UNDP Climate Change Country Profiles

Guyana

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http://country-profiles.geog.ox.ac.uk

General Climate

Guyana is located at latitudes of 2 to 8˚ north of the equator and experiences a typically warm and moist tropical climate. Mean air temperature is 25-27.5˚ throughout the year in most regions except the upland regions in the west of the country, where mean temperatures are a cooler 20-23˚C. Guyana experiences two 'wet' seasons; most of the country receives 250-450mm per month between May and July, and the second wet season affects mainly the northern, coastal regions which receive around 150-300mm per month in November to January.

Inter-annual variations in climate in this region are caused by the El Niño Southern Oscillation (ENSO). El Niño episodes dry conditions throughout the year, and bring warmer temperatures between June and August, whilst La Niña episodes wetter conditions throughout the years and cooler temperatures between June and August.

Recent Climate Trends

Temperature

- Mean annual temperature has increased by 0.3˚C since 1960, an average rate of 0.07˚C per decade. This rate of warming is less rapid than the global average.
- The rate of increase is similar (~0.1˚C per decade) in all seasons, except FMA, when there is no apparent trend in temperature.

- Although the rate of increase in mean temperature is moderate in Guyana relative to the global average increase, the increase in frequency of particularly hot days[1] and nights has shown a significantly increasing trend since 1960 in every season (where data is available).
    - The average number of 'hot' days per year in Guyana has increased by 93 (an additional 25% of days[2]) between 1960 and 2003. The rate of increase is seen most

[1] 'Hot' day or 'hot' night is defined by the temperature exceeded on 10% of days or nights in current climate of that region and season.

strongly in summer (JJA), when the average number of hot summer days has increased by 9 days per month (an additional 30% of summer days) over this period.

- The average number of 'hot' nights per year increased by 87 (an additional 24% of nights) between 1960 and 2003. The rate of increase is seen most strongly in MAM when the average number of hot MAM nights has increased by 10 days per month (an additional 34% of MAM nights) over this period.

- The frequency of 'cold'[3] days and nights, annually, has decreased significantly since 1960, but not in all seasons.
  - The average number of 'cold 'days per year has decreased by 37 (10% of days). This rate of decrease is most rapid in summer (JJA) when the average number of cold summer days has decreased by 4 days per month (14% of summer days) over this period.
  - 'Cold' nights have decreased in frequency at a similar rate to cold days.

Precipitation

- Mean annual rainfall over Guyana has increased at an average rate of 4.8mm per month (2.7%) per decade. Trends in seasonal rainfall are not statistically significant.

- Where data is available, there is no evidence of any significant trends in maximum 1- or 5-day rainfalls.

GCM Projections of Future Climate

Temperature

- The mean annual temperature is projected to increase by 0.9 to 3.3˚C by the 2060s, and 1.4 to 5.0 degrees by the 2090s. The range of projections by the 2090s under any one emissions scenario is 1.5-2.5˚C.
- The projected rate of warming is similar in all seasons, but more rapid in the southern, interior regions of the country than in the northern, coastal regions.

- All projections indicate substantial increases in the frequency of days and nights that are considered 'hot' in current climate.
  - Annually, projections indicate that 'hot' days are projected to occur on 18-56% of days by the 2060s, and 19-79% of days by the 2090s. Days considered 'hot' by current climate standards for their season are projected to occur on 18-97% of days of the season by the 2090s, with the fastest rates on increase in ASO and NDJ.
  - Nights that are considered 'hot' for the annual climate of 1970-99 are projected to occur on 33-90% of nights by the 2060s and 46-99% of nights by the 2090s. Nights that are considered hot for each season by 1970-99 standards are projected to occur

[2] The increase in frequency over the 43-year period between 1960 and 2003 is estimated based on the decadal trend quoted in the summary table.

[3] 'Cold' days or 'cold' nights are defined as the temperature below which 10% of days or nights are recorded in current climate of that region or season.

on 47-99% of nights in every season by the 2090s, with the fastest rates of increase in ASO and NDJ.

- All projections indicate decreases in the frequency of days and nights that are considered 'cold' in current climate. These events are expected to become exceedingly rare, occurring on maximum of 4% of days in the year, and potentially not at all, by the 2090s.

Precipitation

- Projections of mean annual rainfall from different models in the ensemble project a wide range of changes in precipitation for Guyana. Ensemble median values of change by the 2060s, however, are consistently negative for all seasons and emissions scenarios. Projections vary between -34% to +20%, by the 2090s with ensemble median values of -18 to -4%.
- Whilst the largest decreases in total rainfall are projected for the wettest season, MJJ (-68 to +21mm per month) relative changes in rainfall are projected show the strongest decreasing signal in ASO and NDJ (-82 to +68%).

- The proportion of total rainfall that falls in heavy[4] events does not show a consistent direction of change, but tend towards positive changes, particularly in the southern parts of the country in the seasons NDJ and FMA.
- Maximum 1- and 5-day rainfalls show little consistent change, but tend towards positive changes in the seasons NDJ and FMA in the southern parts of the country.

Additional Regional Climate Change Information

- Model simulations show wide disagreement in projected changes in the amplitude or frequency of future El Niño events, thus contributing to uncertainty in climate projections for this region.
- Guyana's low-lying coastal plains are vulnerable to any sea-level rise that occurs due to global warming. Sea-level in this region is projected by climate models to rise by the following levels[5] by the 2090s, relative to 1980-1999 sea-level:
    - 0.18 to 0.43m under SRES B1
    - 0.21 to 0.53m under SRES A1B
    - 0.23 to 0.56m under SRES A2.

- For further information see the IPCC Working Group I Report: '*The Physical Science Basis*', Chapter 11 *(Regional Climate projections*): Section 11.6 *(South and Central America*).

[4] A 'Heavy' event is defined as a daily rainfall total which exceeds the threshold that is exceeded on 5% of rainy days in current climate of that region and season.

[5] Taken from the IPCC Working group I (*The Physical Science Basis*): Chapter 10 (Global Climate Projections) (Meehl *et al*., 2007). Regional sea-level projections are estimated by applying regional adjustments (Fig 10.32, p813) to projected global mean sea-level rise from 14 AR4 models.

Data Summary

	Observed Mean 1970-99	Observed Trend 1960-2006		Projected changes by the 2030s Min	2030s Median	2030s Max	Projected changes by the 2060s Min	2060s Median	2060s Max	Projected changes by the 2090s Min	2090s Median	2090s Max
Temperature												
	(˚C)	*(change in ˚C per decade)*		*Change in ˚C*			*Change in ˚C*			*Change in ˚C*		
			A2	0.8	**1.3**	1.8	1.7	**2.5**	3.3	2.9	**4.0**	5.0
Annual	25.2	0.07*	*A1B*	0.6	**1.5**	2.0	1.3	**2.6**	3.2	2.0	**3.3**	4.6
			B1	0.4	**1.1**	1.4	0.9	**1.7**	2.3	1.4	**2.2**	3.0
			A2	0.9	**1.4**	1.8	1.8	**2.4**	3.6	3.1	**4.0**	5.1
NDJ	25.1	0.09*	*A1B*	0.3	**1.4**	2.0	1.3	**2.5**	3.3	2.0	**3.4**	4.5
			B1	0.4	**1.0**	1.8	0.9	**1.6**	2.4	1.4	**2.2**	3.2
			A2	0.7	**1.2**	1.9	1.6	**2.4**	3.5	2.9	**3.8**	5.0
FMA	25.2	0.00	*A1B*	0.7	**1.4**	2.2	1.3	**2.3**	3.3	2.1	**3.1**	4.3
			B1	0.4	**0.9**	1.3	0.7	**1.7**	2.1	1.3	**2.1**	2.8
			A2	0.7	**1.2**	1.9	1.6	**2.4**	3.5	2.7	**4.0**	5.4
MJJ	24.9	0.11*	*A1B*	0.6	**1.3**	1.7	1.3	**2.4**	3.2	2.0	**3.3**	4.4
			B1	0.3	**0.9**	1.7	0.8	**1.6**	2.9	1.3	**2.1**	3.2
			A2	0.9	**1.4**	1.8	1.7	**2.7**	3.7	3.0	**4.4**	5.6
ASO	25.6	0.10*	*A1B*	0.6	**1.6**	2.1	1.4	**2.7**	3.7	1.9	**3.4**	5.1
			B1	0.4	**1.0**	1.6	0.9	**2.1**	2.6	1.4	**2.2**	3.5
Precipitation												
	(mm per month)	*(change in mm per decade)*		*Change in mm per month*			*Change in mm per month*			*Change in mm per month*		
			A2	-12	**-2**	8	-25	**-5**	3	-39	**-5**	6
Annual	178.1	4.8*	*A1B*	-11	**-2**	10	-23	**-5**	4	-33	**-4**	17
			B1	-7	**0**	5	-14	**-4**	4	-21	**-4**	16
			A2	-15	**-3**	6	-21	**-4**	4	-29	**-3**	19
NDJ	135.7	6.3	*A1B*	-15	**-1**	12	-21	**-4**	5	-28	**-5**	20
			B1	-15	**0**	9	-20	**-3**	7	-23	**-6**	15
			A2	-8	**-1**	7	-28	**-1**	3	-56	**-1**	20
FMA	142.4	6.3	*A1B*	-20	**-1**	10	-40	**-3**	9	-56	**-2**	14
			B1	-7	**0**	13	-20	**-3**	5	-32	**-3**	21
			A2	-31	**2**	9	-36	**-9**	7	-68	**-15**	33
MJJ	301.3	8.1	*A1B*	-16	**0**	9	-32	**-8**	7	-54	**-8**	19
			B1	-16	**0**	8	-25	**-2**	7	-30	**-6**	20
			A2	-18	**-2**	18	-33	**-4**	18	-45	**-8**	26
ASO	132.1	-0.9	*A1B*	-16	**-1**	21	-33	**-3**	18	-39	**-6**	39
			B1	-18	**-1**	12	-26	**-3**	19	-28	**-2**	25
Precipitation (%)												
	(mm per month)	*(change in % per decade)*		*% Change*			*% Change*			*% Change*		
			A2	-29	**-4**	7	-41	**-8**	13	-63	**-4**	8
Annual	178.1	2.7*	*A1B*	-16	**-4**	14	-37	**-8**	3	-54	**-5**	20
			B1	-21	**0**	9	-26	**-4**	7	-34	**-5**	17
			A2	-37	**-14**	11	-60	**-9**	29	-82	**-17**	62
NDJ	135.7	4.6	*A1B*	-31	**-7**	15	-59	**-13**	33	-78	**-12**	25
			B1	-33	**0**	10	-42	**-8**	11	-63	**-10**	19
			A2	-22	**-2**	17	-33	**-5**	28	-45	**-6**	49
FMA	142.4	4.4	*A1B*	-26	**-8**	26	-30	**-9**	23	-42	**-12**	34
			B1	-19	**-2**	33	-28	**-11**	12	-32	**-9**	52
			A2	-38	**2**	5	-39	**-6**	11	-55	**-10**	14
MJJ	301.3	2.7	*A1B*	-10	**-1**	6	-29	**-8**	2	-44	**-6**	15
			B1	-20	**0**	7	-31	**-1**	4	-37	**-6**	15
			A2	-34	**-10**	22	-69	**-9**	21	-82	**-18**	27
ASO	132.1	-0.7	*A1B*	-32	**-4**	51	-65	**-9**	24	-80	**-15**	54
			B1	-31	**-1**	21	-48	**-9**	25	-76	**-10**	33

	Observed Mean 1970-99	Observed Trend 1960-2006		Projected changes by the 2030s			Projected changes by the 2060s			Projected changes by the 2090s		
				Min	Median	Max	Min	Median	Max	Min	Median	Max
	% Frequency	Change in frequency per decade					Future % frequency			Future % frequency		
Frequency of Hot Days (TX90p)												
			A2	****	****	****	23	**44**	56	45	**61**	79
Annual	13.4	(5.85*)	*A1B*	****	****	****	25	**43**	54	28	**61**	69
			B1	****	****	****	18	**30**	44	19	**43**	51
			A2	****	****	****	44	**54**	65	67	**79**	90
NDJ (DJF)	14.3	(5.58*)	*A1B*	****	****	****	36	**54**	65	53	**72**	82
			B1	****	****	****	24	**37**	50	40	**53**	64
			A2	****	****	****	37	**60**	69	58	**81**	90
FMA (MAM)	13.3	(4.66*)	*A1B*	****	****	****	44	**60**	69	40	**69**	87
			B1	****	****	****	27	**45**	55	25	**60**	72
			A2	****	****	****	20	**47**	63	44	**69**	88
MJJ (JJA)	13.9	(6.90*)	*A1B*	****	****	****	26	**43**	65	27	**54**	84
			B1	****	****	****	15	**31**	48	18	**42**	63
			A2	****	****	****	53	**64**	78	63	**88**	97
ASO (SON)	****	****	*A1B*	****	****	****	48	**63**	83	60	**74**	93
			B1	****	****	****	29	**53**	66	52	**57**	87
Frequency of Hot Nights (TN90p)												
			A2	****	****	****	51	**69**	90	85	**94**	99
Annual	14.6	(5.52*)	*A1B*	****	****	****	45	**67**	89	66	**82**	97
			B1	****	****	****	33	**47**	74	49	**63**	91
			A2	****	****	****	59	**80**	89	90	**97**	99
NDJ (DJF)	15.3	(7.51*)	*A1B*	****	****	****	44	**80**	89	65	**94**	99
			B1	****	****	****	31	**61**	70	47	**73**	92
			A2	****	****	****	57	**75**	92	83	**97**	99
FMA (MAM)	16.2	(7.85*)	*A1B*	****	****	****	64	**73**	92	75	**91**	98
			B1	****	****	****	41	**57**	79	61	**73**	87
			A2	****	****	****	65	**83**	98	95	**98**	99
MJJ (JJA)	14.4	(7.41*)	*A1B*	****	****	****	66	**77**	98	86	**95**	99
			B1	****	****	****	46	**55**	89	58	**73**	97
			A2	****	****	****	70	**82**	98	93	**98**	99
ASO (SON)	14.5	(6.80*)	*A1B*	****	****	****	73	**79**	98	87	**95**	99
			B1	****	****	****	45	**59**	84	59	**82**	95
Frequency of Cold Days (TX10p)												
			A2	****	****	****	0	**1**	4	0	**0**	0
Annual	9.3	(-2.38*)	*A1B*	****	****	****	0	**2**	5	0	**0**	2
			B1	****	****	****	0	**3**	4	0	**1**	4
			A2	****	****	****	1	**1**	4	0	**0**	0
NDJ (DJF)	9.2	(-1.83)	*A1B*	****	****	****	0	**1**	2	0	**0**	1
			B1	****	****	****	1	**2**	3	0	**1**	2
			A2	****	****	****	0	**1**	5	0	**0**	0
FMA (MAM)	8.8	(-2.38*)	*A1B*	****	****	****	0	**1**	2	0	**0**	1
			B1	****	****	****	0	**2**	3	1	**1**	4
			A2	****	****	****	0	**1**	3	0	**0**	0
MJJ (JJA)	8.7	(-3.16*)	*A1B*	****	****	****	0	**1**	4	0	**0**	1
			B1	****	****	****	0	**2**	5	0	**1**	3
			A2	****	****	****	0	**1**	8	0	**0**	0
ASO (SON)	9.8	(-1.47)	*A1B*	****	****	****	0	**1**	8	0	**0**	7
			B1	****	****	****	0	**2**	7	0	**1**	6
Frequency of Cold Nights (TN10p)												
			A2	****	****	****	0	**0**	1	0	**0**	0
Annual	8.8	(-2.18*)	*A1B*	****	****	****	0	**0**	0	0	**0**	0
			B1	****	****	****	0	**0**	1	0	**0**	0
			A2	****	****	****	0	**0**	1	0	**0**	0
NDJ (DJF)	9.4	(-1.75)	*A1B*	****	****	****	0	**0**	0	0	**0**	0
			B1	****	****	****	0	**0**	1	0	**0**	0
			A2	****	****	****	0	**0**	0	0	**0**	0
FMA (MAM)	7.4	(-3.11*)	*A1B*	****	****	****	0	**0**	0	0	**0**	0
			B1	****	****	****	0	**0**	1	0	**0**	0
			A2	****	****	****	0	**0**	0	0	**0**	0
MJJ (JJA)	8.9	(-2.39)	*A1B*	****	****	****	0	**0**	0	0	**0**	0
			B1	****	****	****	0	**0**	1	0	**0**	0
			A2	****	****	****	0	**0**	0	0	**0**	0
ASO (SON)	9.3	(-1.1)	*A1B*	****	****	****	0	**0**	0	0	**0**	0
			B1	****	****	****	0	**0**	1	0	**0**	0

	Observed Mean 1970-99	Observed Trend 1960-2006		Projected changes by the 2030s			Projected changes by the 2060s			Projected changes by the 2090s		
				Min	*Median*	*Max*	*Min*	*Median*	*Max*	*Min*	*Median*	*Max*
% total rainfall falling in Heavy Events (R95pct)												
	%	*Change in % per decade*					*Change in %*			*Change in %*		
			A2	****	****	****	-3	**2**	9	-8	**2**	12
Annual	****	****	*A1B*	****	****	****	-2	**1**	10	-5	**3**	12
			B1	****	****	****	-2	**1**	8	-1	**3**	9
			A2	****	****	****	-11	**1**	10	-11	**3**	20
NDJ (DJF)	****	****	*A1B*	****	****	****	-6	**0**	14	-14	**0**	18
			B1	****	****	****	-8	**1**	9	-8	**0**	8
			A2	****	****	****	-10	**0**	10	-16	**1**	15
FMA (MAM)	****	****	*A1B*	****	****	****	-14	**-2**	6	-20	**0**	16
			B1	****	****	****	-17	**0**	8	-18	**-4**	10
			A2	****	****	****	-5	**2**	8	-13	**2**	11
MJJ (JJA)	****	****	*A1B*	****	****	****	-6	**1**	10	-9	**3**	13
			B1	****	****	****	-3	**1**	7	-6	**3**	8
			A2	****	****	****	-15	**-2**	14	-33	**1**	22
ASO (SON)	****	****	*A1B*	****	****	****	-27	**1**	11	-22	**0**	24
			B1	****	****	****	-13	**3**	10	-28	**0**	17
Maximum 1-day rainfall (RX1day)												
	mm	*Change in mm per decade*					*Change in mm*			*Change in mm*		
			A2	****	****	****	-5	**1**	6	-5	**2**	17
Annual	****	****	*A1B*	****	****	****	-1	**1**	4	-5	**2**	19
			B1	****	****	****	-2	**1**	6	-3	**1**	6
			A2	****	****	****	-1	**0**	3	-1	**1**	11
NDJ (DJF)	17.0	(0.86)	*A1B*	****	****	****	-1	**0**	7	-1	**0**	8
			B1	****	****	****	-1	**0**	5	-1	**0**	3
			A2	****	****	****	0	**0**	2	-2	**0**	8
FMA (MAM)	****	****	*A1B*	****	****	****	-2	**0**	1	-3	**0**	5
			B1	****	****	****	-3	**0**	1	-2	**0**	2
			A2	****	****	****	-4	**0**	5	-6	**1**	12
MJJ (JJA)	****	****	*A1B*	****	****	****	-3	**0**	8	-8	**1**	15
			B1	****	****	****	-2	**1**	7	-7	**1**	6
			A2	****	****	****	-5	**0**	4	-9	**0**	10
ASO (SON)	****	****	*A1B*	****	****	****	-4	**0**	3	-6	**0**	11
			B1	****	****	****	-2	**0**	4	-9	**0**	6
Maximum 5-day Rainfall (RX5day)												
	mm	*Change in mm per decade*					*Change in mm*			*Change in mm*		
			A2	****	****	****	-9	**2**	11	-9	**3**	22
Annual	****	****	*A1B*	****	****	****	-5	**1**	8	-13	**6**	31
			B1	****	****	****	-2	**1**	10	-10	**4**	17
			A2	****	****	****	-5	**0**	6	-8	**0**	27
NDJ (DJF)	32.1	(1.27)	*A1B*	****	****	****	-4	**0**	19	-6	**0**	20
			B1	****	****	****	-6	**0**	14	-2	**0**	7
			A2	****	****	****	-3	**0**	6	-8	**1**	11
FMA (MAM)	43.4	(1.23)	*A1B*	****	****	****	-7	**0**	4	-13	**0**	13
			B1	****	****	****	-8	**-1**	4	-7	**-1**	5
			A2	****	****	****	-10	**0**	14	-10	**1**	11
MJJ (JJA)	62.5	(0.57)	*A1B*	****	****	****	-8	**0**	9	-16	**4**	24
			B1	****	****	****	-3	**0**	12	-15	**1**	13
			A2	****	****	****	-10	**0**	8	-18	**-3**	15
ASO (SON)	52.4	(1.29)	*A1B*	****	****	****	-9	**0**	5	-12	**-1**	14
			B1	****	****	****	-7	**1**	8	-17	**0**	10

* indicates trend is statistically significant at 95% confidence

**** indicates data are not available

Bracketed trend values for extremes indices indicate values for the closest seasons that data is available. See documentation.

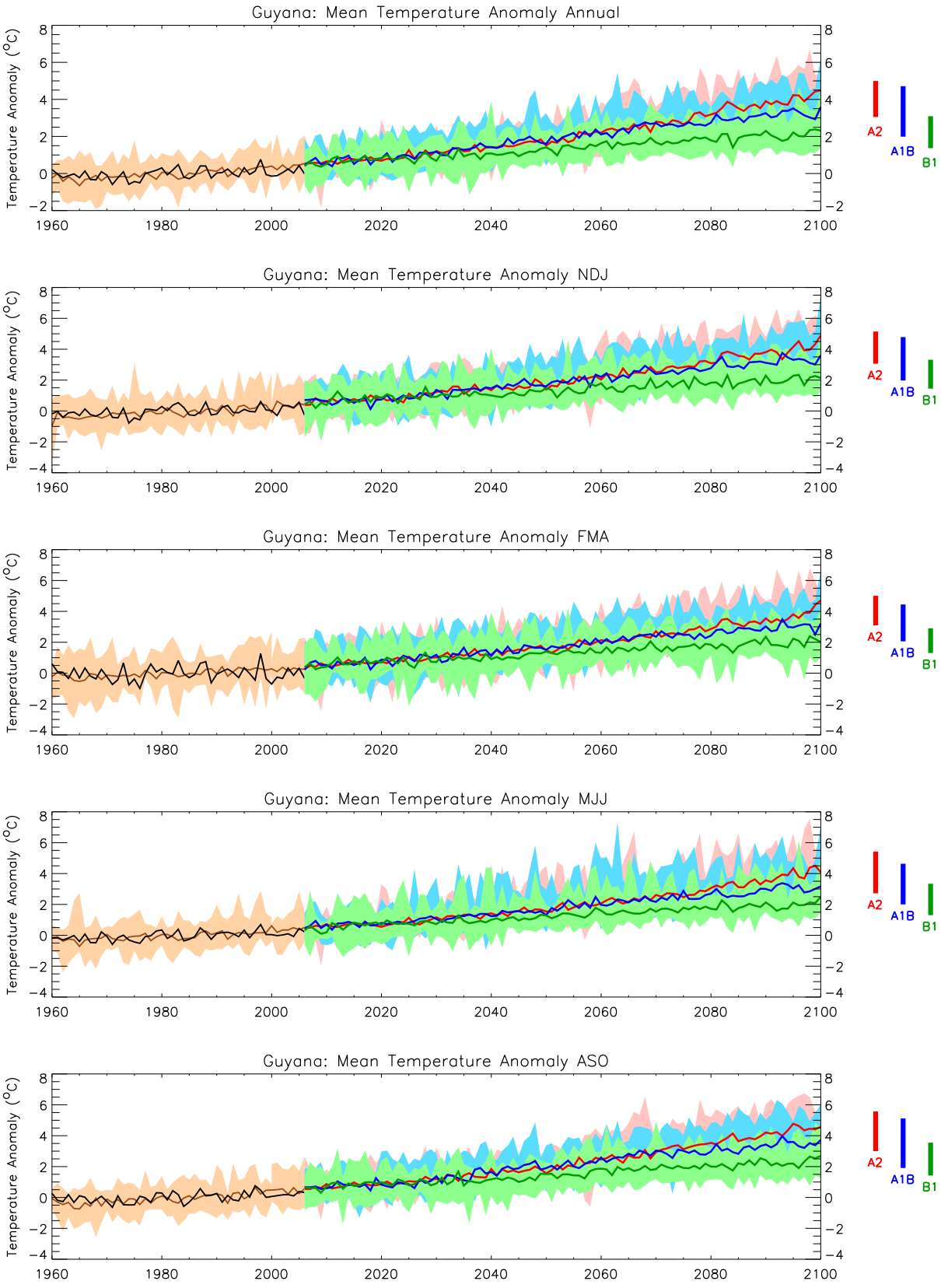

Figure 1: Trends in annual and seasonal mean temperature for the recent past and projected future. All values shown are anomalies, relative to the 1970-1999 mean climate. Black curves show the mean of observed data from 1960 to 2006, Brown curves show the median (solid line) and range (shading) of model simulations of recent climate across an ensemble of 15 models. Coloured lines from 2006 onwards show the median (solid line) and range (shading) of the ensemble projections of climate under three emissions scenarios. Coloured bars on the right-hand side of the projections summarise the range of mean 2090-2100 climates simulated by the 15 models for each emissions scenario.

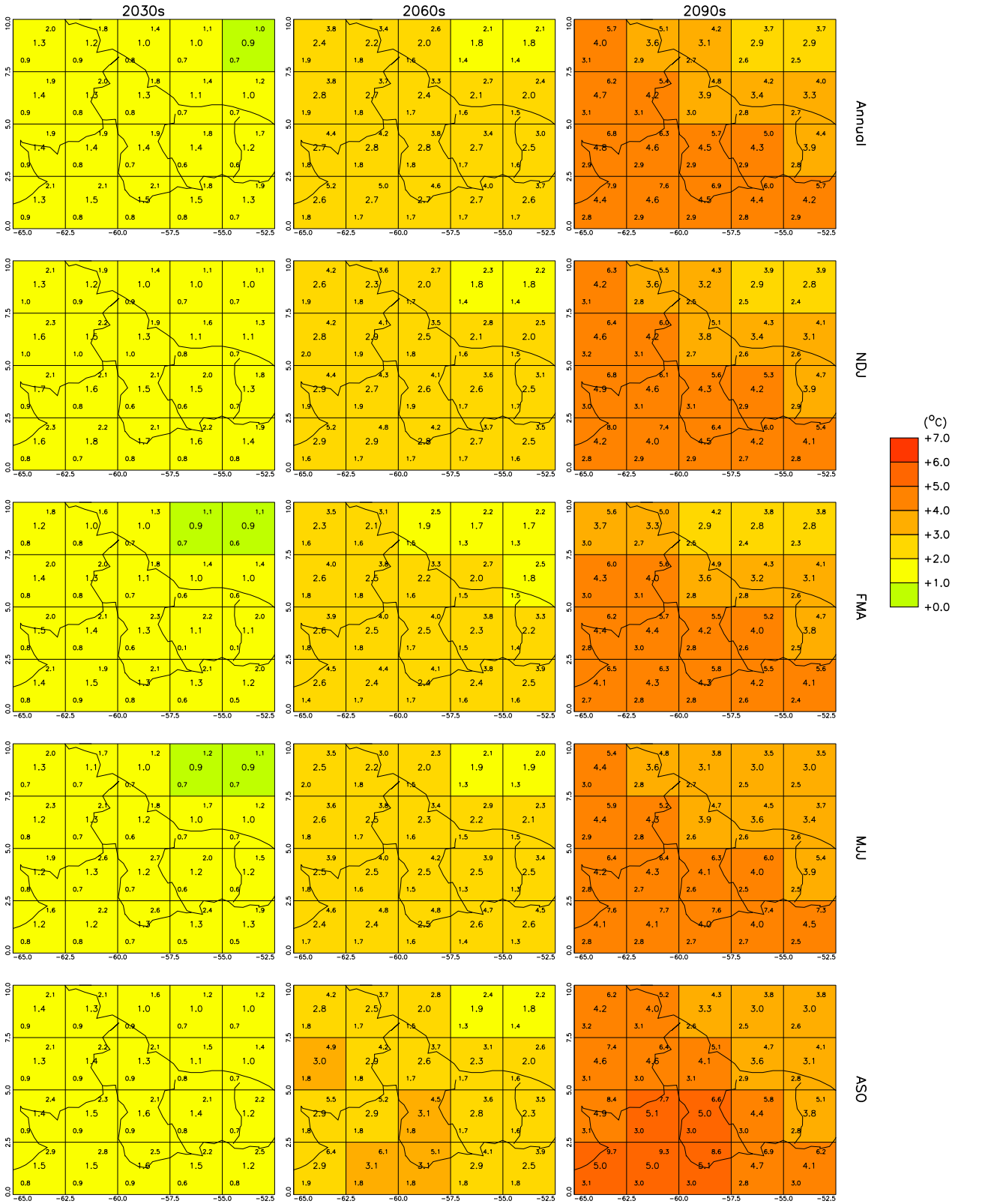

Figure 2: Spatial patterns of projected change in mean annual and seasonal temperature for 10-year periods in the future under the SRES A2 scenario. All values are anomalies relative to the mean climate of 1970-1999. In each grid box, the central value gives the ensemble median and the values in the upper and lower corners give the ensemble maximum and minimum.

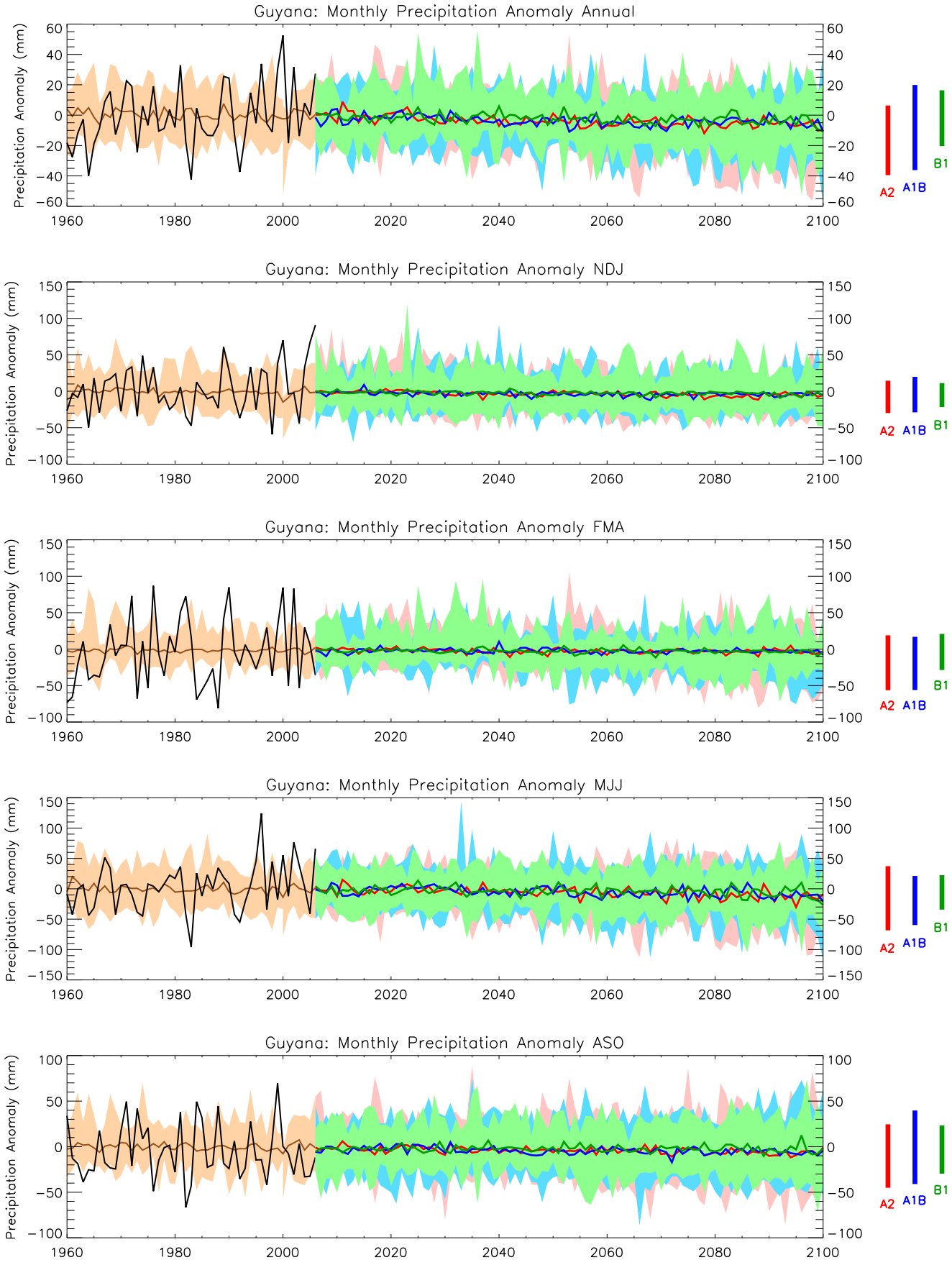

Figure 3: Trends in monthly precipitation for the recent past and projected future. All values shown are anomalies, relative to the 1970-1999 mean climate. See Figure 1 for details.

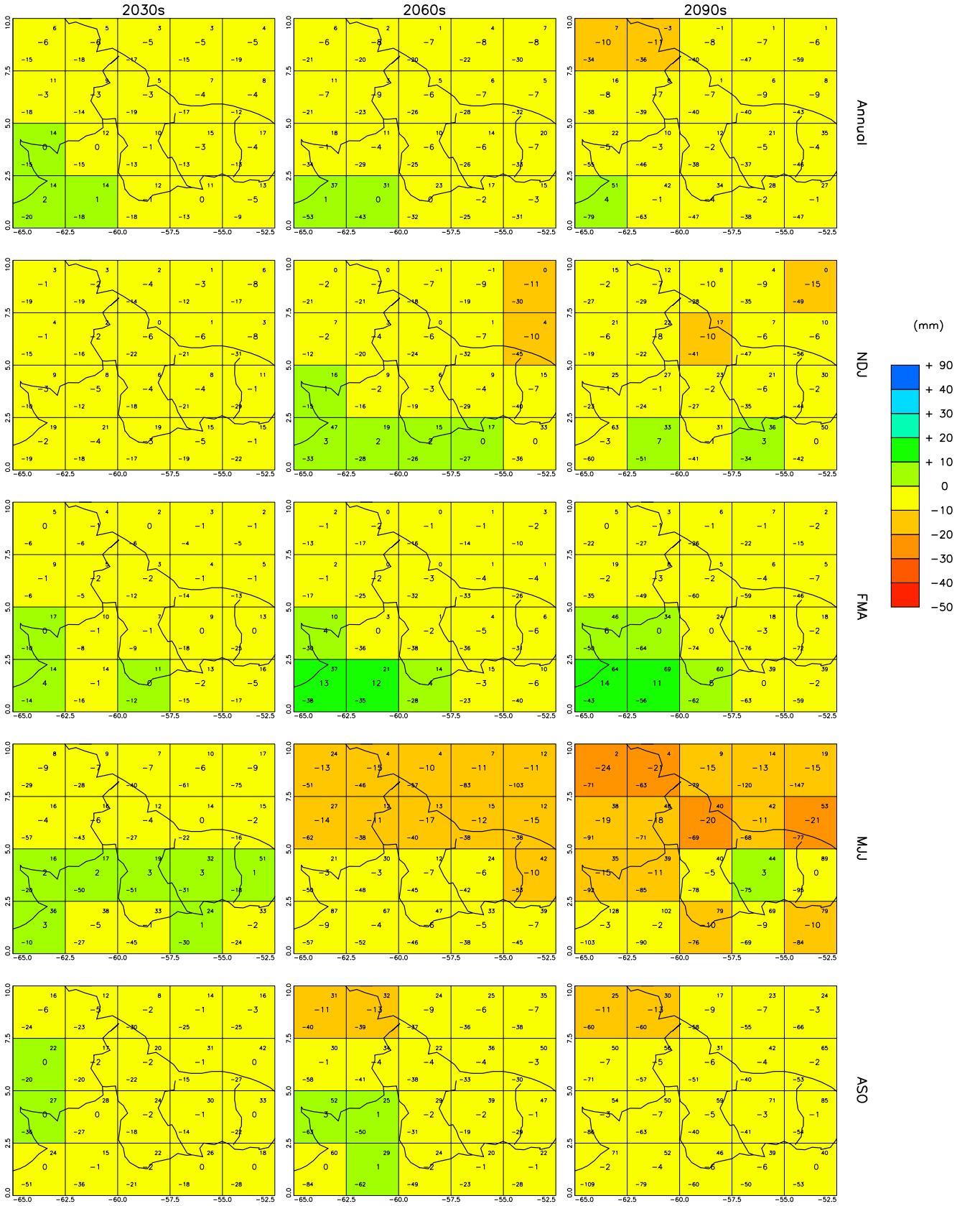

Figure 4: Spatial patterns of projected change in monthly precipitation for 10-year periods in the future under the SRES A2 scenario. All values are anomalies relative to the mean climate of 1970-1999.See Figure 2 for details.

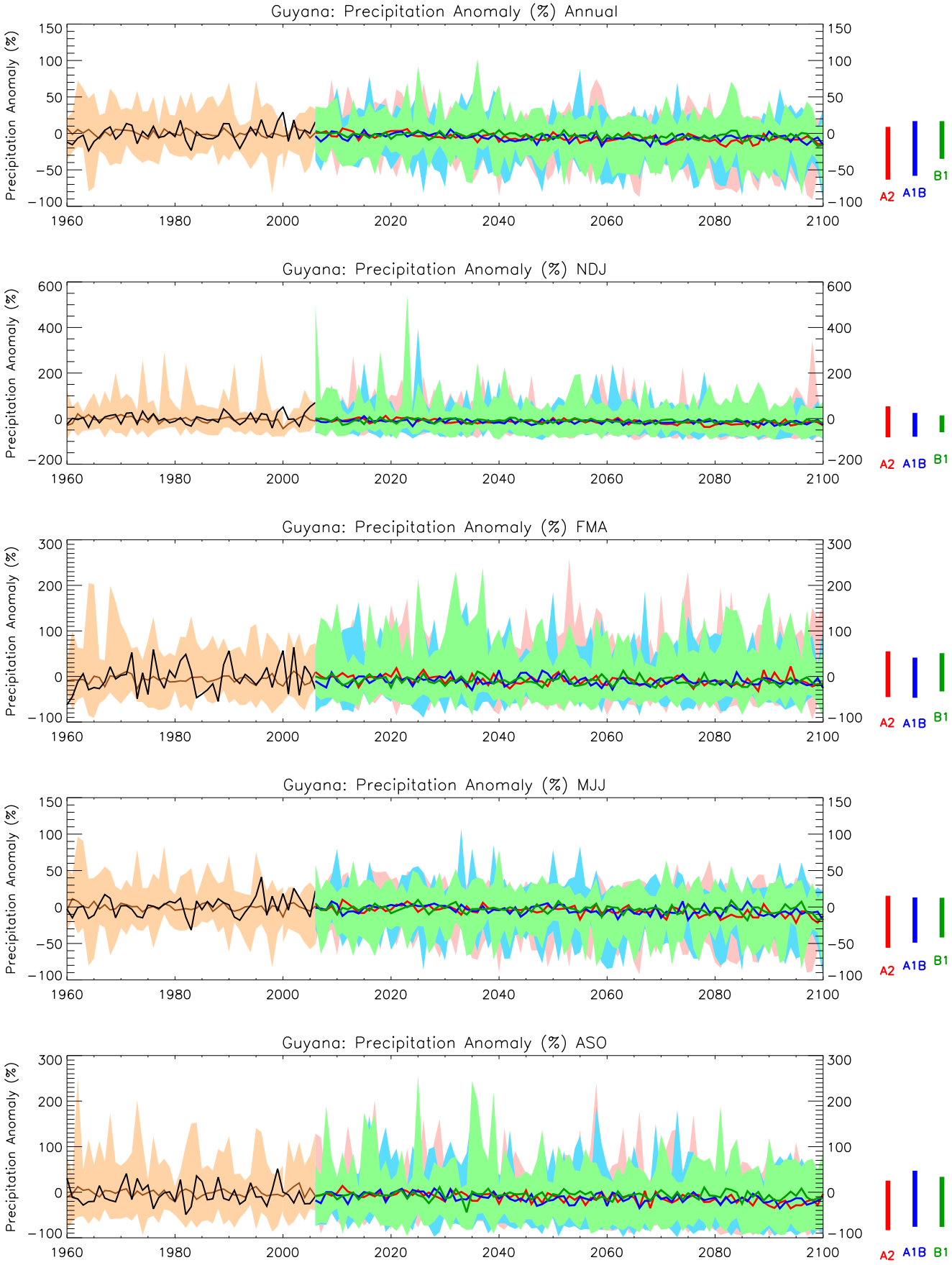

Figure 5: Trends in monthly precipitation for the recent past and projected future. All values shown are percentage anomalies, relative to the 1970-1999 mean climate. See Figure 1 for details.

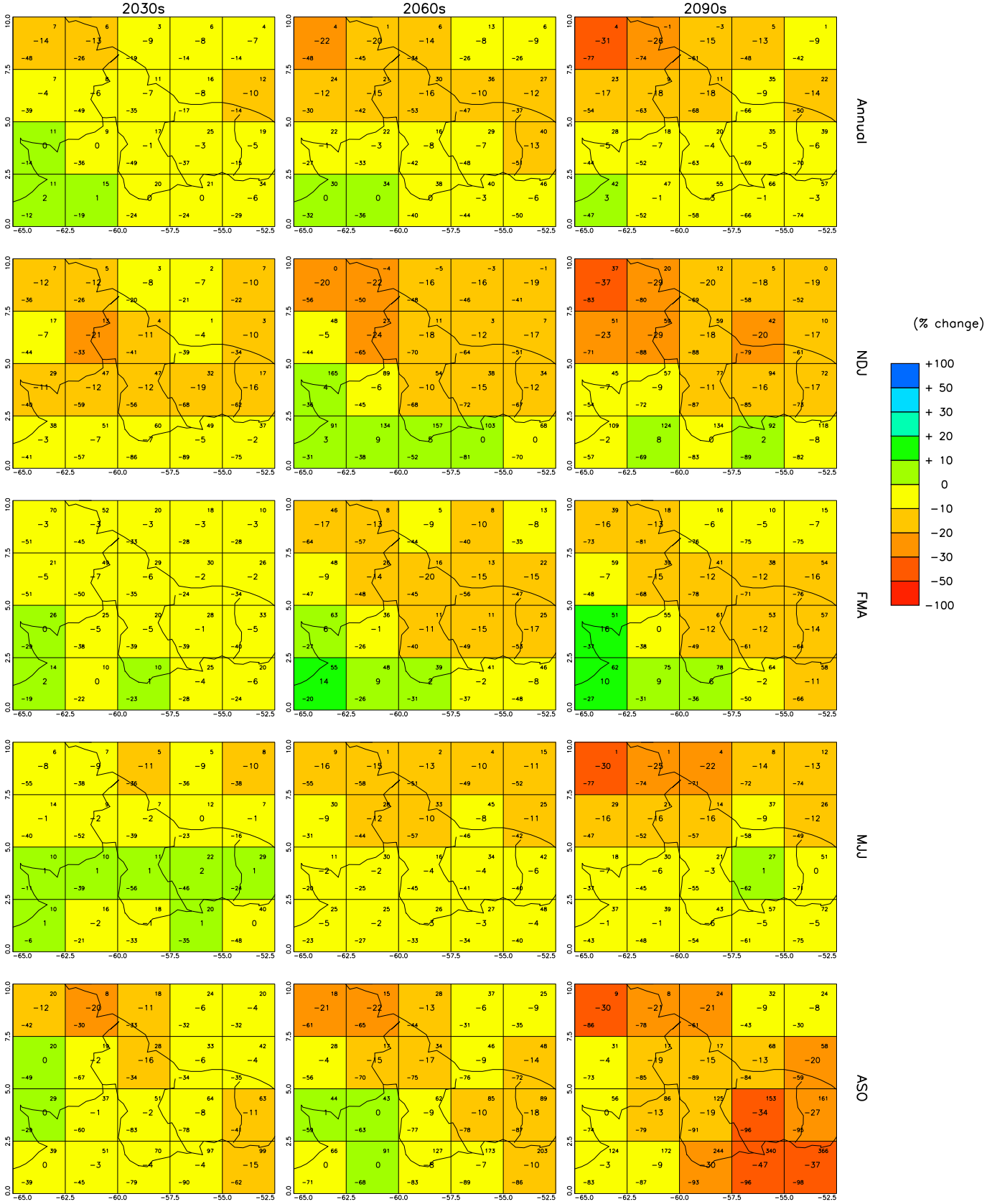

Figure 6: Spatial patterns of projected change in monthly precipitation for 10-year periods in the future under the SRES A2 scenario. All values are percentage anomalies relative to the mean climate of 1970-1999.See Figure 2 for details.

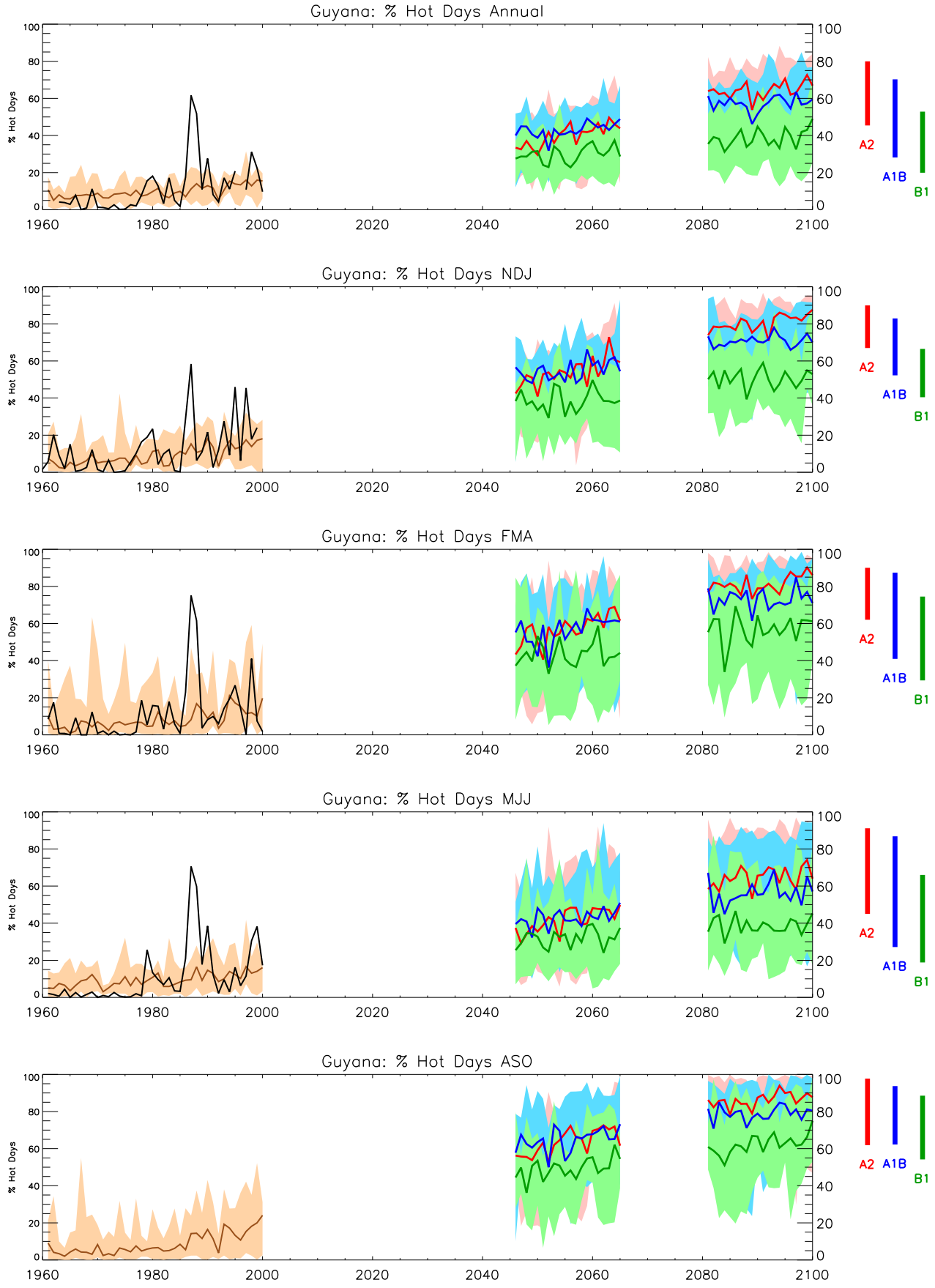

Figure 7: Trends in Hot-day frequency for the recent past and projected future. See Figure 1 for details.

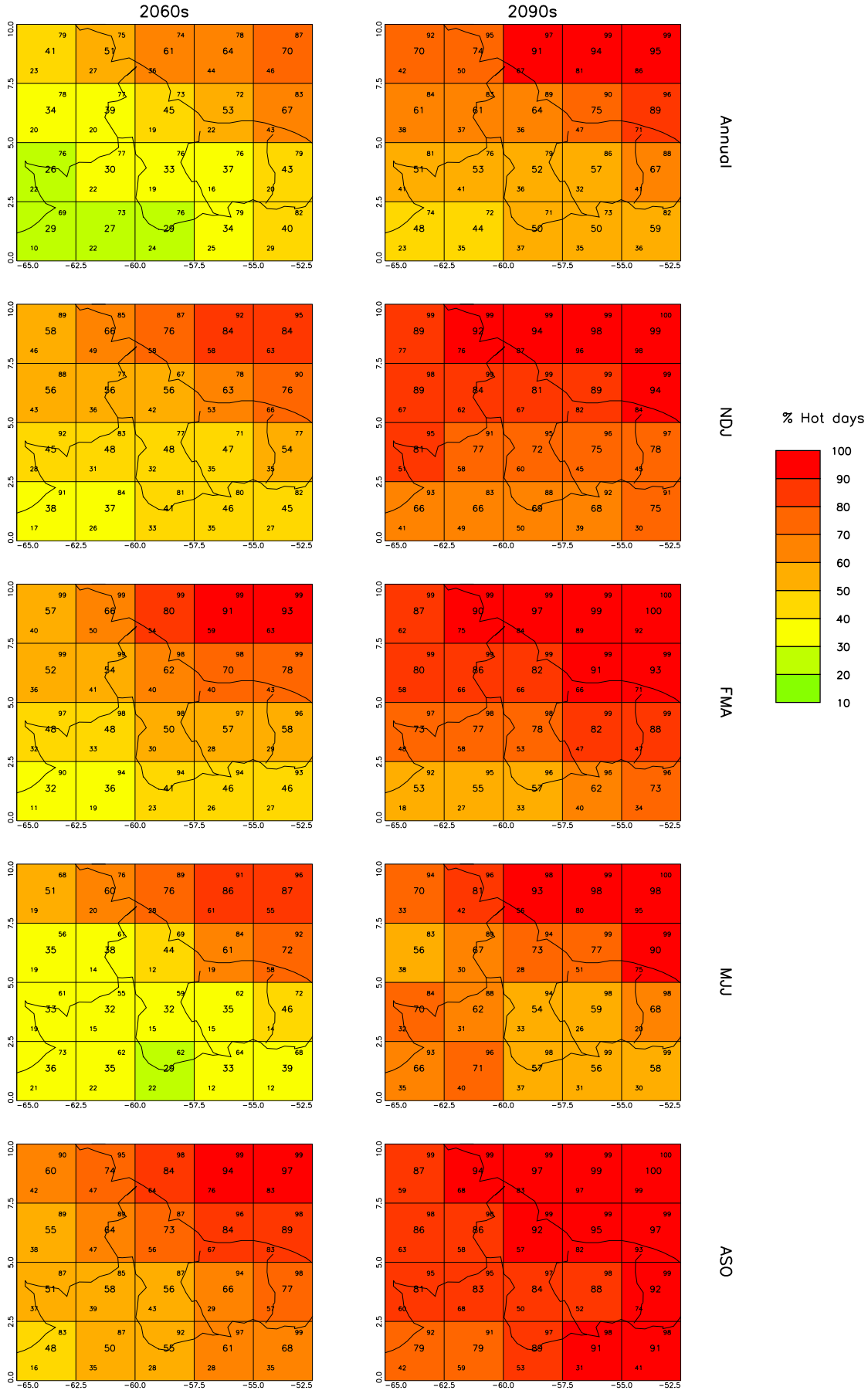

Figure 8: Spatial patterns of projected change in Hot-day frequency for 10-year periods in the future under the SRES A2 scenario. See Figure 2 for details.

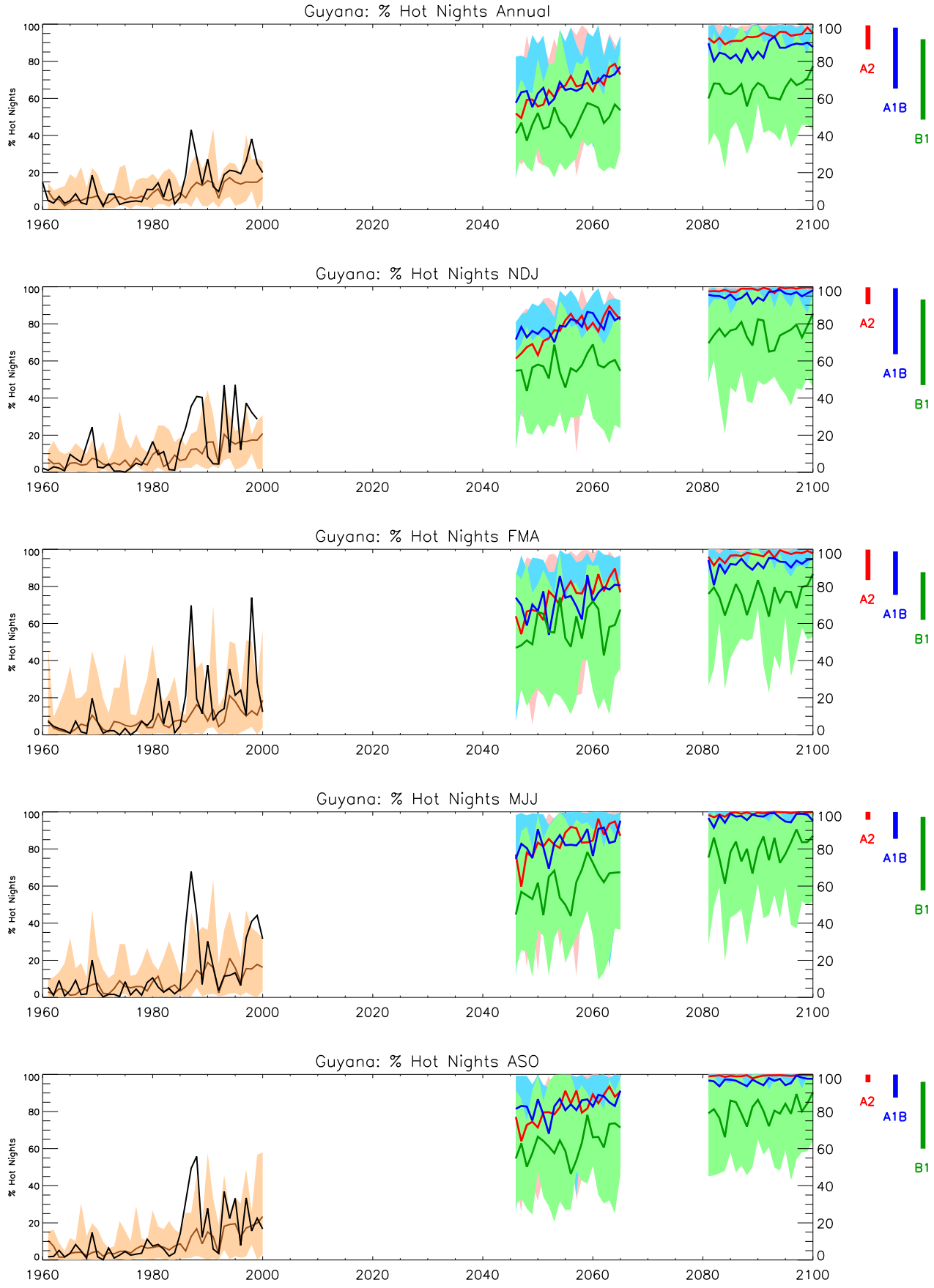

Figure 9: Trends in hot-night frequency for the recent past and projected future. See Figure 1 for details.

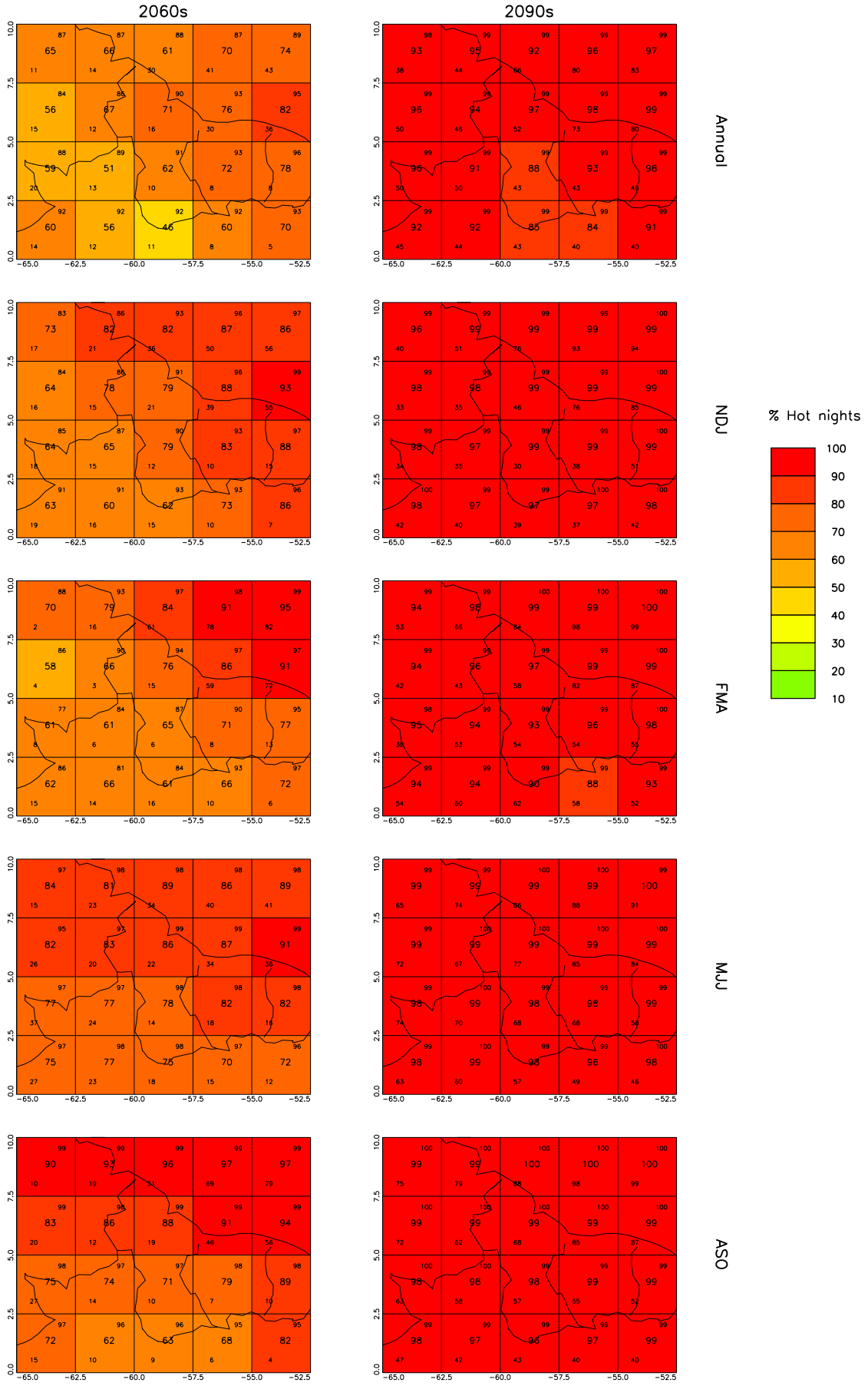

Figure 10: Spatial patterns of projected change in hot-night frequency for 10-year periods in the future under the SRES A2 scenario. See Figure 2 for details.

Figure 11: Trends in cold-day frequency for the recent past and projected future. See Figure 1 for details.

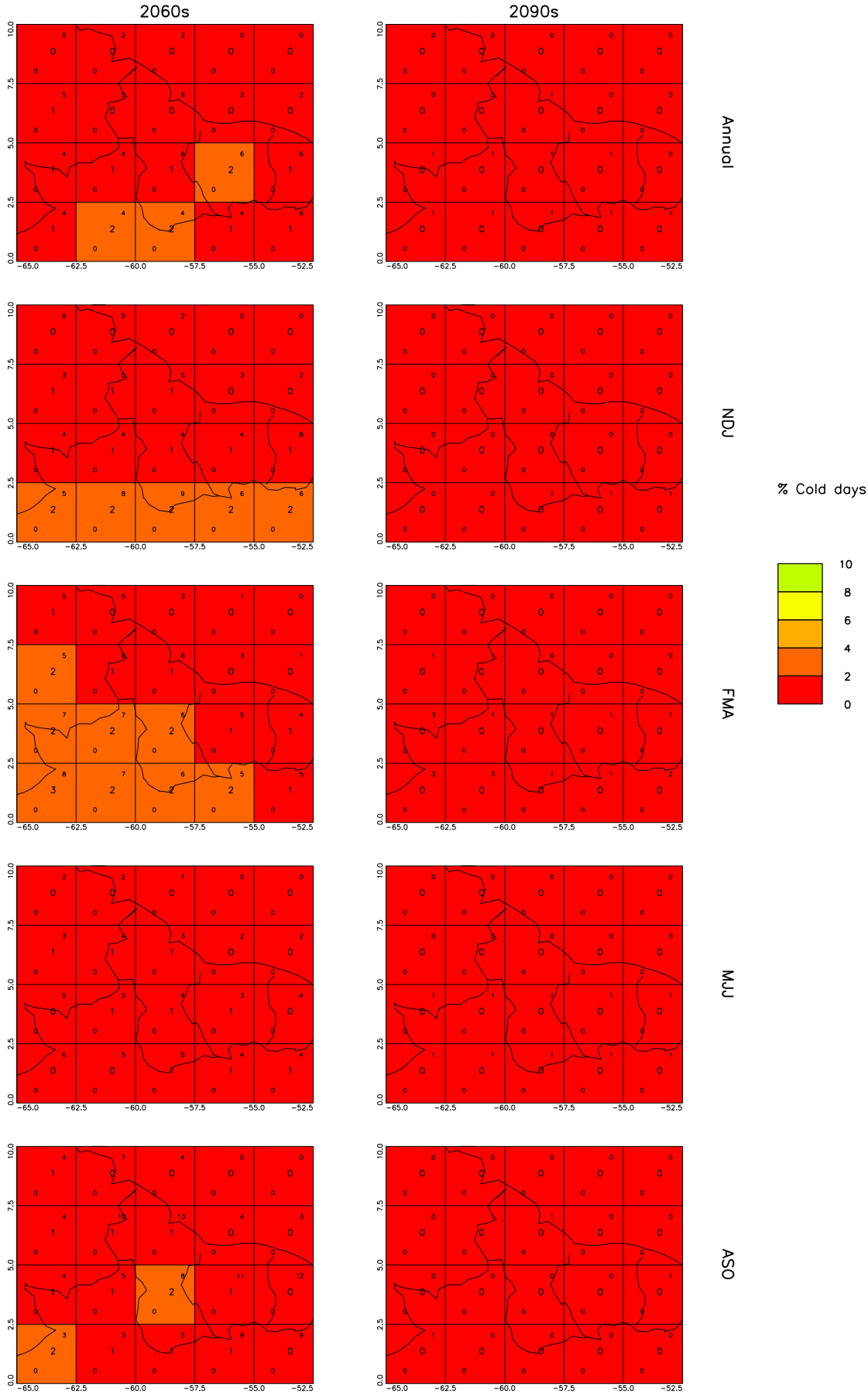

Figure 12: Spatial patterns of projected change in cold-day frequency for 10-year periods in the future under the SRES A2 scenario. See Figure 2 for details.

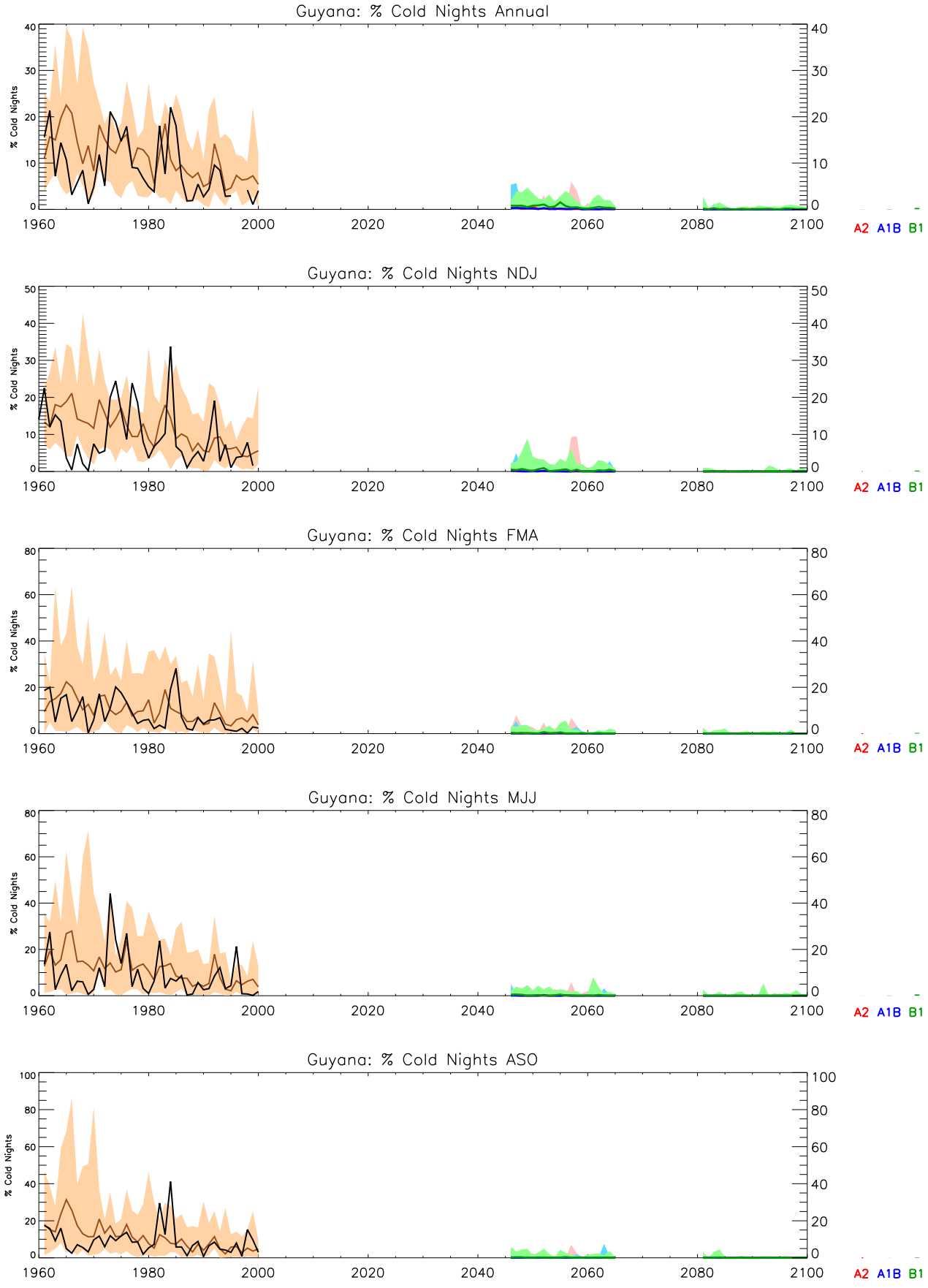

Figure 13: Trends in cold-night frequency for the recent past and projected future. See Figure 1 for details.

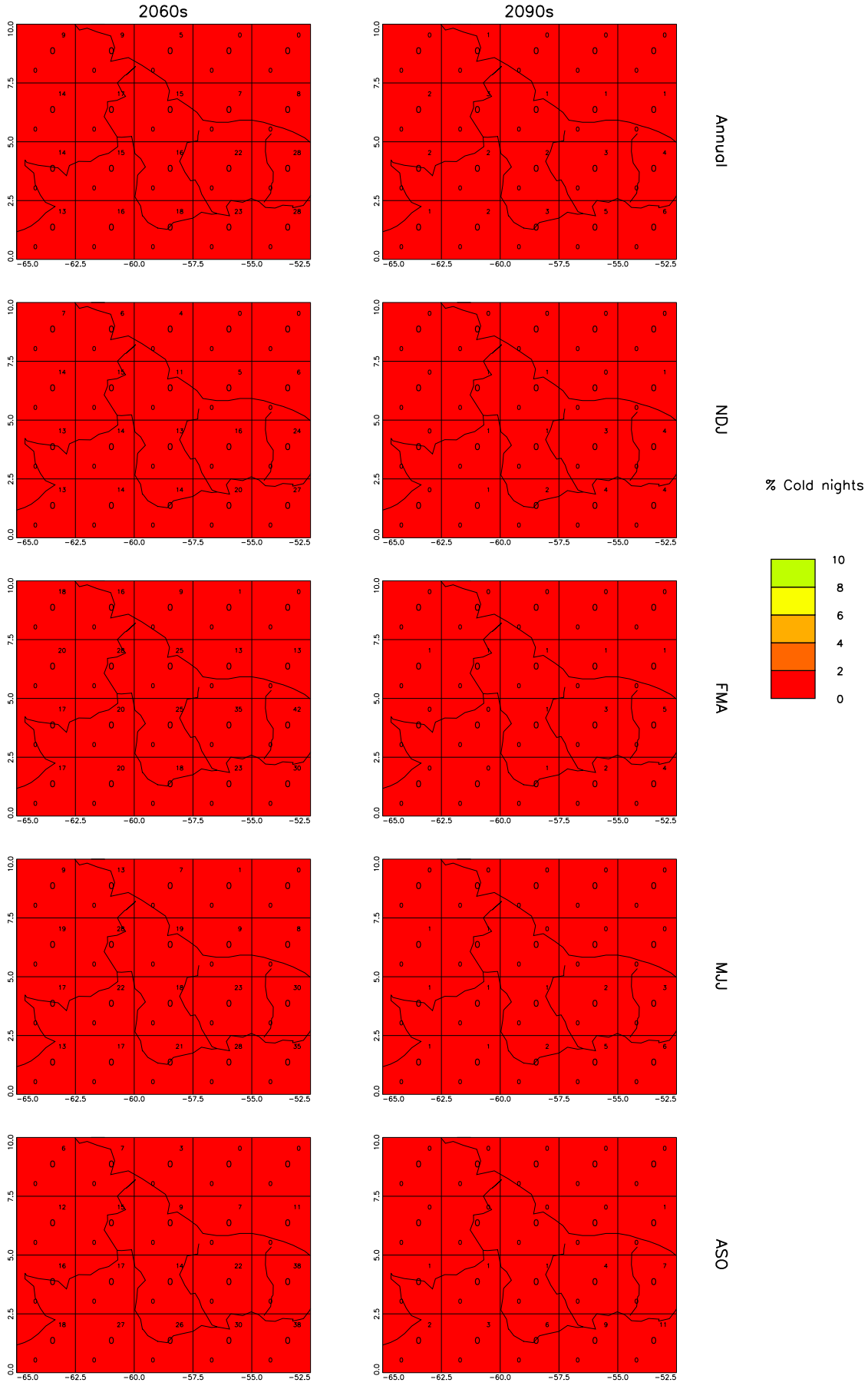

Figure 14: Spatial patterns of projected change in cold-night frequency for 10-year periods in the future under the SRES A2 scenario. See Figure 2 for details.

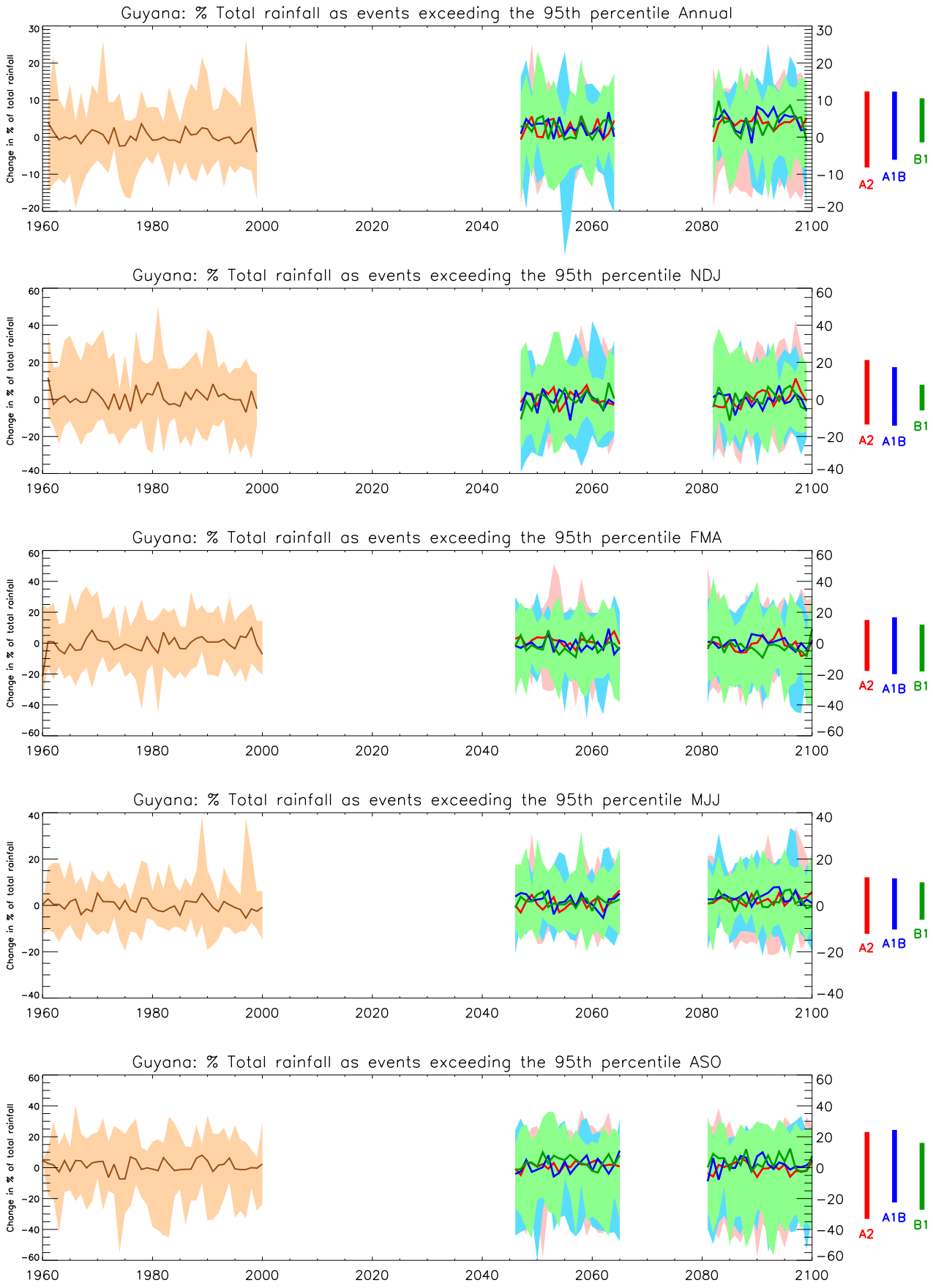

Figure 15: Trends in the proportion of precipitation falling in 'heavy' events for the recent past and projected future. All values shown are anomalies, relative to the 1970-1999 mean climate. See Figure 1 for details.

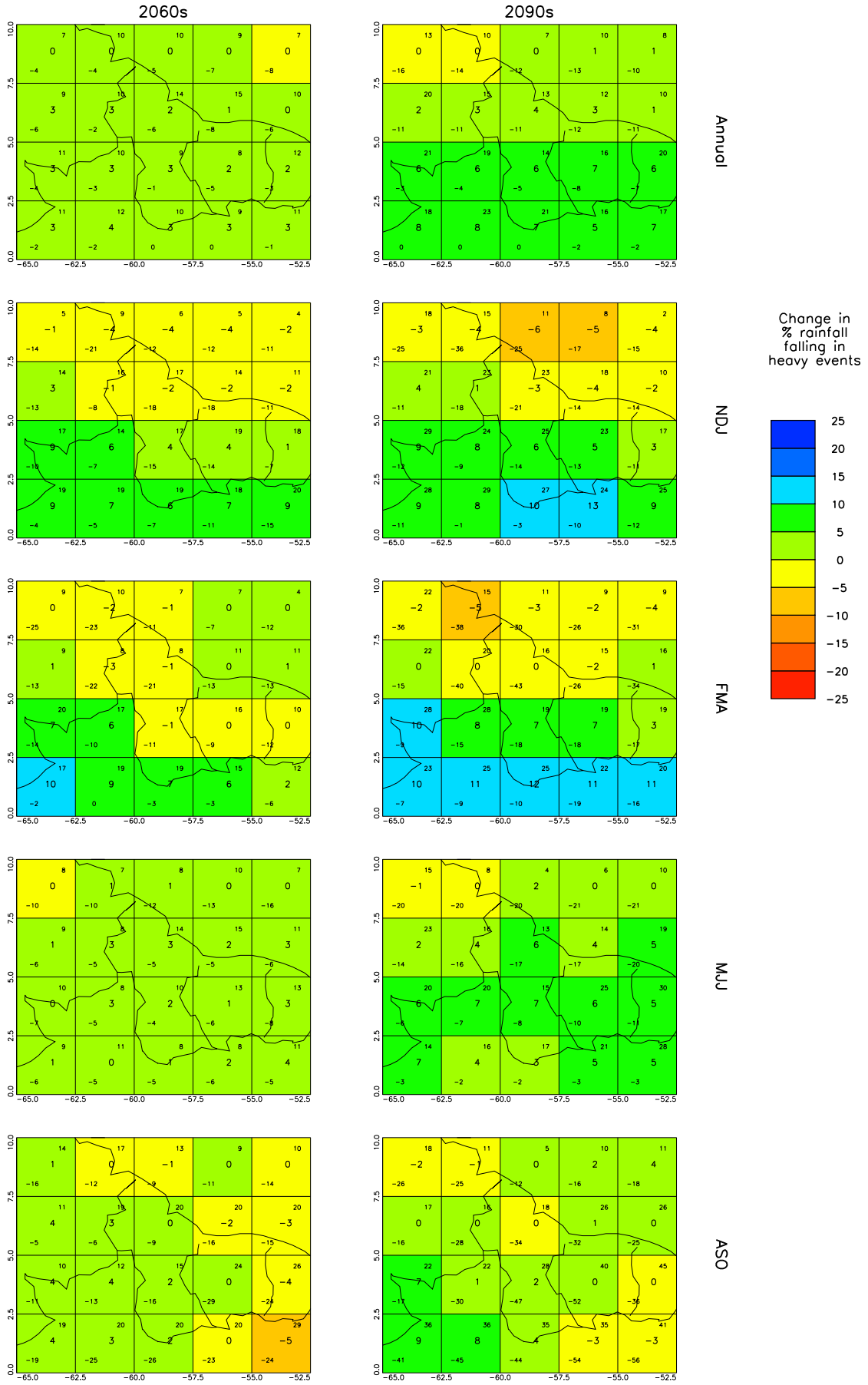

Figure 16: Spatial patterns of projected change in the proportion of precipitation falling in 'heavy' events for 10-year periods in the future under the SRES A2 scenario. All values are anomalies relative to the mean climate of 1970-1999. See Figure 2 for details.

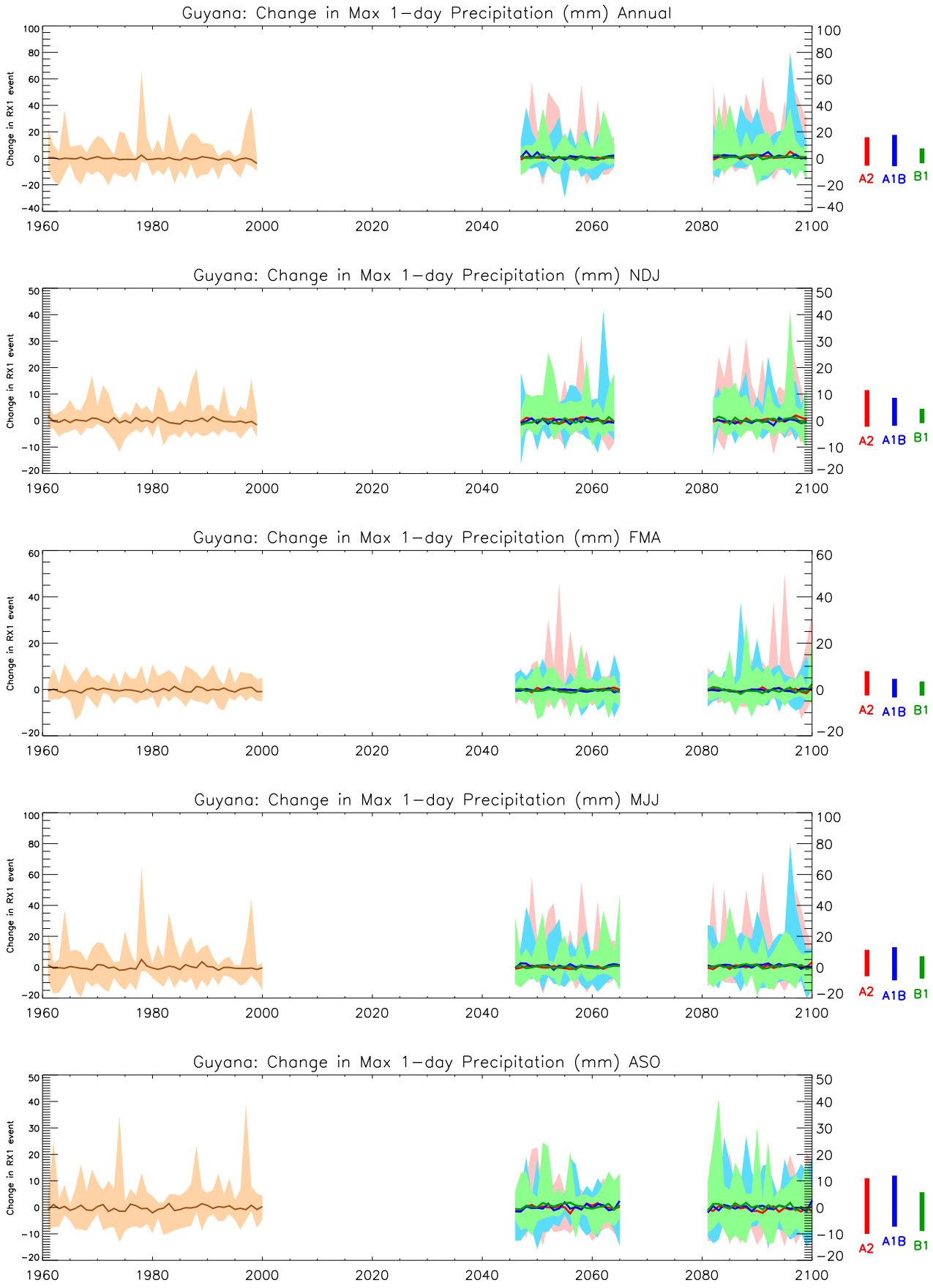

Figure 17: Trends in maximum 1-day rainfall for the recent past and projected future. All values shown are anomalies, relative to the 1970-1999 mean climate. See Figure 1 for details.

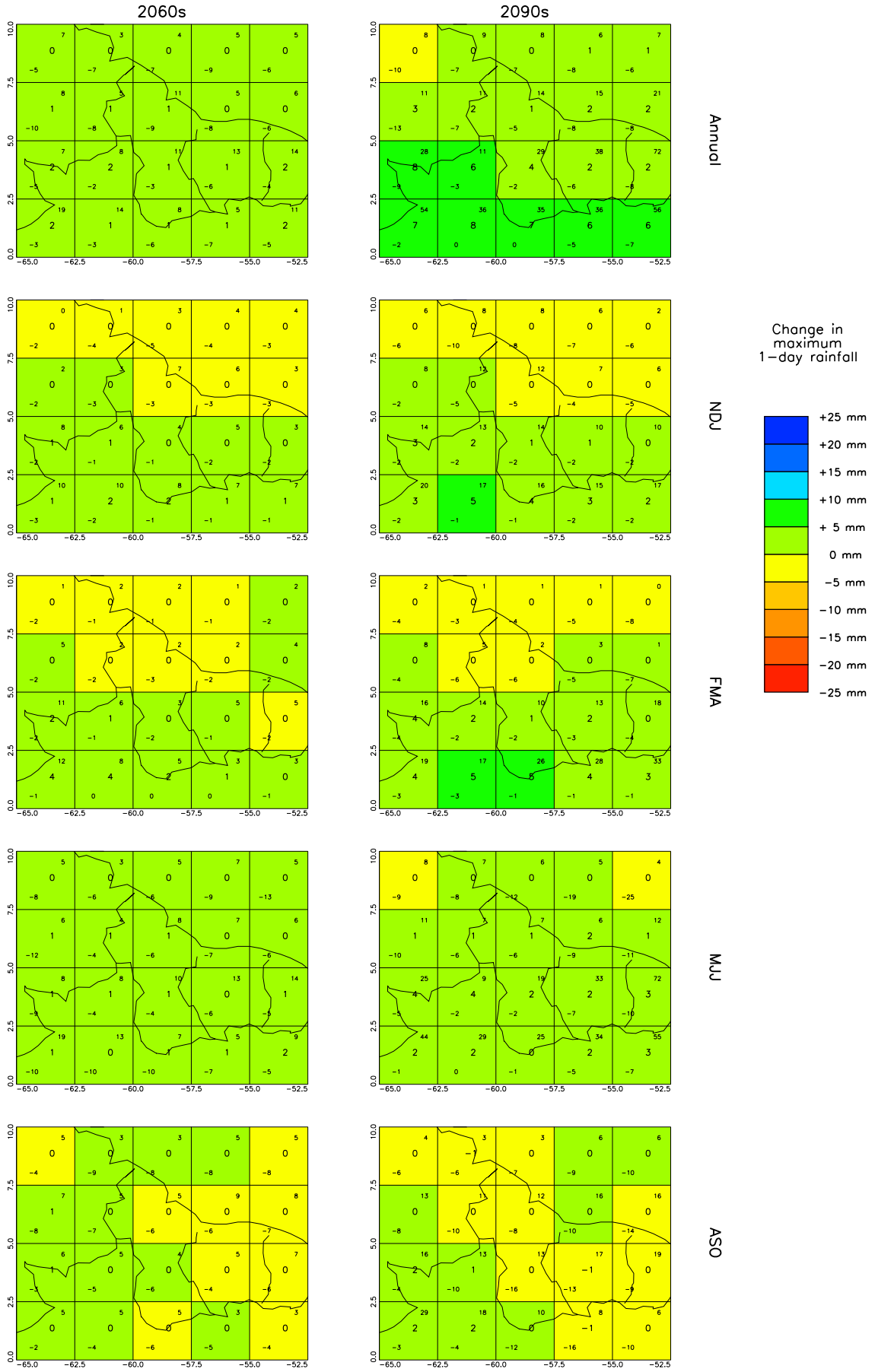

Figure 18: Spatial patterns of maximum 1-day rainfall for 10-year periods in the future under the SRES A2 scenario. All values are anomalies relative to the mean climate of 1970-1999. See Figure 2 for details.

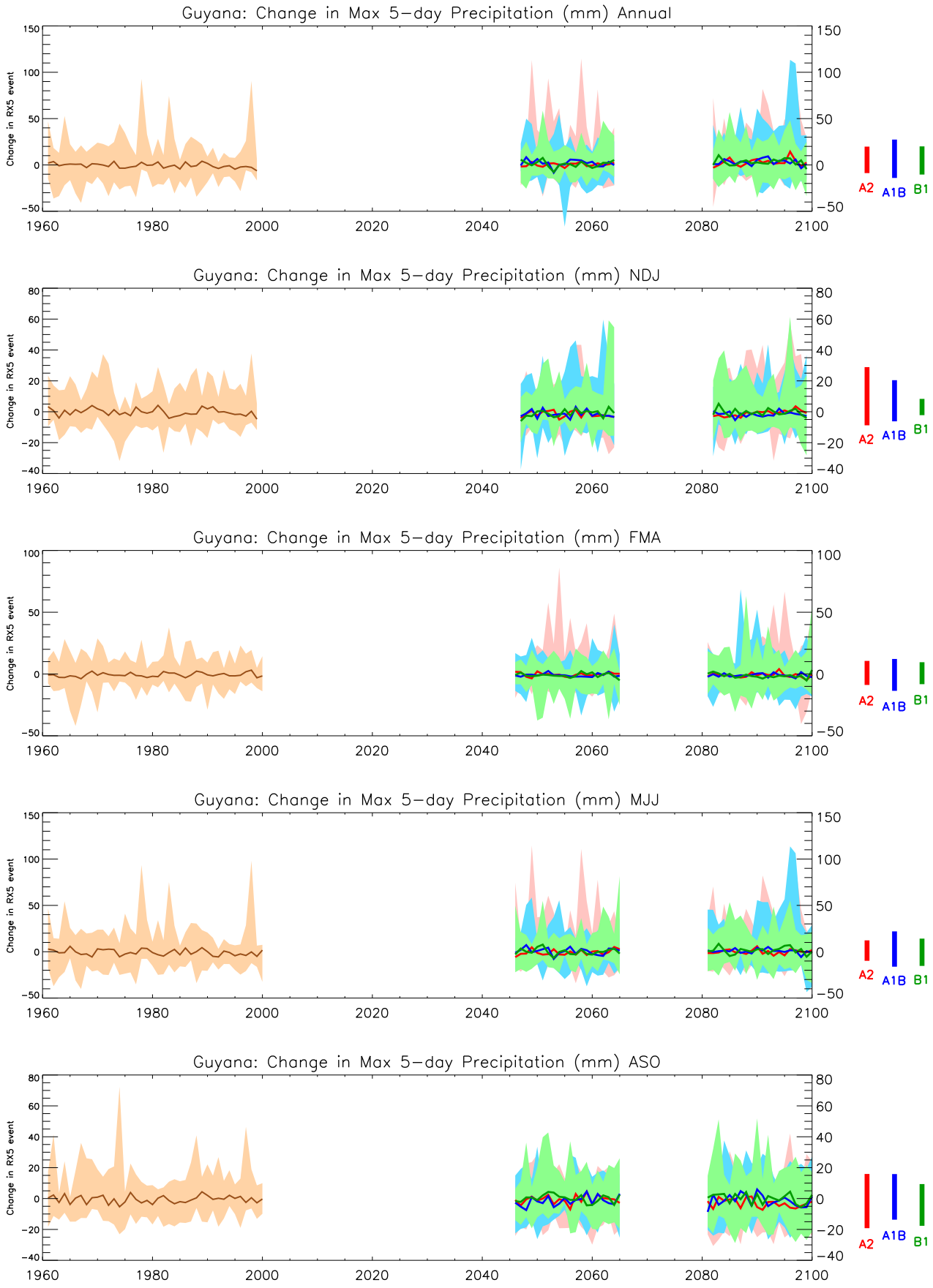

Figure 19: Trends in maximum 5-day rainfall for the recent past and projected future. All values shown are anomalies, relative to the 1970-1999 mean climate. See Figure 1 for details.

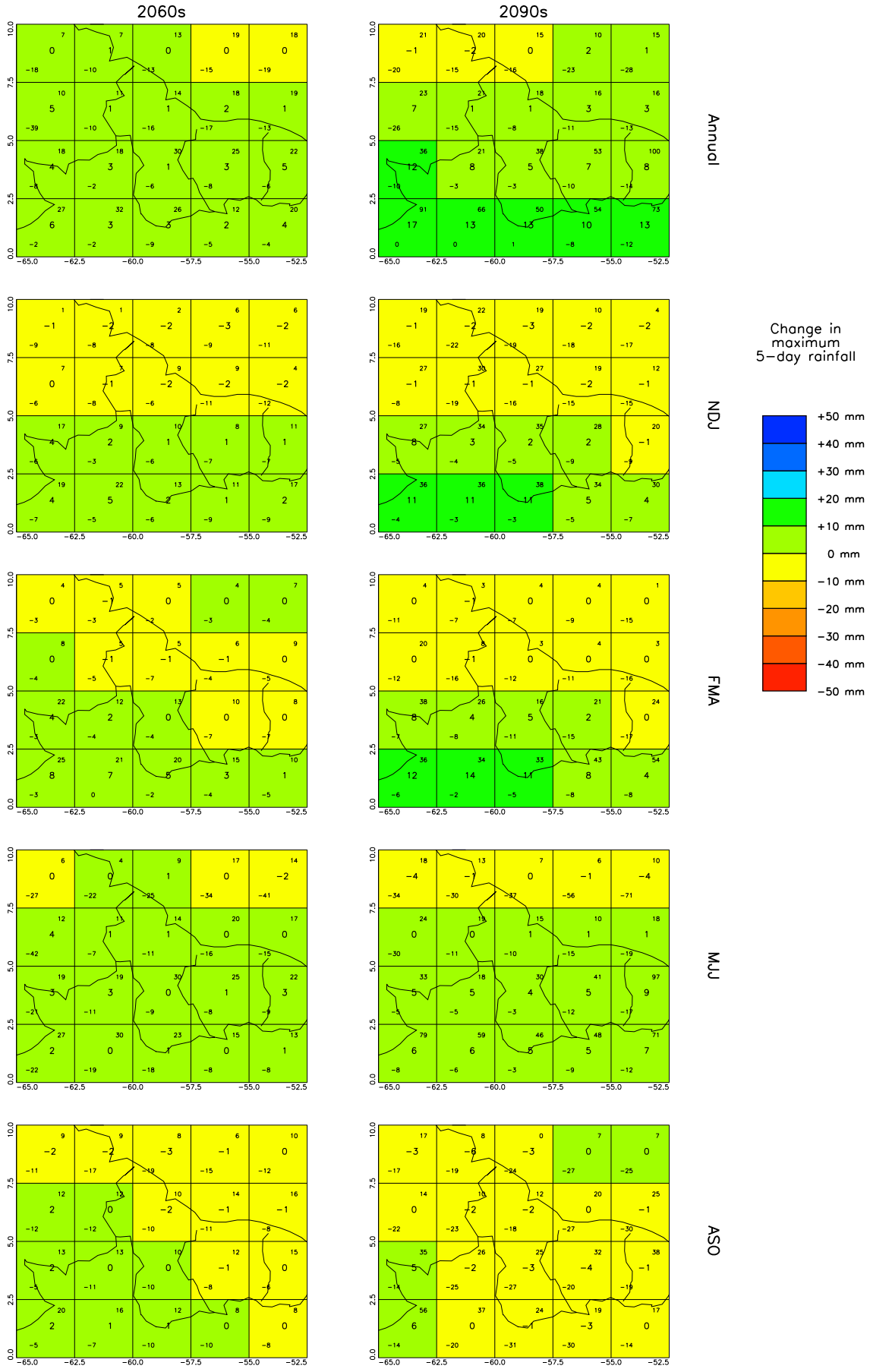

Figure 20: Spatial patterns of projected change in maximum 5-day rainfall for 10-year periods in the future under the SRES A2 scenario. All values are anomalies relative to the mean climate of 1970-1999. See Figure 2 for details.