Appendix 1.1 Experiment Controlled Vocabulary

Coupled Model "Decadal" Simulations**

Experiment number	Short Name of Experiment (In CMIP5 output files this is recorded in the global attribute named experiment_id".)	Experiment Name (In CMIP5 output files this is recorded in the global attribute named "experiment".)	Experiment Description	Years requested per run	Ensemble size requested
1.1, 1.2 & 1.5	decadalXXXX*	10- or 30-year run initialized in year XXXX*	decadal hindcasts/predictions, some extended to 30 years	10-30	≥3*≥10
1.3	noVolcXXXX*	volcano-free hindcasts	hindcasts but without volcanoes	10-30	≥3
1.4	volcIn2010	prediction with 2010 volcano	Pinatubo-like eruption imposed in year 2010	10-30	≥3

* Replace 'XXXX' with the year in which the decadal prediction was initiated (typically near the end of year XXXX). As an example, a simulation focusing on the 10-year period from January 1966 through December 1975 will typically be initiated sometime between September 1, 1965 and January 1, 1966. All such simulations would be labeled decadal1965.

** Note that in the original experiment design document for CMIP5, an experiment 1.6 was called for, but this simply was to draw attention to the possibility of doing decadal simulations using models with more expensive treatments of atmospheric chemistry and aerosols. No additional controlled vocabulary is necessary to describe these experiments; one of the above names will apply. Users will determine what model was used and how chemistry and aerosols were treated from the model name and documentation.

Coupled Model Long-Term Simulations

Experiment number	Short Name of Experiment (In CMIP5 output files this is recorded in the global attribute named experiment_id".)	Experiment Name (In CMIP5 output files this is recorded in the global attribute named "experiment".)	Experiment Description	Years requested per run	Ensemble size requested
3.1	piControl	pre-industrial control	coupled atmosphere/ocean pre-industrial control run	≥500	1
3.2	historical	historical	simulation of recent past (1850-2005)	156	≥1
3.4	midHolocene	mid-Holocene	consistent with PMIP, impose Mid-Holocene conditions	100	1
3.5	lgm	last glacial maximum	consistent with PMIP, impose last glacial maximum conditions	100	1
3.6	past1000	last millennium	consistent with PMIP, impose forcing for 850-1850	1000	1
4.1	rcp45	RCP4.5	future projection (2006-2300) forced by RCP4.5	95-295	1
4.2	rcp85	RCP8.5	future projection (2006-2300) forced by RCP8.5	95-295	1
4.3	rcp26	RCP2.6	future projection (2006-2300) forced by RCP2.6	95-295	1
4.4	rcp60	RCP6	future projection (2006-2100) forced by RCP6	95	1
5.1	esmControl	ESM pre-industrial control	as in experiment 3.1, but emissions-forced (with atmospheric CO2 determined by model)	250	1
5.2	esmHistorical	ESM historical	as in experiment 3.2, but emissions-forced (with atmospheric CO2 determined by model)	156	1

5.3	esmrcp85	ESM RCP8.5	as in experiment 4.2, but emissions-forced (with atmospheric CO2 determined by model)	95	1
5.4-1	esmFixClim1	ESM fixed climate 1	radiation code "sees" control CO2, but carbon cycle sees 1%/yr rise	140	1
5.4-2	esmFixClim2	ESM fixed climate 2	radiation code "sees" control CO2, but carbon cycle sees historical followed by RCP4.5 rise in CO2	251	1
5.5-1	esmFdbk1	ESM feedback 1	carbon cycle "sees" control CO2, but radiation sees 1%/yr rise	140	1
5.5-2	esmFdbk2	ESM feedback 2	carbon cycle "sees" control CO2, but radiation sees historical followed by RCP4.5 rise in CO2	251	1
6.1	1pctCO2	1 percent per year CO2	imposed 1%/yr increase in CO2 to quadrupling	140	1
6.3	abrupt4xCO2	abrupt 4XCO2	impose an instantaneous quadrupling of CO2, then hold fixed	150	≥1
7.1	historicalNat	natural-only	historical simulation but with natural forcing only	156	≥1
7.2	historicalGHG	GHG-only	historical simulation but with greenhouse gas forcing only	156	≥1
7.3	historicalMisc*	other historical forcing	historical simulation but with other individual forcing agents or combinations of forcings.	156	≥1
7.4	historicalExt	historical extension	extension of the historical simulation (experiment 3.2) through year 2012.	7	≥1

* The forcing in these runs will be specified in a global attribute in the file, relying in so far as possible on the controlled vocabulary abbreviations defined in Appendix 1.2. When more than one run of this type is done, the runs will be distinguishable by being assigned different “perturbed physics” numbers, p<L>, as described under “ensemble member” in this document.

Atmosphere-Only Simulations

Experiment number	Short Name of Experiment (In CMIP5 output files this is recorded in the global attribute named experiment_id".)	Experiment Name (In CMIP5 output files this is recorded in the global attribute named "experiment".)	Experiment Description	Years requested per run	Ensemble size requested
3.3	amip	AMIP	AMIP (1979- at least 2008)	≥30	≥1
2.1	sst2030	2030 time-slice	conditions for 2026-2035 imposed	10	≥1
6.2a	sstClim	control SST climatology	control run climatological SSTs & sea ice imposed	30	1
6.2b	sstClim4xCO2	CO2 forcing	as in experiment 6.2a, but with 4XCO2 imposed	30	1
6.4a	sstClimAerosol	all aerosol forcing	as in experiment 6.2a, but with aerosols from year 2000 of experiment 3.2	30	1
6.4b	sstClimSulfate	sulfate aerosol forcing	as in experiment 6.2a, but with sulfate aerosols from year 2000 of experiment 3.2	30	1
6.5	amip4xCO2	4xCO2 AMIP	AMIP (1979-2008) conditions (experiment 3.3) but with 4xCO2	30	1
6.6	amipFuture	AMIP plus patterned anomaly	consistent with CFMIP, patterned SST anomalies added to AMIP conditions (experiment 3.3)	30	1
6.7a	aquaControl	aqua planet control	consistent with CFMIP, zonally uniform SSTs for ocean-covered earth	5	1
6.7b	aqua4xCO2	4xCO2 aqua planet	as in experiment 6.7a, but with 4XCO2	5	1
6.7c	aqua4K	aqua planet plus 4K anomaly	as in experiment 6.7a, but with a uniform 4K increase in SST	5	1
6.8	amip4K	AMIP plus 4K anomaly	as in experiment 3.3, but with a uniform 4K increase in SST	30	1