Users Activity during 2012 Cycle

ALBA User Office Document

This document describes the Users Activities during the 2012 cycle (May 2012- March 2013) which corresponds to the period of experiments approved in the first ALBA call for scientific proposal.

20 June 2013

Content

1. 2012 CYCLE: AWARDED SHIFTS AND USERS

2012 cycle covers since 8th May 2012 to 31st March 2013 and corresponds to the period for experiments coming from the ALBA first call for scientific proposals.

All the details about the call for proposal, the call results and the evaluation procedure have been published in the Alba User Office web page:
https://useroffice.cells.es
http://useroffice.cells.es/staticpage/contentid/1

There are three ways for users to access beamlines (two ways for routinary operation plus a third way during the period of non-routinary operation)

- **Academic Research.** Users apply for beamtime through a competitive call for proposals. Proposals are selected by a Peer Review Committee and results must be published in open literature. Selection is based on excellence of science. Users accessing to beamlines through this way are called 'official-users' in this report and their experiments are called 'official experiments'.
- **Proprietary Research.** For confidential results not to be published or peer-reviewed, commercial agreements must be signed. Users accessing to beamlines through this way are called 'industrial-users' in this report. Beamtime percentage is reserved for these experiments so that these users can access directly at any time during the run period if the experiment is technically feasible.
- **Friendly users.** Alba can invite directly some users to help in the commissioning of the beamlines. These users (called friendly-users) are mainly experts in the field with a broad experience in synchrotron facilities. Friendly users are linked to the initial commissioning period of a given beamline or end station.

Beamline	Friendly Users Starting Date	Official Users Starting Date
BOREAS	23 Nov 2011	8 May 2012
MSPD	12 Dic 2011	27 Jun 2012
NCD	21 March 2013*	10 Jul 2012
XALOC	May 2012**	18 Jul 2012
CIRCE	23 Nov 2011	17 Oct 2012
CLAESS	31 Jan 2012	1 March 2013
MISTRAL	5 Feb 2013	12 Feb 2013

Table I. Starting dates for official users and friendly users by beamline. *NCD started firstly with official users and later on friendly users collaborated in the Commissioning of more complicated set ups for the beamline. ** XALOC: refers to samples coming from friendly users.

In table I, starting dates for friendly users as well as official users are shown. Beamlines have started progressively their operation. The proprietary research access did not start officially during this cycle but some feasibility studies have already been made in some beamlines. Shifts dedicated to these feasibility studies are also reported.

In figure 1, the number of total allocated shifts awarded to users in the different ways of access (official, friendlies and industrials) during 2012 cycle in all beamlines is shown. In this figure 1, internal use means shifts dedicated to the beamline commissioning, alignment or in-house research. Notice that the fraction of available time devoted to internal use, mainly commissioning, was very high, particularly in the beamlines that opened to users later along 2012.

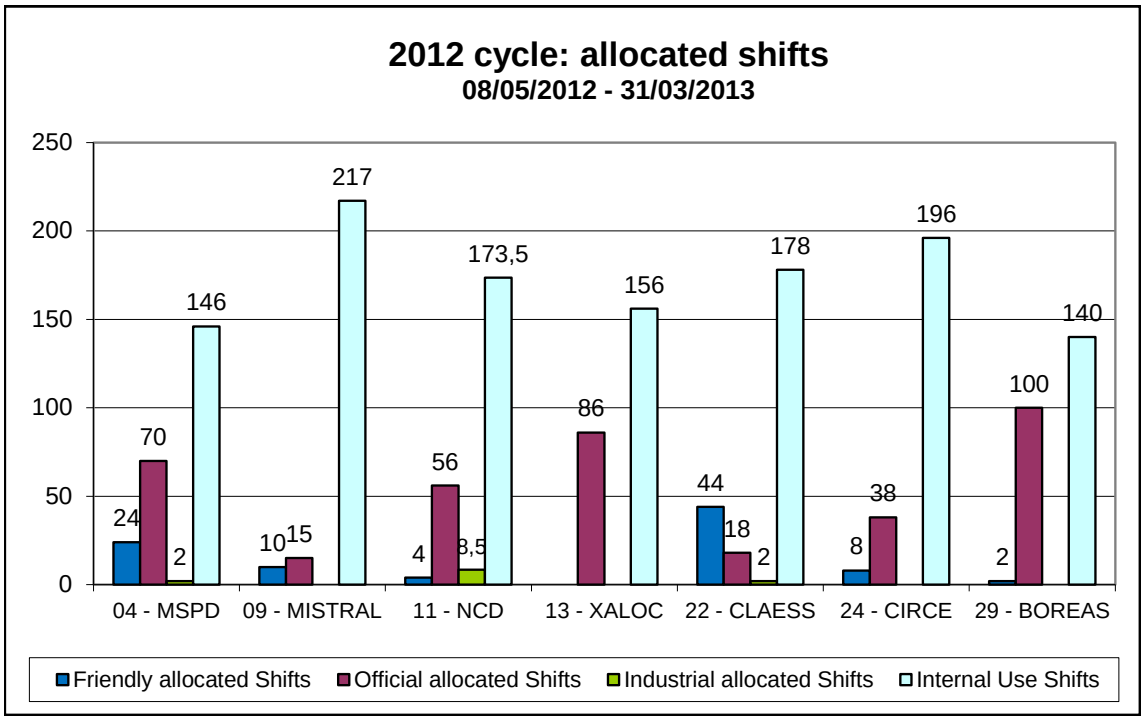

Figure 1. Allocated shifts during 2012 cycle to friendly-users, official-users and industrial-users, as well as internal use shifts.

Figures 2 and 3 show the number of users per year. It can be seen that Alba has been fully working during the period January-March 2013 which can be seen in the high number of users compared to previous periods where Commissioning of the beamlines played a major role.

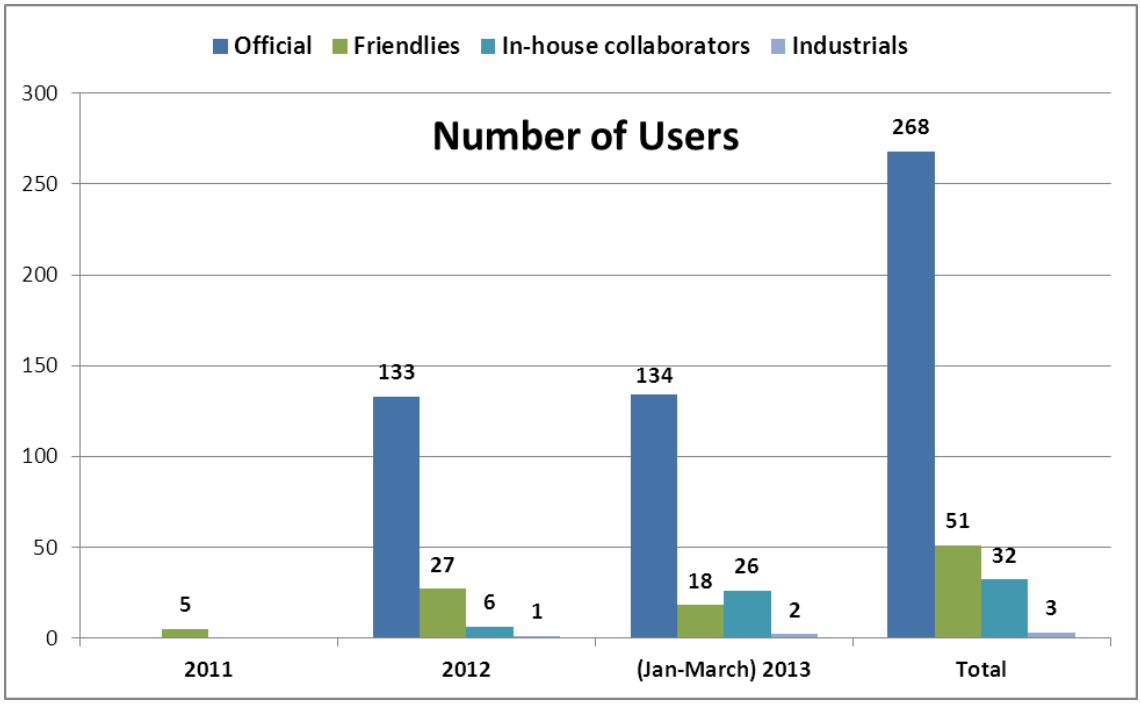

Figure 2. Number of users per period

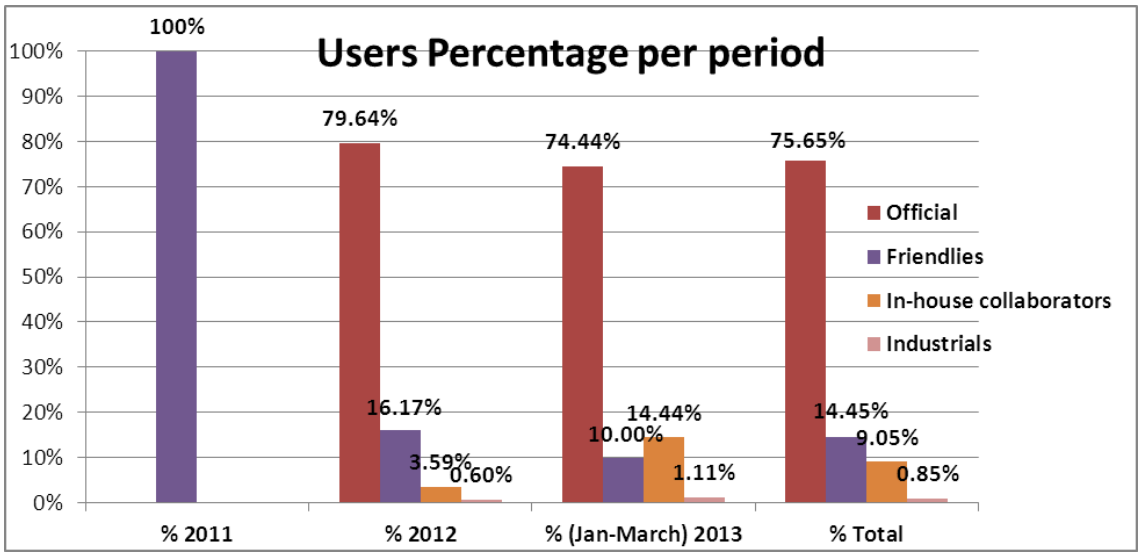

Figure 3. Users percentage per period

2. 2012 CALL FOR PROPOSALS: OFFICIAL USERS

Access of researchers to the ALBA synchrotron was based on criteria of excellence of science, as regulated in the call for proposal dated 21st November 2011 and published in the Alba User Office Portal (http://useroffice.cells.es).

Beamlines were in commissioning period and it was planned to allocate beamtime as soon as the technical status of a given beamline was commensurate with the technical requirements of a given proposal. Some beamlines started with official users in May,

and some other beamlines did not start at all during this year, depending on the technical status and commissioning (see Table I).

Although the 2012 call for proposal (deadline to submit proposals 17th January 2012) was thought to allocate beamtime during 2012, the period for experiments was extended to March 2013 due to the high number of quality proposals. Therefore, the call results were published in two steps: proposals with awarded beamtime in the period May-December 2012 and proposals with awarded beamtime in the period January –March 2013.

The 2012 call for proposals was a full success. Nearly 300 research groups and more than 600 individual users applied for beamtime in this call for proposals.

The nationality of the proposal is defined by the home institution country of the main proposer (similar definition for the Autonomous regions in case of Spanish proposals). Alba User Office received 203 proposals: 167 proposals from Spain, 33 from the European Union and the rest from Asia and USA. If we consider the Spanish proposals: 44% were Catalan, 27% from Madrid, 5% Basque Country, 4% Andalucía, 3% Aragón, 2% Galicia and the rest came from Canary Island, Asturias, Baleares and Cantabria. If we also consider co-proposers, the main percentages do not vary but the small percentages change a bit and some other CC.AA. (Autonomous regions) like Castilla-León also appear in the list.

The beamlines with more proposals were XALOC (protein crystallography) and MSPD (Powder Diffraction, Materials Science). The beamlines with more demanded shifts for 2012 were CIRCE and BOREAS.

All the details about the call for proposal, the call results and the evaluation procedure have been published in the Alba User Office web page:
https://useroffice.cells.es
http://useroffice.cells.es/staticpage/contentid/1
http://www.cells.es/UserOffice/call2012report (report about 2012 call for proposals)

The Evaluation procedure is based on the following criteria:

- Technical criteria (whether the experiment is technically feasible in the proposed experimental beamlines or not).
- Scientific quality criteria (by an Evaluation Panel of well-renowned members of the International Scientific Community).
- Safety criteria.

3. 2012 CALL RESULTS

The most demanded beamline is CIRCE, where researchers have applied for 498 shifts, which is well exceeding the maximum number of shifts during 2012. All beamlines show this ‘overbooking’. Table II shows oversubscription numbers for all beamlines, defining the oversubscription as the ratio between the submitted shifts (different per beamline as the technical status along this year has also been different) and the awarded shifts per beamline.

Beamlines/Endstations	Submitted	Awarded	Oversubscription
BL04 – MSPD.	**329**	**94**	3,50
High Pressure/Microdiffraction	**97**	**42**	2,31
Powder Diffraction	**232**	**52**	4,46
BL09 – MISTRAL (2012 USERS MOVED TO 2013)	**175**	**63**	2,78
Microscopy	**175**	**63**	2,78
BL11 – NCD.	**222**	**114**	1,95
WAXS/SAXS	**222**	**114**	1,95
BL13 – XALOC.	**365**	**126**	2,90
MX (Macromolecular crystallography)	**365**	**126**	2,90
BL22 – CLAESS (2012 USERS MOVED TO 2013)	**382**	**85**	4,49
XAS/XES	**382**	**85**	4,49
BL24 – CIRCE.	**498**	**80**	6,23
NAPP (Near Ambient Pressure PhotoEmission)	**219**	**28**	7,82
PEEM (PhotoEmission Electron Microscopy)	**279**	**52**	5,37
BL29 – BOREAS.	**482**	**120**	4,02
HECTOR (Soft X-Ray Magnetic Circular Dichroism)	**482**	**120**	4,02

Table II. Oversubscription for the whole 2012 Call for proposals (beamtime period May 2012-March 2013). Oversubscription= submitted shifts/awarded shifts

In figure 4 we show the provenance of the proposals granted with beamtime, defining provenance as: a) 'National' when the home institution of the main proposer is Spanish, b) 'EU' when the home institution of the main proposer is from E.U. plus FP7 agreements countries and not Spanish and c) 'International' as the rest of the cases. Figure 5 shows the provenance of Spanish proposals according to Comunidades Autónomas.

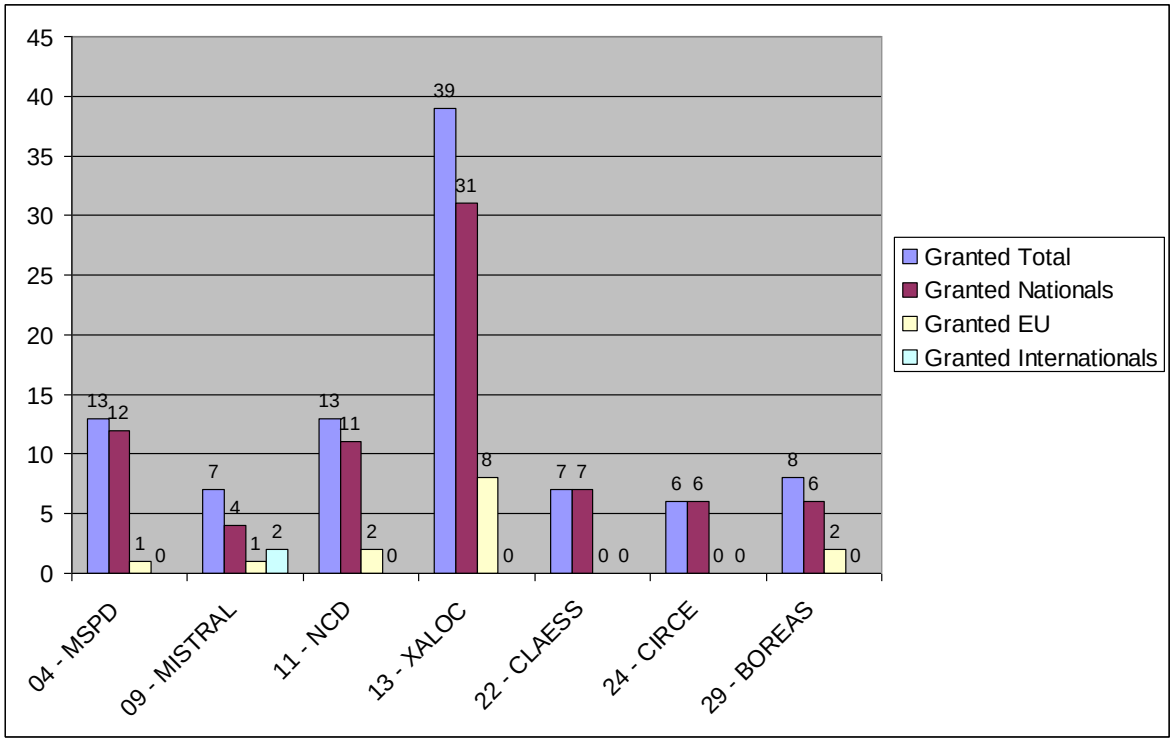

Figure 4. Provenance of the proposals granted with beamtime in the 2012 call for proposals

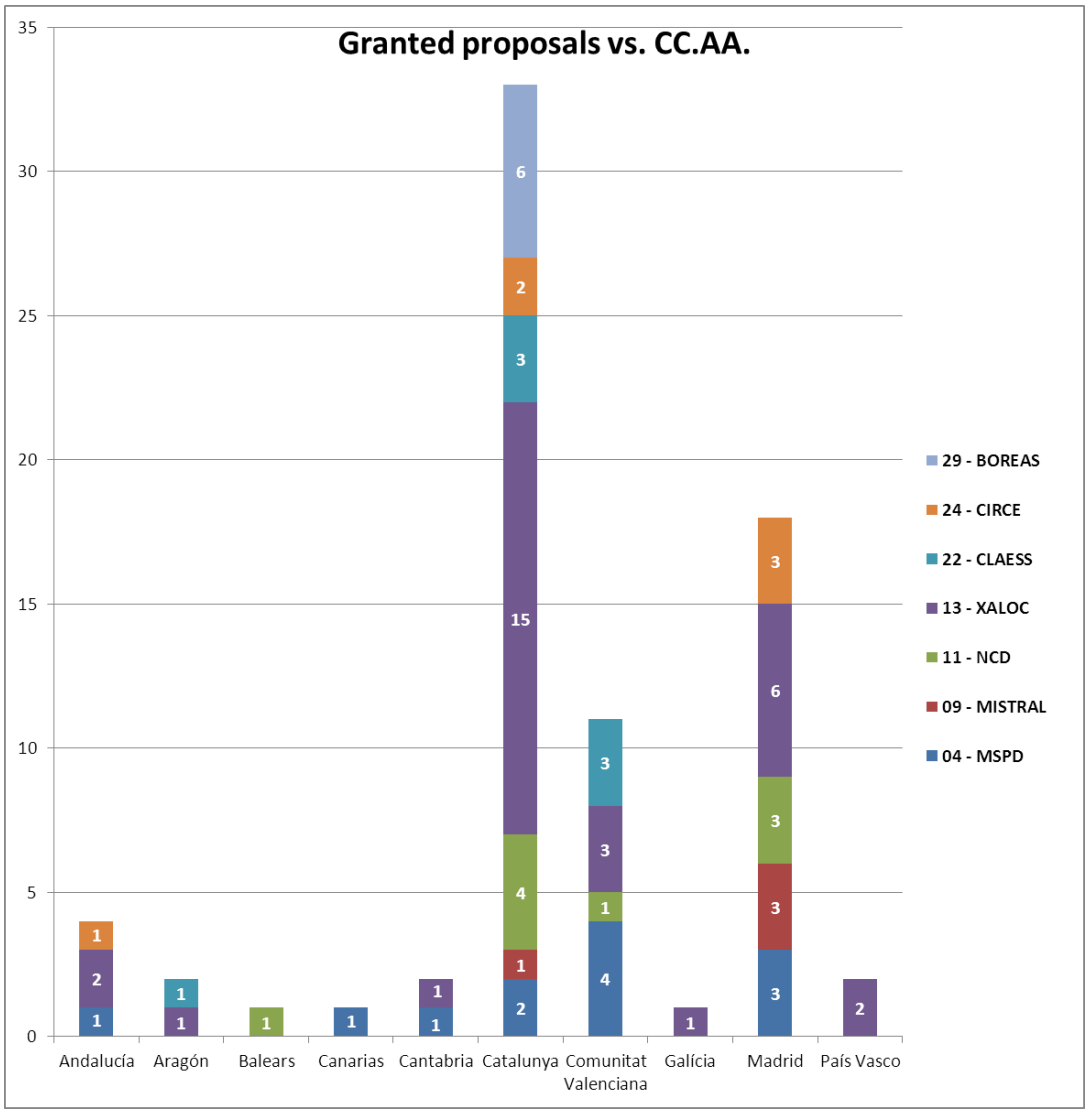

Figure 5. Spanish Granted proposals classified by Comunidad Autónoma (Main Proposer Home Institution)

On the other hand, it is interesting that 27% of the submitted proposals apply for long term projects (projects where they apply for three years, with periodical access each 6 months in average). In figure 6 the number of proposals granted with beamtime, distinguishing long term proposals and standard proposals, is shown. Figure 7 shows research area of granted proposals.

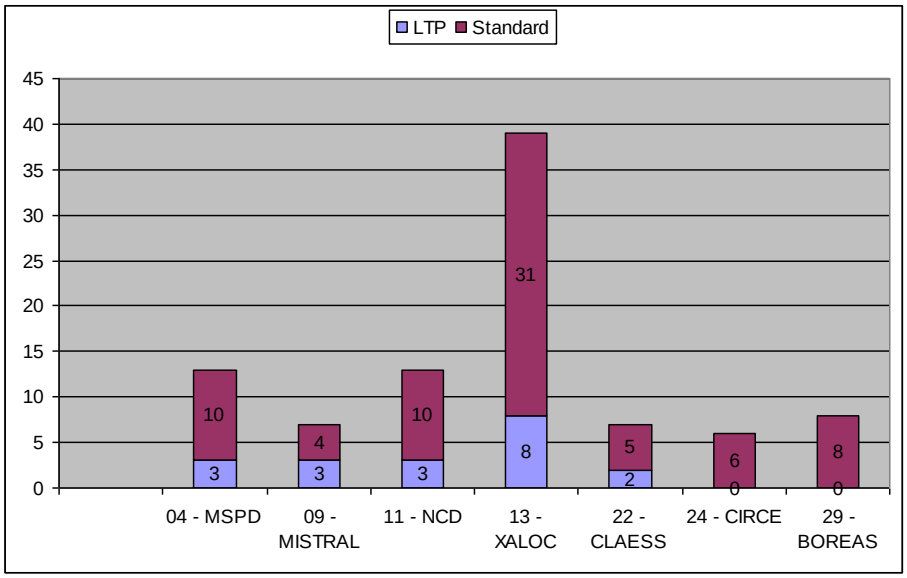

Figure 6. Number of proposals granted with beamtime classified by beamline, showing LTP (Long term proposals) and Standard proposals

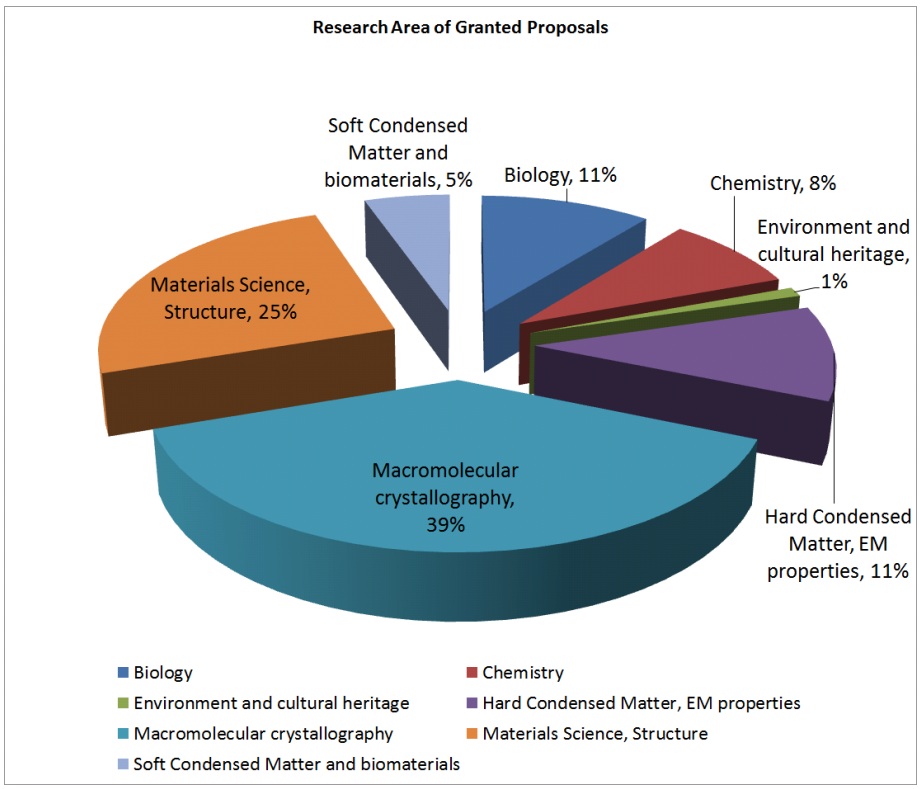

Figure 7. Research Area of Granted proposals

4. OFFICIAL EXPERIMENTS ACTUALLY PERFORMED

As we are reporting 2012 cycle user activity: in figure 8, we show the number of granted official shifts per beamline that have been allocated during all 2012 cycle (the beamtime period covers May 2012- March 2013) compared to submitted shifts (requested by the user in the proposal) and granted shifts (approved by Alba after Scientific Review). The granted shifts which have not been allocated shall be allocated within the following period (April 2013 onwards).

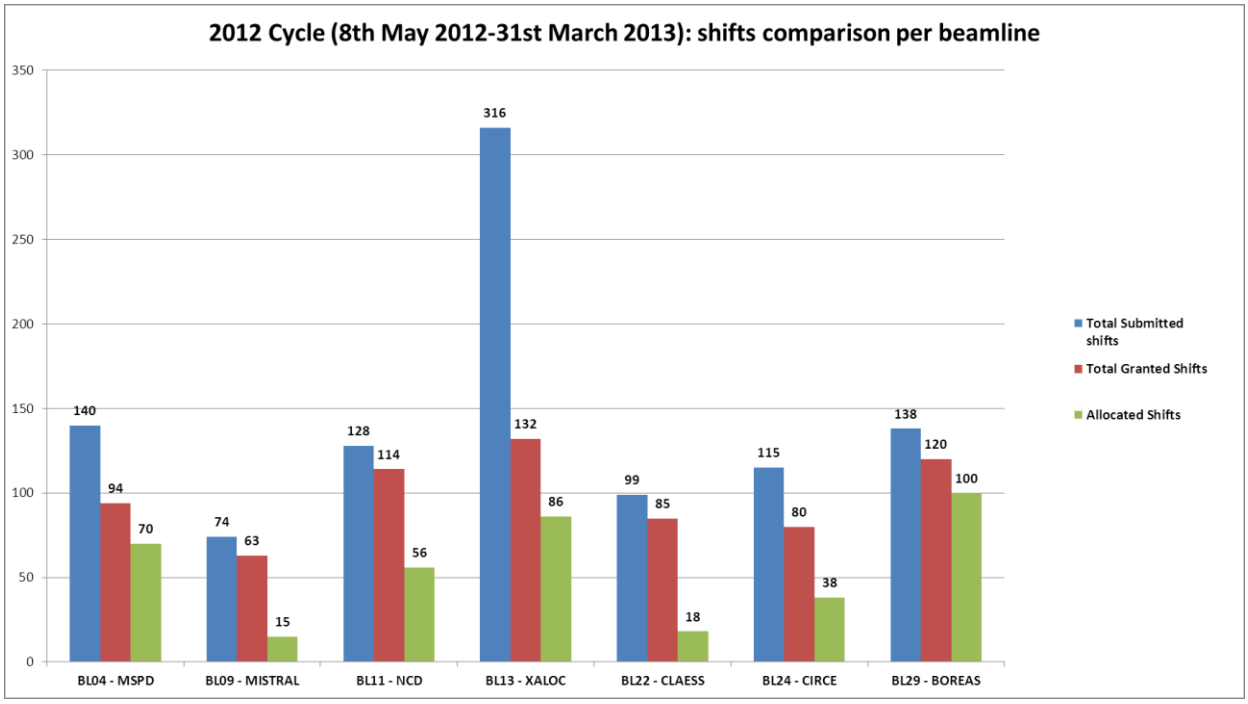

Figure 8. Number of submitted shifts (requested by user), granted shifts (approved by Alba) and allocated shifts (actually performed at the ALBA beamlines)

For experiments actually performed at ALBA during this 2012 cycle: we show the percentage of proposals and shifts per beamline (figures 9 and 10), as well as long term proposals compared to standard proposals (figure 11).

As 2012 cycle covers May 2012-March 2013: we also compared the number of proposals and shifts allocated in 2012 and in January-March 2013 (figures 12 and 13). Clearly, the proportion is much higher during 2013 as a consequence of operation conditions in most beamlines compared to commissioning periods.

We also show the nationalities and Comunidades Autónomas (for Spanish proposals) of the allocated proposals (figures 14 and 15).

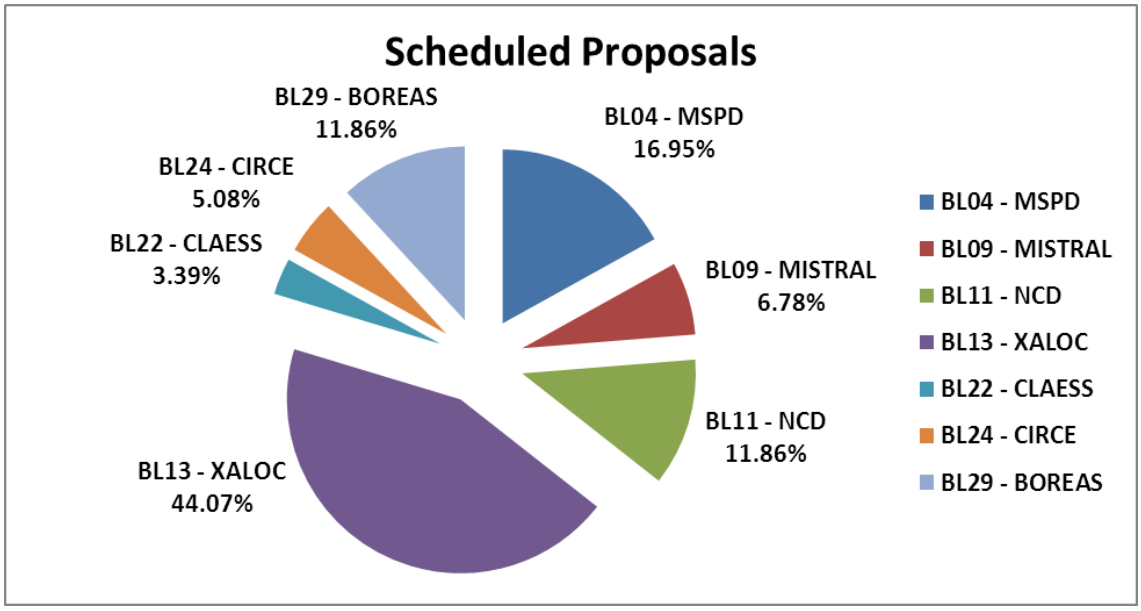

Figure 9. Percentage of allocated proposals per beamline during 2012 cycle

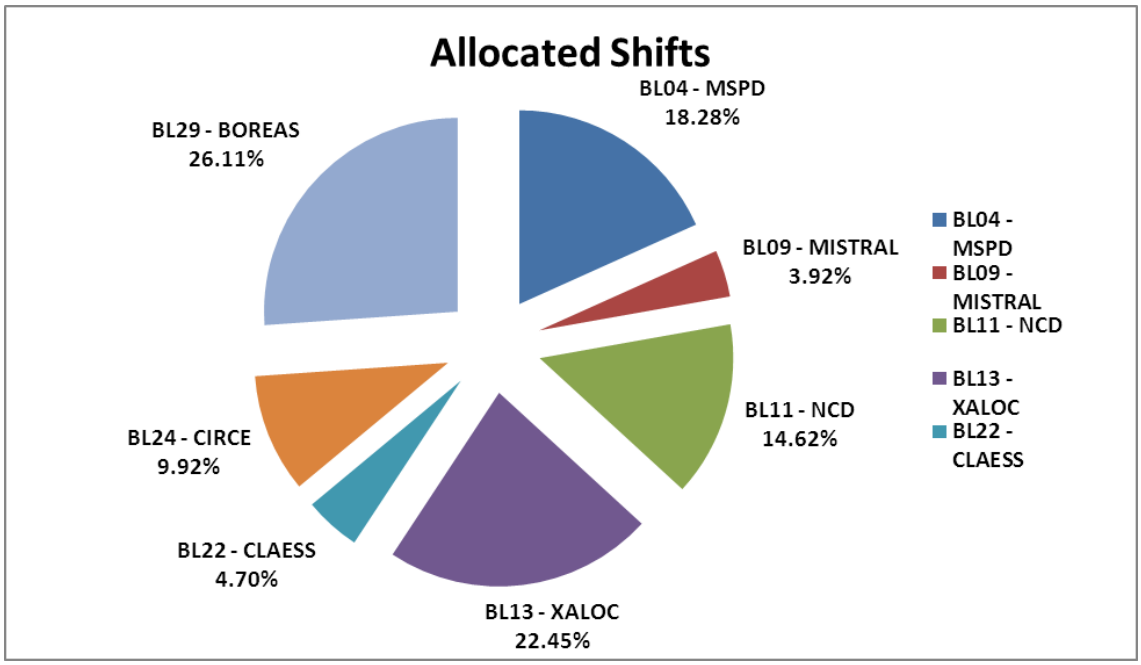

Figure 10. Percentage of allocated shifts per beamline during 2012 cycle

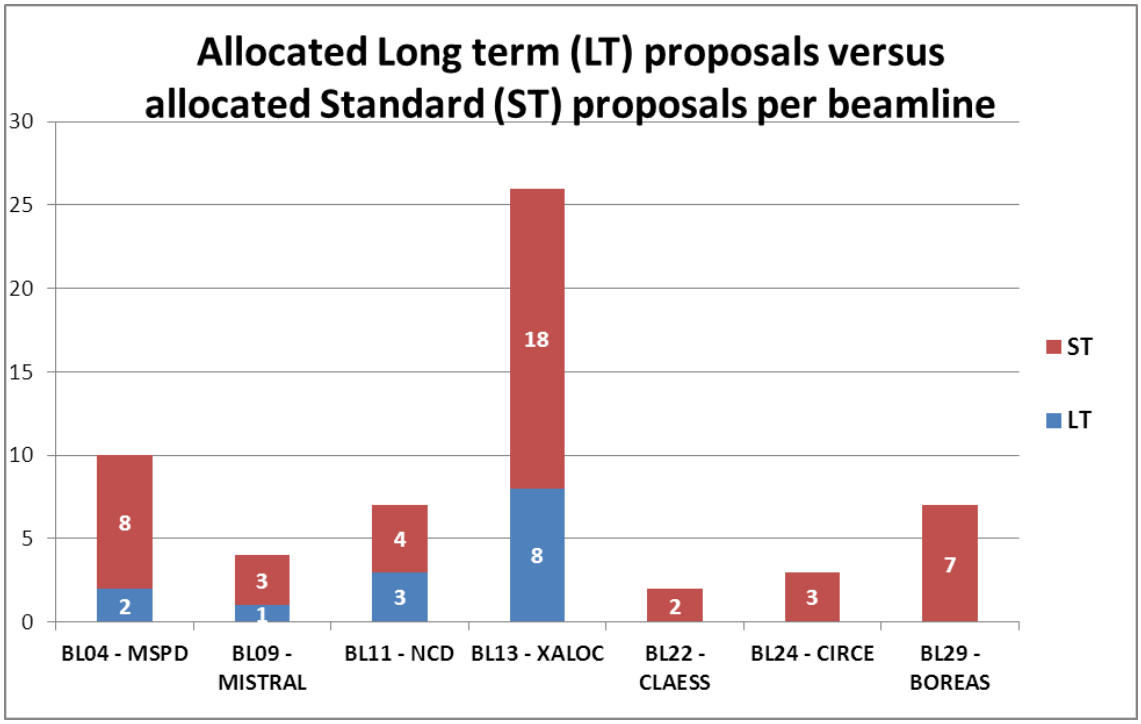

Figure 11. For allocated proposals during 2012 cycle: Number of long term versus Standard proposals

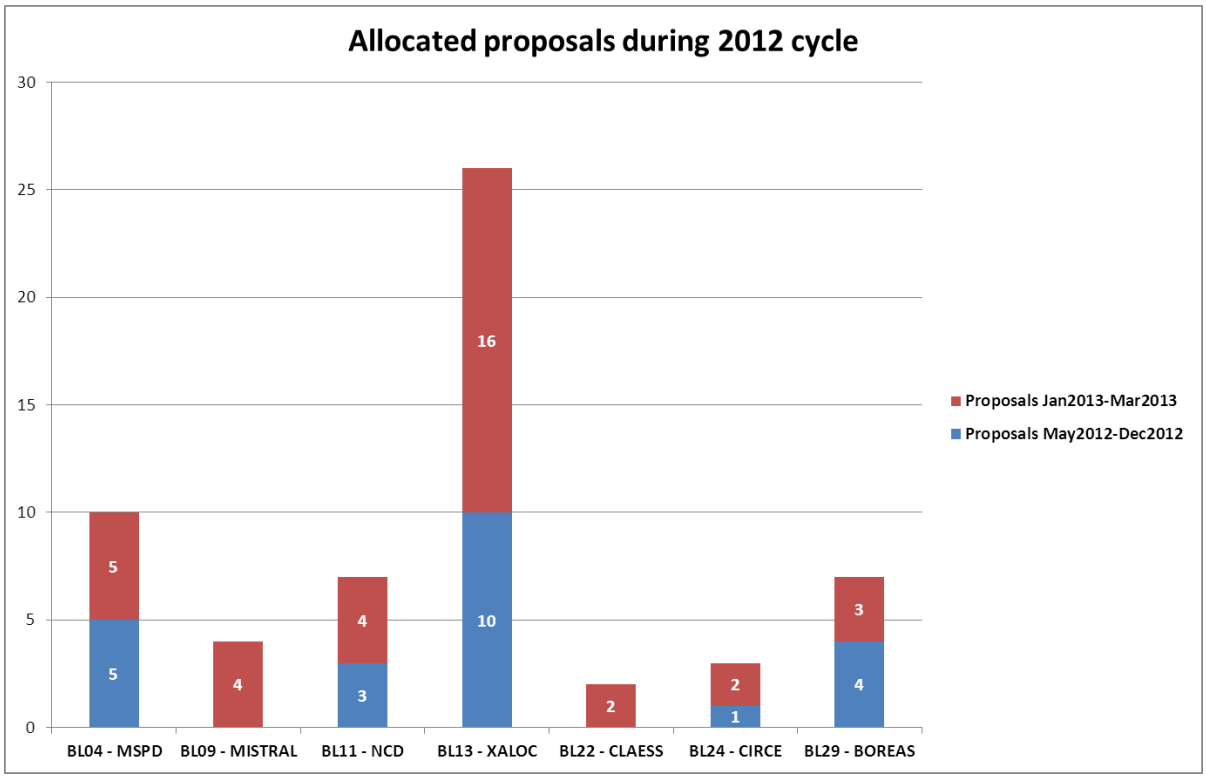

Figure 12. Allocated proposals during 2012 cycle (May 2012- March 2013), showing the 2012 months and the 2013 months of the cycle

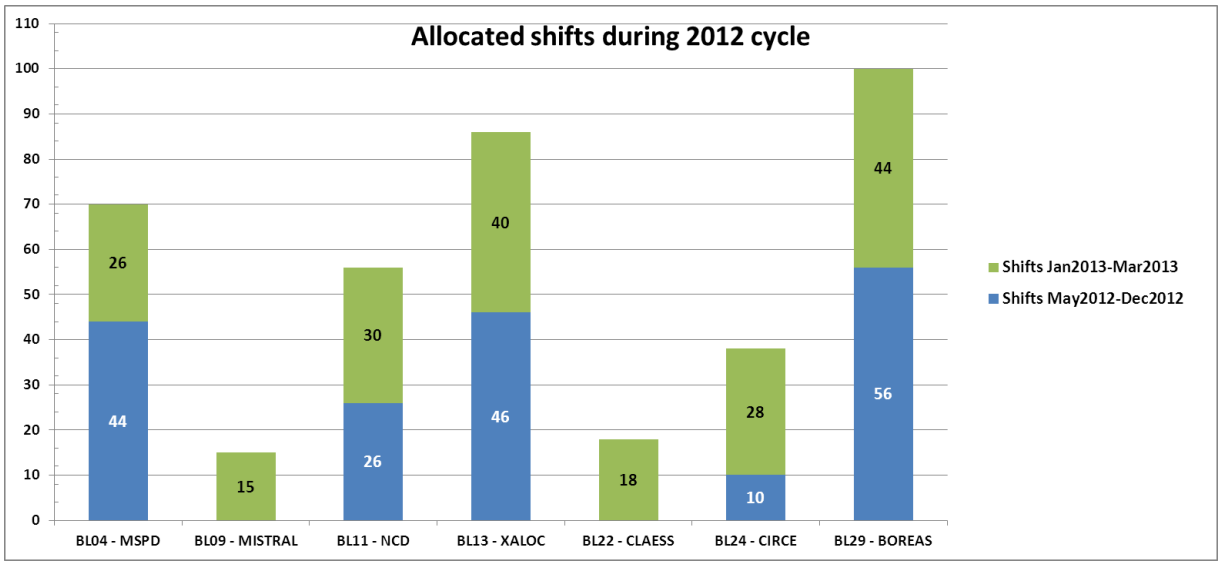

Figure 13. Allocated shifts during 2012 cycle (May 2012- March 2013), showing the 2012 months and the 2013 months of the cycle

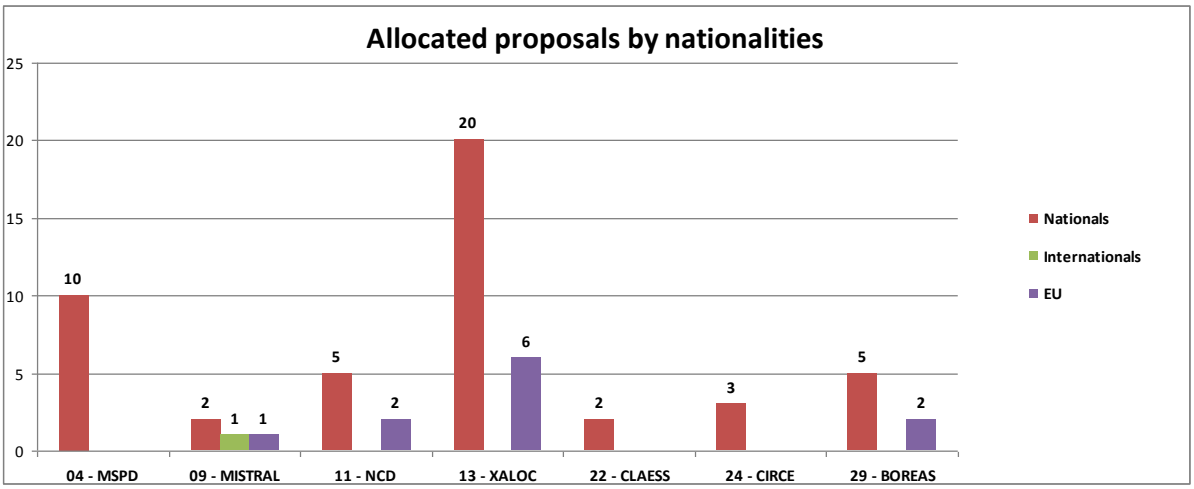

Figure 14. Allocated proposals by nationalities, considering the nationality as the country of the Home Institution of the Main proposer: Spanish home institutions, EU (from E.U. plus FP7 agreements countries and not Spanish) and the rest are considered international.

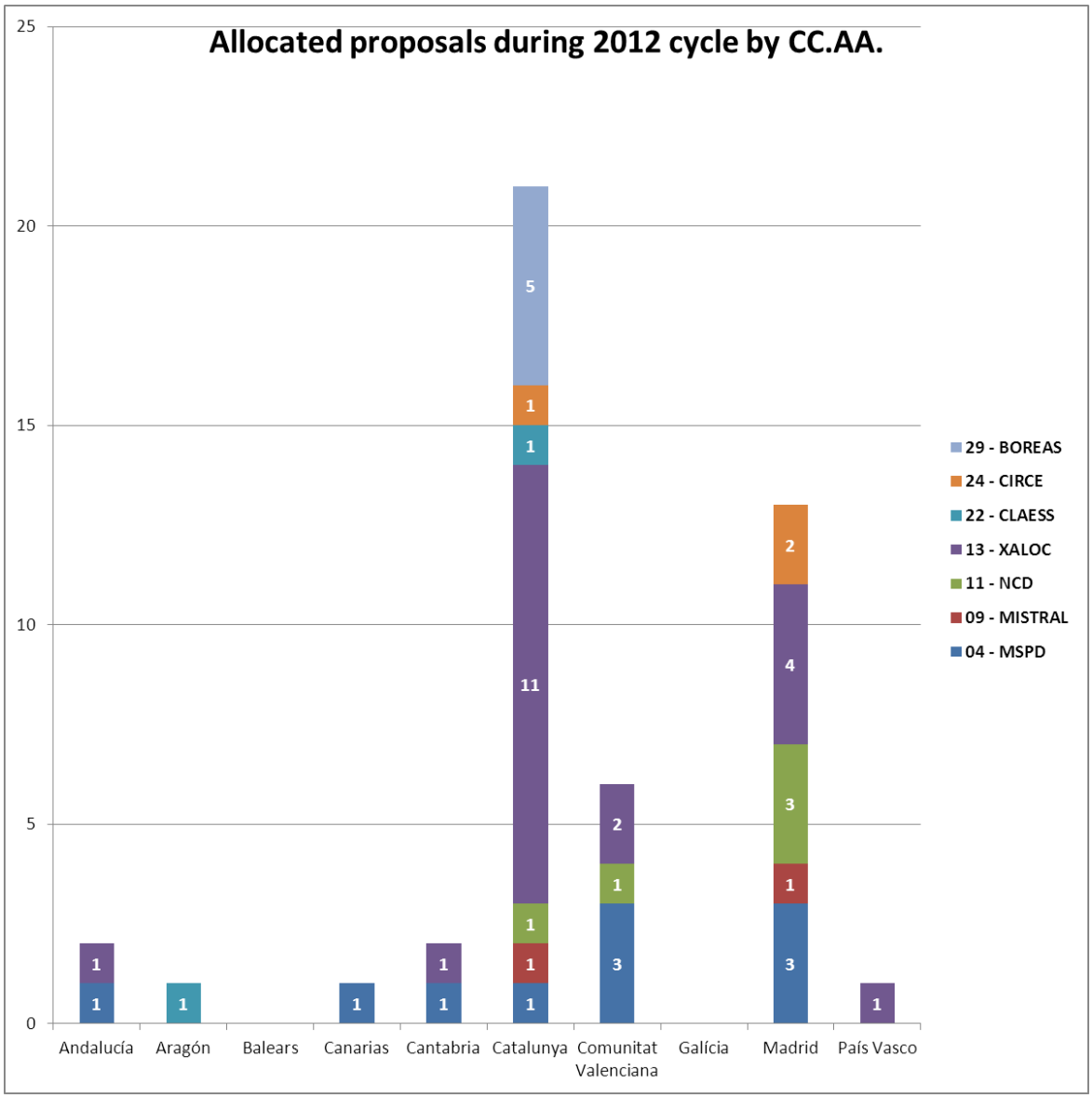

Figure 15. Allocated proposals during 2012 cycle classified by Comunidad Autónoma

5. EXPERIMENTS RESULTS BY USERS

We highlight that even if the first experiment with official users was performed in May 2012, the first scientific publication with data taken at ALBA has already been obtained. This is a success after so short time. This first publication was taken with data at MSPD Beamline: *Structural Phase Transitions on AgCuS Stromeyerite Mineral under Compression.* D. Santamaría-Pérez, A. Morales-García, D. Martínez-García, B. García-Domene, C. Múhle, and M. Jansen. *Inorganic Chemistry 52, 355-361 (2013).*

Publications in Xaloc Beamline:

Gallego P, Velazquez-Campoy A, Regué L, Roig J, Reverter D. (2013) Structural analysis of the regulation of the DYNLL/LC8 binding to Nek9 by phosphorylation. J Biol Chem. 2013 Apr 26;288(17):12283-94. doi: 10.1074/jbc.M113.459149. Epub 2013 Mar 12.

Gallego del Sol F, Marina A. (2013) Structural basis of Rap phosphatase inhibition by Phr peptides. PLoS Biol. 2013;11(3):e1001511. doi: 10.1371/journal.pbio.1001511. Epub 2013 Mar 19.

Bacarizo J, Camara-Artigas A. (2013) Atomic resolution structures of the c-Src SH3 domain in complex with two high-affinity peptides from classes I and II. Acta Crystallogr D Biol Crystallogr. 2013 May;69(Pt 5):756-66. doi: 10.1107/S0907444913001522. Epub 2013 Apr 11.

Full reporting of publications is still pending.