Appendix B

This appendix contains plots of the ensemble mean of simulated level-1[1] annual mean streamflows at 12 locations and water levels at five reservoirs as a function of time. Separate narrow lines are plotted for each simulation based on the indicated Coupled Model Intercomparison Project - Phase 3 (CMIP3) data set and greenhouse-gas emission scenario combinations, as described in the following tables. Two wider lines are plotted representing the medians of simulation results based on the A2 and A1b emission scenarios. A dashed line is also drawn representing the mean annual streamflow or water level computed from simulation results for a historical reference period extending from 1991 to 2010.

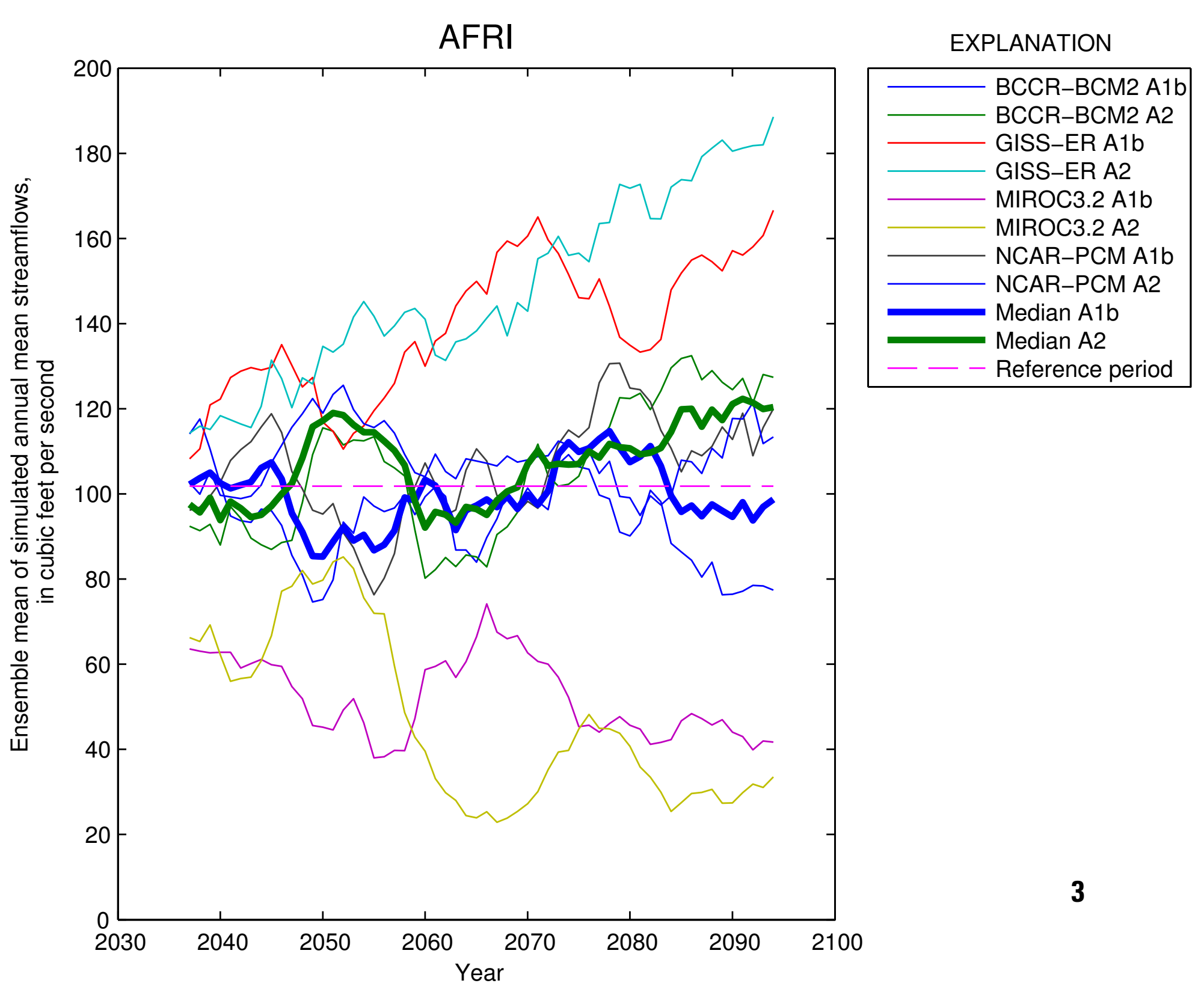
The following tables list the identifiers or designations shown on the plots that are associated with the CMIP3 data sets, emission scenarios, and sites.

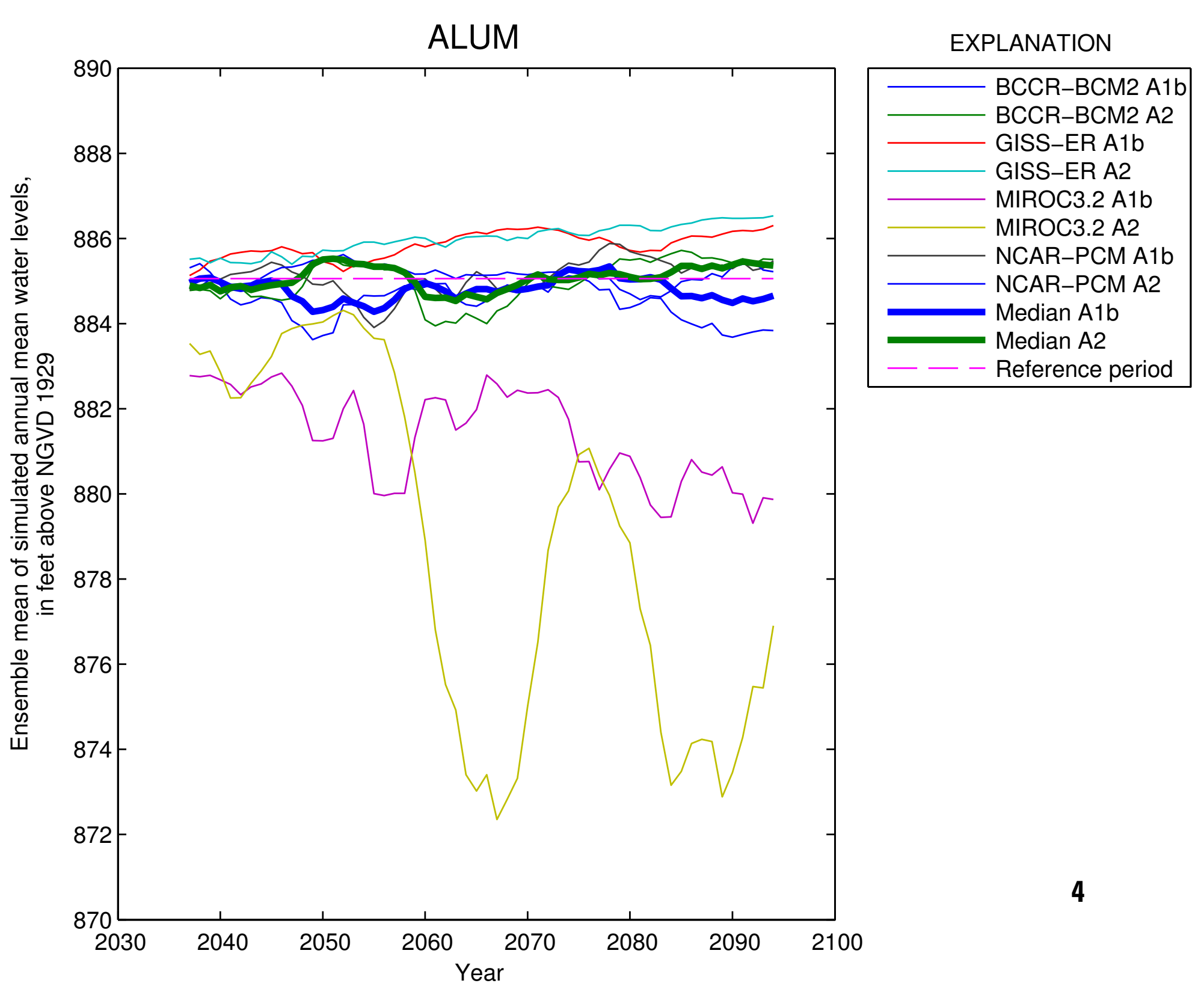
CMIP3 Identifier	Originating group(s)	Country
BCCR-BCM2	Bjerknes Centre for Climate Research	Norway
GISS-ER	NASA / Goddard Institute for Space Studies	USA
MIROC3.2	Center for Climate System Research (The University of Tokyo) National Institute for Environmental Studies and Frontier Research Center for Global Change	Japan
NCAR- PCM	National Center for Atmospheric Research	USA

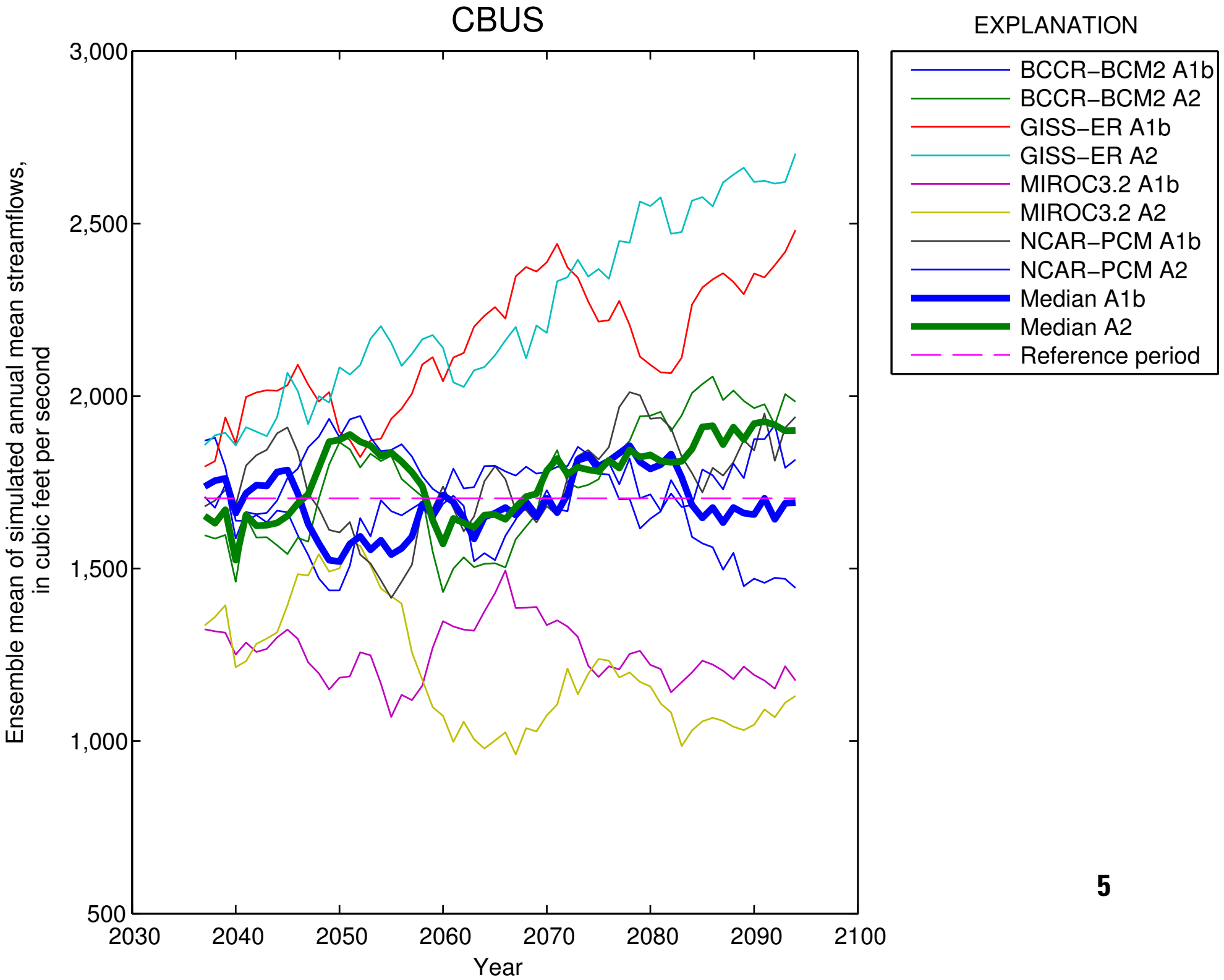
[1] Level 1 simulations account only for anticipated 21st-century changes in climate and operations of three City of Columbus upground reservoirs located in northwest Delaware County, Ohio.

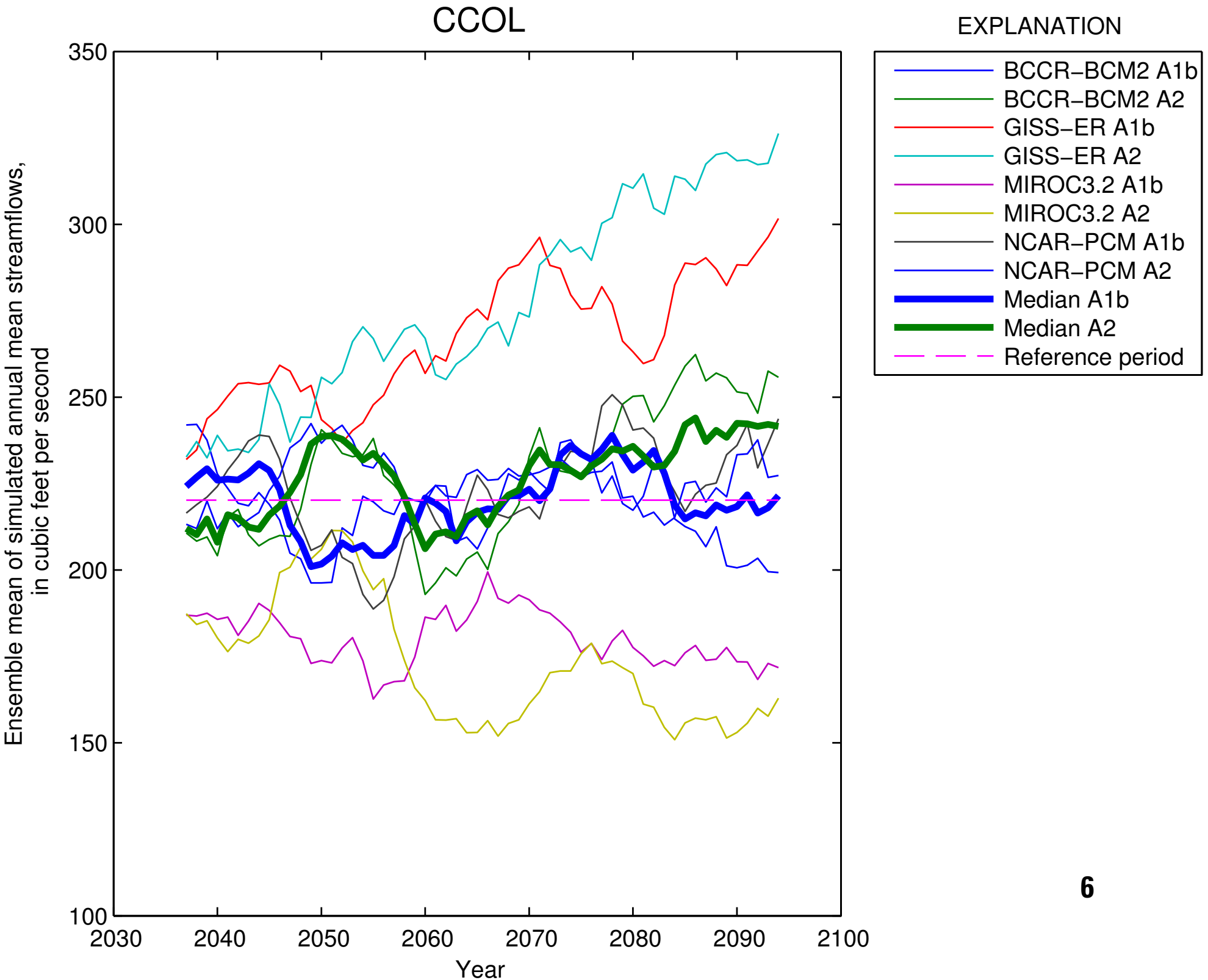
Special Report on Emissions Scenario Designation	Description
A2	The A2 scenario represents a divided world that is characterized by: • A world of independently operating, self-reliant nations. • Continuously increasing population. • Regionally oriented economic development.
A1b	The A1b scenario represents a more integrated world that is characterized by: • Rapid economic growth. • A global population that reaches almost 9 billion in 2050 and then gradually declines. • The quick spread of new and efficient technologies. • A convergent world - income and way of life converge between regions. Extensive social and cultural interactions worldwide. • A balanced emphasis on all energy sources.

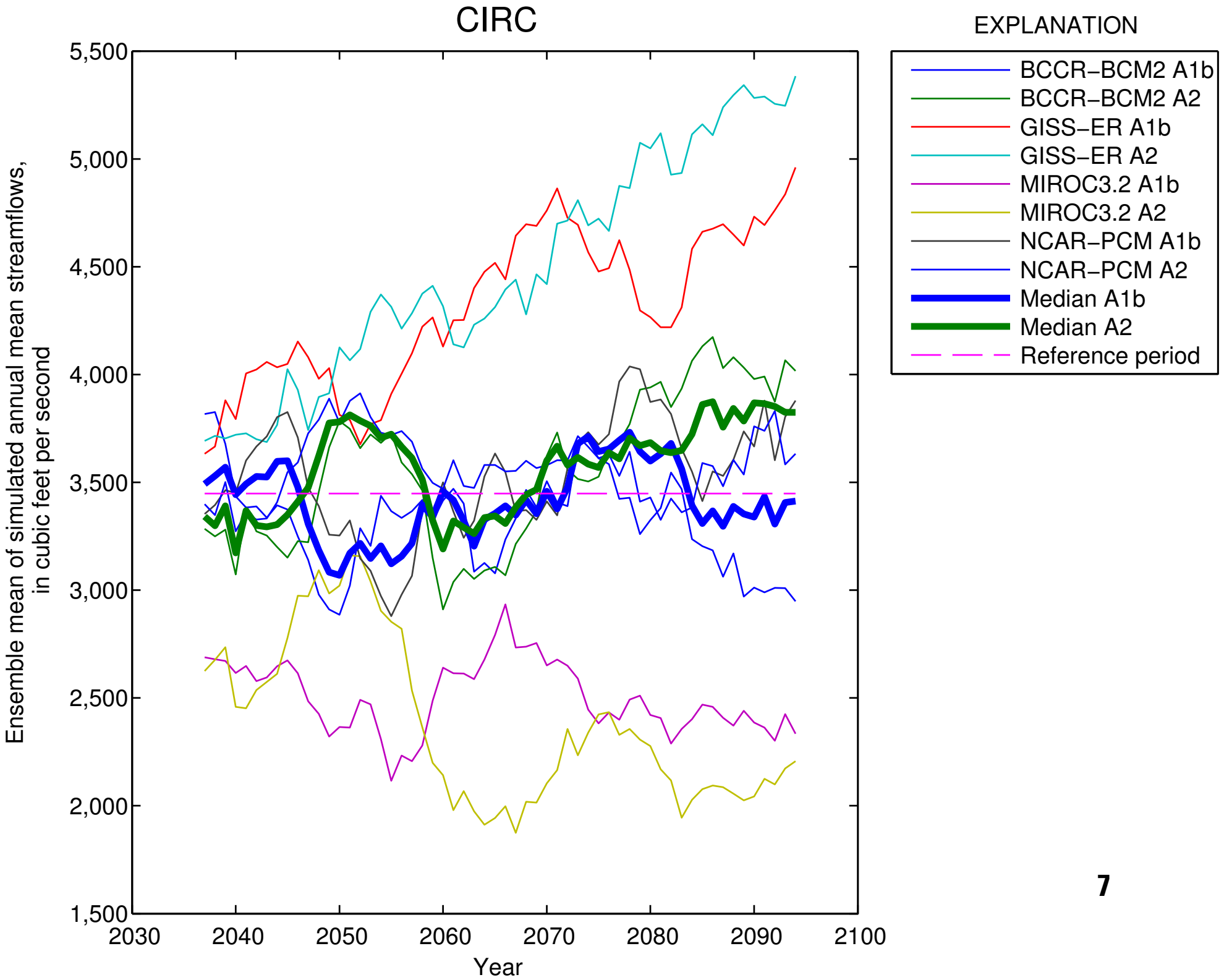
Site ID	Description	Latitude	Longitude
AFRI	Alum Creek at Africa, OH	40° 10' 56"	82° 57' 41"
ALUM	Alum Creek Reservoir, OH	40° 11' 11"	82° 57' 59"
CBUS	Scioto River at Columbus, OH	39° 54' 34"	83° 00' 32"
CCOL	Big Walnut Creek at Central College, OH	40° 06' 12"	82° 53' 02"
CIRC	Scioto River at Circleville, OH	39° 36' 05"	82° 57' 18"
CLAR	Olentangy River at Claridon, OH	40° 34' 59"	82° 59' 22"
DELA	Olentangy River near Delaware, OH	40° 21' 18"	83° 04' 05"
DELL	Delaware Lake, OH	40° 21' 31"	83° 04' 09"
GRIG	Griggs Reservoir, OH	40° 00' 58"	83° 05' 38"
HOOV	Hoover Reservoir, OH	40° 06' 30"	82° 52' 53"
LSCI	Little Scioto River at mouth, OH	40° 31' 21"	83° 12' 20"
MILL	Mill Creek near Bellepoint, OH	40° 14' 55"	83° 10' 26"
OLEN	Olentangy River at mouth, OH	39° 57' 54"	83° 01' 01"
OLOC	Olentangy River near Olentangy Caverns, OH	40° 11' 55"	83° 03' 09"
OSHY	O'Shaughnessy Reservoir, OH	40° 09' 14"	83° 07' 32"
PROS	Scioto River near Prospect, OH	40° 25' 10"	83° 11' 50"
SROR	Scioto River at confluence with Olentangy River	39° 57' 54"	83° 01' 01"

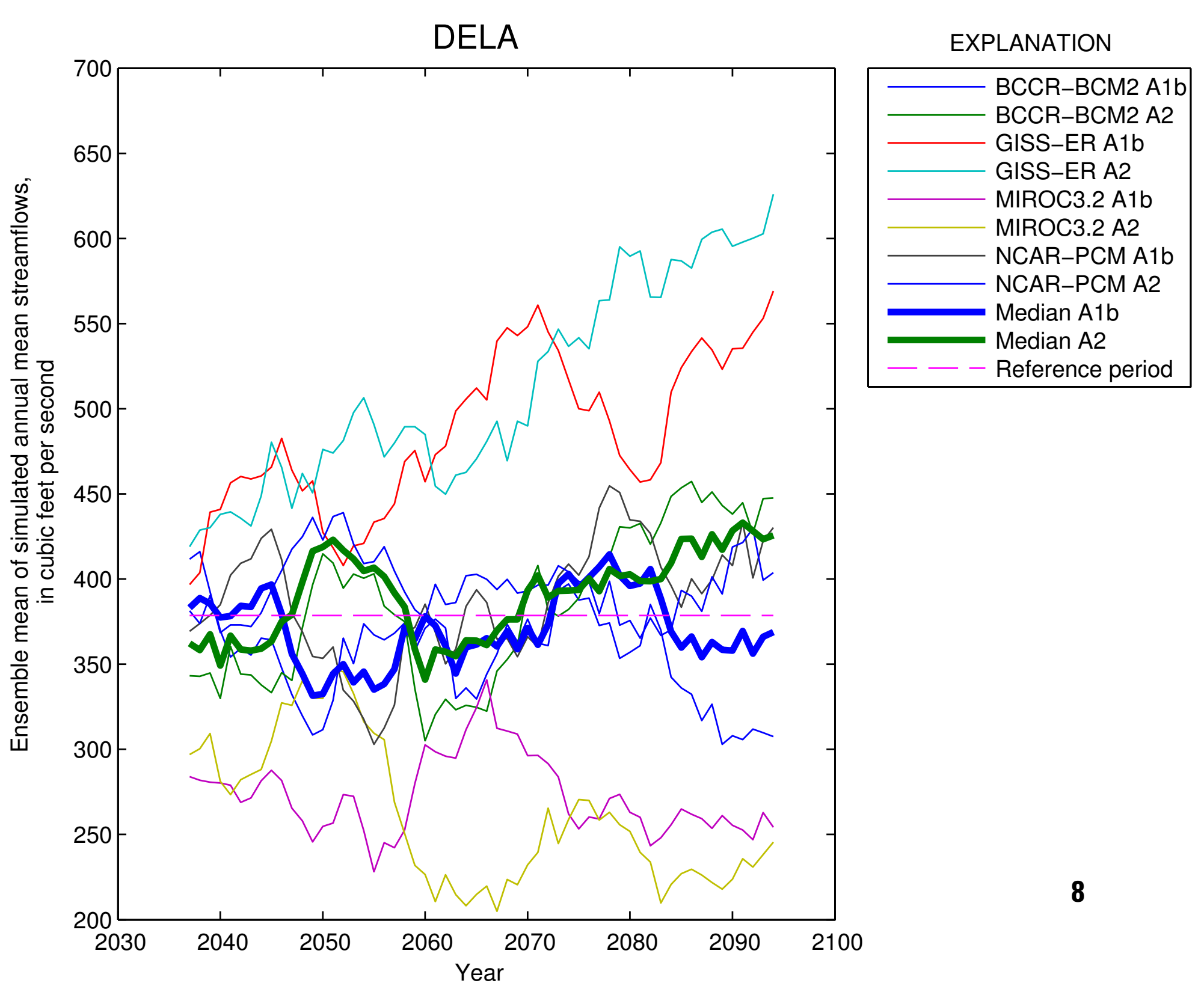

AFRI
EXPLANATION
BCCR–BCM2 A1b
BCCR–BCM2 A2
GISS–ER A1b
GISS–ER A2
MIROC3.2 A1b
MIROC3.2 A2
NCAR–PCM A1b
NCAR–PCM A2
Median A1b
Median A2
Reference period
Ensemble mean of simulated annual mean streamflows, in cubic feet per second
Year
0
20
40
60
80
100
120
140
160
180
200
2030
2040
2050
2060
2070
2080
2090
2100

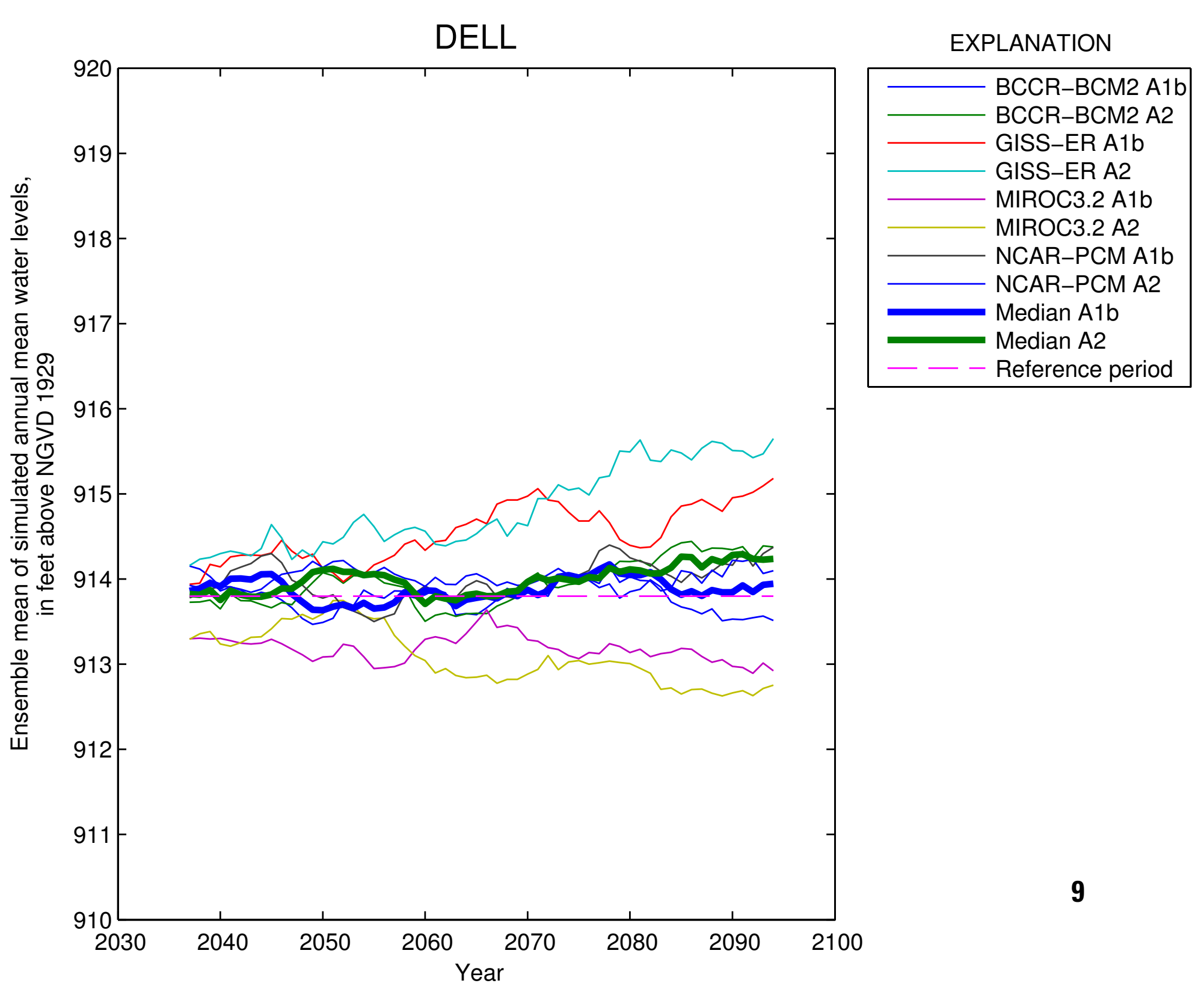

ALUM
EXPLANATION
BCCR–BCM2 A1b
BCCR–BCM2 A2
GISS–ER A1b
GISS–ER A2
MIROC3.2 A1b
MIROC3.2 A2
NCAR–PCM A1b
NCAR–PCM A2
Median A1b
Median A2
Reference period
Ensemble mean of simulated annual mean water levels, in feet above NGVD 1929
890
888
886
884
882
880
878
876
874
872
870
2030
2040
2050
2060
2070
2080
2090
2100
Year

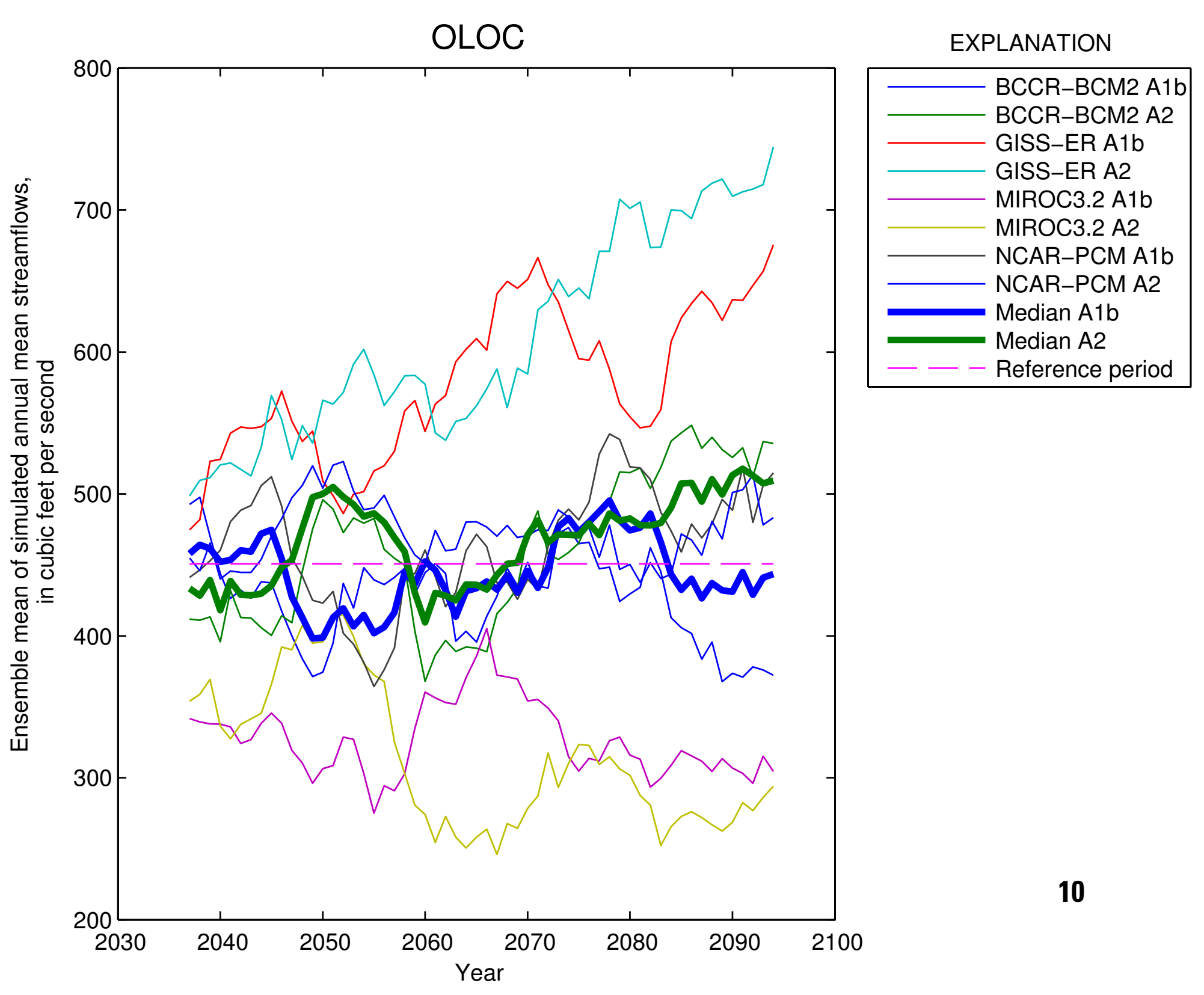

CBUS
EXPLANATION
BCCR–BCM2 A1b
BCCR–BCM2 A2
GISS–ER A1b
GISS–ER A2
MIROC3.2 A1b
MIROC3.2 A2
NCAR–PCM A1b
NCAR–PCM A2
Median A1b
Median A2
Reference period
Ensemble mean of simulated annual mean streamflows, in cubic feet per second
3,000
2,500
2,000
1,500
1,000
500
2030
2040
2050
2060
2070
2080
2090
2100
Year

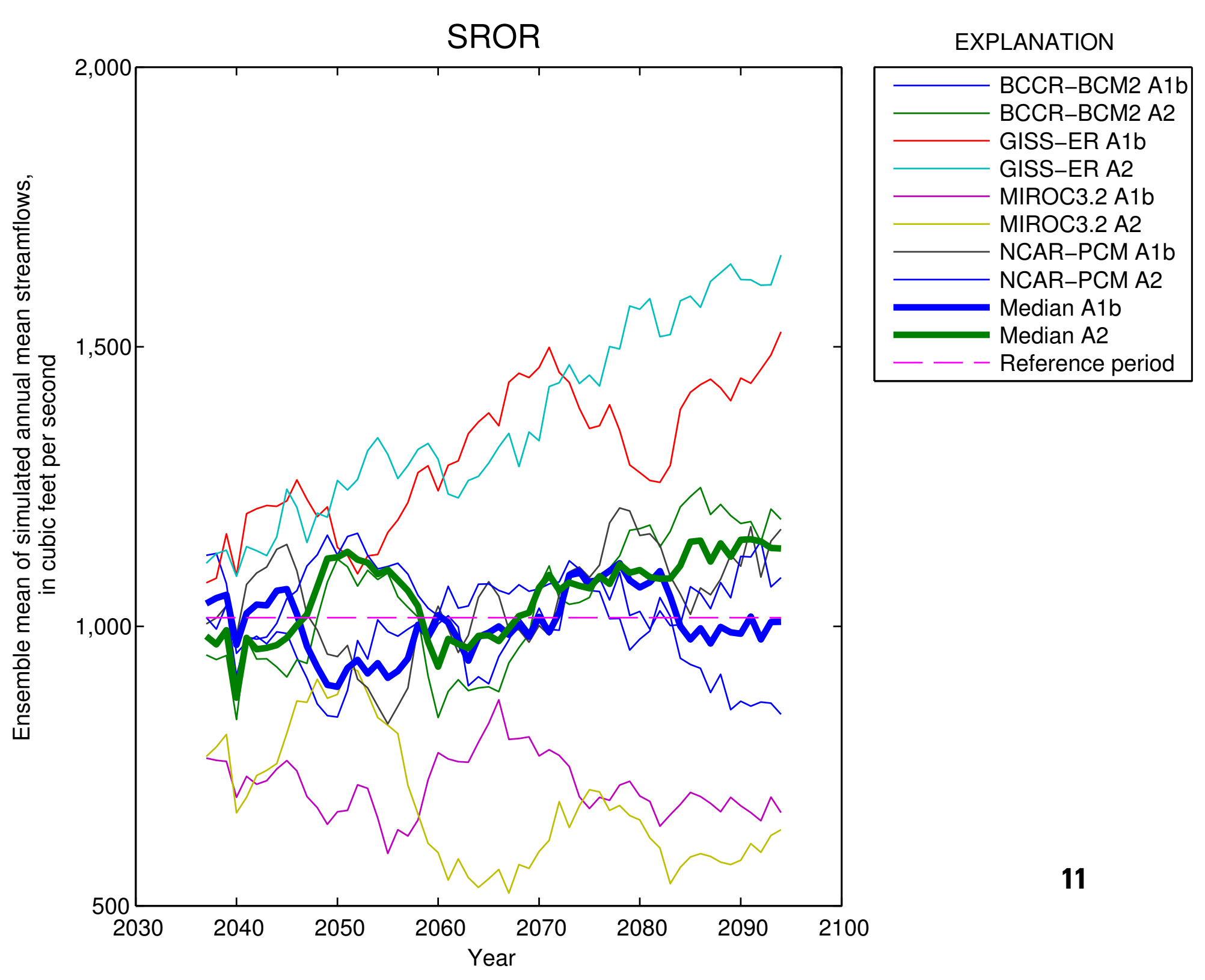

CCOL
EXPLANATION
BCCR–BCM2 A1b
BCCR–BCM2 A2
GISS–ER A1b
GISS–ER A2
MIROC3.2 A1b
MIROC3.2 A2
NCAR–PCM A1b
NCAR–PCM A2
Median A1b
Median A2
Reference period
Ensemble mean of simulated annual mean streamflows, in cubic feet per second
350
300
250
200
150
100
2030
2040
2050
2060
2070
2080
2090
2100
Year

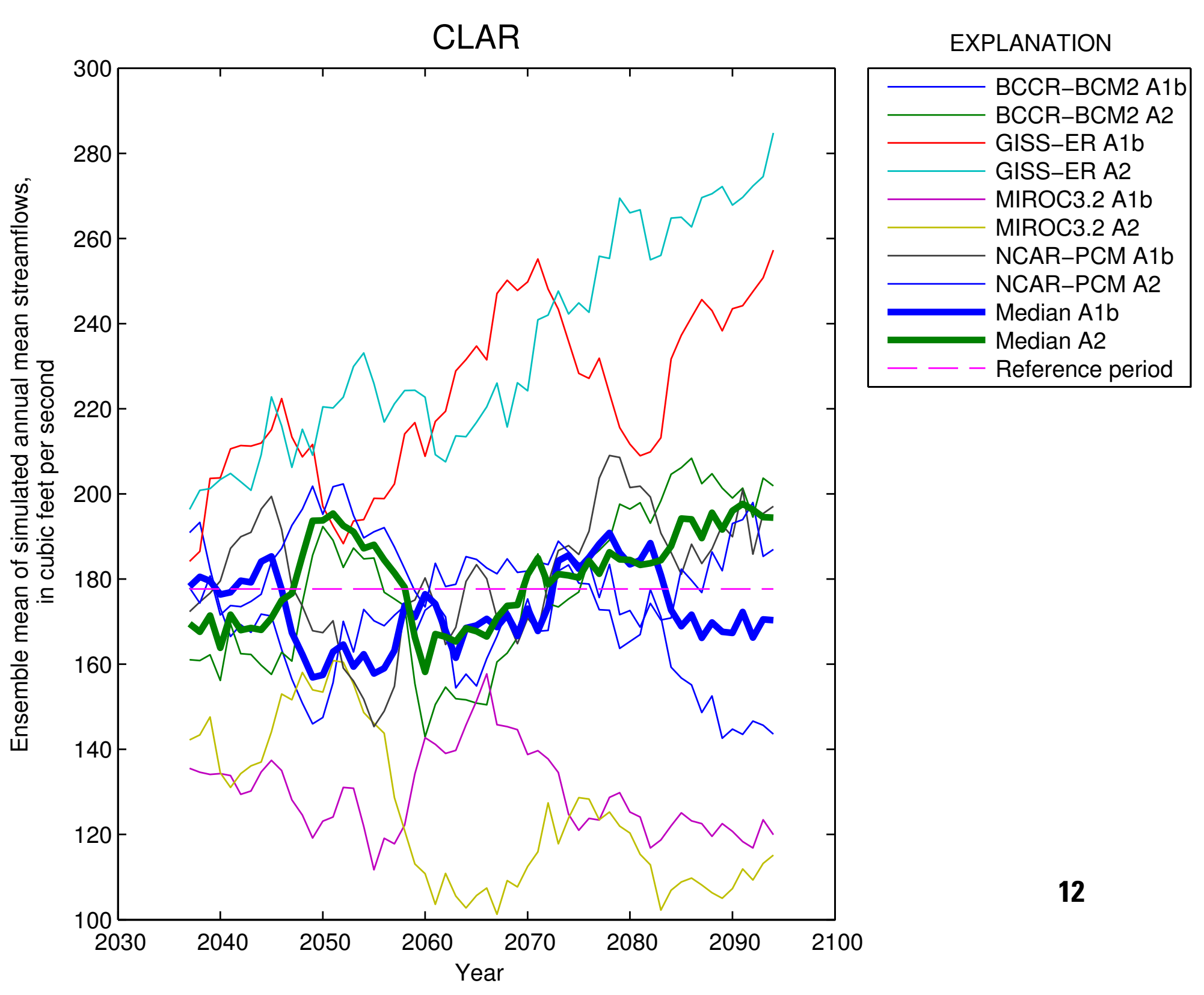

CIRC
EXPLANATION
BCCR–BCM2 A1b
BCCR–BCM2 A2
GISS–ER A1b
GISS–ER A2
MIROC3.2 A1b
MIROC3.2 A2
NCAR–PCM A1b
NCAR–PCM A2
Median A1b
Median A2
Reference period
Ensemble mean of simulated annual mean streamflows, in cubic feet per second
5,500
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
2030
2040
2050
2060
2070
2080
2090
2100
Year

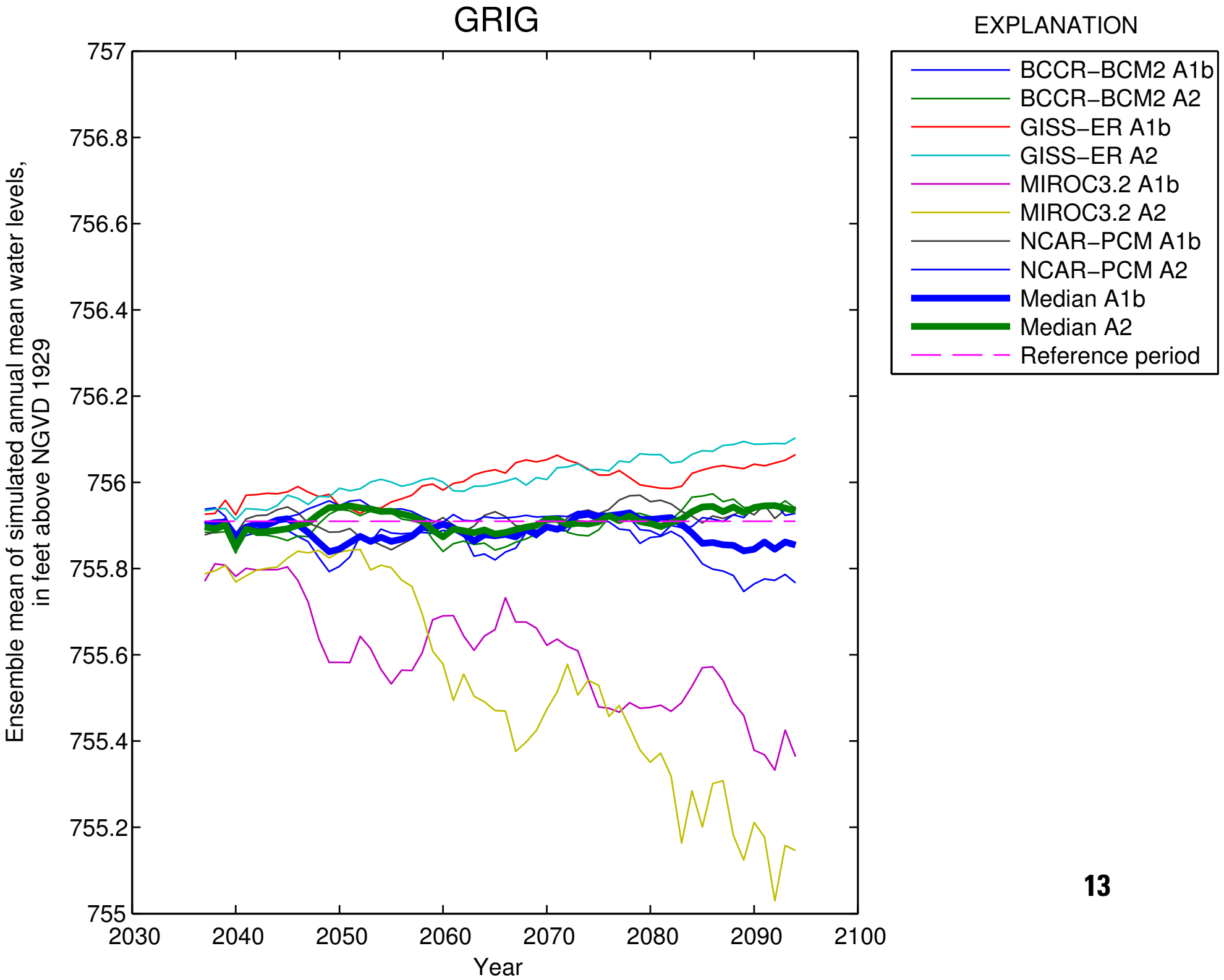

DELA
EXPLANATION
BCCR–BCM2 A1b
BCCR–BCM2 A2
GISS–ER A1b
GISS–ER A2
MIROC3.2 A1b
MIROC3.2 A2
NCAR–PCM A1b
NCAR–PCM A2
Median A1b
Median A2
Reference period
Ensemble mean of simulated annual mean streamflows, in cubic feet per second
Year
700
650
600
550
500
450
400
350
300
250
200
2030
2040
2050
2060
2070
2080
2090
2100

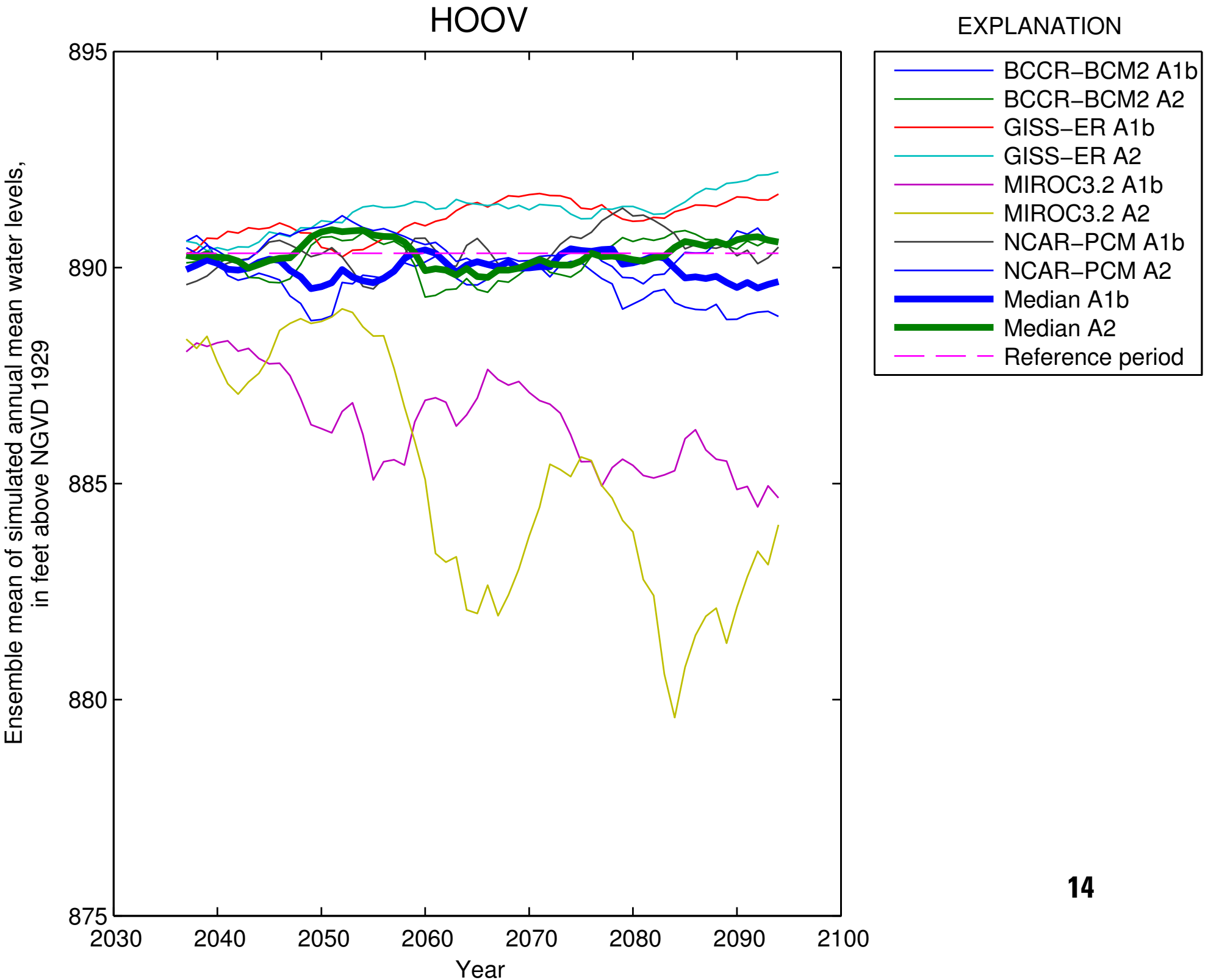

DELL
EXPLANATION
BCCR–BCM2 A1b
BCCR–BCM2 A2
GISS–ER A1b
GISS–ER A2
MIROC3.2 A1b
MIROC3.2 A2
NCAR–PCM A1b
NCAR–PCM A2
Median A1b
Median A2
Reference period
Ensemble mean of simulated annual mean water levels, in feet above NGVD 1929
920
919
918
917
916
915
914
913
912
911
910
2030
2040
2050
2060
2070
2080
2090
2100
Year

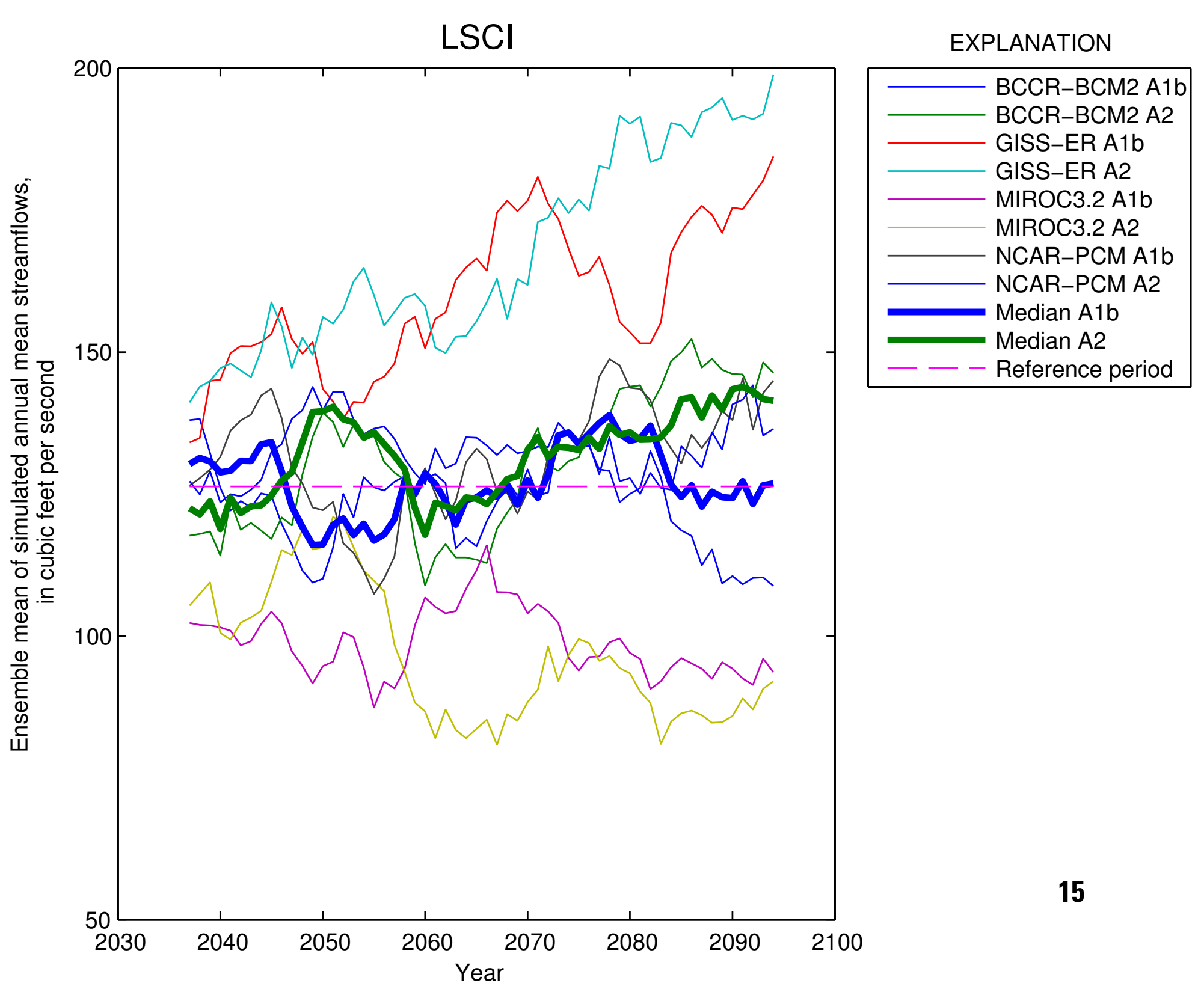

OLOC
EXPLANATION
BCCR–BCM2 A1b
BCCR–BCM2 A2
GISS–ER A1b
GISS–ER A2
MIROC3.2 A1b
MIROC3.2 A2
NCAR–PCM A1b
NCAR–PCM A2
Median A1b
Median A2
Reference period
Ensemble mean of simulated annual mean streamflows, in cubic feet per second
800
700
600
500
400
300
200
2030
2040
2050
2060
2070
2080
2090
2100
Year

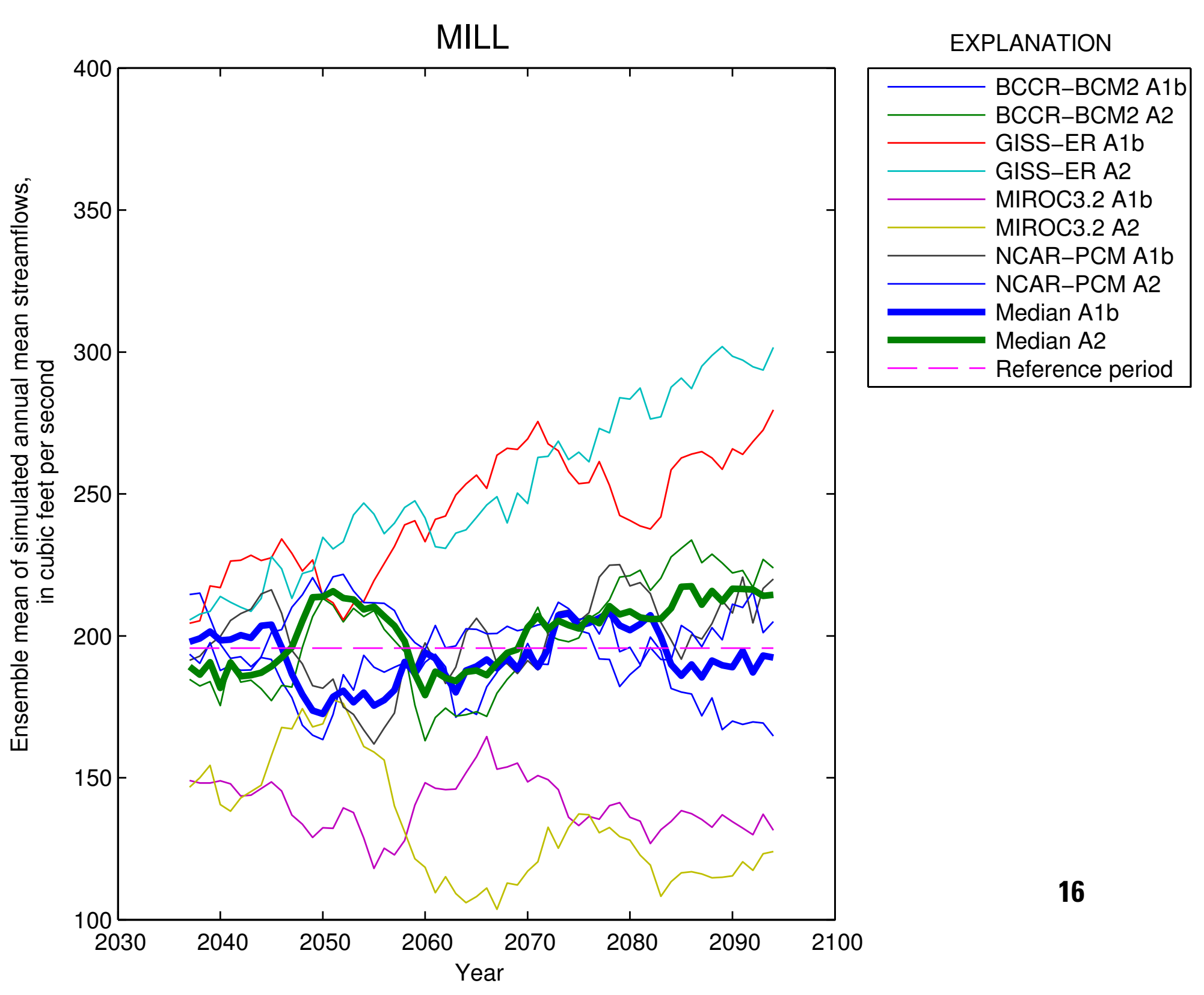

SROR
EXPLANATION
BCCR–BCM2 A1b
BCCR–BCM2 A2
GISS–ER A1b
GISS–ER A2
MIROC3.2 A1b
MIROC3.2 A2
NCAR–PCM A1b
NCAR–PCM A2
Median A1b
Median A2
Reference period
Ensemble mean of simulated annual mean streamflows, in cubic feet per second
2,000
1,500
1,000
500
2030
2040
2050
2060
2070
2080
2090
2100
Year

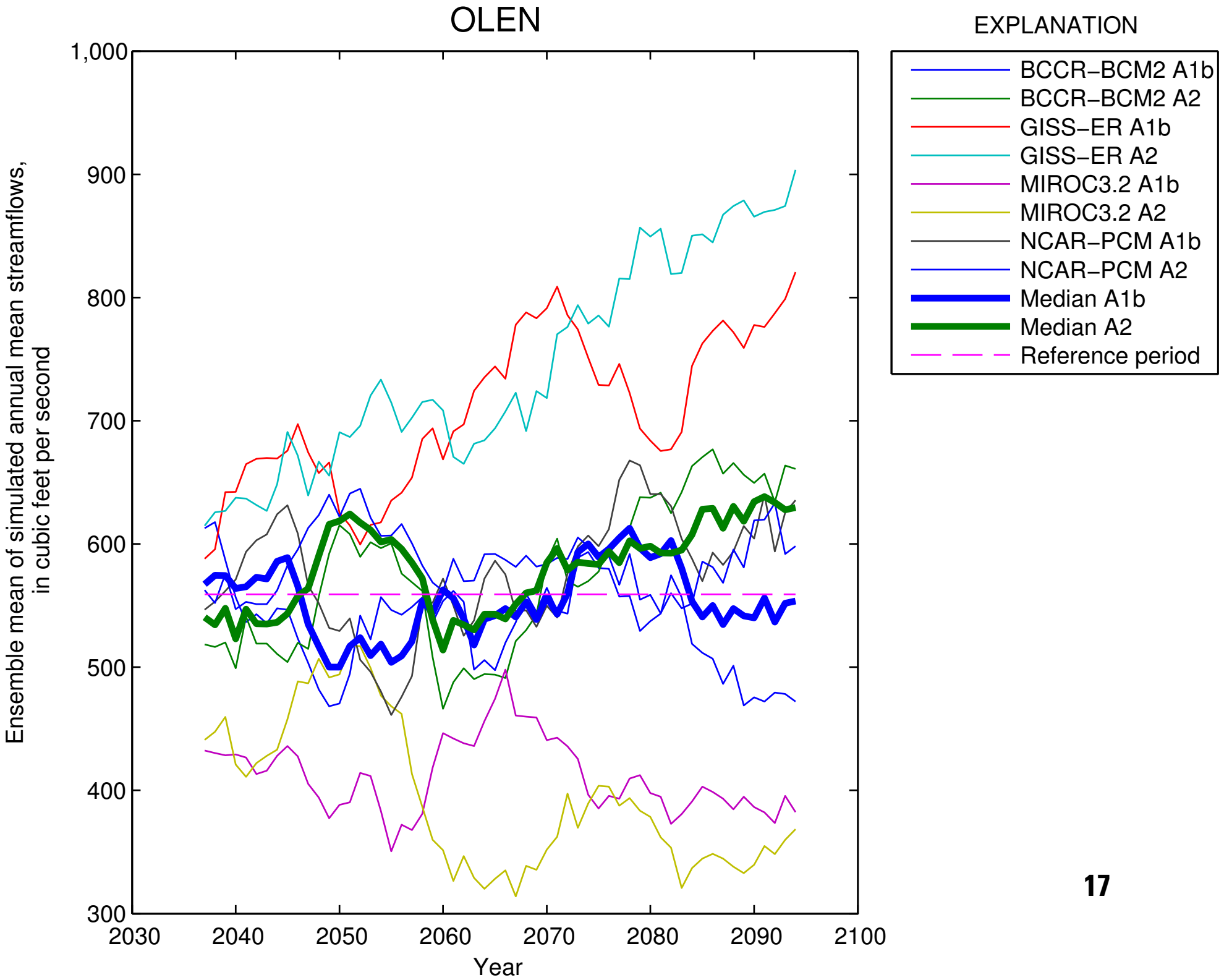

CLAR
EXPLANATION
BCCR–BCM2 A1b
BCCR–BCM2 A2
GISS–ER A1b
GISS–ER A2
MIROC3.2 A1b
MIROC3.2 A2
NCAR–PCM A1b
NCAR–PCM A2
Median A1b
Median A2
Reference period
Ensemble mean of simulated annual mean streamflows, in cubic feet per second
Year
300
280
260
240
220
200
180
160
140
120
100
2030
2040
2050
2060
2070
2080
2090
2100

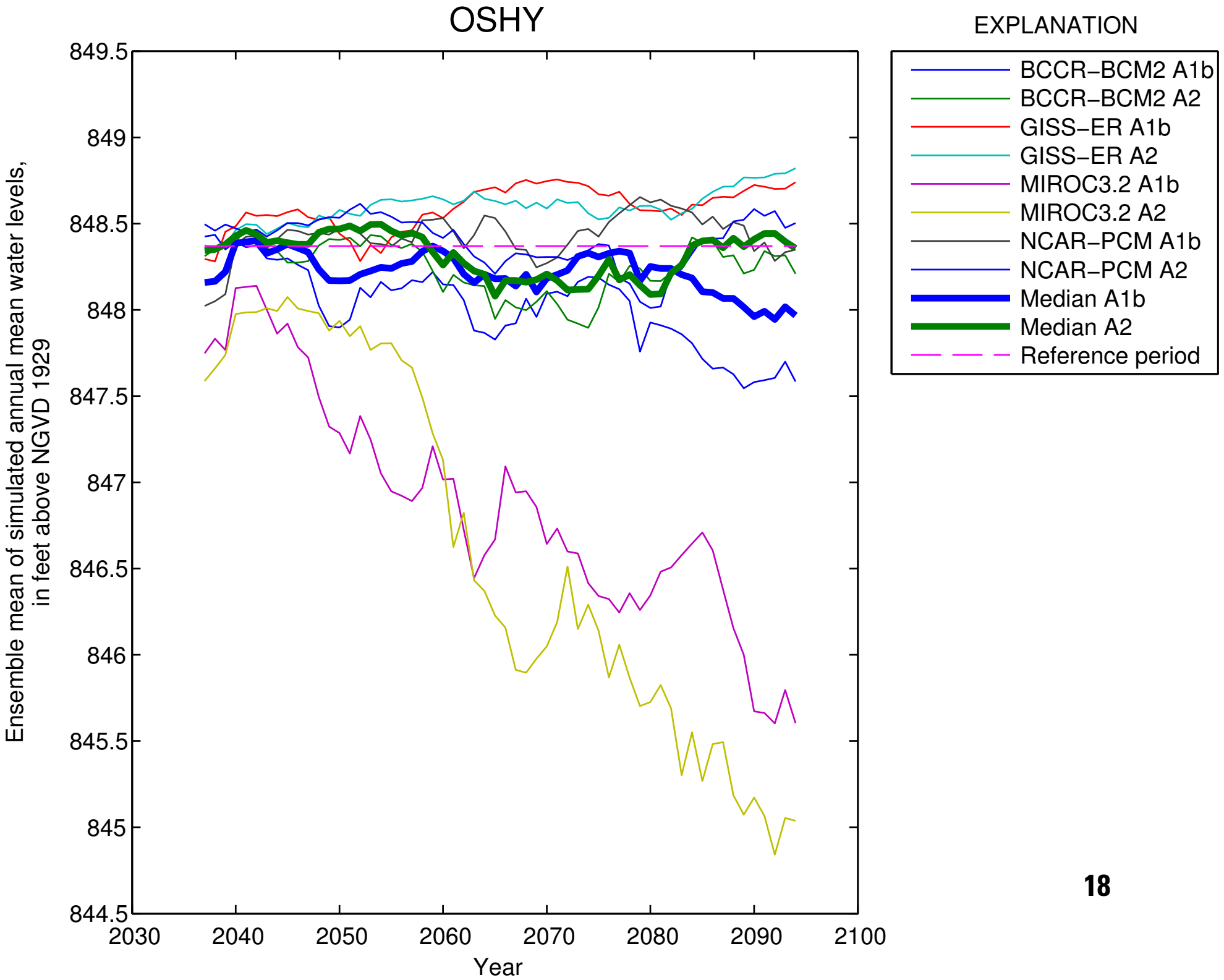

GRIG
EXPLANATION
BCCR–BCM2 A1b
BCCR–BCM2 A2
GISS–ER A1b
GISS–ER A2
MIROC3.2 A1b
MIROC3.2 A2
NCAR–PCM A1b
NCAR–PCM A2
Median A1b
Median A2
Reference period
Ensemble mean of simulated annual mean water levels, in feet above NGVD 1929
757
756.8
756.6
756.4
756.2
756
755.8
755.6
755.4
755.2
755
2030
2040
2050
2060
2070
2080
2090
2100
Year

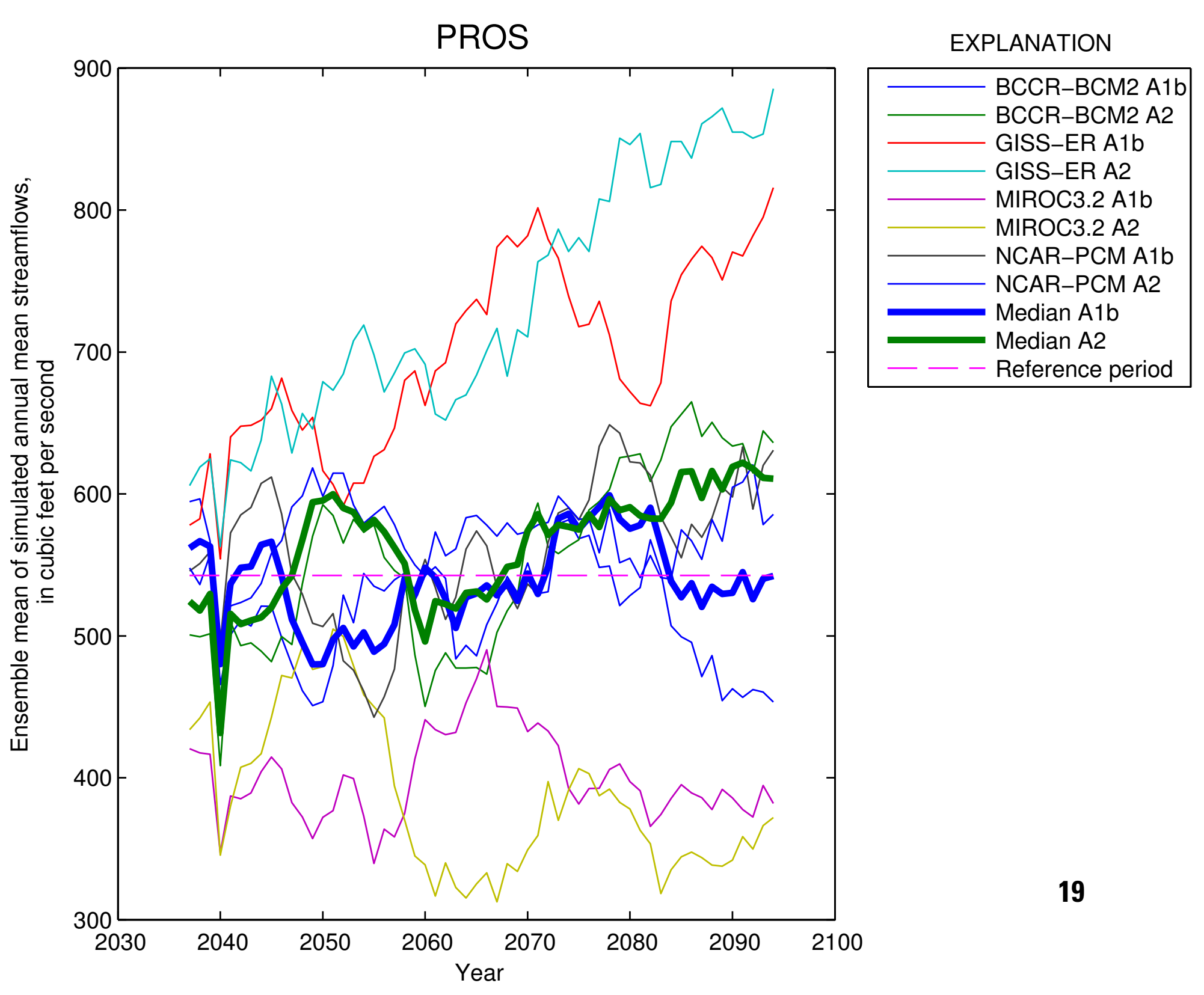

HOOV
EXPLANATION
BCCR–BCM2 A1b
BCCR–BCM2 A2
GISS–ER A1b
GISS–ER A2
MIROC3.2 A1b
MIROC3.2 A2
NCAR–PCM A1b
NCAR–PCM A2
Median A1b
Median A2
Reference period
Ensemble mean of simulated annual mean water levels, in feet above NGVD 1929
895
890
885
880
875
2030
2040
2050
2060
2070
2080
2090
2100
Year


LSCI
EXPLANATION
BCCR–BCM2 A1b
BCCR–BCM2 A2
GISS–ER A1b
GISS–ER A2
MIROC3.2 A1b
MIROC3.2 A2
NCAR–PCM A1b
NCAR–PCM A2
Median A1b
Median A2
Reference period
Ensemble mean of simulated annual mean streamflows, in cubic feet per second
200
150
100
50
2030
2040
2050
2060
2070
2080
2090
2100
Year


MILL
EXPLANATION
BCCR–BCM2 A1b
BCCR–BCM2 A2
GISS–ER A1b
GISS–ER A2
MIROC3.2 A1b
MIROC3.2 A2
NCAR–PCM A1b
NCAR–PCM A2
Median A1b
Median A2
Reference period
Ensemble mean of simulated annual mean streamflows, in cubic feet per second
Year
400
350
300
250
200
150
100
2030
2040
2050
2060
2070
2080
2090
2100


OLEN
EXPLANATION
BCCR–BCM2 A1b
BCCR–BCM2 A2
GISS–ER A1b
GISS–ER A2
MIROC3.2 A1b
MIROC3.2 A2
NCAR–PCM A1b
NCAR–PCM A2
Median A1b
Median A2
Reference period
Ensemble mean of simulated annual mean streamflows, in cubic feet per second
1,000
900
800
700
600
500
400
300
2030
2040
2050
2060
2070
2080
2090
2100
Year


OSHY
EXPLANATION
BCCR–BCM2 A1b
BCCR–BCM2 A2
GISS–ER A1b
GISS–ER A2
MIROC3.2 A1b
MIROC3.2 A2
NCAR–PCM A1b
NCAR–PCM A2
Median A1b
Median A2
Reference period
Ensemble mean of simulated annual mean water levels, in feet above NGVD 1929
849.5
849
848.5
848
847.5
847
846.5
846
845.5
845
844.5
2030
2040
2050
2060
2070
2080
2090
2100
Year


PROS
EXPLANATION
BCCR–BCM2 A1b
BCCR–BCM2 A2
GISS–ER A1b
GISS–ER A2
MIROC3.2 A1b
MIROC3.2 A2
NCAR–PCM A1b
NCAR–PCM A2
Median A1b
Median A2
Reference period
Ensemble mean of simulated annual mean streamflows, in cubic feet per second
Year
900
800
700
600
500
400
300
2030
2040
2050
2060
2070
2080
2090
2100