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EXCELENCIA  
SEVERO  
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# Anatomy of the BSC Earth Sciences Department

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- The survey was conducted during the period 4-8 July 2016
- The survey was mandatory
- The survey mainly consisted in closed questions
- Carine Saut and Mar Rodríguez did not take part to the survey (they were not on the BSC-ES mailing list) but were mentioned as belonging to the « Management » group in the last part of the survey.
- The original form can be found here:

<http://goo.gl/forms/dWqrPOGLmp3IkBn72>

For any question regarding the survey:  
[isadora.jimenez@bsc.es](mailto:isadora.jimenez@bsc.es) and [francois.massonnet@bsc.es](mailto:francois.massonnet@bsc.es)

# 1. The sample

The BSC-ES comprises 54 members. This may seem a lot of people. But when the group is depicted in terms of its characteristics (gender, background, ...), it becomes clear that a very large variety of profiles exist in that sample.

# Initials used for labelling figures

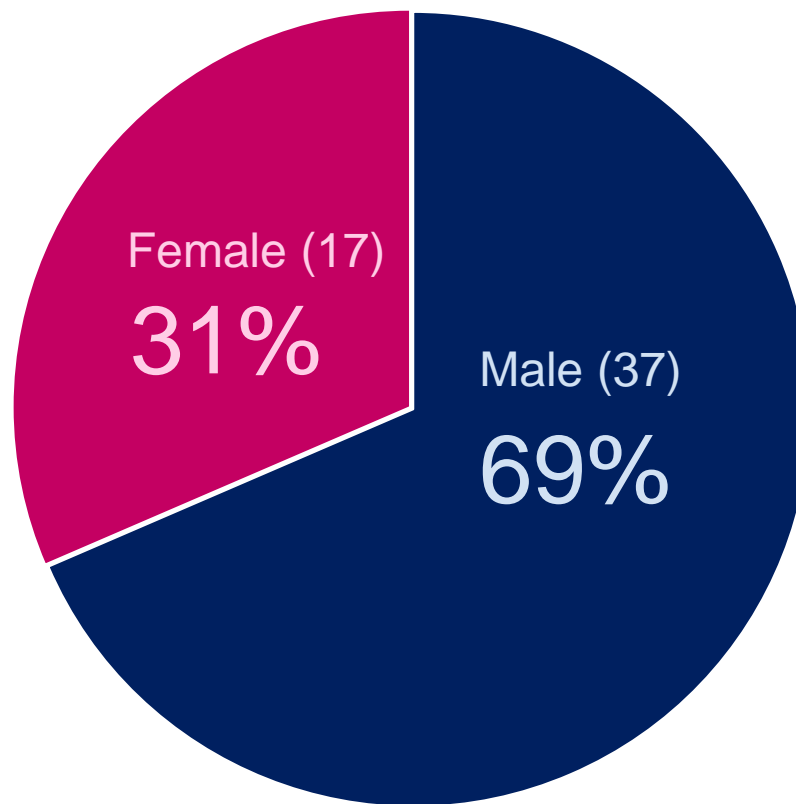


In the figures of these slides, BSC-ES members are identified using their initials.

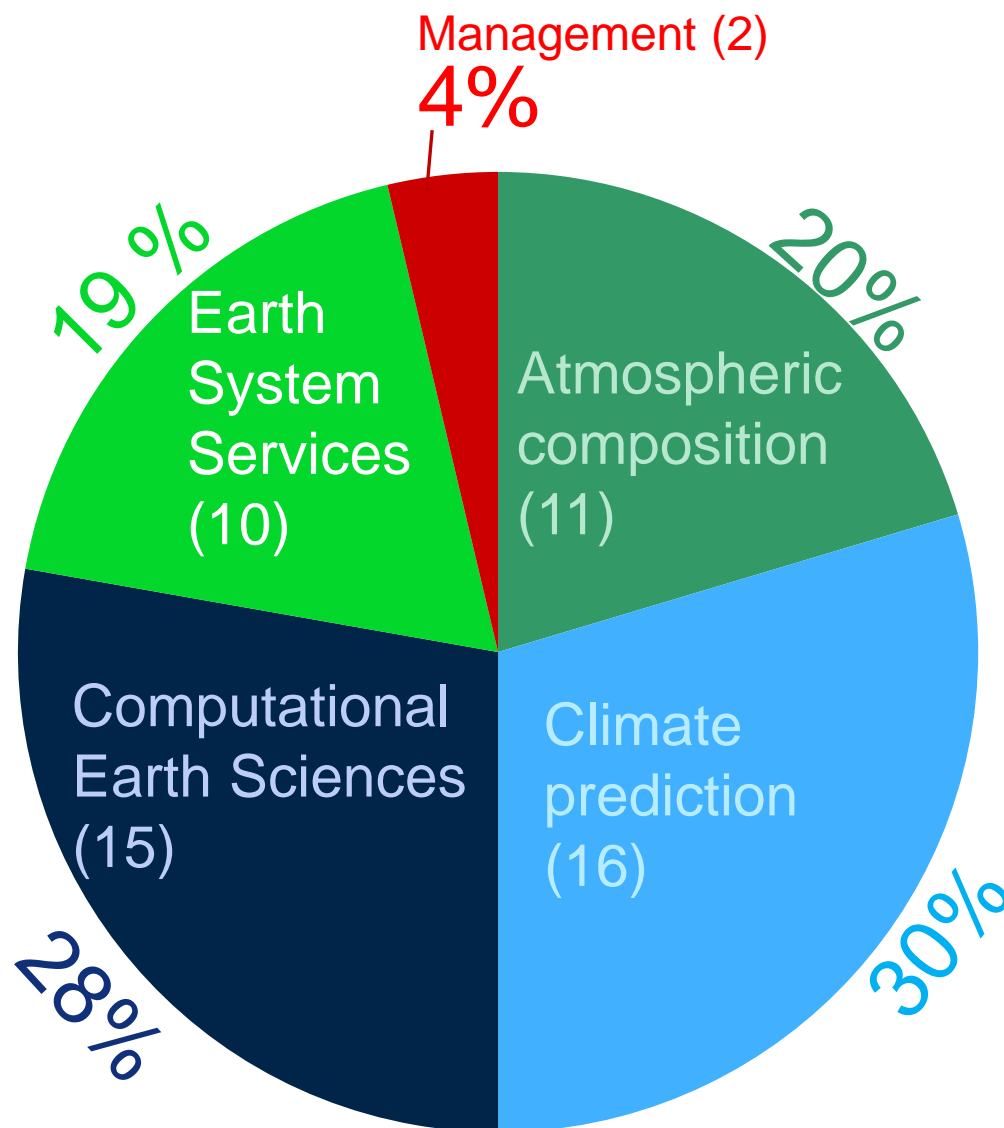
AQA	Adrià Quesada Alacid
ASS	Albert Soret Miravet
CP	Chloé Prodhomme
CTM	Carles Tena Medina
DMG	Domingo Manubens Gil
DYL	Doo Young Lee
EDT	Enza Di Tomaso
EE	Eleftheria Exarchou
ET	Etienne Tourigny
FB	Francesco Benincasa
FJDR	Francisco J. Doblas Reyes
FM	François Massonnet
GT	Gabriela Tarabanoff
IJG	Isadora Jiménez García
JB	Jaime Antonio Pérez-Benavides Acuña
JCB	Jordi Cuadrado Borbonés
JGD	Júlia Giner Delgado
JGS	Javier García Serrano

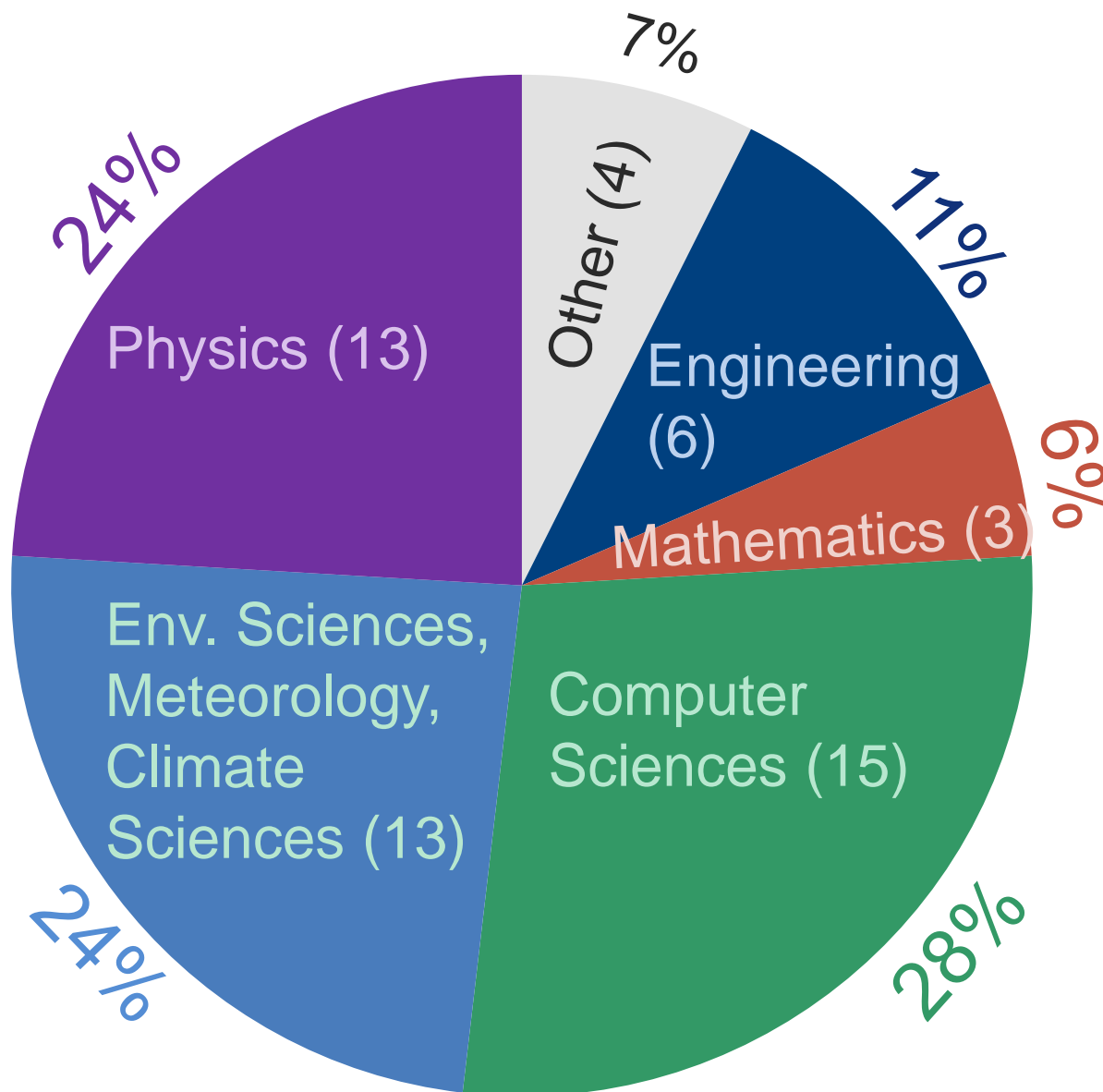
JLB	Joan López de la Franca Beltran
JPB	Jean-Philippe Baudouin
JVR	Javier Vegas Regidor
KSM	Kim Serradell Maronda
LLP	Llorenç Lledó Ponsati
LPC	Louis Phillipe Caron
LVM	Lluís Vendrell Miguel
MCAC	Mario César Acosta Cobos
MCM	Miguel Castrillo Melguizo
MGA	Maria Gonçalves Ageitos
MGV	Marc Guevara Vilardell
MM	Martin Menegoz
MMV	Marisol Monterrubio Velasco
MSO	María Santolaria Otin
MT	Marco Turco
MTC	Marta Terrado Casanovas
MTP	María Teresa Pay Pérez
NC	Nicola Cortesi

NGR	Nube González Reviriego
NM	Niti Mishra
NMG	Nicolau Manubens Gil
NSF	Neven Stjepan Fuckar
OJC	Oriol Jorba Casellas
OTP	Oriol Tintó Prims
PAB	Pierre Antoine Bretonnière
RAFB	Roberto Alejandro Fernández Bilbao
RCG	Rubén Cruz Garcia
RMM	Raül Marcos Matamoros
SB	Sara Basart Alpuente
SNGR	Sergio Natan González Rocha
V G	Virginie Guemas
VO	Vincenzo Obiso
VS	Valentina Sicardi
VTF	Verónica Torralba Fernández
XYA	Xavier Yepes Arbós
OB	Omar Bellprat Vilanova



# Distribution of members per group

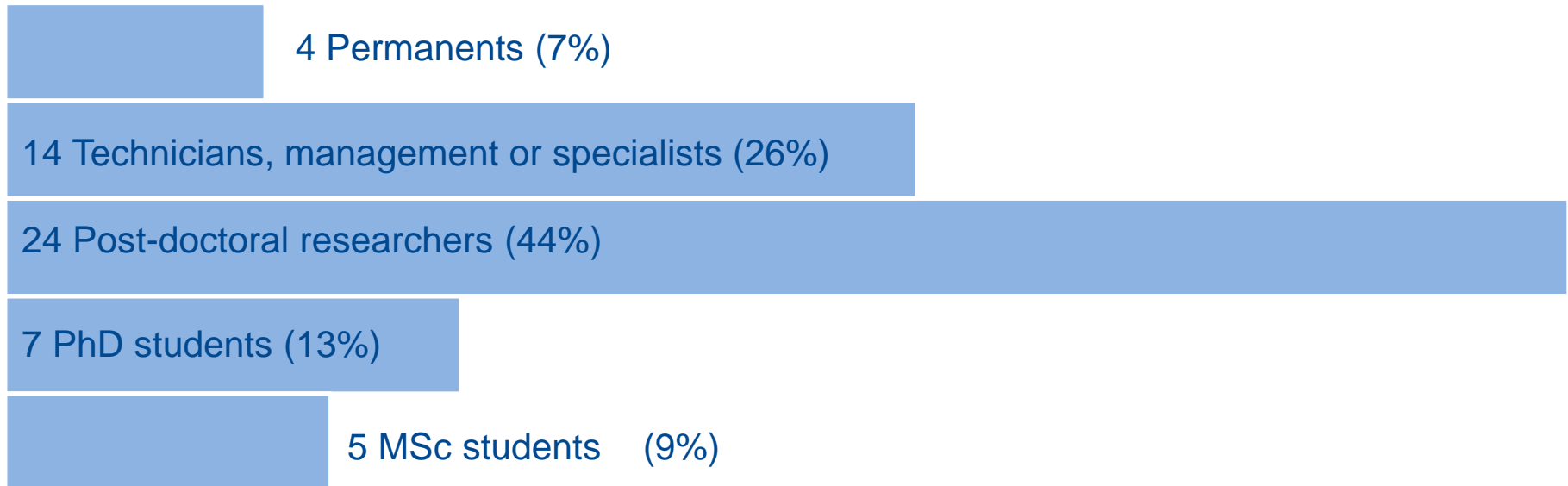




# BSC-ES composition by professional category



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## 2. The interests

BSC-ES members work on different topics spanning multiple time scales and extending on a spectrum of spatial scales. How are these activities distributed?

# Clustering members by preferred activities (1/2)



Each BSC-ES member was asked to tick keywords from a list (table on the right). For each participant, we first aggregated the number of ticks per theme.

6 themes



	<i>Forecast and Prediction</i>	<i>Earth System understanding</i>	<i>Team organization</i>	<i>Services</i>	<i>Hardware/Software</i>	<i>Communication</i>
1	Forecasts, Predictions, Projections	Energy, mass, momentum budget	Team organization, management	Services	Systems and hardware configuration	Communication
2	<b>Cross-cutting themes</b>		H2020, ERA4CS, Copernicus	Insurance, risk	HPC / Parallel Computing	Media, social networks
3			Money, funding	Impact metrics, indices	Model programming	Outreach
4	Experiments	Experiments	Conflicts	Solar, wind energy	Software development	Teaching
5	Seasonal-to-decadal	Aerosols, Gases	Use and coordination of resources	Water management	Use and coordination of resources	Learning
6	Climate impacts, variability and extremes	Climate impacts, variability and extremes	Proposals, projects, networking	Climate impacts, variability and extremes	Data, big data	Seminar
7	Skill	Atmosphere, oceans, land, cryosphere	Workflow	Health, air quality	Workflow	Publications
8	Initialization	Teleconnections	Deliverable, deadlines, milestone	Visualization	Visualization	Visualization
9	Atmospheric Composition	Atmospheric Composition	Wiki, webpage	Agriculture	Storage, compression	Dissemination
10	High Resolution	High Resolution	Support	Stakeholders	High resolution	University

10 keywords per theme



BSC-ES members picked keywords and we recorded the number of occurrences per theme



	Forecast & Prediction	Team organization	Earth System understanding	Hardware & Software	Services	Communication
MGV	4	4	4	4	1	1
ET	4	0	3	0	1	0
JCB	7	4	6	9	2	2
KSM	2	8	1	8	1	5
MCAC	4	5	6	6	1	5

# Clustering members by preferred activities (2/2)



*Each person lies at the center of gravity of an imaginary polygon defined by the 6 themes, but each theme is weighted by the number of times it was cited.*

## Atmospheric composition

*Earth System understanding*

*Team organization*

*Hardware & Software*

*Forecast & Prediction*

*Services*

*Communication*

VO

MGV

RAFB

LVM

MGA

MMV

OJC

DMG

SB

SNGR

MTP

# Clustering members by preferred activities (2/2)



*Each person lies at the center of gravity of an imaginary polygon defined by the 6 themes, but each theme is weighted by the number of times it was cited.*

## Computational Earth Sciences

*Earth System understanding*

*Team organization*

AQA

CTM

KSM

MCAC

FB

JLB

JCB

OTP

PAB  
JGS

*Hardware & Software*

EDT  
NMG

*Forecast & Prediction*

XYA  
MCM

*Services*

*Communication*

# Clustering members by preferred activities (2/2)



*Each person lies at the center of gravity of an imaginary polygon defined by the 6 themes, but each theme is weighted by the number of times it was cited.*

## Earth System and Services

*Earth System understanding*

*Team organization*

*Hardware & Software*

*Forecast & Prediction*

NC

LLP

MTR

VTF

IJG

AS

NGR

*Services*

*Communication*

MTC

# Clustering members by preferred activities (2/2)



*Each person lies at the center of gravity of an imaginary polygon defined by the 6 themes, but each theme is weighted by the number of times it was cited.*

Management

*Earth System understanding*

*Team organization*

FJDR

*Hardware & Software*

*Forecast & Prediction*

*Services*

GT  
*Communication*

# Clustering members by preferred activities (2/2)



## Climate Prediction

*Earth System understanding*

*Team organization*

MS

JPB

VG

JB

CP

MM

JGS

QB

NS

VS

ACG

*Hardware & Software*

FM

NH

*Forecast & Prediction*

LPC

*Services*

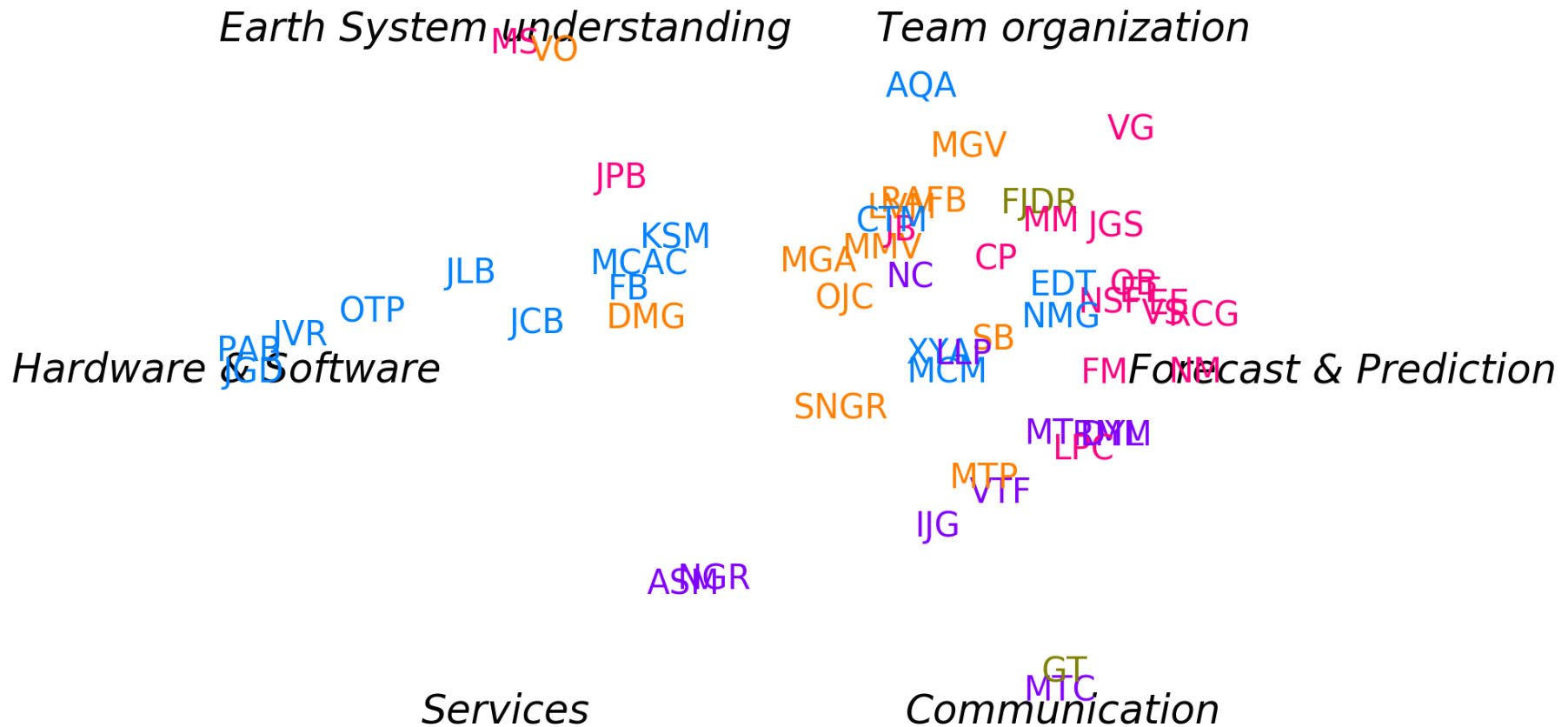
*Communication*

# Clustering members by preferred activities (2/2)



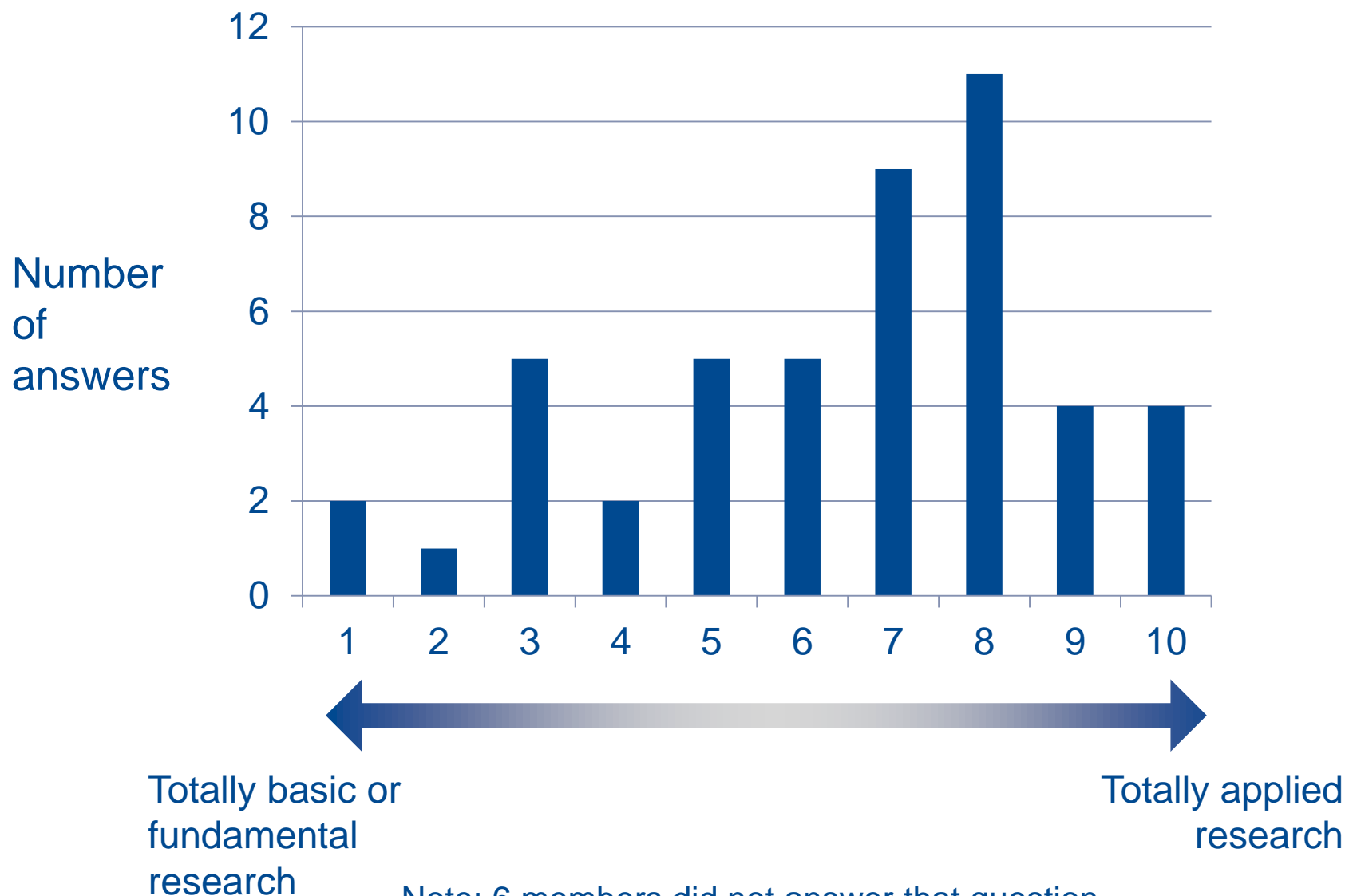
*Each person lies at the center of gravity of an imaginary polygon defined by the 6 themes, but each theme is weighted by the number of times it was cited.*

Atmospheric composition  
Computational Earth Sciences  
Earth System and Services  
Management  
Climate Prediction





« Where do your activities fall in? »



**Note: multiple  
answers were  
allowed**

**Reconstructions  
Reanalyses**

16

NOW

**Operational**

14

**Sub-seasonal**

12

30

**Seasonal**

**Interannual**

17

**Decadal**

11

**Projections**

9

Number of  
members  
working at...

## Global scale



34

Note: multiple  
answers were  
allowed

## Regional scale



28

## Local scale



9

# Number of members working on...



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# 3. The tools

Personal and high-performance computers are the main tools used by BSC-ES members. But the way they use these tools varies greatly from member to member.



## Do you use....

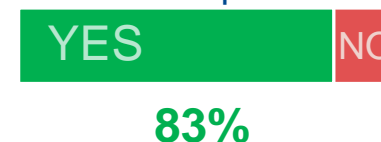
BSC-made HPC software  
(Autosubmit, Paraver, ...)



BSC-made data analysis  
packages (s2dverification,  
mapgenerator, ...)



Home-made  
scripts



External  
HPC software  
(ecFlow, cylc ...)



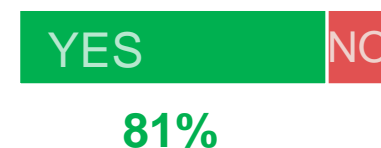
External data analysis  
packages (CDO, NCO, ...)



Versioning (gitlab,  
SVN, mercurial,...)



Wiki



# Frequency of usage of different means of communication



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Oral discussion

89%

E-mail

88%

Skype/Webex/Gotomeeting

28%

GitLab, Wiki

53%

Trello

53%

Phone

30%

Each of the 54 participants rated the usage of each of the 6 means of communication with a number reflecting the frequency of use: 1 (rarely) to 5 (very often). For each category, the number shown is the mean of the number of answers weighted by the frequency,

# 4. The connections

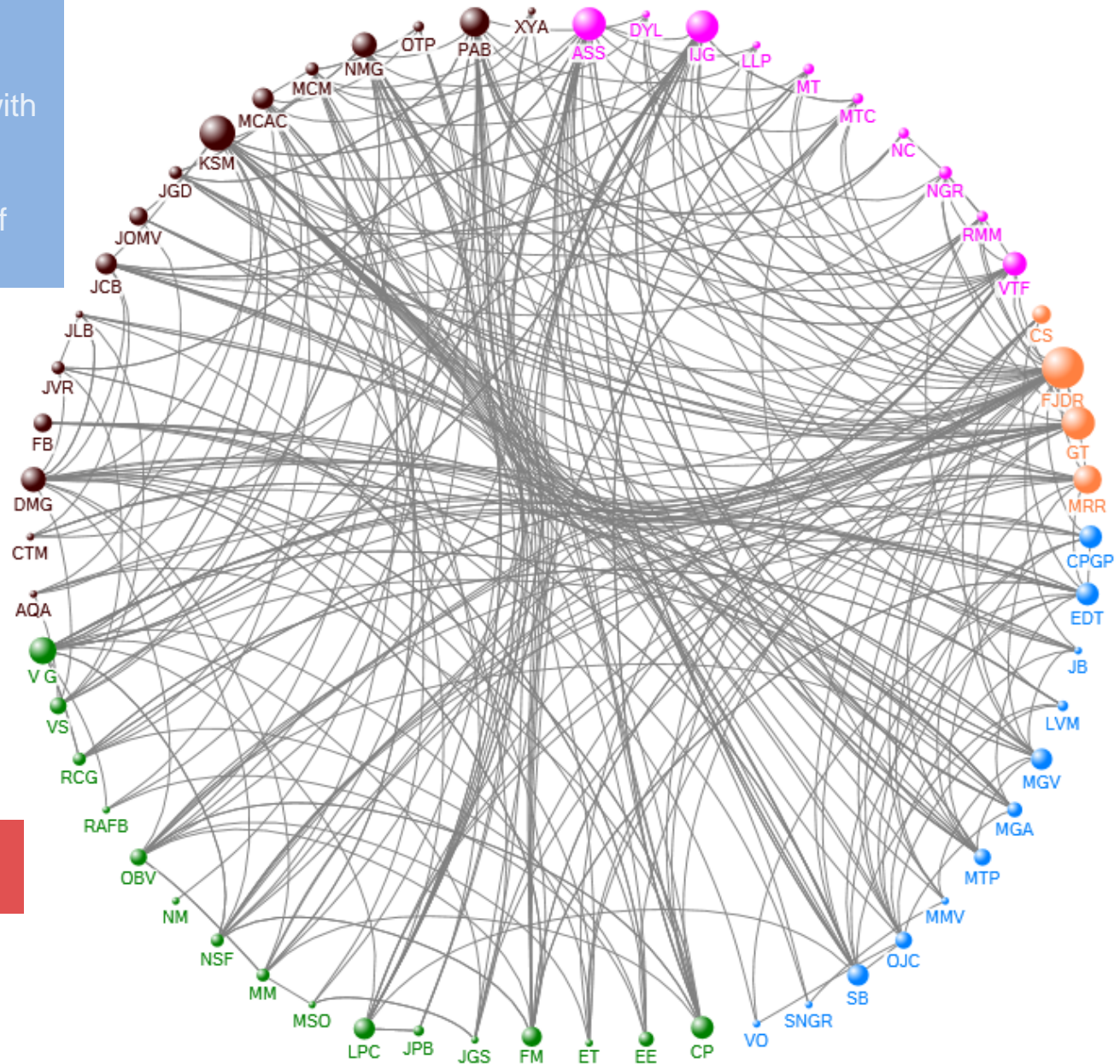
How do the 54 members of BSC-ES  
relate to one another?



# Links between BSC-ES members



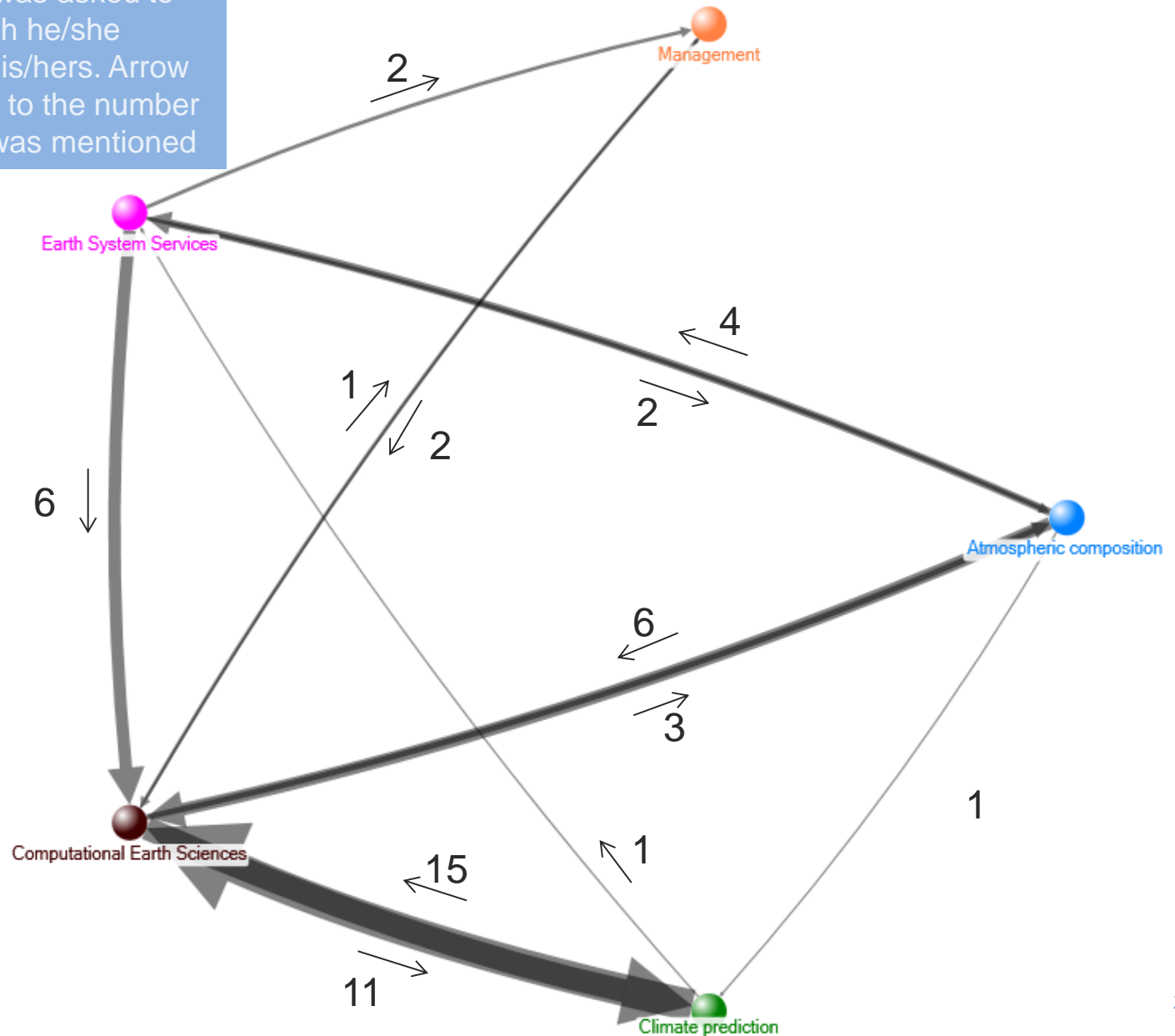
Each BSC-ES member was asked to name the two members from each group with whom he/she has the most interactions. Node size is proportional to the number of times the person is named



Note: this map can be made interactive. Feel free to ask!

# Links between BSC-ES groups

Each BSC-ES member was asked to name the group with which he/she interacts most excepts his/hers. Arrow thickness is proportional to the number of times the interaction was mentioned





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# Thank you!

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