CLICURB

A high resolution climate change dataset for the Portuguese Mainland

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Grupo de Meteorologia e Climatologia
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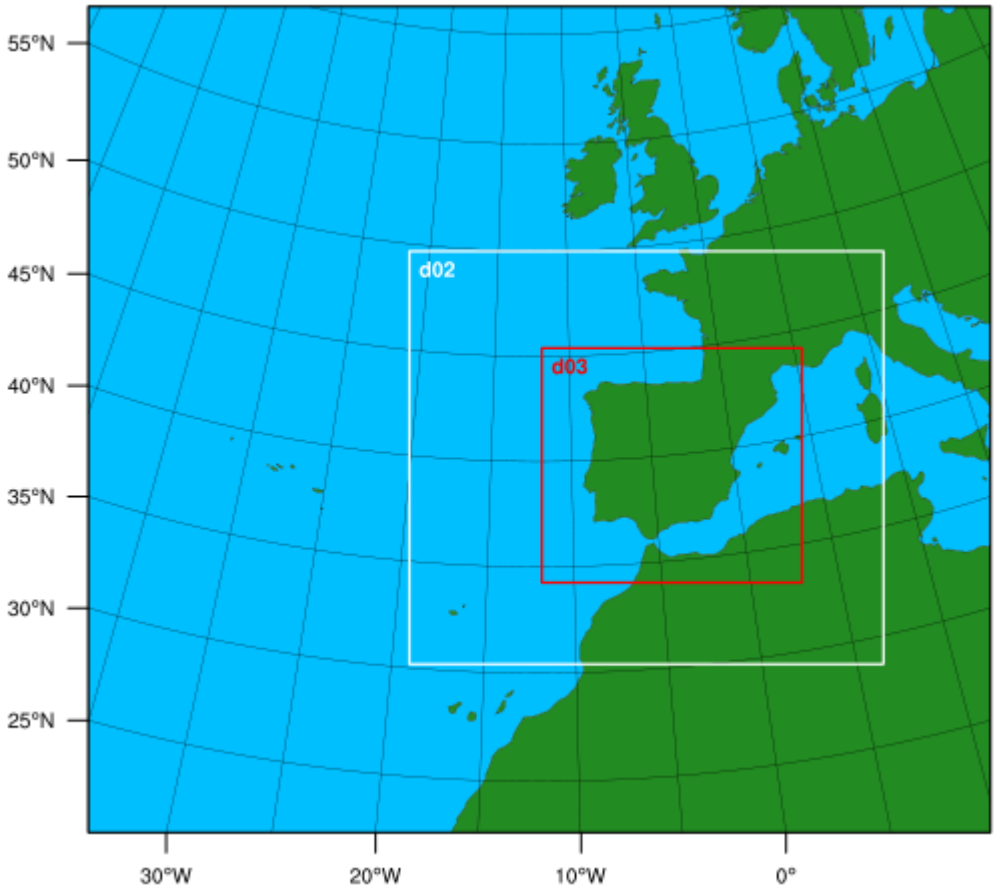
universidade de aveiro
um campus que pensa
1973.2013

CLIMA 2014
IV Congresso Nacional sobre Alterações Climáticas
4-5 de Dezembro | Aveiro

Simulações Climáticas WRF
Downscaling com 3 domínios aninhados

Resoluções:
81 km
27 km
9 km – Península Ibérica

A2-way nesting



Simulações Climáticas WRF

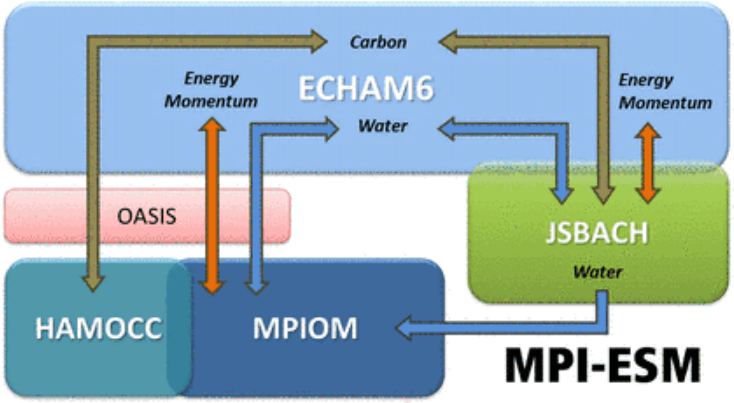
- SST update (simulações longas)
- Spectral nudging (simulações longas)
- Concentração variável de gases de efeito estufa
- Forçamento climático - parent model
- Diagnósticos...

Forçamento WRF (parent model)

Runs Climáticos:

- MPI-ESM, Max Planck Institute for Meteorology Earh system model

Earth System model: coupled atmosphere,
ocean and land surface



Hindcast run:

- ERA-INTERIM

Representative Concentration Pathways (IPCC, Assess. Rep. 5)

Períodos de simulação:

1985+**1986-2005** **Histórico**

2015+**2016-2035** Futuro próximo

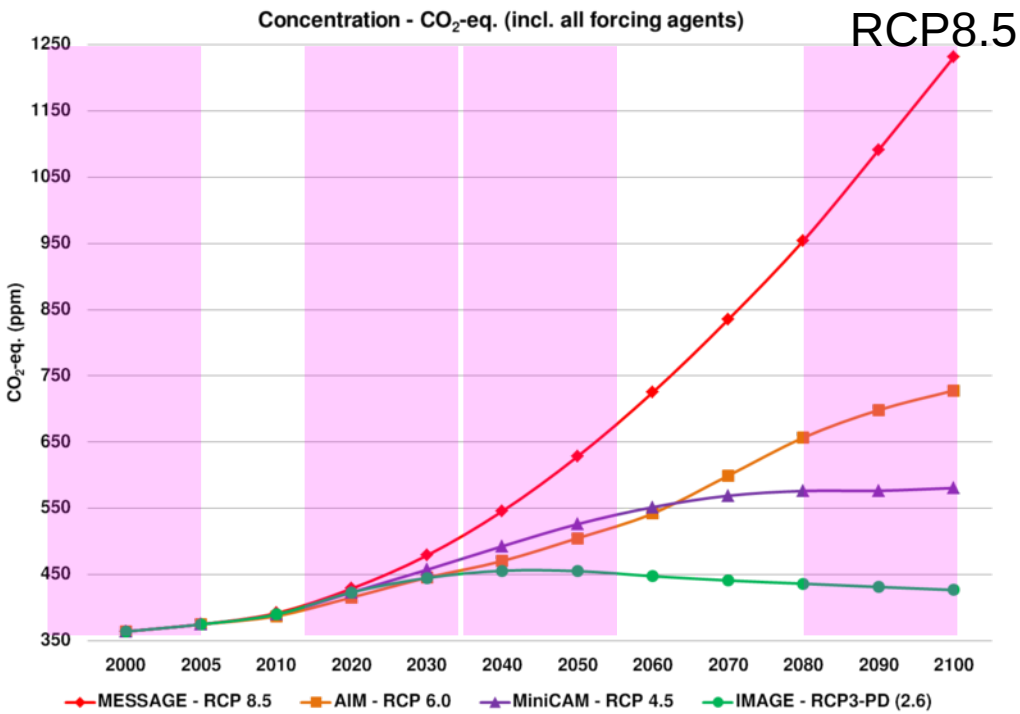
2035+**2036-2055** Futuro intermédio

2080+**2081-2100** Futuro longínquo

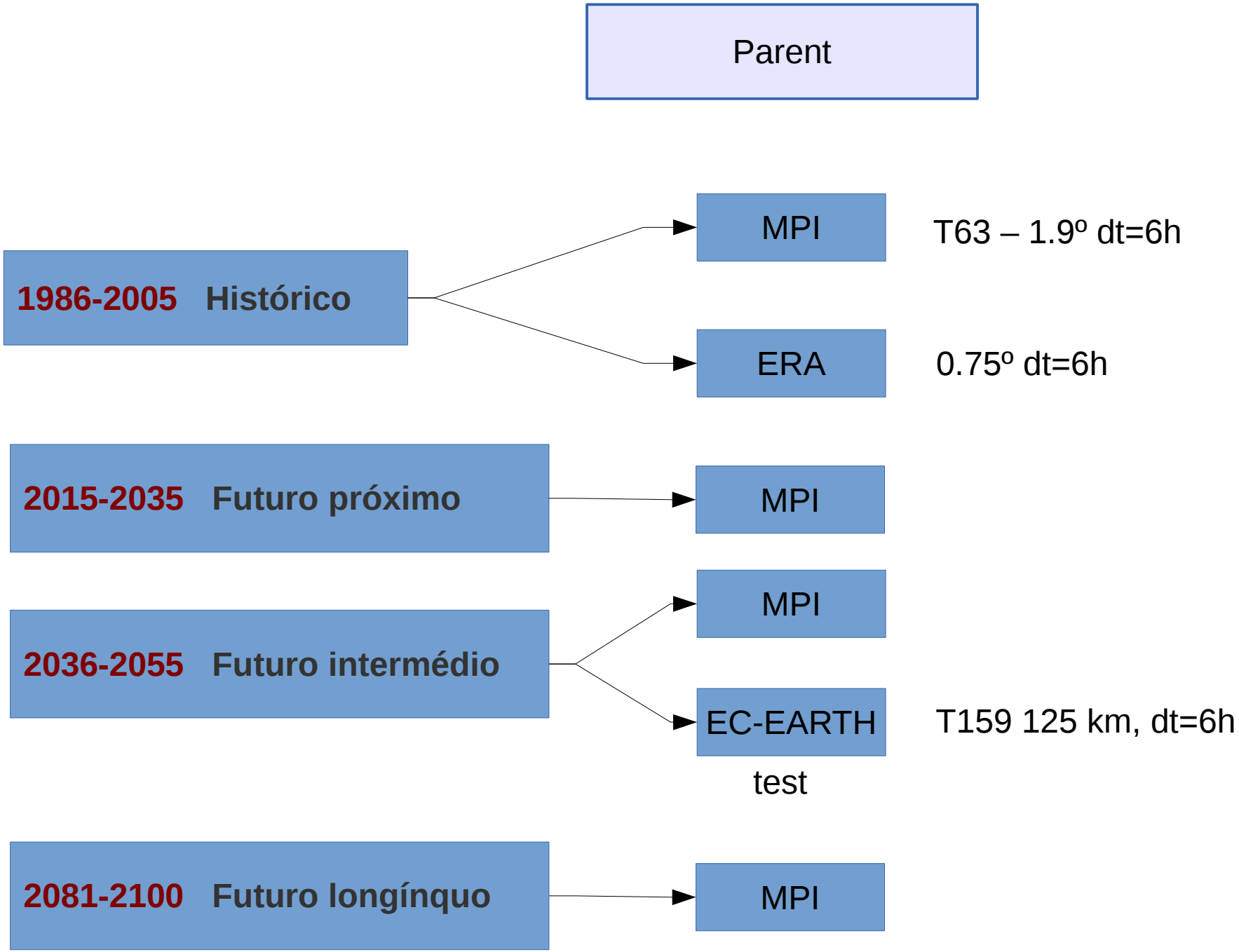
RCP8.5

SPINUP

Extremos/Humidade do solo



Histórico Próximo Intermédio Longínquo

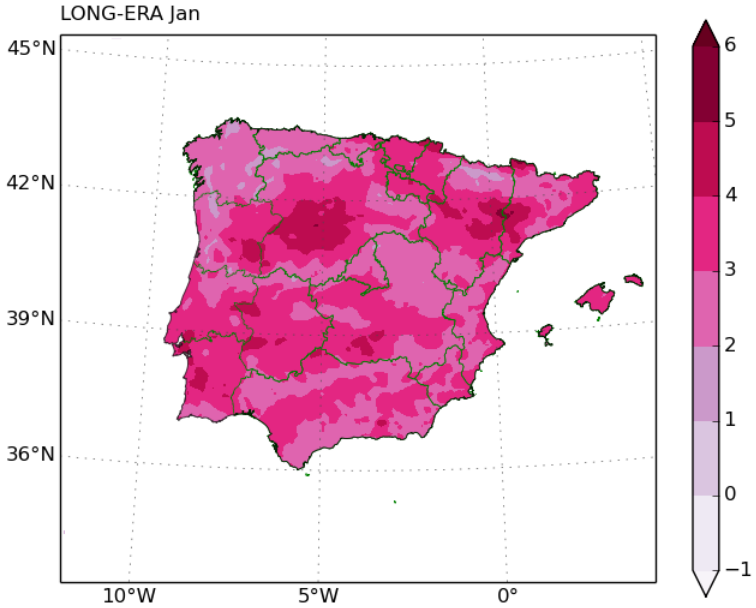

Parent
1986-2005 Histórico
MPI
T63 – 1.9º dt=6h
ERA
0.75º dt=6h
2015-2035 Futuro próximo
MPI
2036-2055 Futuro intermédio
MPI
EC-EARTH
T159 125 km, dt=6h
test
2081-2100 Futuro longínquo
MPI

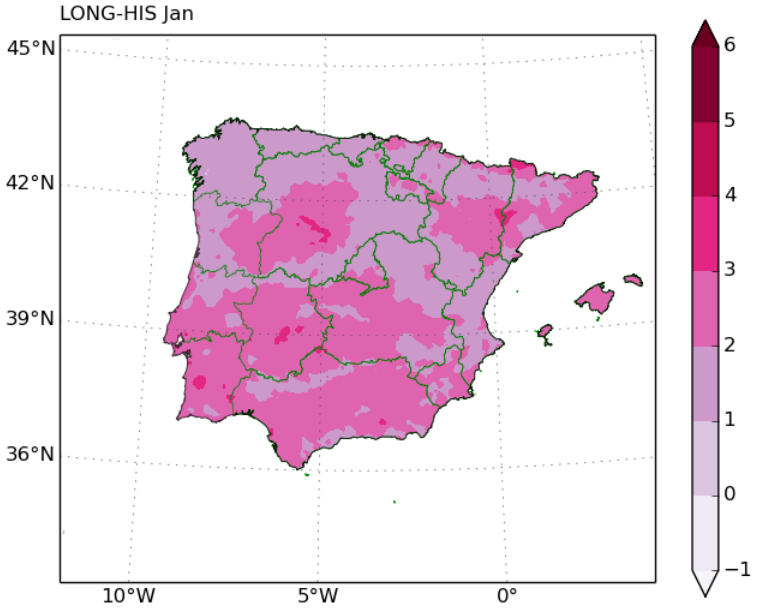
Resultados - câmbio climático

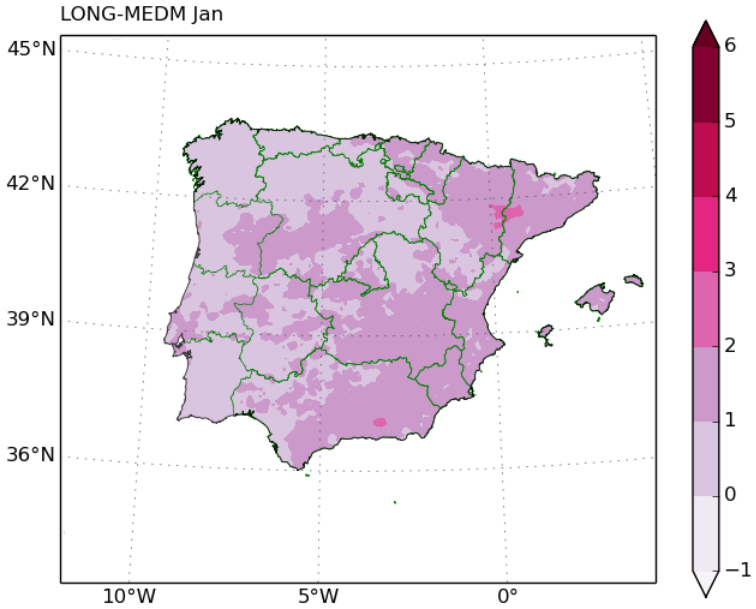
- Câmbio nos percentís: P10, P50, P90, IQR (P75-P25)
- Temperatura superfície
- Intensidade do vento
- Precipitação
- Janeiro, Julho

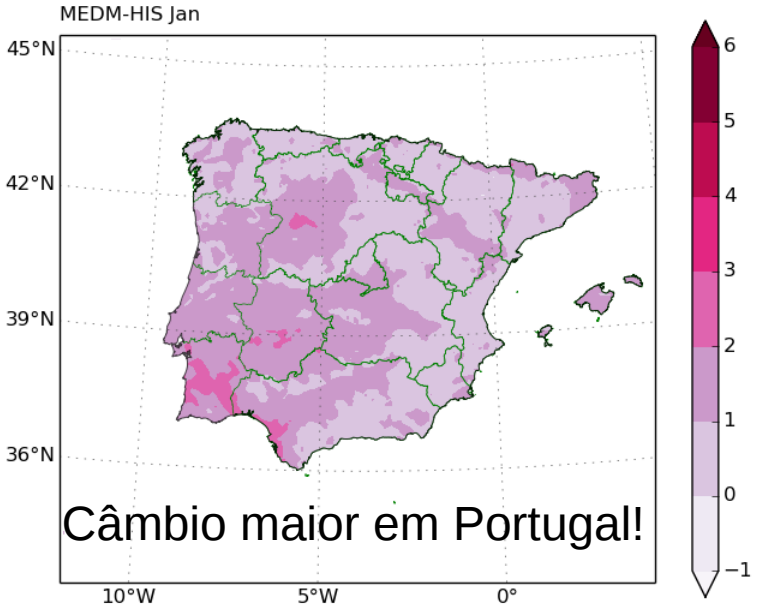
1. Futuro Longínquo vs ERA (long-era)
2. Futuro Longínquo vs Histórico (long-his)
3. Futuro Longínquo vs Intermédio (long-medm)
4. Futuro Intermédio vs Histórico (medm-his)

Temp P10 Janeiro



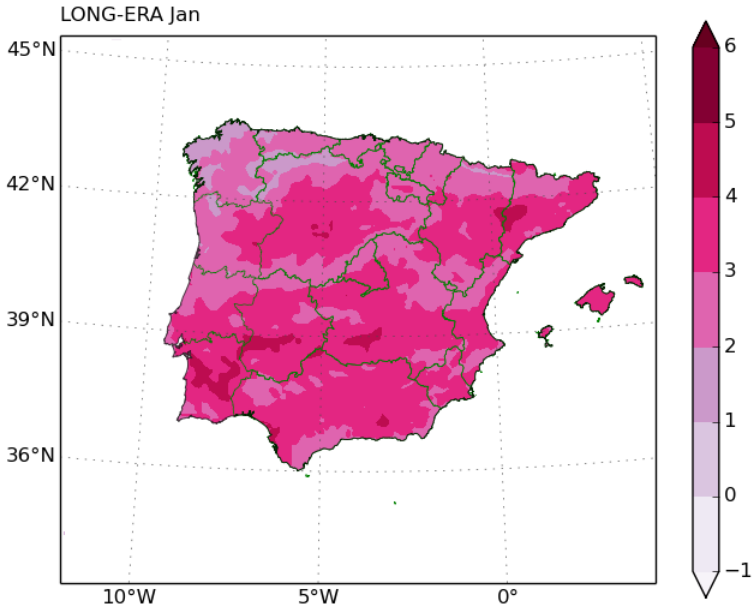


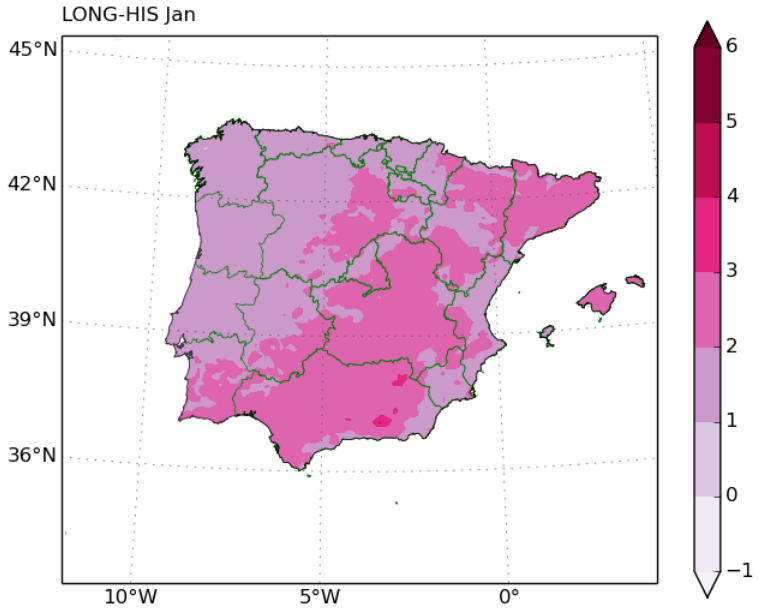


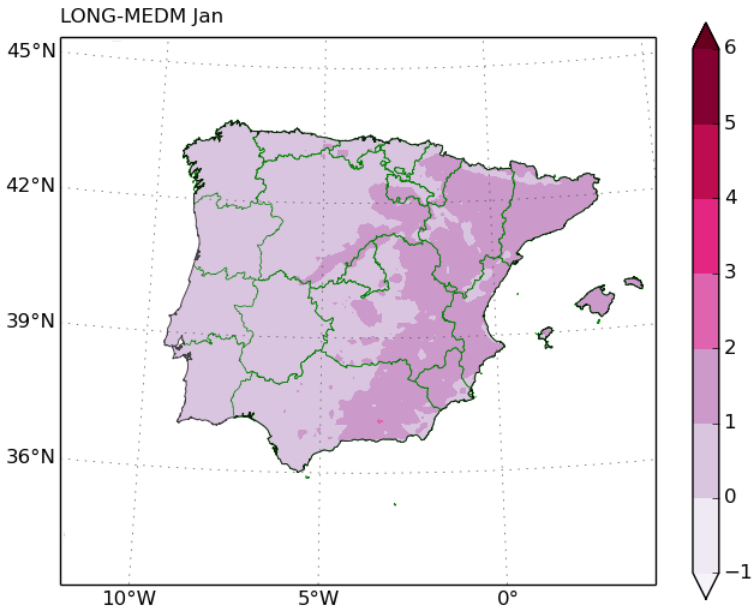


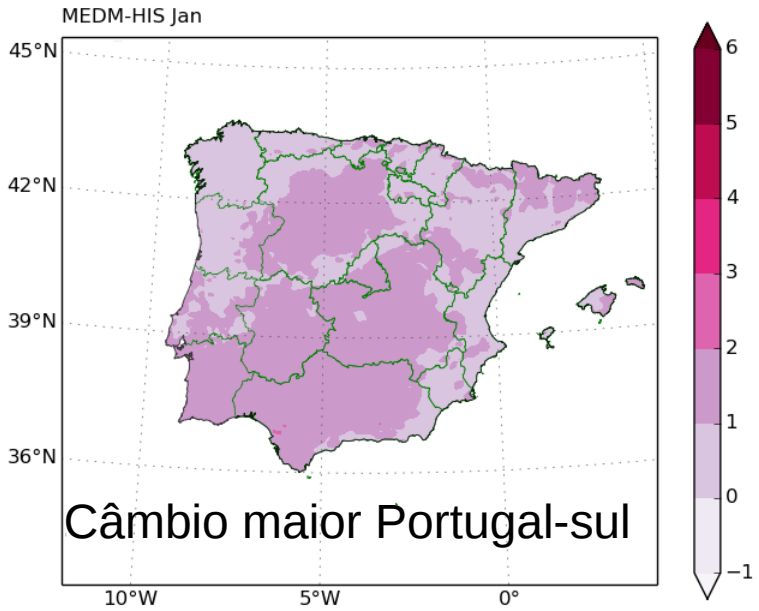
Câmbio maior em Portugal!

Temp P50 Janeiro



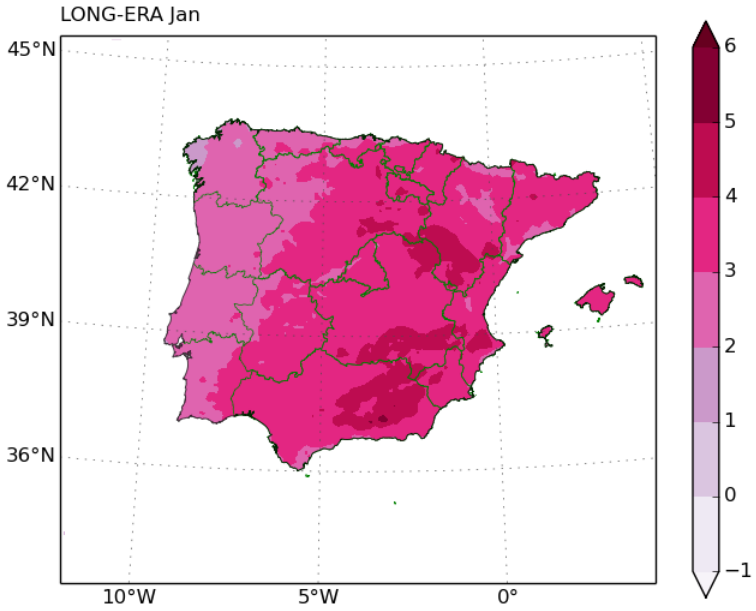


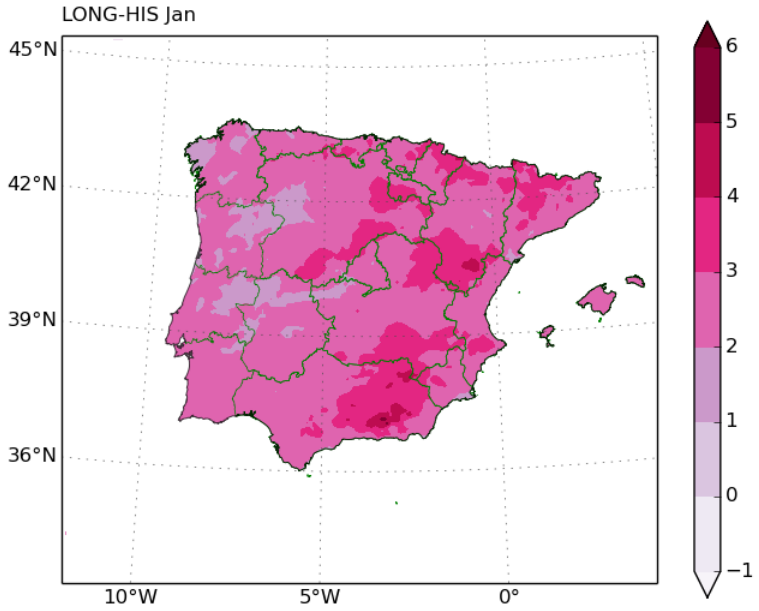


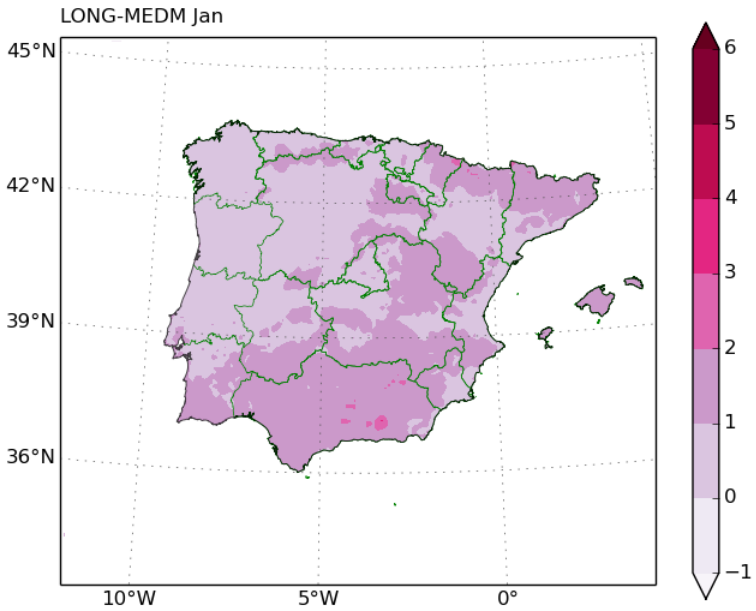


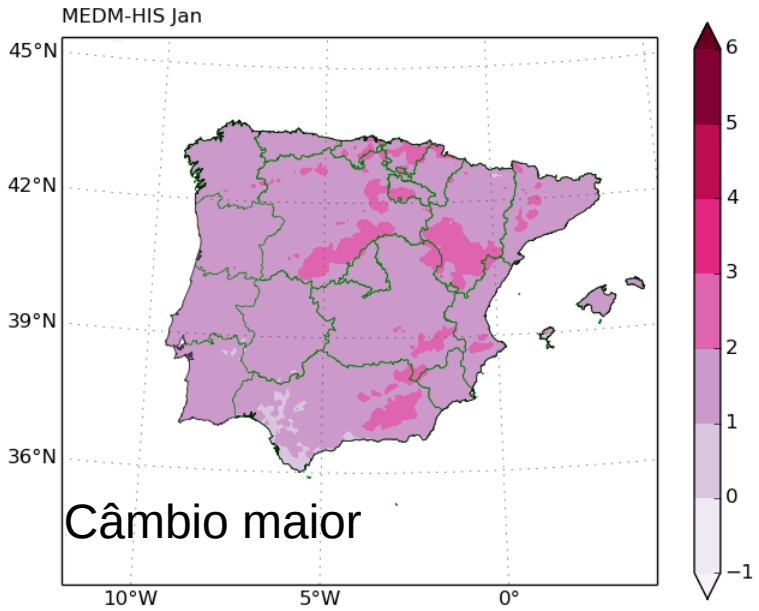
Câmbio maior Portugal-sul

Temp P90 Janeiro



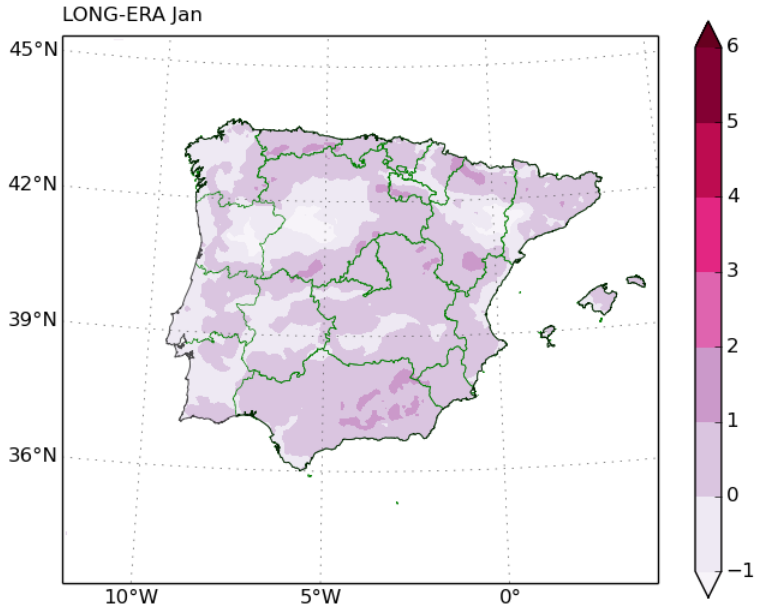


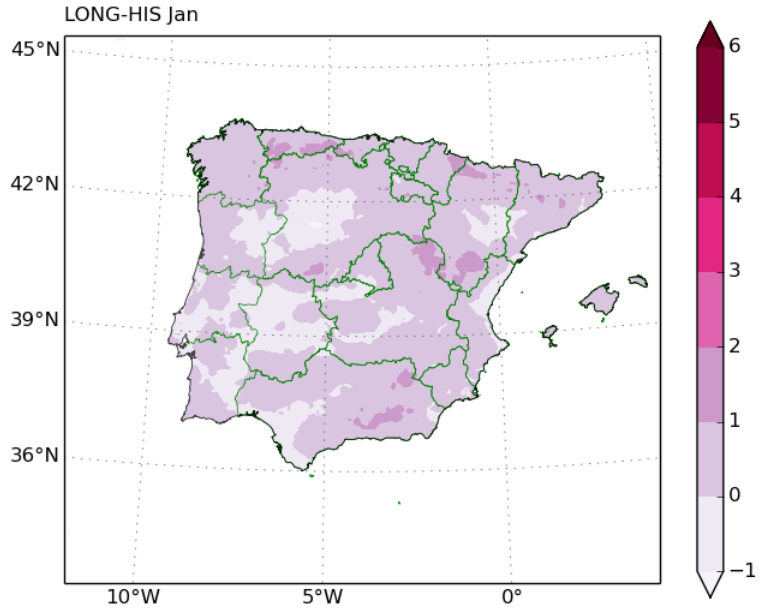


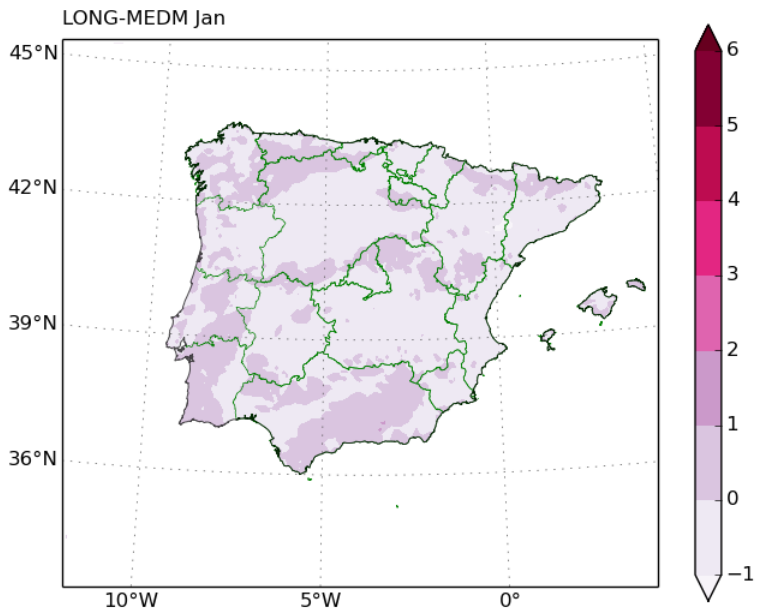


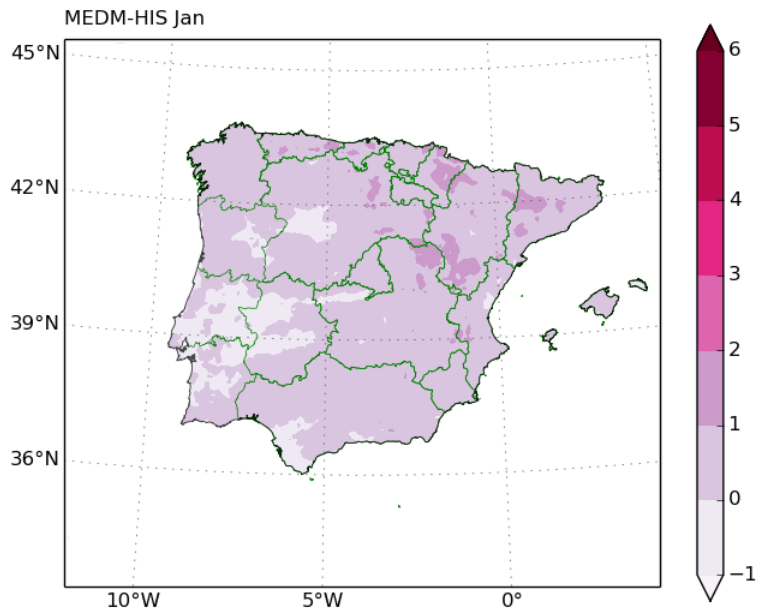
Câmbio maior

Temp IQR Janeiro

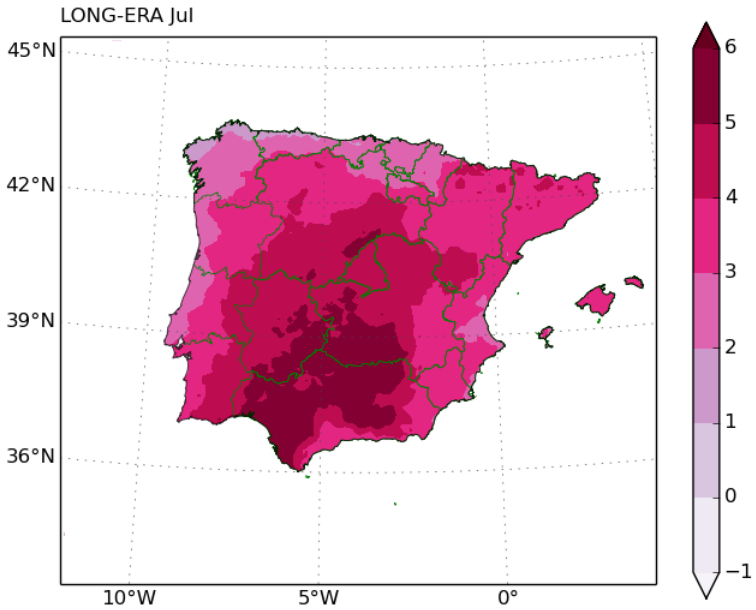


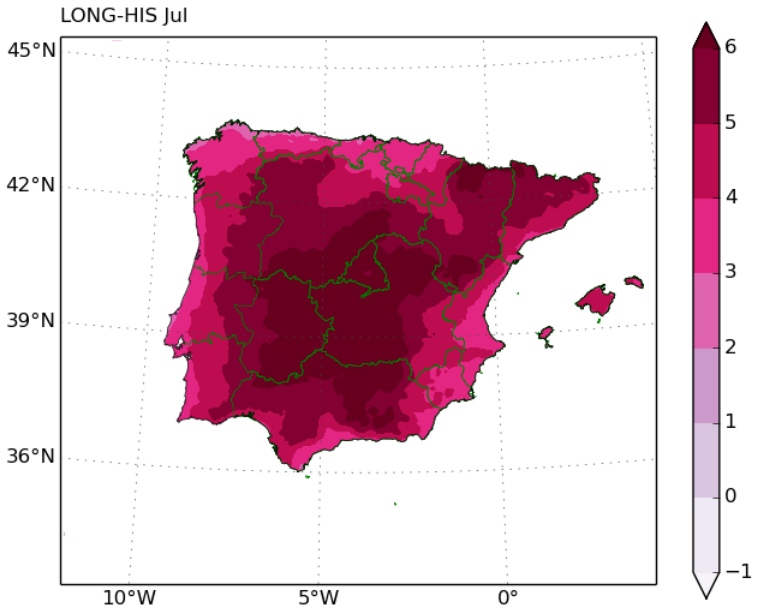


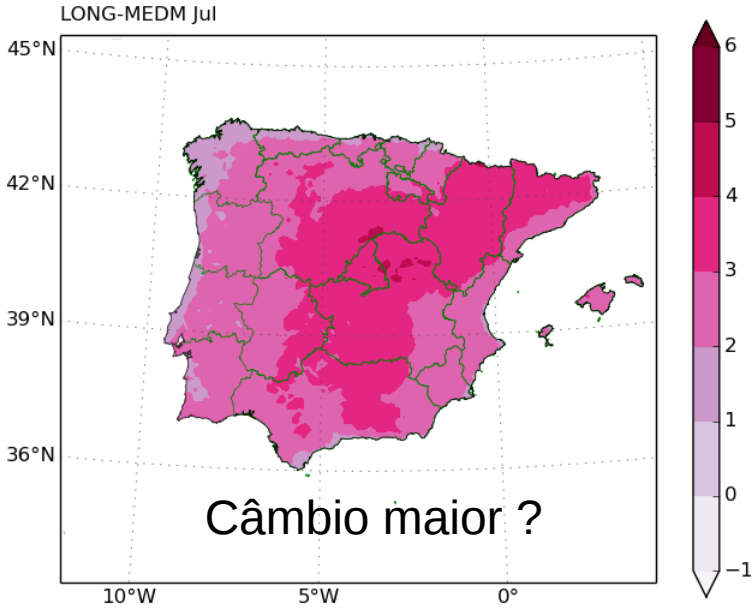




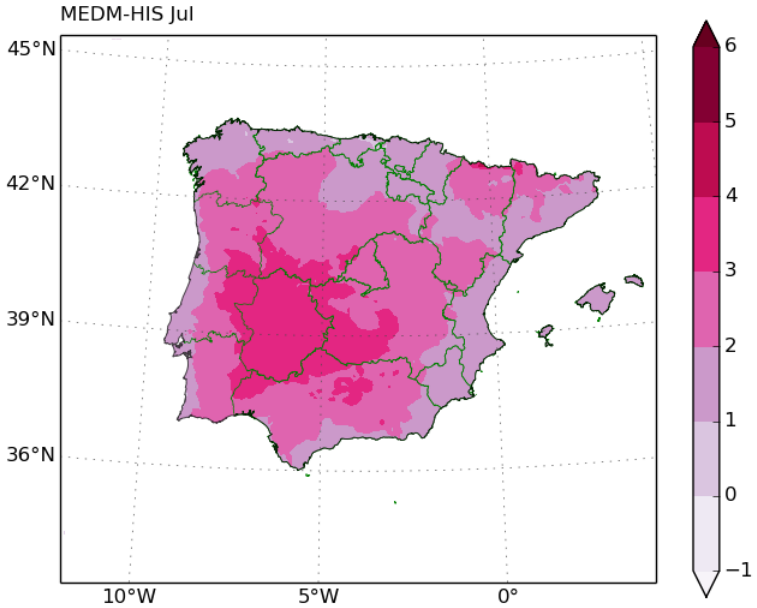
Temp P10 Julho



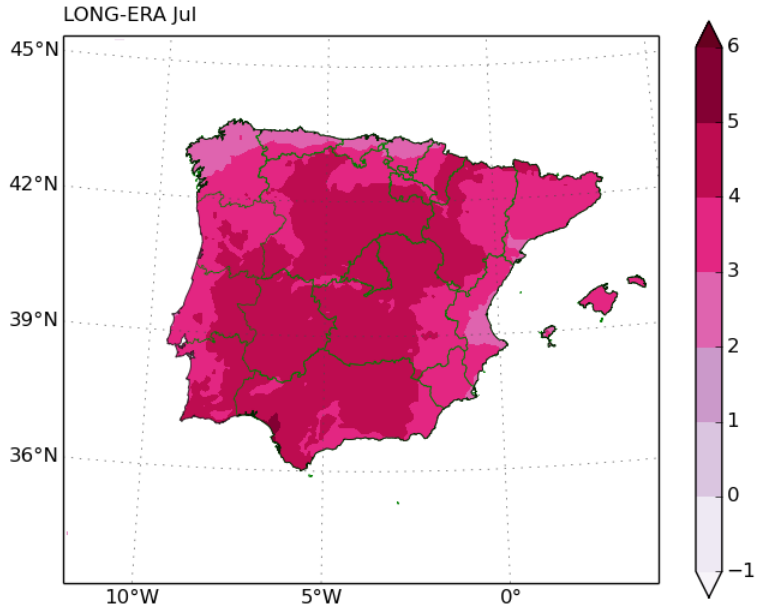


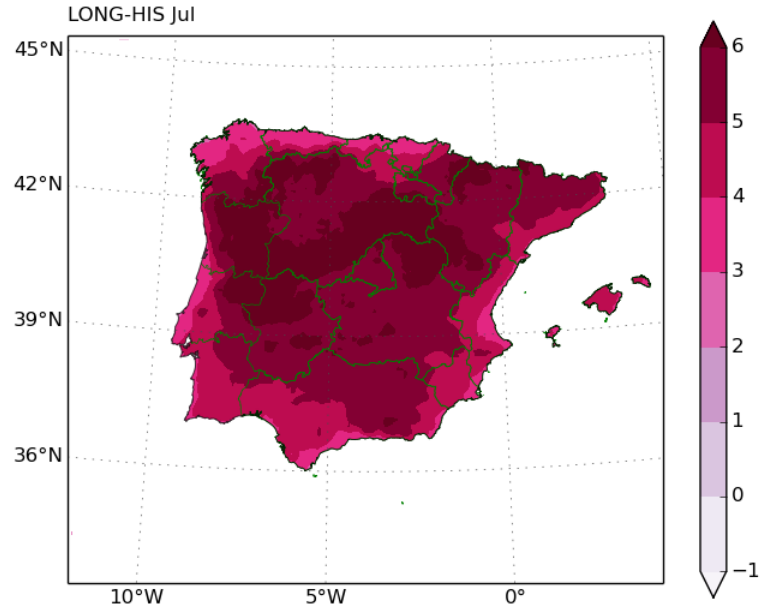


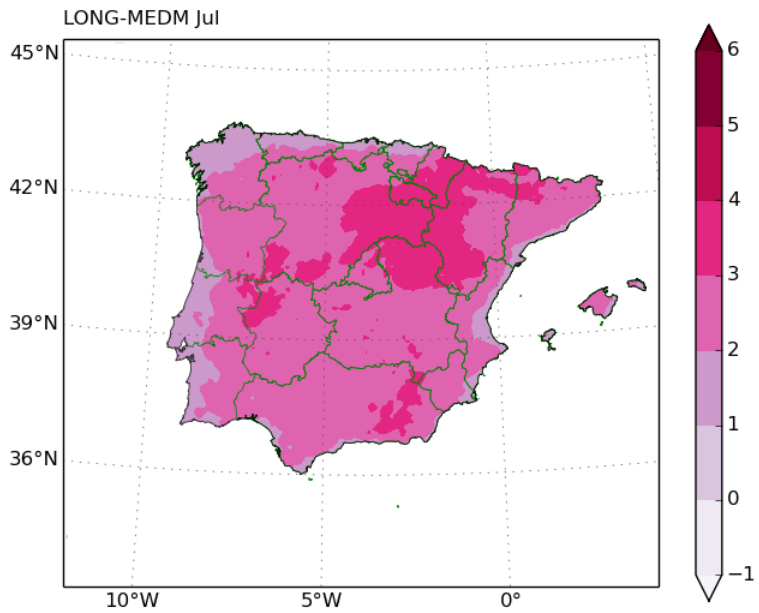
Câmbio maior ?

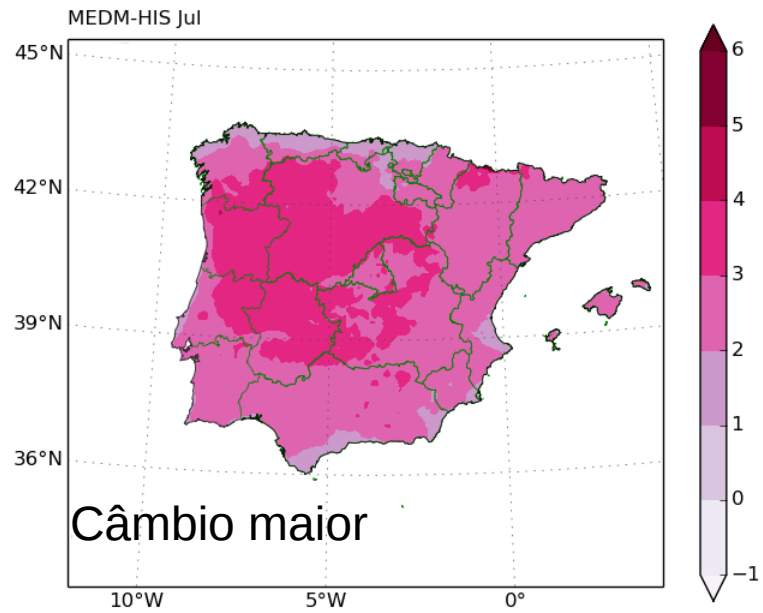


Temp P50 Jul



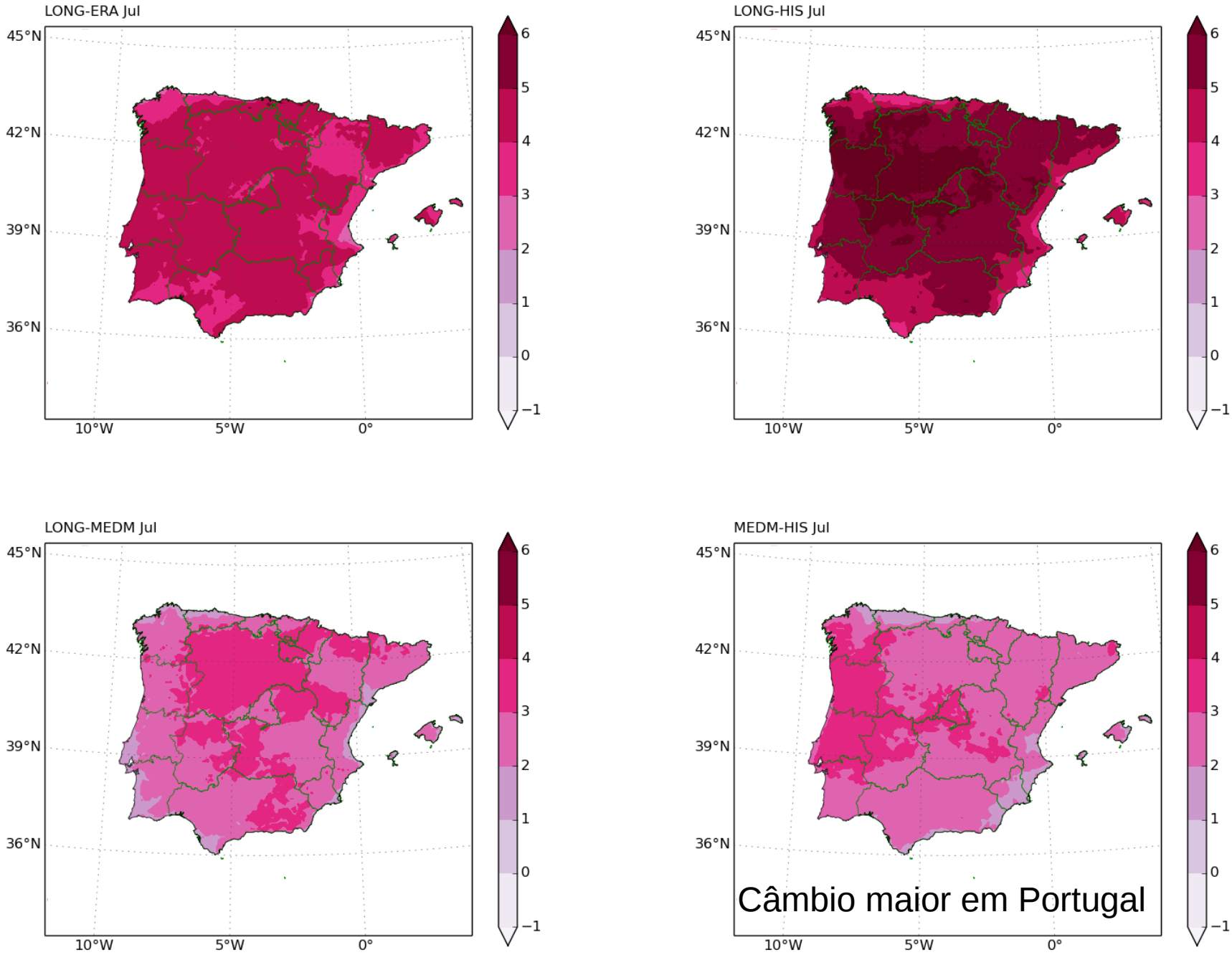






Câmbio maior

Temp P90 Jul


LONG-ERA Jul
LONG-HIS Jul
LONG-MEDM Jul
MEDM-HIS Jul
45°N
42°N
39°N
36°N
10°W
5°W
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6
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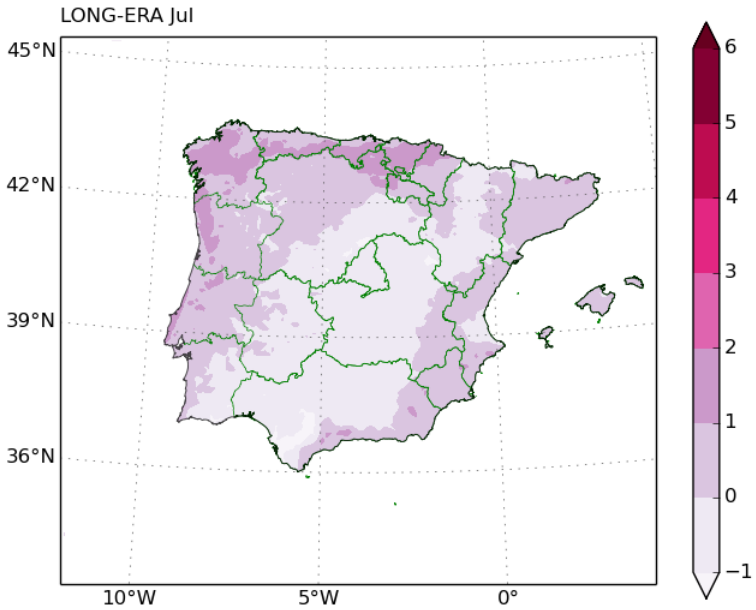
Câmbio maior em Portugal

Temp IQR Jul


LONG-ERA Jul
45°N
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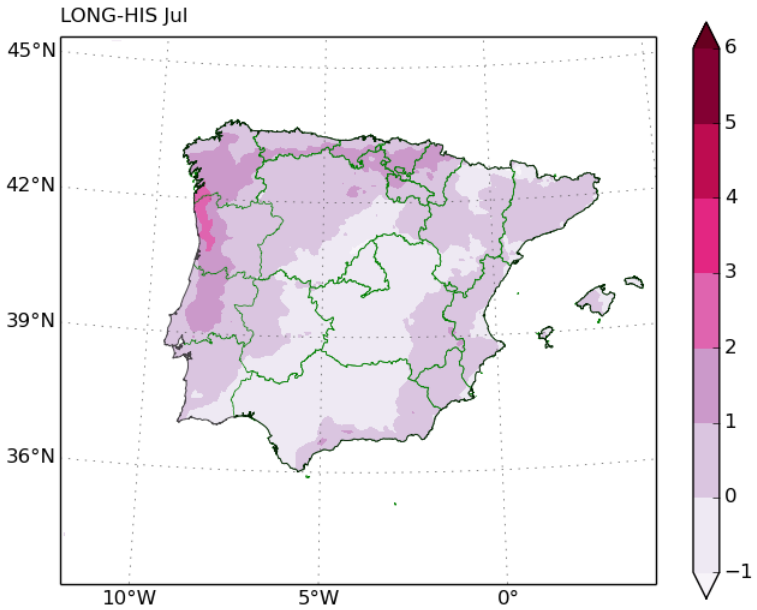
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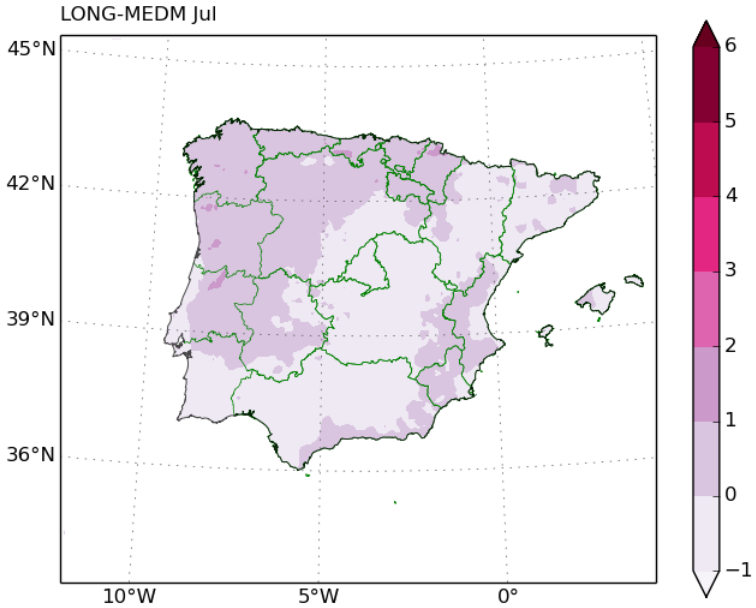
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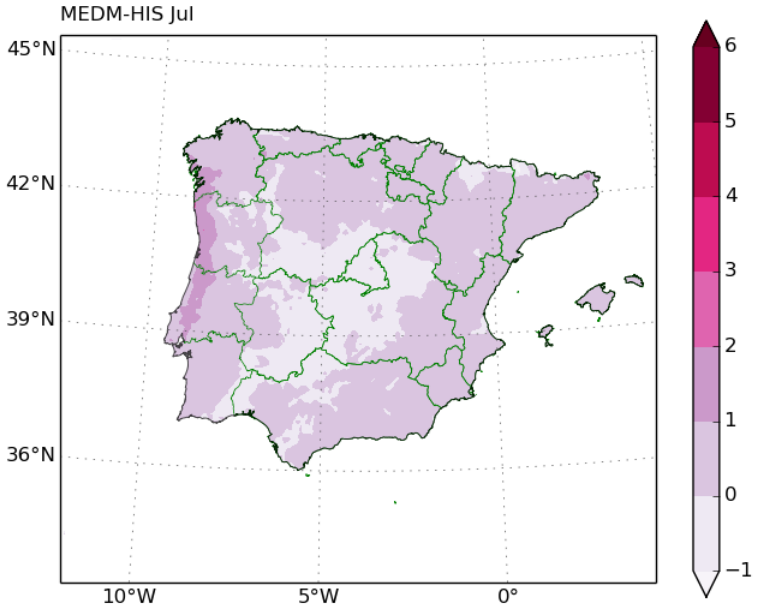
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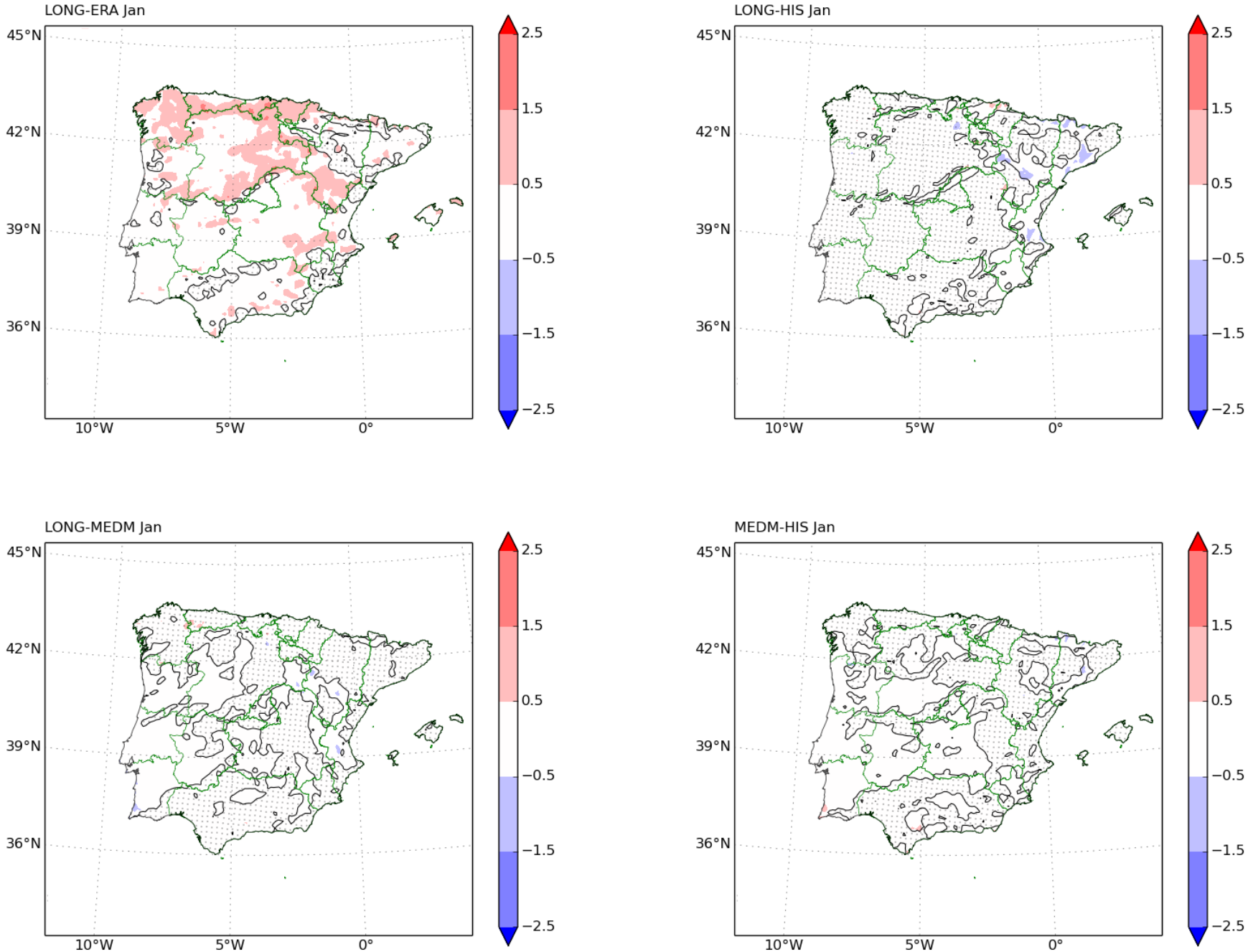
Vento P10 Jan



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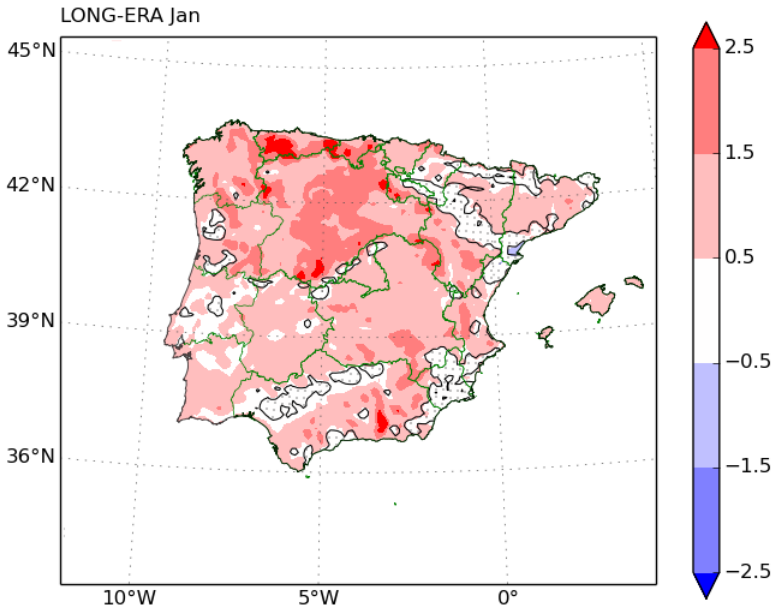

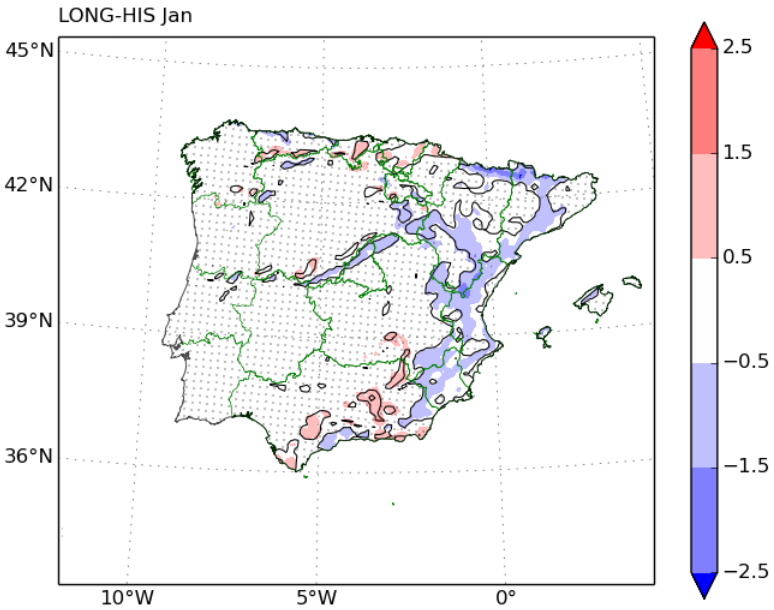

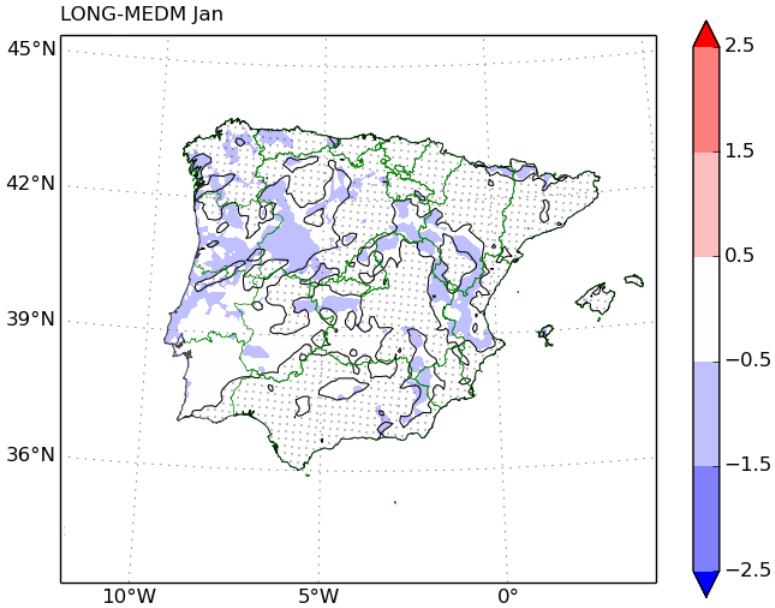

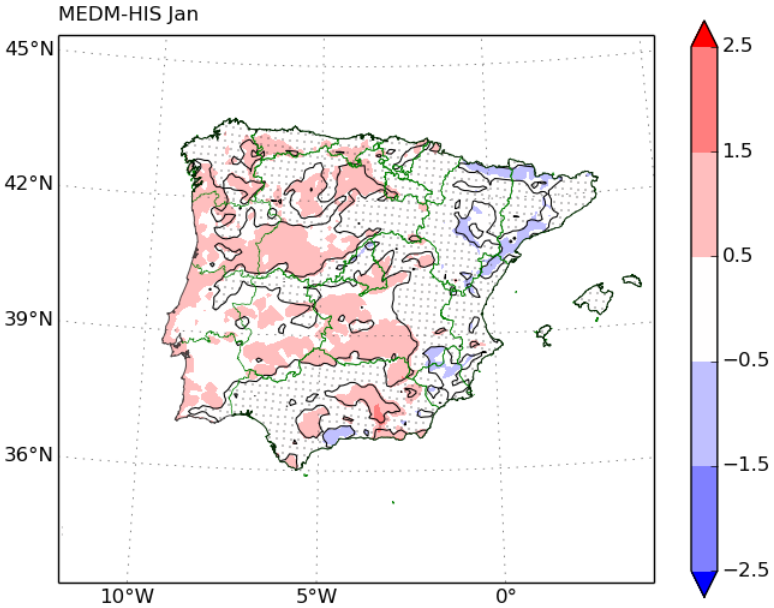

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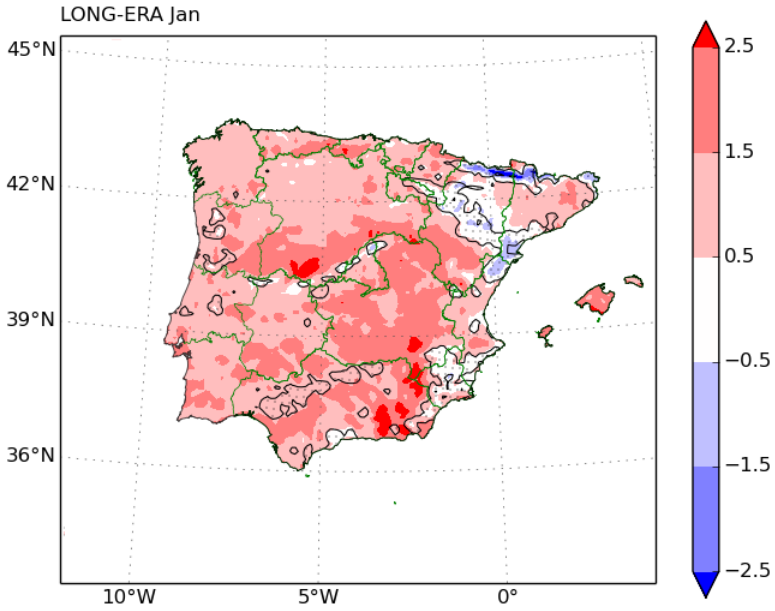
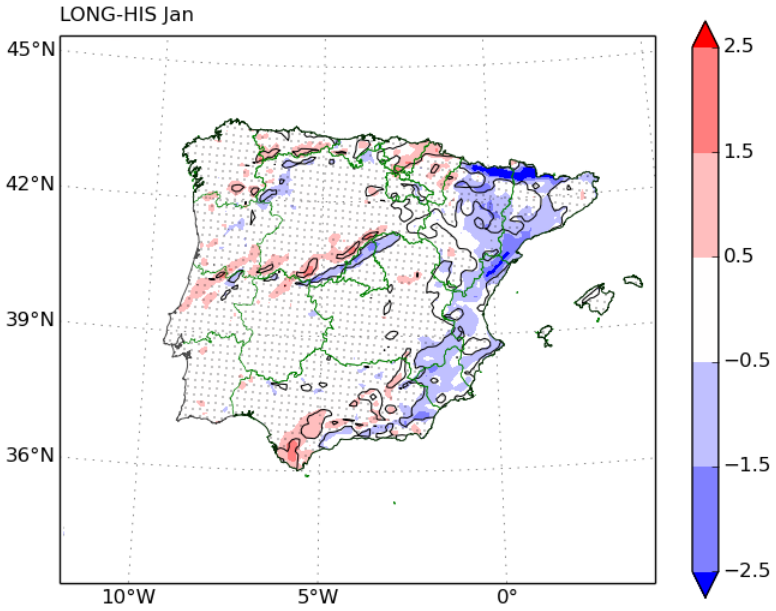
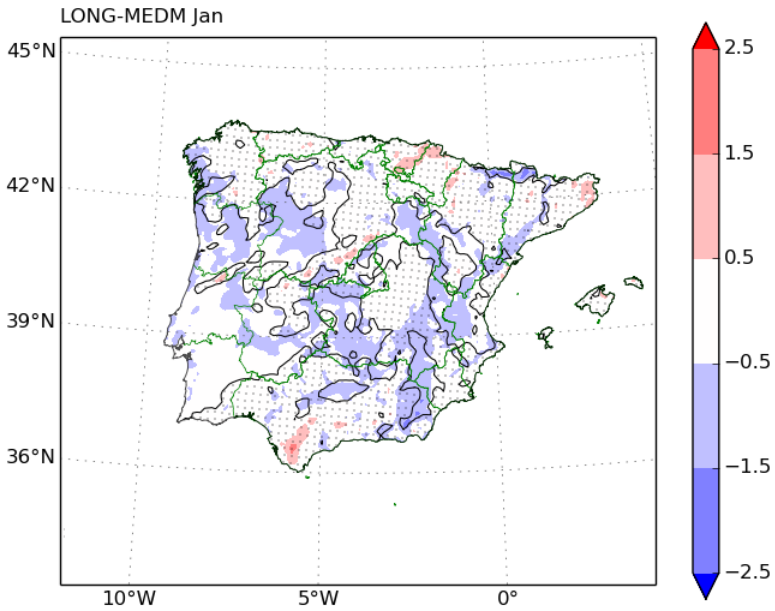
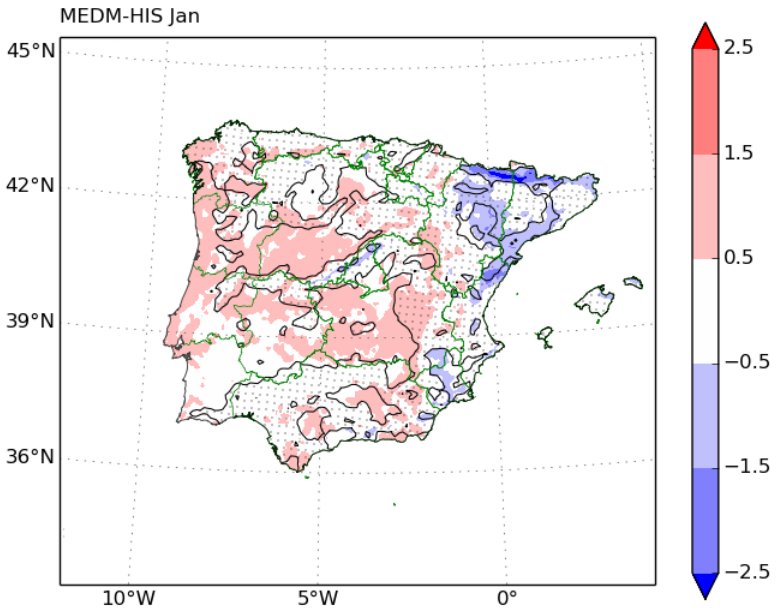
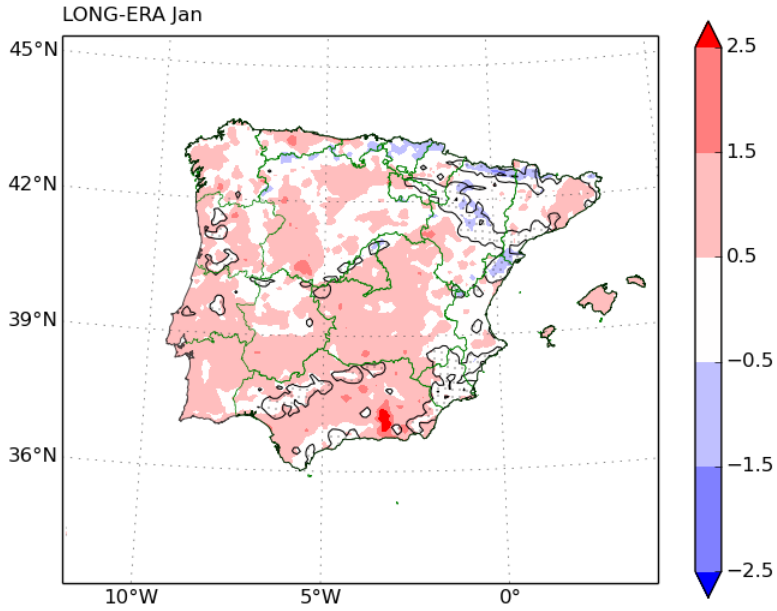


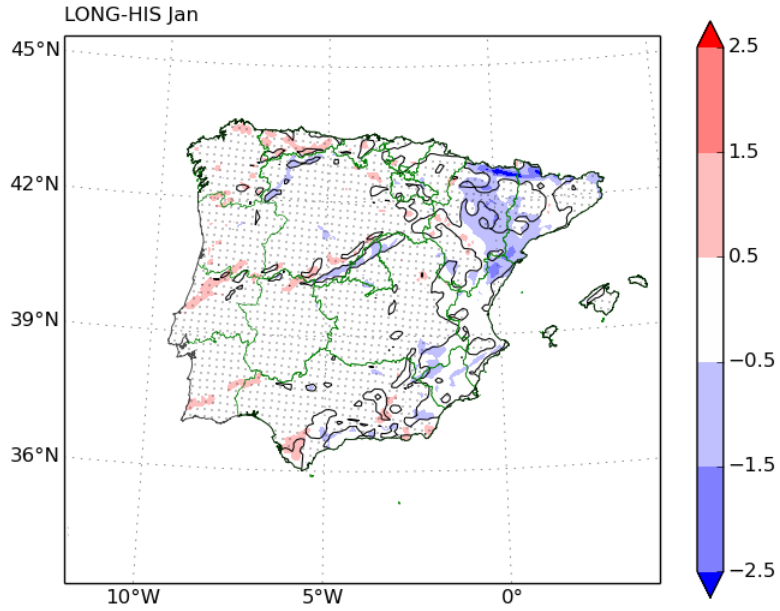


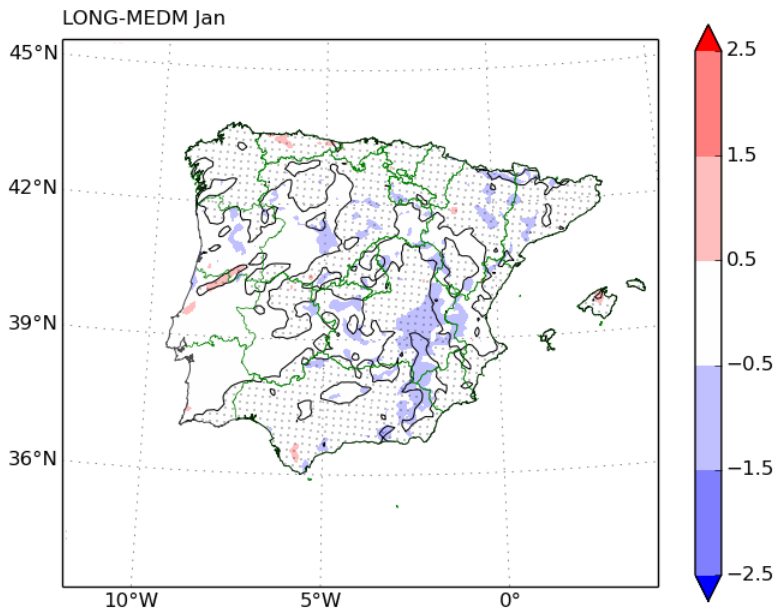


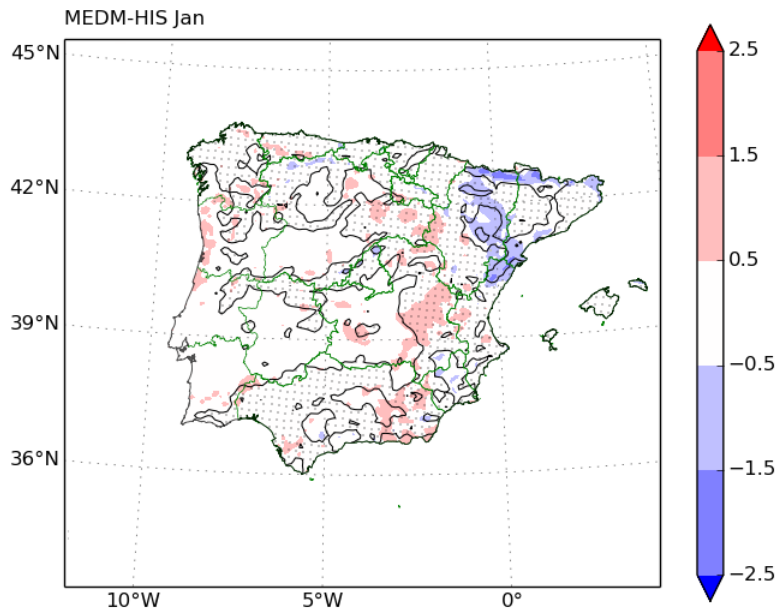


Vento IQR Jan









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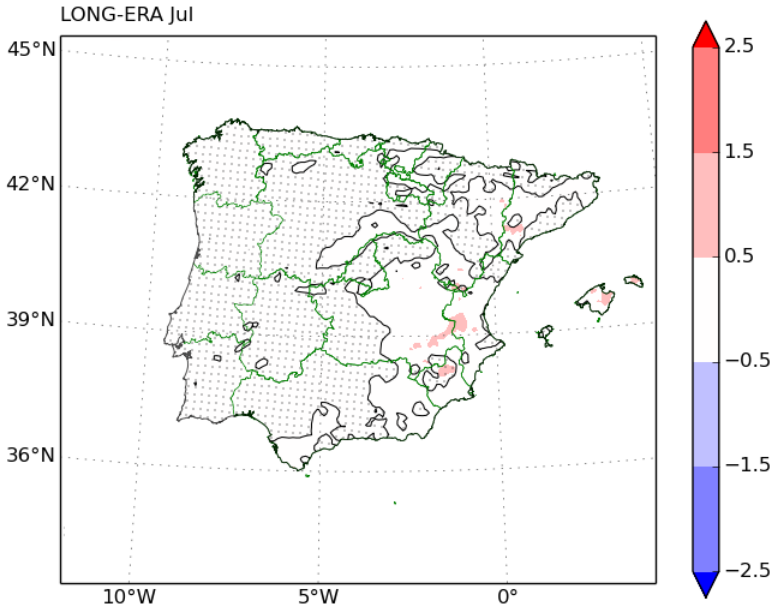
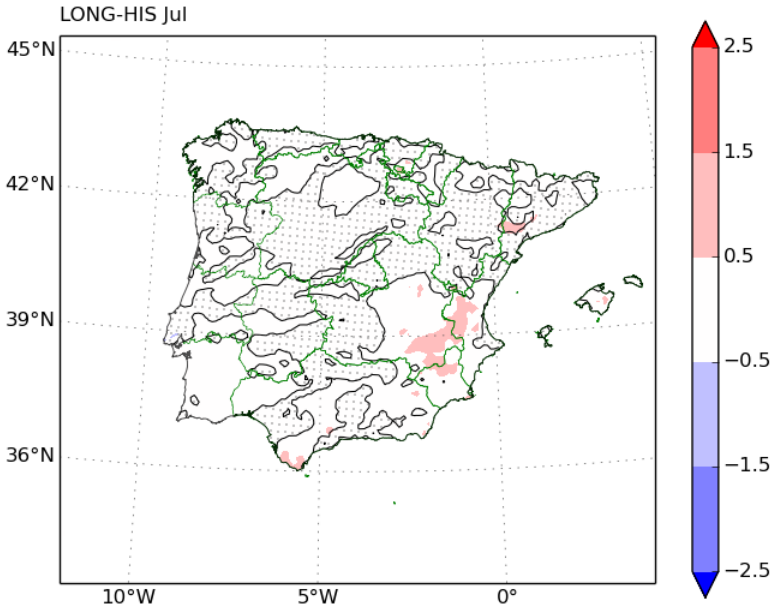
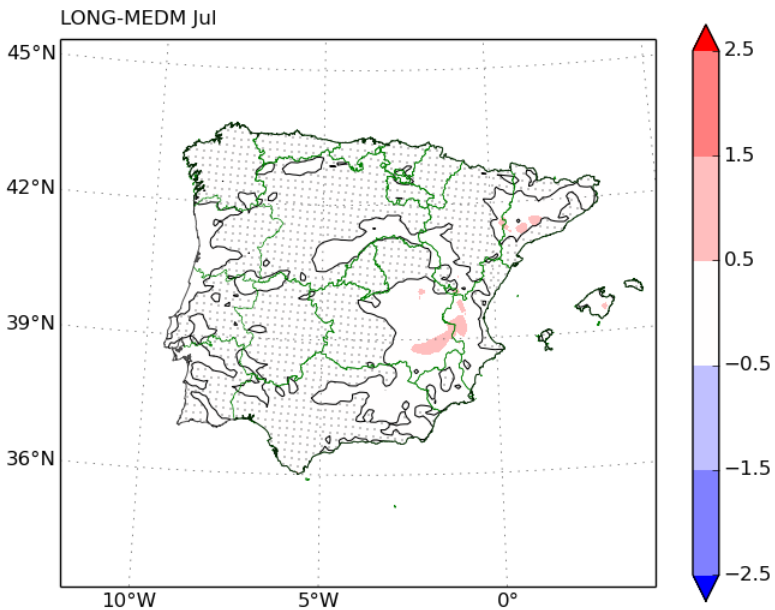
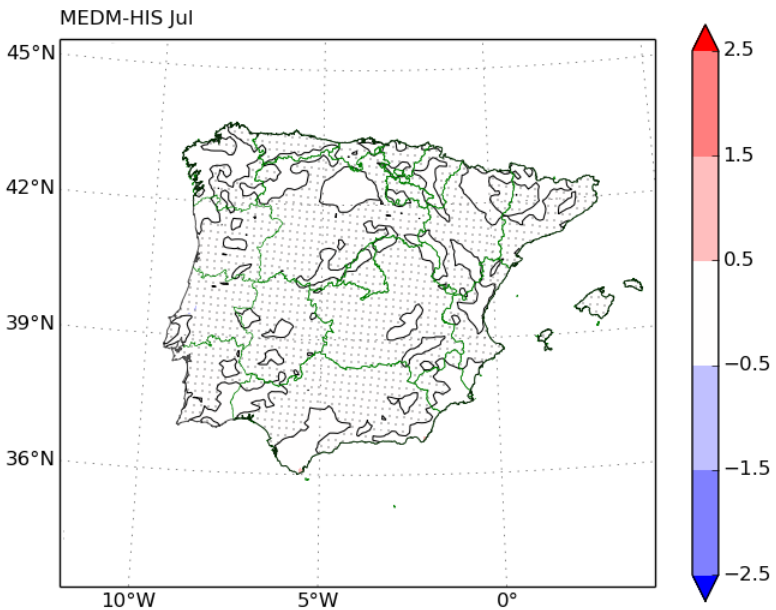
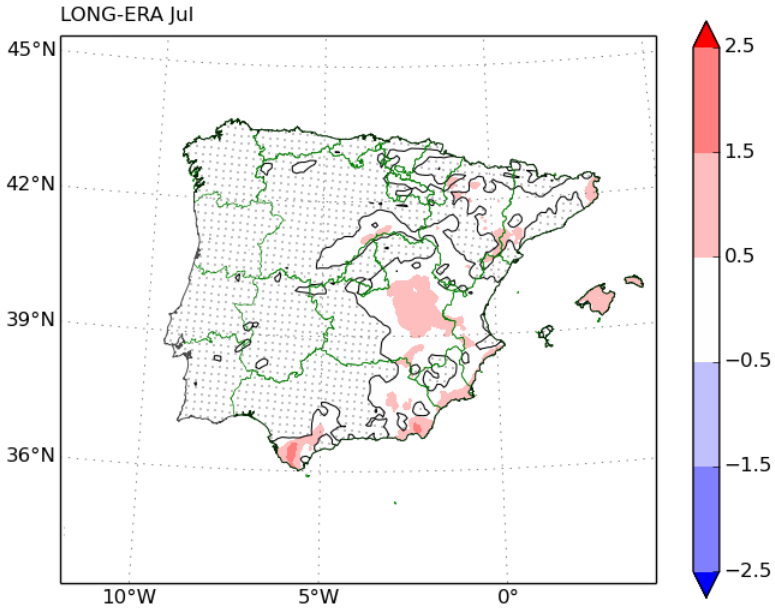


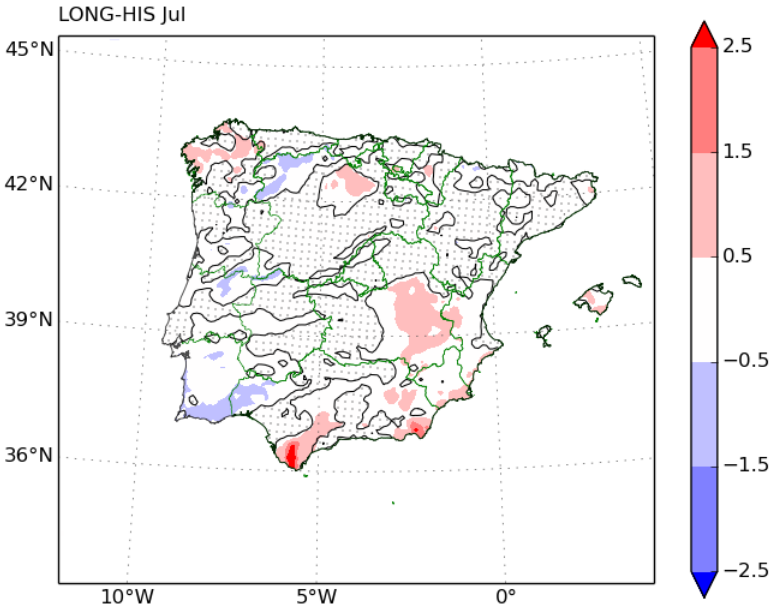


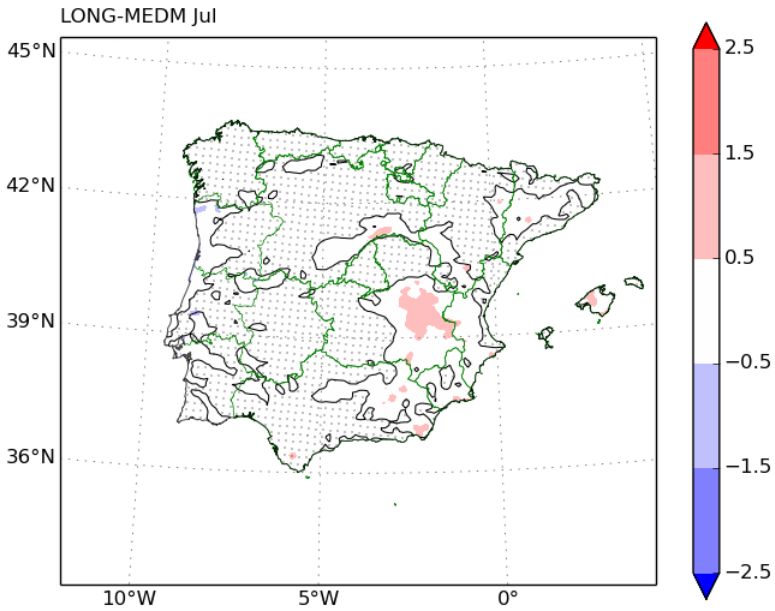


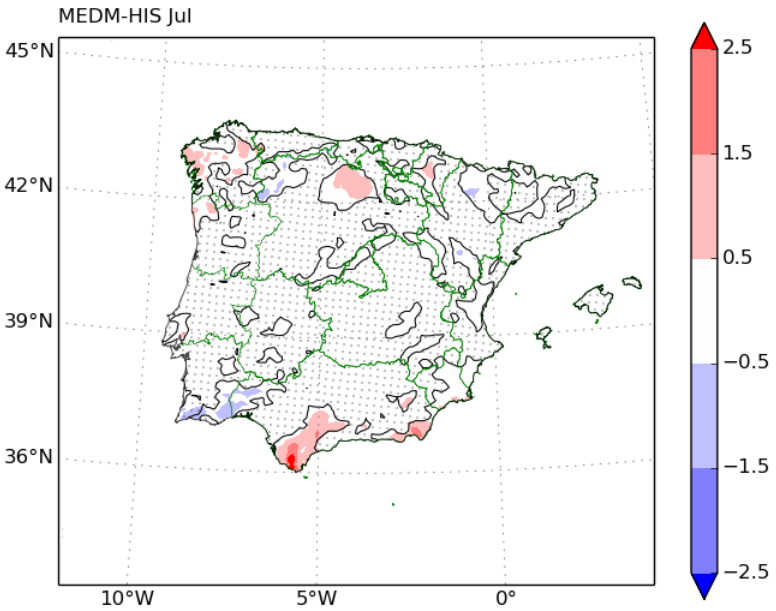


Vento P50 Jul









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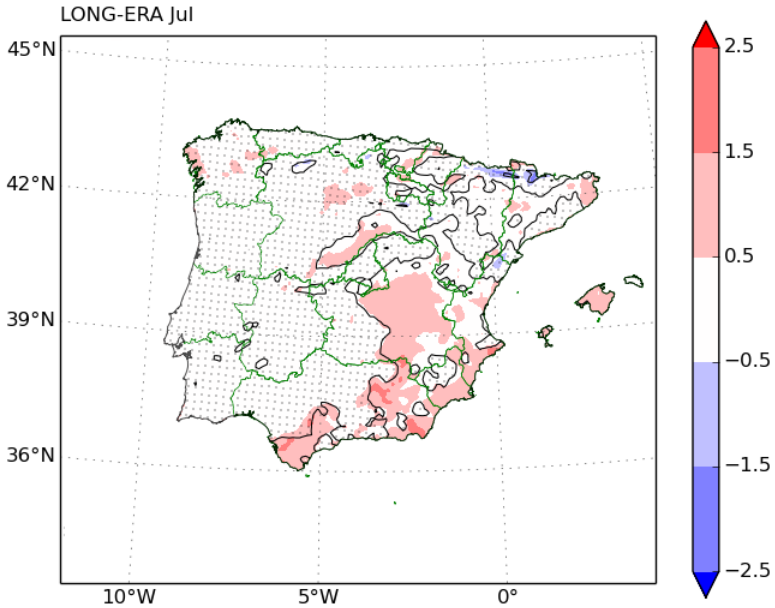

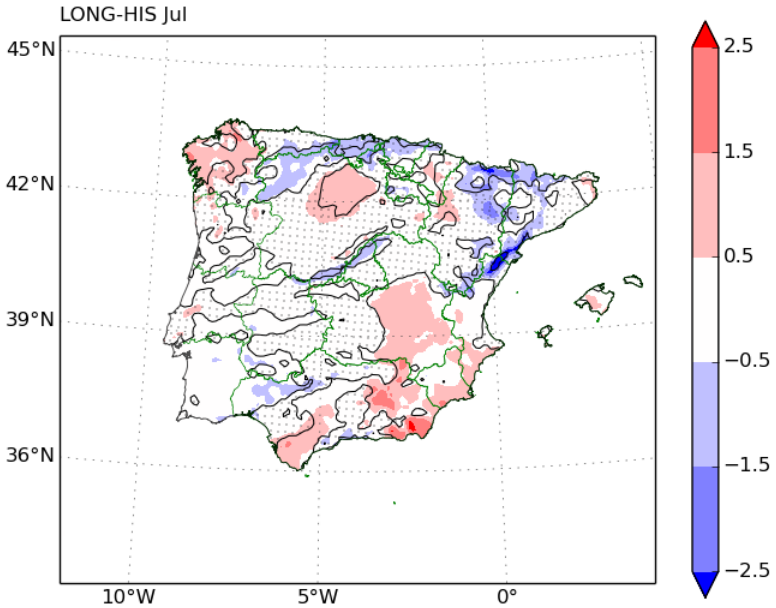

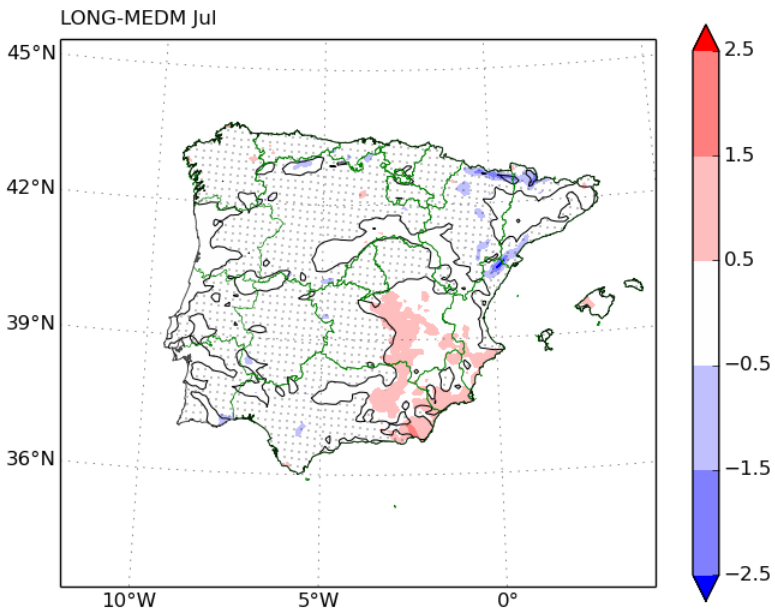

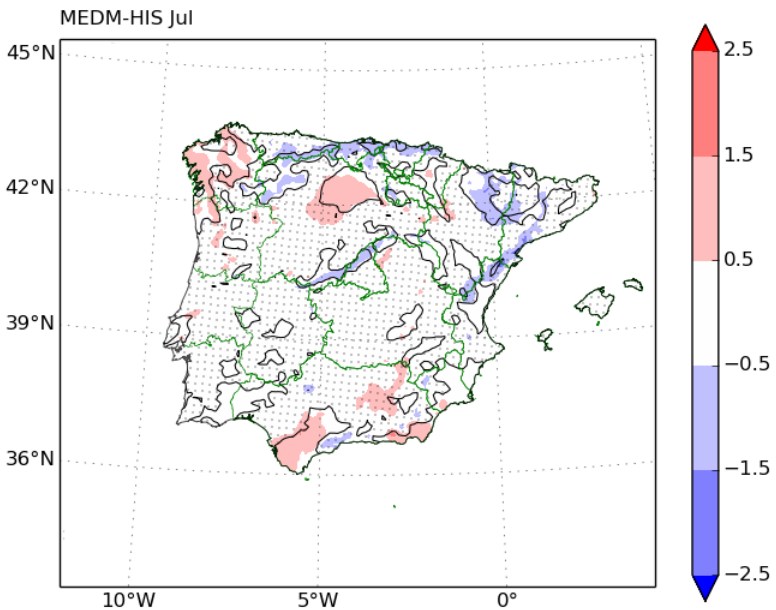

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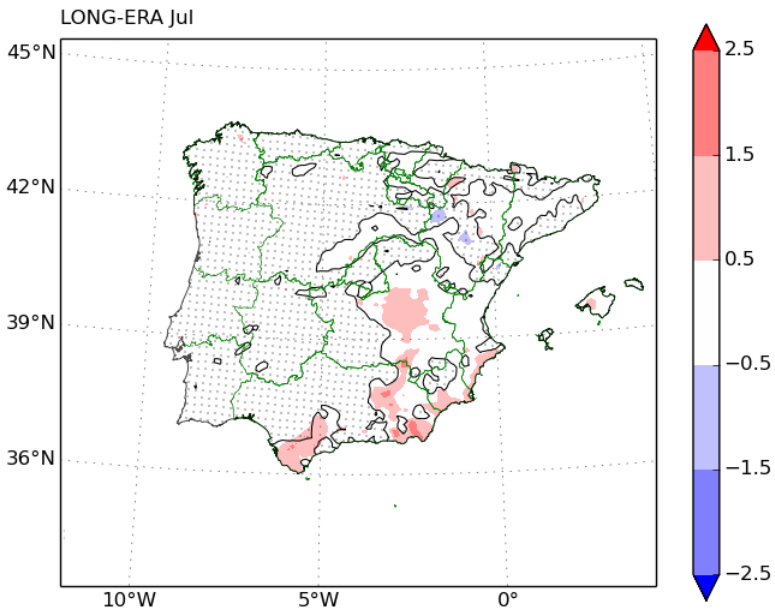

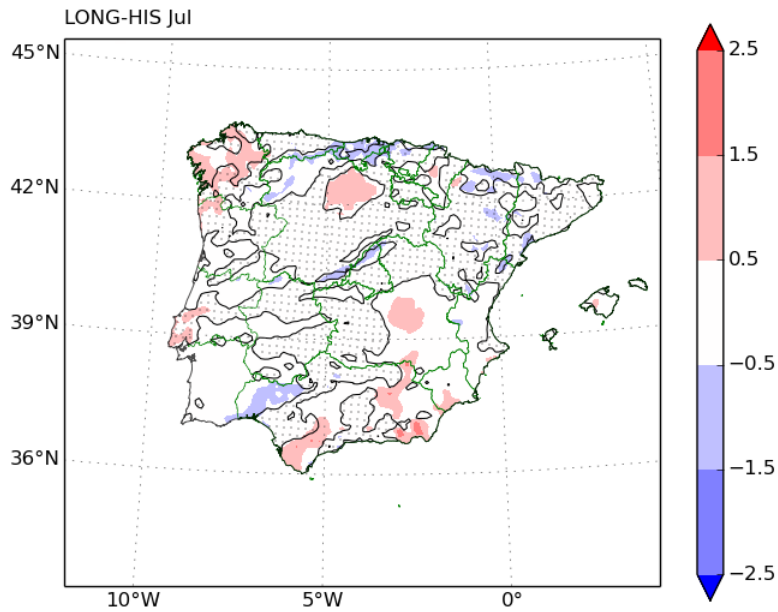

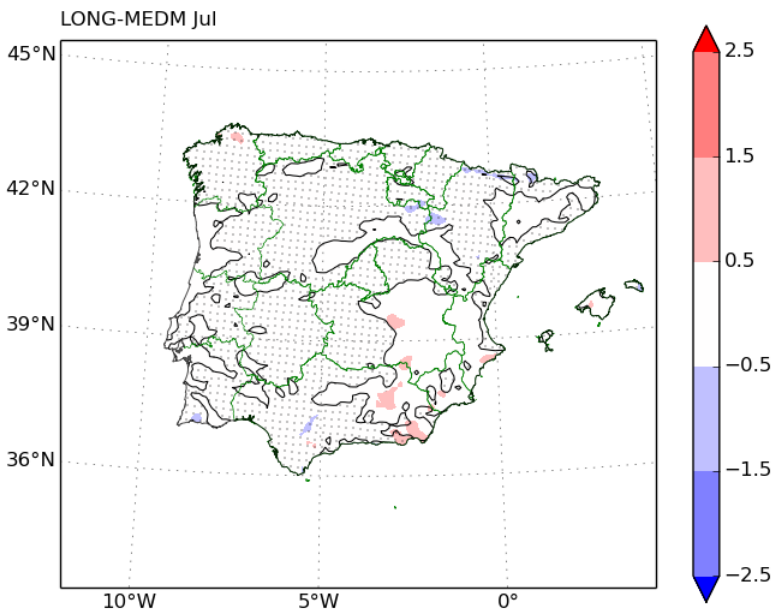

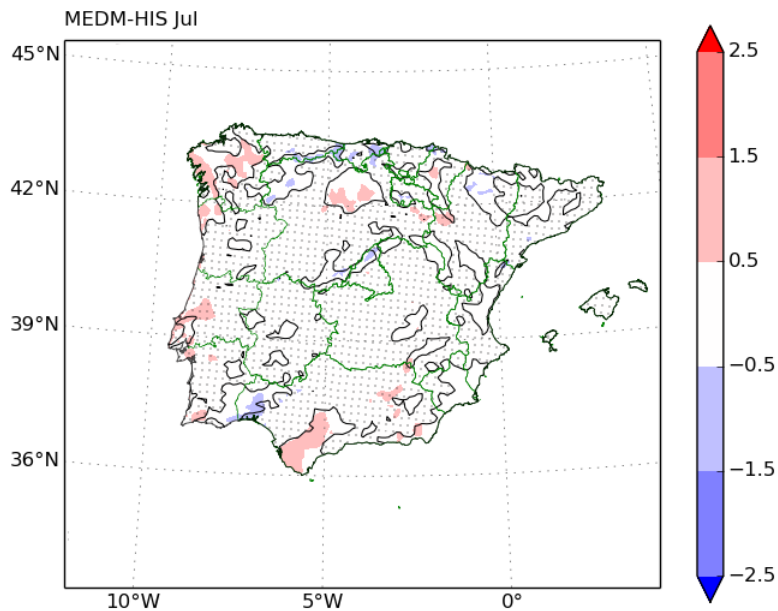

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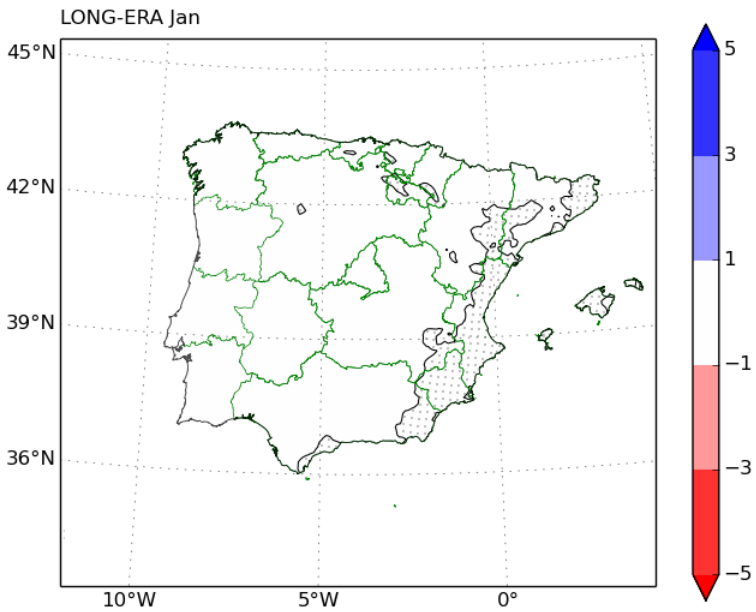

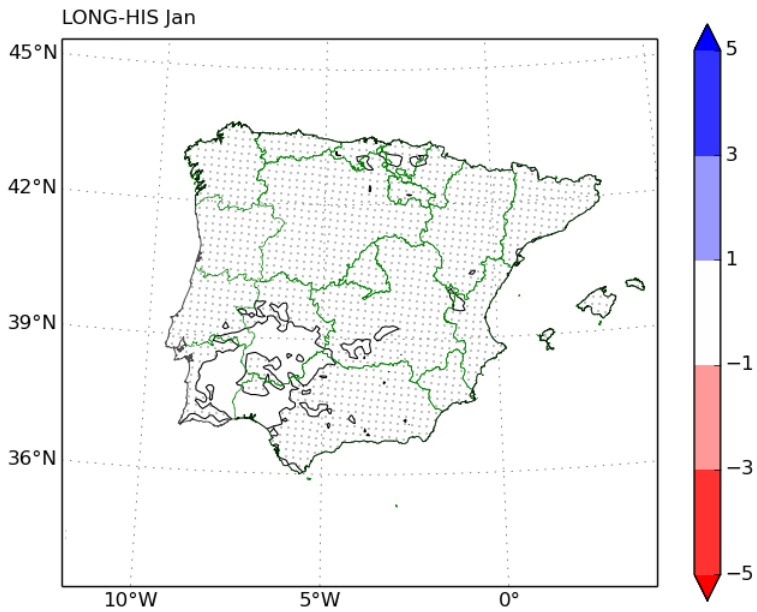

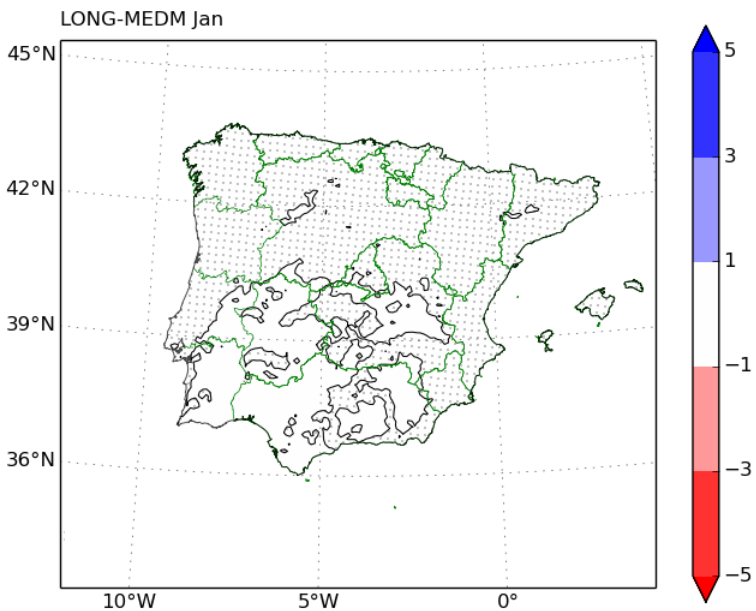

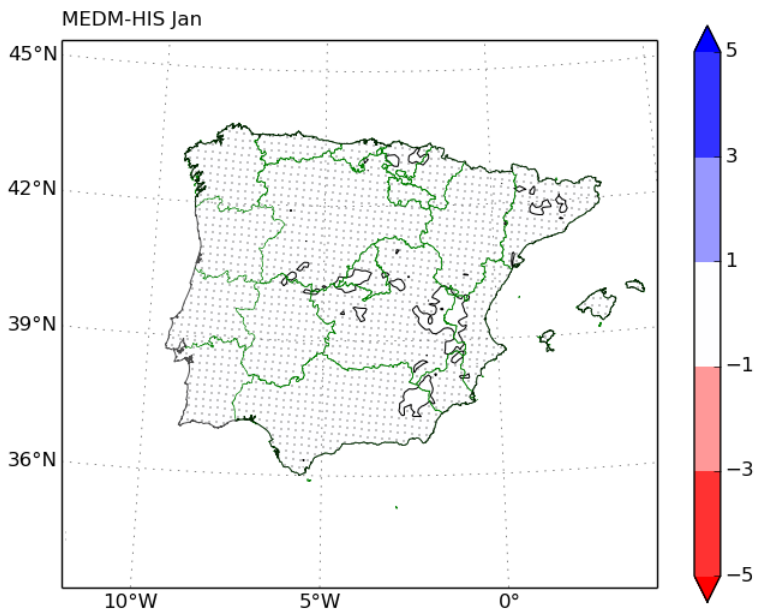

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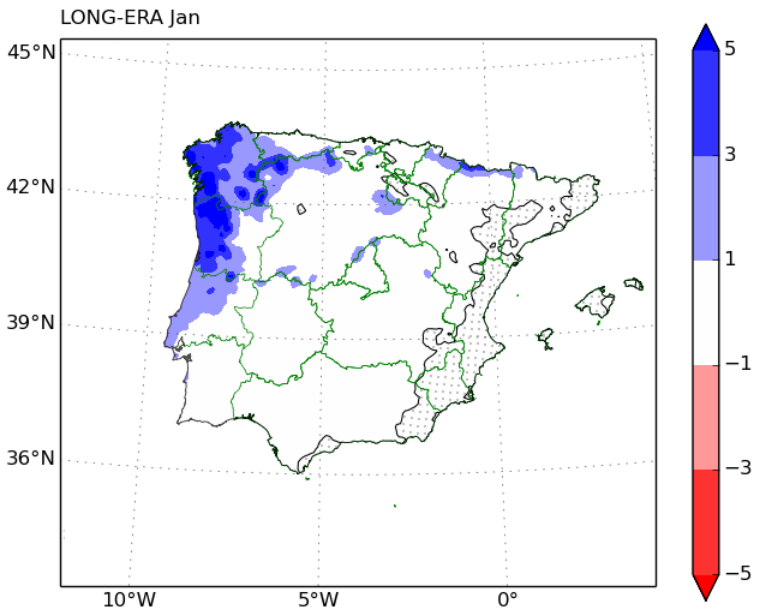

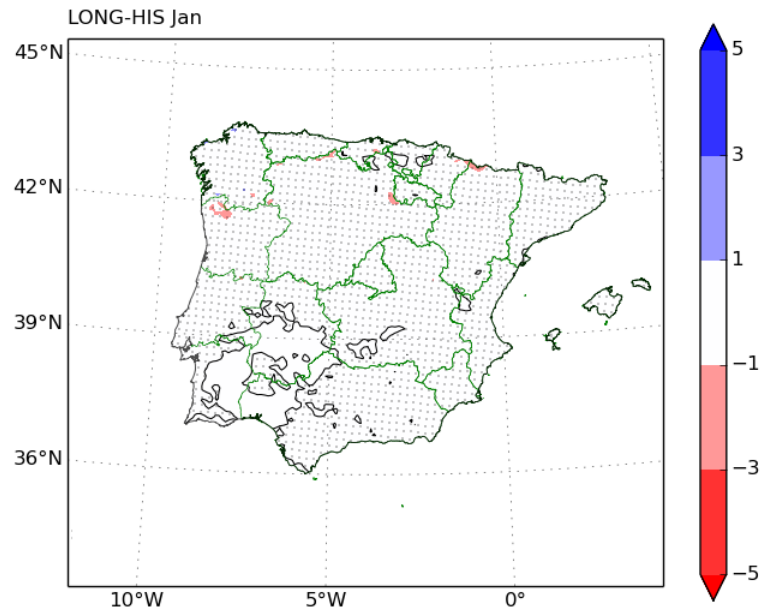

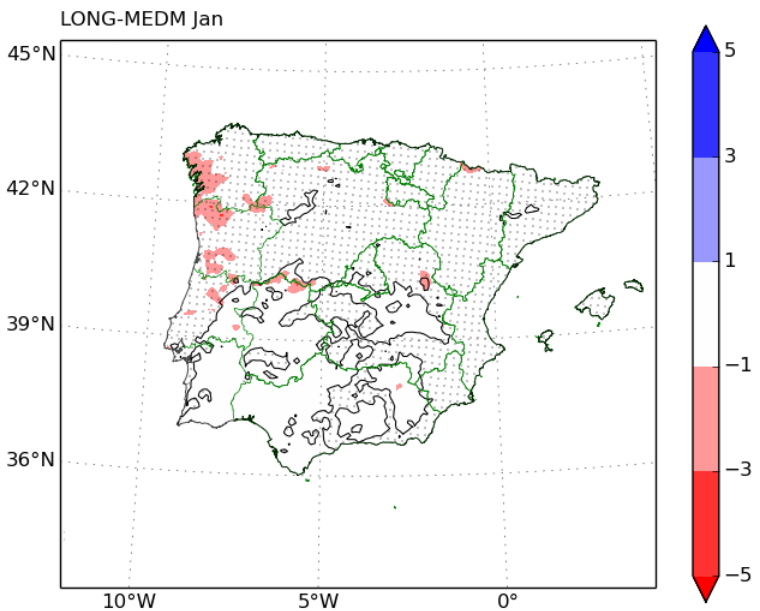

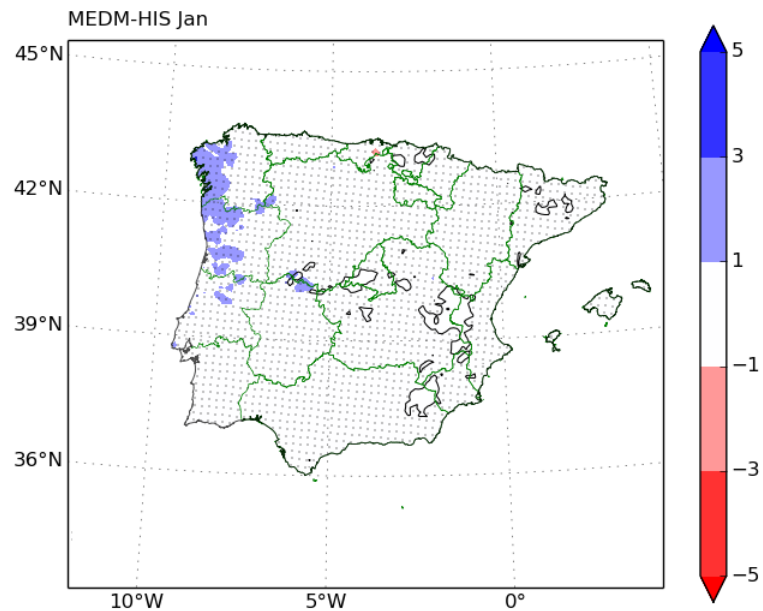

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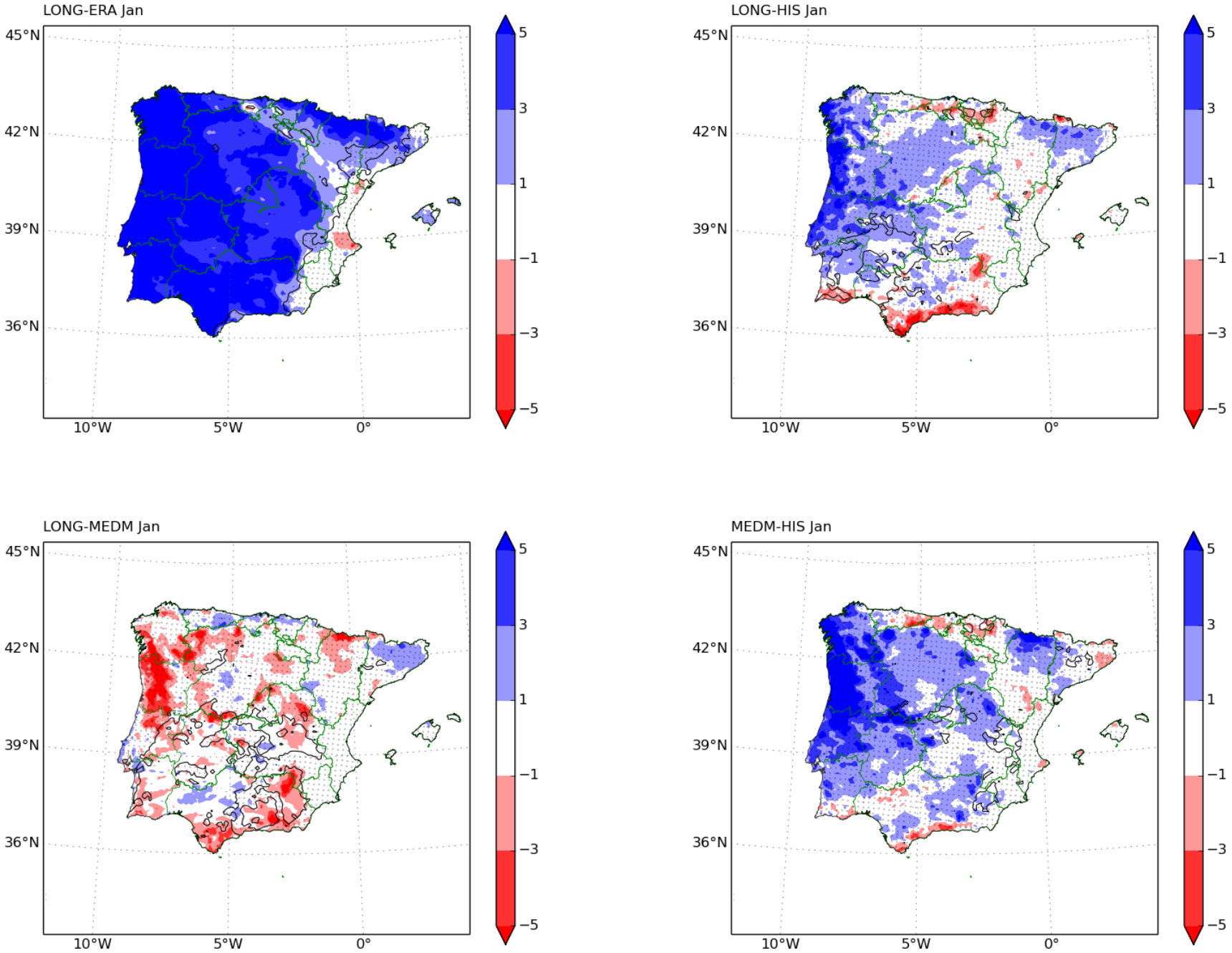

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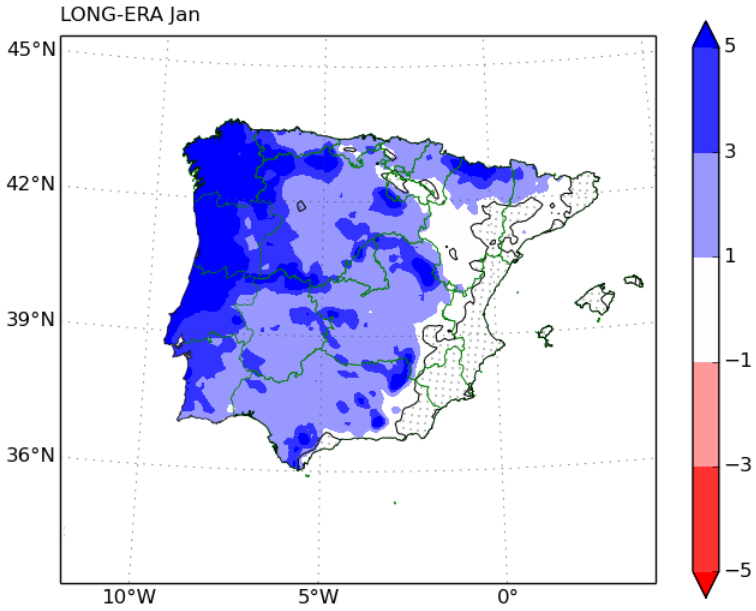

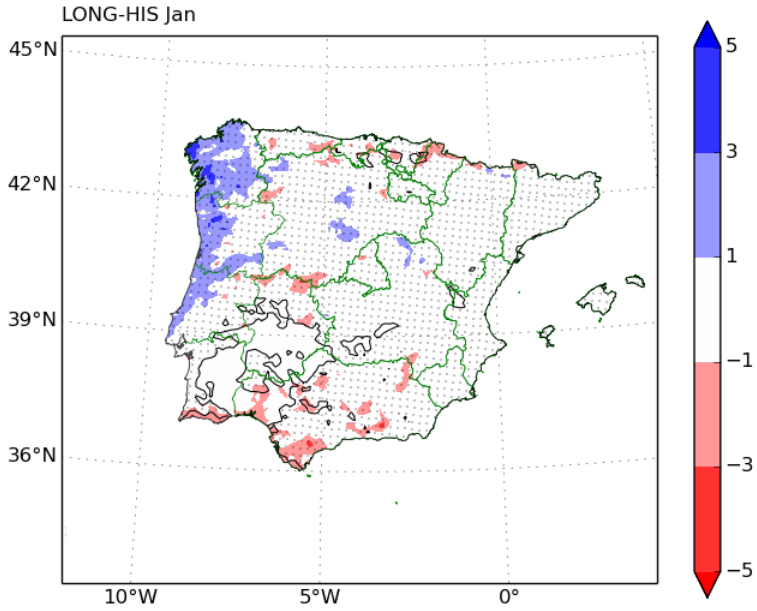

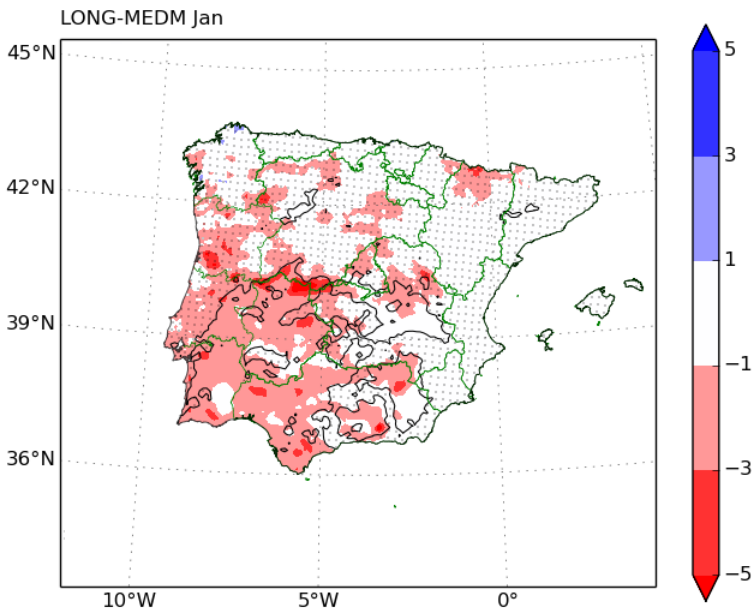

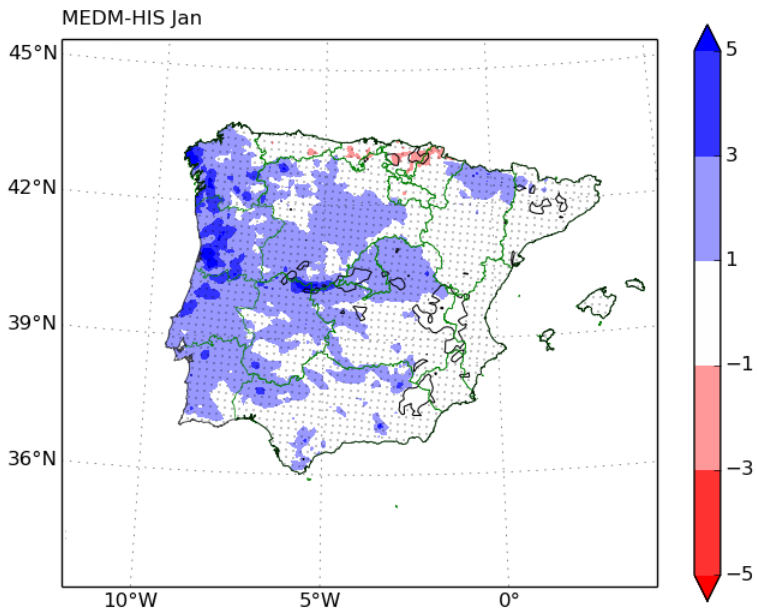

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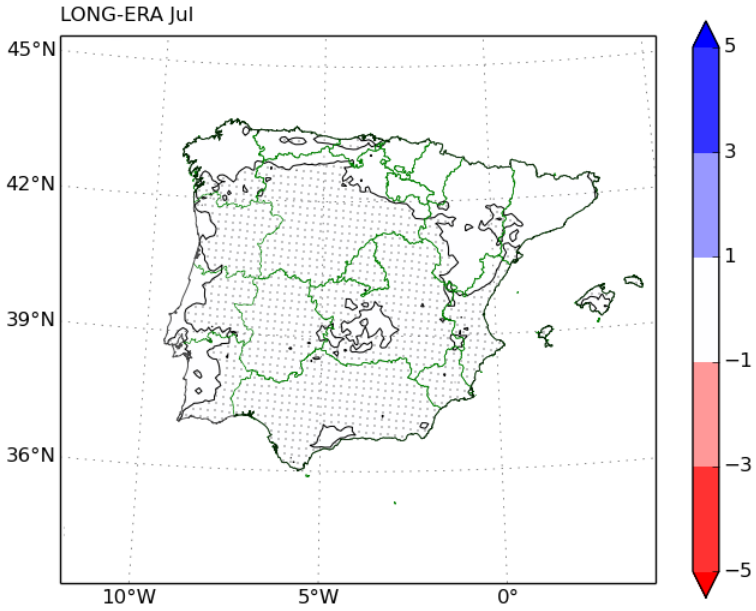

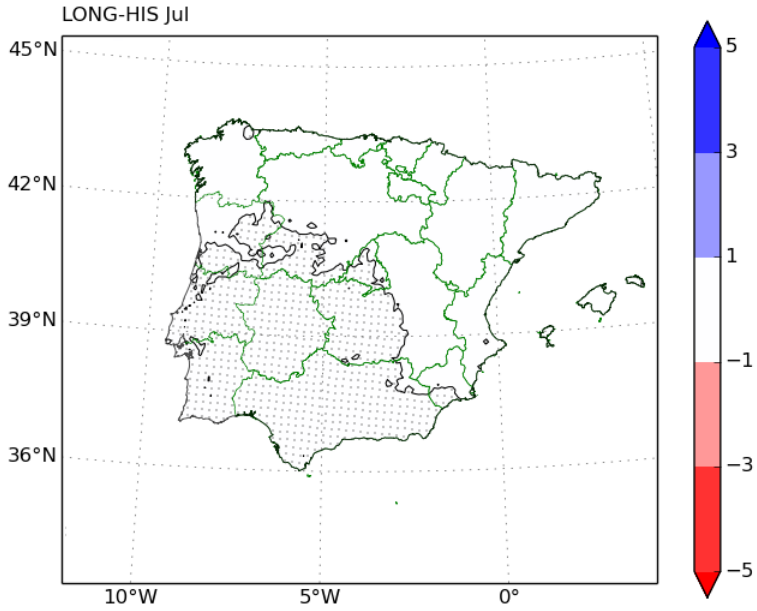

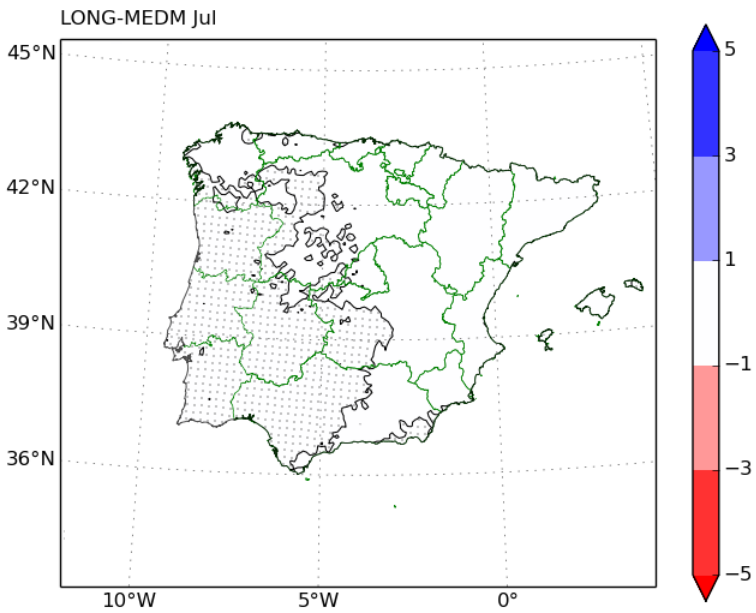

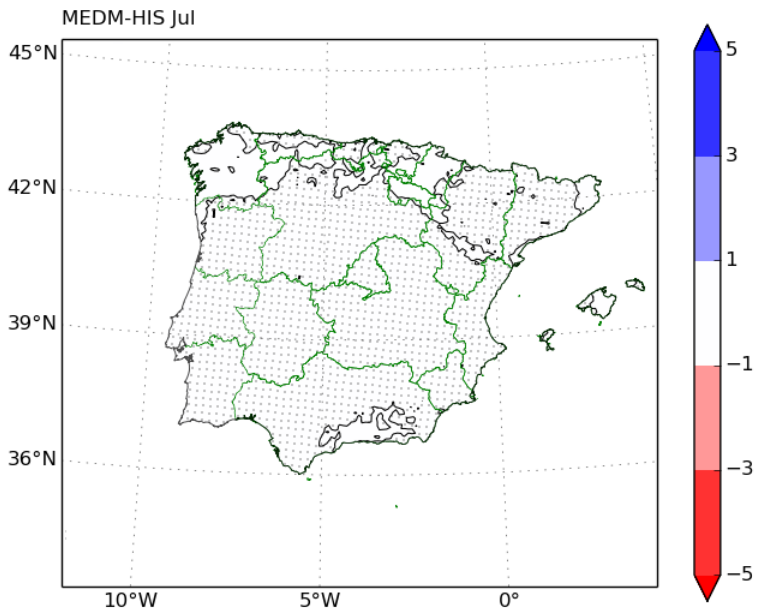

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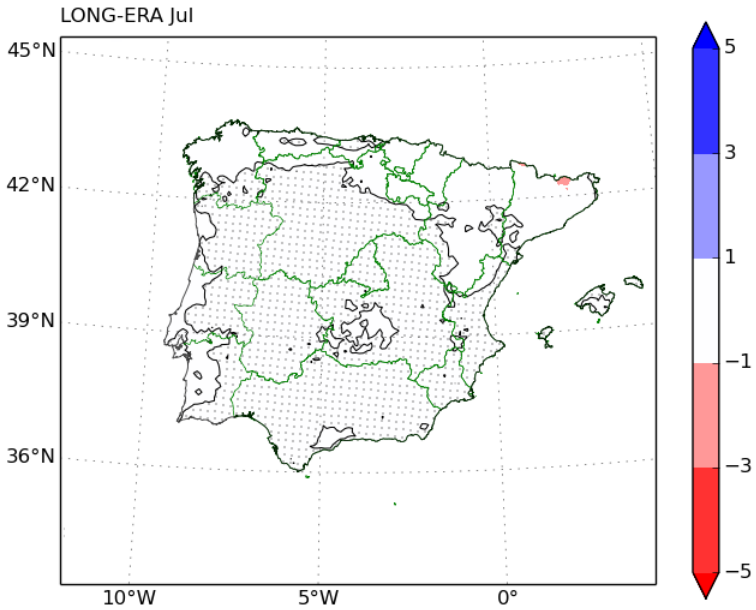

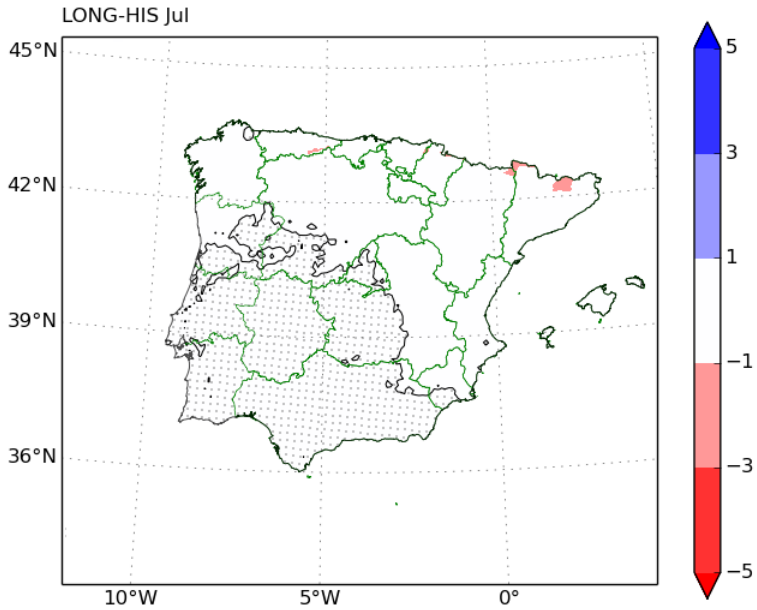

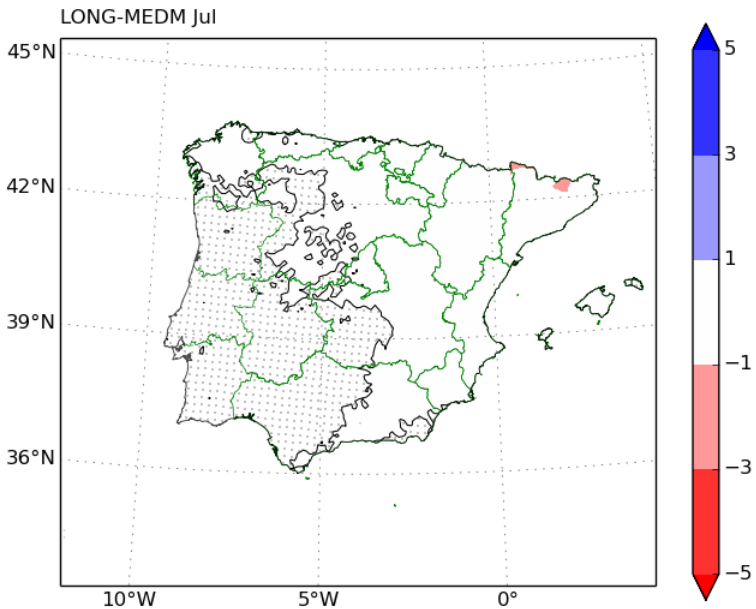

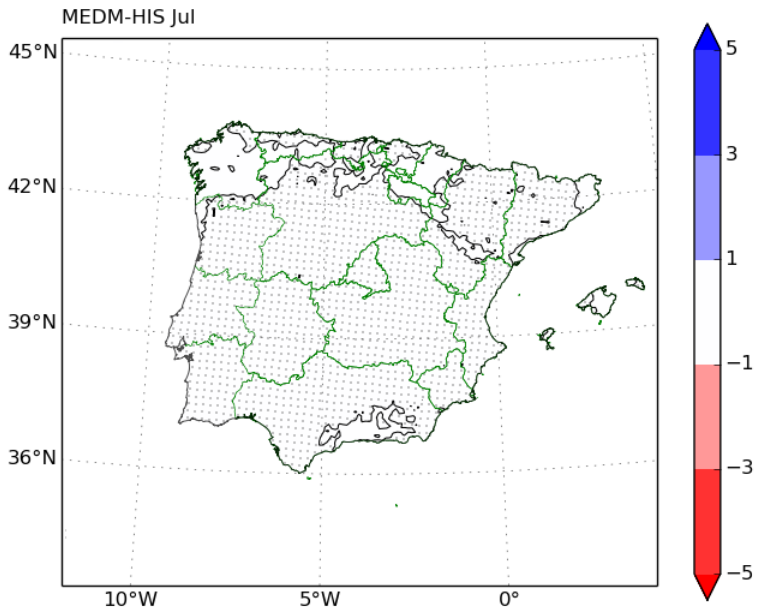

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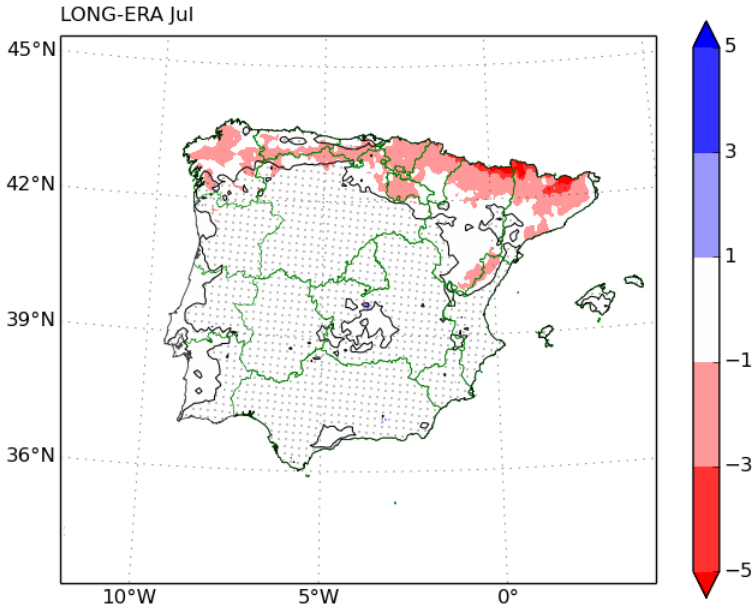

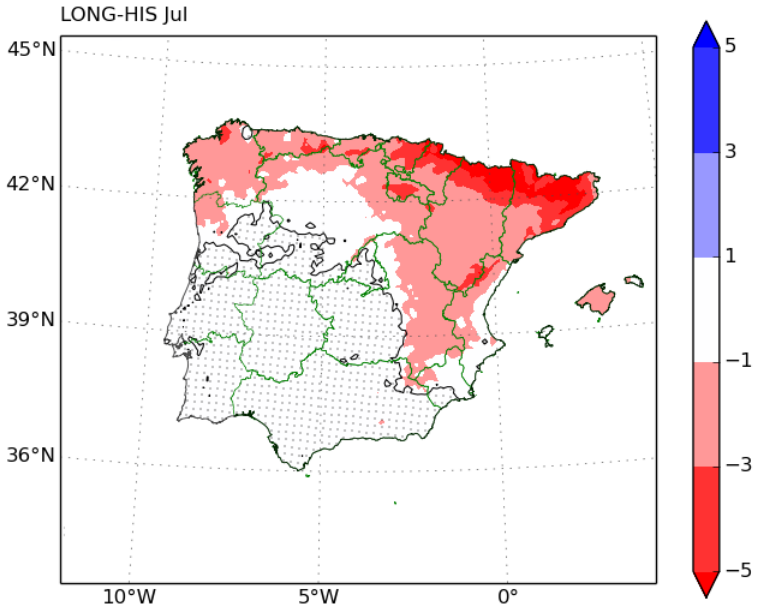

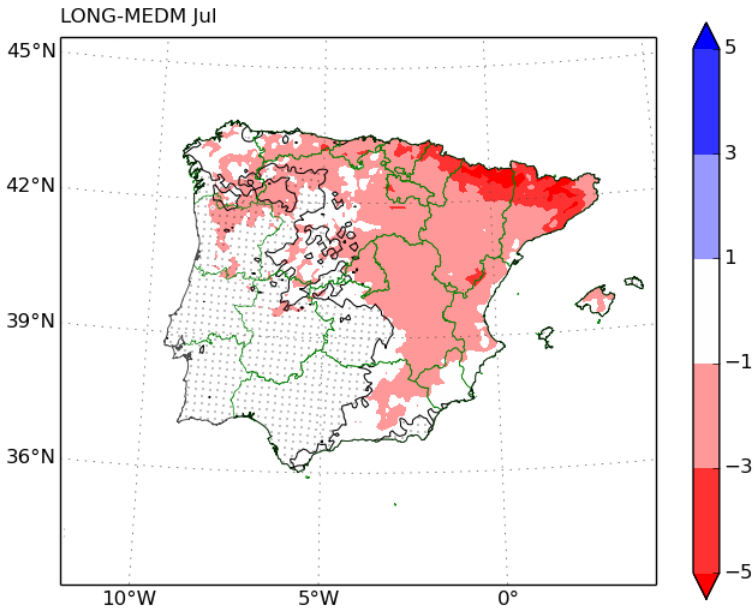

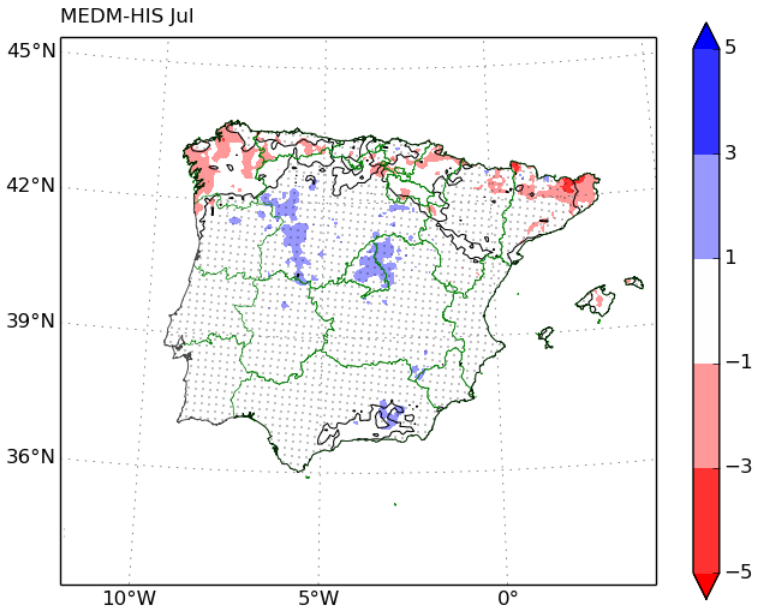

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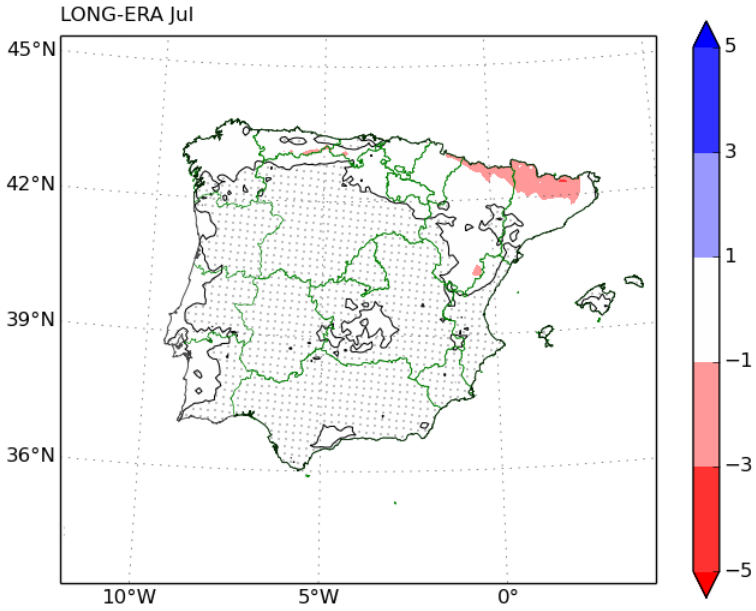
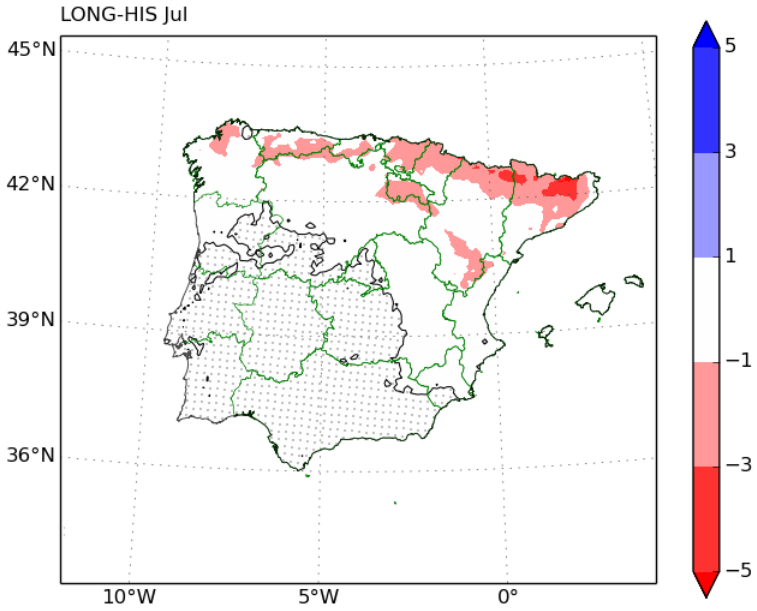
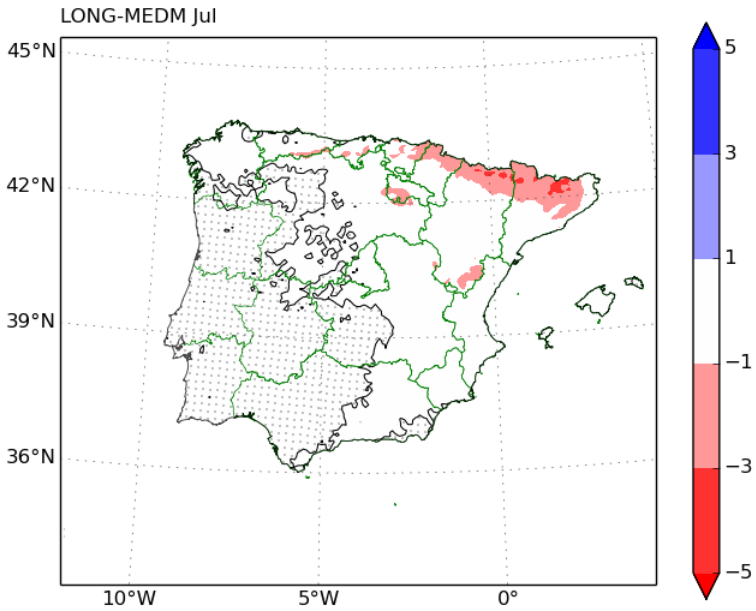
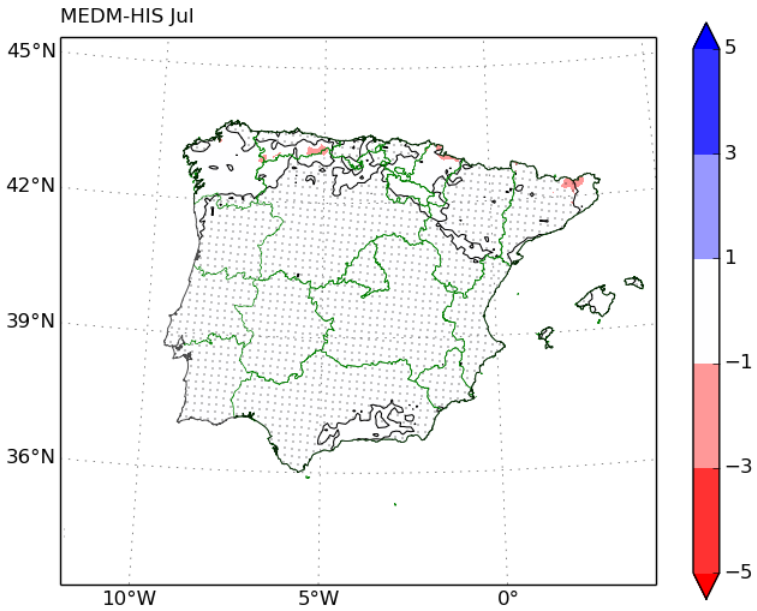








Conclusões

Temperatura:

- aumento em geral superior medm-his (Portugal)
- aumento variável em Espanha, por região

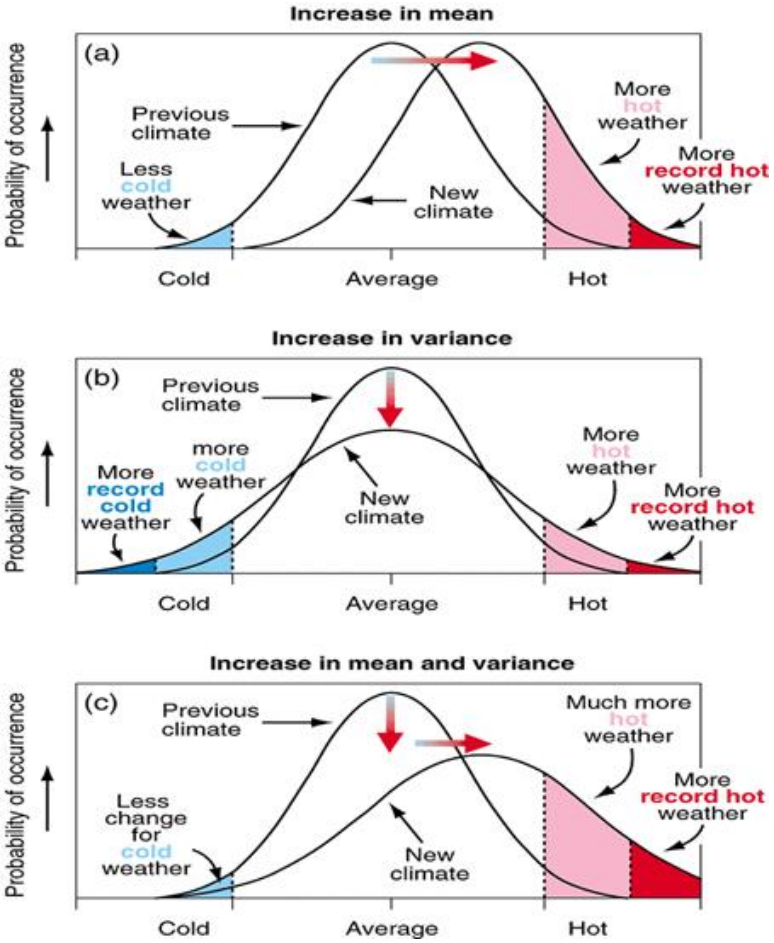
Intensidade vento:

- alteração pouco significativa
- alta variação espacial

Precipitação:

- Jan P90 - aumento medm-his
- Jan P90 - diminuição long-medm
- Jul P90 - diminuição em Espanha long-medm
- Jul P90 - sem alteração medm-his

IQR mantém-se
excepto para a precipitação em Jan



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