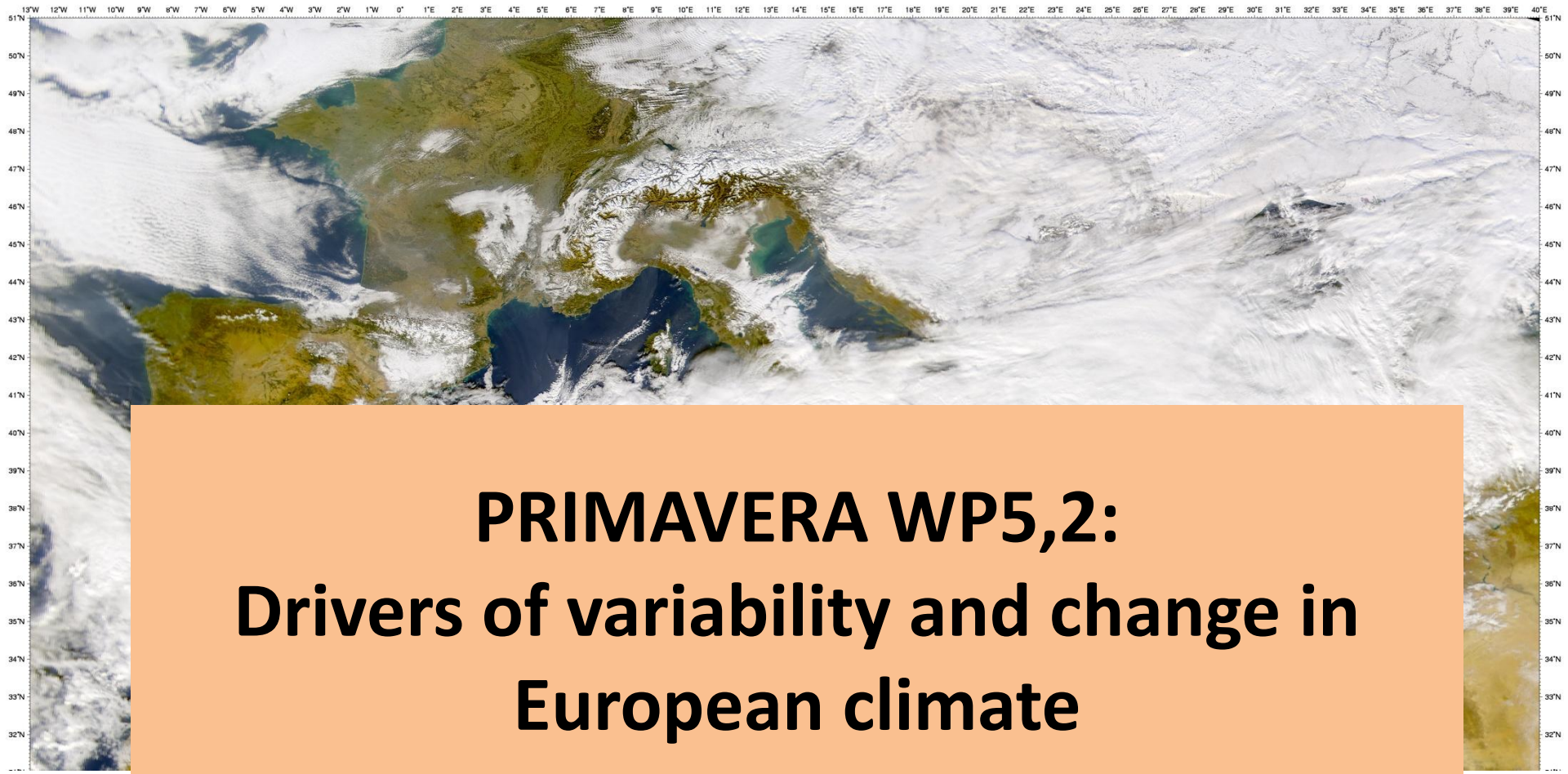
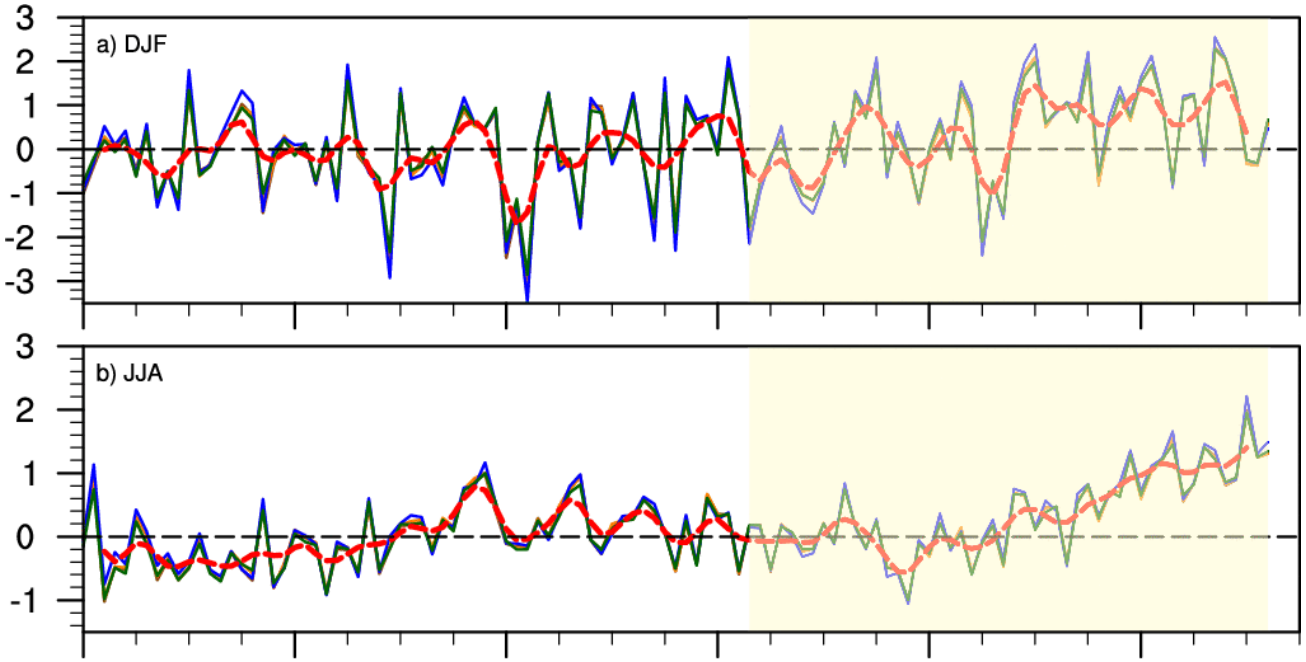


PRIMAVERA WP5,2:
Drivers of variability and change in European climate

Observed temperature trends: 1963-2012

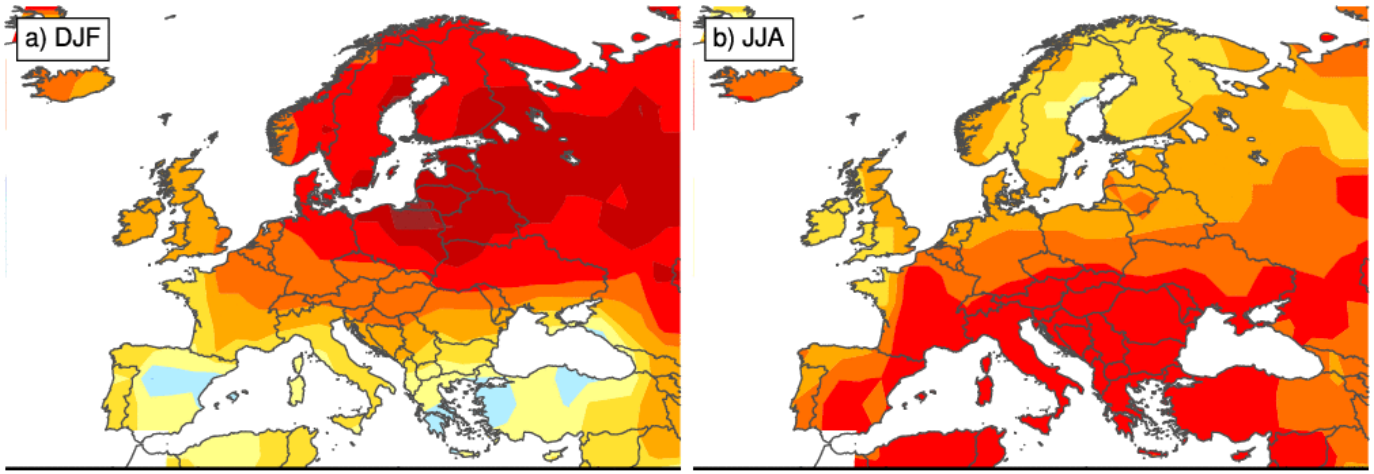
°C



DJF

JJA

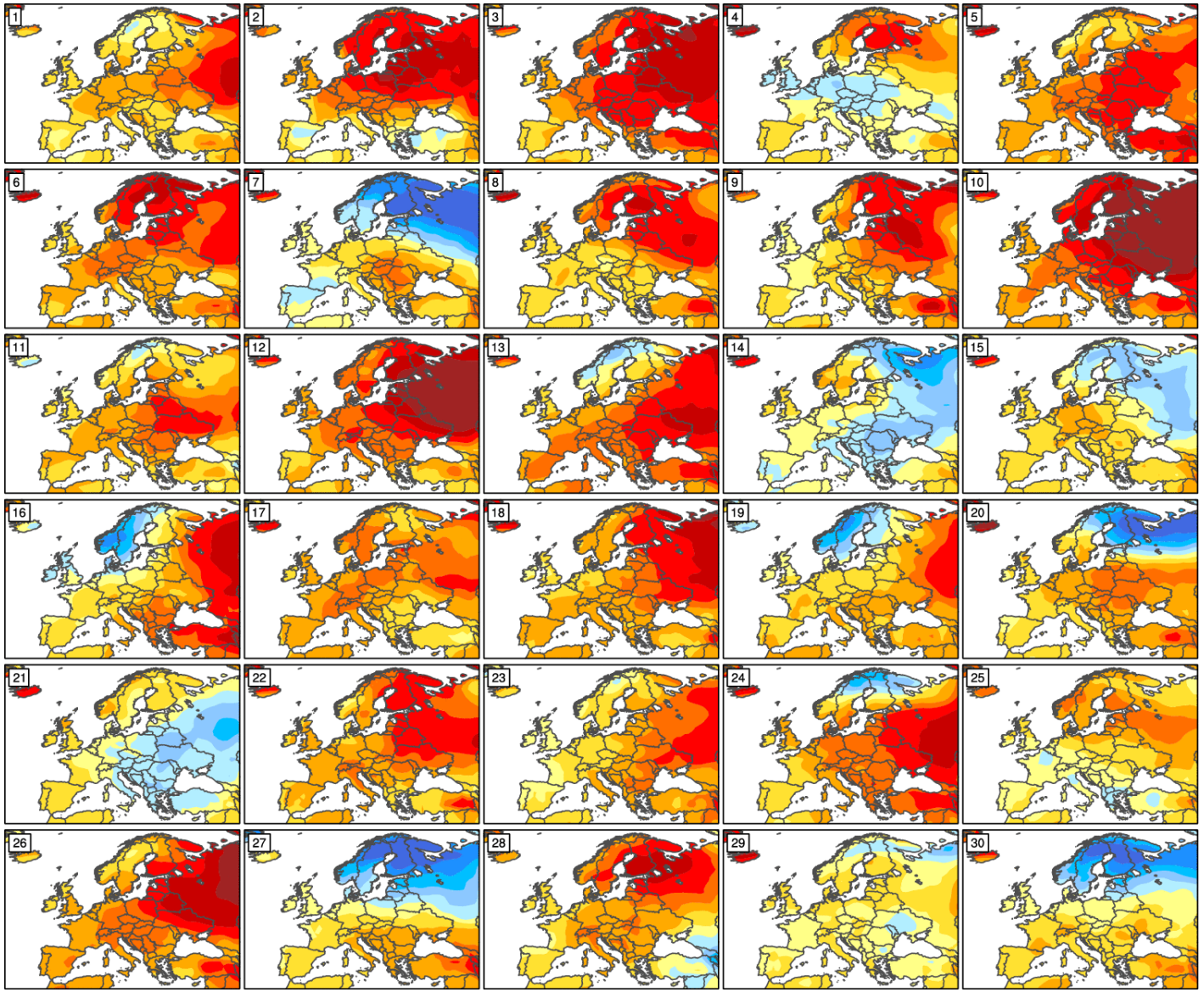
DJF



JJA

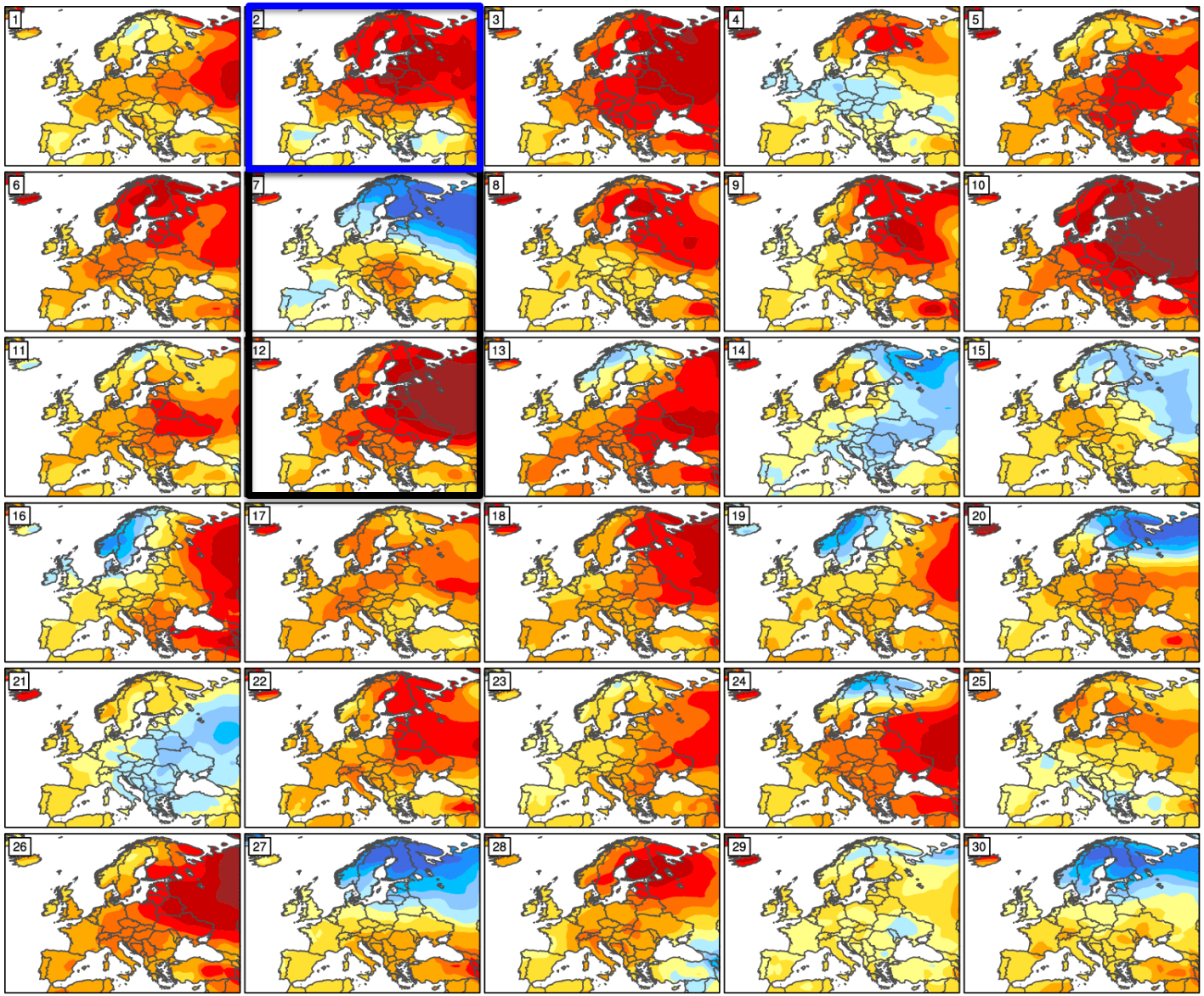
°C / 50 years

All possible winter trends … Observations ???



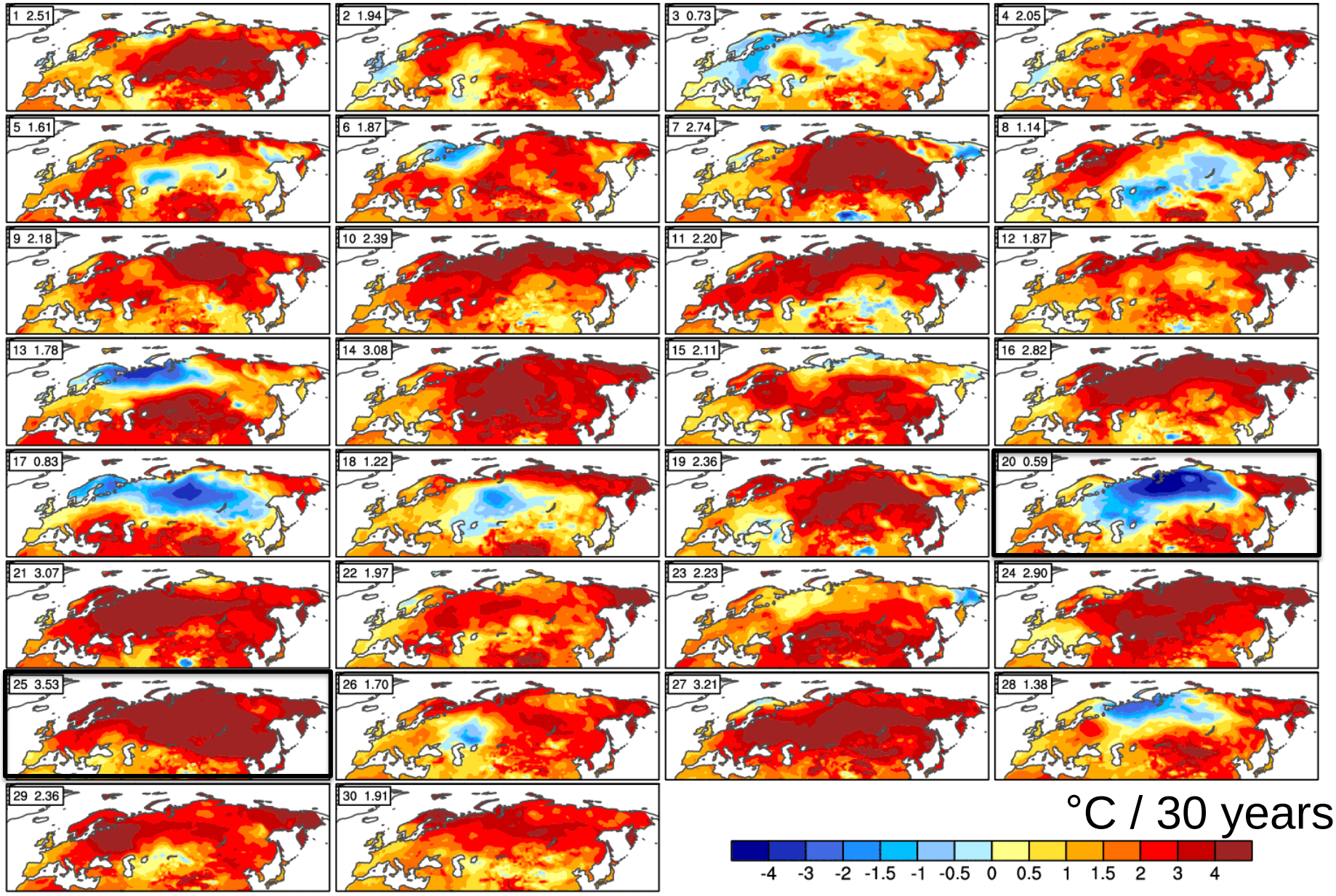
°C / 50 years

Range from 0 to 3°C in 50 years



°C / 50 years

Winter trend next 30 years (2016-2045)



Objectives

$\Rightarrow$ AMV and IPV modes and their impact on European climate (T5.1)

$\Rightarrow$ Influence of Arctic sea-ice and Siberian snow cover on European climate (T5.2)

$\Rightarrow$ Scenarios and narratives for the European climate of the next decades (T5.3)

Constraints

⇒ Dedicated and coordinated sensitivity experiments

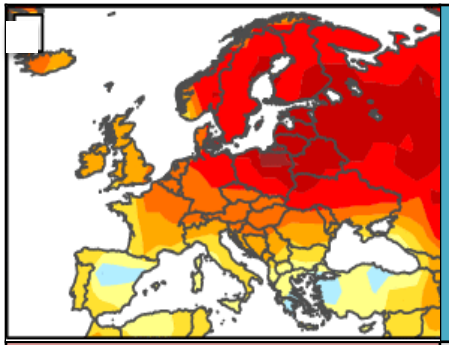
⇒ Use of both coupled (full or mixed-layer) and uncoupled experiments

⇒ Must be performed at low and high resolutions

⇒ Interest in interannual to decadal time scales (rather than very short or long time scales)

⇒ Past and future periods (≈ 30 years)

A matrix of experiments

	Low Resolution	High Resolution/more complexity
Forced		
Coupled		

Proposal

For each task, define tier 1 and tier 2 expts.

$\Rightarrow$ Tier 1 experiments are coordinated ones

$\Rightarrow$ Tier 1 must be done at both high and low Res.

T5.1: AMV and IPV

Tier 1: link with CMIP6 DCPP-C (fixed AMV and IPV/PDO patterns, 10-yr, 10-20 members). Nice if done with both forced and coupled models.

Tier 2: tropical versus extratropical AMV, combination of AMV and IPV patterns, pacemaker (how to deal with drifts ?), other ideas ?

Proposal

T5.2: Sea-ice and snow cover

Q: do we want to assess the trend and/or interannual variability (individual years) ?

Tier 1: AMIP-type and coupled (flux-restore, ice thickness, albedo).

Agreement on a common (and simple) protocol ?

Proposal

T5.3: Scenarios for the European climate

Importance of regional forcings (aerosols, LU)

Combine forced and internal mode influence in a coherent picture

Need historical simulations and future forcings