

Climate Modelling User Group

Deliverable 6.2

Promotion Package Report

Centres providing input: MOHC

Version	Date	Comment
0.1	29 September 2020	For ESA comment
1	ТВС	Submitted to ESA



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CMUG D6.2 Promotion Package Report

1. Introduction

CMUG's mission is to place a climate perspective at the centre of ESA's Climate Change Initiative (CCI). This report documents how CMUG has promoted CCI datasets and CMUG results to the climate modelling and reanalysis community, international bodies and climate researchers. This version (v1) covers the period from the previous phase (October 2018) until September 2020. Material that has been prepared for promotion of CCI products have included:

- News Bulletin (January 2020)
- Posters (Colocation meeting #10, September 2020)
- Presentations at conferences, workshops and meetings
- Website kept up to date and relevant, with results and material promoting the CCI
- Use the Data Forum as a communications tool to increase the profile of the CCI
- Journal papers illustrating the use of some of the CCI datasets
- Horizon scanning for outreach opportunities
- Maintain within the project plan a section on communications and outreach
- Respond to ad-hoc requests for outreach activities

2. Promotion Package

2.1 Outreach and Engagement

Annex A1 describes the main outreach and engagement activities for CMUG October 2018 – September 2020.

2.2 Conferences and Seminars

CMUG has continued to engage with international conferences and meetings on climate research (e.g. EGU, AMS, AGU, Living Planet Symposium). CMUG is publicising its activities, research results and data products at climate conferences which are attended by a large cross section of the climate modelling and research community. CMUG has been regularly delivering presentations at conferences, for example the Living Planet Symposium in May 2019, the annual Integration and Colocation meetings, and workshops such as the CMIP6 Model Analysis Workshop in Spain in March 2019.

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CMUG has attended additional meetings and workshops, such as the 'Paving the way for Horizon Europe in EO downstream sector' workshop in Belgium, October 2018, a SMHI Science meeting in October 2018 where CMUG produced a poster, and an EGU event in April 2019 in Vienna, Austria, where CMUG attended and interacted with participants.

For more information on meetings and workshops, see Annex A1.

2.3 Website

The old CCI <u>CMUG website</u> (Figure 1) has recently been retired and a new page set up on an <u>ESA web server</u> (Figure 2). The landing page is now a <u>central ESA Climate Office website</u> with links to each of the CCI projects. The CMUG website content was evaluated in preparation for the transfer, including an update to all contact information and member biographies. A new flow chart (Figure 3), illustrating the structure of the CMUG project, has been produced and is included on the new CMUG website. Common website operations and tasks have been paused while the new website has been under development.

<u>CMUG's new website</u> is still under development, when completed it will continue the project's website aims to provide latest news, events, and project documentation. The project website's main page provides an 'about' introduction paragraph to the project and showcases the latest CMUG news. There are tabs to 'News', 'Data', 'Key Documents', 'Team', 'Publications', 'Related Links' and 'Contacts'.

Cesa	climate change initiative
ESA CCI AEROSOL BIOMAS	S CLOUD FIRE GHG GLACIERS KE SHEETS LAKES LAND COVER LAND COVER HIGH RESOLUTION LAND SURFACE TEMPERATURE OCEAN COLOUR OZONE SALINITY SEA LEVEL SEA LEVEL BUDGET CLOSURE SEA KE SEA
	Climate Modelling User Group (CMUG) The European Space Agency (ESA) has established the "Climate Modelling User Group" (CMUG), to place a climate system perspective at the centre of its Climate Change Initiative (ICC) programme, and to provide a dedicated forum through which the Earth Observation Data Community and Climate Modelling and Reanalysis Community can work dosely together Latest News
[CMUG DATA FORUM] On this site	March 2020 The 9 th CCI Colocation Meeting was due to be held in Oxford, UK on the 24-26th March but has been postponed due to the ongoing COVD-19 situation. It is now due to be held on 9th-11th September 2020. Further information relating to regardison, accommosation and transport will be shared in the coming weeks. CNUG will attend to further the aims of the use of earth observations in climate modeling. November 2019 The 9 th CCI CMUG Integration meeting was held at the Barcelond Supercomputer Centre on 6-7 November 2019. Download the presentations
Home About CMUG	July 2019 Therk you to all who contributed to the CMUG User Rejurements survey which will help develop the CCI EC/s.
Results Data exploitation Media output Events	May 2019 Richard pones, the CMUIG Lead Scientist, gave a presentation on CMUIG results and plans at the Living Planet Symposium in Milan, Italy. [17:45-2019] March 2019 CMUIG scientists attended and presented at the 9 th CCI Colocation meeting in Oxford, UK, from 26 to 28 March 2019. [28:438-2019]
Contact & team	Looking for upcoming events? See the events page
Related initiatives GCOS WCRP	Looking for past news? See the news archive (includes CMUG news, newsletters, articles, other project outputs).
C3S	Staying in touch CUUD have an email list for interested parties to receive information and news about the project, especially during the current consultation phase. If you want to join the list or would like more information contact the CMUG project office at cmugginetricing spuid.

Figure 1: CCI CMUG website (old) front page screenshot (August 2020).

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Figure 2: CCI CMUG new website screenshot (September 2020).



Figure 3: Flow chart diagram of CMUG's project structure.

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The 'Data' tab which provides links to project results, data exploitation, and media output and publications. The 'Key documents' tab provides links to each CMUG Phase key documents such as from Integration Meetings and other deliverable reports. The 'Team' tab provides lists of contacts for each CMUG partner as well as a list of team member biographies which are in the process of being updated. The 'Publications' tab links to various publications such as newsletters and presentations and lists scientific publications. The 'Related links' tab links to GCOS, CWRP, and C3S. Furthermore, the 'Contacts' tab provides email addresses for users to get in contact if they have questions or wish to subscribe to the group.

The website, therefore, plays a key and central role to CMUG's Promotion Package. It will continue to be added to and updated to take further advantage of this key platform of promotion for CMUG.

2.4 Data Forum

The CMUG <u>Data Forum</u> has once again been refreshed with a new look and feel (Figure 5). It continues to provide access to CCI datasets and provide a forum for CCI data users to interact and record user experiences. This forum website showcases work carried out by the CMUG user community with ESA's CCI datasets, and acts as a platform to share experience of using these datasets and to encourage collaboration between scientists and data users. Contributions are welcomed from modellers, scientists and others, with ideas, suggestions and potential applications for the datasets. The Data Forum complements the CCI Open Data Portal by providing an open forum for user discussion and feedback on CCI datasets.



Figure 5: CCI CMUG Data Forum website screenshot (August 2020).

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The Data Forum also links directly to the CCI <u>Open Data Portal</u> (Figure 6), providing access to downloadable CCI datasets for over 23 ECVs, as well as a 'Get in touch' option for those wanting to ask questions or contribute examples of CCI dataset use. The forum will continue to be maintained and updated to the end of the project



Figure 6: Open Data Portal screenshot (September 2020)

2.5 Publications and Papers

CMUG publishes papers on its verification and validation work and encourages others to publish the results of their research on CCI datasets. CMUG has had 9 publications in Phase 3 up to September 2020 which are listed below as well as in Annex A2 where the number of citations from Google Scholar (as of September 2020) are included.

- 1. **Willén U.,** et al., 2018: ENSO variability in multiple satellite observations and climate models. In prep.
- Eyring, V., Cox, P. M., Flato, G. M., Gleckler, P. J., Abramowitz, G., Caldwell, P., Collins, W. D., Gier, B. K., Hall, A. D., Hoffman, F. M., Hurtt, G. C., Jahn, A., Jones, C. D., Klein, S. A., Krasting, J. P., Kwiatkowski, L., Lorenz, R., Maloney, E., Meehl, G. A., Pendergrass, A. G., Pincus, R., Ruane, A. C., Russell, J. L., Sanderson, B. M., Santer, B. D., Sherwood, S. C., Simpson, I. R., Stouffer, R. J. & Williamson, M. S. (2019) Taking climate model evaluation to the next level. *Nature Climate Change*. doi:10.1038/s41558-018-0355-y. <u>https://www.nature.com/articles/s41558-018-0355-y</u>

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- Ford, D. A. (2020), Assessing the role and consistency of satellite observation products in global physical-biogeochemical ocean reanalysis. <u>https://os.copernicus.org/articles/16/875/2020</u>
- Popp, T, M I Hegglin, R Hollmann, F Ardhuin, A Bartsch, A Bastos, V Bennett7, J Boutin, C Brockmann, M Buchwitz, E Chuvieco, P Ciais, W Dorigo, D Ghent, R Jones, T Lavergne, C J Merchant, B Meyssignac, F Paul, S Quegan, S Sathyendranath, T Scanlon, M Schröder, S G H Simis, U Willén. (2020) Consistency of satellite climate data records for Earth system monitoring. Bull. Amer. Meteor. Soc., doi: https://doi.org/10.1175/BAMS-D-19-0127.1
- Waliser, D., Gleckler, P. J., Ferraro, R., Taylor, K. E., Ames, S., Biard, J., Bosilovich, M. G., Brown, O., Chepfer, H., Cinquini, L., Durack, P. J., **Eyring, V**., Bathieu, P.-P., Lee, T., Pinnock, S., Potter, G. L., Rixen, M., Saunders., R., Schulz, J., Thépaut, J.-N., Tuma, M. (2020) Observations for Model Intercomparison Project (Obs4MIPs): status for CMIP6. Geosci. Model Dev., 13, 2945-2958.
- Albergel, C., Zheng, Y., Bonan, B., Dutra, E., Rodríguez-Fernández, N., Munier, S., Draper, C., de Rosnay, P., Muñoz-Sabater, J., Balsamo, G., Fairbairn, D., Meurey, C., and Calvet, J.-C.: Data assimilation for continuous global assessment of severe conditions over terrestrial surfaces, Hydrol. Earth Syst. Sci., 24, 4291– 4316, <u>https://hess.copernicus.org/articles/24/4291/2020/</u>, 2020.
- Bilbao, R., Wild, S., Otega, B., Acosta-Navarro, J., Arsouze, T., Bretonniere, P-A., Caron, L-P., Castrillo, M., Cruz-Gracia, R., Cvijanovic, I., Doblas-Reyes, F.J., Donat, M., Dura, E., Echevarría, P., Ho, A-C., Loosveldt-Tomas, S., Moreno-Chamarro, E., Pérez-Zanon, N., Ramos, A., Ruprich-Robert, Y., Sicardi, V., Tourigny, E., Vegas-Regidor, J.: Assessment of a full-Field initialised decadal climate prediction system with the CMIP6 version of EC-Earth, <u>https://esd.copernicus.org/preprints/esd-2020-66/</u> 2020
- Cheruy, F., Ducharne, A., Hourdin, F., Musat, I., Vignon, E., et al.: Improved near surface continental climate in IPSL-CM6A-LR by combined evolutions of atmospheric and land surface physics, Journal of Advances in Modeling Earth Systems, <u>https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1029/2019MS002005</u>, 2020.
- Zheng, Y., Albergel, C., Munier, S., Bonan, B., and Calvet, J.-C.: An offline framework for high-dimensional ensemble Kalman filters to reduce the time to solution, Geosci. Model Dev., 13, 3607–3625, <u>https://gmd.copernicus.org/articles/13/3607/2020/</u>, 2020.

CMUG also works to bring to the fore any research in CMUG papers that is relevant for the next IPCC assessment (AR6).



2.7 Other Outreach Activities

CMUG promotion on Met Office Science Twitter

CMUG has organised, produced and submitted three Twitter posts for publish on the Met Office Science Twitter page (Figure 7) sometime in the latter half of 2020. This outreach activity took advantage of an ad-hoc opportunity presented to the wider team within the Met Office for a 'Twitter Takeover Month' whereby team projects are to be showcased over the period of a month. CMUG volunteered to take part and submitted three posts.



Figure 7: Met Office Science Twitter homepage.

The tweets introduce the CMUG project, including the new CMUG Organisational Structure Flowchart diagram in Tweet #1, introduce ESA's Climate Change Initiative (CCI) and advertise the Open Data Portal in Tweet #2 and advertise the use of the Obs4MIPS portal and how this work feeds into evaluation of CMIP5 and 6 in Tweet #3. The posts include links to ESA's Twitter and provide multiple links for users to follow to find out more information on each topic mentioned. These Tweets will be as shown below:

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Tweet 1

(1/3) The Met Office works with the European SpaceAgency @esaclimate on the Climate Modelling UserGroup (CMUG) which aims to improve communication between EarthObservation and Climate Modelling communities.



Tweet 2

(2/3) CMUG ensures a focus on the climate system is at the heart of the Climate Change

Initiative (CCI) <u>https://bit.ly/2ChTVMF</u>. Essential Climate Variables produced by CCI can be accessed on @esaclimate's Open Data Portal, which is free and easy to use here <u>https://bit.ly/3keeHOI</u>

Tweet 3

(3/3) CMUG also works to process @esaclimate's Essential Climate Variable information which contributes to the obs4MIPs portal: <u>https://bit.ly/2PDqFTL</u>. This feeds into evaluation of Coupled Model Intercomparison Projects CMIP5 and 6 <u>https://bit.ly/33t5iwn</u>

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EGU Ocean Science blog post - Satellite data for ocean reanalysis

Following publication of a CMUG <u>paper</u> 'Assessing the role and consistency of satellite observation products in global physical-biogeochemical ocean reanalysis' (Ford, D., 2020; see Annex A4 for further details) the author was asked to write a <u>blog post</u> on the subject for the EGU Ocean Science blog (Figure 8). The target audience is early career oceanographers.

The blog post is titled is 'Satellite data for ocean reanalysis' and also includes links to some CCI Planetary Visions videos by ESA. The blog post went live on the EGU Ocean Science blog on 22 September 2020 and was tweeted from EGU Ocean Sciences Twitter account and retweeted by EGU's main Twitter account (Figure 9), including Met Office Science (Figure 7) and ESA Twitter accounts in the tags.



EGU Blogs » Divisions » Ocean Sciences » Satellite data for ocean reanalysis

Satellite data for ocean reanalysis

David Ford · September 22, 2020 · OS Research · No Comment



pernicus Sentinel-3. Credit: ESA/ATG Mediala

To understand the fundamental behaviour of the ocean, and any changes it's undergoing, we need to know what the ocean is doing today, and on each day in the recent past.

We can do this by creating reanalyses, which use data assimilation to combine state-of-the-art models with observations. The focus is often on ocean physics, but we also need to know about the marine ecosystem and carbon cycle.

ABOUT

Welcome to the blog of the Ocean Sciences (OS) Division of the European Geosciences Union (EGU). This blog serves as a platform for the ocean sciences community to share news and updates on the latest research advances. Here you can also find the stories behind the research and interesting interviews with ocean scientists. If you want to contribute to the OS blog, please get in touch with the editor Meriel Bittner.



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Figure 8: EGU Ocean Science blog post 'Satellite data for ocean reanalysis'.

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Figure 9: EGU retweets the Ocean Sciences Twitter post about the blog post in Figure 8.

10th Colocation Meeting, Sep 2020, Poster Presentation

The 10th CCI Colocation Meeting was held if September 2020 and it was the first time that a Colocation Meeting had been delivered as an online meeting. CMUG produced and showcased a poster (Figure 10) for a virtual poster session, highlighting CMUG's recent key achievements. This poster will also feature on the website once it has been updated.

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Figure 10: CMUG's Key Achievements poster presented at 10th Colocation Meeting, Sep 2020

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News Bulletin, Jan 2020

In January 2020 a News Bulletin was emailed to CCI Science Leads and CCI CSWG to provide news on recent CMUG work to all CCI teams, and to serve as a briefing for the CSWG teleconference which was to follow in early Feb 2020. The bulletin highlighted CMUG news, including results from CMUG modelling studies. See Figure 11 below for details.



Figure 11: January 2020 News Bulletin email.

3. Future Promotion Activities

Newsletters

It is planned that newsletters will once again be produced at a 6-monthly basis, after a period of no newsletters since October 2018. The first is planned to be produced October / November 2020 and will also aim to highlight the tasks at the following Integration Meeting, planned for March 2021.

External SharePoint Site

CMUG plans to move to one location for saving documents and file sharing, to a central SharePoint site which is to be set up to include internal and external access. This will replace the current system which uses both SharePoint for internal use and Google Docs for external use. The current system is not optimised, and efficiency can be greatly improved with this new

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plan to move to one external SharePoint site. It is planned to be up and running by October 2020. The current information on Google Docs will be transferred across to the SharePoint so no information will be lost during the transfer process.

Website

Website activity (adding documents, keeping up to date) has been on pause during the transition to the new website. Now that the new website is live, CMUG pages will continue to be updated and developed. Once the new website has been fully finalised, a thorough evaluation of the content will take place. This will be to update anything that is out of date and add documents, presentations or any other relevant information on recent events, meetings, workshops, etc. For example, outputs from the 10th Colocation Meeting will be added, as well as new team biographies.



Annex A

Contents

- A1 Table of outreach activity
- A2 CMUG peer-reviewed publications since October 2018



A1 Table of outreach activity

The table below describes the main outreach and engagement activities for CMUG over the period October 2018 to September 2020.

Date	Event	Participants	Location	Comment
		2018		
8 Oct 2018	Paving the way for Horizon Europe in EO downstream sector	CMUG	Brussels, Belgium	Attended workshop
12 Oct 2018	SMHI Science meeting	UW / SMHI	CMUG poster	
29-31 Oct 2018	CMUG Integration Meeting 8	CMUG	Exeter, UK	CCI project meeting
	1	2019	1	
16 Jan 2019	CCI CSWG meeting	CSWG	Remote attendance	
18 Jan 2019	CMUG Quarterly Progress Meeting	CMUG partners	Remote attendance	
25-28 Mar 2019	CCI Colocation Meeting 9	CMUG members	Oxford, UK	CMUG update to all, lead AR6 session
25-29 Mar 2019	CMIP6 Model Analysis Workshop	CMUG members	Barcelona, Spain	Poster by BSC: 'CCI sea ice concentrations to initialise seasonal predictions.'
8-12 Apr 2019	European Geosciences Union (EGU)	ECMWF	Vienna, Austria	CMUG interactions, <u>Webpage link</u>
3 May 2019	UKSA	Met Office	London, UK	Discussion of CMUG work
13-17 May 2019	CCI Living Planet Symposium	Met Office & Météo-France	Milan, Italy	CMUG presentation; CMUG on planet discussion (AR6); CMUG at CCI stand
29 May 2019	CCI CSWG meeting	CSWG	Online meeting	
11-13 Jun 2019	UKESM Workshop	University of Leicester	Southampton, UK	Presentation about CMUG given on behalf of CMUG

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9 Jul 2019	CMUG Quarterly	CMUG	Online	
	Progress meeting	partners	meeting	
4 Sep 2019	CCI CSWG	CSWG	Online	
-	meeting		meeting	
5 Nov 2019	CMUG Annual	CMUG	BSC, Spain	
	Progress meeting	partners	-	
6-7 Nov	CCICSWG	CSWG	BSC, Spain	BOG within
2019	meeting		-	Integration Meeting
6-7 Nov	CCI CMUG	CSWG	BSC, Spain	Circa 70 participants
2019	Integration		-	
	Meeting			
28 Oct – 1	C3S GA	Met Office	Warsaw,	CMUG interactions
Nov 2019			Poland	
		2020		
27 May	CMUG Quarterly	CMUG, ESA	Online	
2020	meeting with ESA		meeting	
9-11 Sep	10 th CCI	CCI	Online	
2020	Colocation		meeting	
	Meeting			
15 Sep 2020	WP Progress	Met Office,	Online	Meeting to discuss
	Meeting	ECMWF	meeting	implementation of
				CMF inside C3S
				Toolbox, related to
				WP5

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A2 CMUG peer-reviewed publications since October 2018

This list describes CMUG peer-reviewed publications since the beginning of the current phase (October 2018) until time of this report (September 2020). References are given as well as the number of citations, as sourced from Google Scholar (as of September 2020).

Paper	Citation
Willén U., et al., 2018: ENSO variability in multiple satellite observations and	3
climate models. In prep.	-
Eyring, V., Cox, P. M., Flato, G. M., Gleckler, P. J., Abramowitz, G., Caldwell,	
P., Collins, W. D., Gier, B. K., Hall, A. D., Hoffman, F. M., Hurtt, G. C.,	
Jahn, A., Jones, C. D., Klein, S. A., Krasting, J. P., Kwiatkowski, L.,	
Lorenz, R., Maloney, E., Meehl, G. A., Pendergrass, A. G., Pincus, R.,	74
S C Simpson L P Stouffor P L & Williamson M S (2010) Taking	74
climate model evaluation to the next level Nature Climate Change	
doi:10.1038/s41558-018-0355-	
y. https://www.nature.com/articles/s41558-018-0355-y	
Ford, D. A. (2020), Assessing the role and consistency of satellite observation	
products in global physical-biogeochemical ocean	-
reanalysis. https://os.copernicus.org/articles/16/875/2020	
Popp, T , M I Hegglin, R Hollmann, F Ardhuin, A Bartsch, A Bastos, V Bennett7,	
J Boutin, C Brockmann, M Buchwitz, E Chuvieco, P Ciais, W Dorigo, D	
Gheni, R Jones , T Lavergne, C J Merchani, D Meyssignac, F Paul, S Quegan, S Sathvendranath, T Scanlon, M Schröder, S G H	_
Simis II Willén (2020) Consistency of satellite climate data records for	-
Earth system monitoring, Bull, Amer, Meteor,	
Soc., doi: https://doi.org/10.1175/BAMS-D-19-0127.1	
Waliser, D., Gleckler, P. J., Ferraro, R., Taylor, K. E., Ames, S., Biard,	
J., Bosilovich, M. G., Brown, O., Chepfer, H., Cinquini, L., Durack, P.	
J., Eyring, V., Bathieu, PP., Lee, T., Pinnock, S., Potter, G. L., Rixen,	1
M., Saunders., R., Schulz, J., Thépaut, JN., Tuma, M. (2020)	-
Observations for Model Intercomparison Project (Obs4MIPs): status for	
CIVIIPO. GEOSCI. MODEL DEV., 13, 2945-2958.	
Munier S. Draner C. de Rosnav P. Muñoz-Sabater J. Balsamo G.	
Fairbairn, D., Meurey, C., and Calvet, JC.: Data assimilation for	
continuous global assessment of severe conditions over terrestrial	2
surfaces, Hydrol. Earth Syst. Sci., 24, 4291–	
4316, https://hess.copernicus.org/articles/24/4291/2020/, 2020.	
Bilbao, R., Wild, S., Otega, B., Acosta-Navarro, J., Arsouze, T., Bretonniere,	
P-A., Caron, L-P., Castrillo, M., Cruz-Gracia, R., Cvijanovic, I., Doblas-	
Reyes, F.J., Donat, M., Dura, E., Echevarria, P., Ho, A-C., Loosveldt-	
I Omas, S., Moreno-Unamarro, E., Perez-Zanon, N., Ramos, A., Puprich Pohort, V., Sicardi, V., Tourigov, E., Vogoo, Pogider, J.	
Ruphen-Rubert, T., Sicarut, V., Toungny, E., Vegas-Regidor, J.:	

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Assessment of a full-Field initialised decadal climate prediction system	
with the CMIP6 version of EC-	
Earth, https://esd.copernicus.org/preprints/esd-2020-66/ 2020	
Cheruy, F., Ducharne, A., Hourdin, F., Musat, I., Vignon, E., et al.: Improved	
near surface continental climate in IPSL-CM6A-LR by combined	
evolutions of atmospheric and land surface physics, Journal of	_
Advances in Modeling Earth	-
Systems, https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1029/2019	
<u>MS002005</u> , 2020.	
Zheng, Y., Albergel, C., Munier, S., Bonan, B., and Calvet, JC.: An offline	
framework for high-dimensional ensemble Kalman filters to reduce the	
time to solution, Geosci. Model Dev., 13, 3607–	-
3625, https://gmd.copernicus.org/articles/13/3607/2020/, 2020.	
*Sourco: Google Scholar, Santamber 2020	

*Source: Google Scholar, September 2020