

# Bias Metrics of CMIP6 Models against ERA5-Land Reanalysis in Google Earth Engine (Kazakhstan Aggregated)

Metrics for Temperature			
Model	Mean Bias	Mean Absolute Bias	Standard Deviation of Bias
ACCESS-CM2	-0.645585443287956	0.8100275474288002	0.70082984627119
ACCESS-ESM1-5	-0.728793849692444	0.872564732236862	0.7006716331823106
BCC-CSM2-MR	-0.6034494931679726	0.7779787211841646	0.7023770839177498
CESM2	-0.24849328243142338	0.5433082894215047	0.6782500942620285
CESM2-WACCM	-0.3047453766979046	0.5788327369876011	0.6834319743730395
CMCC-CM2-SR5	3.657141944887913	3.6595173752964762	0.6863156029298504
CMCC-ESM2	-0.720566269317495	0.869301726041168	0.7062715334966991
CNRM-CM6-1	-0.7910745054038787	0.923077504983879	0.7058288732230308
CNRM-ESM2-1	-0.7415386828998749	0.8858605884078018	0.7020616060760786
CanESM5	-0.7009414423690787	0.8539006398769201	0.7045072973248206
EC-Earth3	-0.6491919782746546	0.8059014220096762	0.6911204570090475
EC-Earth3-Veg-LR	-0.6524652327107656	0.811293589420095	0.6960972770687588
FGOALS-g3	-0.7445914414490763	0.8905479966392597	0.7088115157559257
GFDL-CM4	-0.6376694314117178	0.8096851971703828	0.7242504584734385
GFDL-ESM4	-0.5884529347863198	0.7636985760226809	0.6961089258154325
GISS-E2-1-G	-0.6204042480971437	0.7856098672101393	0.7009034834526104
HadGEM3-GC31-LL	-0.3292351001005386	0.5734351914990677	0.6785411576587733
INM-CM4-8	-0.684948163671029	0.8480827220101518	0.712063490475542
INM-CM5-0	-0.6185128540196605	0.7909943602461806	0.7037608573000351
IPSL-CM6A-LR	-0.7667302180004321	0.904029702846878	0.7039291508649917
KACE-1-0-G	-0.4040909045705996	0.6341696631942683	0.6906367184461625
KIOST-ESM	-0.7027345716815915	0.8589607032674023	0.71690807142423
MIROC-ES2L	-0.6195235050591777	0.7911398323912965	0.7030526182720224
MIROC6	-0.6358125301971583	0.8045963626415544	0.7031819709061817
MPI-ESM1-2-HR	-0.7889827756016321	0.9274204880162654	0.7132005592321202
MPI-ESM1-2-LR	-0.6661111686258048	0.8177185590287862	0.6920948512711492
MRI-ESM2-0	-0.5661362008897922	0.7501265249307281	0.7037277527847396
NESM3	-0.6673559290875972	0.8252065263822909	0.6966477376525619
NorESM2-LM	-0.6354108019056328	0.8014237440242844	0.7016310574135697
NorESM2-MM	-0.638227468569686	0.8034154812240564	0.7016018684712355
TaiESM1	3.758312092156602	3.7606245026830227	0.6719776577680034
UKESM1-0-LL	-0.3890898286781046	0.6219456908891521	0.6872727486060028



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Metrics for Precipitation			
Model	Mean Bias	Mean Absolute Bias	Standard Deviation of Bias
ACCESS-CM2	-6.868888864375958	8.051877996226272	9.621521282425627
ACCESS-ESM1-5	-7.198168292931944	8.291872084154567	9.637118545310349
BCC-CSM2-MR	-6.685689024413097	7.8547019679777215	9.59692160176399
CESM2	-6.777427107733343	7.942997090501575	9.564490746978278
CESM2-WACCM	-7.074124668925356	8.191963646037665	9.716783717947683
CMCC-CM2-SR5	-7.154137314203579	8.211376219901402	9.65390639492245
CMCC-ESM2	-6.794974374829721	7.906433549888723	9.595578830520237
CNRM-CM6-1	-6.845685827773691	8.01585510191999	9.742800963629444
CNRM-ESM2-1	-6.970065741295857	8.06481699717386	9.749033091136656
CanESM5	-7.210448356109937	8.279453503501502	9.724785874175902
EC-Earth3	-7.074575975164628	8.163541668820296	9.72753511236592
EC-Earth3-Veg-LR	-6.931435324994411	8.039612560250001	9.595373171019943
FGOALS-g3	-7.1251950904030785	8.228921702676121	9.667460431789763
GFDL-CM4	-6.7095809739987455	7.918458462240368	9.624687409062131
GFDL-ESM4	-6.972109736684423	8.062259429431839	9.60638217690559
GISS-E2-1-G	-7.274213491476919	8.352587420310279	9.681225737776055
HadGEM3-GC31-LL	-6.958605406898828	8.071970517014504	9.633413270029338
INM-CM4-8	-6.919588527217709	8.082629710232405	9.739243006348989
INM-CM5-0	-7.020007502962524	8.121985570427118	9.639813330813235
IPSL-CM6A-LR	-7.4985598949276095	8.070895899992482	9.057174146516477
KACE-1-0-G	-7.843834049857596	9.491427142005215	11.12822569912483
KIOST-ESM	-7.117909043748284	8.221986935504551	9.712975707628068
MIROC-ES2L	-7.185633845273068	8.275864503542575	9.697166623430066
MIROC6	-7.103662656651346	8.16869608902616	9.61130024357349
MPI-ESM1-2-HR	-6.879274635706806	7.988664810816196	9.632904809919317
MPI-ESM1-2-LR	-7.209595271090738	8.323338630891813	9.768279108407238
MRI-ESM2-0	-7.000737185511934	8.096014665907983	9.626737924590174
NESM3	-7.235155058041317	8.370790164419613	9.875407347577909
NorESM2-LM	-7.006187381238364	8.192056138248883	9.734036195892719
NorESM2-MM	-7.001464004956902	8.137604126512544	9.637632054408648
TaiESM1	-6.79522726611303	7.932332900695833	9.585122874934997
UKESM1-0-LL	-6.828058811155284	7.943823195423737	9.55525181301127