WGCM 21
report from the French groups:
CNRM-CERFACS and IPSL

Masa Kageyama

with inputs from
Olivier Boucher and Sébastien Denvil (IPSL)
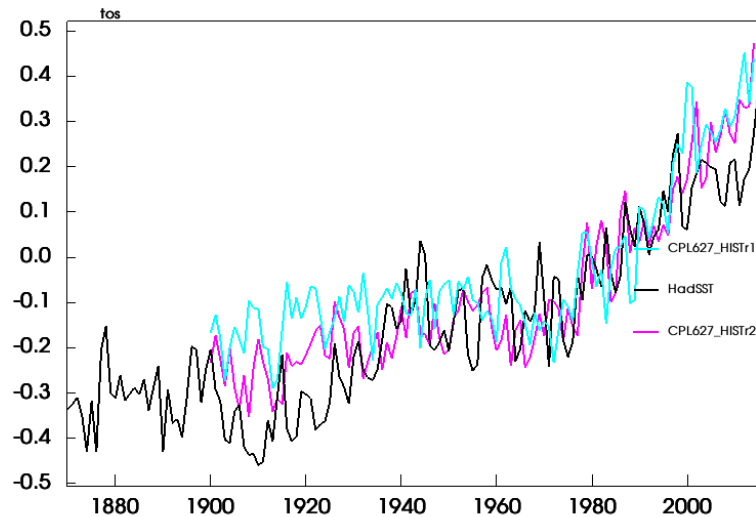David Salas (Meteo-France)

CNRM-CERFACS

| component	Model/ software	Revisions since CMIP5	Standard resolution	High resolution
Atmosphere	ARPEGE Climat v6	new prognostic physics	TL127L91 (~150 km)	TL359L91 (~50 km)
Ocean & sea-ice	NEMO 3.6 and Gelato 6	revised	ORCA1L75 (~100 km)	ORCA025L75 (~25 km)
Land surface & air-sea exchanges	Surfex v8	revised		
Coupler	OASIS3-MCT	revised		
Model output	XIOS	ready-for-publication format		

CNRM-CERFACS

→ already run a whole DECK (AMIP/ HIST/AB4CO2/1PCO2) with a near-final version of the model by mid-2017

AMOCindex (Sv) in several spin-ups with CNRM-CM6-1

16Sv

Global mean SST anomalies wrt 1970-1999 : Simulated (1900-2014) by CNRM-CM6-1 (2 members) and reconstructed (1870-2014. HadSST1).
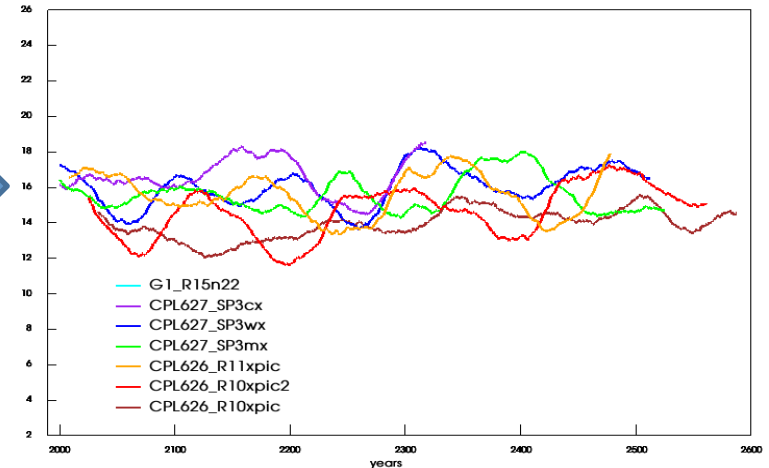
CNRM-CERFACS's answers to WGCM questions

Q: when are you planning to submit model output from the DECK to the ESFG?
A: Unless further problems appear, we will start our CMIP6 simulations by early November 2017. Hence we plan to submit model output from the DECK to the ESGF in early 2018.

Q: when are you planning to submit model output from the CMIP6 historical simulations to the ESGF?
A: Early 2018

Q: when are you planning to submit CMIP6-Endorsed MIPs experiments to the ESGF?
A: Early 2018

Q: have you yet started filling the ES-DOC questionnaire?
A: We answered a first questionnaire on May 5th, 2017. We are ready to provide more feedback if needed.

IPSL model: summary of changes since CMIP5

component	Model/ software	Revisions since CMIP5	Standard resolution	Medium resolution	High resolution (HighResMIP, atm. only)
Atmosphere	LMDZ6	revised physics	144x143, L79	256x256, L79	Updated dynamics 0.6°L79
Ocean & sea-ice	NEMO 3.6 & LIM3	revised	ORCA1L75 (~100 km)	ORCA1L75 (~100 km)	
Land surface & air-sea exchanges	ORCHIDEE	Revised (updated parameters and new processes)			
Coupler	OASIS3	revised			
Model output	XIOS	ready-for-publication format			

IPSL Earth System model and CMIP6

Version	Atm resolution	Ocean resolution	Expected	SYPD
IPSL-CM5A2 (paléo)	96x95, L39	1°, L31	2017	56/66
IPSL-CM6-VLR (chimie, paléo)	*96x95, L39*	*2°, L31*	*2018*	*75*
IPSL-CM6-LR	**144x143, L79**	**1°, L75**	**Oct 2017**	**15**
IPSL-CM6B-LR	*144x143, L79, ESM*	*1°, L75, ESM*	*Oct 2017*	*??*
IPSL-CM6-MR	256x256, L79	1°, L75	2017	7
LMDz6-HR	512x360, L79		2017	2,5
IPSL-CM6-HR (DYNAMICO)	*0.6°, L79*	*0.25°, L75*	*2018*	*??*

IPSL model: status of simulations

- started the spin up with quasi final version, no result with final version

- Plan to submit DECK :
  "beginning of 2018 if I'm optimistic, 1st quarter 2018 if I'm realistic" (in Olivier Boucher's words)

- Plan to submit historical:
  "soon after" (same XIOS scheme for output as CNRM-CERFACS)

IPSLCM6_LR: first results

Parallel coordinates - rms_xyt ann global

smaller model-obs anomalies
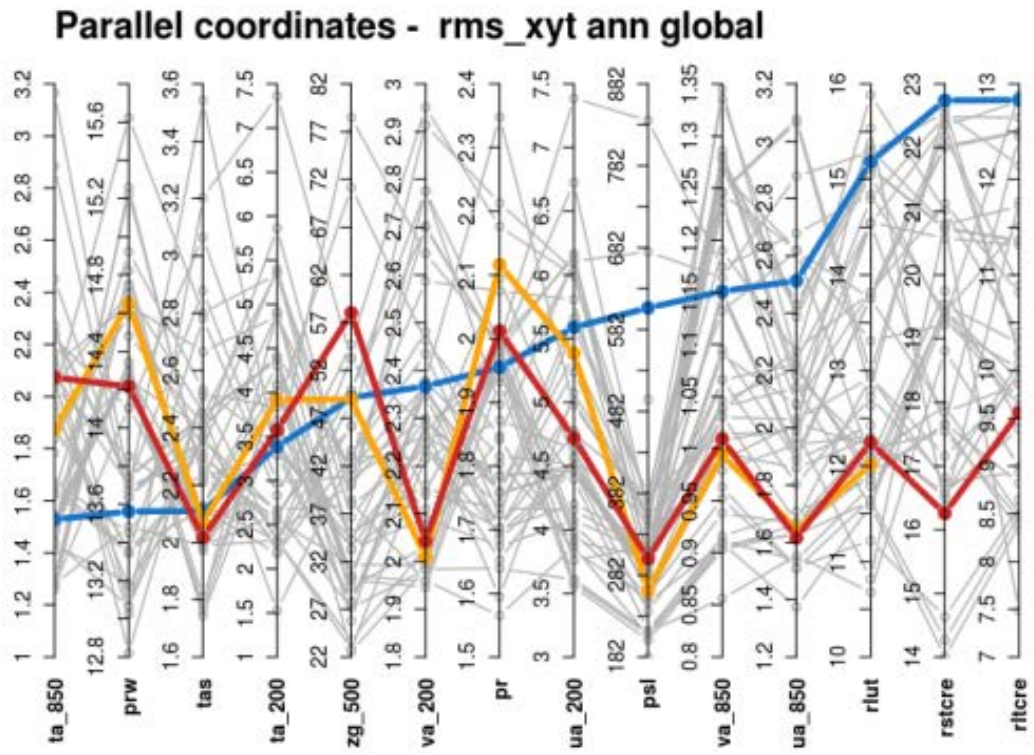
Legend:
- IPSLCM6.0.12_last_25Y
- CM609-LR-pdCtrl-01_last_25Y
- IPSL-CM5A-MR
- ACCESS1-0
- ACCESS1-3
- bcc-csm1-1
- bcc-csm1-1-m
- BNU-ESM
- CanCM4
- CanESM2
- CCSM4
- CESM1-BGC
- CESM1-CAM5
- CESM1-CAM5-1-FV2
- CESM1-FASTCHEM
- CESM1-WACCM
- CMCC-CESM
- CMCC-CM
- CMCC-CMS
- CNRM-CM5
- CSIRO-Mk3-6-0
- EC-EARTH
- FGOALS-g2
- FIO-ESM
- GFDL-CM2p1
- GFDL-CM3
- GFDL-ESM2G
- GFDL-ESM2M
- GISS-E2-H
- GISS-E2-H-CC
- GISS-E2-R
- GISS-E2-R-CC
- HadCM3
- HadGEM2-AO
- HadGEM2-CC
- HadGEM2-ES
- inmcm4
- IPSL-CM5A-LR
- IPSL-CM5B-LR
- MIROC-ESM
- MIROC-ESM-CHEM
- MIROC4h
- MIROC5
- MPI-ESM-LR
- MPI-ESM-MR
- MPI-ESM-P
- MRI-CGCM3
- NorESM1-M
- NorESM1-ME

missing variables = hus_850, huss, rlutcs, rsut, rsutcs, tauv, uas, vas, rtnetcre, tauu

Axis labels: ta_850, prw, tas, ta_200, zg_500, va_200, pr, ua_200, psl, va_850, ua_850, rlut, rstcre, rltcre

Credits: Jérôme Servonnat, LSCE

Experience with CMIP forcings

- CNRM-CERFACS: Numerous (and necessary) revisions of the forcing data sets led the group to give up the idea to run a whole spin up with the latest forcings: start with restart from previous run using previous conditions.

- IPSL: "We have a rather good experience now. We are still a little worried about the stratospheric aerosol dataset which is a little noisy although the latest clarifications from ETHZ were reassuring. A "master" dataset at some reference wavelengths (independent of the model RT wavebands) would be useful."

Message to WGCM

- Please please please, we need a stable and final (?) data request! We cannot take changes into account after Nov. 1st 2017.

- For CMIP7, we hope the structure of the DR stays similar because IPSL and CNRM invested a lot in terms of software development.

- Neither CNRM nor IPSL will duplicate the output data in their native format, the output of the model will directly be according to the data request specifications.

- Need for rigorous versioning and data management of some forcing datasets