forward each year. Since 1995, to increase the probability of good weather and to strengthen the events, some clubs offered two consecutive evenings of star parties and in 2000 it was nationally decided that the "***Nuits des étoiles***" would be extended to a period of three days allowing local organizers to open to general public 1, 2 or 3 evening events.

2. Audience of "*Nuits des étoiles*" on TV

From 1991 to 2002, *France 2* dedicated a full evening to live astronomy, which meant 4 hours of live broadcast from 4 different locations, including public observation sites and observatories (live telescope moon walk on a national TV channel) and from 1.5 million up to 4 millions people watching the first two hours of the program. Figure 1 shows the audience for the 1994 TV edition, i.e. 2 million people during 1.3 hour. It represents about half of the audience for *Perry Mason* crime story on TF1, but corresponds to the average audience of any *France 2* evening, a quarter of the total TV audience.

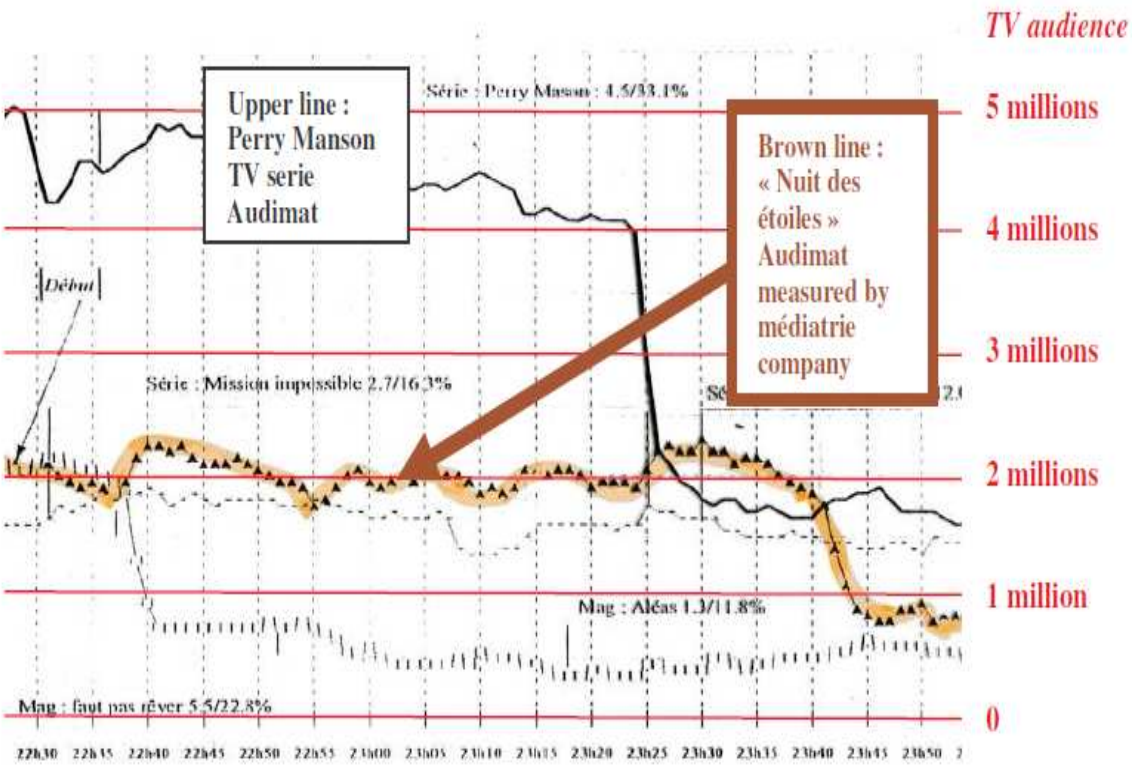

Figure 1: *NEF* TV emission 1994 – Audience measured by Audimat (*Médiamétrie* company)

As shown on figure 2, Audimat data (*Médiamétrie Company*) gave several elements about the relative TV audience. If the average audience share is 23% for the 1993 issue, it climbs to 29% for older than 60 y.o. and drops to 9% for young adults (from 25 to 34 y.o.).

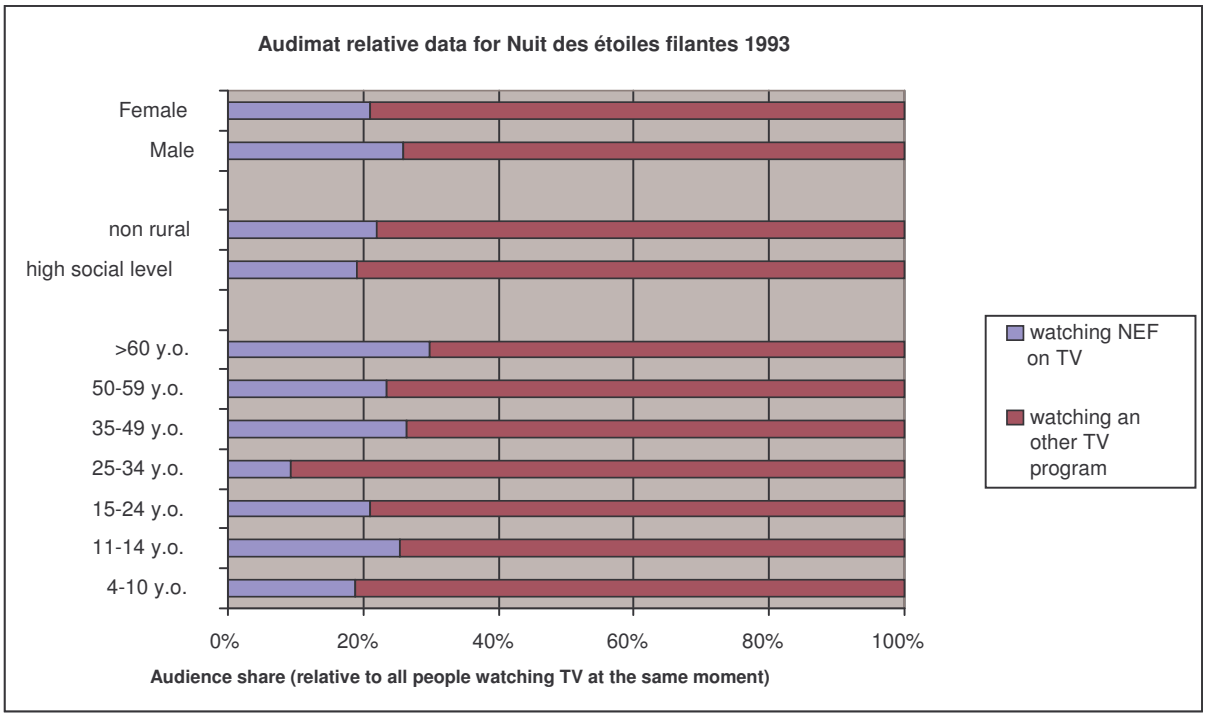

Figure 2: NEF TV emission 1993 – Relative audience percentage ; Audimat data (*Médiamétrie* company)

3. Newspapers and public impact of *NEF*

NEF was designed as a national event involving three complementary layers of partners: 1- local (astronomical clubs, cultural centers, local newspapers), 2- national coordinators (AFA, *Planète Sciences* and some years *Société astronomique de France*) and 3- medias and broadcasting network (*France 2* , *France Info* and national newspapers).

In term of impact, printed newspapers were the first transmission channel for *NEF*, reaching much more people than the TV emission itself, due to the number of copies published by TV programs newspapers and regional newspapers that were both interested in the dimension of the event. For instance (see table 1), for *NEF 2003*, 4 million of sky maps were printed by several newspapers, which meant around 18 millions different readers reached. No precise study about the real use of those maps has yet been done, but as most publishers dedicate several pages of the issue to comments about the map (see figure 3) it seems reasonable to imagine that most readers noticed it and took it into account.

2003 NEWSPAPER TITTLE	Number of published copies including a skymap	Estimated number of real readers (ODJ controlled data)
Mon Quotidien	50 000	175 000
Le Figaro	395 000	1 400 000
Le Parisien	570 000	1 758 000
Téléstar	1 844 000	11 000 000
Observateur du Valenciennois	3 889	8 000
Le Journal de la Haute-Marne	27 064	99 000
L'Echo Républicain	31 064	62 128
Le Télégramme	200 000	850 000
Centre Presse	27 000	91 000

Nord-Est Hebdo	45 000	70 000
L'Alsace	70 000	120 055
Sud-Ouest	345 000	2 000 000
La République du Centre	70 000	245 000
Paris-Normandie	107 000	374 500
Paris-Normandie	107 000	374 500
Total of 2003 NEF Skymaps	**3 892 017**	**18 627 183**

Table 1 : Numbers of *NEF* sky maps published by newspapers in 2003

Figure 3: Some examples of pages dedicated to *NEF* sky maps in French newspapers.
Up: *Libération* (5 pages including front cover), Middle: *Le Parisien* (4 pages including both covers).
Bottom: *Le Figaro* (2 including front cover) and *Ouest France* (back cover)

4. Clubs and other local astronomical organizations involved

The heart of *NEF* organization is the network of clubs and local partners. In France, each year, there are around 250 local organizations who create at least one *NEF* star party. From fifty thousand to one hundred thousand people attend the official observation sites every year. The variations are mainly due to weather conditions, a secondary factor being the press coverage.

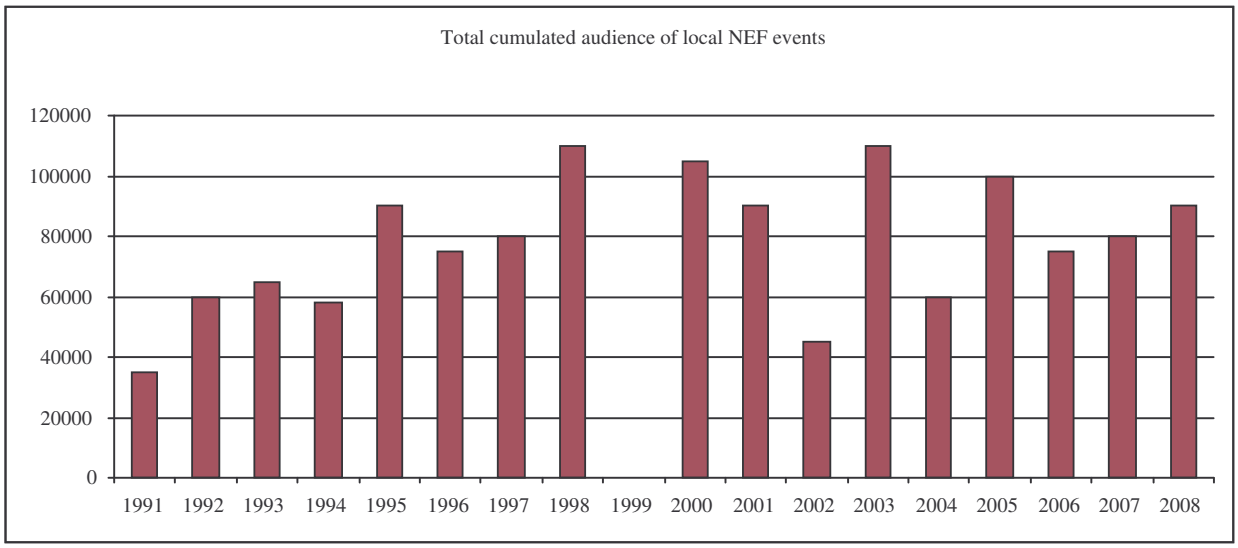

Figure 4: total audience of NEF local events; 1999 was a too specific year to be putted on this diagram because of the total sun eclipse (we estimate its audience around 30 millions observers in France)

They benefit from a common promotion and offer freely accessible activities as exhibitions, lectures, workshops and of course sky watching. All those events follow a charter and have the same aims: allow all kind of people to observe together and find explanations about the phenomenon they can see in the heavens. Each event is an opportunity for stimulating the desire for knowledge, opening the minds and promoting the protection of a dark night sky,

Transnational dimension. *NEF* is not only a French event. Since 1994, Tunisia and Belgium joined the operation with Morocco, Switzerland and Algeria, and since 1999 Albania and Benin. In 2003 and 2005 a common operation was created with Italy (UAI) involving one hundred Italian local organizations. Each year *NEF* offers 10 to 20 observation sites in Belgium, 5 in Spain and some in Switzerland and Latvia. *NEF* will be launched in Mexico in 2009.

Juniors *NEF*. In 2000, appeared the original idea of assisting youngsters in opening their own *NEF* observation sites. AFA, with a funding from Ministry of youth, was able to set up 70 "Junior events" for that first experimental year. Taking advantage of *NEF* framework, *Junior NEF* allows enhancing the educational value of holiday camps and projects. The centres involved in the operation undertake to organize and host outside the city centre an observation site open for free to a targeted audience, youth, family members or local public. The first discovery of the sky requires little equipment and AFA provides resources and tools as well as posters from heaven.

Year	Number of evening NEF events	Number of different locations involved	Number of Juniors NEF events
2001	308	251	89
2002	391	262	116
2003	302	259	97
2004	364	255	92
2005	372	269	143
2006	369	243	142
2007	362	278	117
2008	393	266	132

Table 2: Numbers of NEF local events since 2001

France 2 recent withdrawal. After 2002, France 2 begun to withdraw from *NEF* for strategic and financial reasons. The direction of the TV channel decided not to consider *NEF* anymore as a special event and stopped dedicating internal means and team to produce and broadcast it live. They still broadcast a prerecorded issue of their ordinary summer scientific programme but without any official link with their former *NEF* partners.

It has become clear *a posteriori* that this withdrawal has had no real effect on the notoriety of *NEF*. The event was already so well-known that most of the radios and many short TV presentations such as the nationally known morning sequence "*Les 4 vérités*" and most national TV journals go on announcing it. This change in *France 2*'s official involvement has also had no negative impact on the press citations of *NEF*: neither on sky maps publishing, nor on the local audience of events. In fact, it seems that the press coverage is mainly linked to the lack of other general news during the holiday period.

5. Changes in astronomical leisure landscape during NEF period

French Astronomical Leisure Landscape (FALL) surveys are two national studies (1994 and 2004) led by AFA under the direction of the authors for the French ministry of research[1]. Providing two similar series of data separated by ten years, those surveys can be used to observe changes affecting the astronomical landscape during the main *NEF* period. For each survey almost four hundred[2] local astronomical organizations (hereafter *LAO*), such as clubs, cultural centres and planetariums answered to a detailed questionnaire.

How did the landscape evolve? The total number of *LAO* seems constant[3] but the data allows to draw two conclusions suggesting that *LAO* are now more involved in general public awareness:
Result A: The total audience of *LAO* has increased, mostly in terms of awareness activities;
Result B: The *LAO* themselves turned to more awareness *NEF*-type activities.

Result A comes directly from the overall figures, as shown in table 2 (below). In ten years, awareness *NEF*-type audience has doubled from 1.2 millions to 2.4 millions. As this effect is also visible for pupils, the increase is not limited to holidays. On the same period, members activity slightly increased for beginners while staying at the same volume for advanced public, but "mission observatory hosting advanced non members" activity collapsed (-93%), probably due to democratisation of large telescopes buying.

Audience attending	**1994 survey**	**2004 survey (2003)**	**Evolution**
Demonstrations (awareness NEF type activity)	1 274 762	2 460 543	**+ 93 %**
including pupils	536 962	917 463	**+ 70 %**
first level for beginner members	16 200	20 708	**+ 28 %**
activity for advanced amators	43 678	3 273	**- 93 %**
high level activity for their advanced members	5 500	5 313	**- 3,5 %**

Table 2: Audience attending to activities in LAO (FALL 94 and 2004 data)

Of course, *NEF* and the national "***Fête de la science***" (FS, in October each year) ply an important role in awareness audience values. Both events represent in FALL data nearly 291000

[1] *Inventaire des structures d'animation et lieux de pratique de l'astronomie, 2eme version* AFA/MDESR, Paris, 2006
[2] 393 in 2004 and 360 in 1994. 250 questions for the common part + 4 specific parts related to different activities.
[3] It is quite difficult to confirm if LAO number is constant or not, as we can measure the ratio of no answers, but it seems to have approx. 600 active LAO (using all astro websites). 2004 has a reply ratio a bit better 66% than 1994 perhaps due to a greater recognition of national level and a greater involvement in national operations.

visitors. 82% of LAO inventoried attended at least one NEF[4] and 69% at FS. 60% of LAO participated in 2003 NEF and 36% in FS. Those that have not participated in any of the two events (29%) are amateur clubs for the most part. LAO that only participate at FS[5] are general science centres and large planetariums..

Result B comes from an analysis of activity data. In 2004 as in 1994, LAO were asked to identify the percentage of time x persons they dedicated to four kinds of activities:

- P1 activities are geared towards the general public, mostly neophytes (awareness NEF type) activities (271 declared they have more than 30% of P1)
- P2 activities are reserved for members of the structure who are neophytes, (beginners' clubs) (198 declared they have more than 30% of P2)
- P3 activities are proposed to an audience of amateur that are not regular members of the structure such as a mission observatory (17 declared they have more than 30% of P3).
- P4 activities are focussed on amateur astronomers, members of the structure. (92 declared they have more than 30% of P4)

Result B is demonstrated by figure 4 that shows increase of LAO involved for more than 30% of P1 (72% of the LAO in 2004 instead of 58%) and the important decrease of P3 type (only 17 LAO in 2004 against 48 in 1994). In addition, figure 5 detailed the percentage of P1 in each LOA.

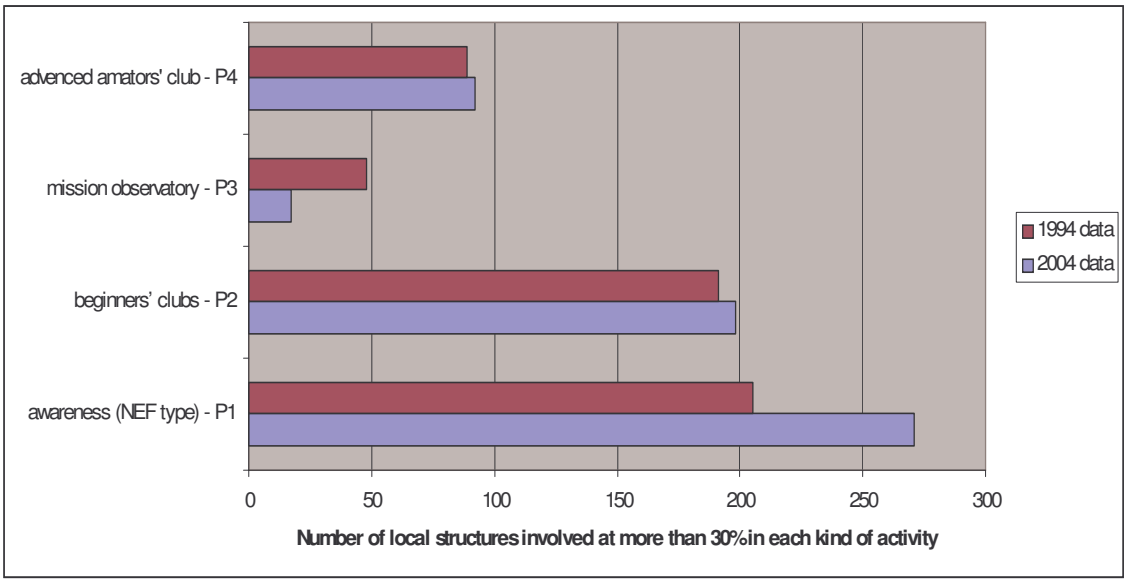

Figure 5: Number of local organizations (LAO) involved at more than 30% in each kind of activity

[4] They find in NEF a way to make themselves known (37%) and a way of finding new members (21%). 72 structures have never attended the NEF: This is school clubs or sections of the Company (26%), clubs or large suburban cities, and 36% are structures created after 2000, perhaps too young to get involved.

[5] The number of participating in the FS has decreased from 162 to 141 while the number of structures involved in the NEF is substantially constant: 233 in 1994

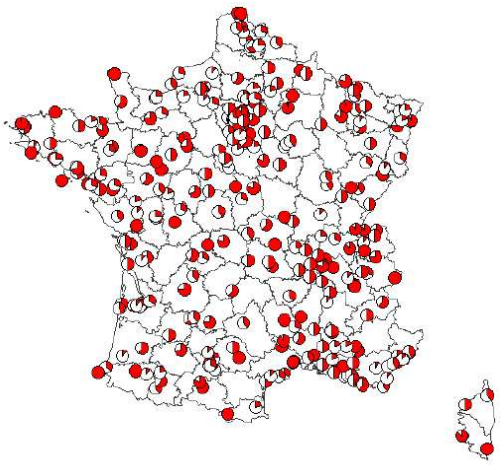

Figure 5: global representation of P1 percentage. For each LAO, the circle is centred on the geographic location and the red part is proportional to the P1 ratio among the whole activities

6. Conclusion: new kinds of local organizations

Regarding the way they now associate different kind of activities, LAO landscape should be described as gathering in three clusters.

1 The first consists of large LAO dedicated to popularization of astronomy to anyone: 96 LAO have more than 80% of activities in the profile P1, (75% have P1 higher than 95%). Professionalized awareness centres, they are not clubs, and have no "members" but a team of demonstrators *e.g.* "*Stations de nuits*" AFA labelized discovery centres).

2 The second class is composed of smaller LAO also strongly involved in awareness but both to their own local members that are beginners (P2) than to an outside audience (P1). They are spending more than 80% of their activities to popularize science. 83 LAO can be classified in this category: small beginners clubs involved in local "open doors" star parties.

3 The third class is composed of 78 multipurpose LAO with at least 30% in each P1/P2/P4. Having a double an extension designed in part to the public and another for members who carry out further activities. This is the club of amateur astronomy with a typical part of its activities dedicated to a group of passionate members, as in opened "sociétés savantes".

Each category can be understood as deriving from former LAO forms (planetarium, clubs); the first develop NEF events to the whole year in a leisure professionalization framework; the second and third result from the same shift from classical beginners' or researchers' clubs.

In the global framework of NEF more than 8000 events were organized and more than one hundred millions of sky maps were printed in France. As it has been exposed, during the same period, interest to share astronomical curiosity and knowledge has been strongly developed in the French landscape. As they act as catalysers of this phenomenon, the authors want to thank here all the stakeholders for their co-involvement and hope it will be possible to go on together in this mind opening strategy although the threats of dark sky disappearance, the temptation of only idleness leisure and TV and some discouraging way of presenting science in school.

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