**UNDP Climate Change Country Profiles**

# Mauritius

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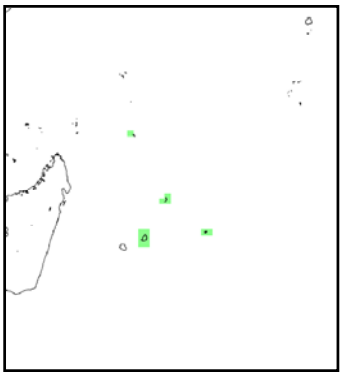
http://country-profiles.geog.ox.ac.uk



## General Climate

The Republic of Mauritius is an island nation which includes the islands of St. Brandon, Rodrigues and the Agalega Islands as well as the island of Mauritius. Located in the Indian Ocean west of Madagascar, at latitudes of 16-20˚ South of the equator, the Islands have a tropical maritime climate. There are two seasons – the warm and wet summer, and the cooler, and dry winter. Seasonally, temperature varies by only a few degrees, lowest in JAS at around 22˚, and highest in JFM at 26-27˚C. The wet season peaks between January and March, when 200-250mm of rain fall per month. This wet season rainfall is controlled by the seasonal migration of the tropical rain belt (or Inter-Tropical Convergence Zone, ITCZ), which oscillates between the northern and southern tropics over the course of the year, reaching its southern-most position over the Islands of Mauritius in January and February. Variations in the intensity and timing of the movements of the ITCZ from one year to the next cause inter-annual variation in the wet season rainfall. The most well documented cause of this variability is the El Niño Southern Oscillation (ENSO) which causes warmer and drier than average conditions in the wet season of Eastern Africa in its warm phase (El Niño) and relatively cold and wet conditions in its cold phase (La Niña).

During the wet and warm, season the Islands of Mauritius experience tropical cyclones and hurricanes.

## Recent Climate Trends

### Temperature

- Mean annual temperature has increased by 0.6˚C since 1960, an average rate of 0.13˚C per decade.
- This increase in temperature is most rapid in JFM (0.16˚C per decade) and least rapid in OND (0.10˚C per decade).

- There is insufficient daily temperature data available from which to determine trends in daily temperature extremes.

### Precipitation

- The large inter-annual and inter-decadal variations in rainfall in this part of the world mean that it is difficult to identify long term trends. Whilst there is no evident trend in annual rainfall, OND rainfall has declined over the period 1960 to 2006, at an average rate of 7.7mm per month (8.7%) per decade.
- There are insufficient daily rainfall observations available to identify trends in daily rainfall extremes.

## GCM Projections of Future Climate

### Temperature

- The mean annual temperature is projected to increase by 1.0 to 2.0˚C by the 2060s, and 1.1 to 3.4˚C by the 2090s. The range of projections by the 2090s under any one emissions scenario is 1.0-1.5˚C.

- 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[1] will occur on 29-48% of days by the 2060s, and 33-71% of days by the 2090s. Days considered 'hot' by current climate standards for their season are projected to occur on up 100% of days in JFM and JAS by the 2090s.
    - Nights that are considered 'hot' for the annual climate of 1970-99 are projected to occur on 29-48% of nights by the 2060s and 32-71% of nights by the 2090s. Nights that are considered hot for each season by 1970-99 standards are projected to occur on up to 100% of nights in JFM by the 2090s.
- All projections indicate substantial decreases in the frequency of days and nights that are considered 'cold' in current climate. 'Cold' days[2] do not occur in any projection, under any emissions scenario by the 2090s, and cold nights only occur under the lowest emissions scenario by the 2090s.

### Precipitation

- The range of projections in mean annual rainfall from different models is large and straddles both negative and positive changes (-20% to +24%), with ensemble median changes close to

[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.
[2] '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.

zero. Seasonally, the projections show a more coherent picture, with the projections for JAS rainfall tending towards decreases. Changes in this season range between -27 and +15% by the 2090s, with ensemble median values -6 to -10%.

- Projected changes tend towards increases over the northern islands and decreases over the southern islands in all seasons.

- The projections of change in the proportion of rainfall that falls in heavy[3] events range between both increases and decreases. Seasonally, projections are more coherent in JAS, indicating decreases, with changes ranging between -13% to +5%.
- The models are broadly consistent in indicating overall increases in 1- and 5-day rainfall maxima by the 2090s. The models indicate decreases in these values, however, in JAS.

## Other Regional Climate Change Information

- Tropical cyclones are poorly captured by GCMs and thus potential changes in intensity and tracks of tropical cyclones in the future are very uncertain. Whilst evidence indicates that tropical cyclones are likely to become, on the whole, more intense under a warmer climate as a result of higher sea-surface temperatures, there is great uncertainty in changes in frequency, and changes to storm tracks and their interactions with other features of climate variability (such as the El Niño Southern Oscillation) which introduces uncertainty at the regional scale (Christensen *et al*., 2007).
- The uncertainty in potential changes in tropical cyclones contributes to uncertainties in future wet-season rainfall. Potential increases in tropical cyclone activity, which may not be captured in the GCM projections, may add to the projected increases in wet-season rainfall in the region (Christensen *et al*., 2007).
- Model simulations show wide disagreements in projected changes in the amplitude of future El Niño events. The climate of Mauritius can be strongly influenced by ENSO, thus contributing to uncertainty in climate projections for this region.
- The islands of Mauritius are vulnerable to sea-level rise. Sea-level in this region is projected by climate models to rise by the following levels[4] by the 2090s, relative to 1980-1999 sea-level:
    - 0.13 to 0.43m under SRES B1
    - 0.16 to 0.53m under SRES A1B
    - 0.18 to 0.56m under SRES A2

- For further information on climate projections for Africa, see Christensen *et al.* (2007) IPCC Working Group I Report: '*The Physical Science Basis'*, Chapter 11 *(Regional Climate projections*): Section 11.2 *(Africa*), and Section 11.9 (*Small Islands*).

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

[4] 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 | | | Projected changes by the 2060s | | | Projected changes by the 2090s | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Min | Median | Max | Min | Median | Max | Min | Median | Max |
| **Temperature** | | | | | | | | | | | | |
| | (˚C) | (change in ˚C per decade) | | Change in ˚C | | | Change in ˚C | | | Change in ˚C | | |
| | | | *A2* | 0.5 | **0.9** | 1.1 | 1.5 | **1.7** | 2.0 | 2.3 | **2.8** | 3.4 |
| **Annual** | 24.3 | 0.13* | *A1B* | 0.6 | **0.9** | 1.3 | 1.2 | **1.7** | 2.0 | 1.9 | **2.1** | 2.9 |
| | | | *B1* | 0.3 | **0.7** | 0.9 | 0.7 | **1.2** | 1.5 | 1.1 | **1.4** | 1.9 |
| | | | *A2* | 0.6 | **1.0** | 1.1 | 1.5 | **1.8** | 2.2 | 2.3 | **2.9** | 3.4 |
| **JFM** | 26.6 | 0.16* | *A1B* | 0.7 | **0.8** | 1.3 | 1.3 | **1.8** | 2.1 | 1.9 | **2.2** | 3.0 |
| | | | *B1* | 0.2 | **0.7** | 0.9 | 0.7 | **1.2** | 1.5 | 1.1 | **1.5** | 2.1 |
| | | | *A2* | 0.4 | **0.9** | 1.2 | 1.5 | **1.8** | 2.1 | 2.3 | **2.9** | 3.5 |
| **AMJ** | 24.3 | 0.13* | *A1B* | 0.5 | **1.0** | 1.2 | 1.1 | **1.8** | 2.0 | 1.9 | **2.2** | 3.1 |
| | | | *B1* | 0.3 | **0.7** | 0.9 | 0.7 | **1.2** | 1.6 | 1.2 | **1.4** | 2.0 |
| | | | *A2* | 0.5 | **0.8** | 1.2 | 1.3 | **1.8** | 2.0 | 2.0 | **2.7** | 3.3 |
| **JAS** | 22.0 | 0.13* | *A1B* | 0.5 | **0.8** | 1.3 | 1.1 | **1.6** | 1.9 | 1.7 | **2.1** | 2.8 |
| | | | *B1* | 0.3 | **0.6** | 0.9 | 0.7 | **1.1** | 1.4 | 1.0 | **1.3** | 1.9 |
| | | | *A2* | 0.6 | **0.9** | 1.1 | 1.5 | **1.8** | 2.1 | 2.2 | **2.8** | 3.6 |
| **OND** | 24.4 | 0.10* | *A1B* | 0.6 | **0.9** | 1.2 | 1.3 | **1.6** | 2.1 | 1.8 | **2.0** | 3.0 |
| | | | *B1* | 0.4 | **0.7** | 1.0 | 0.7 | **1.2** | 1.5 | 1.0 | **1.4** | 1.9 |
| **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* | -8 | **0** | 13 | -15 | **0** | 17 | -15 | **3** | 14 |
| **Annual** | 132.4 | -0.6 | *A1B* | -13 | **-3** | 11 | -8 | **0** | 18 | -20 | **0** | 22 |
| | | | *B1* | -3 | **-2** | 3 | -14 | **-2** | 11 | -9 | **-3** | 15 |
| | | | *A2* | -13 | **3** | 53 | -26 | **-1** | 30 | -28 | **9** | 50 |
| **JFM** | 230.9 | 9.8 | *A1B* | -23 | **1** | 25 | -27 | **6** | 37 | -31 | **8** | 59 |
| | | | *B1* | -13 | **1** | 8 | -30 | **0** | 35 | -23 | **-6** | 27 |
| | | | *A2* | -15 | **0** | 19 | -18 | **2** | 25 | -21 | **0** | 30 |
| **AMJ** | 131.1 | -3.9 | *A1B* | -27 | **-4** | 15 | -18 | **3** | 22 | -27 | **2** | 25 |
| | | | *B1* | -14 | **-1** | 10 | -20 | **-4** | 19 | -24 | **1** | 16 |
| | | | *A2* | -6 | **-2** | 3 | -10 | **-1** | 9 | -12 | **-6** | 4 |
| **JAS** | 77.5 | -0.2 | *A1B* | -10 | **-2** | 1 | -8 | **-3** | 8 | -10 | **-3** | 5 |
| | | | *B1* | -7 | **-2** | 0 | -6 | **-2** | 3 | -16 | **-4** | 2 |
| | | | *A2* | -8 | **2** | 11 | -13 | **-3** | 22 | -16 | **-2** | 20 |
| **OND** | 88.7 | -7.7* | *A1B* | -23 | **0** | 14 | -15 | **-4** | 16 | -25 | **-4** | 12 |
| | | | *B1* | -8 | **-3** | 13 | -14 | **0** | 36 | -18 | **2** | 16 |
| **Precipitation (%)** | | | | | | | | | | | | |
| | (mm per month) | (change in % per decade) | | % Change | | | % Change | | | % Change | | |
| | | | *A2* | -9 | **0** | 14 | -15 | **0** | 15 | -16 | **2** | 17 |
| **Annual** | 132.4 | -0.5 | *A1B* | -12 | **-2** | 12 | -8 | **0** | 10 | -20 | **0** | 24 |
| | | | *B1* | -3 | **-1** | 3 | -11 | **-2** | 12 | -11 | **-2** | 19 |
| | | | *A2* | -10 | **1** | 27 | -14 | **-1** | 22 | -21 | **4** | 38 |
| **JFM** | 230.9 | 4.2 | *A1B* | -10 | **0** | 13 | -12 | **3** | 19 | -22 | **4** | 31 |
| | | | *B1* | -8 | **0** | 4 | -13 | **0** | 18 | -11 | **-3** | 21 |
| | | | *A2* | -13 | **0** | 18 | -16 | **3** | 25 | -20 | **0** | 30 |
| **AMJ** | 131.1 | -3.0 | *A1B* | -20 | **-5** | 20 | -16 | **4** | 21 | -22 | **3** | 28 |
| | | | *B1* | -17 | **-1** | 11 | -14 | **-4** | 19 | -17 | **0** | 22 |
| | | | *A2* | -24 | **-3** | 12 | -26 | **-3** | 9 | -27 | **-10** | 15 |
| **JAS** | 77.5 | -0.3 | *A1B* | -21 | **-5** | 4 | -20 | **-8** | 7 | -16 | **-7** | 16 |
| | | | *B1* | -26 | **-4** | 2 | -16 | **-5** | 11 | -25 | **-6** | 8 |
| | | | *A2* | -11 | **2** | 15 | -18 | **-3** | 35 | -23 | **-2** | 33 |
| **OND** | 88.7 | -8.7* | *A1B* | -27 | **-1** | 23 | -21 | **-5** | 11 | -35 | **-7** | 22 |
| | | | *B1* | -15 | **-2** | 21 | -20 | **0** | 57 | -25 | **2** | 31 |

| | 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* | **** | **** | **** | 36 | **39** | 48 | 52 | **61** | 71 |
| **Annual** | **** | **** | *A1B* | **** | **** | **** | 35 | **41** | 48 | 43 | **54** | 64 |
| | | | *B1* | **** | **** | **** | 29 | **33** | 42 | 33 | **38** | 47 |
| | | | *A2* | **** | **** | **** | 69 | **88** | 96 | 96 | **99** | 100 |
| **JFM** | **** | **** | *A1B* | **** | **** | **** | 62 | **86** | 95 | 90 | **98** | 99 |
| | | | *B1* | **** | **** | **** | 43 | **62** | 85 | 67 | **84** | 96 |
| | | | *A2* | **** | **** | **** | 46 | **50** | 62 | 66 | **78** | 92 |
| **AMJ** | **** | **** | *A1B* | **** | **** | **** | 43 | **51** | 62 | 56 | **68** | 84 |
| | | | *B1* | **** | **** | **** | 31 | **41** | 56 | 41 | **46** | 64 |
| | | | *A2* | **** | **** | **** | 70 | **80** | 97 | 96 | **99** | 100 |
| **JAS** | **** | **** | *A1B* | **** | **** | **** | 66 | **85** | 95 | 92 | **98** | 99 |
| | | | *B1* | **** | **** | **** | 47 | **64** | 84 | 63 | **75** | 95 |
| | | | *A2* | **** | **** | **** | 37 | **51** | 59 | 69 | **81** | 89 |
| **OND** | **** | **** | *A1B* | **** | **** | **** | 40 | **50** | 57 | 51 | **66** | 82 |
| | | | *B1* | **** | **** | **** | 30 | **39** | 46 | 32 | **44** | 59 |
| **Frequency of Hot Nights (TN90p)** | | | | | | | | | | | | |
| | | | *A2* | **** | **** | **** | 35 | **40** | 48 | 51 | **60** | 71 |
| **Annual** | **** | **** | *A1B* | **** | **** | **** | 35 | **41** | 48 | 43 | **53** | 64 |
| | | | *B1* | **** | **** | **** | 29 | **34** | 42 | 32 | **38** | 48 |
| | | | *A2* | **** | **** | **** | 68 | **88** | 97 | 95 | **99** | 100 |
| **JFM** | **** | **** | *A1B* | **** | **** | **** | 61 | **85** | 95 | 89 | **97** | 99 |
| | | | *B1* | **** | **** | **** | 43 | **65** | 85 | 67 | **84** | 96 |
| | | | *A2* | **** | **** | **** | 47 | **49** | 62 | 67 | **77** | 92 |
| **AMJ** | **** | **** | *A1B* | **** | **** | **** | 43 | **51** | 63 | 57 | **68** | 84 |
| | | | *B1* | **** | **** | **** | 31 | **41** | 55 | 41 | **45** | 65 |
| | | | *A2* | **** | **** | **** | 68 | **78** | 97 | 94 | **99** | 99 |
| **JAS** | **** | **** | *A1B* | **** | **** | **** | 66 | **85** | 94 | 83 | **98** | 99 |
| | | | *B1* | **** | **** | **** | 46 | **64** | 83 | 62 | **73** | 94 |
| | | | *A2* | **** | **** | **** | 36 | **50** | 59 | 67 | **80** | 88 |
| **OND** | **** | **** | *A1B* | **** | **** | **** | 39 | **50** | 56 | 51 | **64** | 81 |
| | | | *B1* | **** | **** | **** | 29 | **39** | 46 | 31 | **42** | 58 |
| **Frequency of Cold Days (TX10p)** | | | | | | | | | | | | |
| | | | *A2* | **** | **** | **** | 0 | **0** | 0 | 0 | **0** | 0 |
| **Annual** | **** | **** | *A1B* | **** | **** | **** | 0 | **0** | 0 | 0 | **0** | 0 |
| | | | *B1* | **** | **** | **** | 0 | **0** | 1 | 0 | **0** | 0 |
| | | | *A2* | **** | **** | **** | 0 | **0** | 0 | 0 | **0** | 0 |
| **JFM** | **** | **** | *A1B* | **** | **** | **** | 0 | **0** | 0 | 0 | **0** | 0 |
| | | | *B1* | **** | **** | **** | 0 | **0** | 0 | 0 | **0** | 0 |
| | | | *A2* | **** | **** | **** | 0 | **0** | 1 | 0 | **0** | 0 |
| **AMJ** | **** | **** | *A1B* | **** | **** | **** | 0 | **0** | 0 | 0 | **0** | 0 |
| | | | *B1* | **** | **** | **** | 0 | **0** | 1 | 0 | **0** | 0 |
| | | | *A2* | **** | **** | **** | 0 | **0** | 0 | 0 | **0** | 0 |
| **JAS** | **** | **** | *A1B* | **** | **** | **** | 0 | **0** | 0 | 0 | **0** | 0 |
| | | | *B1* | **** | **** | **** | 0 | **0** | 0 | 0 | **0** | 0 |
| | | | *A2* | **** | **** | **** | 0 | **0** | 0 | 0 | **0** | 0 |
| **OND** | **** | **** | *A1B* | **** | **** | **** | 0 | **0** | 0 | 0 | **0** | 0 |
| | | | *B1* | **** | **** | **** | 0 | **0** | 0 | 0 | **0** | 0 |
| **Frequency of Cold Nights (TN10p)** | | | | | | | | | | | | |
| | | | *A2* | **** | **** | **** | 0 | **0** | 1 | 0 | **0** | 0 |
| **Annual** | **** | **** | *A1B* | **** | **** | **** | 0 | **0** | 1 | 0 | **0** | 0 |
| | | | *B1* | **** | **** | **** | 0 | **0** | 2 | 0 | **0** | 1 |
| | | | *A2* | **** | **** | **** | 0 | **0** | 0 | 0 | **0** | 0 |
| **JFM** | **** | **** | *A1B* | **** | **** | **** | 0 | **0** | 0 | 0 | **0** | 0 |
| | | | *B1* | **** | **** | **** | 0 | **0** | 0 | 0 | **0** | 0 |
| | | | *A2* | **** | **** | **** | 0 | **0** | 1 | 0 | **0** | 0 |
| **AMJ** | **** | **** | *A1B* | **** | **** | **** | 0 | **0** | 0 | 0 | **0** | 0 |
| | | | *B1* | **** | **** | **** | 0 | **0** | 1 | 0 | **0** | 0 |
| | | | *A2* | **** | **** | **** | 0 | **0** | 0 | 0 | **0** | 0 |
| **JAS** | **** | **** | *A1B* | **** | **** | **** | 0 | **0** | 0 | 0 | **0** | 0 |
| | | | *B1* | **** | **** | **** | 0 | **0** | 1 | 0 | **0** | 0 |
| | | | *A2* | **** | **** | **** | 0 | **0** | 0 | 0 | **0** | 0 |
| **OND** | **** | **** | *A1B* | **** | **** | **** | 0 | **0** | 0 | 0 | **0** | 0 |
| | | | *B1* | **** | **** | **** | 0 | **0** | 2 | 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* | **** | **** | **** | -5 | **0** | 7 | -5 | **1** | 11 |
| **Annual** | **** | **** | *A1B* | **** | **** | **** | -4 | **0** | 4 | -6 | **1** | 8 |
| | | | *B1* | **** | **** | **** | -6 | **1** | 5 | -4 | **1** | 8 |
| | | | *A2* | **** | **** | **** | -7 | **0** | 9 | -3 | **0** | 13 |
| **JFM** | **** | **** | *A1B* | **** | **** | **** | -4 | **1** | 6 | -3 | **3** | 9 |
| | | | *B1* | **** | **** | **** | -6 | **1** | 9 | -3 | **1** | 6 |
| | | | *A2* | **** | **** | **** | -6 | **-1** | 9 | -9 | **1** | 10 |
| **AMJ** | **** | **** | *A1B* | **** | **** | **** | -6 | **0** | 9 | -9 | **1** | 12 |
| | | | *B1* | **** | **** | **** | -6 | **1** | 6 | -9 | **0** | 8 |
| | | | *A2* | **** | **** | **** | -9 | **-2** | 5 | -13 | **-6** | 4 |
| **JAS** | **** | **** | *A1B* | **** | **** | **** | -12 | **-2** | 1 | -14 | **-4** | 5 |
| | | | *B1* | **** | **** | **** | -6 | **-2** | 1 | -11 | **-2** | 1 |
| | | | *A2* | **** | **** | **** | -13 | **-1** | 3 | -7 | **-1** | 9 |
| **OND** | **** | **** | *A1B* | **** | **** | **** | -12 | **-1** | 8 | -13 | **-2** | 7 |
| | | | *B1* | **** | **** | **** | -10 | **1** | 10 | -14 | **0** | 16 |
| **Maximum 1-day rainfall (RX1day)** | | | | | | | | | | | | |
| | *mm* | *Change in mm per decade* | | | | | *Change in mm* | | | *Change in mm* | | |
| | | | *A2* | **** | **** | **** | -8 | **1** | 19 | -3 | **8** | 26 |
| **Annual** | **** | **** | *A1B* | **** | **** | **** | -8 | **2** | 9 | -3 | **7** | 19 |
| | | | *B1* | **** | **** | **** | -8 | **4** | 17 | -7 | **2** | 18 |
| | | | *A2* | **** | **** | **** | -4 | **0** | 17 | -1 | **3** | 16 |
| **JFM** | **** | **** | *A1B* | **** | **** | **** | -5 | **1** | 9 | -3 | **3** | 21 |
| | | | *B1* | **** | **** | **** | -4 | **1** | 13 | -4 | **2** | 15 |
| | | | *A2* | **** | **** | **** | -6 | **0** | 18 | -10 | **1** | 30 |
| **AMJ** | **** | **** | *A1B* | **** | **** | **** | -11 | **0** | 3 | -10 | **0** | 12 |
| | | | *B1* | **** | **** | **** | -10 | **1** | 8 | -14 | **1** | 8 |
| | | | *A2* | **** | **** | **** | -3 | **-1** | 4 | -3 | **-1** | 3 |
| **JAS** | **** | **** | *A1B* | **** | **** | **** | -4 | **-1** | 1 | -5 | **0** | 3 |
| | | | *B1* | **** | **** | **** | -2 | **0** | 2 | -5 | **0** | 1 |
| | | | *A2* | **** | **** | **** | -4 | **0** | 2 | -2 | **0** | 12 |
| **OND** | **** | **** | *A1B* | **** | **** | **** | -4 | **0** | 6 | -6 | **0** | 7 |
| | | | *B1* | **** | **** | **** | -4 | **2** | 10 | -2 | **2** | 9 |
| **Maximum 5-day Rainfall (RX5day)** | | | | | | | | | | | | |
| | *mm* | *Change in mm per decade* | | | | | *Change in mm* | | | *Change in mm* | | |
| | | | *A2* | **** | **** | **** | -26 | **1** | 31 | -9 | **14** | 36 |
| **Annual** | **** | **** | *A1B* | **** | **** | **** | -21 | **0** | 16 | -13 | **12** | 32 |
| | | | *B1* | **** | **** | **** | -22 | **1** | 28 | -22 | **3** | 25 |
| | | | *A2* | **** | **** | **** | -21 | **0** | 25 | -4 | **2** | 33 |
| **JFM** | **** | **** | *A1B* | **** | **** | **** | -21 | **5** | 20 | -7 | **9** | 37 |
| | | | *B1* | **** | **** | **** | -12 | **3** | 24 | -13 | **2** | 25 |
| | | | *A2* | **** | **** | **** | -14 | **0** | 29 | -20 | **3** | 58 |
| **AMJ** | **** | **** | *A1B* | **** | **** | **** | -27 | **0** | 14 | -18 | **0** | 17 |
| | | | *B1* | **** | **** | **** | -23 | **3** | 14 | -31 | **2** | 9 |
| | | | *A2* | **** | **** | **** | -9 | **-2** | 8 | -9 | **-5** | 3 |
| **JAS** | **** | **** | *A1B* | **** | **** | **** | -11 | **-2** | 2 | -11 | **-3** | 4 |
| | | | *B1* | **** | **** | **** | -7 | **-2** | 3 | -11 | **-2** | 5 |
| | | | *A2* | **** | **** | **** | -11 | **-2** | 7 | -10 | **0** | 14 |
| **OND** | **** | **** | *A1B* | **** | **** | **** | -7 | **0** | 14 | -17 | **-1** | 19 |
| | | | *B1* | **** | **** | **** | -6 | **1** | 16 | -10 | **6** | 27 |

* indicates trend is statistically significant at 95% confidence

**** indicates data are not available

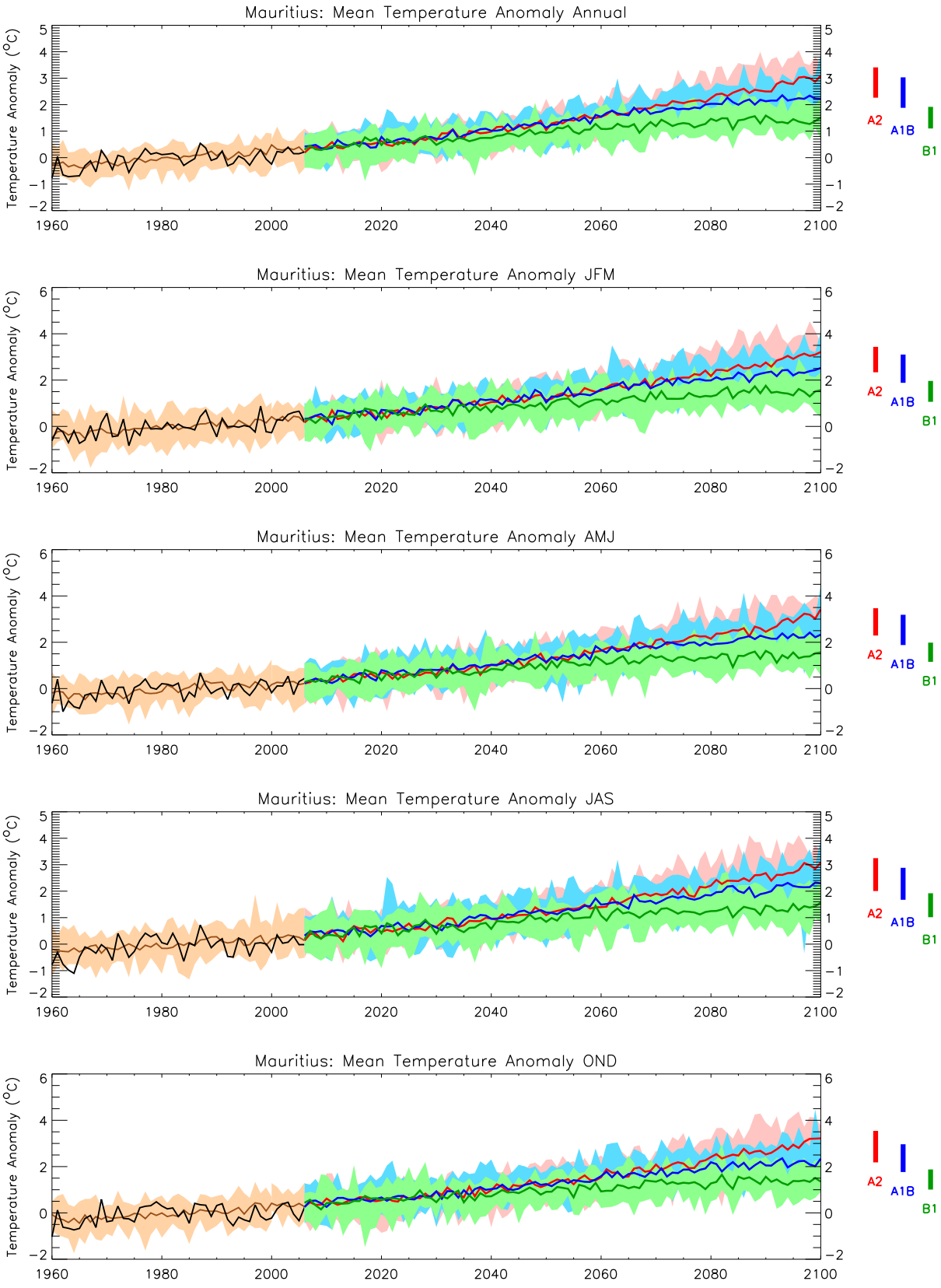



Figure 1: Trends in annual and seasonal mean temperature for the recent past and projected future. All values shown are anomalies, relative to the 1970-1999 mean climate. Black curves show the mean of observed data from 1960 to 2006, Brown curves show the median (solid line) and range (shading) of model 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.

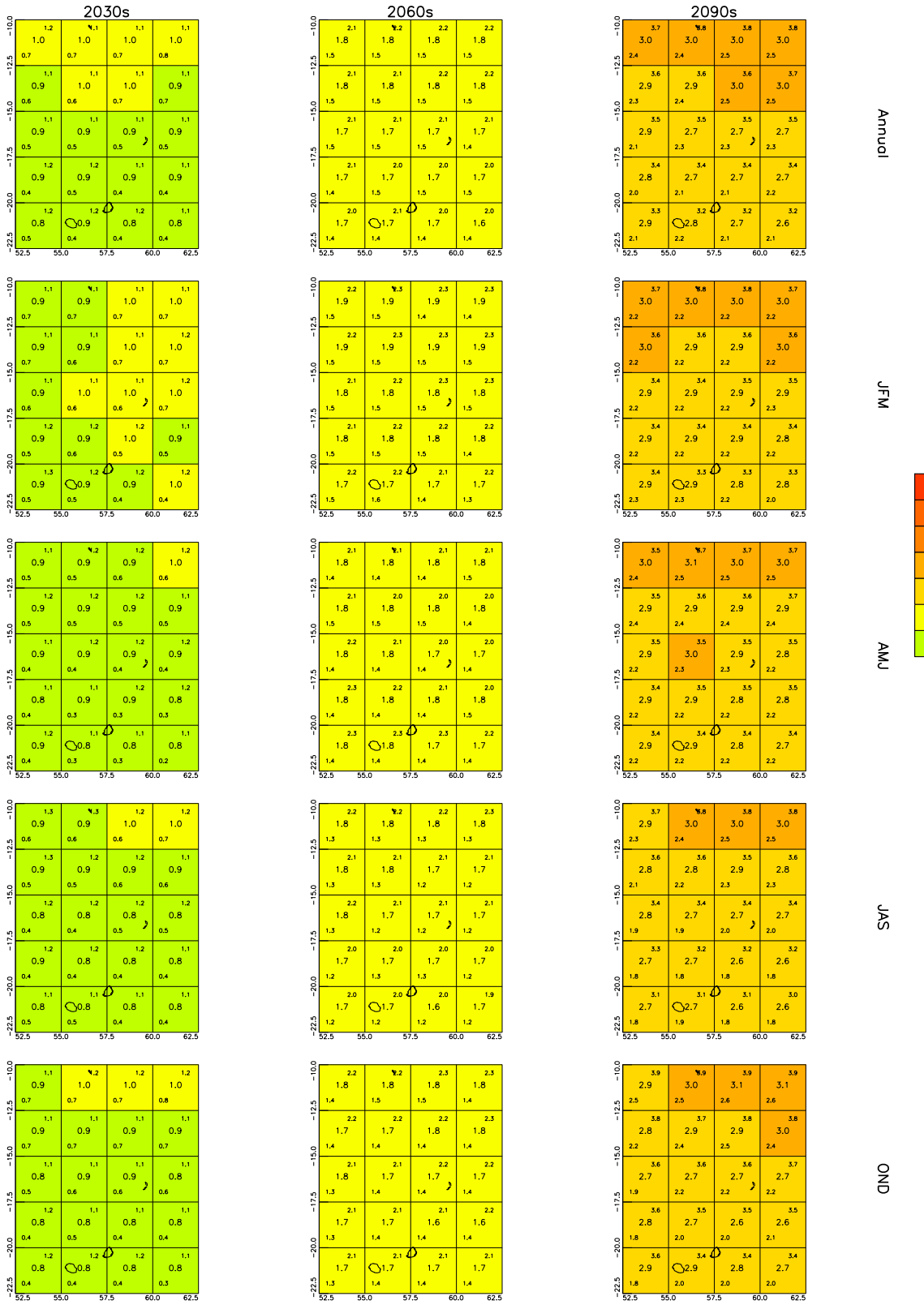



Figure 2: Spatial patterns of projected change in mean annual and seasonal temperature for 10-year periods in the future under the SRES A2 scenario. All values are anomalies relative to the mean climate of 1970-1999. In each grid box, the central value gives the ensemble median and the values in the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

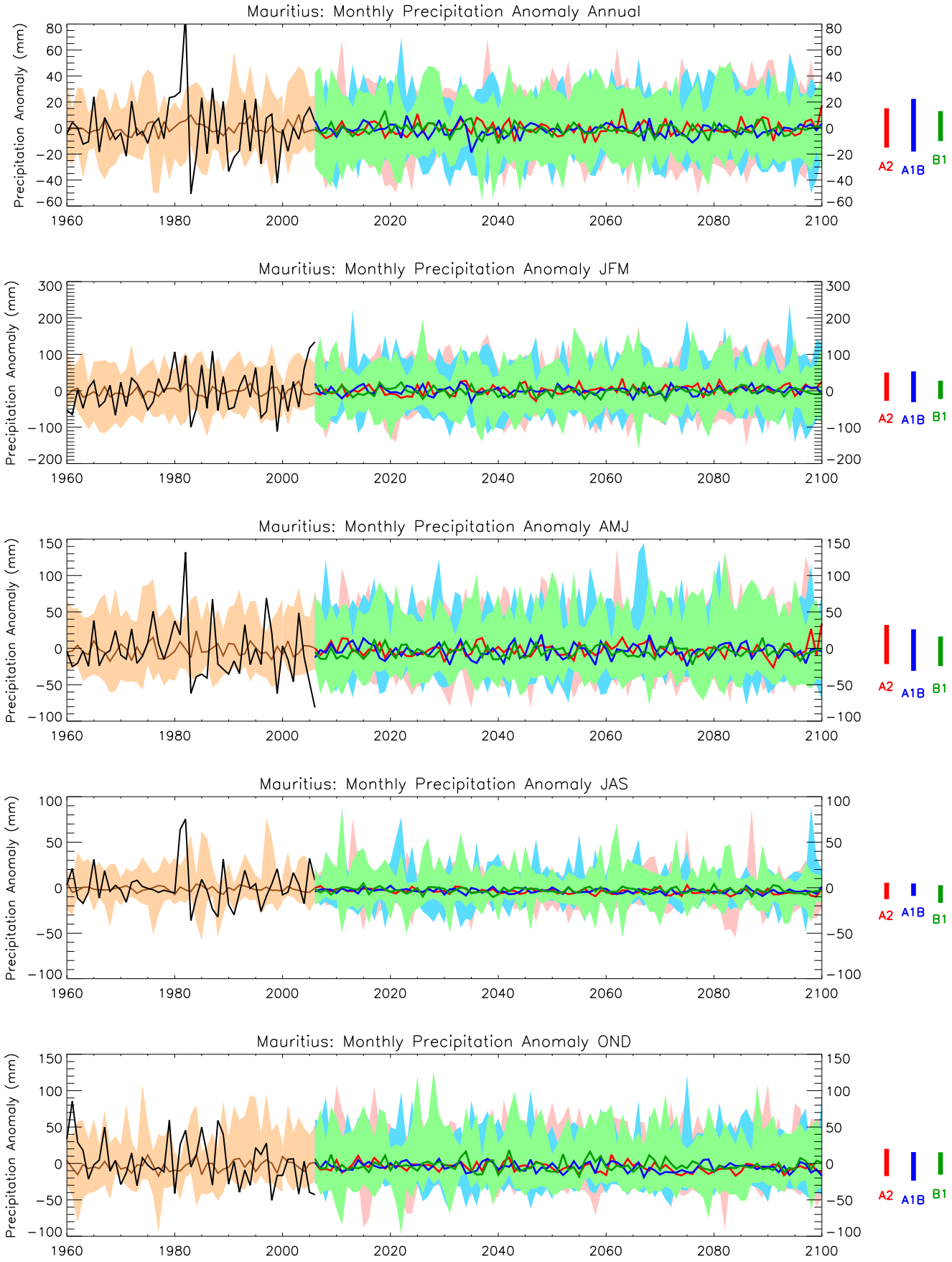



Figure 3: Trends in monthly precipitation for the recent past and projected future. All values shown are anomalies, relative to the 1970-1999 mean climate. See Figure 1 for details.

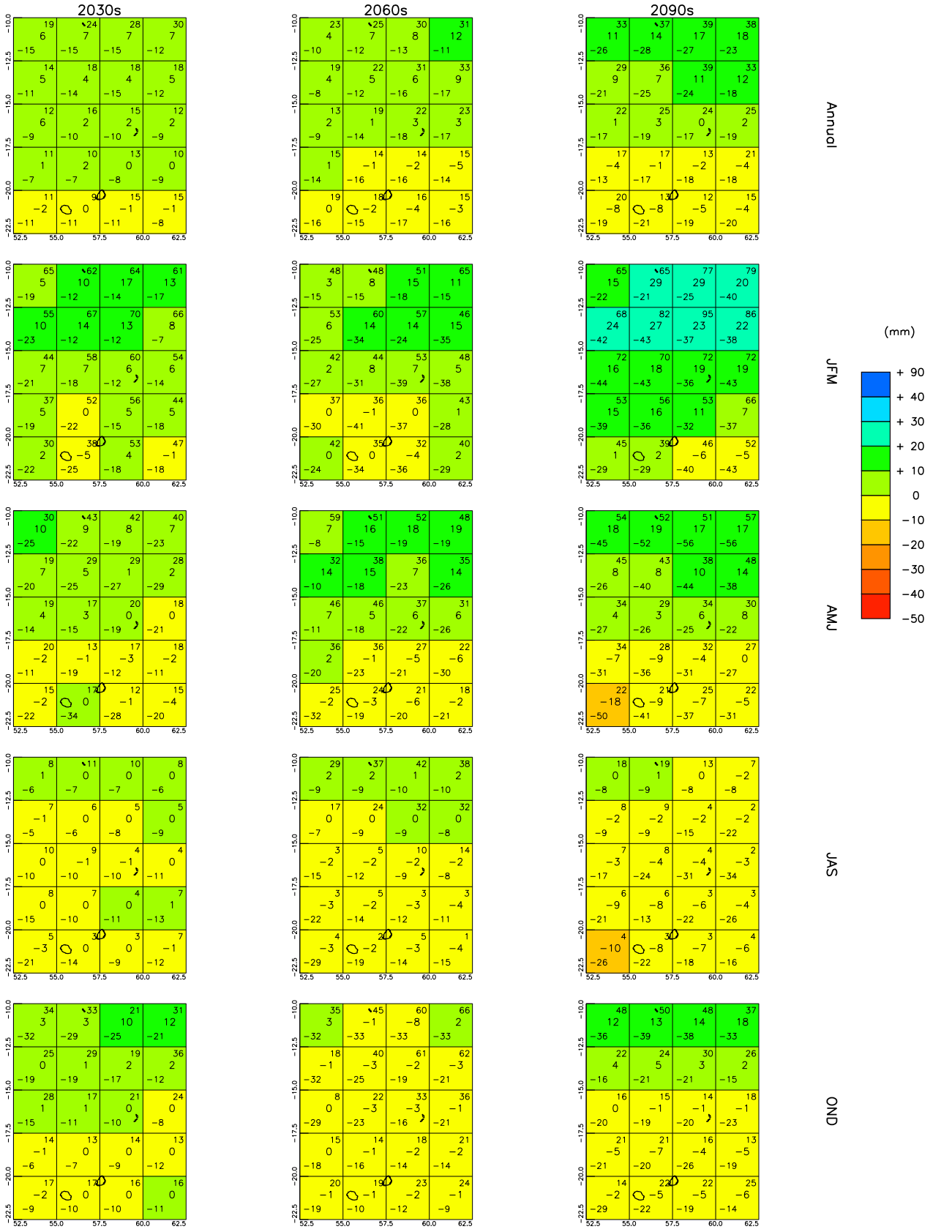



Figure 4: Spatial patterns of projected change in monthly precipitation for 10-year periods in the future under the SRES A2 scenario. All values are anomalies relative to the mean climate of 1970-1999.See Figure 2 for details.

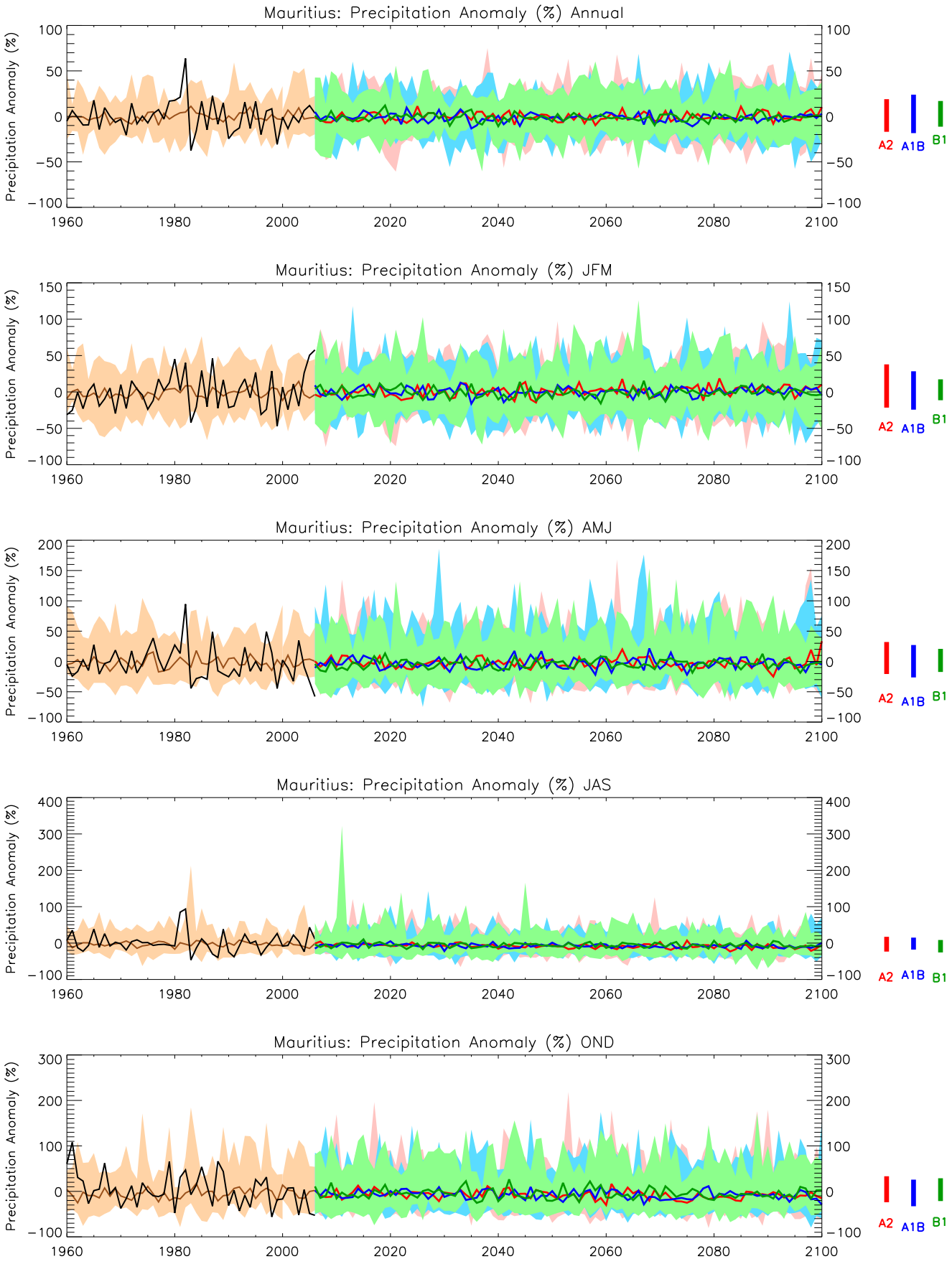



Figure 5: Trends in monthly precipitation for the recent past and projected future. All values shown are percentage anomalies, relative to the 1970-1999 mean climate. See Figure 1 for details.

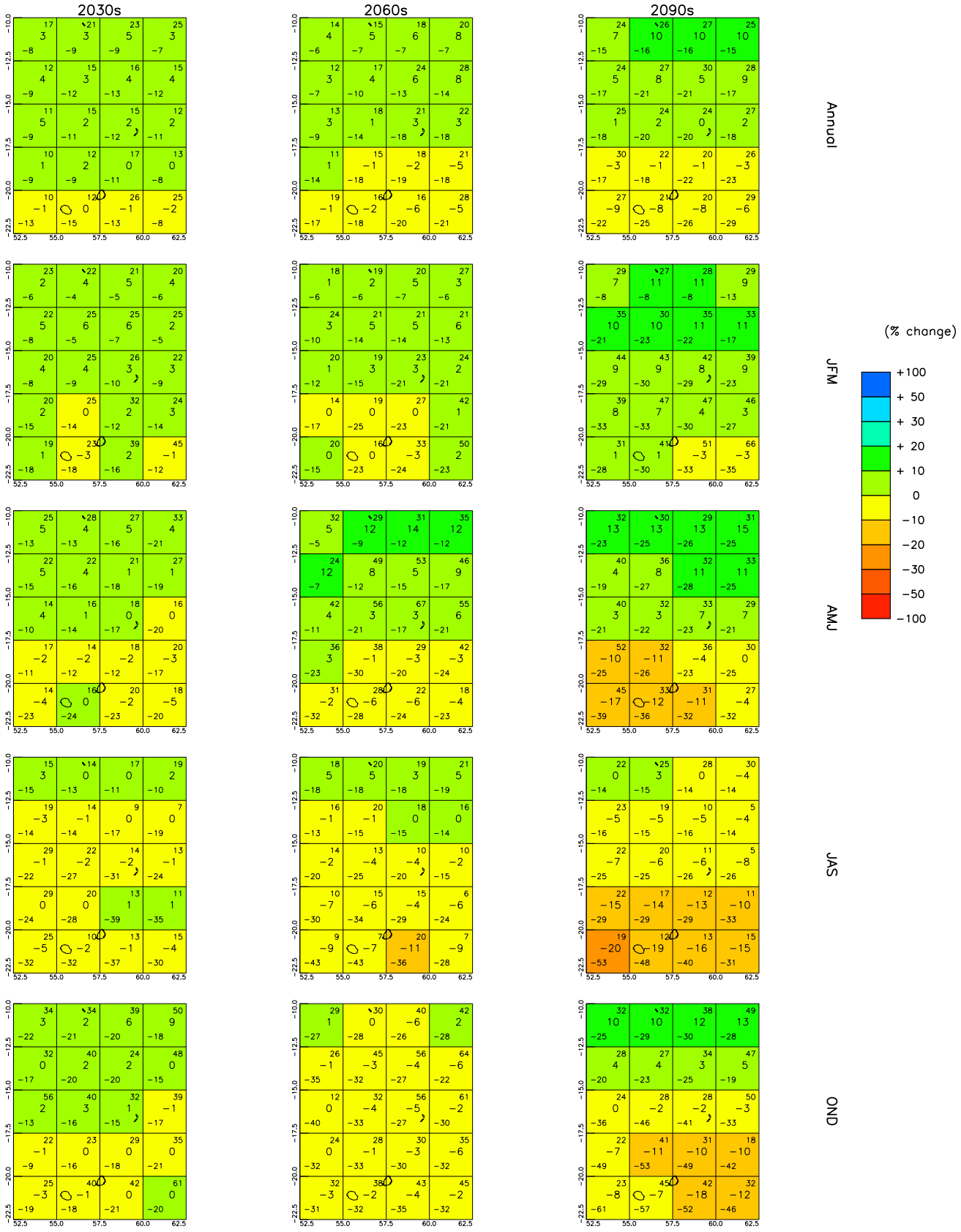



Figure 6: Spatial patterns of projected change in monthly precipitation for 10-year periods in the future under the SRES A2 scenario. All values are percentage anomalies relative to the mean climate of 1970-1999.See Figure 2 for details.

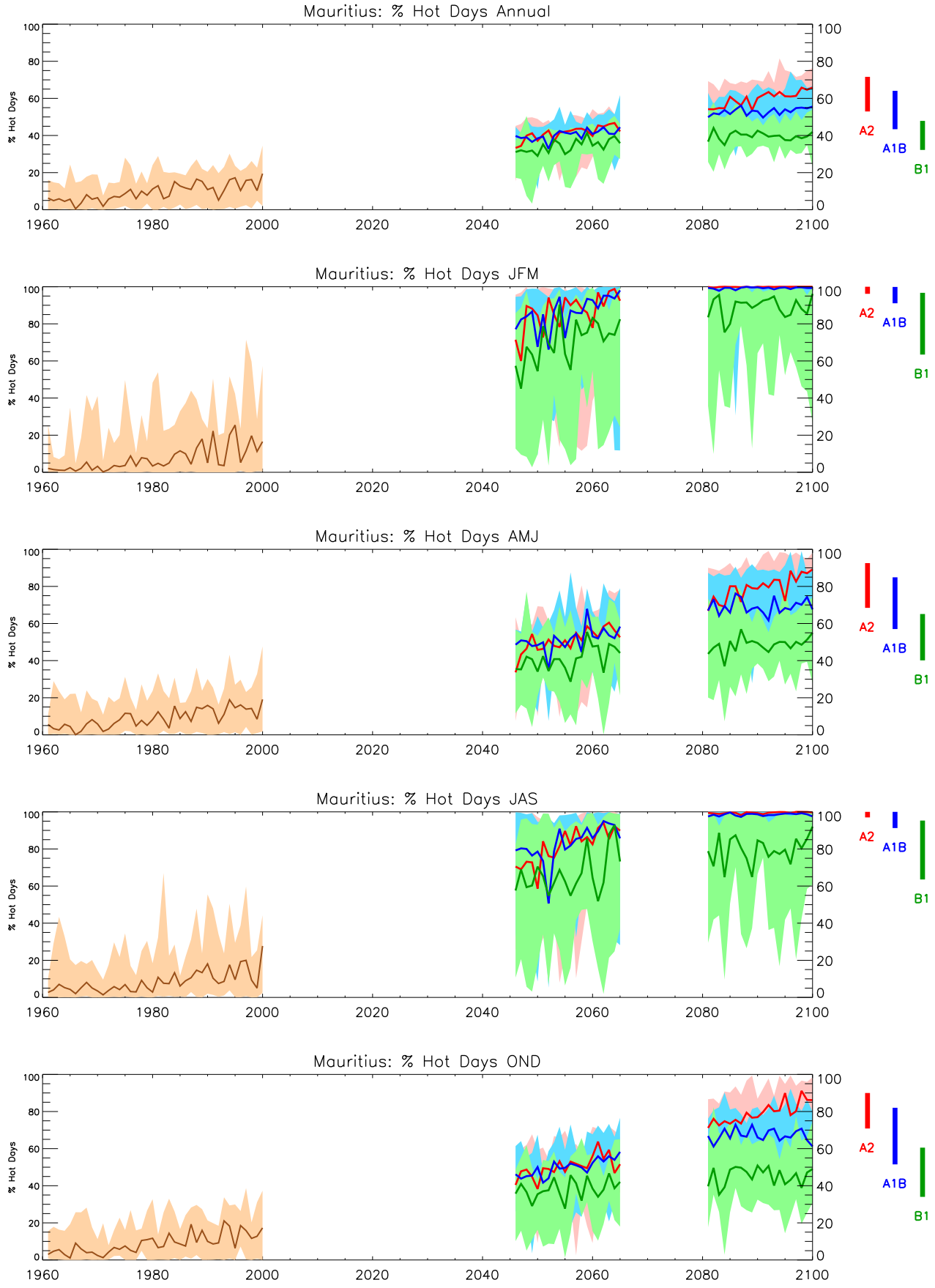



Figure 7: Trends in Hot-day frequency for the recent past and projected future. See Figure 1 for details.

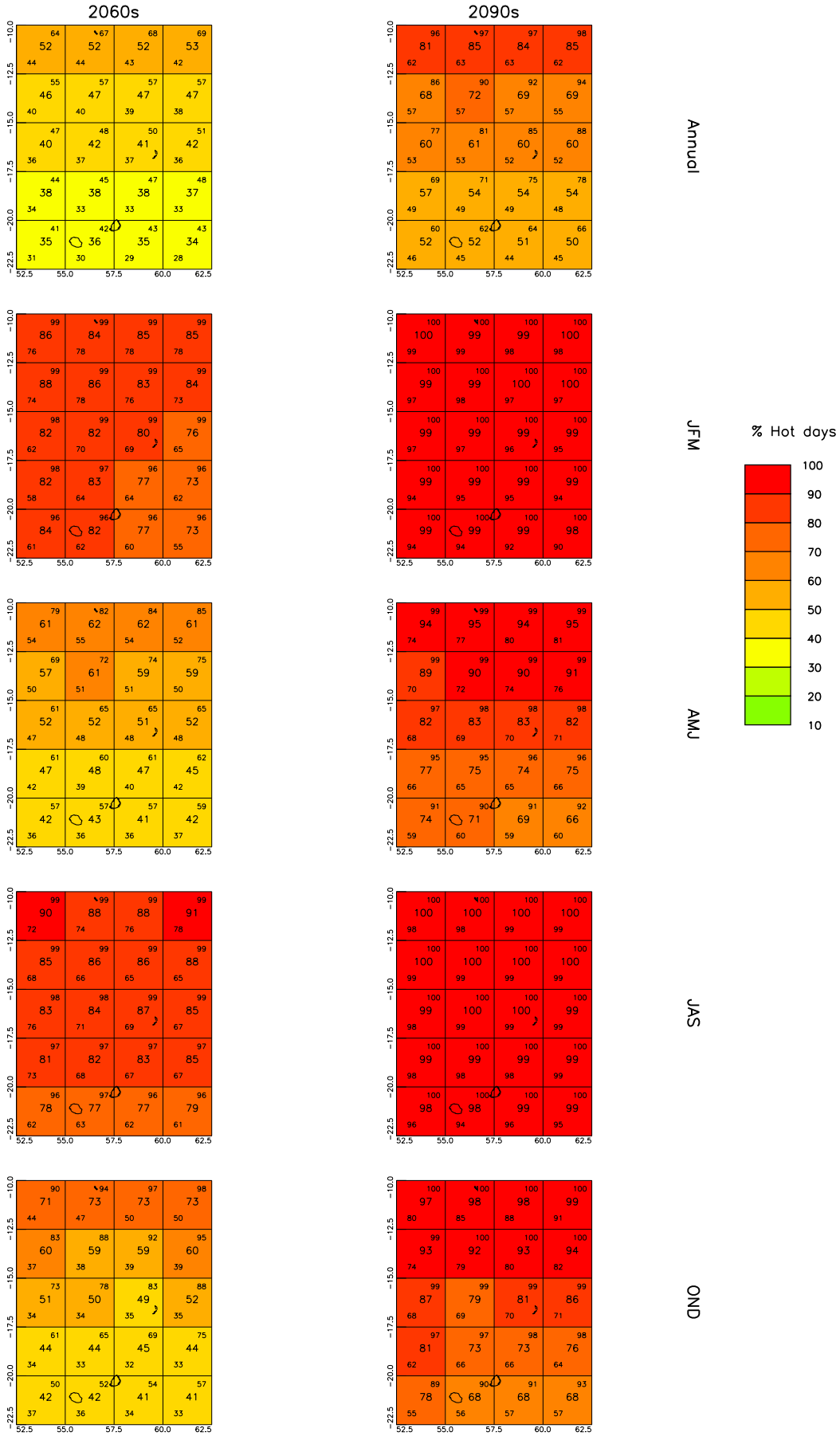



Figure 8: Spatial patterns of projected change in Hot-day frequency for 10-year periods in the future under the SRES A2 scenario. See Figure 2 for details.

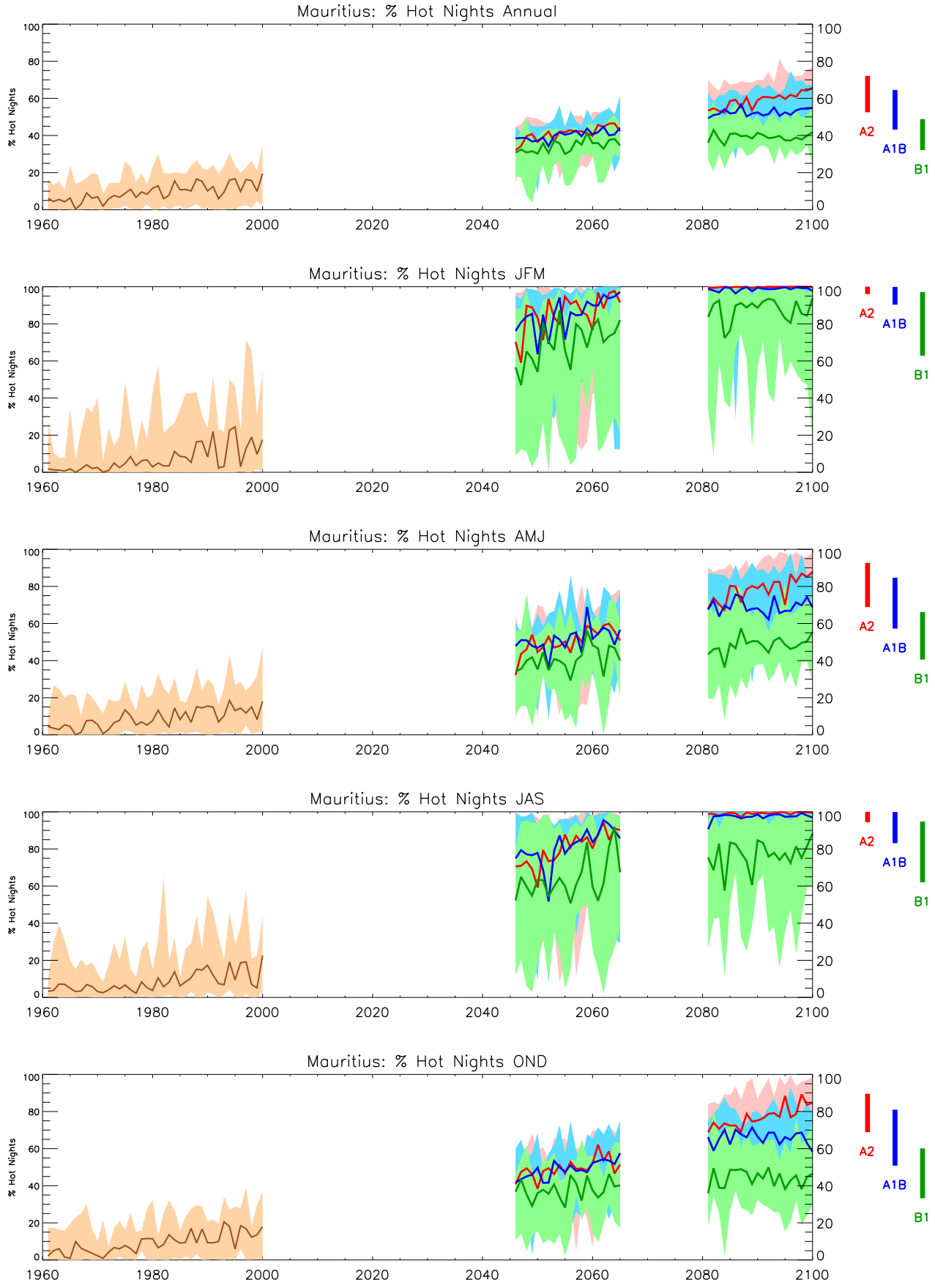



Figure 9: Trends in hot-night frequency for the recent past and projected future. See Figure 1 for details.

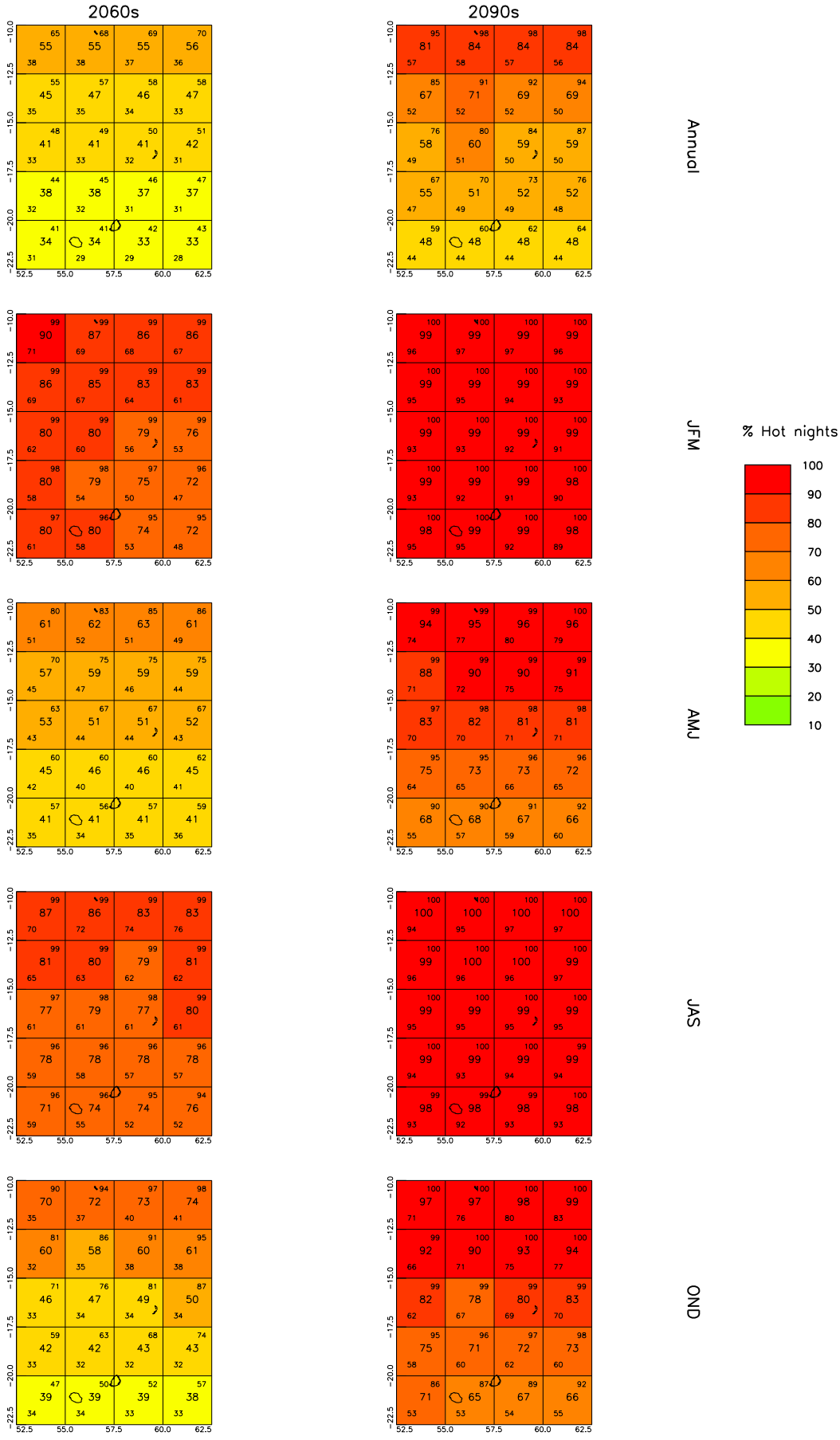



Figure 10: Spatial patterns of projected change in hot-night frequency for 10-year periods in the future under the SRES A2 scenario. See Figure 2 for details.

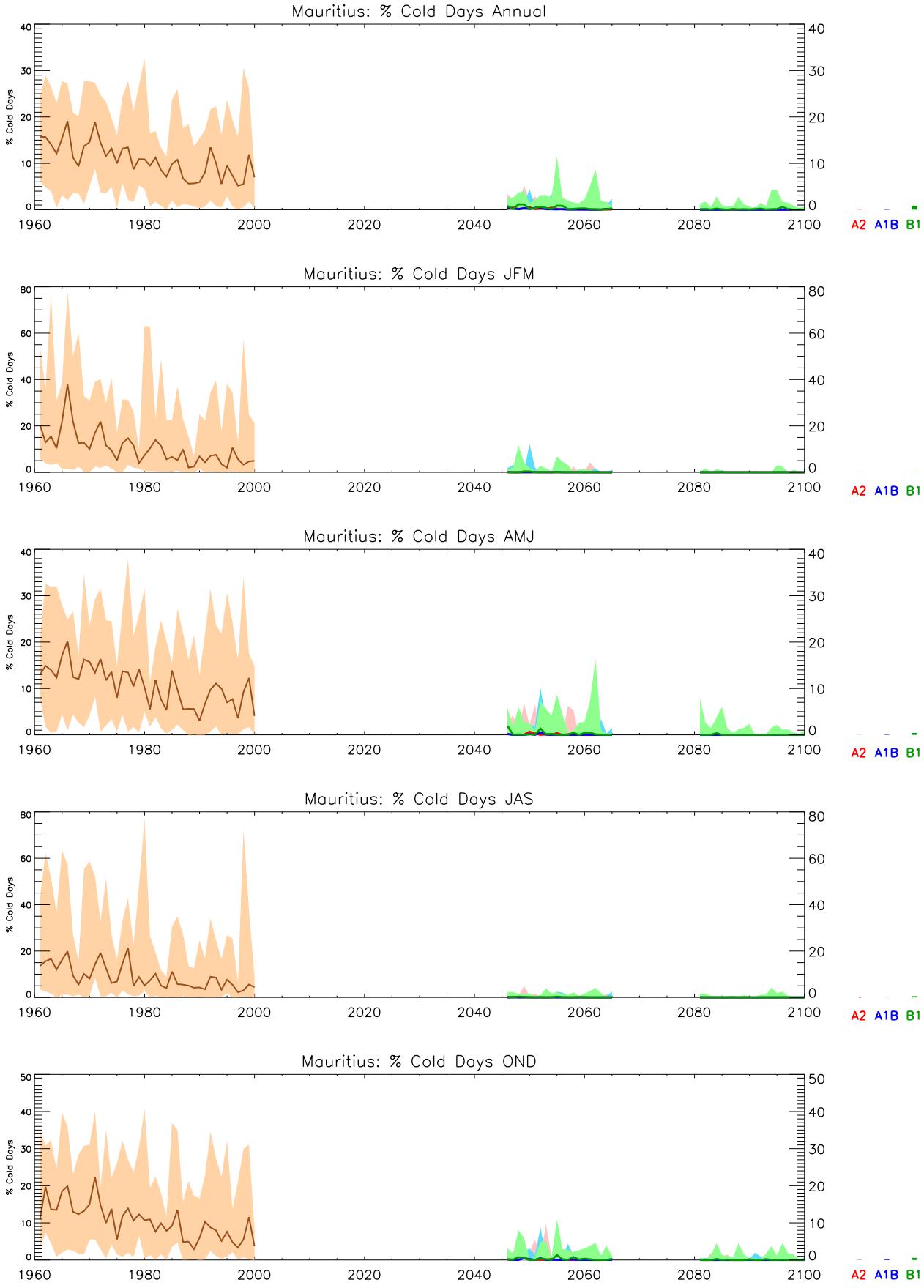



Figure 11: Trends in cold-day frequency for the recent past and projected future. See Figure 1 for details.

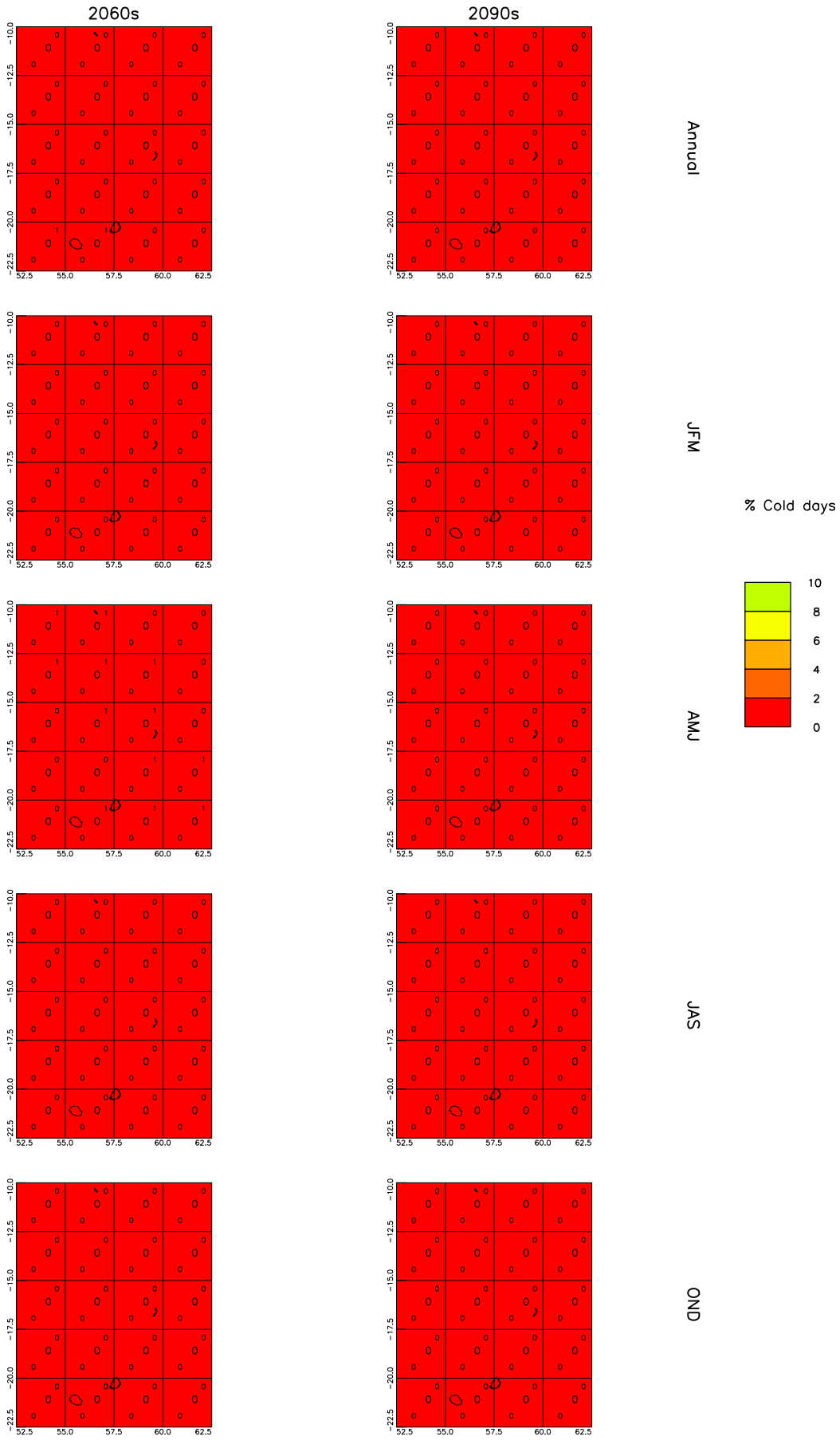



Figure 12: Spatial patterns of projected change in cold-day frequency for 10-year periods in the future under the SRES A2 scenario. See Figure 2 for details.

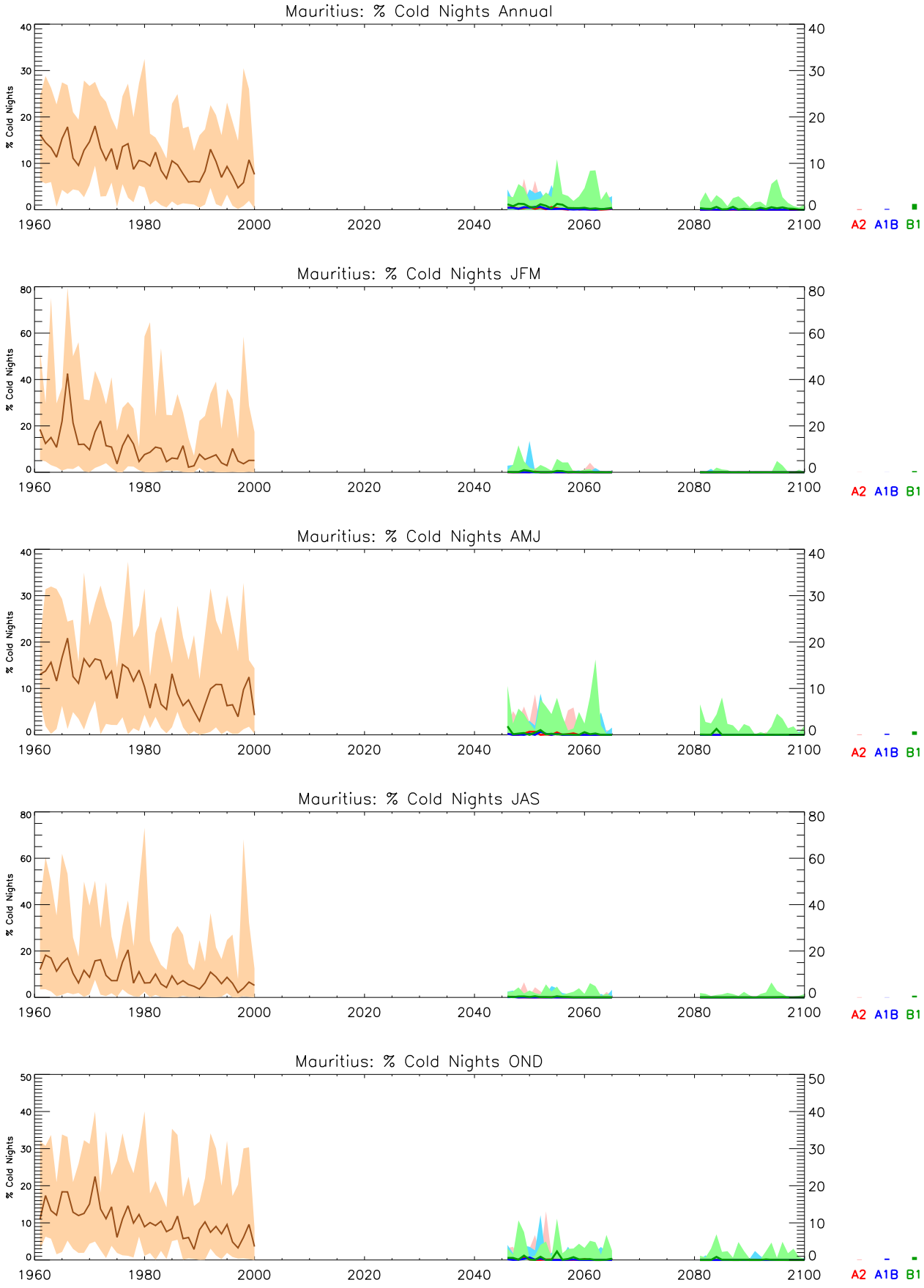



Figure 13: Trends in cold-night frequency for the recent past and projected future. See Figure 1 for details.

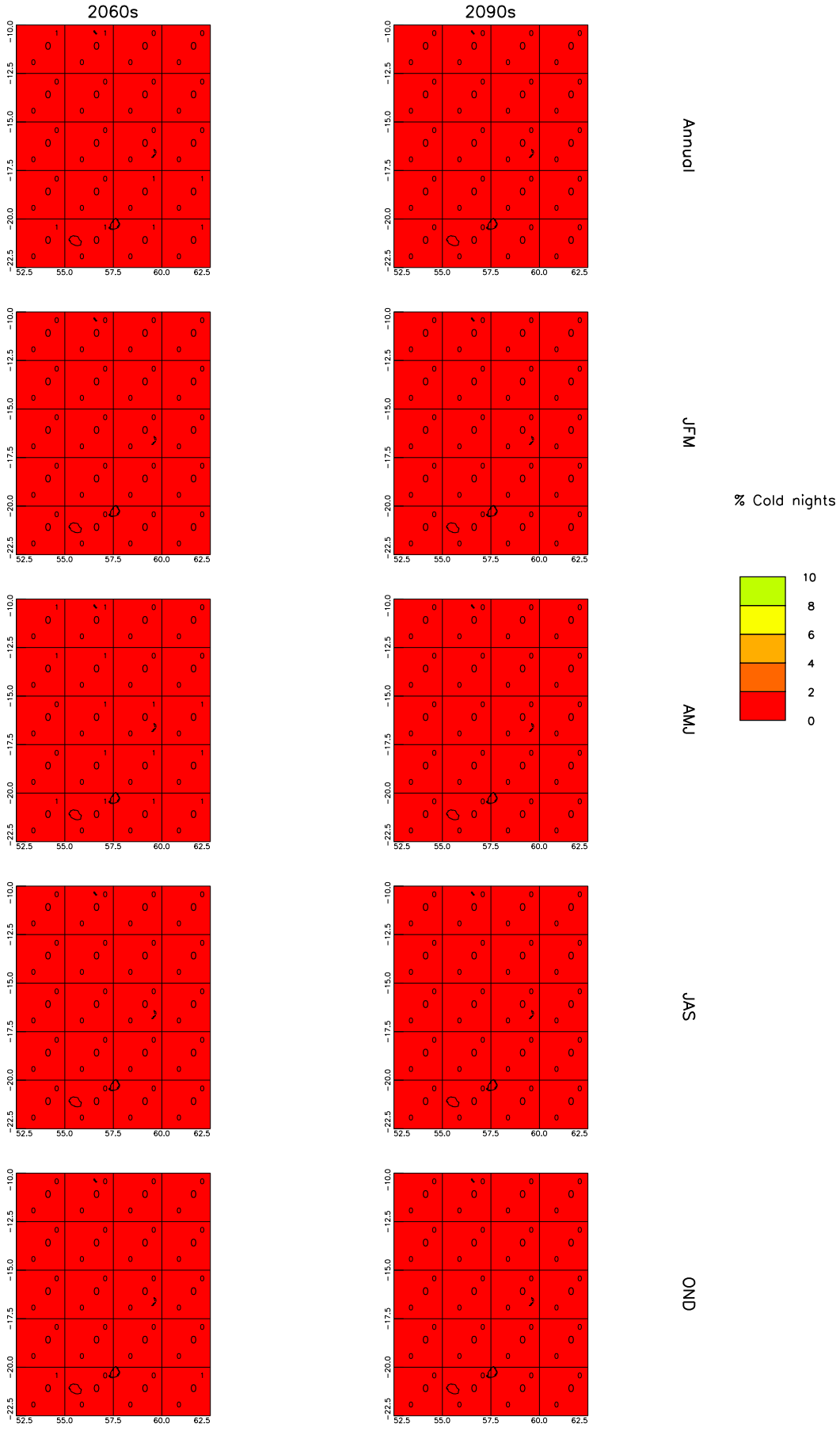



Figure 14: Spatial patterns of projected change in cold-night frequency for 10-year periods in the future under the SRES A2 scenario. See Figure 2 for details.

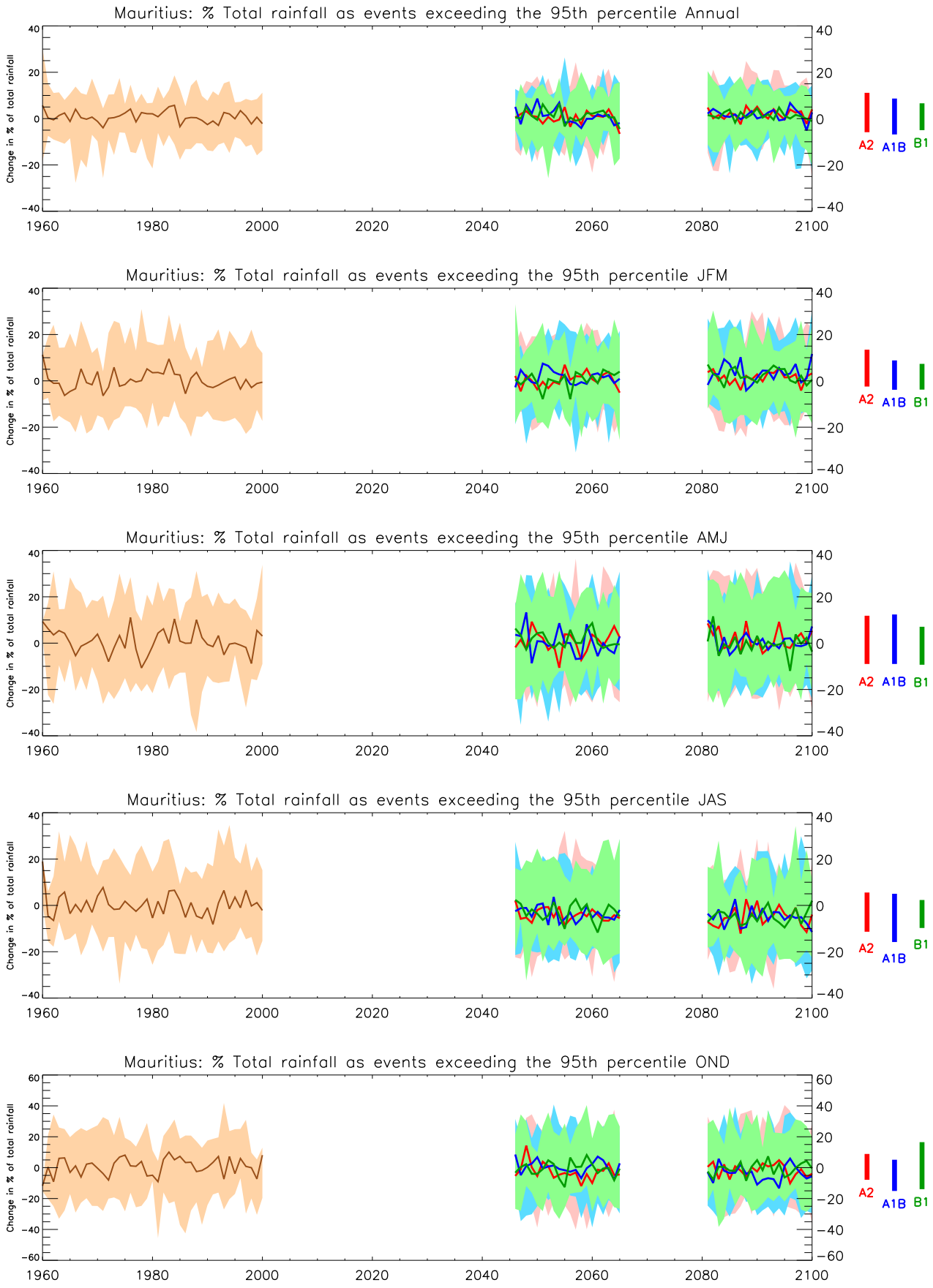



Figure 15: Trends in the proportion of precipitation falling in 'heavy' events for the recent past and projected future. All values shown are anomalies, relative to the 1970-1999 mean climate. See Figure 1 for details.

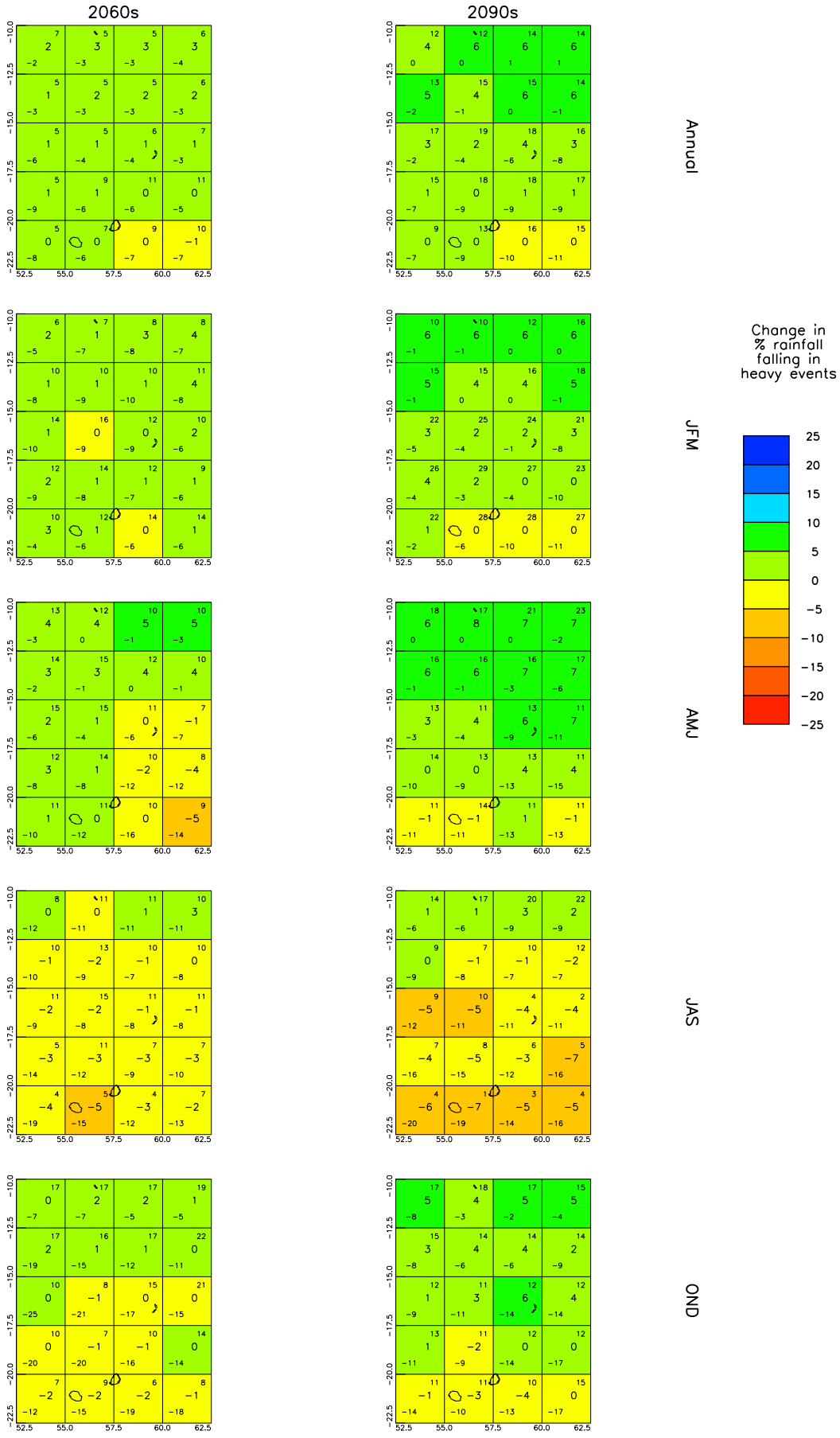



Figure 16: Spatial patterns of projected change in the proportion of precipitation falling in 'heavy' events for 10-year periods in the future under the SRES A2 scenario. All values are anomalies relative to the mean climate of 1970-1999. See Figure 2 for details.

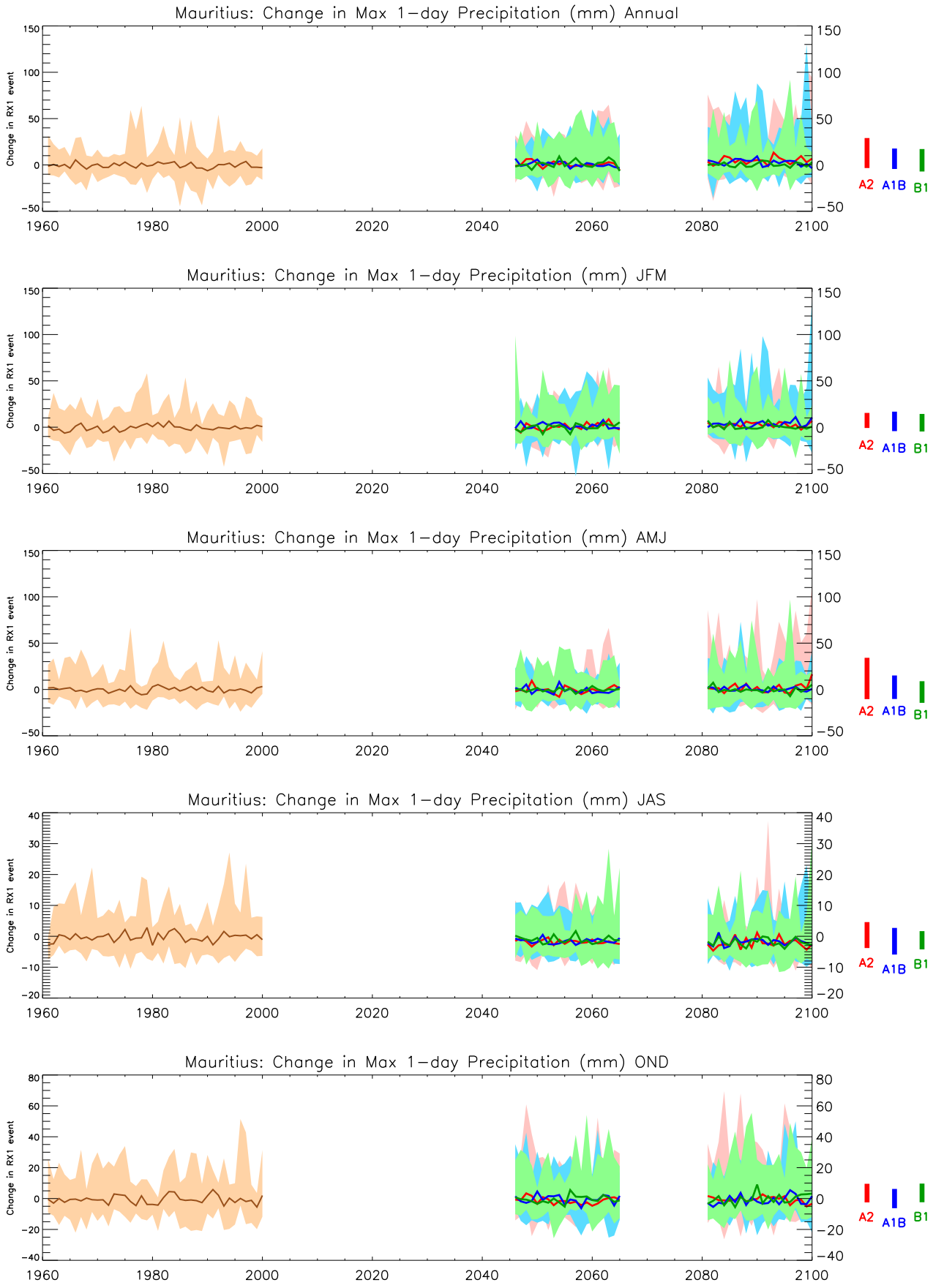



Figure 17: Trends in maximum 1-day rainfall for the recent past and projected future. All values shown are anomalies, relative to the 1970-1999 mean climate. See Figure 1 for details.

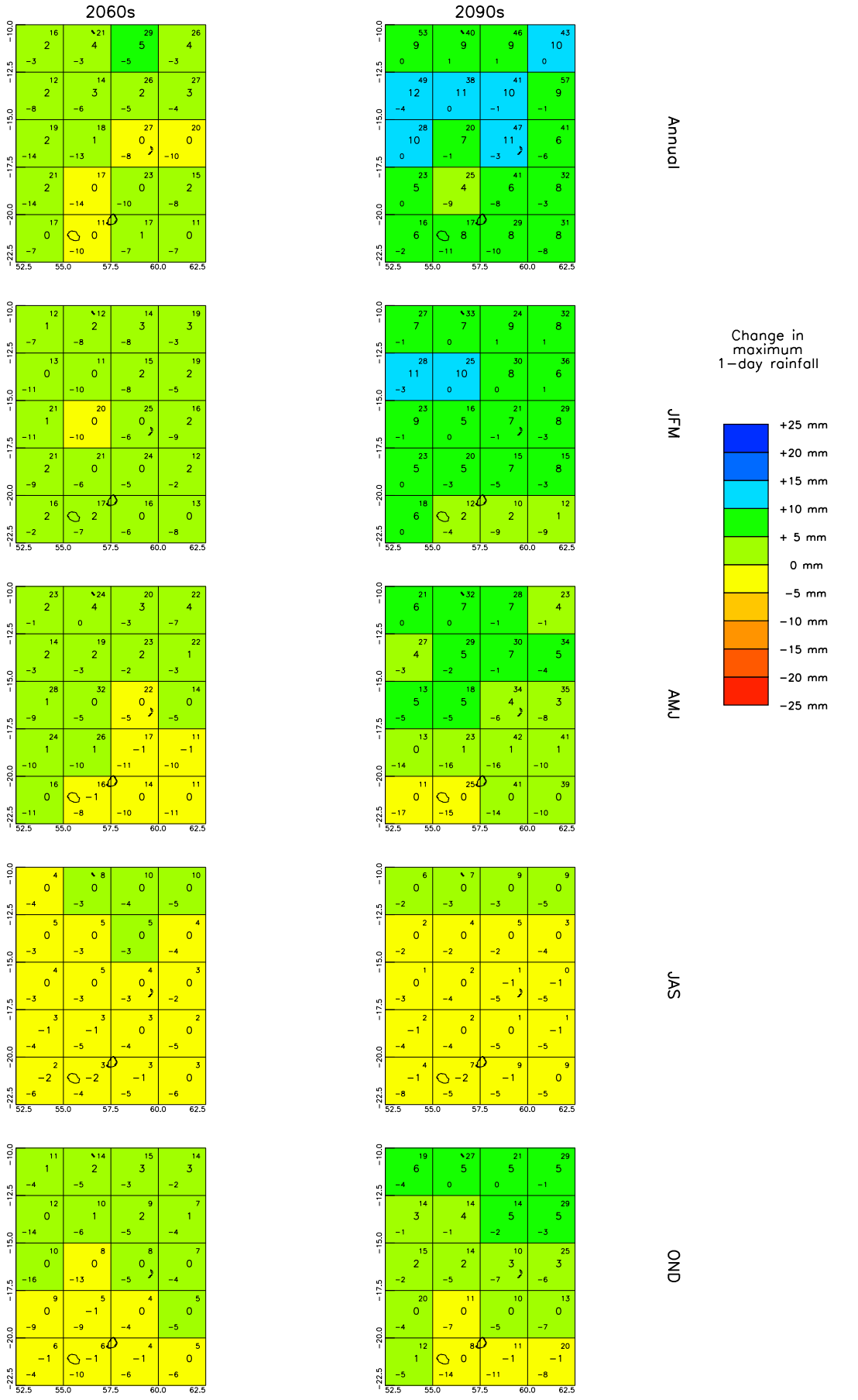



Figure 18: Spatial patterns of maximum 1-day rainfall for 10-year periods in the future under the SRES A2 scenario. All values are anomalies relative to the mean climate of 1970-1999. See Figure 2 for details.


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.

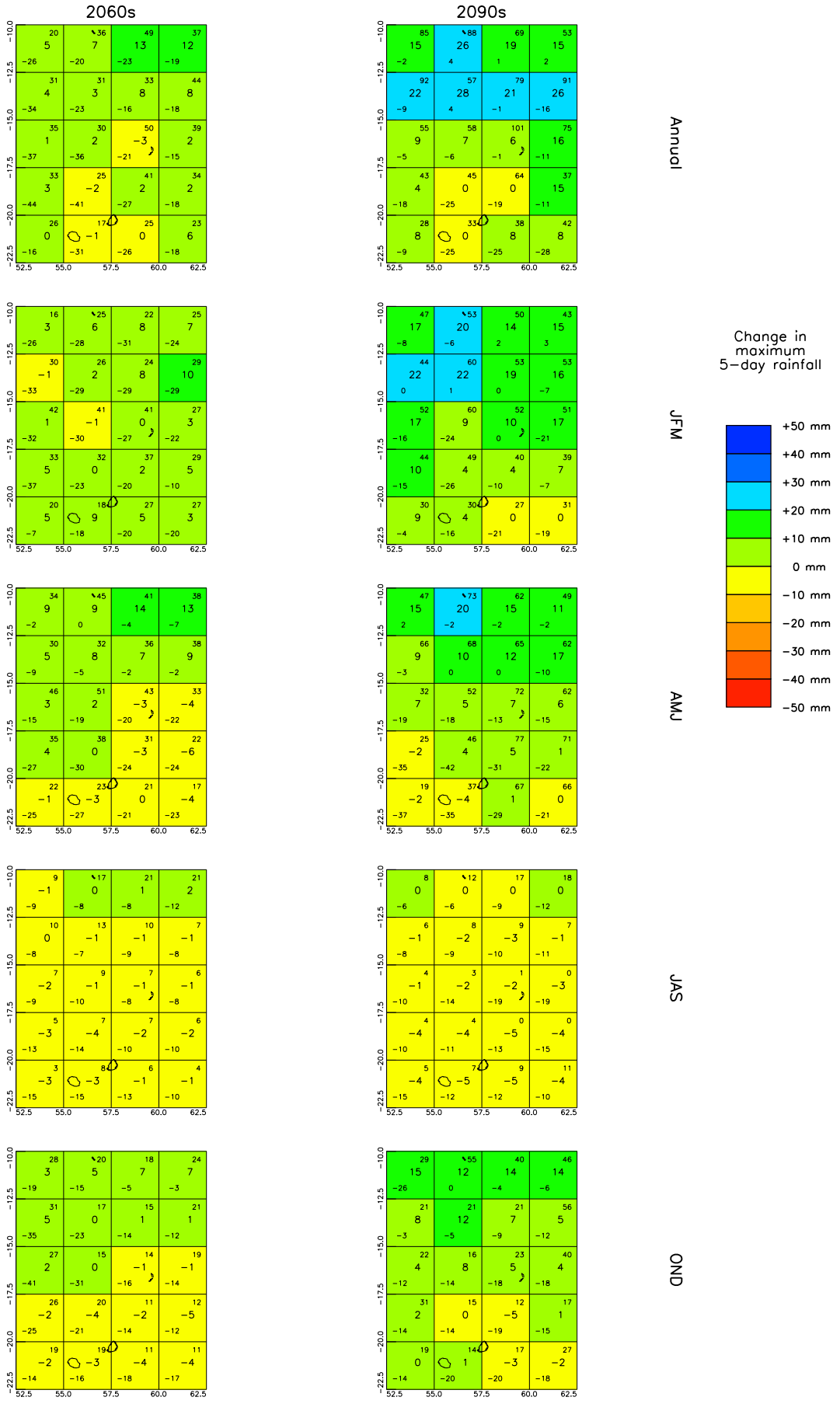



Figure 20: Spatial patterns of projected change in maximum 5-day rainfall for 10-year periods in the future under the SRES A2 scenario. All values are anomalies relative to the mean climate of 1970-1999. See Figure 2 for details.