

A review of the risks to water resources in Scotland in response to climate change

Appendix A: Future flows in the UK





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Table A.1: Graphical summary of future river flows in the UK

Flow type	Study region	Range of changes	Timeline	Baseline	Climate model	Reference
	Scotland	5% to 15%	2050s	1970-1996	UKCP09, A1B emission scenario	Werrity (2002)
Annual			2020s (2011-2040)	1960-1991	UKCP09, A1B emission scenario	Christerson et al (2012)

Distributions of changes in mean annual flow (%) for the 2020s for the 70 modelled catchments with the sampled UKCP09 climate change forcings. Blue and red colours in the violin plots indicate the position of the distribution with respect to zero.

Table A.1: Graphical summary of future river flows in the UK

Flow type	Study region	Range of changes	Timeline	Baseline	Climate model	Reference
			2040-2069 1961-1990	1961-1990	UKCP09, A1B emission scenario	Prudhomme et al (2012)
Winter		<p>Percentage change in seasonal mean flow for the 2050s as simulated by CERF with each of the HadRM3-PPE members (a to k).</p>	2020-2050 and 2050-2080	1980-2010	UKCP18, RCP8.5 emission scenario	Kay (2021)

Percentage change in seasonal mean flow from the pooled SIMRCM ensemble, for near future (2020-2050) - left and far-future (2050-2080) -right.

Table A.1: Graphical summary of future river flows in the UK

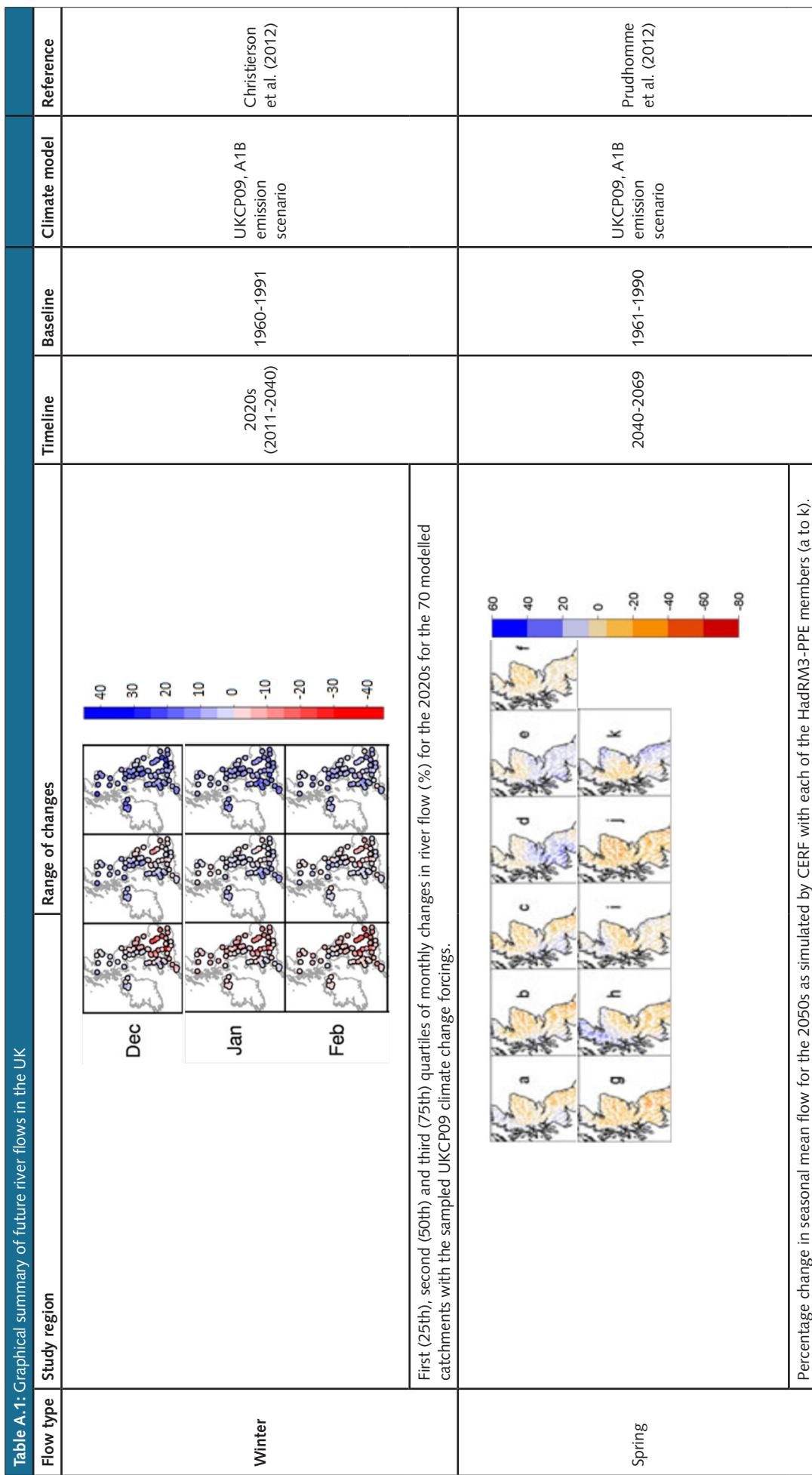
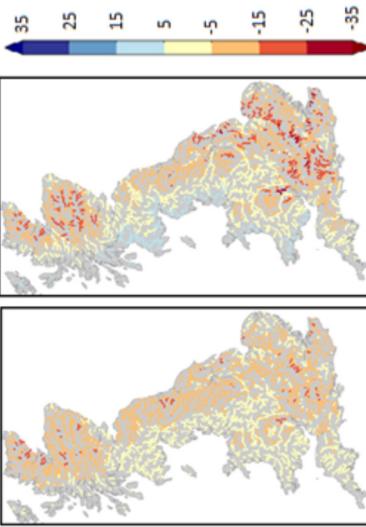
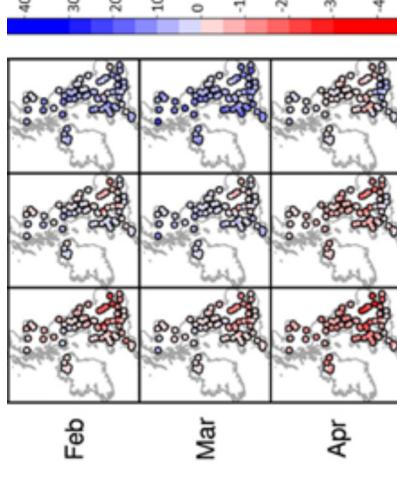


Table A.1: Graphical summary of future river flows in the UK

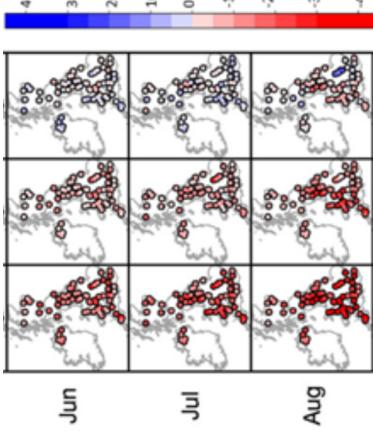
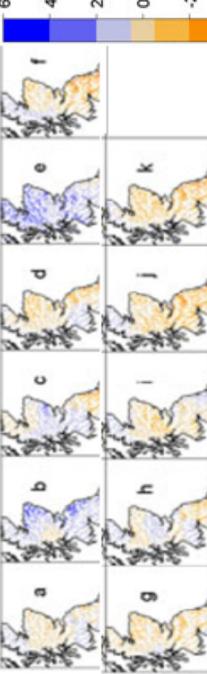
Flow type	Study region	Range of changes	Timeline	Baseline	Climate model	Reference
		 <p>UKCP18, RCP8.5 emission scenario</p> <p>2020-2050 and 2050-2080</p> <p>2020-2050 1980-2010 2050-2080</p> <p>UKCP09, A1B emission scenario</p>				Kay (2021)
Spring		<p>Percentage change in seasonal mean flow from the pooled SiMRCM ensemble, for near future (2020-2050) - left and far-future (2050-2080) - right.</p>  <p>Feb</p> <p>Mar</p> <p>Apr</p> <p>2020s (2011-2040)</p> <p>1960-1991</p> <p>2020s (2011-2040)</p>				Christieson et al. (2012)

Percentage change in seasonal mean flow for the 2050s as simulated by CERF with each of the HadRM3-PPE members (a to k).

Table A.1: Graphical summary of future river flows in the UK

Flow type	Study region	Range of changes	Timeline	Baseline	Climate model	Reference
	Summer	<p>Jun Jul Aug</p>	2020s (2011-2040)	1960-1991	UKCP09, A1B emission scenario	Christieson et al. (2012)
	Autumn	<p>First (25th), second (50th) and third (75th) quartiles of monthly changes in river flow (%) for the 2020s for the 70 modelled catchments with the sampled UKCP09 climate change forcings.</p>	2040-2069	1961-1990	UKCP09, A1B emission scenario	Prudhomme et al. (2012)
						Percentage change in seasonal mean flow for the 2050s as simulated by CERF with each of the HadRM3-PPE members (a to k).

Table A.1: Graphical summary of future river flows in the UK

Flow type	Study region	Range of changes	Timeline	Baseline	Climate model	Reference
			2020-2050 and 2050-2080	1980-2010	UKCP18, RCP8.5 emission scenario	Kay (2021)
Autumn		Percentage change in seasonal mean flow from the pooled SIMRCM ensemble, for near future (2020-2050) -left and far-future (2050-2080) -right.			UKCP09, A1B emission scenario	Christiansen et al. (2012)
			2020s (2011-2040)	1960-1991		First (25th), second (50th) and third (75th) quartiles of monthly changes in river flow (%) for the 2020s for the 70 modelled catchments with the sampled UKCP09 climate change forcings.



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