



First estimation of social and economic impacts of dark skies in Montsec

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Index

- **Montsec and Parc Astronòmic Montsec (PAM)**
 - Montsec mountains. Where is Montsec?
 - Why PAM is located in Montsec?
 - Light Pollution in Montsec Area
 - Centre d'Observació de l'Univers
- **Strategic Framework Montsec 2020**
 - Comparison of 2001-2012 situation
- **Study of PAM visitors**
 - First time studied. Profiles.
 - Is PAM a good option for Montsec area?

Montsec: a natural area

- Montsec is a calcareous mountain range more than 40 kilometers long, covering an area of 18,696 hectares divided between Aragon and Catalonia. The Catalan side covers various municipalities in the counties of Pallars Jussà and La Noguera.
- The mountain range is divided by two rivers with wonderful canyons in three parts: two in Catalonia and one in Aragon.
- This was a depressed area with a constant reduction of the inhabitants number. But with a huge number of interesting things: history, biology, geology and astronomy.



Where is Montsec ?



Ager valley & Montsec mountains

Parc Astronòmic Montsec

- Since 90's, this area was used for amateur astronomers and they proposed to create an Astronomical Park. Parc Astronomic Montsec (PAM) was officially opened in 2008-2009.

Objectives of PAM:

- To offer actual infrastructures focused to research and communicate astronomy (main topic) and natural environment (geology, fauna and flora).
- These materials will allow to accomplish educational objectives in several levels (from primary education to university students) and outreach activities to general public.
- To increase scientific touristic activities that will allow to maintain regular affluence of public to the area

Using... particular weather conditions, a wonderful environment and the darkest sky of Catalonia and one of the best of Europe.

Parc Astronòmic Montsec



**Observatori Astronòmic
del Montsec (OAdM)**



**Centre d'Observació
de l'Univers (COU)**

Why PAM is located in Montsec?



These is the best place in Catalonia due to:

- **Special meteorological conditions**
- **An sky free of light pollution**
- **An exceptional natural environment**

Montsec meteorology

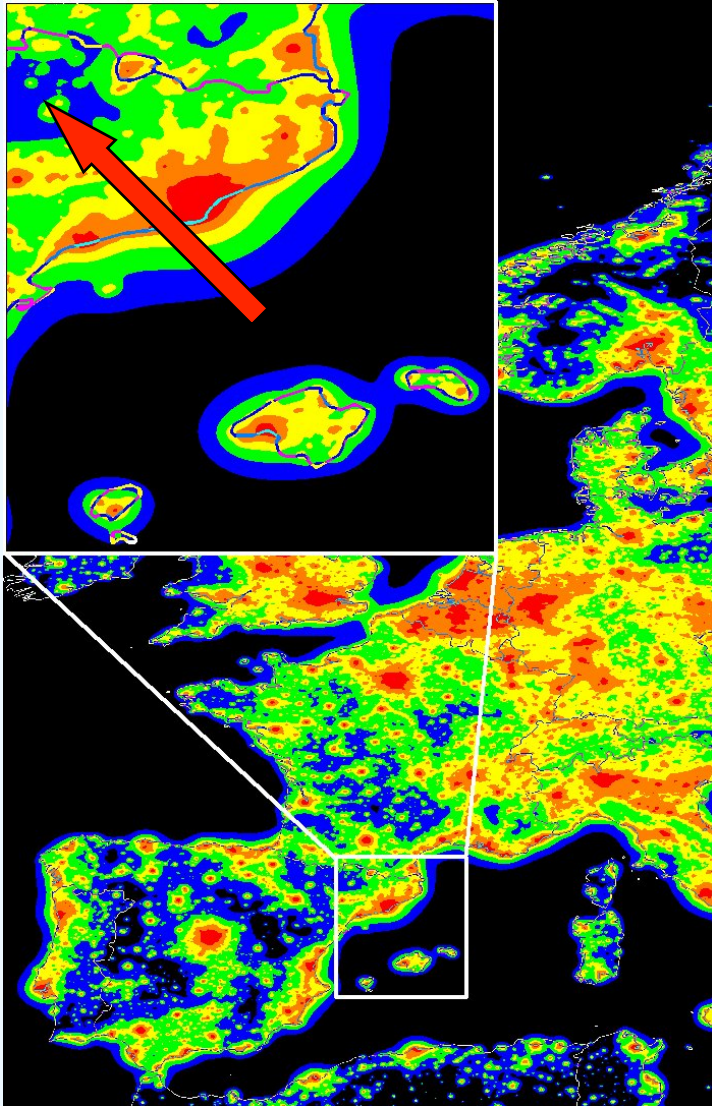
The site-tests showed that Montsec mountains have:

- One of the lowest humidity levels of Catalonia.
- Moderate rain indexes.
- High atmospheric stability due to a particular wind regime.
- High number of nights with clear skies (more than 65%).





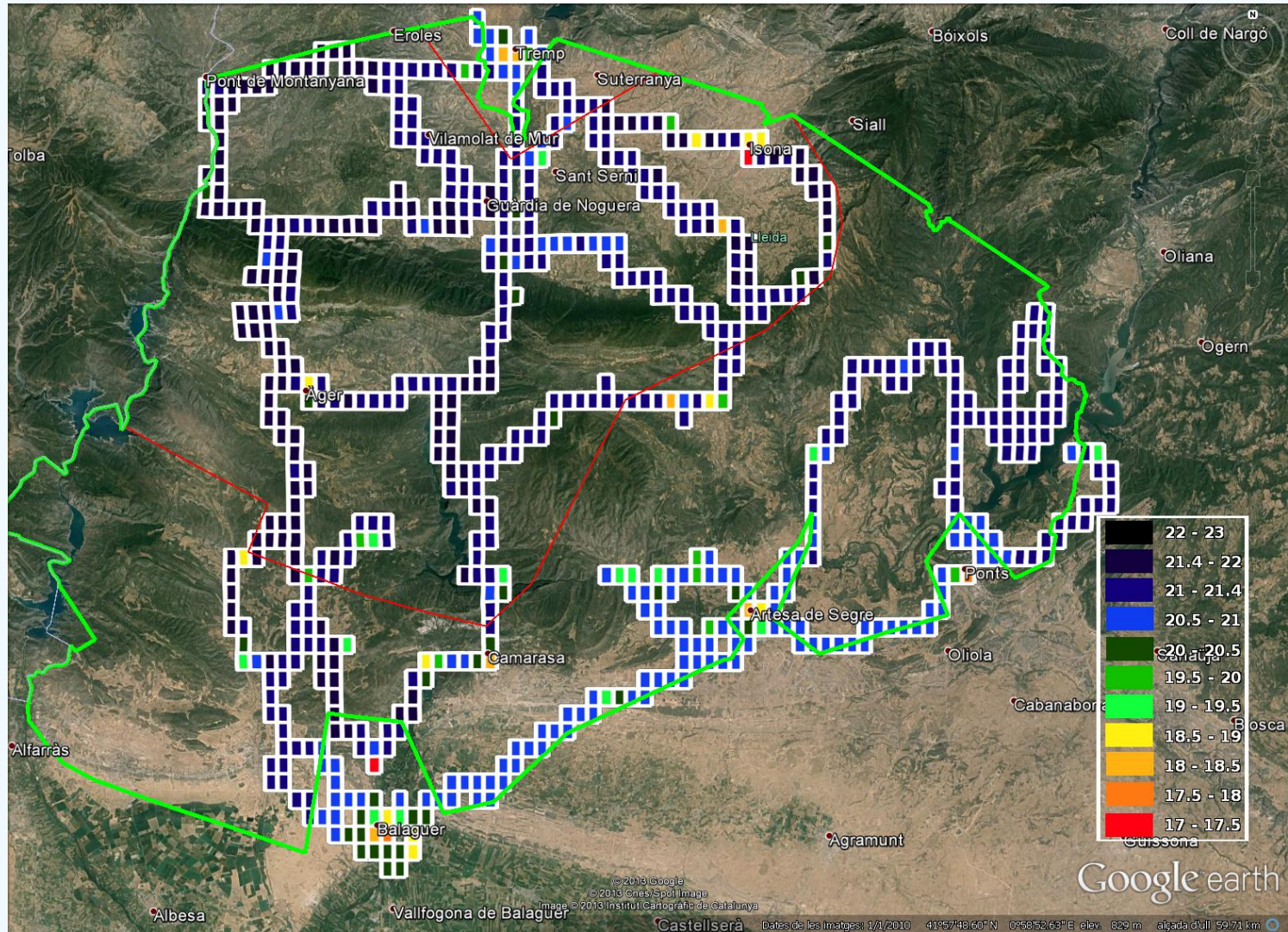
Light pollution in the area



- This is the darkest sky of the whole Catalonia.
- Ground-based studies show that Montsec skies are 80 times darker than the Barcelona sky.
- Montsec skies are considered free of light pollution (natural sky) and are specially protected by Light pollution Catalanian law.



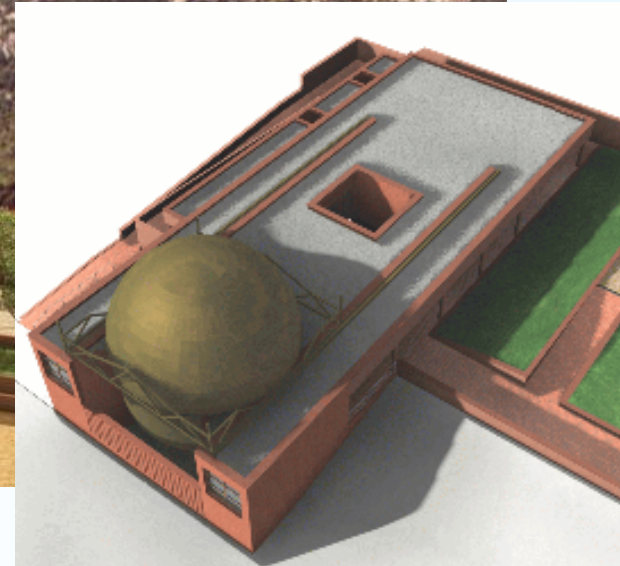
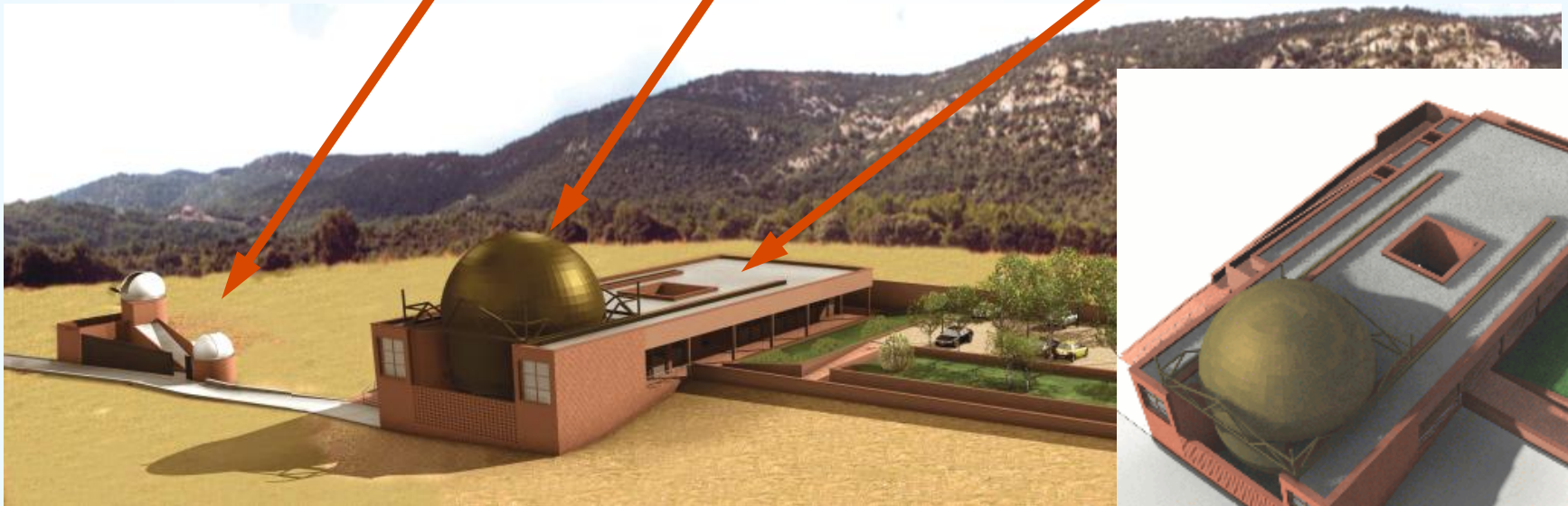
Light pollution in the area



Centre d' Observació de l' Univers

COU is divided in three main areas:

- Telescopes Park
- Eye of Montsec
- Central building



Centre d'Observació de l'Univers

- This center is the educational and outreach part of Parc Astronòmic del Montsec. It is placed in Àger (La Noguera) at 800 meter above sea-level and 15 km far from the Astronomical Observatory.
- The COU is opened to a large kind of people: primary and secondary students, university students and general public.
- The center was inaugurated the 16th of January 2009 and the regular activities started during first half of 2009. Since that date until now more than 150.000 visitors have arrived to PAM facility.
- And Ager is just a village of around 500 inhabitants. What kind of impact is generated?



Som Montsec 2020

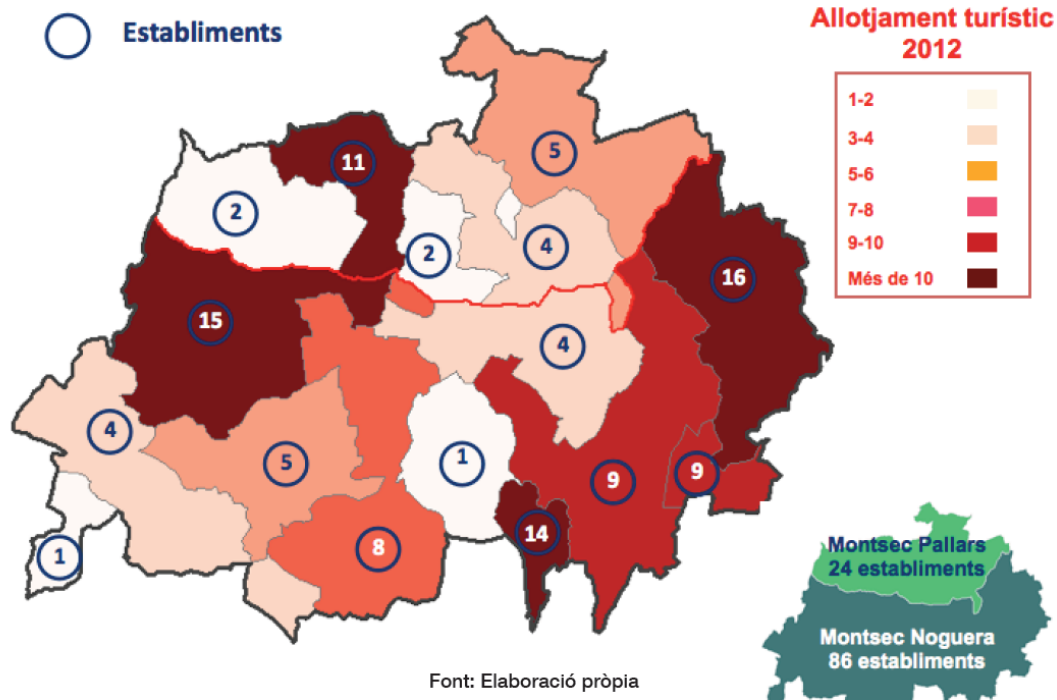
- **Som Montsec (We are Montsec) 2020 is the Strategic Plan for the continuous development of the area in the next years. It was issued at the beginning of 2013.**
- **This plan did a diagnose study of the area comparing the situation in 2001 and 2012 to evaluate the impact of PAM. Of course we can not isolate the impact in this data of PAM from other possible sources but PAM is the top facility of the area according to this study.**
- **The number of private companies related to touristic activities and accommodation has increase and in some cases doubled the previous situation.**
- **Let see some examples...**

Som Montsec 2020

Accommodation facilities

Evolució del nombre d'establiments d'allotjament turístic i de places 2001-2012

	2001	2012
Establiments	Facilities	47
Places	Beds	2.300
		3.250

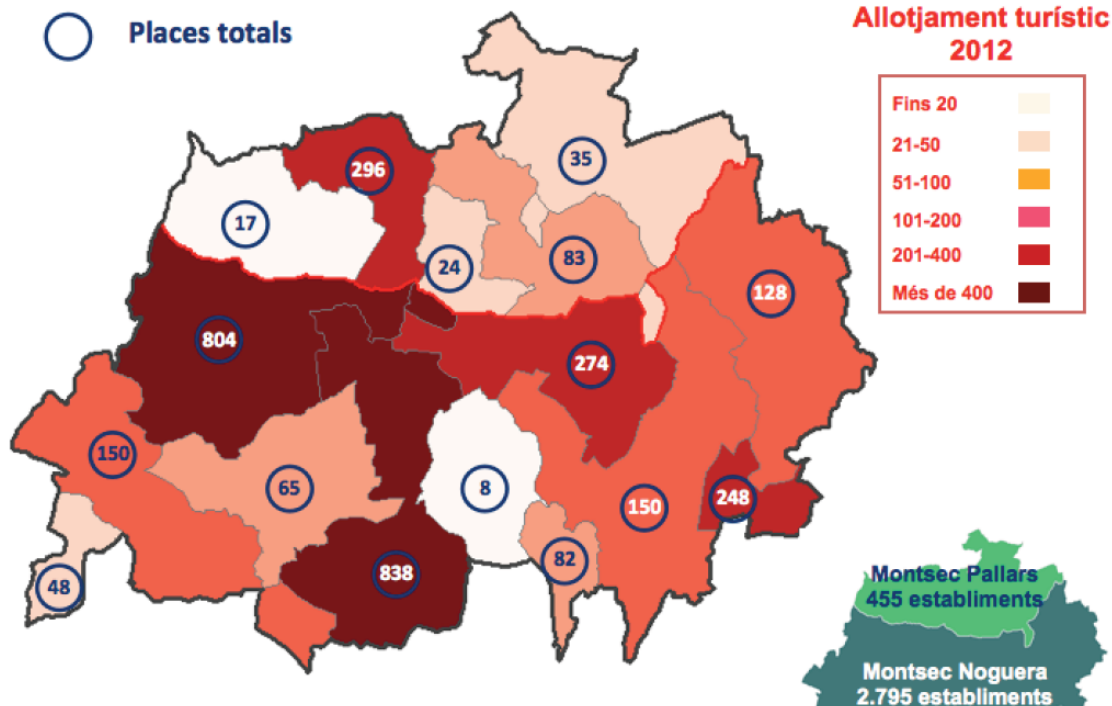


Som Montsec 2020

Accommodation facilities

Evolució del nombre d'establiments d'allotjament turístic i de places 2001-2012

	2001	2012	
Establiments	Facilities	47	110
Places	Beds	2.300	3.250



Som Montsec 2020

Rural Touristic facilities

L'evolució del turisme rural. 2001-2012

	2001	2012
Establiments	18	43
Places	155	330

Font: Elaboració pròpia amb dades de la Generalitat de Catalunya

Youth hostels facilities

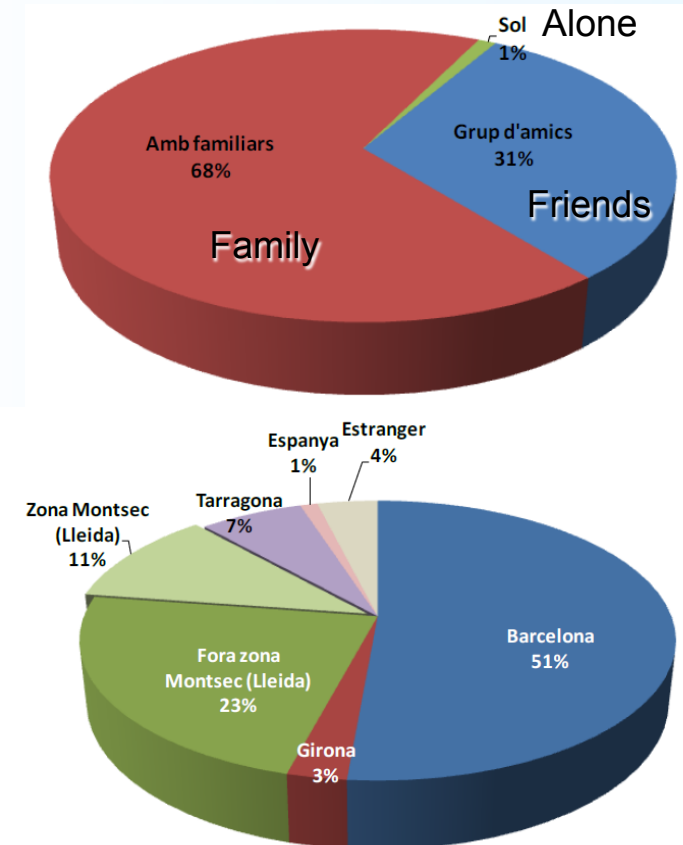
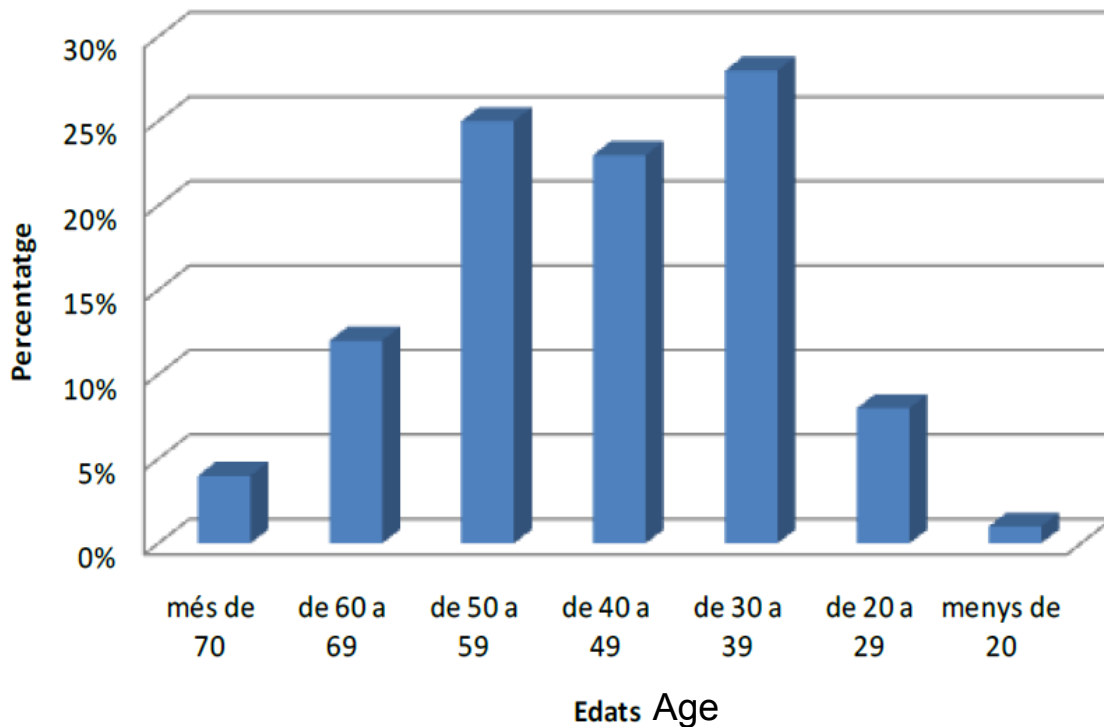
L'evolució de les instal·lacions juvenils. 2001-2012

	2001	2012
Establiments	5	13
Places	393	909

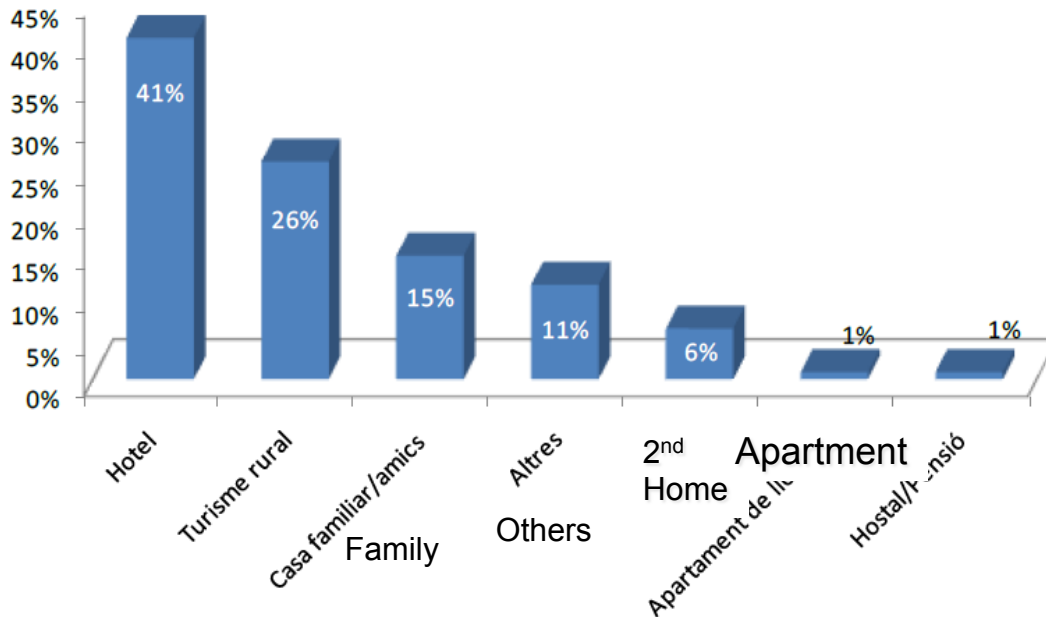
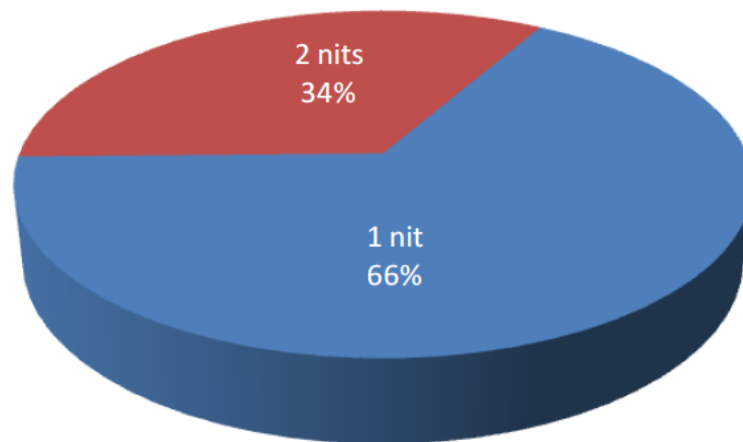
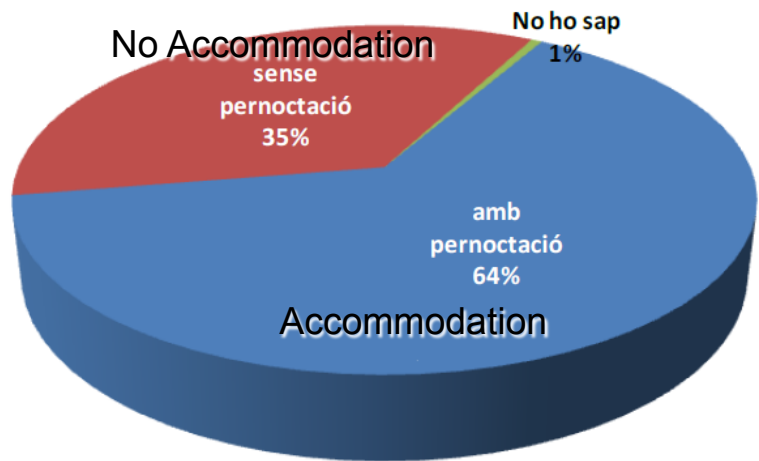
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Study of PAM visitors

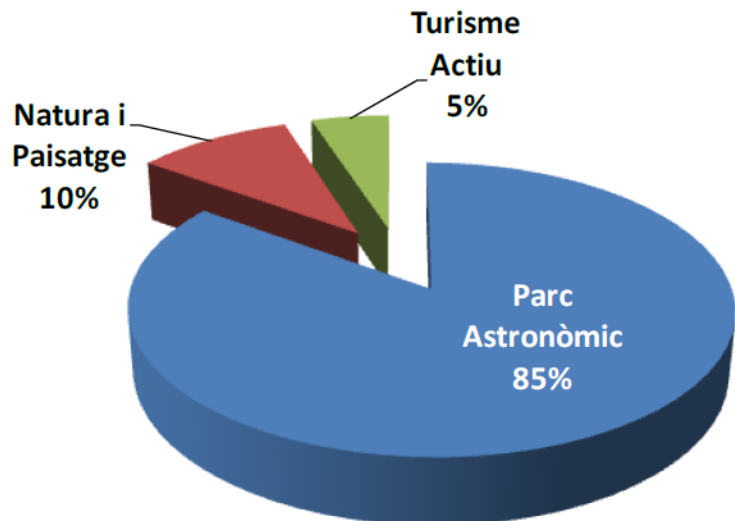
- Until now only evaluation of the quality of our visits gave us some information of the profile of our visitor.
- In autumn 2014, a test study was made with a short interview to around 200 visitors to evaluate their profile and impact in the area. This study is focused in general public so schools visits are not included.



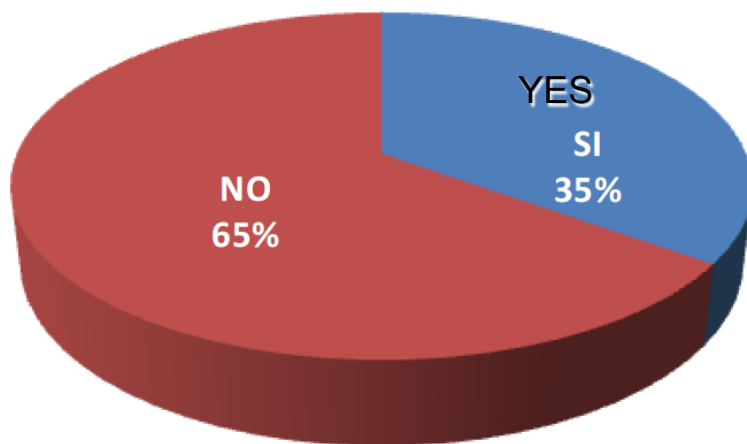
Study of PAM visitors



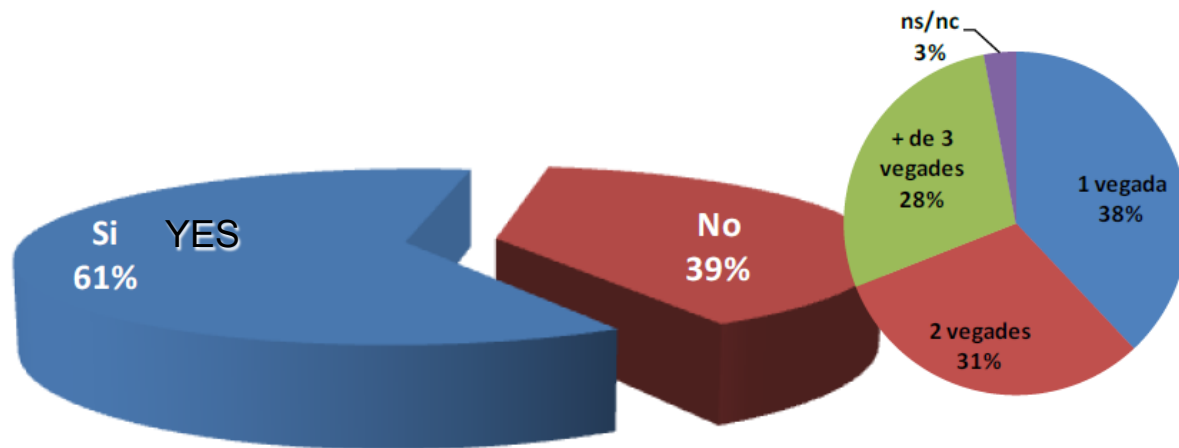
Study of PAM visitors



Main reason of the trip



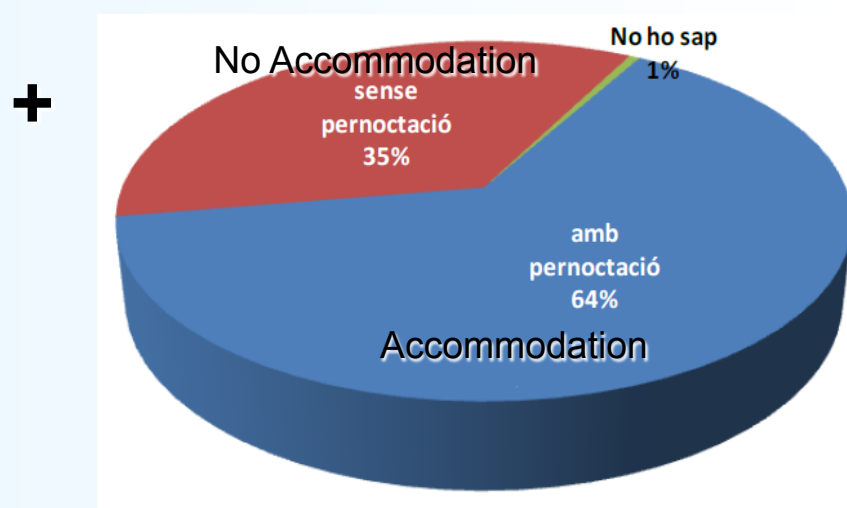
First time in Montsec?



First visit to COU/PAM?

Study of PAM visitors

Expenses per visitor (mean)	28,50 Eur
Expenses per visitor (with accommodation)	41,50 Eur
Expenses per visitor (no accommodation)	6,50 Eur



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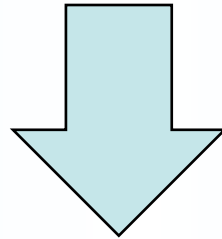
20 000 visitors per year

750 000 Eur / year

Is PAM a good option for Montsec?

Public investment 300 000 Eur / year

**Direct return to the area
750 000 Eur / year**



Maybe YES!!!

Thanks for your attention!!

More information:

www.parcastronomiic.cat

General info of the area:

www.montsec.cat

