

## ATENCIÓ:

### Annex al formulari de sol·licitud d'ajuts per donar Suport a les activitats dels Grups de Recerca (SGR 2017)

#### Opció d'avaluació científica de grups

Aquest document només és vàlid per annexar-lo, en format PDF al formulari SGR 2017

*Annex to the application form of grants to support the activities of the  
research groups (SGR 2017)*

#### Group scientific assessment option

*This document is only valid for attaching in PDF format to be application form SGR 2017*

### Dades del/de la coordinador/a del grup de recerca

#### Coordinator Details of research group

Nom / Name	Primer cognom / First surname	Segon cognom / Second surname
Francisco J.	Doblas	Reyes
NIF/NIE/Passaport / Id/Passport	Adreça electrònica / e-mail address	Telèfon / Phone number
29029481P	francisco.doblas-reyes@bsc.es	934137719

### Dades del grup de recerca

#### Details of research group

Nom del grup i acrònim, si escau /Name of group and acronym	
Earth Sciences, BSC-ES	
Universitat/centre/institució/University/Centre/Institution	Modalitat/Modality
Barcelona Supercomputing Center-Centro Nacional de Supercomputación	GRC amb finançament competitiu

## A) Producció científica més destacada pel grup

*Noteworthy scientific production by the groupocus card*

**A.1)** Detalleu, seguint el model proposat, la selecció de la producció científica del grup indicant, com a màxim, les 15 publicacions més destacades del grup. Poden ser o bé 15 articles en revistes indexades en bases de dades internacionals, o bé 15 llibres o capítols de llibres de recerca publicats en editorials de prestigi i impacte internacional, o bé una combinació de 15 publicacions d'aquests dos tipus (articles i llibres o capítols). Feu la selecció d'aquests 15 millors outputs del grup tenint en compte l'impacte dins de l'àmbit i l'autoria de les publicacions que seleccioneu i atenent els membres del grup. Podeu incloure els articles i els llibres o els capítols publicats pel grup durant el període comprès entre l'1 de gener de 2014 i la data de presentació d'aquesta sol·licitud / *Following the template, list below a selection from the group's scientific production, indicating up to a maximum of 15 of the group's most noteworthy papers. They can be either 15 articles in journals indexed in international databases, or 15 research books or chapters of books published by publishers of international renown, or a mix of 15 papers of the two types (articles and books or chapters). Select the 15 best treatises by the group according to their impact and authorship of the selected works within the field and bearing in mind the group members. You may include papers and/or books or chapters of books published by the group between 1 January 2014 and the date on which this application is made.*

### Nota:

Assenyaleu amb negreta els autors de l'article que són membres del grup. Consigneu els índexs d'impacte corresponents a l'any de publicació de l'article o bé indiqueu altres índexs de qualitat relatius i en tot cas propis del vostre àmbit. Copieu i enganxeu el model proposat tantes vegades com us siguin necessàries segons la vostra activitat científica i fins a un màxim de 15 articles, 15 llibres o capítols o la combinació d'aquests dos tipus de publicacions. *Put in bold the names of authors who are group members. Include impact factors for the article's year of publication or give other quality indices relative to your field. Copy and paste the template as many times as necessary, up to a maximum of 15 papers or a maximum of 15 books/chapters or a mix of both*

1

<b>Articles a revistes indexades/Papers in indexed journals</b>	
Autors/res (per ordre de signatura) /Authors (in signing order): <b>Massonnet, F., O. Bellprat, V. Guemas and F. J. Doblas-Reyes</b>	
Títol/Title: Using climate models to estimate the quality of global observational data sets	
Revista (títol, volum, pàgina inicial- final):/Journal (title, volume, start and end page): Science, 6311, 452-455	
Any/Year: 2016	Clau (A: article, R: review)/Key (A: article, R: review): A
Índex d'impacte/Impact factor (SCI/SSCI/AHCI): : 34.661	Quartil i àrea/Quartile and area (SCI/SSCI): 1
Cites rebudes /Citations received: 4	Doi/Doi: 10.1126/science.aaf6369
Altres índexs de qualitat (consignar base de dades i índex d'impacte)/Other quality indices (state database and impact factor):	

2

<b>Articles a revistes indexades/Papers in indexed journals</b>	
Autors/res (per ordre de signatura) /Authors (in signing order): <b>Volpi, D., V. Guemas, F.J. Doblas-Reyes, E. Hawkins and N. Nichols</b>	
Títol/Title: Decadal climate prediction with a refined anomaly initialisation approach. Climate Dynamics	
Revista (títol, volum, pàgina inicial- final):/Journal (title, volume, start and end page): Climate Dynamics Volume 48, Issue 5–6, pp 1841–1853	
Any/Year: 2017	Clau (A: article, R: review)/Key (A: article, R: review): A

Índex d'impacte/Impact factor (SCI/SSCI/AHCI): 3.492	Quartil i àrea/Quartile and area (SCI/SSCI): 1
Cites rebudes /Citations received: 2	Doi/Doi: 10.1007/s00382-016-3176-6.
Altres índexs de qualitat (consignar base de dades i índex d'impacte)/Other quality indices (state database and impact factor):	

3

<b>Articles a revistes indexades/Papers in indexed journals</b>	
Autors/res (per ordre de signatura) /Authors (in signing order): <b>Bellprat , O. and F.J. Doblas-Reyes</b>	
Títol/Title: Attribution of extreme weather and climate events overestimated by unreliable climate simulations	
Revista (títol, volum, pàgina inicial- final):/Journal (title, volume, start and end page): Geophysical Research Letters, 43, 2158-2164	
Any/Year: 2016	Clau (A: article, R: review)/Key (A: article, R: review): A
Índex d'impacte/Impact factor (SCI/SSCI/AHCI): 4.212	Quartil i àrea/Quartile and area (SCI/SSCI): 1
Cites rebudes /Citations received: 7	Doi/Doi: 10.1002/2015GL067189
Altres índexs de qualitat (consignar base de dades i índex d'impacte)/Other quality indices (state database and impact factor):	

4

<b>Articles a revistes indexades/Papers in indexed journals</b>	
Autors/res (per ordre de signatura) /Authors (in signing order): <b>Prodhomme, C., L. Batté, F. Massonnet, P. Davini, O. Bellprat, V. Guemas, and F.J. Doblas-Reyes</b>	
Títol/Title: Benefits of increasing the model resolution for the seasonal forecast quality in EC-Earth	
Revista (títol, volum, pàgina inicial- final):/Journal (title, volume, start and end page): Journal of Climate, 29, 9141-9162	
Any/Year: 2016	Clau (A: article, R: review)/Key (A: article, R: review): A
Índex d'impacte/Impact factor (SCI/SSCI/AHCI): 3.290	Quartil i àrea/Quartile and area (SCI/SSCI): 1
Cites rebudes /Citations received: 2	Doi/Doi: 10.1175/JCLI-D-16-0117.1
Altres índexs de qualitat (consignar base de dades i índex d'impacte)/Other quality indices (state database and impact factor):	

5

<b>Articles a revistes indexades/Papers in indexed journals</b>	
Autors/res (per ordre de signatura) /Authors (in signing order): <b>Guemas, V., E. Blanchard-Wrigglesworth, M. Chevallier, J.J. Day, M. Déqué, F.J. Doblas-Reyes, N. Fučkar, A. Germe, E. Hawkins, S. Keeley, T. Koenigk, D. Salas y Méria and S. Tietsche</b>	
Títol/Title: A review on Arctic sea ice predictability and prediction on seasonal-to-decadal timescales	
Revista (títol, volum, pàgina inicial- final):/Journal (title, volume, start and end page): Quarterly Journal of the Royal Meteorological Society, 142, 546-561	
Any/Year: 2016	Clau (A: article, R: review)/Key (A: article, R: review): R
Índex d'impacte/Impact factor (SCI/SSCI/AHCI): 3.327	Quartil i àrea/Quartile and area (SCI/SSCI): 1
Cites rebudes /Citations received: 38	Doi/Doi: 10.1002/qj.2401
Altres índexs de qualitat (consignar base de dades i índex d'impacte)/Other quality indices (state database and impact factor):	

6

<b>Articles a revistes indexades/Papers in indexed journals</b>	
Autors/res (per ordre de signatura) /Authors (in signing order): <b>Bellprat, O., Massonnet, F., García-Serrano, J., Fučkar, N.S., Guemas, V., and F. Doblas-Reyes</b>	
Títol/Title: The role of Arctic sea ice and sea surface temperatures on the cold 2015 February over North America	
Revista (títol, volum, pàgina inicial- final)/Journal (title, volume, start and end page): Bulletin of American Meteorological Society, 97, S36-S41	
Any/Year: 2016	Clau (A: article, R: review)/Key (A: article, R: review): A
Índex d'impacte/Impact factor (SCI/SSCI/AHCI): 7.929	Quartil i àrea/Quartile and area (SCI/SSCI): 1
Cites rebudes /Citations received:	Doi/Doi:10.1175/BAMS-D-16-0159.1
Altres índexs de qualitat (consignar base de dades i índex d'impacte)/Other quality indices (state database and impact factor):	

7

<b>Articles a revistes indexades/Papers in indexed journals</b>	
Autors/res (per ordre de signatura) /Authors (in signing order): <b>Torralba, V., F. J. Doblas-Reyes, D. MacLeod, I. Jiménez</b> and M. Davis	
Títol/Title: Seasonal climate prediction: a new source of information for the management of wind energy resources.	
Revista (títol, volum, pàgina inicial- final)/Journal (title, volume, start and end page): Journal of Applied Meteorology and Climatology	
Any/Year: 2016	Clau (A: article, R: review)/Key (A: article, R: review): A
Índex d'impacte/Impact factor (SCI/SSCI/AHCI): 2.563	Quartil i àrea/Quartile and area (SCI/SSCI): 2
Cites rebudes /Citations received:	Doi/Doi: (accepted)
Altres índexs de qualitat (consignar base de dades i índex d'impacte)/Other quality indices (state database and impact factor):	

8

<b>Articles a revistes indexades/Papers in indexed journals</b>	
Autors/res (per ordre de signatura) /Authors (in signing order): Turco, M., A. Ceglar, <b>C. Prodhomme, A. Soret, A. Toreti</b> and <b>F. J. Doblas-Reyes</b>	
Títol/Title: Summer drought predictability over Europe: empirical versus dynamical forecasts.	
Revista (títol, volum, pàgina inicial- final)/Journal (title, volume, start and end page):	
Any/Year: 2017	Clau (A: article, R: review)/Key (A: article, R: review): A
Índex d'impacte/Impact factor (SCI/SSCI/AHCI): 4.404	Quartil i àrea/Quartile and area (SCI/SSCI): 1
Cites rebudes /Citations received:	Doi/Doi: 10.1088/1748-9326/aa7
Altres índexs de qualitat (consignar base de dades i índex d'impacte)/Other quality indices (state database and impact factor):	

9

<b>Articles a revistes indexades/Papers in indexed journals</b>	
Autors/res (per ordre de signatura) /Authors (in signing order): <b>Soret, A., M. Guevara, J. M. Baldasano</b>	

Títol/Title: The potential impact of electric vehicles on air quality in the urban areas of Barcelona and Madrid (Spain)	
Revista (títol, volum, pàgina inicial- final):/Journal (title, volume, start and end page): Atmospheric Environment, vol. 99, p. 51-63. Desembre 2014,	
Any/Year: 2014	Clau (A: article, R: review)/Key (A: article, R: review): A
Índex d'impacte/Impact factor (SCI/SSCI/AHCI): 3.281	Quartil i àrea/Quartile and area (SCI/SSCI): 1
Cites rebudes /Citations received: 16	Doi/Doi: 10.1016/j.atmosenv.2014.09.048
Altres índexs de qualitat (consignar base de dades i índex d'impacte)/Other quality indices (state database and impact factor):	

10

<b>Articles a revistes indexades/Papers in indexed journals</b>	
Autors/res (per ordre de signatura) /Authors (in signing order): <b>Guevara, M., C. Tena, A. Soret, K. Serradell, D. Guzmán, A. Retama, P. Camacho, M. Jaimes-Palomera and A. Mediavilla</b>	
Títol/Title: An emission processing system for air quality modelling in the Mexico City metropolitan area: evaluation and comparison of the MOBILE6.2-Maxico traffic emissions.	
Revista (títol, volum, pàgina inicial- final):/Journal (title, volume, start and end page): Science of The Total Environment	
Any/Year: 2017	Clau (A: article, R: review)/Key (A: article, R: review): A
Índex d'impacte/Impact factor (SCI/SSCI/AHCI): 3.976	Quartil i àrea/Quartile and area (SCI/SSCI): 1
Cites rebudes /Citations received:	Doi/Doi: 10.1016/j.scitotenv.2017.01.135
Altres índexs de qualitat (consignar base de dades i índex d'impacte)/Other quality indices (state database and impact factor):	

11

<b>Articles a revistes indexades/Papers in indexed journals</b>	
Autors/res (per ordre de signatura) /Authors (in signing order): <b>Pérez García-Pando, C., M.C. Stanton, P.J. Diggle, S. Trzaska, R.L. Miller, J.P. Perlwitz, J.M. Baldasano, E. Cuevas, P. Ceccato, P. Yaka and M.C Thomson</b>	
Títol/Title: Soil dust aerosols and wind as predictors of seasonal meningitis incidence in Niger	
Revista (títol, volum, pàgina inicial- final):/Journal (title, volume, start and end page): Environmental Health Perspectives, 122, 7, 679-686	
Any/Year: 2014	Clau (A: article, R: review)/Key (A: article, R: review): A
Índex d'impacte/Impact factor (SCI/SSCI/AHCI): 9.78	Quartil i àrea/Quartile and area (SCI/SSCI):
Cites rebudes /Citations received: 44	Doi/Doi: 10.1289/ehp.1306640
Altres índexs de qualitat (consignar base de dades i índex d'impacte)/Other quality indices (state database and impact factor):	

12

<b>Articles a revistes indexades/Papers in indexed journals</b>	
Autors/res (per ordre de signatura) /Authors (in signing order): <b>Gkikas, A., S. Basart, N. Hatzianastassiou, E. Marinou, V. Amiridis, S. Kazadzis, J. Pey, X. Querol, O. Jorba, S. Gassó and J.M. Baldasano</b>	
Títol/Title: Mediterranean intense desert dust outbreaks and their vertical structure based on remote sensing data	
Revista (títol, volum, pàgina inicial- final):/Journal (title, volume, start and end page): Atmospheric Chemistry and Physics, 16, 8609-8642	

Any/Year: 2016	Clau (A: article, R: review)/Key (A: article, R: review): A
Índex d'impacte/Impact factor (SCI/SSCI/AHCI): 5.318	Quartil i àrea/Quartile and area (SCI/SSCI): 1
Cites rebudes /Citations received: 9	Doi/Doi: 10.5194/acp-16-8609-2016
Altres índexs de qualitat (consignar base de dades i índex d'impacte)/Other quality indices (state database and impact factor):	

13

<b>Articles a revistes indexades/Papers in indexed journals</b>	
Autors/res (per ordre de signatura) /Authors (in signing order): J. P. Perlwitz, <b>C. Pérez García-Pando</b> , and R. L. Miller	
Títol/Title: Predicting the mineral composition of dust aerosols – Part 1: Representing key processes	
Revista (títol, volum, pàgina inicial- final)/Journal (title, volume, start and end page): Atmos. Chem. Phys., 15, 11593-11627	
Any/Year: 2015	Clau (A: article, R: review)/Key (A: article, R: review): A
Índex d'impacte/Impact factor (SCI/SSCI/AHCI): 5.318	Quartil i àrea/Quartile and area (SCI/SSCI): 1
Cites rebudes /Citations received: 19	Doi/Doi: 10.5194/acp-15-11593-2015
Altres índexs de qualitat (consignar base de dades i índex d'impacte)/Other quality indices (state database and impact factor):	

14

<b>Articles a revistes indexades/Papers in indexed journals</b>	
Autors/res (per ordre de signatura) /Authors (in signing order): Spada, M., <b>Jorba, O., Pérez García-Pando, C.,</b> and Baldasano, J.M.	
Títol/Title: On the evaluation of global sea-salt aerosol models at coastal/orographic sites	
Revista (títol, volum, pàgina inicial- final)/Journal (title, volume, start and end page): Atmospheric Environment, 101, 41-48	
Any/Year: 2016	Clau (A: article, R: review)/Key (A: article, R: review): A
Índex d'impacte/Impact factor (SCI/SSCI/AHCI): 3.629	Quartil i àrea/Quartile and area (SCI/SSCI): 1
Cites rebudes /Citations received: 4	Doi/Doi: 10.1016/j.atmosenv.2014.11.019
Altres índexs de qualitat (consignar base de dades i índex d'impacte)/Other quality indices (state database and impact factor):	

15

<b>Articles a revistes indexades/Papers in indexed journals</b>	
Autors/res (per ordre de signatura) /Authors (in signing order): <b>Di Tomaso, E.,</b> N.A.J. Schutgens, <b>O. Jorba, C. Pérez García-Pando</b>	
Títol/Title: Assimilation of MODIS Dark Target and Deep Blue observations in the dust aerosol component of NMMB-MONARCH version 1.0	
Revista (títol, volum, pàgina inicial- final)/Journal (title, volume, start and end page):	
Any/Year: 2017	Clau (A: article, R: review)/Key (A: article, R: review): A
Índex d'impacte/Impact factor (SCI/SSCI/AHCI): 3.458	Quartil i àrea/Quartile and area (SCI/SSCI): 1
Cites rebudes /Citations received: 1	Doi/Doi: Geosci. Model Dev., 10, 1107-1129



Altres índexs de qualitat (consignar base de dades i índex d'impacte)/Other quality indices (state database and impact factor):

1

<b>Llibres o capítols de llibre/Books or chapters of books</b>	
Autors/res (per ordre de signatura)/Authors (in signing order): Camp, J. and <b>L.-P. Caron</b>	
Títol/Title: Hurricanes and Climate Change, 3rd edition	
Pàgines (inicial-final)/Pages (start-end): 213-241	
Editorial/Publishing: Springer	
Any/Year: 2017	Clau (L=llibre, C=capítol, EC=edicions crítiques, E=editor/a)/Key (B=book, C=chapter, CP=critical publications, E=editor): C

2

<b>Llibres o capítols de llibre/Books or chapters of books</b>	
Autors/res (per ordre de signatura)/Authors (in signing order): Calbó, J, <b>Gonçalves-Ageitos, M.</b> , Barrera, A, <b>Garcia-Serrano J, Doblas-Reyes F, Guemas V</b> , Cunillera, J, Altava, V.	
Títol/Title: Projeccions climàtiques i escenaris de futur”, en “Tercer informe sobre el canvi climàtic a Catalunya	
Pàgines (inicial-final)/Pages (start-end): 113-133	
Editorial/Publishing: Institut d'Estudis Catalans i Generalitat de Catalunya	
Any/Year: 2016	Clau (L=llibre, C=capítol, EC=edicions crítiques, E=editor/a)/Key (B=book, C=chapter, CP=critical publications, E=editor): C

3

<b>Llibres o capítols de llibre/Books or chapters of books</b>	
Autors/res (per ordre de signatura)/Authors (in signing order): <b>Soret, A.</b> , M.Turco, <b>M.Terrado</b> and <b>F.J. Doblas-Reyes</b>	
Títol/Title: Seasonal predictions for the management of the wine crop	
Pàgines (inicial-final)/Pages (start-end): 261-266	
Editorial/Publishing: Horticulture Acts, Technical Communications of the II Horticulture meeting	
Any/Year: 2016	Clau (L=llibre, C=capítol, EC=edicions crítiques, E=editor/a)/Key (B=book, C=chapter, CP=critical publications, E=editor): C

4

<b>Llibres o capítols de llibre/Books or chapters of books</b>	
Autors/res (per ordre de signatura)/Authors (in signing order): <b>Terrado, M., I. Christel, D. Bojovic, A. Soret</b> and <b>F. J. Doblas-Reyes</b>	
Títol/Title: Climate change communication & user engagement: a tool to anticipate climate change	
Pàgines (inicial-final)/Pages (start-end): (in press)	
Editorial/Publishing: The Handbook of Climate Change Communication, Springer	
Any/Year: 2017	Clau (L=llibre, C=capítol, EC=edicions crítiques, E=editor/a)/Key (B=book, C=chapter, CP=critical publications, E=editor): C

5

<b>Llibres o capítols de llibre/Books or chapters of books</b>	
Autors/res (per ordre de signatura)/Authors (in signing order): <b>Guevara, M.</b>	

Títol/Title: Emissions of primary particulate matter	
Pàgines (inicial-final)/Pages (start-end): 1-34	
Editorial/Publishing: Royal Society of Chemistry, Cambridge	
Any/Year: 2016	Clau (L=líbre, C=capítol, EC=edicions crítiques, E=editor/a)/Key (B=book, C=chapter, CP=critical publications, E=editor): C

6

<b>Llibres o capítols de llibre/Books or chapters of books</b>	
Autors/res (per ordre de signatura)/Authors (in signing order): <b>Basart, S.</b> , F. Dulac, J. M. Baldasano, P. Nabat, M. Mallet, F. Solmon, B. Laurent, J. Vincent, L. Menut, L. El Amraoui, B. Sic, J.-P. Chaboureau, J.-F. Léon, K. Schepanski, J.-B. Renard, F. Ravetta, J. Pelon, C. Di Biagio, P. Formenti, I. Chiapello, J.-L. Roujean, X. Ceamanos, D. Carrer, M. Sicard, H. Delbarre, G. Roberts, W. Junkermann and J.-L. Attié	
Títol/Title: Extensive comparison between a set of European dust regional models and observations in the Western Mediterranean for the summer 2012 Pre-ChArMEx/TRAQA Campaign	
Pàgines (inicial-final)/Pages (start-end): 79-83	
Editorial/Publishing: Springer, Netherlands	
Any/Year: 2016	Clau (L=líbre, C=capítol, EC=edicions crítiques, E=editor/a)/Key (B=book, C=chapter, CP=critical publications, E=editor):

7

<b>Llibres o capítols de llibre/Books or chapters of books</b>	
Autors/res (per ordre de signatura)/Authors (in signing order): Benedetti, A., J.M. Baldasano, <b>S. Basart, F. Benincasa</b> , O. Boucher, M.E. Brooks, J.-P. Chen, P.R. Colarco, S. Gong, N. Huneus, L. Jones, S. Lu, L. Menut, J.-J. Morcrette, J. Mulcahy, S. Nickovic, <b>C. Pérez García-Pando</b> , J.S. Reid, T.T. Sekiyama, T.Y. Tanaka, E. Terradellas, D.L. Westphal, X.-Y. Zhang, and C.-H. Zhou	
Títol/Title: Operational Dust Prediction. In Mineral Dust	
Pàgines (inicial-final)/Pages (start-end): 223-265	
Editorial/Publishing: Springer, Netherlands	
Any/Year: 2016	Clau (L=líbre, C=capítol, EC=edicions crítiques, E=editor/a)/Key (B=book, C=chapter, CP=critical publications, E=editor): C

8

<b>Llibres o capítols de llibre/Books or chapters of books</b>	
Autors/res (per ordre de signatura)/Authors (in signing order): Shepherd, G., E. Terradellas, A. Baklanov, U. Kang, W.A. Sprigg, S. Nickovic, A.D. Boloorani, A. Al-Dousari, <b>S. Basart</b> , A. Benedetti, A. Sealy, D. Tong, X. Zhang, J. Shumake-Guillemot, Z. Kebin, P. Knippertz, A.A.A. Mohammed, M. Al-Dabbas, L. Cheng, S. Otani, F. Wang, C. Zhang, S.B. Ryoo, J. Cha	
Títol/Title: Global Assessment of Sand and Dust Storms	
Pàgines (inicial-final)/Pages (start-end): -	
Editorial/Publishing: UNEP, WMO, UNCCD	
Any/Year: 2016	Clau (L=líbre, C=capítol, EC=edicions crítiques, E=editor/a)/Key (B=book, C=chapter, CP=critical publications, E=editor): L

9

<b>Llibres o capítols de llibre/Books or chapters of books</b>	
Autors/res (per ordre de signatura)/Authors (in signing order): Miller, R.L., Knippertz, P., <b>Pérez García-Pando, C.</b> ,	



Perlwitz, J.P., Tegen, I.	
Títol/Title: Impact of dust radiative forcing upon climate. In Mineral Dust: A Key Player in the Earth System.	
Pàgines (inicial-final)/Pages (start-end): 327-357	
Editorial/Publishing: Springer, Netherlands	
Any/Year: 2016	Clau (L=líbre, C=capítol, EC=edicions crítiques, E=editor/a)/Key (B=book, C=chapter, CP=critical publications, E=editor): C

10

<b>Llibres o capítols de llibre/Books or chapters of books</b>	
Autors/res (per ordre de signatura)/Authors (in signing order): Bell, J.E., S.C. Herring, L. Jantarasami, C. Adrianopoli, K. Benedict, K. Conlon, V. Escobar, J. Hess, J. Luval, <b>C. Pérez García-Pando</b> , D. Quattrochi, J. Runkle, and C.J. Schreck, III	
Títol/Title: Ch. 4: Impacts of extreme events on human health. In The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment.	
Pàgines (inicial-final)/Pages (start-end): 327-357	
Editorial/Publishing: U.S. Global Change Research Program	
Any/Year: 2016	Clau (L=líbre, C=capítol, EC=edicions crítiques, E=editor/a)/Key (B=book, C=chapter, CP=critical publications, E=editor): C

**A.2)** A continuació, detalleu seguint el model proposat un màxim de 15 tesis doctorals (llegides o dipositades) dirigides per algun membre del grup durant el període comprès entre l'1 de gener de 2014 fins a la data de presentació d'aquesta sol·licitud. Detalleu com a màxim les 15 ponències a congressos més destacades dutes a terme per membres del grup. Detalleu també, si escau, fins a 15 patents registrades per membres del grup durant aquets mateix període de temps / *Following the template, list below a maximum of 15 doctoral theses directed by a member of the group between 1 January 2014 and the date on which this application is made (read or deposited). List a maximum of 15 papers given at congresses by group members. If appropriate, also give up to 15 patents registered by group members in the same period of time.*

**Nota:**

Copieu i enganxeu el model proposat tantes vegades com necessiteu segons la vostra activitat científica i fins a un màxim 15 tesis, 15 patents i 15 ponències a congressos. / *Copy and paste the template as many times as necessary, depending on your scientific activity, up to a maximum of 15 papers, 15 patents and 15 congress papers.*

1

<b>Tesis doctorals/Doctoral theses</b>				
Investigador/a membre del grup que l'ha dirigida/Group member researcher directing: Dra M <sup>a</sup> Teresa Pay				
Títol de la tesi/Title: Characterization of atmospheric pollution dynamics in Spain by means of air quality modelling				
Tesi llegida/Thesis read	<input checked="" type="checkbox"/>	Tesi dipositada/Thesis deposited	<input type="checkbox"/>	<input type="checkbox"/>
Nom del doctorand/a/Name of doctorand: Victor Valverde				
Universitat on s'ha llegit la tesi/University where read/due to be read: UNIVERSITAT POLITÈCNICA DE CATALUNYA				
Va ser Cum Laude?/Was the thesis awarded cum laude?	<input type="checkbox"/>	Sí/yes	<input checked="" type="checkbox"/>	No
Va tenir Premi Extraordinari de Doctorat/Did the thesis receive an extraordinary doctorate award?	<input type="checkbox"/>	Sí/yes	<input type="checkbox"/>	No
Va tenir menció internacional ?/Did the thesis have an international doctoral research component?	<input type="checkbox"/>	Sí/yes	<input type="checkbox"/>	No

2

<b>Tesis doctorals/Doctoral theses</b>											
Investigador/a membre del grup que l'ha dirigida/Group member researcher directing: Prof. Francisco Javier Doblás-Reyes											
Títol de la tesi/Title: Calibration and combination of seasonal climate predictions in tropical and extratropical regions											
Tesi llegida/Thesis read		X		Tesi dipositada/Thesis deposited							
Nom del doctorand/a/Name of doctorand: Luis Lage Rodrigues											
Universitat on s'ha llegit la tesi/University where read/due to be read: Universitat de Barcelona											
Va ser Cum Laude?/Was the thesis awarded cum laude?				Sí/yes		x		No			
Va tenir Premi Extraordinari de Doctorat/Did the thesis receive an extraordinary doctorate award?				Sí/yes				No		x	
Va tenir menció internacional ?/Did the thesis have an international doctoral research component?				Sí/yes				No		x	

3

<b>Tesis doctorals/Doctoral theses</b>											
Investigador/a membre del grup que l'ha dirigida/Group member researcher directing: Prof. Francisco Javier Doblás-Reyes and Dr Virginie Guemas											
Títol de la tesi/Title: Benefits and drawbacks of different initialization techniques in global dynamical climate predictions											
Tesi llegida/Thesis read		X		Tesi dipositada/Thesis deposited							
Nom del doctorand/a/Name of doctorand: Danila Volpi											
Universitat on s'ha llegit la tesi/University where read/due to be read: University of Reading											
Va ser Cum Laude?/Was the thesis awarded cum laude?				Sí/yes				No		Not applicable	
Va tenir Premi Extraordinari de Doctorat/Did the thesis receive an extraordinary doctorate award?				Sí/yes				No			
Va tenir menció internacional ?/Did the thesis have an international doctoral research component?				Sí/yes				No			

4

<b>Tesis doctorals/Doctoral theses</b>											
Investigador/a membre del grup que l'ha dirigida/Group member researcher directing: Dr Oriol Jorba											
Títol de la tesi/Title: Development and implementation of a fully coupled global aerosol model within the chemical non-hydrostatic multiscale model (NMMB/BSC-CHEM)											
Tesi llegida/Thesis read		X		Tesi dipositada/Thesis deposited							
Nom del doctorand/a/Name of doctorand: Michele Spada											
Universitat on s'ha llegit la tesi/University where read/due to be read: Universitat Politècnica de Catalunya											
Va ser Cum Laude?/Was the thesis awarded cum laude?				Sí/yes		X		No			
Va tenir Premi Extraordinari de Doctorat/Did the thesis receive an extraordinary doctorate award?				Sí/yes				No		X	
Va tenir menció internacional ?/Did the thesis have an international doctoral research component?				Sí/yes				No		C	

5

<b>Tesis doctorals/Doctoral theses</b>									
Investigador/a membre del grup que l'ha dirigida/Group member researcher directing: Dr Oriol Jorba									
Títol de la tesi/Title: Implementation and Development of a gas-phase chemical mechanism within the global/regional atmospheric chemical nonhydrostatic multiscale model (NMMB/BSC-CHEM)									
Tesi llegida/Thesis read		X		Tesi dipositada/Thesis deposited					
Nom del doctorand/a/Name of doctorand: Alba Badia									
Universitat on s'ha llegit la tesi/University where read/due to be read: Universitat Politècnica de Catalunya									

Va ser Cum Laude?:/Was the thesis awarded cum laude?	Sí/yes		No	X
Va tenir Premi Extraordinari de Doctorat/Did the thesis receive an extraordinary doctorate award?	Sí/yes		No	X
Va tenir menció internacional ?/Did the thesis have an international doctoral research component?	Sí/yes	X	No	

1

<b>Ponències a congressos / Papers at congresses</b>				
Membres del grup autors/es (per ordre de signatura)/Group member authors (in signing order): <b>F.J. Doblas-Reyes</b>				
Nom del congrés/Name of congress: XX Jornades de Meteorologia Eduard Fontserè				
Congrés:/Congress:		Nacional/National	X	Internacional/International
Publicació:/Publication: Climate prediction for climate services: How the IPCC got involved in verifying the climate information.				
Tipus de ponència/Type of paper: Oral presentation		Plenària convidada/Plenary guest		Convidada/Guest
Lloc celebració:/Venue: CosmoCaixa, Barcelona		Dates: Dates: November 29th, 2014		
Organisme/institució organitzadora:/Organising body/institution: Universitat de Barcelona				

2

<b>Ponències a congressos / Papers at congresses</b>				
Membres del grup autors/es (per ordre de signatura)/Group member authors (in signing order): <b>Manubens-Gil, D., J. Vegas-Regidor, C. Prodhomme, O.Mula-Valls and F.J. Doblas-Reyes</b>				
Nom del congrés/Name of congress: International Conference on High Performance Computing & Simulation (HPCS)				
Congrés:/Congress:		Nacional/National	X	Internacional/International
Publicació:/Publication: Seamless management of ensemble climate prediction experiments on HPC platforms				
Tipus de ponència/Type of paper: Oral presentation		Plenària convidada/Plenary guest		Convidada/Guest
Lloc celebració:/Venue: Innsbruck, Austria		Dates: Dates: July 18 – 22, 2016		
Organisme/institució organitzadora:/Organising body/institution: IEEE-Institute of Electrical and Electronics Engineers (USA)				

3

<b>Ponències a congressos / Papers at congresses</b>				
Membres del grup autors/es (per ordre de signatura)/Group member authors (in signing order): <b>González-Reviriego, N., R. Marcos, F. J. Doblas-Reyes, V. Torralba, N. Cortesi, D. Y. Lee and A. Soret</b>				
Nom del congrés/Name of congress: European Geophysical Union General Assembly 2017				
Congrés:/Congress:		Nacional/National	X	Internacional/International
Publicació:/Publication: How el Niño can be used to improve wind speed seasonal skill?				
Tipus de ponència/Type of paper: Oral presentation		Plenària convidada/Plenary guest		Convidada/Guest
Lloc celebració:/Venue: Wien, Austria		Dates: Dates: 26 April 2017		
Organisme/institució organitzadora:/Organising body/institution: European Geophysical Union (EGU)				

4

<b>Ponències a congressos / Papers at congresses</b>				
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Membres del grup autors/es (per ordre de signatura)/Group member authors (in signing order): <b>Torralba V., F. J. Doblas-Reyes, I. Christel, L. Lledó, N. Gonzalez-Reviriego, and A. Soret</b>			
Nom del congrés/Name of congress: European Meteorological Society Annual Meeting 2016			
Congrés:/Congress:	Nacional/National	X	Internacional/International
Publicació:/Publication: Tailored seasonal climate predictions for wind energy users			
Tipus de ponència/Type of paper: Oral presentation	Plenària convidada/Plenary guest		Convidada/Guest
Lloc celebració:/Venue: Trieste, Italy		Dates: Dates: 14 September 2016	
Organisme/institució organitzadora:/Organising body/institution: European Meteorological Society (EMS)			

5

<b>Ponències a congressos / Papers at congresses</b>			
Membres del grup autors/es (per ordre de signatura)/Group member authors (in signing order): <b>Christel, I., L. Lledó, V. Torralba, A. Soret, N. Gonzalez-Reviriego and F. J. Doblas-Reyes</b>			
Nom del congrés/Name of congress: European Meteorological Society Annual Meeting 2016			
Congrés:/Congress:	Nacional/National	X	Internacional/International
Publicació:/Publication: The weather roulette: communicating probabilistic predictions for wind			
Tipus de ponència/Type of paper: Oral presentation	Plenària convidada/Plenary guest		Convidada/Guest
Lloc celebració:/Venue: Trieste, Italy		Dates: Dates: 14 September 2016	
Organisme/institució organitzadora:/Organising body/institution: European Meteorological Society (EMS)			

6

<b>Ponències a congressos / Papers at congresses</b>			
Membres del grup autors/es (per ordre de signatura)/Group member authors (in signing order): <b>Soret, A., V. Torralba, M. Davis, F. J. Doblas-Reyes and N. Gonzalez-Reviriego</b>			
Nom del congrés/Name of congress: EWEA Technology Workshop "Resource Assessment 2015"			
Congrés:/Congress:	Nacional/National	X	Internacional/International
Publicació:/Publication: Climate predictions for site selection: a new generation of risk management			
Tipus de ponència/Type of paper: Oral presentation	Plenària convidada/Plenary guest		Convidada/Guest
Lloc celebració:/Venue: Helsinki, Finland		Dates: Dates: 3 June 2015	
Organisme/institució organitzadora:/Organising body/institution: European Wind Energy Association (EWEA)			

7

<b>Ponències a congressos / Papers at congresses</b>			
Membres del grup autors/es (per ordre de signatura)/Group member authors (in signing order): <b>Obiso, V., Pandolfi, M., Ealo, M. and Jorba, O.</b>			
Nom del congrés/Name of congress: 35th International Technical Meeting on Air Pollution Modelling and its Application			
Congrés:/Congress:	Nacional/National	X	Internacional/International
Publicació:/Publication:????			
Tipus de ponència/Type of paper: Oral presentation	Plenària convidada/Plenary guest		Convidada/Guest

Lloc celebració:/Venue: Crete, Greece	Dates: Dates: 3-7 Octubre 2016
Organisme/institució organitzadora:/Organising body/institution: VITO - Environmental Modelling Department	

8

<b>Ponències a congressos / Papers at congresses</b>	
Membres del grup autors/es (per ordre de signatura)/Group member authors (in signing order): <b>Di Tomaso, E.</b> , Schutgens, N., <b>Jorba, O.</b> , and Markomanolis, G.S.	
Nom del congrés/Name of congress: 2014 EUMETSAT Meteorological Satellite Conference	
Congrés:/Congress:	Nacional/National <input type="checkbox"/> Internacional/International <input checked="" type="checkbox"/>
Publicació:/Publication: Data assimilation enhancement of a chemical transport model: a dust forecast application	
Tipus de ponència/Type of paper:	Plenària convidada/Plenary guest <input type="checkbox"/> Convidada/Guest <input type="checkbox"/>
Lloc celebració:/Venue: Geneva, Switzerland	Dates: Dates: 22-26 September 2014
Organisme/institució organitzadora:/Organising body/institution: European Organisation for the Exploitation of Meteorological	

9

<b>Ponències a congressos / Papers at congresses</b>	
Membres del grup autors/es (per ordre de signatura)/Group member authors (in signing order): <b>Di Tomaso, E.</b> , Schutgens, N., <b>Jorba, O.</b> , and Markomanolis, G.S.	
Nom del congrés/Name of congress: The World Weather Open Science Conference	
Congrés:/Congress:	Nacional/National <input type="checkbox"/> Internacional/International <input checked="" type="checkbox"/>
Publicació:/Publication: Enhancing the Barcelona Supercomputing Center chemical transport model with aerosol data assimilation	
Tipus de ponència/Type of paper: Ora presentationl	Plenària convidada/Plenary guest <input type="checkbox"/> Convidada/Guest <input type="checkbox"/>
Lloc celebració:/Venue: Montreal, Canada	Dates: Dates: 16-21 August 2014
Organisme/institució organitzadora:/Organising body/institution: World Meteorological Organization	

10

<b>Ponències a congressos / Papers at congresses</b>	
Membres del grup autors/es (per ordre de signatura)/Group member authors (in signing order): <b>Guevara, M.</b> , <b>Soret, A.</b> , Martínez, F., Baldasano, J.M.	
Nom del congrés/Name of congress: The Global Emissions Initiative (GEIA) Conference	
Congrés:/Congress:	Nacional/National <input type="checkbox"/> Internacional/International <input checked="" type="checkbox"/>
Publicació:/Publication: Modelling and implementation of fugitive dust emissions caused by wind erosion and agricultural activities	
Tipus de ponència/Type of paper: Oral presentation	Plenària convidada/Plenary guest <input type="checkbox"/> Convidada/Guest <input type="checkbox"/>
Lloc celebració:/Venue: Boulder, Colorado, USA	Dates: Dates: 10-11 June 2014
Organisme/institució organitzadora:/Organising body/institution: World Meteorological Organization	

11

<b>Ponències a congressos / Papers at congresses</b>	
Membres del grup autors/es (per ordre de signatura)/Group member authors (in signing order): <b>Basart, S.</b> , F. Dulac, J.M. Baldasano, P. Nabat, M. Mallet, F. Solmon, B. Laurent, J. Vincent, L. Menut, L. El Amraoui, B. Sic, J.-P. Chaboureau, J.-	

F. León, K. Schepanski, J.-B. Renardj, F. Ravetta, J. Pelon, C. Di Biagio, P. Formenti, I. Chiapello, J.-L. Roujean, X. Ceamanos, D. Carrer, M. Sicard, H. Delbarre, G. Roberts, W. Junkerman, and J.-L. Attié			
Nom del congrés/ <i>Name of congress</i> : AGU Fall Meeting 2014			
Congrés/ <i>Congress</i> :	Nacional/ <i>National</i>	X	Internacional/ <i>International</i>
Publicació/ <i>Publication</i> : Dust Model Intercomparison and Extensive Comparison to Observations in the Western Mediterranean for the Summer 2012 Pre-ChArMEx/TRAQA Campaign			
Tipus de ponència/ <i>Type of paper</i> :	Plenària convidada/ <i>Plenary guest</i>	Convidada/ <i>Guest</i>	
Lloc celebració/ <i>Venue</i> : San Francisco, United States	Dates: <i>Dates</i> : 15-19 December 2014		
Organisme/institució organitzadora/ <i>Organising body/institution</i> : American Geosciences Union			

12

<b>Ponències a congressos / Papers at congresses</b>			
Membres del grup autors/es (per ordre de signatura)/ <i>Group member authors (in signing order)</i> : <b>Basart, S.</b> , Terradellas, E., Cuevas, E., <b>Jorba, O.</b> , <b>Benincasa, F.</b> , & Baldasano, J. M.			
Nom del congrés/ <i>Name of congress</i> : EGU General Assembly 2014			
Congrés/ <i>Congress</i> :	Nacional/ <i>National</i>	X	Internacional/ <i>International</i>
Publicació/ <i>Publication</i> : The Barcelona Dust Forecast Center: The first WMO regional meteorological center specialized on atmospheric sand and dust forecast			
Tipus de ponència/ <i>Type of paper</i> : Oral presentation	Plenària convidada/ <i>Plenary guest</i>	Convidada/ <i>Guest</i>	
Lloc celebració/ <i>Venue</i> : Vienna, Austria	Dates: <i>Dates</i> : 27 April - 2 May 2014		
Organisme/institució organitzadora/ <i>Organising body/institution</i> : European Geosciences Union			

13

<b>Ponències a congressos / Papers at congresses</b>			
Membres del grup autors/es (per ordre de signatura)/ <i>Group member authors (in signing order)</i> : <b>Basart, S.</b> ; Terradellas, E.; <b>Benincasa, F.</b> ; <b>Serradell, K.</b> ; Cuevas, E., Baldasano, J.M.			
Nom del congrés/ <i>Name of congress</i> : European Aerosol Conference			
Congrés/ <i>Congress</i> :	Nacional/ <i>National</i>	X	Internacional/ <i>International</i>
Publicació/ <i>Publication</i> : The WMO SDS-WAS Regional Center Northern Africa, Middle East and Europe: Different approaches to dust forecast evaluation			
Tipus de ponència/ <i>Type of paper</i> : Oral presentation	Plenària convidada/ <i>Plenary guest</i>	Convidada/ <i>Guest</i>	
Lloc celebració/ <i>Venue</i> : Milan, Italy	Dates: <i>Dates</i> : 6-11 September 2015		
Organisme/institució organitzadora/ <i>Organising body/institution</i> : EEA and EAC			

14

<b>Ponències a congressos / Papers at congresses</b>			
Membres del grup autors/es (per ordre de signatura)/ <i>Group member authors (in signing order)</i> : <b>Basart, S.</b> , <b>O. Jorba, C.</b> , <b>Pérez García-Pando, C.</b> , Prigent, J.M. Baldasano			
Nom del congrés/ <i>Name of congress</i> : International Conference on Atmospheric Dust			
Congrés/ <i>Congress</i> :	Nacional/ <i>National</i>	X	Internacional/ <i>International</i>
Publicació/ <i>Publication</i> : Modelling mineral dust emissions over North africa and Middle East using a new satellite surface			
Tipus de ponència/ <i>Type of paper</i> :	Plenària convidada/ <i>Plenary guest</i>	Convidada/ <i>Guest</i>	



Oral presentation				
Lloc celebració:/Venue: Castellaneta Marina, Italy	Dates: Dates: 1-6 June 2014			
Organisme/institució organitzadora:/Organising body/institution: Italian Association for the Study of Clays (AISA) and Institute of Methodologies for environmental Analysis (IMAA)				

15

<b>Ponències a congressos / Papers at congresses</b>				
Membres del grup autors/es (per ordre de signatura)/Group member authors (in signing order): <b>Basart, S.</b> , G. García-Castrillo, E. Cuevas and E. Terradellas				
Nom del congrés/Name of congress: 8th International Workshop on Sand/Duststorms and Associated Dustfall (DUSTworkshop8)				
Congrés:/Congress:	Nacional/National	X	Internacional/International	
Publicació:/Publication: WMO SDS-WAS: Towards continuous evaluation of dust models over Northern Africa				
Tipus de ponència/Type of paper: Oral presentation	Plenària convidada/Plenary guest		Convidada/Guest	
Lloc celebració:/Venue: Lisbon, Portugal.	Dates: Dates: 1-4 May 2016			
Organisme/institució organitzadora:/Organising body/institution: Centro de Ciências e Tecnologias Nucleares (C2TN) from Instituto Superior Técnico and by Centre for Environmental and Marine Studies (CESAM) from University of Aveiro				

<b>Patents/Patents - N/A</b>		
Inventors/es (per ordre de signatura)/Inventors (in signing order):		
Títol/Title:		
Núm. de sol·licitud/Application no.:	País de prioritat/Priority country:	Data de prioritat:Priority date:
Any de la concessió/Year granted:		
Entitat titular/Patent holding body:		
Països als que s'ha estès/Countries to which it has been extended:		
Empreses que l'exploten/Companies exploiting it:		

## B) Captació de recursos per part del grup

### Resource acquisition by the group

Detalleu, seguint el format proposat, els 10 projectes de recerca competitiu més destacats. Detalleu, també, els 10 contractes o convenis no competitiu més destacats aconseguits pel grup amb empreses o administracions. Podeu incloure els projectes i els contractes o els convenis aconseguits pels membres del grup durant el període comprès entre l'1 de gener de 2014 fins a la data de presentació d'aquesta sol·licitud, o bé que estiguin vigents (amb independència de quan s'han aconseguit) / Using the proposed format, list the 10 most noteworthy competitive research projects. List also the 10 most noteworthy non-competitive contracts or agreements with companies or government agencies. You may include projects or contracts/agreements acquired by group members between 1 January 2014 and the date on which this application is made, or that are currently in force (regardless of when they were acquired).

#### Nota:

Copieu i enganxeu el model proposat tantes vegades com us siguin necessàries fins a un màxim de 10 projectes i 10 contractes / Copy and paste the template as many times as necessary up to a maximum of 10 projects and 10 contracts/agreements.

1

<b>Projectes R+D competitiu / Competitive R&amp;D projects</b>
Títol del projecte:/Title of project: PREFACE-Enhancing prediction of tropical Atlantic climate and its impacts
Nom i cognoms de l'Investigador/a principal:/Name and surname(s) of principal investigator: Virginie Guemas
És investigador/a principal d'aquest projecte membre del grup? / Is the principal investigator a member of the group? Sí/yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Nom de l'entitat finançadora:/Name of funding body: European Commission-FP7 Programme Altres entitats participants:/Other participating bodies: Universitetet I Bergen Kobenhavns Universitet Centre Europeen De Recherche Et De Formation Avancee En Calcul Scientifique Cerfac Institut De Recherche Pour Le Developpement Ird Meteo-France Mf-Cnrm Universite Pierre Et Marie Curie Helmholtz Zentrum Fur Ozeanforschung Kiel Geomar Institut Fuer Ostseeforschung Warnemuende An Der Universitaet Rostock Iow Johann Heinrich Von Thuenen-Institut, Bundesforschungsinstitut Fuer Laendliche Raeume, Wald Und Fischereiti Christian-Albrechts-Universitaet Zu Kiel Universita Ca' Foscari Venezia Wageningen University Havforskninginstituttet Imr Norway Uni Research As Fundacio Institut Catala De Ciencies Del Clima IC3 Universidad Complutense De Madrid The University Of Reading Instituto Nacional De Investigacao Pesqueira Ministry Of Fisheries And Marine Resources University Of Cape Town Instituto Nacional De Desenvolvimento Das Pescas Institut National De Recherche Halieutique Inrh Institut Senegalais De Recherches Agricoles Universite Cheikh Anta Diop De Dakar

Universite D'abomey-Calavi Centre De Recherches Oceanologiques University Of Nigeria Universite Libre De Bruxelles	
Referència del projecte/ <i>Project reference:</i> 603521 Quantia atorgada/ <i>Amount awarded:</i> 266.569€ (total project funding 8.999.433€) Data inici:/ <i>Start date:</i> 01/11/2013 Data finalització:/ <i>End date:</i> 30/04/2018	Nre. <u>total d'investigadors/res</u> participants en aquest projecte/ <i>Total no. of researchers taking part in the project:</i> 125 Nre. <u>d'investigadors/res membres del grup</u> participants en aquest projecte (inclòs l'IP)/ <i>No. of group member researchers taking part in the project (including PI):</i> 6

2

<b>Projectes R+D competitiu / Competitive R&amp;D projects</b>	
Títol del projecte/ <i>Title of project:</i> PRIMAVERA-PRocess-based climate sIMulation: AdVances in high resolution modelling and European climate Risk Assessment Nom i cognoms de l'Investigador/a principal/ <i>Name and surname(s) of principal investigator:</i> Francisco J. Doblas-Reyes	
¿Es investigador/a principal d'aquest projecte membre del grup? / <i>Is the principal investigator a member of the group?</i> Sí/yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Nom de l'entitat financadora/ <i>Name of funding body:</i> European Commission-H2020 Programme Altres entitats participants/ <i>Other participating bodies:</i> MetOffice University of Reading Koninklijk Nederlands Meteorologisch Instituut Sveriges Meteorologiska Och Hydrologiska Institut Centre Europeen de Recherche et de Formation Avancee en Calcul Scientifique Max Planck Gesellschaft zur Foerderung der Wissenschaften E.V. Université catholique de Louvain Centro Euro-Mediterraneo sui Cambiamenti Climatici S.c.a.r.l Alfred-Wegener-Institut, Helmholtz-Zentrum für Polar- und Meeresforschung The Chancellor, Masters and Scholars of the University of Oxford Consiglio Nazionale delle Ricerche European Centre for Medium-Range Weather Forecasts Natural Environment Research Council University of Leeds Stockholms Universitet Science and Technology Facilities Council Predictia Intelligent Data Solutions SL	
Referència del projecte/ <i>Project reference:</i> 641727 Quantia atorgada/ <i>Amount awarded:</i> 1.277.425€ (total project funding 11.000.000€) Data inici:/ <i>Start date:</i> 01/11/2015 Data finalització:/ <i>End date:</i> 31/10/2019	Nre. <u>total d'investigadors/res</u> participants en aquest projecte/ <i>Total no. of researchers taking part in the project:</i> 160 Nre. <u>d'investigadors/res membres del grup</u> participants en aquest projecte (inclòs l'IP)/ <i>No. of group member researchers taking part in the project (including PI):</i> 20

3

<b>Projectes R+D competitiu / Competitive R&amp;D projects</b>	
Títol del projecte/ <i>Title of project:</i> IMPREX-IMproving PRedictions and management of hydrological EXtremes Nom i cognoms de l'Investigador/a principal/ <i>Name and surname(s) of principal investigator:</i> Virginie Guemas	
¿Es investigador/a principal d'aquest projecte membre del grup? / <i>Is the principal investigator a member of the group?</i> Sí/yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

<p>Nom de l'entitat finançadora:/Name of funding body: European Commission-H2020 Programme</p> <p>Altres entitats participants:/Other participating bodies:</p> <p>Royal Netherlands Meteorological Institute</p> <p>European Centre for Medium-range Weather forecasting</p> <p>Swedish Meteorological and Hydrological Institute</p> <p>National research institute of science and technology for environment and agriculture</p> <p>Potsdam Institute for Climate Impact Research</p> <p>ARCTIK European Affairs and Public Relations</p> <p>MetOffice-United Kingdom Meteorological Service</p> <p>Technical University of Crete</p> <p>University of Reading</p> <p>Helmholtz Zentrum Geesthacht – Climate Service Centre</p> <p>Deltares Stichting Deltares</p> <p>Institute for Environmental Research</p> <p>adelphi research GmbH</p> <p>HKV – Lijn in Water</p> <p>Future Water</p> <p>CETaqua Water Technology Centre</p> <p>Politechnical University of Valencia</p> <p>Politechnical University of Milan</p> <p>CIMA Environmental Research Foundation</p> <p>German Helmholtz Research Centre for Geosciences</p> <p>Federal Institute of Hydrology</p> <p>Water Footprint Network</p>	
<p>Referència del projecte/Project reference: 641811</p> <p>Quantia atorgada/Amount awarded: 240.000€ (total funding 7.996.850€)</p> <p>Data inici:/Start date: 01/10/2015</p> <p>Data finalització:/End date: 30/09/2019</p>	<p>Nre. <u>total d'investigadors/res</u> participants en aquest projecte/Total no. of researchers taking part in the project: 105</p> <p>Nre. <u>d'investigadors/res membres del grup</u> participants en aquest projecte (inclòs l'IP)/No. of group member researchers taking part in the project (including PI): 8</p>

4

<p><b>Projectes R+D competitiu / Competitive R&amp;D projects</b></p>	
<p>Títol del projecte:/Title of project: APPLICATE - Advanced Prediction in Polar regions and beyond: Modelling, observing system design and Linkages associated with ArctiC ClimATE change</p> <p>Nom i cognoms de l'Investigador/a principal:/Name and surname(s) of principal investigator: Virginie Guemas</p>	
<p>És investigador/a principal d'aquest projecte membre del grup? / Is the principal investigator a member of the group?</p> <p>Sí/yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>	
<p>Nom de l'entitat finançadora:/Name of funding body: European Commission- H2020 Programme</p> <p>Altres entitats participants:/Other participating bodies:</p> <p>Alfred-Wegener-Institut, Helmholtz - Zentrum für Polar und Meeresforschung Germany</p> <p>European Centre for Medium - Range Weather Forecasts</p> <p>Universitetet I Bergen</p> <p>Uni Research AS</p> <p>Meteorologisk Institutt Norway</p> <p>Met Office</p> <p>Université Catholique de Louvain</p> <p>The University of Reading</p> <p>Stockholms Universitet</p> <p>Centre National de la Recherche Scientifique</p> <p>Centre Europeen de Recherche et de Formation Avancee en Calcul Scientifique</p>	

Nordurslodagattin EHF – Arctic Portal Universitetet i Tromsø P.P.Shirshov Institute of Oceanology, Russian Academy of Sciences Voeikov Main Geophysical Observatory	
Referència del projecte/ <i>Project reference:</i> 727862 Quantia atorgada/ <i>Amount awarded:</i> 677.375€ (total project funding 7.999.591,25€) Data inici:/ <i>Start date:</i> 01/11/2016 Data finalització:/ <i>End date:</i> 31/10/2020	Nre. <u>total d'investigadors/res</u> participants en aquest projecte/ <i>Total no. of researchers taking part in the project:</i> 65 Nre. <u>d'investigadors/res membres del grup</u> participants en aquest projecte (inclòs l'IP)/ <i>No. of group member researchers taking part in the project (including PI):</i> 9

5

<b>Projectes R+D competitiu / Competitive R&amp;D projects</b>	
Títol del projecte:/ <i>Title of project:</i> VISCA - Vineyards' Integrated Smart Climate Application Nom i cognoms de l'Investigador/a principal:/ <i>Name and surname(s) of principal investigator:</i> Albert Soret	
És investigador/a principal d'aquest projecte membre del grup? / <i>Is the principal investigator a member of the group?</i> Sí/yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Nom de l'entitat finançadora:/ <i>Name of funding body:</i> European Commission - H2020 Programme Altres entitats participants:/ <i>Other participating bodies:</i> METEOSIM S.L. Codorniu S.A Institut de Recerca i Tecnologia Agroalimentàries Istituto Superiore Mario Boella sulle Tecnologie dell'Informazione e delle Telecomunicazioni Università Degli Studi Di Napoli Federico II Mastroberardino spa Symington - Vinhos S.A. Universidad do Oporto Unite Technique du Semide Geie Alpha Consultant	
Referència del projecte/ <i>Project reference:</i> 730253 Quantia atorgada/ <i>Amount awarded:</i> 295.000€ (total project funding 2.793.145€) Data inici:/ <i>Start date:</i> 01/05/2017 Data finalització:/ <i>End date:</i> 30/04/2020	Nre. <u>total d'investigadors/res</u> participants en aquest projecte/ <i>Total no. of researchers taking part in the project:</i> 45 Nre. <u>d'investigadors/res membres del grup</u> participants en aquest projecte (inclòs l'IP)/ <i>No. of group member researchers taking part in the project (including PI):</i> 5

6

<b>Projectes R+D competitiu / Competitive R&amp;D projects</b>	
Títol del projecte:/ <i>Title of project:</i> Climateurope-European Climate Observations, Modelling and Services Nom i cognoms de l'Investigador/a principal:/ <i>Name and surname(s) of principal investigator:</i> Francisco J. Doblás-Reyes	
És investigador/a principal d'aquest projecte membre del grup? / <i>Is the principal investigator a member of the group?</i> Sí/yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Nom de l'entitat finançadora:/ <i>Name of funding body:</i> European Commission-H2020 Programme Altres entitats participants:/ <i>Other participating bodies:</i> Met Office Agence Nationale De La Recherche Centro Euro-Mediterraneo sui Cambiamenti Climatici S.c.a.r.l Climate-KIC (UK) Limited European Centre for Medium-Range Weather Forecasts	

Helmholtz-Zentrum Geesthacht Zentrum Für Material- Und Küstenforschung GmbH Centre National de la Recherche Scientifique Koninklijk Nederlands Meteorologisch Instituut-KNMI Republički Hidrometeorološki Zavod Srbije Sveriges Meteorologiska Och Hydrologiska Institut	
Referència del projecte/ <i>Project reference:</i> 689029 Quantia atorgada/ <i>Amount awarded:</i> 295.000€ (total project funding 2.994.372,50€) Data inici:/ <i>Start date:</i> 01/12/2015 Data finalització:/ <i>End date:</i> 30/11/2020	Nre. <u>total d'investigadors/res</u> participants en aquest projecte/ <i>Total no. of researchers taking part in the project:</i> 40 Nre. <u>d'investigadors/res membres del grup</u> participants en aquest projecte (inclòs l'IP)/ <i>No. of group member researchers taking part in the project (including PI):</i> 4

7

<b>Projectes R+D competitiu / Competitive R&amp;D projects</b>	
Títol del projecte:/ <i>Title of project:</i> ESiWACE-Centre of Excellence in Simulation of Weather and Climate in Europe Nom i cognoms de l'Investigador/a principal:/ <i>Name and surname(s) of principal investigator:</i> Kim Serradell	
És investigador/a principal d'aquest projecte membre del grup? / <i>Is the principal investigator a member of the group?</i> Sí/yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Nom de l'entitat finançadora:/ <i>Name of funding body:</i> European Commission-H2020 Programme Altres entitats participants:/ <i>Other participating bodies:</i> Deutsches Klimarenchenzentrum GmbH European Center for Medio-Range Weather Forecasts Centre National de la Recherche Scientifique Max Planck-Institut für Meteorologie Science and Technology Facilities Council MetOffice The University of Reading Sveriges Meteorologiska och Hydrologiska Institut National University of Galway (Irish Center for High End Computing) Centro Europeo-Mediterraneo sui Cambiamenti Climatici scrl Deutscher Wetterdienst Deagate Systems UK Limited BULL SAS Alinea Software Limited	
Referència del projecte/ <i>Project reference:</i> 675191 Quantia atorgada/ <i>Amount awarded:</i> 269.750€ (total project funding 4.951.050€) Data inici:/ <i>Start date:</i> 01/09/2015 Data finalització:/ <i>End date:</i> 31/08/2019	Nre. <u>total d'investigadors/res</u> participants en aquest projecte/ <i>Total no. of researchers taking part in the project:</i> 32 Nre. <u>d'investigadors/res membres del grup</u> participants en aquest projecte (inclòs l'IP)/ <i>No. of group member researchers taking part in the project (including PI):</i> 3

8

<b>Projectes R+D competitiu / Competitive R&amp;D projects</b>	
Títol del projecte:/ <i>Title of project:</i> PAISA-Photochemical modelling to attribute emission sources and source regions to high particulate matter concentration in urban areas in Spain Nom i cognoms de l'Investigador/a principal:/ <i>Name and surname(s) of principal investigator:</i> M <sup>a</sup> Teresa Pay	
És investigador/a principal d'aquest projecte membre del grup? / <i>Is the principal investigator a member of the group?</i> Sí/yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Nom de l'entitat finançadora:/ <i>Name of funding body:</i> Ministerio de Economía y Competitividad (MINECO)	



Altres entitats participants:/Other participating bodies: n/a	
Referència del projecte/Project reference: CGL2016-75725-R Quantia atorgada/Amount awarded: 118.580€ Data inici:/Start date: 30/12/2016 Data finalització:/End date: 29/12/2019	Nre. <u>total d'investigadors/res</u> participants en aquest projecte/Total no. of researchers taking part in the project: 4 Nre. <u>d'investigadors/res membres del grup</u> participants en aquest projecte (inclòs l'IP)/No. of group member researchers taking part in the project (including PI): 4

9

<b>Projectes R+D competitiu / Competitive R&amp;D projects</b>	
Títol del projecte:/Title of project: VOLCADEC-Volcanic activity in seasonal to decadal climate forecasts Nom i cognoms de l'Investigador/a principal:/Name and surname(s) of principal investigator: Martin Menegoz	
És investigador/a principal d'aquest projecte membre del grup? / Is the principal investigator a member of the group? Sí/yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Nom de l'entitat financadora:/Name of funding body: Ministerio de Economía y Competitividad (MINECO) Altres entitats participants:/Other participating bodies: n/a	
Referència del projecte/Project reference: CGL2015-70177-R Quantia atorgada/Amount awarded: 168.190€ Data inici:/Start date: 01/01/2016 Data finalització:/End date: 31/12/2018	Nre. <u>total d'investigadors/res</u> participants en aquest projecte/Total no. of researchers taking part in the project: 4 Nre. <u>d'investigadors/res membres del grup</u> participants en aquest projecte (inclòs l'IP)/No. of group member researchers taking part in the project (including PI): 4

10

<b>Projectes R+D competitiu / Competitive R&amp;D projects</b>	
Títol del projecte:/Title of project: AXA Chair in Sands and Dust Storms Nom i cognoms de l'Investigador/a principal:/Name and surname(s) of principal investigator: Carlo Pérez García-Pando	
És investigador/a principal d'aquest projecte membre del grup? / Is the principal investigator a member of the group? Sí/yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Nom de l'entitat financadora:/Name of funding body: AXA Research Funds Altres entitats participants:/Other participating bodies: n/a	
Referència del projecte/Project reference: n/a Quantia atorgada/Amount awarded: 1.587.906,57€ Data inici:/Start date: 01/10/2016 Data finalització:/End date: 30/09/2031	Nre. <u>total d'investigadors/res</u> participants en aquest projecte/Total no. of researchers taking part in the project: 6 Nre. <u>d'investigadors/res membres del grup</u> participants en aquest projecte (inclòs l'IP)/No. of group member researchers taking part in the project (including PI): 6

1

<b>Contractes/Convenis no competitiu / Non-competitive contracts/agreements</b>	
Títol del projecte:/Title of project: QA4Seas - Quality Assessment Strategies for Multi-model Seasonal Forecast Nom i cognoms de l'Investigador/a principal:/Name and surname(s) of principal investigator: Francisco J- Doblas-Reyes	
És l'investigador/a principal d'aquest conveni membre del grup? / Is the principal investigator a member of the group? Sí/yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Nom de l'entitat financadora:/Name of funding body: European Centre for Medium-Range Weather Forecasts (ECMWF) - COPERNICUS Programme Altres entitats participants:/Other participating bodies:	

Federal Office of Meteorology and Climatology MeteoSwiss Predictia Intelligent Data Solutions S.L. University of Exeter Consulting Ltd The University of Leeds Agencia Estatal Consejo Superior de Investigaciones Cientificas (CSIC)-Instituto de Física de Cantabria (IFCA)	
Referència del projecte/ <i>Project reference:</i> C3S 51 Lot3 Quantia atorgada/ <i>Amount awarded:</i> 731.214,40€ (Total contract budget: 1.681.760.13€) Data inici:/ <i>Start date:</i> 01/07/2016 Data finalització:/ <i>End date:</i> 30/09/2018	Nre. <u>total d'investigadors/res</u> participants en aquest projecte/ <i>Total no. of researchers taking part in the project:</i> 20 Nre. <u>d'investigadors/res membres del grup</u> participants en aquest projecte (inclòs l'IP)/ <i>No. of group member researchers taking part in the project (including PI):</i> 6

2

<b>Contractes/Convenis no competitiu / Non-competitive contracts/agreements</b>	
Títol del projecte/ <i>Title of project:</i> CAMS 84 - Global and regional a posteriori validation, including focus on the Arctic and Mediterranean areas Nom i cognoms de l'Investigador/a principal/ <i>Name and surname(s) of principal investigator:</i> Sara Basart	
És l'investigador/a principal d'aquest conveni membre del grup?/ <i>Is the principal investigator a member of the group?</i> Sí/yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Nom de l'entitat finançadora/ <i>Name of funding body:</i> European Centre for Medium-Range Weather Forecasts (ECMWF) - COPERNICUS Programme Altres entitats participants/ <i>Other participating bodies:</i> Royal Netherlands Meteorological Institute Academy of Athens Aarhus University Aristotle University of Thessaloniki Institut d'Aéronomie spatiale de Belgique Laboratoire des Sciences du Climat et de l'Environnement Centre National de la Recherche Scientifique et Université Paul Sabatier – Laboratoire d'Aérodynamique Deutscher Wetterdienst - Hohenpeissenberg Meteorological Observatory Institute of Environmental Physics, University of Bremen Norwegian Meteorological Institute Max Planck Institute for Meteorology Science and Technology Uni Bremen Campus GmbH	
Referència del projecte/ <i>Project reference:</i> CAMS 84 Quantia atorgada/ <i>Amount awarded:</i> 176.000€ (total contract budget 2.825.000€) Data inici:/ <i>Start date:</i> 01/10/2015 Data finalització:/ <i>End date:</i> 30/09/2018	Nre. <u>total d'investigadors/res</u> participants en aquest projecte/ <i>Total no. of researchers taking part in the project:</i> 45 Nre. <u>d'investigadors/res membres del grup</u> participants en aquest projecte (inclòs l'IP)/ <i>No. of group member researchers taking part in the project (including PI):</i> 5

3

<b>Contractes/Convenis no competitiu / Non-competitive contracts/agreements</b>	
Títol del projecte/ <i>Title of project:</i> Seasonal Hurricane Activity Outlook Nom i cognoms de l'Investigador/a principal/ <i>Name and surname(s) of principal investigator:</i> Louis Philippe Caron	
És l'investigador/a principal d'aquest conveni membre del grup?/ <i>Is the principal investigator a member of the group?</i> Sí/yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Nom de l'entitat finançadora/ <i>Name of funding body:</i> XL Service UK Limited	

Referència del projecte/ <i>Project reference:</i> N/A Quantia atorgada/ <i>Amount awarded:</i> 50.231€ Data inici:/ <i>Start date:</i> 01/06/2016 Data finalització/ <i>End date:</i> 31/05/2019	Nre. <u>total d'investigadors/res</u> participants en aquest projecte/ <i>Total no. of researchers taking part in the project:</i> 3 Nre. <u>d'investigadors/res membres del grup</u> participants en aquest projecte (inclòs l'IP)/ <i>No. of group member researchers taking part in the project (including PI):</i> 3
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4

<b>Contractes/Convenis no competitiu / Non-competitive contracts/agreements</b>	
Títol del projecte/ <i>Title of project:</i> CLIM4ENERGY - Climate for Energy Nom i cognoms de l'Investigador/a principal/ <i>Name and surname(s) of principal investigator:</i> Albert Soret	
És l'investigador/a principal d'aquest conveni membre del grup?/ <i>Is the principal investigator a member of the group?</i> Sí/yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Nom de l'entitat financadora/ <i>Name of funding body:</i> European Centre for Medium-Range Weather Forecasts (ECMWF) - COPERNICUS Programme Altres entitats participants/ <i>Other participating bodies:</i> Commissariat à l'énergie atomique et aux énergies alternatives Finnish Meteorological Institute Météo-France Sveriges Meteorologiska Och Hydrologiska Institut The Climate Service Center 2.0 MetOffice	
Referència del projecte/ <i>Project reference:</i> C3S 441 Lot2 Quantia atorgada/ <i>Amount awarded:</i> 182.000€ (total contract budget 1.599.399,52€) Data inici:/ <i>Start date:</i> 01/01/2016 Data finalització/ <i>End date:</i> 31/03/2018	Nre. <u>total d'investigadors/res</u> participants en aquest projecte/ <i>Total no. of researchers taking part in the project:</i> 31 Nre. <u>d'investigadors/res membres del grup</u> participants en aquest projecte (inclòs l'IP)/ <i>No. of group member researchers taking part in the project (including PI):</i> 4

5

<b>Contractes/Convenis no competitiu / Non-competitive contracts/agreements</b>	
Títol del projecte/ <i>Title of project:</i> SECTEUR - Sector Engagement for C3S, Translating European User Requirements Nom i cognoms de l'Investigador/a principal/ <i>Name and surname(s) of principal investigator:</i> Louis Philippe Caron	
És l'investigador/a principal d'aquest conveni membre del grup?/ <i>Is the principal investigator a member of the group?</i> Sí/yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Nom de l'entitat financadora/ <i>Name of funding body:</i> ECMWF - COPERNICUS Programme Altres entitats participants/ <i>Other participating bodies:</i> The University of Reading Alterra Centro Euro-Mediterraneo sui Cambiamenti Climatici Helmholtz-Zentrum Geesthacht Institut Català de Ciències del Clima Met Office TEC Conseil Tecnalia Telespazio VEGA UK University of Leeds	

Referència del projecte/ <i>Project reference:</i> C3S 52 Lot2 Quantia atorgada/ <i>Amount awarded:</i> 124.966,75€ (total contract budget 1.200.000€) Data inici:/ <i>Start date:</i> 01/05/2016 Data finalització:/ <i>End date:</i> 31/07/2017	Nre. <u>total d'investigadors/res</u> participants en aquest projecte/ <i>Total no. of researchers taking part in the project:</i> 23 Nre. <u>d'investigadors/res membres del grup</u> participants en aquest projecte (inclòs l'IP)/ <i>No. of group member researchers taking part in the project (including PI):</i> 5
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6

<b>Contractes/Convenis no competitiu / Non-competitive contracts/agreements</b>	
Títol del projecte/ <i>Title of project:</i> MAGIC - Global Climate Projections: Data Access, product generation and impact of front-line developments Nom i cognoms de l'Investigador/a principal/ <i>Name and surname(s) of principal investigator:</i> Virginie Guemas	
És l'investigador/a principal d'aquest conveni membre del grup?/ <i>Is the principal investigator a member of the group?</i> Sí/yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Nom de l'entitat financadora/ <i>Name of funding body:</i> European Centre for Medium-Range Weather Forecasts (ECMWF) - COPERNICUS Programme Altres entitats participants/ <i>Other participating bodies:</i> The Royal Netherlands Meteorological Institute Deutsches Zentrum für Luft- und Raumfahrt Institute of Atmospheric Sciences and Climate Netherlands e-Science Center Sveriges Meteorologiska Och Hydrologiska Institut the University of Reading	
Referència del projecte/ <i>Project reference:</i> C3S 34A Lot2 Quantia atorgada/ <i>Amount awarded:</i> 170.000€ (total contract budget 1.140.000€) Data inici:/ <i>Start date:</i> 01/10/2016 Data finalització:/ <i>End date:</i> 31/03/2017	Nre. <u>total d'investigadors/res</u> participants en aquest projecte/ <i>Total no. of researchers taking part in the project:</i> 32 Nre. <u>d'investigadors/res membres del grup</u> participants en aquest projecte (inclòs l'IP)/ <i>No. of group member researchers taking part in the project (including PI):</i> 8

7

<b>Contractes/Convenis no competitiu / Non-competitive contracts/agreements</b>	
Títol del projecte/ <i>Title of project:</i> Centro Regional 'àrea el Norte de África, Oriente Próximo y Europa del Sistema de Ecaluación y aviso de tormentas de polvo y arena de la OMM Nom i cognoms de l'Investigador/a principal/ <i>Name and surname(s) of principal investigator:</i> Francisco J. Doblas-reyes	
És l'investigador/a principal d'aquest conveni membre del grup?/ <i>Is the principal investigator a member of the group?</i> Sí/yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Nom de l'entitat financadora/ <i>Name of funding body:</i> AEMET Altres entitats participants/ <i>Other participating bodies:</i> N/A	
Referència del projecte/ <i>Project reference:</i> n/a Quantia atorgada/ <i>Amount awarded:</i> 109.953,72€ Data inici:/ <i>Start date:</i> 02/05/2016 Data finalització:/ <i>End date:</i> 01/05/2018	Nre. <u>total d'investigadors/res</u> participants en aquest projecte/ <i>Total no. of researchers taking part in the project:</i> 3 Nre. <u>d'investigadors/res membres del grup</u> participants en aquest projecte (inclòs l'IP)/ <i>No. of group member researchers taking part in the project (including PI):</i> 3

8

<b>Contractes/Convenis no competitiu / Non-competitive contracts/agreements</b>	
Títol del projecte/ <i>Title of project:</i> Dust forecast service contract Nom i cognoms de l'Investigador/a principal/ <i>Name and surname(s) of principal investigator:</i> Sara Basart	

És l'investigador/a principal d'aquest conveni membre del grup? / <i>Is the principal investigator a member of the group?</i> Sí/yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Nom de l'entitat finançadora/Name of funding body: Rockwell Collins Flight Services, Inc. Altres entitats participants:/Other participating bodies: N/A	
Referència del projecte/Project reference: n/a Quantia atorgada/Amount awarded: 97.749€ Data inici:/Start date: 01/10/2016 Data finalització:/End date: 30/09/2019	Nre. total d'investigadors/res participants en aquest projecte/Total no. of researchers taking part in the project: 2 Nre. d'investigadors/res membres del grup participants en aquest projecte (inclòs l'IP)/No. of group member researchers taking part in the project (including PI): 2

9

<b>Contractes/Convenis no competitiu / Non-competitive contracts/agreements</b>	
Títol del projecte/Title of project: High Resolution Emissions Inventory and Meteorology Simulations for the Photochemical Study of the Aceca Energy Compound Nom i cognoms de l'investigador/a principal/Name and surname(s) of principal investigator: Albert Soret	
És l'investigador/a principal d'aquest conveni membre del grup? / <i>Is the principal investigator a member of the group?</i> Sí/yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Nom de l'entitat finançadora/Name of funding body: ELECTRIC POWER RESEARCH INSTITUTE, INC Altres entitats participants:/Other participating bodies:	
Referència del projecte/Project reference: n/a Quantia atorgada/Amount awarded: 50.000€ Data inici:/Start date: 13/02/2017 Data finalització:/End date: 30/06/2017	Nre. total d'investigadors/res participants en aquest projecte/Total no. of researchers taking part in the project: 2 Nre. d'investigadors/res membres del grup participants en aquest projecte (inclòs l'IP)/No. of group member researchers taking part in the project (including PI): 2

10

<b>Contractes/Convenis no competitiu / Non-competitive contracts/agreements</b>	
Títol del projecte/Title of project: AQFSMexDF - Desarrollo e implementación de un sistema de pronóstico de la calidad del aire para la ciudad de México y su área metropolitana Nom i cognoms de l'investigador/a principal/Name and surname(s) of principal investigator: Marc Guevara	
És l'investigador/a principal d'aquest conveni membre del grup? / <i>Is the principal investigator a member of the group?</i> Sí/yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Nom de l'entitat finançadora/Name of funding body: Secretaría del Medio Ambiente de la Ciudad de Méjico Altres entitats participants:/Other participating bodies: N/A	
Referència del projecte/Project reference: n/a Quantia atorgada/Amount awarded: 246.135,19€ Data inici:/Start date: 01/10/2015 Data finalització:/End date: 30/06/2018	Nre. total d'investigadors/res participants en aquest projecte/Total no. of researchers taking part in the project: N/A Nre. d'investigadors/res membres del grup participants en aquest projecte (inclòs l'IP)/No. of group member researchers taking part in the project (including PI): N/A

## C) Organització del grup

### Group organisation

**C.1)** Expliciteu els reptes científics o objectius estratègics del grup per als propers 3 anys tenint en



compte que estiguin dirigits a consolidar, mantenir o incrementar la recerca d'excel·lència dins el vostre àmbit, així com la internacionalització i la transferència de coneixement. **(2 pàgines com a màxim)** / *State clearly the scientific challenges or strategic objectives for the next 3 years, taking into account the fact that the aim is to consolidate, maintain or increase research of excellence in your field, internationalisation and increase knowledge transfer (maximum 2 pages)*

The Department of Earth Sciences of the Barcelona Supercomputing Centre-Centro Nacional de Supercomputación (BSC-CNS), BSC-ES henceforth ([bsc.es/earth-sciences](http://bsc.es/earth-sciences)), has become from its creation in 2006 a reference in the field of air quality and atmospheric composition modelling. The Climate Forecast Unit of the Institut Català de Ciències del Clima (IC3-CFU, [http://ic3.cat/wikicfu/index.php/Main\\_Page](http://ic3.cat/wikicfu/index.php/Main_Page)) was created in 2010 and quickly evolved into one of the most active and recognised groups performing research on climate prediction and services in Europe. The IC3-CFU was lead from its creation by Prof Francisco J. Doblas-Reyes.

Following the designation of Prof. Francisco J. Doblas-Reyes as head of the BSC-ES in November 2014, a process of merging the IC3-CFU into the BSC-ES was agreed between the BSC-CNS and the IC3 trustees (the Catalan Government). A strengthened BSC-ES emerged from this process, with a broader perspective on Earth system modelling to excel in state-of-the-art research in Europe. The new department is made currently of 65 people, including technical and support staff.

The BSC-ES mission is performing research on and developing methods for environmental forecasting, with a particular focus on the atmosphere-ocean-biosphere system. This includes managing and transferring technology to support the main societal challenges through the use of models and data applications in HPC and Big data infrastructures. It also includes the dissemination of real-time air quality and climate information based on its research expertise in collaboration with the Spanish authorities and the World Meteorological Organisation (WMO).

To achieve the mission mentioned above, the BSC-ES aims are structured around four objectives:

- Develop an online chemical weather model from global to urban scales to better understand and predict the chemical composition of the atmosphere, and its effects on weather, air quality, climate, health and ecosystems.
- Implement the most reliable and skillful climate prediction system to cover time scales ranging from a month to three decades (subseasonal-to-decadal climate prediction) at global and regional spatial scales, expanding at the same time our understanding of the climate system.
- Investigate the impact of weather, atmospheric chemistry and climate on socio-economic sectors through the development of user-oriented services that ensure an efficient knowledge and technology transfer for adaptation policies and practices in a rapidly changing environment.
- Make optimal use of cutting-edge HPC and big data technologies to increment the efficiency, portability and user-friendliness of Earth system models, including the pre- and post-processing of weather, atmospheric chemistry and climate model data.

These objectives are built around a central objective that consists in making of the department a reference in the implementation of the latest HPC and big data technologies in weather, climate and air quality problems for the benefit of the society. The detailed development of this overarching objective will be the subject of a 10-year plan in 2017. Hence, these objectives have been chosen to respond to some societal demands identified in the interaction with neighbouring institutions, from the national government to other research institutes with complementary interests. They will allow the BSC-ES to fill gaps in the use of HPC solutions, the development of environmental services, the increased understanding of our recent past and forecast ability of our near future and the communication of all this to society to better justify the substantial public investments that supports our activity.



**C.2)** Detalleu l'estructura organitzativa del grup, d'acord amb la seva trajectòria conjunta, els canvis ocorreguts en la composició del grup, i en relació als reptes científics o als objectius estratègics per als propers anys. Podeu fer servir cronogrames, taules i organigrames (**3 pàgines com a màxim**) / *Detail the structure of the group according to its joint activity, changes occurred in the composition of the group, and its relation to scientific challenges and strategic objectives for next years. You may use timelines, tables and organisation charts (maximum 3 pages)*

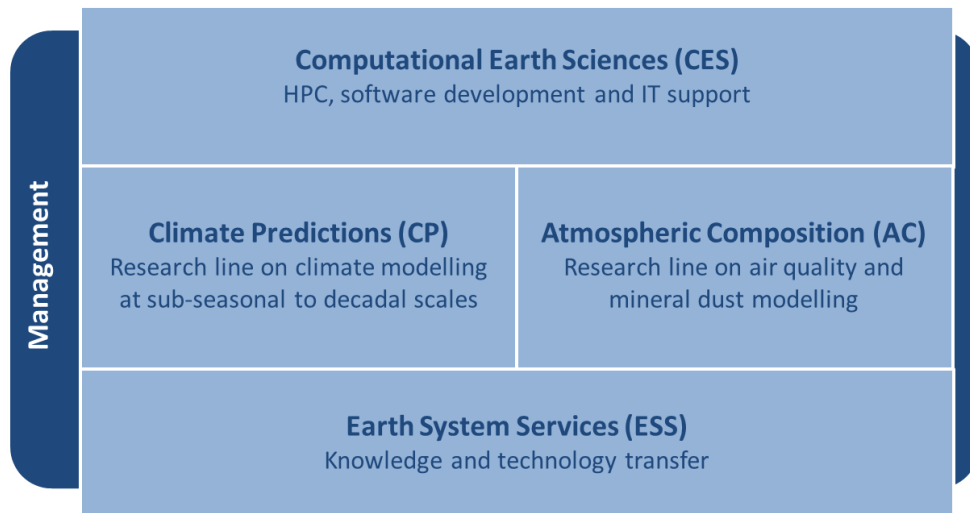
The BSC-ES was created in 2005 at the time of the creation of the BSC-CNS. The department focused mainly in performing research in numerical modelling for air quality problems and played an important role in the local and regional research ecosystems.

Following the designation of Prof. Francisco J. Doblas-Reyes as head of the BSC-ES in November 2014, a process of merging the IC3-CFU into the BSC-ES was agreed between the BSC-CNS and the IC3 trustees (the Catalan Government). A strengthened BSC-ES emerged from this process, with a broader perspective on Earth system modelling to excel in state-of-the-art research in Europe. The new department is made currently of 65 people, including technical and support staff. A group structure, detailed below, has been set up and, to allow for a common vision, while a strategic plan revised every second year was created.

The BSC-ES is structured in four groups, as illustrated in the diagram below. The department strategy includes a management layer made of the department director and the group leaders that ensures the consistency of the activities with the strategic plan and that implements strategies to facilitate an adequate communication at all levels. This layer facilitates the integration and coordination of the department in the local and national research and services environment. In addition, the staff members in this layer ensure that the activity is appropriately documented and that clear procedures are created for the correct functioning of the department. All the documentation is stored in the [BSC-ES wiki](#). The management layer also works towards increasing the visibility of the BSC-ES, becoming more active in the international research programme arena (GEOSS, WMO WWRP and WCRP, Future Earth, etc).

It is expected that the BSC-ES will increasingly play in the next few years a significant role in the national and international scenes, according to its size and resources, and that this role should also benefit regional institutions, supporting the growth of a robust atmospheric composition and climate modelling Spanish research network. A crucial task will consist in finding a balance between the research inspired by the scientific questions discussed by the community and the need to respond to social challenges and needs. It is expected that this will create a tension between the service-oriented and research-based groups that might trigger new opportunities for interdisciplinary research in a unique environment.

## EARTH SCIENCES DEPARTMENT (BSC-ES)



The following table lists the objectives and strategic goals of the four groups, which will be described in more detail in subsequent sections.

Groups	Main objectives	Activities
Climate prediction	<p>1.1 Development of climate prediction systems focused on sub-seasonal to decadal time scales</p> <p>1.2 Exploitation of climate predictions to understand predictability mechanisms and forecast system limitations</p>	<p>1.1.1 Development of climate forecast systems: towards more realistic model processes</p> <p>1.1.2 Development of climate forecast systems: data assimilation, initialisation and ensemble generation</p> <p>1.2.1 Forecast quality assessment: methodologies</p> <p>1.2.2 Forecast quality assessment: attribution of errors and sources of predictability</p> <p>1.2.3 Forecast quality assessment: diagnosis of climate forecast weaknesses</p>
Atmospheric Composition	<p>2.1 Development of modelling systems to improve atmospheric composition forecasts from local to global scales.</p>	<p>2.1.1. Development and optimization of the NMMB/BSC-CTM model</p> <p>2.1.2. Observations, evaluation and data assimilation</p> <p>2.1.3. Forecast system and</p>

	2.2 Advance our knowledge on atmospheric chemistry processes and effects	reanalysis  2.2.1 Air quality in urban areas: enhanced modeling approaches, emissions, source attribution and impacts  2.2.2 Aerosol processes and effects, with emphasis on mineral dust
Earth System Services	3.1 Advance and tailor state-of-the-art research based on user-defined needs  3.2 Service development  3.3 Ensure optimal knowledge and technology transfer to users	3.1.1 Identification of user needs to influence the BSC-ES department research  3.1.2 Development and improvement of both forecast systems and post-processing for user-defined needs  3.2.1 Creating and improving the operational services provided in the BSC-ES  3.2.2 Development of customised services to enhance users' decision support systems  3.3.1 Technical assessment and guidance for established services  3.3.2 Value assessment of Earth system services for key sectors of society and economy
Computational Earth Sciences	4.1 Development of HPC user-friendly software frameworks for Earth system modelling and management of operational systems  4.2 Ensure an efficient use of the computational resources by the research groups  4.3 Provision of data services	4.1.1 Support and contribute in the development of atmospheric research software  4.1.2 Maintain and improve operational systems  4.2.1 Provide HPC expertise for the performance of Earth system models  4.2.2 Research on new and more efficient computational approaches to apply on Earth system models  4.3.1 Develop, manage and

		maintain a common data service framework
		4.3.2 Deploy an infrastructure ready to address the Big Data challenge in Earth sciences
	4.4 Guidance on the use of IT resources	4.4.1 Design and maintain an IT infrastructure for BSC-ES

**C.3)** Destaqueu, quines accions realitzades o previstes pel grup referents a la inclusió de la perspectiva RRI (gènere, participació ciutadana, accés obert, ètica, educació científica i governança) en la concepció, l'inici i el desenvolupament de l'activitat i la transferència dels resultats de la recerca del grup i en les accions de divulgació científica (**3 pàgines com a màxim**) / *Highlight which action the group takes to include RRI (gender, public participation, open access, ethics, scientific education, governance) in the conception, initiation, development and transfer of the results of the group's research and in the scientific dissemination of these results (màximum 3 pages).*

The BSC is highly committed to support and promote all the principles of the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers the European Commission is fostering. The Human Resources (HR) unit achieved the HR Badge awarded by [Euraxess](#) stating that the BSC wants to keep sustaining the best framework and environment for research excellence, maintaining and improving by adopting international best practices and high-quality standards. This badge is consequence of the implementation of a series of actions in order to boost equal opportunities, ethics and integrity, work-life balance, career prospects and the best work conditions. The current HR Strategy for Researchers (HRS4R) is a continuation of a previous one started in 2015. Since then, the centre is working to achieve several objectives:

- The creation of advisory committees formed by researchers, which will help to generate strategies, policies and procedures more effective and close to the researchers needs.
- Boost the equal opportunities and gender policies, providing effective actions in order to ensure the policies.
- Strengthen the activities in outreach and public engagement, as these activities are one the main goals of the centre and give the opportunity to show to society the work carried out and highlights and engage the non-scientific audience, to get more relevance outside the BSC and outside science.
- The maintenance of a career development system, improving it and including more relevant aspects in the research career, in or outside the BSC, such as the Folks Project.

Moreover, since the European Commission started to implement the Open Access strategy, the center hired a documentarist. She manages all the publications and makes all the necessary to satisfy the Open Access requirements. The documentarist is in charge of uploading those peer-reviewed articles, communications in congresses, book chapters, etc., in a public repository ([UPCommons](#)) respecting the embargo period, ensuring the description of the publication through the adequate metadata and its protection by the appropriate license.

At this moment, the center is defining the internal politics to fulfill the FAIR principles (feasible, accessible, interoperable and re-usable). Currently, BSC researchers are using EC repositories such as EUDAT or Zenodo, although the BSC-ES has taken the lead and makes available a large part of its data production through a public data portal that uses the standards of the climate community. Such portal is a pioneer in Catalonia and can offer the same service to other researchers in the region.

As the BSC is a supercomputing centre, no ethical issues arise. However, a Bioethical Committee is already constituted in order to approve those projects regarding human genetic data assuring that no personal data is disclosed. Moreover, the centre is starting the inclusion of other general ethical issues to this committee due that Big Data project will require it.

The BSC has a Technology Transfer Office (TTO), whose missions are protecting, developing and commercialising the discoveries and tools made by the scientists in order to reach both the market and the whole society. The main objectives of the TTO are (i) intensify the relationship with the industry, (ii) manage BSC's pipeline, (iii) help creating spin-offs, and (iv) increase the awareness of the researchers, since the beginning of a technological development, about the possibilities regarding transfer.

Finally, the BSC is highly committed to the communication of the scientific achievements to the whole society and not only to the scientific community. With this aim, the Communications Unit performs outreach activities through conventional/digital, local/international, and general/specialized media. The preparation of press releases is a tool commonly used to reach society at large, either to inform about the beginning of a new research project, the launch of a website, the announcement of relevant publications in high-impact journals or the application of the outputs of BSC's research to topical issues. Several press releases about the BSC-ES are distributed every year. Own media resources are the [BSC website](#) and social networks such as Twitter, Facebook, Youtube and LinkedIn. Dissemination of activities is also performed through the distribution of corporative and department materials (flyers, videos, newsletters, etc.), the participation in outreach events and the visits to the MareNostrum supercomputer.

Apart from the work carried out by the BSC Communications Unit, the department is also putting effort in transferring the scientific achievements to both society and the private sector. In this sense, a more specialized website directed to different business sectors (agriculture and water management, renewable energy, insurance, etc.) has been developed ([Earth System Services portal](#)). An explanation of how the scientific products offered by the BSC-ES can be applied for decision-making in the different sectors is given and illustrated through brochures and different success stories. The website has links to all the services developed in the department regarding air quality, climate and mineral dust. Many of these services offer an open and real-time prediction that can be easily checked both online and using mobile platforms. Some of them, such as the air quality service CALIOPE and the Barcelona Dust have their own twitter accounts, where users can get updated predictions of air quality and dust intrusions. CALIOPE even has a mobile application directed to both air quality managers and citizens interested in the quality of the air we breathe. CALIOPE is, arguably, the most popular real-time air quality forecast system in Spain, which is an outstanding achievement in terms of research outreach for a pure research group that does not receive funding for operational activities. Face-to-face meetings are also an effective way to disseminate the results of the research undertaken in the department, and BSC-ES tries to use them as often as possible. Meetings with different user profiles have been conducted to date, including energy traders, wine producers, reinsurers, weather and climate consulting firms, research centers, etc. A dedicated team made of physical and social scientists ensure this task, a primer in Catalan research centres focused on physical problems. The BSC-ES has also participated in dissemination activities directed to the youngest non-experts, for example through the initiative from the Catalan Government "Ciència a les escoles", directed to secondary school students.

**C.4)** Inclogueu en aquest apartat, també, les activitats de supervisió que els membres del grup facin a personal en formació que sobretot destaquen la capacitat formativa del grup en relació amb la transmissió a personal novell de coneixement i estratègies dirigides a fomentar l'impacte social de la recerca i la participació o el lideratge del grup en activitats formatives i màsters **(2 pàgines com a màxim)** / *Include also in this section any supervision undertaken by group members of staff in training and the group's training capabilities to transfer to new staff of knowledge and strategies directed at new lines of production of impact results and participation or leadership of training activities and master's degree courses*

(maximum 2 page)

Since its inception the research group has been involved in formal training activities oriented to young researchers and engineers in the fields of climate prediction, atmospheric composition and environmental engineering modelling using High Performance Computing (HPC) environments. As a result, 5 thesis have been supervised and defended by group members in the 2014-2017 period, and 8 more are currently under development. Besides, several master theses have been completed or are under preparation at BSC-ES. In all cases, appropriate work contracts have been offered to the young scientists, avoiding the repulsive old tendency to offer bursaries to these professionals. BSC-ES has the policy of offering contracts to all its personnel on the basis that everybody's work is valuable. Apart from internal resources devoted to train young scientists, the group has been successful in obtaining competitive funds to support training activities. For instance, the on-going PhD students training is supported by a variety of national programs:

- FPU-MECD (Rubén Cruz)
- FPI-Severo Ochoa-MCINN (Vincenzo Obiso, Daniel Rodríguez, Oriol Tintó)
- FPI-MINECO (Bianca Mezzina, Jaime Benavides)
- BSC-LaCaixa (Lluís Vendrell)

Furthermore, the group has been active in attracting national and international talented researchers, through post-doc hiring programs, such as:

- Marie Skłodowska-Curie Actions Individual Fellowships (Etienne Tourigny, Matthew L. Dawson, Raffaele Bernardello, Javier García Serrano, Antonis Gkikas)
- Ramón y Cajal (Carlos Pérez García-Pando, Virginie Guemas, Javier García Serrano)
- Juan de la Cierva (Neven Fuckar, Louis-Philippe Caron, François Massonnet, Chloé Prodhomme, Omar Bellprat, Nicola Cortesi)
- Beatriu de Pinós (María Teresa Pay, Martina Klose)

The research group encourages the participation of all members in training activities. As a result, recently graduated PhDs from the group, such as Drs Marc Guevara and Albert Soret, are already involved in the co-supervision of PhD students in collaboration with senior group researchers.

The research group is closely connected to the Environmental Engineering doctoral program of the Technical University of Catalonia (UPC), which was recognized with MEC Excellence Mention from 2004 to 2013 (MCD2004-00394, MEE2011-0335), and it is currently registered in the VERIFICA process of the ANECA evaluation agency (RUCT: 5600080). Dr Maria Gonçalves Ageitos is part of the Engineering Projects and Construction Department, which leads the Environmental Engineering PhD program, and she currently acts as a tutor for 3 PhD students within the research group. The research group also maintains a fruitful collaboration with the Department of Astronomy and Meteorology of the University of Barcelona (UB), with several members co-supervising PhD students of the Doctorate Program in Physics, recognized with MEC Quality Mention from 2004-2005, and also registered in the VERIFICA process (RUCT:5601157) and participating in regular teaching activities.

Moreover, group members are actively involved in the supervision of Bachelor and Masters' final degree thesis. During the 2014-2017 period, students from the Industrial Engineering and Informatics Engineering Bachelor Degrees from the UPC, and from the Environmental Engineering and the Meteorology Master's degrees of the UPC and UB, respectively, have successfully developed their final degree thesis under the supervision of research group members.

Finally, group members collaborate in International Training Networks, such as the H2020-MSCA-ITN-2016 MANTEL on "Management of Climatic Extreme Events in Lakes & Reservoirs for the Protection of Ecosystem Services" or DUST-GLASS on "Improving global dust prediction and



monitoring through data assimilation on satellite-based dust optical depth”, offering secondments and training activities.

Apart from the formal training activities mentioned above, the research group contributes to non-official, very popular training initiatives on Earth Sciences and HPC applications for Earth system modelling, including climate and atmospheric composition. Among others, the group researchers collaborate with:

- Periodical training activities developed under the framework of the Sand and Dust Storms - Warning Advisory and Assessment System from the World Meteorological Organization (e.g. <https://sds-was.aemet.es/events/5th-training-course-on-wmo-sds-was-products>)
- The [PATC courses](#) organized every year in the BSC premises
- The organization and development of the periodical [summer schools on European Earth System and Climate Modelling](#), under the framework of the IS-ENES2 European project, whose last edition took place in Helsinki in 2016
- The BSC [Annual Doctoral Symposia](#)

To continuously engage students’ and promote their involvement in research activities group members also participate in informative sessions at different universities and engineering schools, such as the Barcelona School of Informatics or the School of Industrial, Aerospace and Audiovisual Engineering of Terrassa from the UPC. The research group also offers academic internships to UPC and UB students.

The BSC-ES has also experience in organising/hosting conferences and workshops that provide an excellent opportunity for local young researchers to be involved in and more closely connected with the international scientific community in weather, climate and atmospheric composition modelling and analysis.

**C.5) Expliqueu les col·laboracions amb altres investigadors o institucions de rellevància científica destacant sobretot les internacionals (2 pàgines com a màxim) / Explain and mention collaborations between the group and other researchers or institutions of scientific importance, highlighting, above all, any international institutions. (2 pages maximum)**

BSC-ES maintains a large network of collaborations, both institutional and at the individual level, that are listed below:

- Meteorological services: Meteocat, AEMET, SMHI (Sweden), KNMI (The Netherlands), Météo-France, ECMWF, Met Office (UK), FMI (Finland), NCEP (USA), MetNo, JMA (Japan), Meteoswiss, DHMZ (Serbia), Environment Canada
- Universities: Politecnica de Catalunya, Barcelona, Complutense, Reading (UK), Exeter (UK), Leeds (UK), Oxford (UK), UQAM (Canada), Buenos Aires, Aveiro (Portugal), Washington, Catolique de Louvain (Belgium), South Florida (USA)
- Research centres: IDAEA-CSIC, ICM-CSIC, CENER, LOCEAN-IPSL (France), MPI-M (Germany), AWI (Germany), CPTEC (Brasil), NOAA (USA), CMCC (Italy), CNR (Italy), CERFACS (France), ENEA (Italy), NSIDC (USA), NASA-GISS (USA), NASA-GSFC (USA), NOA (Greece), TNO (The Netherlands), eScience Centre (The Netherlands), NRL (USA), DTU (Denmark), Forwind (Germany), APCC (Korea)
- International institutions: Joint Research Centre of the European Commission
- Networks (of which BSC-ES is a member): EC-Earth, European Energy Research Alliance, European Climate Research Association, Climate Services Partnership, International Conference for Energy Meteorology, European Wind Energy Association, World Climate Research Programme, Global Framework for Climate Services, Forum for Air Quality Modelling, International Cooperative for Aerosol Prediction

- Private: EnBW, Vortex, Nnergix, Meteosim, Future Everything, EDF, Alstom, EDPR, AWS Truewind, E.ON, Iberdrola, Natural Power, Vodafone, Torres, Codorniu

Only the most relevant collaborations that take place on a regular basis are included; there are more collaborations that take place sporadically in the framework of funded projects. On top of this, there are specific collaboration agreements with Météo-France, the Centre National de la Recherche Scientifique (CNRS), the Universitat Politècnica de Catalunya and the Universitat de Barcelona.

## D) Altres aspectes a destacar sobre l'activitat del grup

### *Other noteworthy aspects of the research activity*

En aquest apartat heu d'explicar altres activitats o aspectes que vulgueu destacar del grup de recerca que no hàgiu explicat en apartats anteriors i que siguin d'especial interès per a l'àmbit o la línia de treball del grup de recerca. Podeu mencionar, per exemple, altres continguts com datasets, programari o evidències d'impacte social, així com altres continguts digitals, com ara la pàgina web del grup o les xarxes socials de la institució on apareguin altres activitats de recerca del grup (**2 pàgines com a màxim**) / *Explain any other activities or aspects you wish to highlight involving the research group that have not been covered in the previous sections and that are of special interest to the group's area of research. You may include, for instance, content such as data sets, software and evidence of social impact, and digital content such as the group's website or the social media profile of the institution where the research group's activities are posted (maximum 2 pages)*

Three additional aspects that should be borne in mind when assessing the BSC-ES are, on one side the central role that weather, climate and air quality data storage, curation and dissemination play, and in the other the role played by the BSC-ES [wiki](#) to document all the activities and organisational aspects and to offer a large repository documenting the BSC-ES activities to other researchers. Finally, the detailed dissemination strategy is a unique element in the visibility of the BSC-ES.

The department data (outputs from in-house models and from simulations performed by other centres, observational reconstructions and gridded and in-situ observations) is centralised in a shared repository of more than 4PB, accessible to all the BSC-ES members in a transparent way. The data is organised following the FAIR<sup>1</sup> principles and follows strict organisations rules available on the department wiki. The rules concern the file and directory structure, the file content (variable names, format,...) and all the associated metadata. The conventions have been built following international standards from the community (CF<sup>2</sup>, CMIP<sup>3</sup>,...). Such a centralised data repository guarantees that the researches can minimise the amount of time they have to devote to these tasks, increasing the performance of the whole group by specialising the duties and increasing the data sharing. The data management is handled by a dedicated team that continuously runs integrity checks and compliance tests to make sure that the data present in the repository have the correct format and have not been corrupted, ensuring the good functioning of the common department tools. The tools are also offered publicly to researchers in other institutions via a git repository, for analysis of this data.

For public data dissemination, the department has set up an ESGF (Earth System Grid Federation) node, which is part of an international network of servers giving transparent and open access to validated and well-documented climate model data.

Furthermore, a THREDDS<sup>4</sup> server-based infrastructure has been set up to make the whole data storage available both to internal and external users according to a role-based access control system (different users have different permissions and can access to different data).

For specific cases, such as the WMO SDS-WAS NA-ME-E Regional Center<sup>5</sup>, other solutions better adapted to specific external users have been developed. In this case, datasets produced by in-house and partner models are stored at the BSC-ES and distributed through the web portal, with access granted according to the users' permissions.

Finally, the Barcelona Dust Forecast Center<sup>6</sup>, operated by the department jointly with AEMET (Spanish

<sup>1</sup> <https://www.force11.org/fairprinciples>

<sup>2</sup> <http://www.cfconventions.org>

<sup>3</sup> [https://esgf.llnl.gov/media/2016-F2F/7-12-2016/community\\_software/F2F-2016-CMIP6\\_Standards.pdf](https://esgf.llnl.gov/media/2016-F2F/7-12-2016/community_software/F2F-2016-CMIP6_Standards.pdf)

<sup>4</sup> <http://www.unidata.ucar.edu/software/thredds/current/tds/TDS.html>

<sup>5</sup> <https://sds-was.aemet.es>

<sup>6</sup> <https://dust.aemet.es>

Meteorological Agency) and under the umbrella of the WMO, distributes the daily operational forecasts (in this case it is not numerical data, but graphical expressions of them) through the web portal and international channels such as the WMO GTS (Global Telecommunication System) and EUMETSAT' EUMETCAST system.

The second aspect to mention is the BSC-ES wiki. The group created this tool as a repository of the various internal documents that the group produces since 2010. This includes mission reports, presentations, posters, technical memoranda, internal documentation, best practices and many other pieces of information for internal and external users.

The wiki is divided in various sections that gather all the information both for within the group and for external collaborators. Some sections are devoted to explain and improve procedures for the group to work efficiently while some others are devoted to explain procedures for external users and also to collect all the publications and presentations that researchers produce in their missions, along with the list of (and the corresponding complete documentation) projects and proposals submitted, dissemination material and job offers, among many others.

The whole group collaborates in keeping the wiki up to date on a daily basis.

The wiki allows anybody new in the group to learn and follow the procedures and consulting any prior material in a simple and traceable way. It also allows all to follow procedures to solve daily issues even if the person responsible for a specific activity or tool is not at hand to ask or to solve it. In this way the group is aware of the needs and dependences. The wiki is based on the spirit to share knowledge among all members.

Finally, the department dissemination strategy of the BSC-ES includes different communication channels, such as websites (both the BSC website and the Earth System Services website), Twitter, Facebook, Youtube and LinkedIn. Different dissemination material has been recently prepared and can be found in these channels:

- Department leaflets, explaining the main research lines in the department and their main objectives. They also contain a description of research outputs and their application for real-world decision-making.
- Factsheets, which are 2-page documents directed to non-experts that describe complex scientific concepts in a simple and clear way.
- Videos with different purposes summarizing the aims of a research project, explaining the functioning of a tool, or the potential application of forecasts to make the population aware of a particular event (for example, in the case of sand and dust storms), etc.
- A User Interface Platform (UIP) with climate predictions directed to the users of the energy sector and other people that can be interested [www.bsc.es/arecs](http://www.bsc.es/arecs). Users can find a lot of information about the application of BSC-ES's research outputs to their management activities and can also give their feedback so as to improve the information offered in the platform and tailor it to their particular needs. The UIP contains a lot of resources. Although some of them are directed to the scientific community, there are many dissemination materials directed to explain different concepts for more general audiences.
- Press Releases are used in the department for different purposes such as the presentation of a new project, to announce the improvement of a model, to explain the results of the research of one paper that has just been published, or the signature of a new collaboration contract among others.
- Reports for air quality events will be created to communicate in an efficient way the prediction of the exceedance of air quality levels to the society. A different template will be prepared for ozone, nitrogen dioxide and dust twice per year (in summer and winter) giving an outlook of the predicted events and how they matched observations. Events will be described and mapped and general information about the contaminants (origin, normal spatial and temporal dynamics, possible effects on health, etc.) will be given. These type of outlook reports will provide an assessment of the suitability of the air quality forecast system developed at BSC-ES (CALIOPE) to predict contamination episodes. The idea is to encourage external entities

to both use the system to predict future levels of air pollution as well as to assess the effect of the implementation of certain regulation measures. In fact, the system is increasingly being used by some press and TV media in the weather forecast section<sup>7</sup>.

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<sup>7</sup> <https://www.bsc.es/news/bsc-news/the-air-quality-forecast-system-caliop-key-the-prediction-air-pollution>