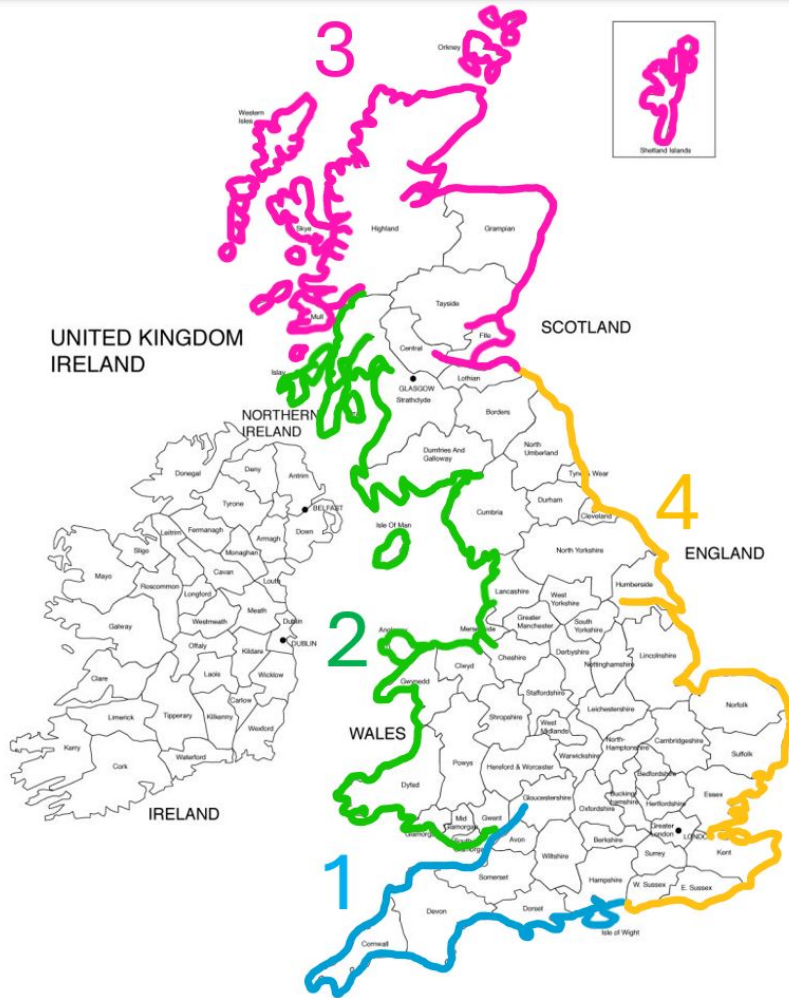




Investigating how UK Coastal Flooding between 1835-2015 varies in time, spatially and in relation to storm tracks and the North Atlantic Oscillation



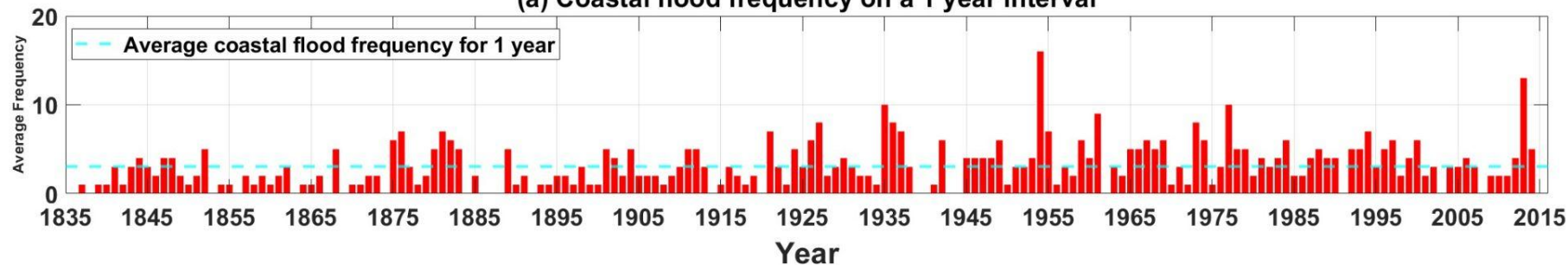
Region 1: South West
England

Region 2: West England
and West Scotland

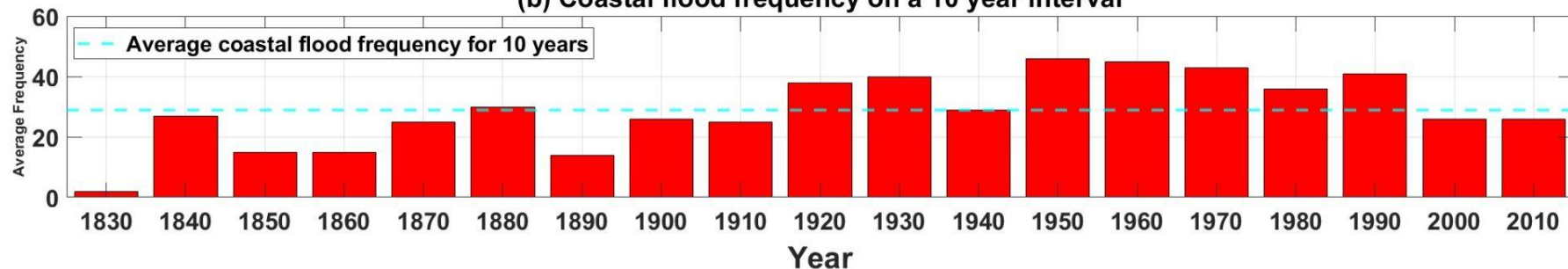
Region 3: Highlands and
East Scotland

Region 4: East England

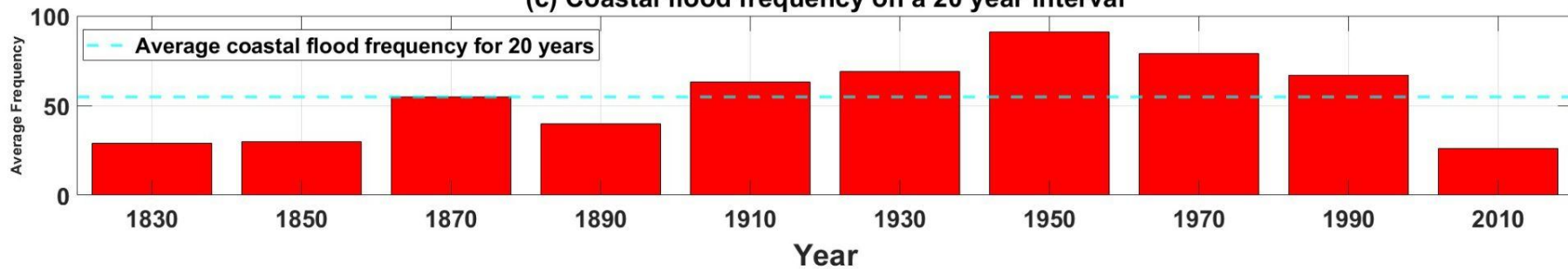
(a) Coastal flood frequency on a 1 year interval



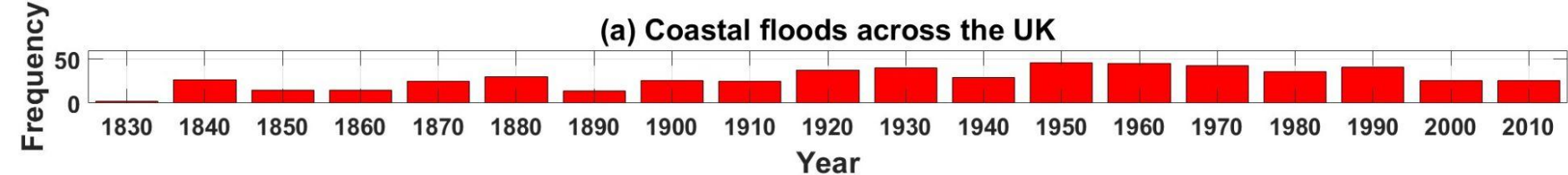
(b) Coastal flood frequency on a 10 year interval



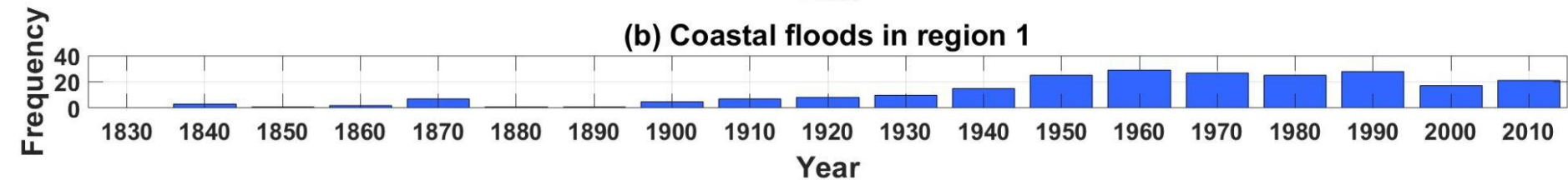
(c) Coastal flood frequency on a 20 year interval



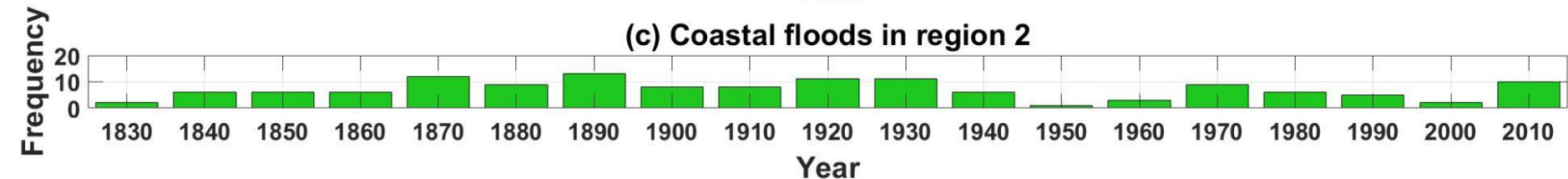
(a) Coastal floods across the UK



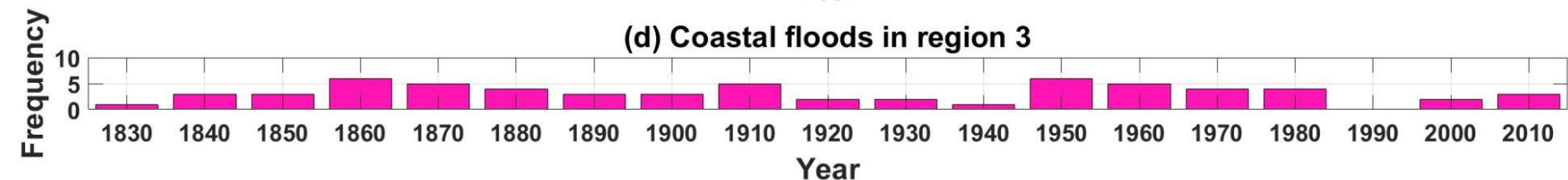
(b) Coastal floods in region 1



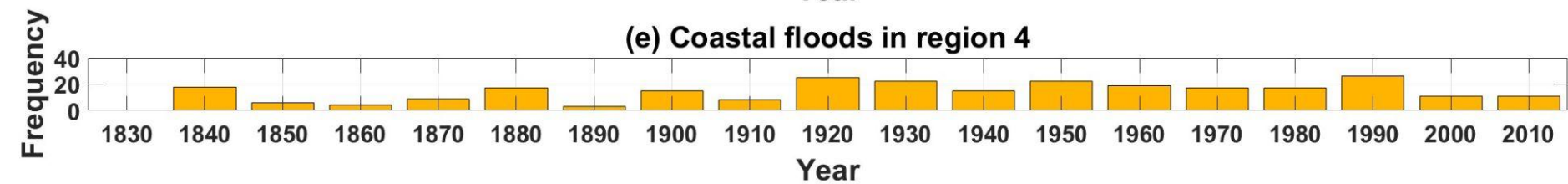
(c) Coastal floods in region 2



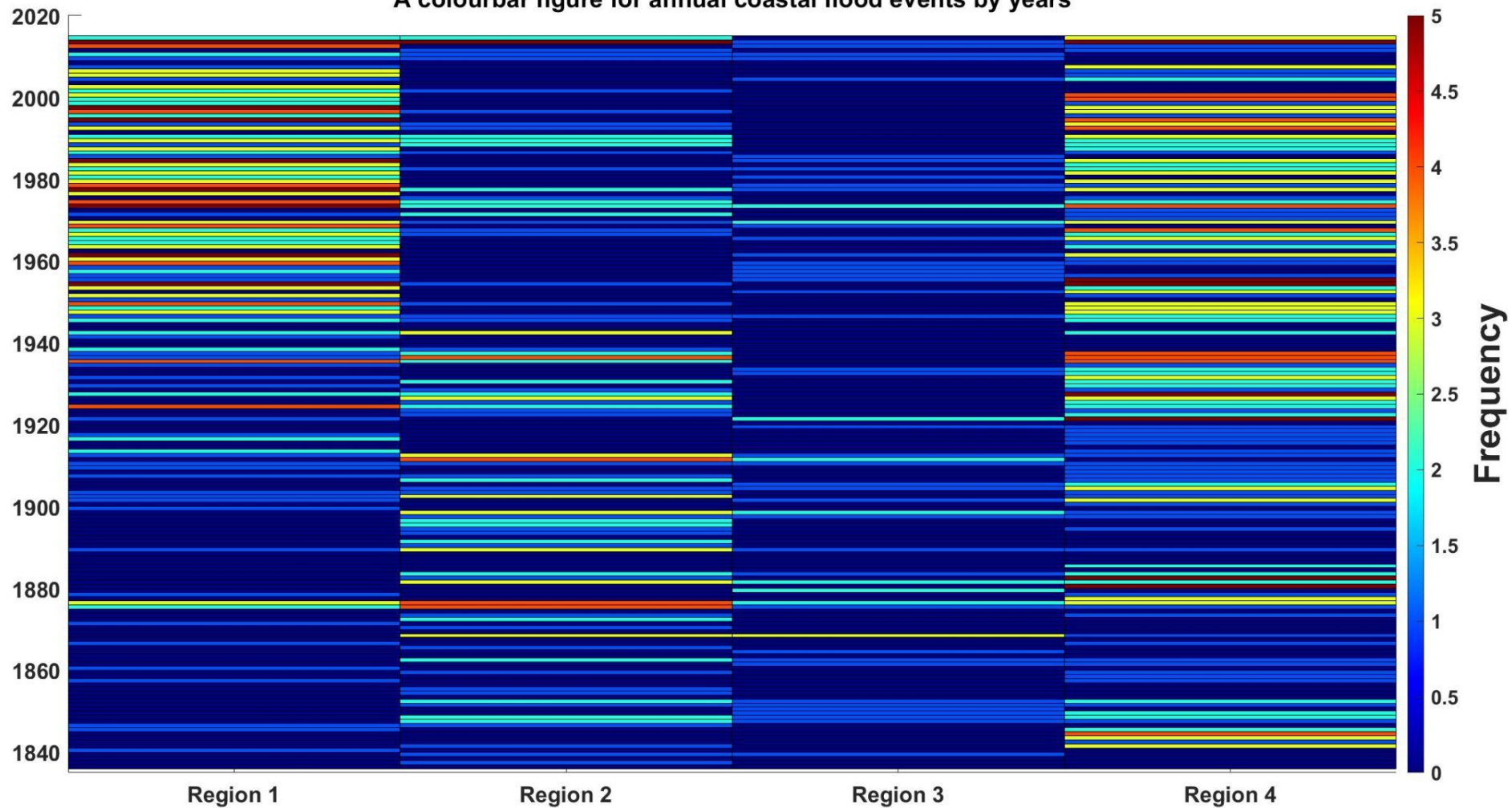
(d) Coastal floods in region 3



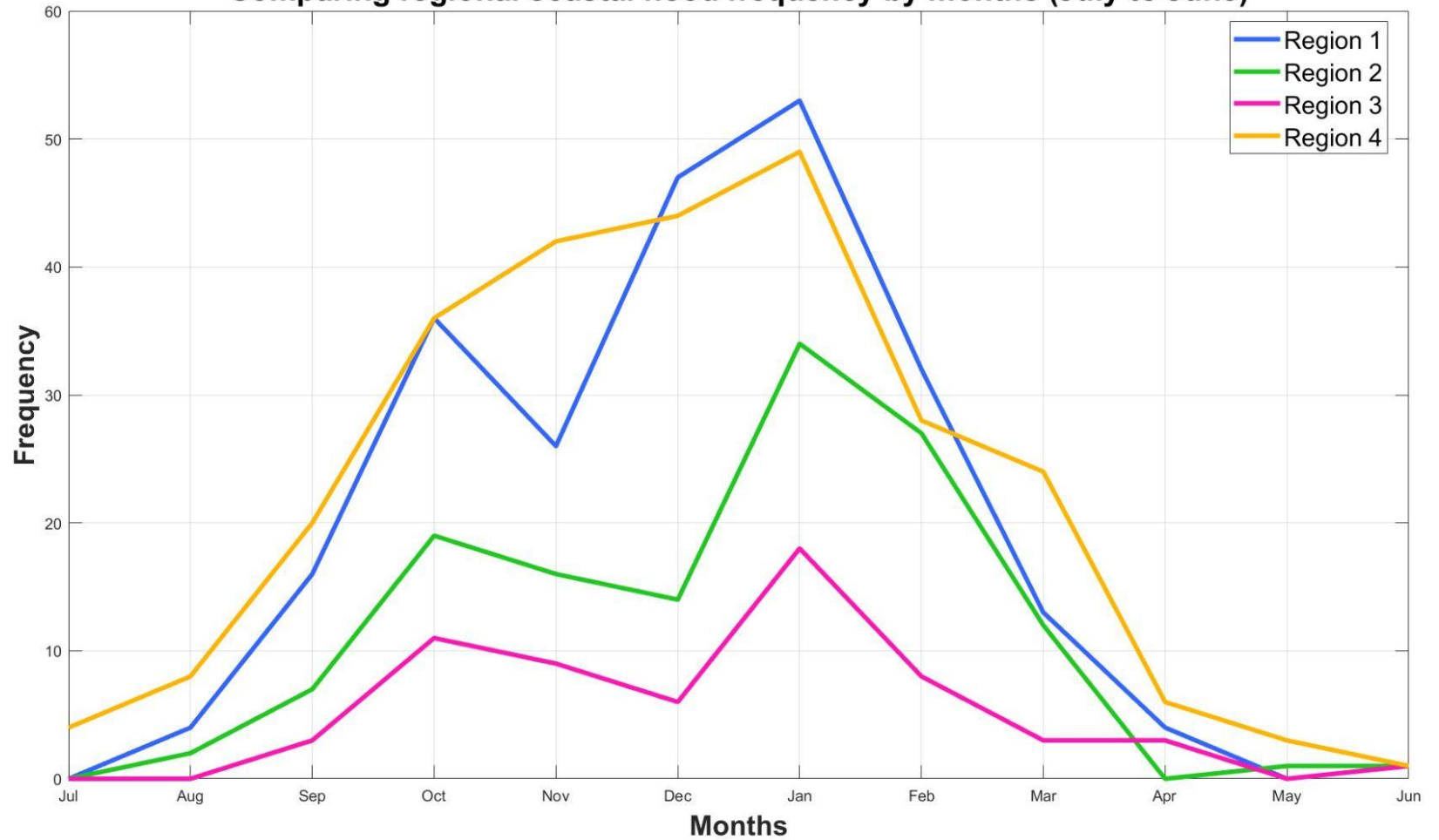
(e) Coastal floods in region 4



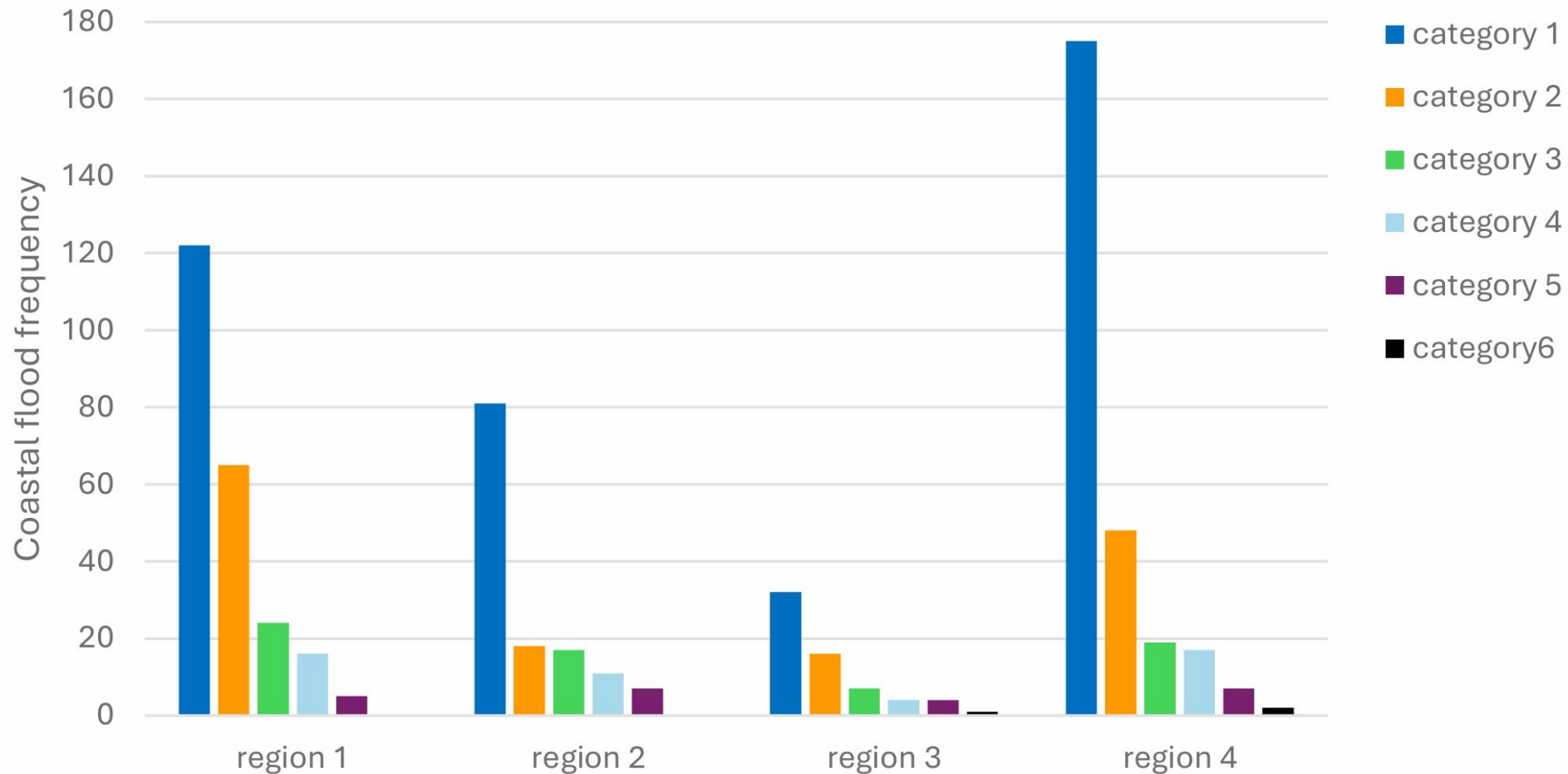
A colourbar figure for annual coastal flood events by years



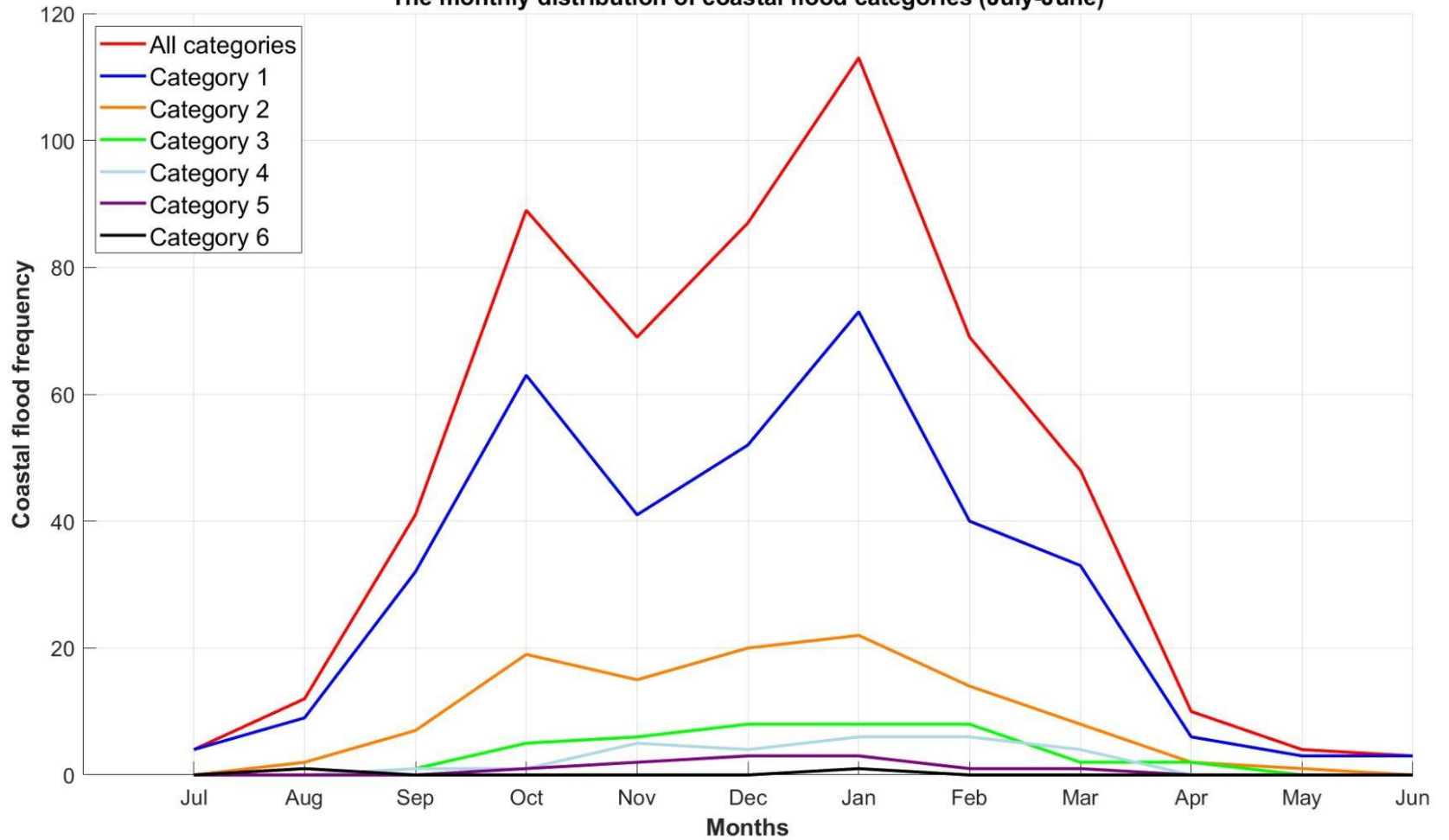
Comparing regional coastal flood frequency by months (July to June)



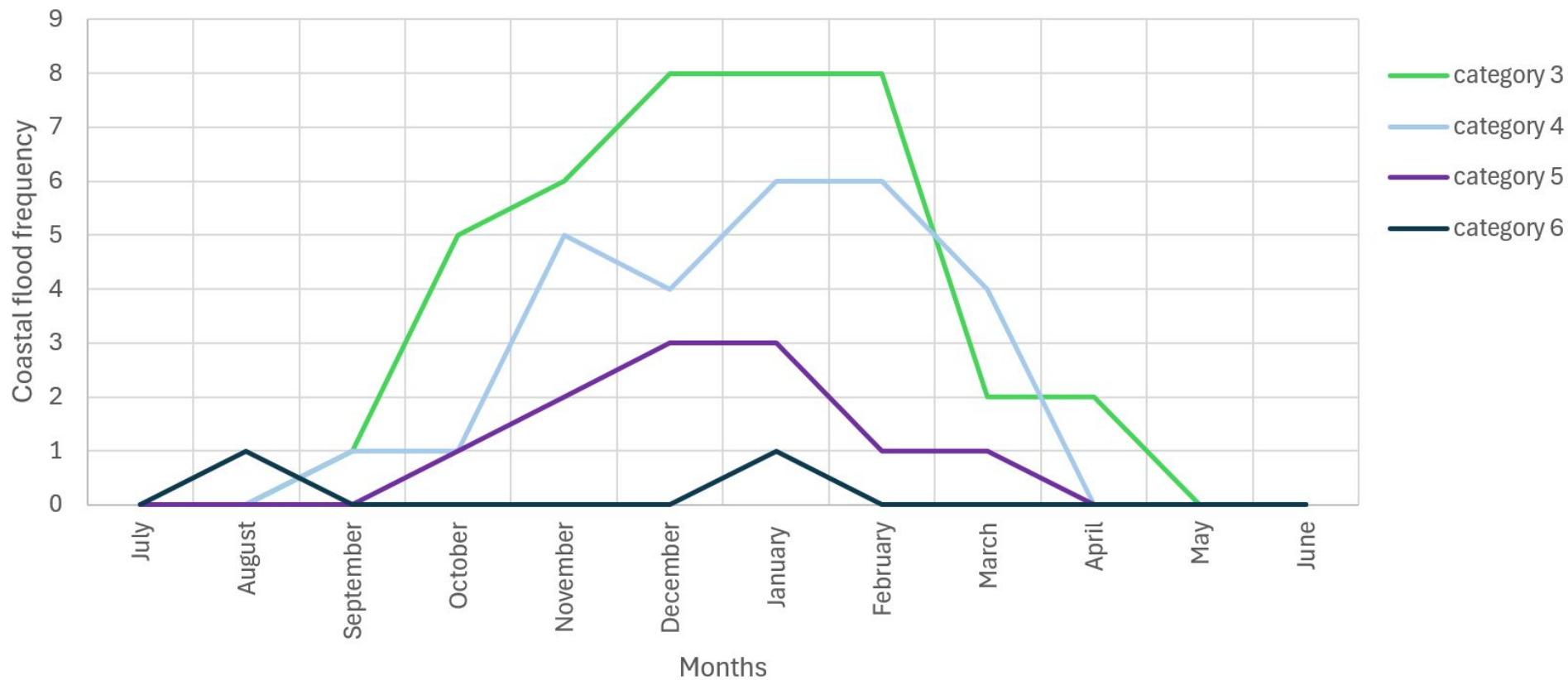
Categories of coastal flooding by regions



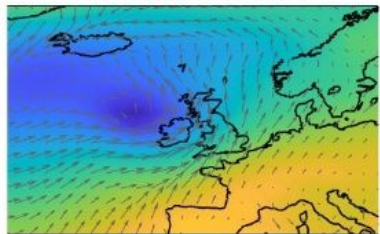
The monthly distribution of coastal flood categories (July-June)



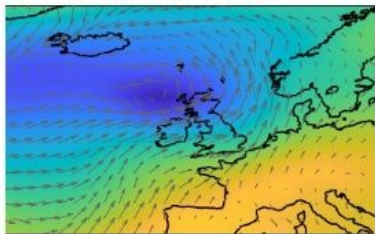
Coastal flood frequency by months (July-June) for regions 3-6



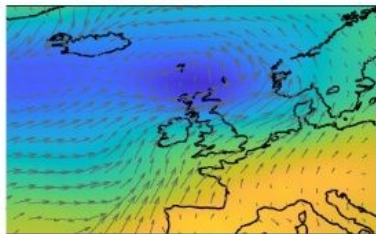
24/12/12 12:00



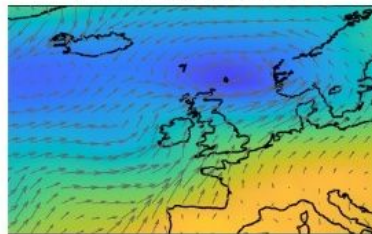
24/12/12 18:00



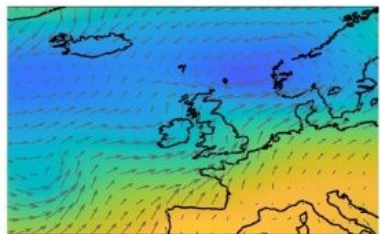
25/12/12 00:00



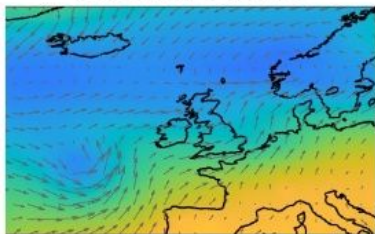
25/12/12 06:00



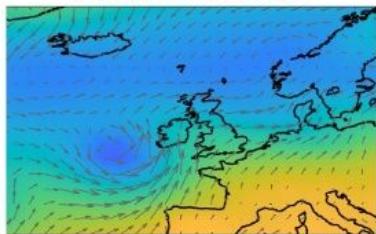
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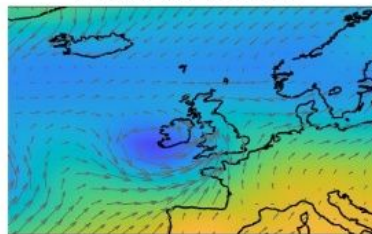
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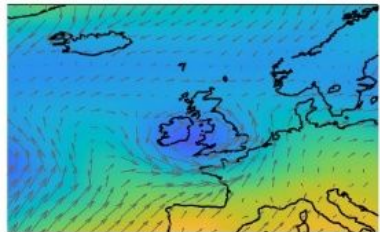
26/12/12 00:00



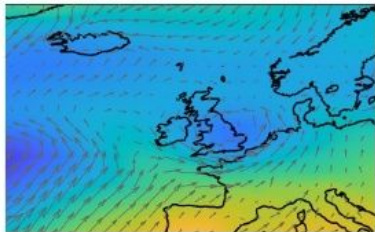
26/12/12 06:00



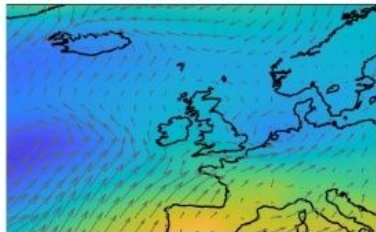
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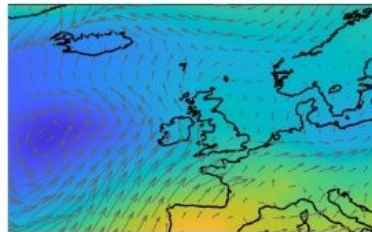
26/12/12 18:00



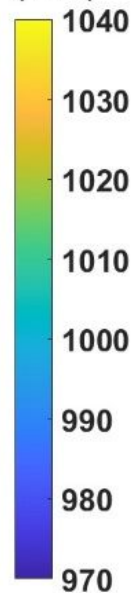
27/12/12 00:00



27/12/12 06:00

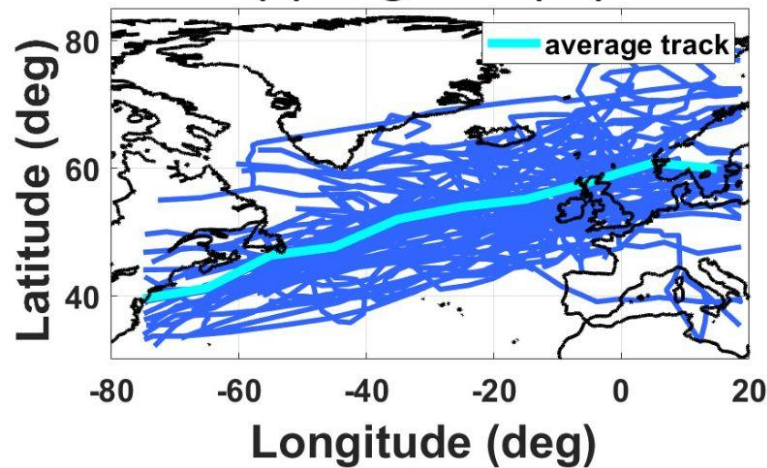


Pressure
(mbar)

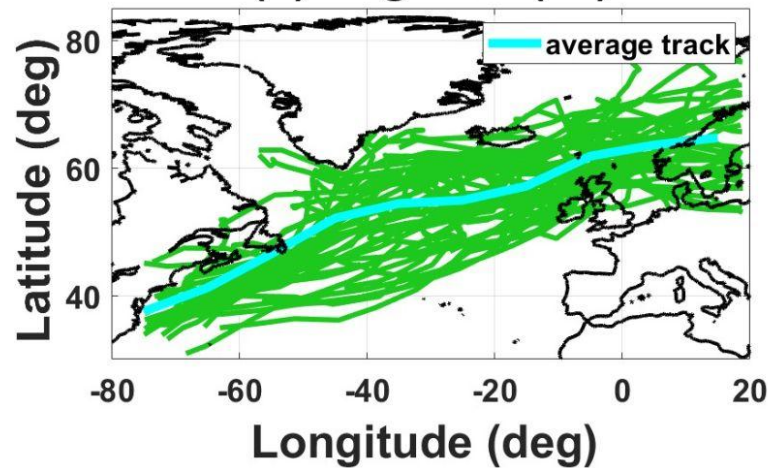


→
Wind speed
and direction

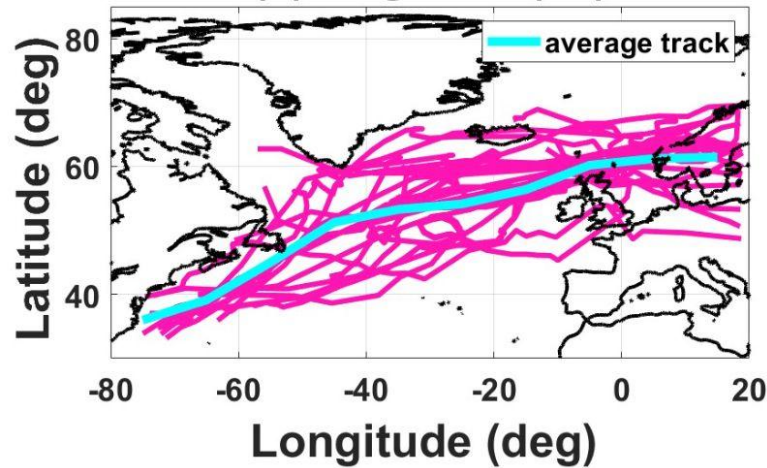
(a) Region 1 (52)



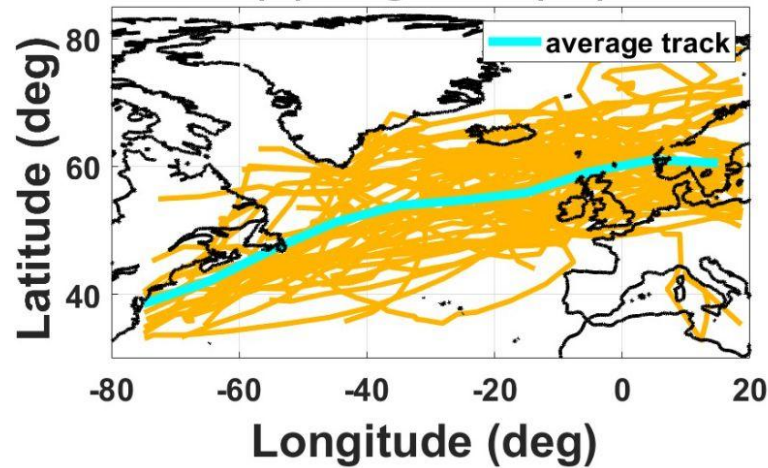
(b) Region 2 (44)



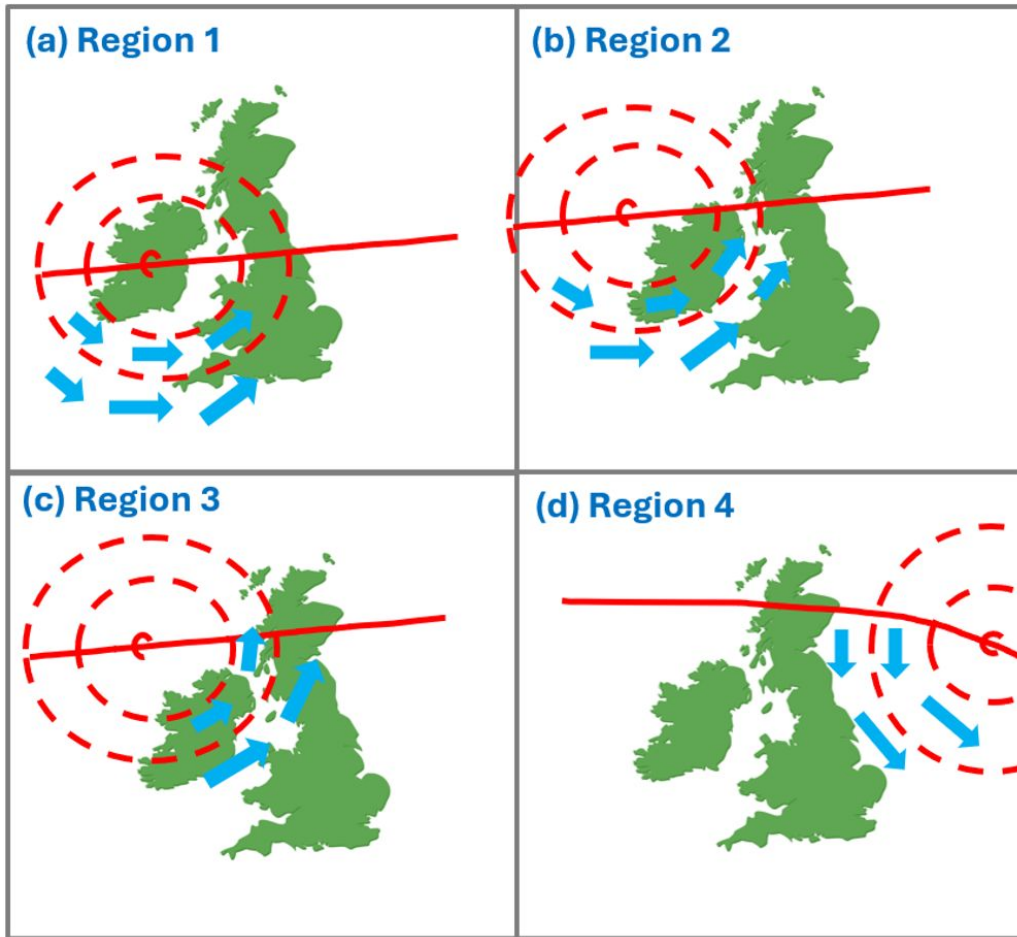
(c) Region 3 (22)



(d) Region 4 (55)



Storm pathways



Region 1: Tracks further South

Region 2: Tracks North

Region 3: Tracks Most North

Region 4: Tracks curve around the north sea

a	Positive Annual NAO			b	Negative Annual NAO		
	Category	Coastal flooding events	Positive NAO flood proportion (%)		Category	Coastal flooding events	Negative NAO flood proportion (%)
	1	213	59.33148		1	146	40.66852
	2	70	63.63636		2	40	36.36364
	3	23	57.50000		3	17	42.50000
	4	23	85.18519		4	4	14.81481
	5	7	63.63636		5	4	36.36364
	6	2	100.00000		6	0	0.00000
	All	338	61.56648		All	211	38.43352

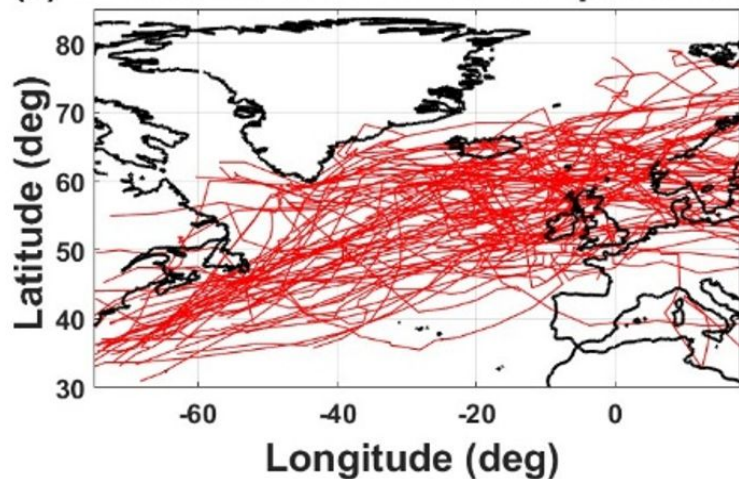
c	Positive Winter NAO			d	Negative Winter NAO		
	Category	Coastal flooding events	Positive NAO flood proportion (%)		Category	Coastal flooding events	Negative NAO flood proportion (%)
	1	250	69.63788		1	109	30.36212
	2	70	63.63636		2	40	36.36364
	3	26	65.00000		3	14	35.00000
	4	18	66.66667		4	9	33.33333
	5	7	63.63636		5	4	36.36364
	6	2	100.00000		6	0	0.00000
	All	373	67.94171		All	176	32.05829

North Atlantic Oscillation:

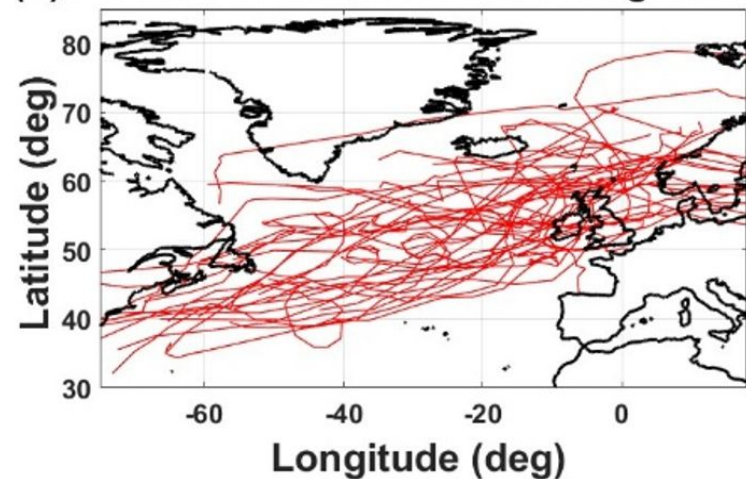
Sea level pressure difference between Azores and Iceland.

Greater pressure difference means more positive NAO

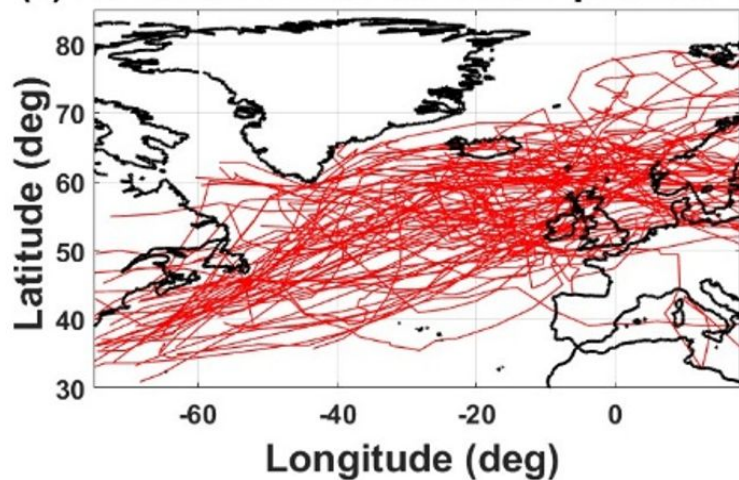
(a) All storm tracks for annual positive NAO



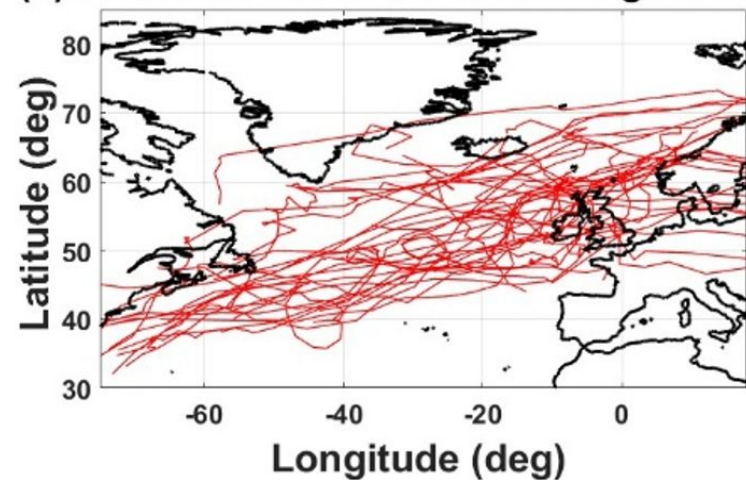
(b) All storm tracks for annual negative NAO



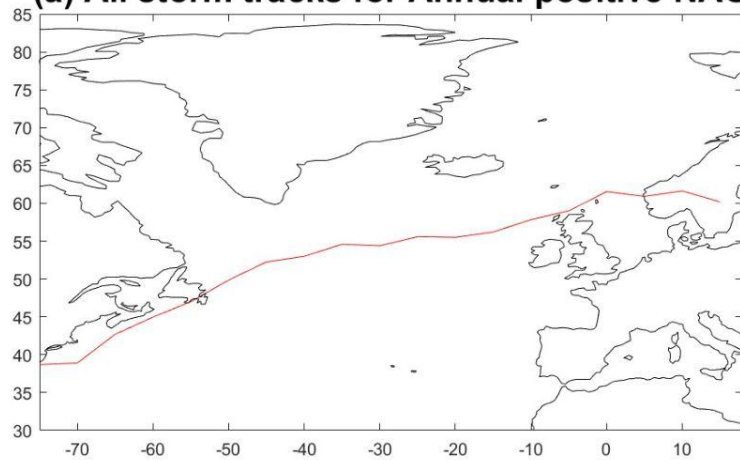
(c) All storm tracks for winter positive NAO



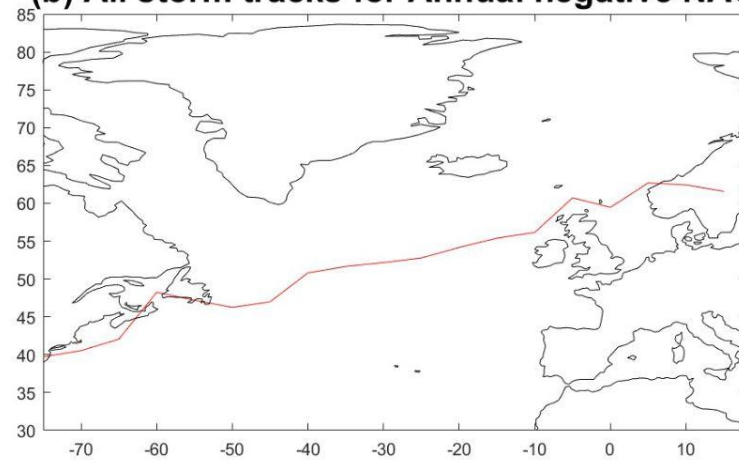
(d) All storm tracks for winter negative NAO



(a) All storm tracks for Annual positive NAO



(b) All storm tracks for Annual negative NAO



NAO	1 year	3 year	5 year
All	0.09	0.08	-0.03
region 1	-0.02	-0.11	-0.17
region 2	0.24	0.41	0.26
region 3	0.04	0.06	-0.01
region 4	0.15	0.15	0.12



Any Questions?