

Tools for comparing simulations and/or observations

Get a flavour of what you can do by surfing here:

<https://forge.ipsl.jussieu.fr/orchidee/wiki/ReferenceSimulations>

ReferenceSimulations - ORCHIDEE X

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Reference Simulations Page

The ORCHIDEE project group has together planned a table of simulations used to validate successive versions of the model. See here the protocol [ValidationPlan_20150605.pdf](#). The simulations are done in offline mode at global and site level and coupled with LMDZ. Summary over the simulations in the validation protocol:

Coupled LMDZ-ORCHIDEE simulations:

CL1	1981-1990	Grid: 96x95x39, Full ORCHIDEE (with sechiba and stomate and routing activated) and standard physics(old) of LMDZ
CL2	1981-1990	As CL1 but with the physics NPv3.2 of LMDZ
CL3	1981-1991	As CL2 with nudging of LMDZ
CL4	1980-1990, restart from old CL4	Grid: 144x142x79, LMDZ physics: NPv5.67
CL5	1980-1990, restart from old CL4	as CL5 with nudging of LMDZ

Forced global ORCHIDEE simulations:

FG1	1901-1910	340years spinup with CRU-NCEP forcing	Without restart
FG1trans	1860-1900	Transient simulation. Land cover map is changing annually. Forcing is still cycling over 1901-1910	Restart from FG1
FG2	1901-2012	Historical simulation using CRU-NCEP	Restart from FG1trans
FG3	1951-2010	As FG2 but with Princeton 1 degree forcing	Without restart. The first 20years are considered as spinup.

Forced site simulations with ORCHIDEE:

FL1 ~150 Fluxnet sites

- Simulations done with ORCHIDEE trunk revision 4783 : To be done
- Simulations done with ORCHIDEE trunk revision 4778 : To be done
- Simulations done with ORCHIDEE trunk revision 4661 : Simulations for preparing IPSLCM6.0.13
- Simulations done with ORCHIDEE trunk revision 4438 : Ongoing simulations using set up as IPSLCM6.0.10
- Simulations done with ORCHIDEE trunk revision 4365 : Ongoing simulations using set up as IPSLCM6.0.10
- Simulations done with ORCHIDEE trunk revision 4067 : Final reference version of ORCHIDEE in IPSLCM6.0.8
- Simulations done with ORCHIDEE trunk revision 3977 : This revision with new options is a candidate to IPSLCM6.0.8 to come
- Simulations done with ORCHIDEE trunk revision 3934 : Global standard simulations and other tests. This revision is used in IPSLCM6.0.7
- Simulations done with ORCHIDEE trunk revision 3789 and 3823 : Global offline standard simulations and other tests. The revision 3823 is used in coupled model IPSLCM6.0.5
- Simulations done with ORCHIDEE trunk revision 3607 : Global offline and coupled LMDZOR simulations. The revision 3617 is used in the coupled model IPSLCM6.0.5. Only difference between 3607 and 3617 is a small bug correction seen when compiling with debug options.
- Simulations done with ORCHIDEE trunk revision 3525 : Global offline and coupled LMDZOR simulations. This is the revision used in the coupled model IPSLCM6.0.4
- Simulations done with ORCHIDEE trunk revision 3429 : Global offline and coupled LMDZOR simulations are done, with and without sol freezing+explicit snow
- Simulations done with ORCHIDEE trunk revision 3171 : Simulations with alb_bg_modis activated. Warning: This revision has still a bug if activating the explicit snow.
- Simulations done with ORCHIDEE trunk revision 3109 : Simulations with different versions of LMDZ. Simulations with and without "freezing+explicit snow". BUG with explicit snow.
- Simulations done with ORCHIDEE trunk revision 2012 : Simulations with and without "freezing+explicit snow"

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ReferenceSimulations/4067 - 0 X +

https://forge.ipsl.jussieu.fr/orchidee/wiki/ReferenceSimulations/4067

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Simulations with ORCHIDEE trunk revision 4067 used in IPSLCM6.0.8

See here the run parameters used in IPSLCM6.0.8 and the corresponding offline ORCHIDEE simulations (note you need to be logged on to the wiki): [run.def as in IPSLCM6.0.8](#)

Comparing simulations with CIIMAF

- Comparing FG3 (WFDEI) offline simulations: https://esgf.extra.cea.fr/thredds/fileServer/work/p86ghatt/atlas_ORCHIDEE_FG3_ANM/p86ghatt_atlas_ORCHIDEE_FG3_ANM.html Following simulations are compared:
 - FG3WFDEIv1 : using ORCHIDEE revision 3977, set up as IPSLCM6.0.7
 - FG3WFDEIv1.comb : using ORCHIDEE revision 3977, set up "comb"
 - FG3WFDEIv1.combwithoutsol : using ORCHIDEE revision 3977, set up IPSLCM6.0.8
 - FG3WFDEIv1.4067 : using ORCHIDEE revision 4067, set up as IPSLCM6.0.8
 - FG3WFDEIv1.4067.flp : as previous with flood plains activated
- Comparing CL4 amip simulations: https://esgf.extra.cea.fr/thredds/fileServer/work/p86ghatt/atlas_ORCHIDEE_ref4067_CL4_ANM/p86ghatt_atlas_ORCHIDEE_ref4067_CL4_ANM.html
 - CM607-LR-amp02 : using ORCHIDEE revision 3977, set up as IPSLCM6.0.7
 - CL4.4067.L608 : using ORCHIDEE revision 4067, default set up and version of LMDZ as IPSLCM6.0.8
 - CL4.4067.L608.flp : as CL4.4067.L608 with also DO_FLOODPLAINS=y
- Comparing CL5 nudged amip simulations : https://esgf.extra.cea.fr/thredds/fileServer/work/p86ghatt/atlas_ORCHIDEE_ref4067_CL5_ANM/p86ghatt_atlas_ORCHIDEE_ref4067_CL5_ANM.html

Comparing simulations with inter-monitoring

- FG3(link available until 4'th April) : http://webservices.ipsl.jussieu.fr/monitoring_fromprodiguer/tmp/fegg_plot01_9WS9v6_prod/
- CL4(link available until 4'th April) : http://webservices.ipsl.jussieu.fr/monitoring_fromprodiguer/tmp/fegg_plot01_g0XNiv_prod/
- CL5(link available until 14'th April) : http://webservices.ipsl.jussieu.fr/monitoring_fromprodiguer/tmp/fegg_plot01_XHb3IL_prod/

Comparing simulations with inter-atlas tool

- Comparing FG3 offline simulations: <http://esgf.extra.cea.fr/thredds/catalog/work/p529vui/OL2/DEVT/Eval-ORCHIDEE/r4067/FG3/catalog.html>
- Comparing CL4 simulations: <http://esgf.extra.cea.fr/thredds/catalog/work/p529vui/OL2/DEVT/Eval-ORCHIDEE/r4067/CL4/catalog.html>
- Comparing CL5 simulations: <http://esgf.extra.cea.fr/thredds/catalog/work/p529vui/OL2/DEVT/Eval-ORCHIDEE/r4067/CL5/catalog.html>

Comparing simulations with Mapper

- Comparing FG3 offline simulations: https://vesg.ipsl.upmc.fr/thredds/fileServer/work/p529bast/MAPPER/ORC4067_FG3.html
- Comparing CL4 simulations: <https://orchidas.lscce.ipsl.fr/mapper/CL4.4067.php>

Diagnostic of river discharge

- Comparing FG3 offline simulations: [river_fg3.png](#)
- Comparing CL4 simulations: [river_cl4.png](#)
- Comparing CL5 simulations: [river_cl5.png](#)

Simulations with ORCHIDEE trunk revision 4067 used in IPSLCM6.0.8

- Comparing simulations with CIIMAF
- Comparing simulations with inter-monitoring
- Comparing simulations with inter-atlas tool
- Comparing simulations with Mapper
- Diagnostic of river discharge
- Offline simulations
- FG3WFDEIv1.4067 : reference simulation with WFDEI/v1 forcing files
- FG3WFDEIv1.4067.flp : with floodplains activated
- LMDZOR simulations
- CL4.4067.L608 : reference simulation as IPSLCM6.0.8
- CL5.4067.L608 : nudged reference simulation as IPSLCM6.0.8
- CL4.4067.L608.flp : with floodplains activated
- CL5.4067.L608.flp w with floodplains activated

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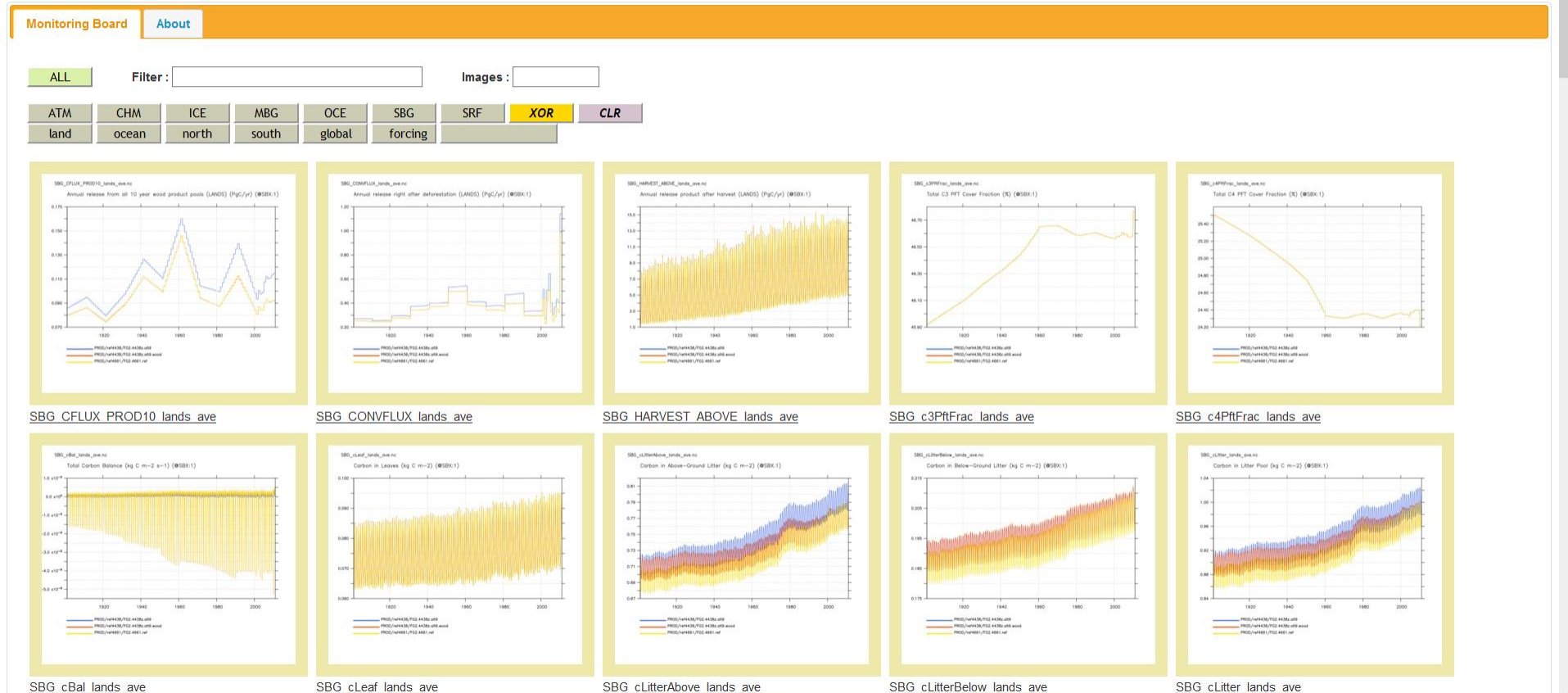
Inter-monitoring: contact J. Ghattas (IPSL)

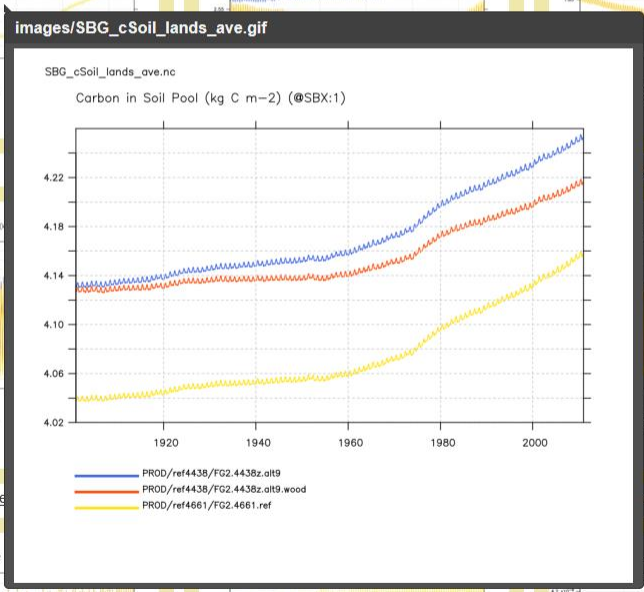
http://webservices2017.ipsl.fr/interMonitoring_fromHermes/tmp/interMonitoring_plot01_6eqqjW_prod/



Inter-monitoring: FG2.4438z.alt9 vs FG2.4438z.alt9.wood vs FG2.4661.ref

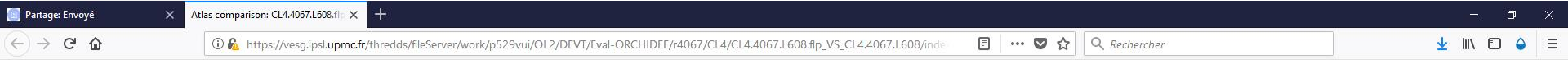
at 2017-10-10 11:33:20





Inter-atlas: contact N. Vuichard (LSCE)

https://vesg.ipsl.upmc.fr/thredds/fileServer/work/p529vui/OL2/DEVT/Eval-ORCHIDEE/r4067/CL4/CL4.4067.L608.flp_VS_CL4.4067.L608/index.html



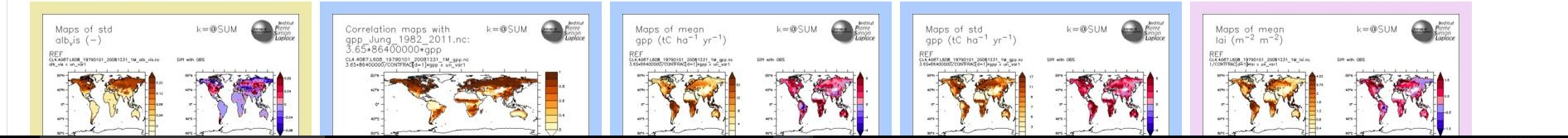
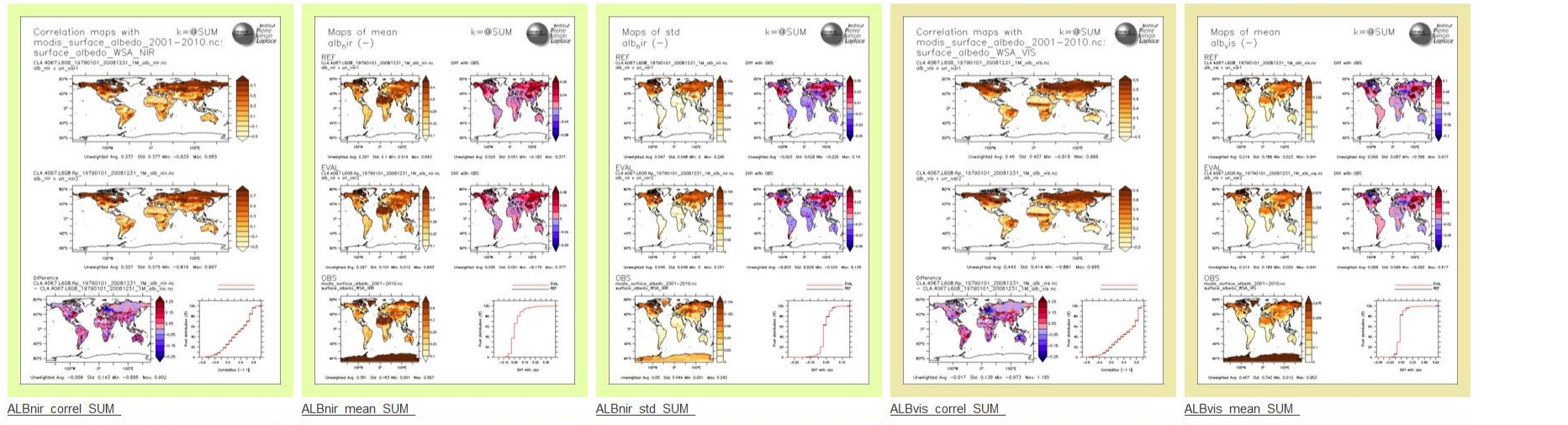
Atlas comparison: CL4.4067.L608.flp vs CL4.4067.L608

at 2017-03-21 16:06:21

Monitoring Board About

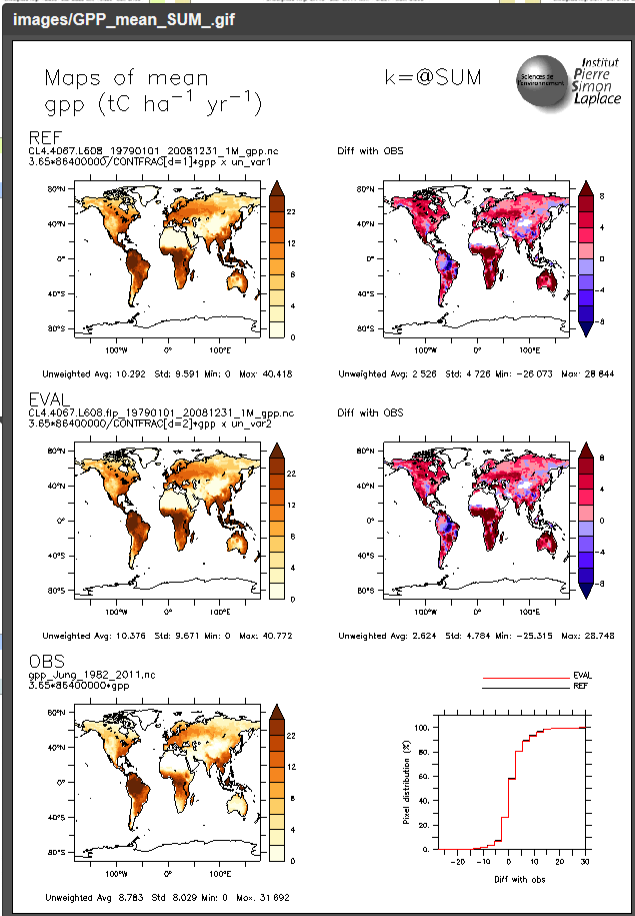
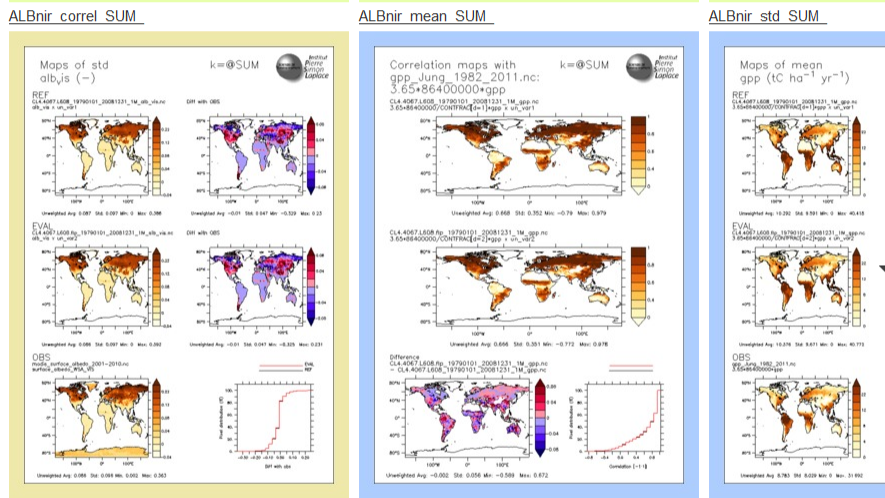
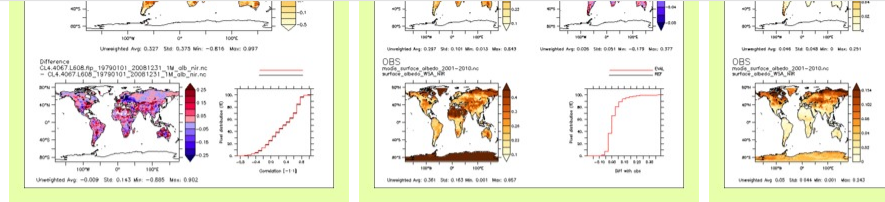
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GPP	LAI	LH	SH	T2M	PRE	ALBvis	ALBnr	SNOWf	XOR	CLR
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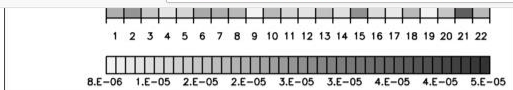




FLUXNET sites: contact N. Vuichard (LSCE)

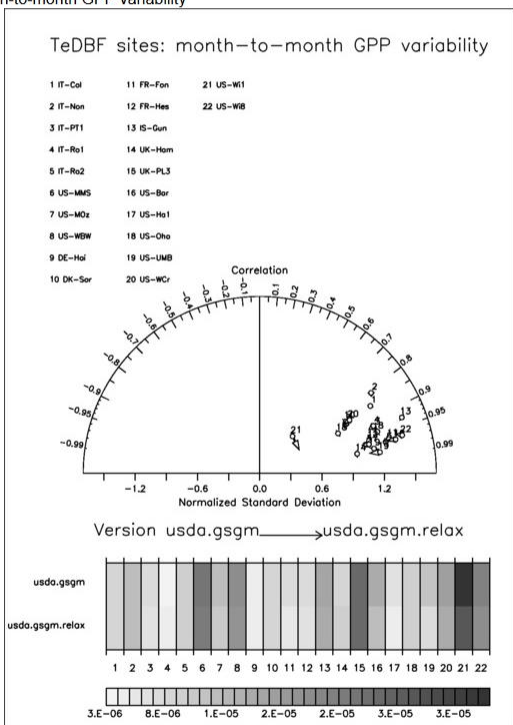
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Erreur de chargement de la page | Atlas ORCHIDEE de comparaison | Index fluxnet_taylor_diff_usda.gsgm | UPMC (Université Paris 6 Pierre... (FR) | <https://vesg.ipsl.upmc.fr/thredds/fileServer/work/p529vui/OL2/DEV7/Eval-ORCHIDEE/r3607/usda.gsgm.relax> | Rechercher



- [gpp_day_1398/gpp_day.gif](#) (52 Ko)
- [gpp_day_1398/gpp_day.pdf](#) (44 Ko)

• month-to-month GPP variability



- [gpp_month_1521/gpp_month.gif](#) (52 Ko)
- [gpp_month_1521/gpp_month.pdf](#) (44 Ko)

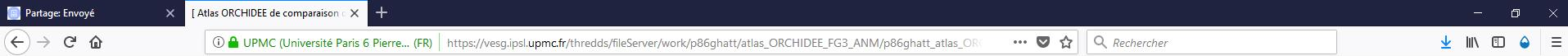
• year-to-year GPP variability

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CLIMAF ORCHIDEE: contact J. Servonnat (LSCE)

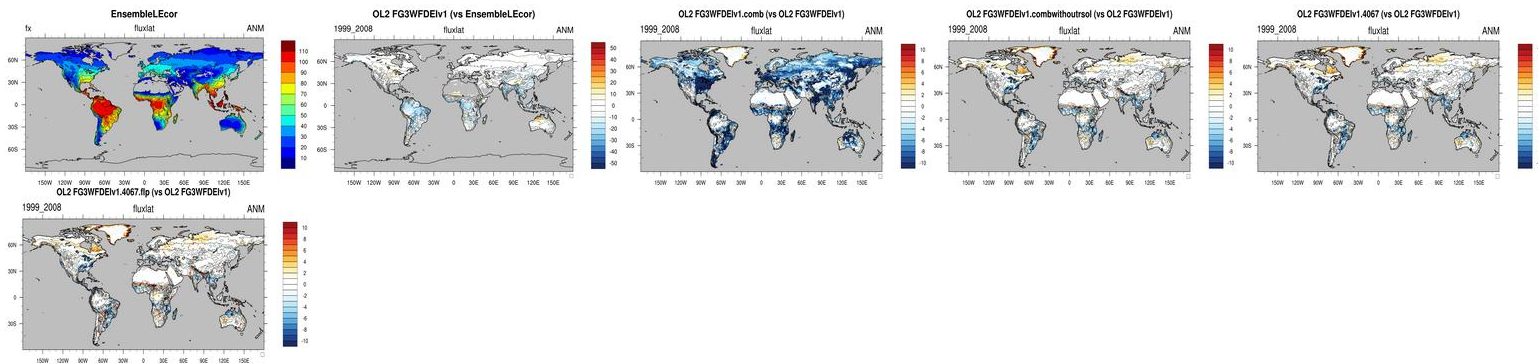
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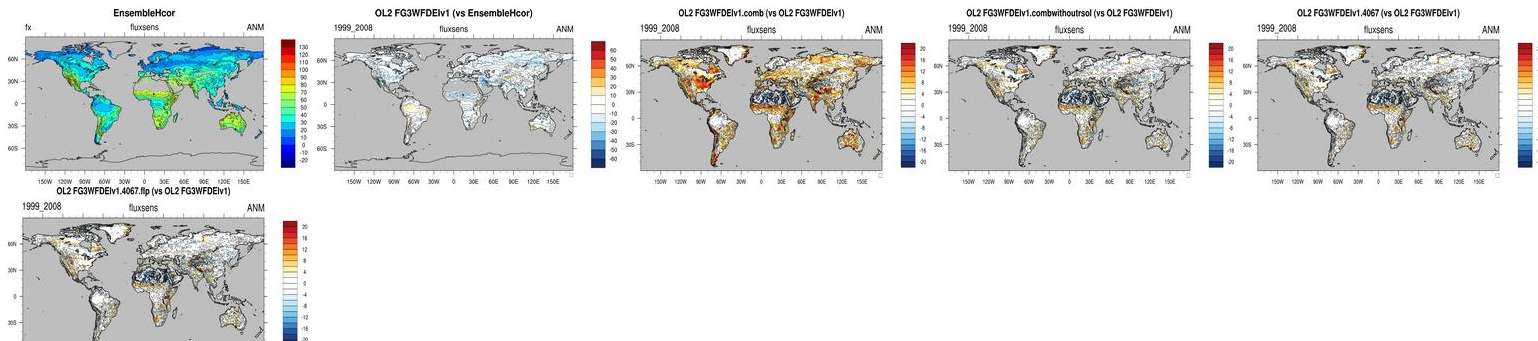
Atlas ORCHIDEE de comparaison de simulations (CLIMAF)

ORCHIDEE Energy Budget, Climato OBS, Bias and model-model differences

Latent Heat Flux (fluxlat)

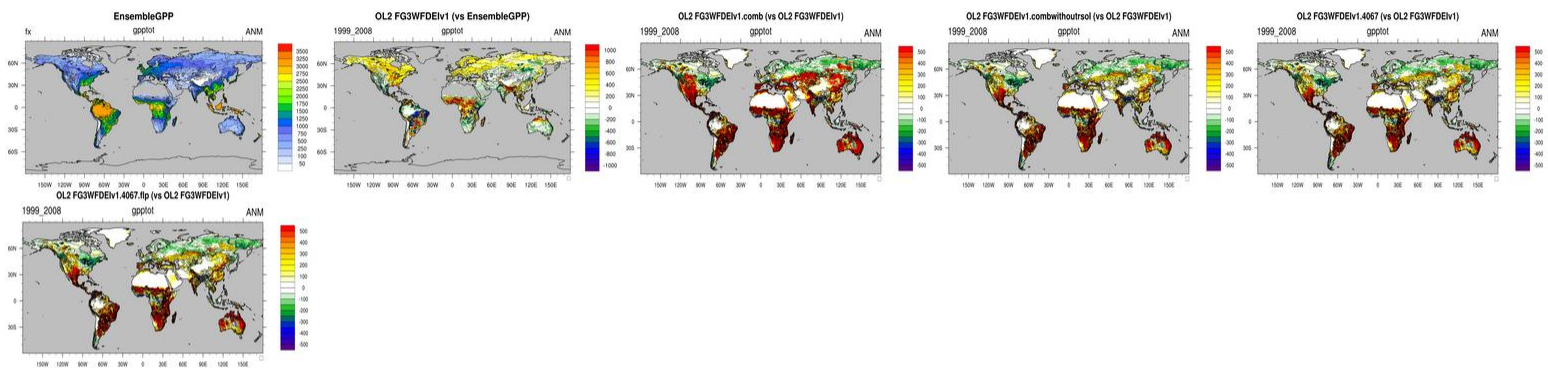


Sensible Heat Flux (fluxsens)

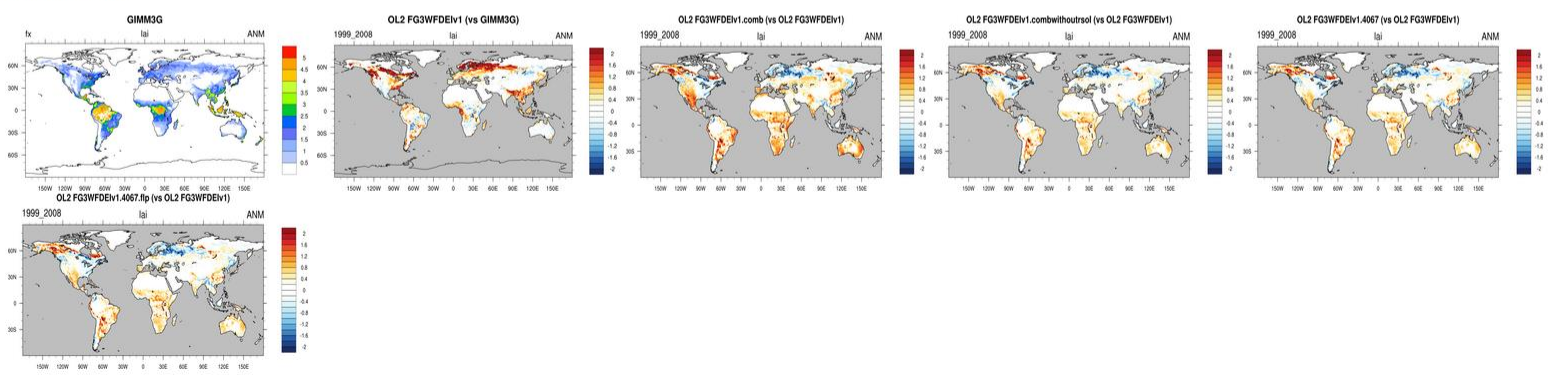


ORCHIDEE Carbon Budget, Climato OBS, Bias and model-model differences

Global Primary Productivity (gpptot)

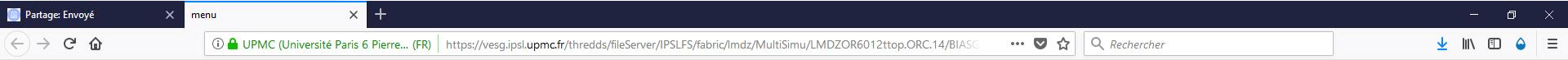


Leaf Area Index (lai)



CLIMAF LMDZ-OR: contact F. Chéruy (LMD)

<https://vesg.ipsl.upmc.fr/thredds/fileServer/IPSLFS/fabric/lmdz/MultiSimu/LMDZOR6012ttop.ORB.14/BIASGLOBJJA.html>



(AUTRES) Série de simulations préparatoires à CMIP6, LMDZ-Orchidee, CTRL : CL4.LO6012

ACCUEIL comparaisons Atlas YEAR Atlas DJF Atlas JJA ESM val tool METRICS Axes d'évaluation

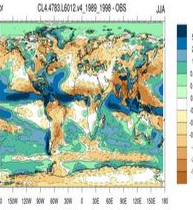
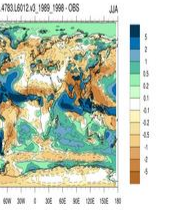
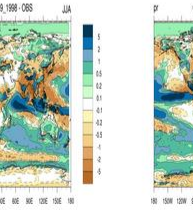
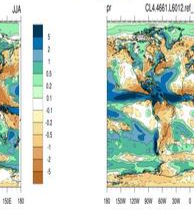
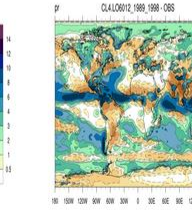
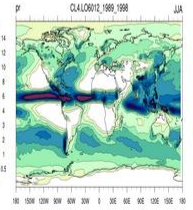
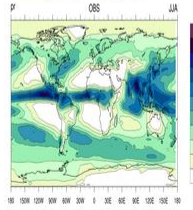
RUN (link to outputs)	Atlas YEAR	Atlas --DJF--	Atlas --JJA--	Description of the simulation	Period	Name (link to parameters)	bils	rt	rst	rlut	rlutcs	crest	crelt	cret	eva	pr	prw
CLIMATOS							7.097	0.7823	240.4	239.6	269.4	-47.05	29.84	-17.21	3.415	2.61	27.46
CL4.LO6012	G--	G--	G--	CM612	1989_1998	CL4.LO6012	.	.	.	.	.	.	.	.	.	.	.
CL4.4661.L6012.ref	G--	G--	G--	612ttop ORC4661	1989_1998	CL4.4661.L6012.ref	.	.	.	.	.	.	.	.	.	.	.
CL4.4783.L6012.v3	G--	G--	G--	612ttop ORC4783v3	1989_1998	CL4.4783.L6012.v3	.	.	.	.	.	.	.	.	.	.	.
CL4.4783.L6012.v4	G--	G--	G--	612ttop ORC4783v4	1989_1998	CL4.4783.L6012.v4	.	.	.	.	.	.	.	.	.	.	.

Multi atlas, JJA, simulation de référence : CL4.LO6012_1989_1998 (BIAS)

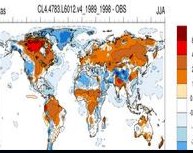
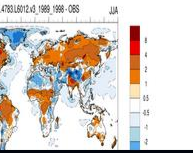
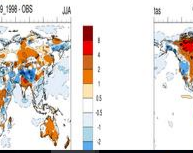
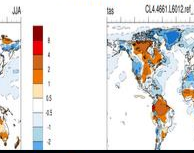
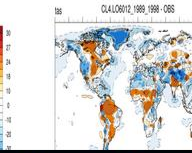
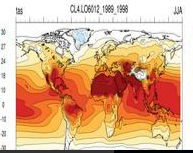
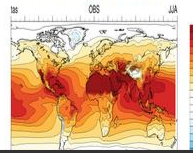
2d vars

VARIABLE OBSERVATIONS CL4.LO6012_1989_1998 CL4.LO6012_1989_1998 (BIAS) CL4.4661.L6012.ref_1989_1998 CL4.4783.L6012.v3_1989_1998 CL4.4783.L6012.v4_1989_1998

Precipitation (pr)



2M Temperature (tas)



Mapper: contact V. Bastrikov (LSCE)

<https://orchidas.lsce.ipsl.fr/mapper/FG2.4661.v2.php>



Maps Time-series

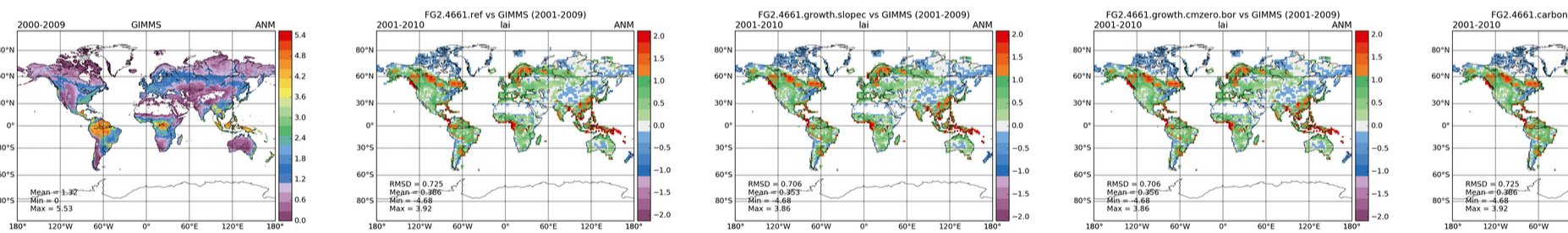
Energy Budget
Water Budget
Carbon Budget
River Discharge

yearly
 seasonal

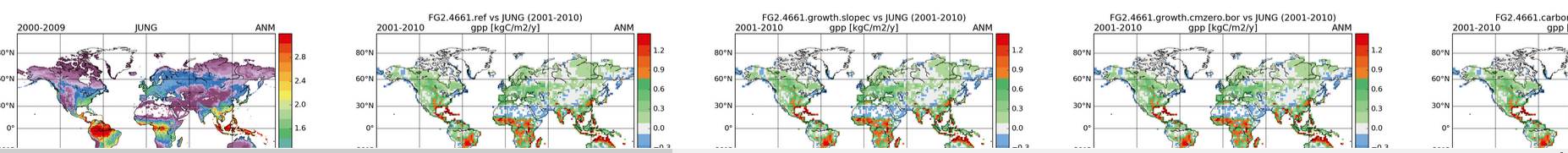
maps
 diff vs OBS
 diff vs FG2.4661.ref

Show Plots

Leaf Area Index



Gross Primary Production



Maps Time-series

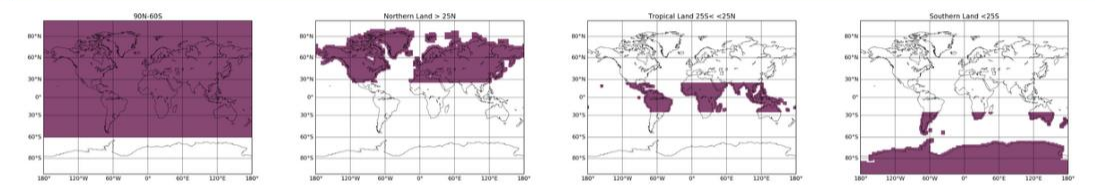
Energy Budget
 Water Budget
Carbon Budget
 River Discharge

yearly
 monthly
 mean cycle

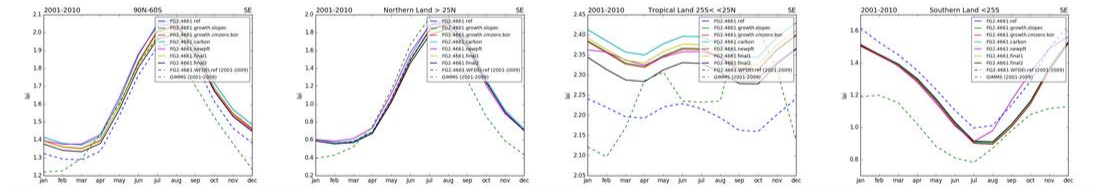
Global Land
 Northern Land > 25N
Tropical Land 25S< -<25N
 Southern Land <25S
 Boreal North America
 Temperate North America

Show Plots

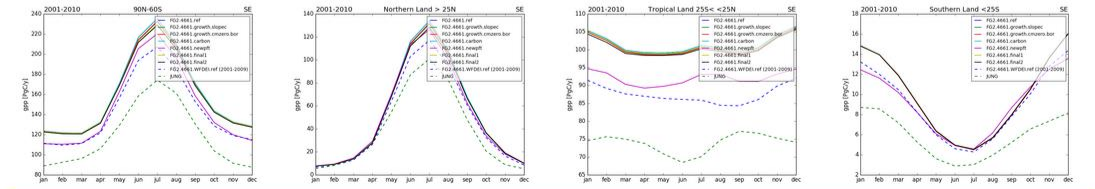
Region Mask



Leaf Area Index



Gross Primary Production



River discharge: contacts J. Polcher (LMD) / M. Guimberteau (LSCE)

https://forge.ipsl.jussieu.fr/orchidee/attachment/wiki/ReferenceSimulations/3607/debit_CL5.CWRR90m_snowSu_vs_snowZ0.3607.png

debit_CL5.CWRR90m_snowSu_ X

https://forge.ipsl.jussieu.fr/orchidee/attachment/wiki/ReferenceSimulations/3607/debit_CL5.CWRR90m_snowSu_vs_snowZ0.3607.png

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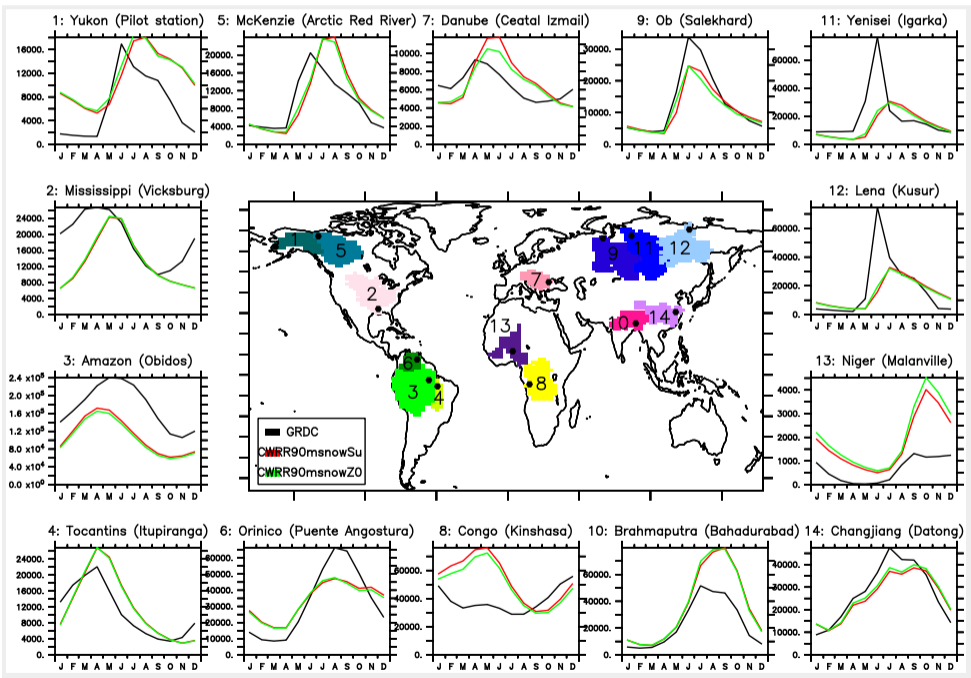
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ReferenceSimulations/3607: debit_CL5.CWRR90m_snowSu_vs_snowZ0.3607.png

File debit_CL5.CWRR90m_snowSu_vs_snowZ0.3607.png, 198.0 KB (added by jgipsl, 13 months ago)
Created by Matthieu Guimberteau



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Next step: Harmonization of the different tools and availability of the tool(s) to the user community (lead: N. Vuichard, LSCE).

