

Introduction to session G13

The spread of farming and herding in different parts of the World

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ICREA Academia Grant 2021



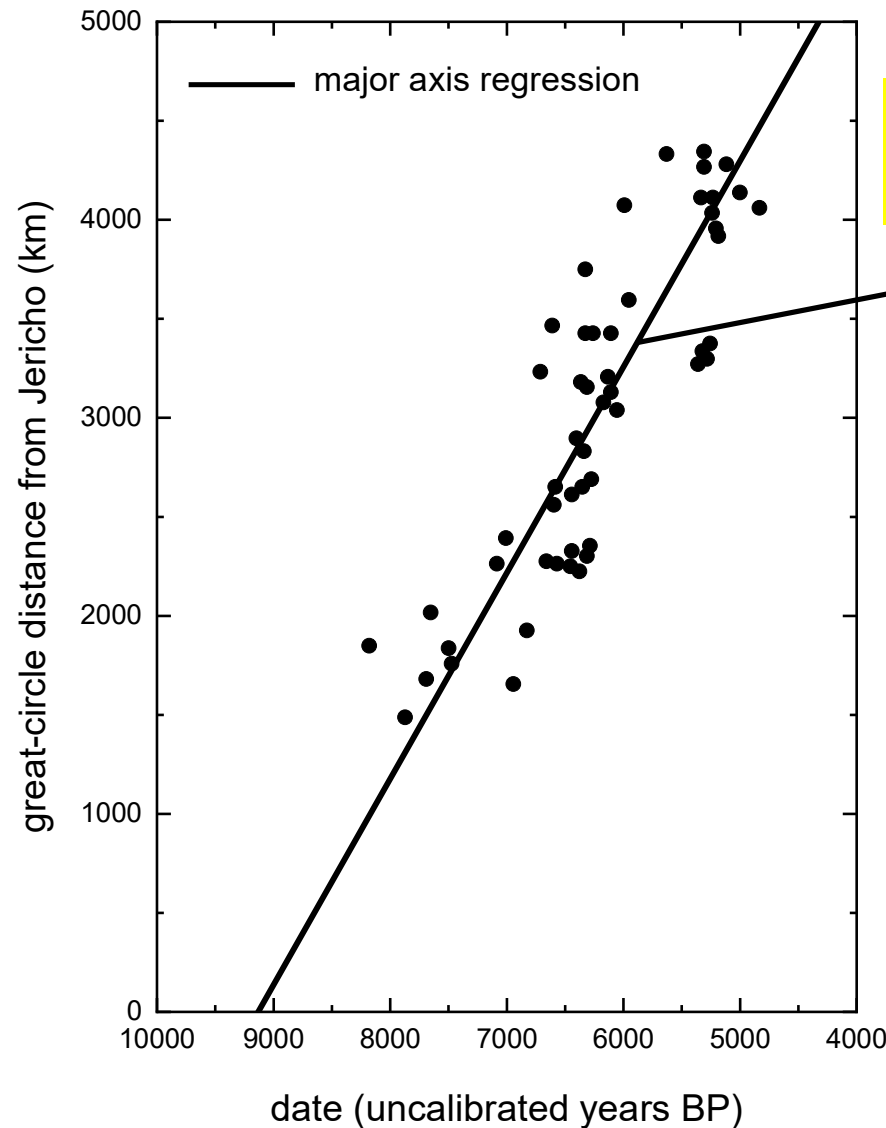
Grant PID2023-150978NB-C22



Grant 2021-SGR-00190

Europe

Ammerman & Cavalli-Sforza (1971, 1984)



spread rate = 1 km/yr

53 sites

$r = 0.89$ (Jericho,
highest- r origin)

Western Mediterranean

J. Zilhao, *PNAS* (2002)

Only short lived samples (seeds, shells, and bone) of domesticates, artifacts, and human remains → very fast spread >>1km/yr → very long distances per generation **along the coast**

Importance of the old-wood effect

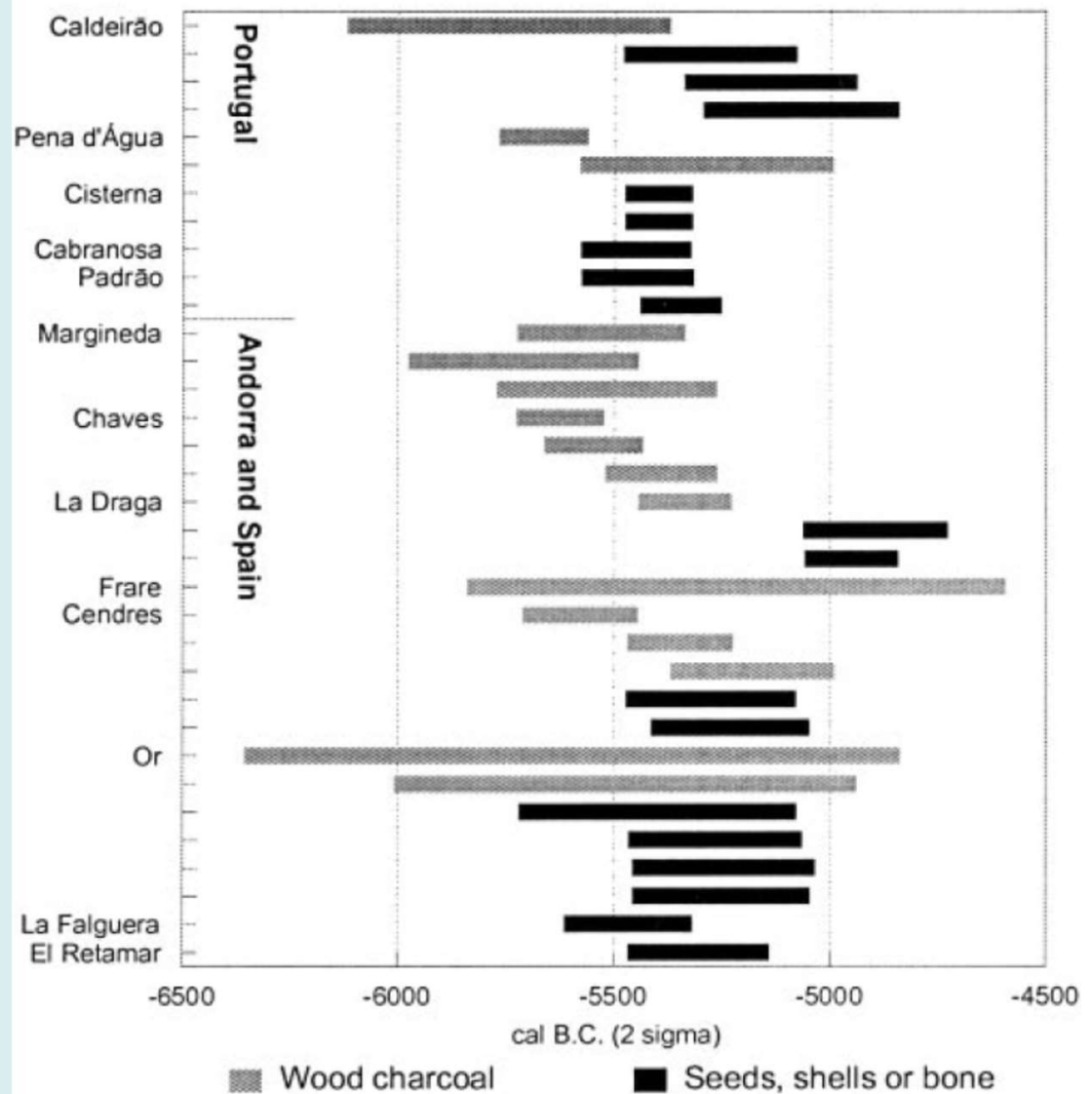


Fig. 4. 2σ calibrated dates for all dated Iberian Cardial sites.

Western Mediterranean

Talks in this session on the western Mediterranean

- **Joao Zilhao**, *New evidence from central Portugal.*
- **Marta Fitula**, *The Neolithic in Eastern Sicily.*
- **Angelo Vintaloro**, *The arrival of the Neolithic in Sicily and the western Mediterranean.*

Farming homelands and dispersals

Diamond & Bellwood,
Farmers and their languages: the first expansions.
Science (2003)

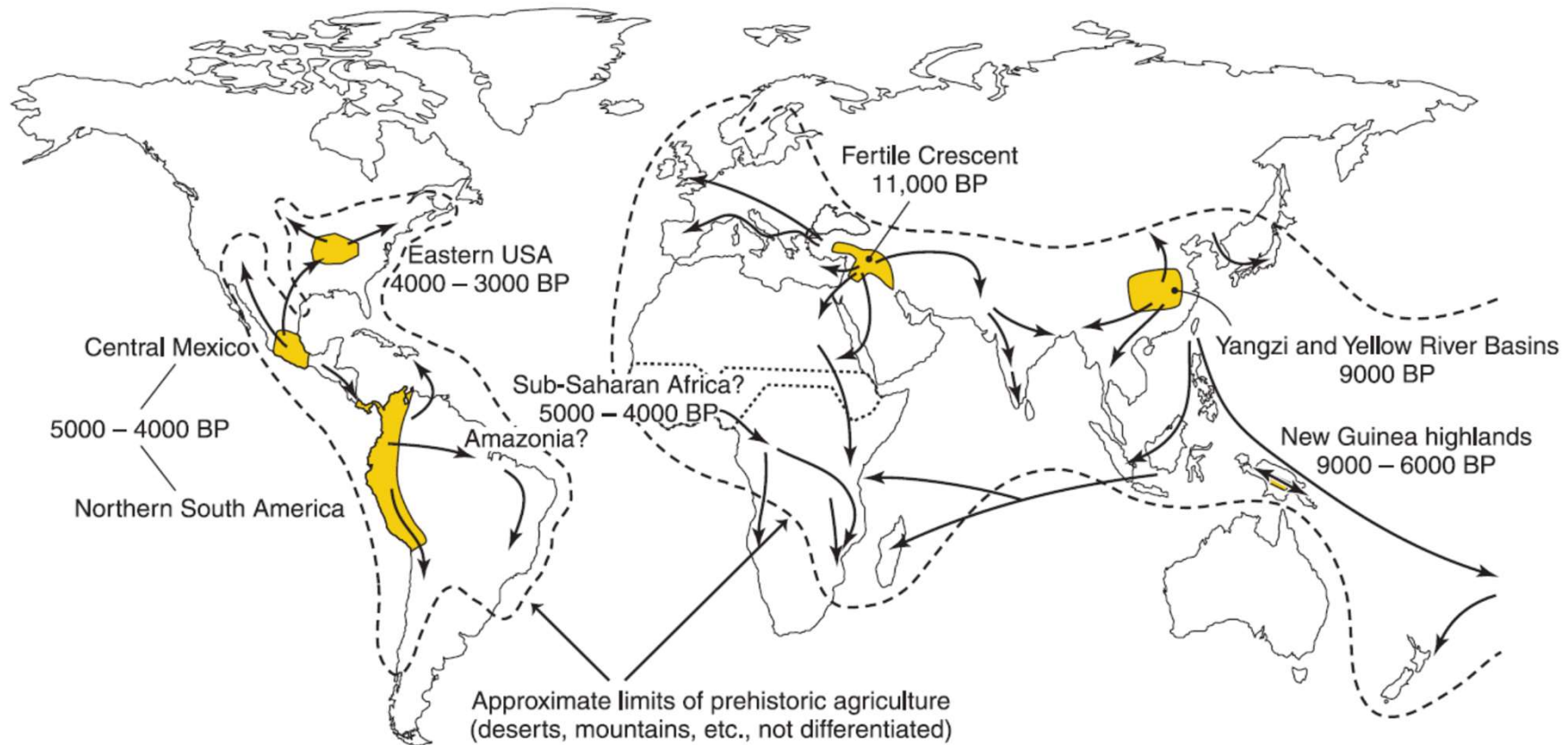
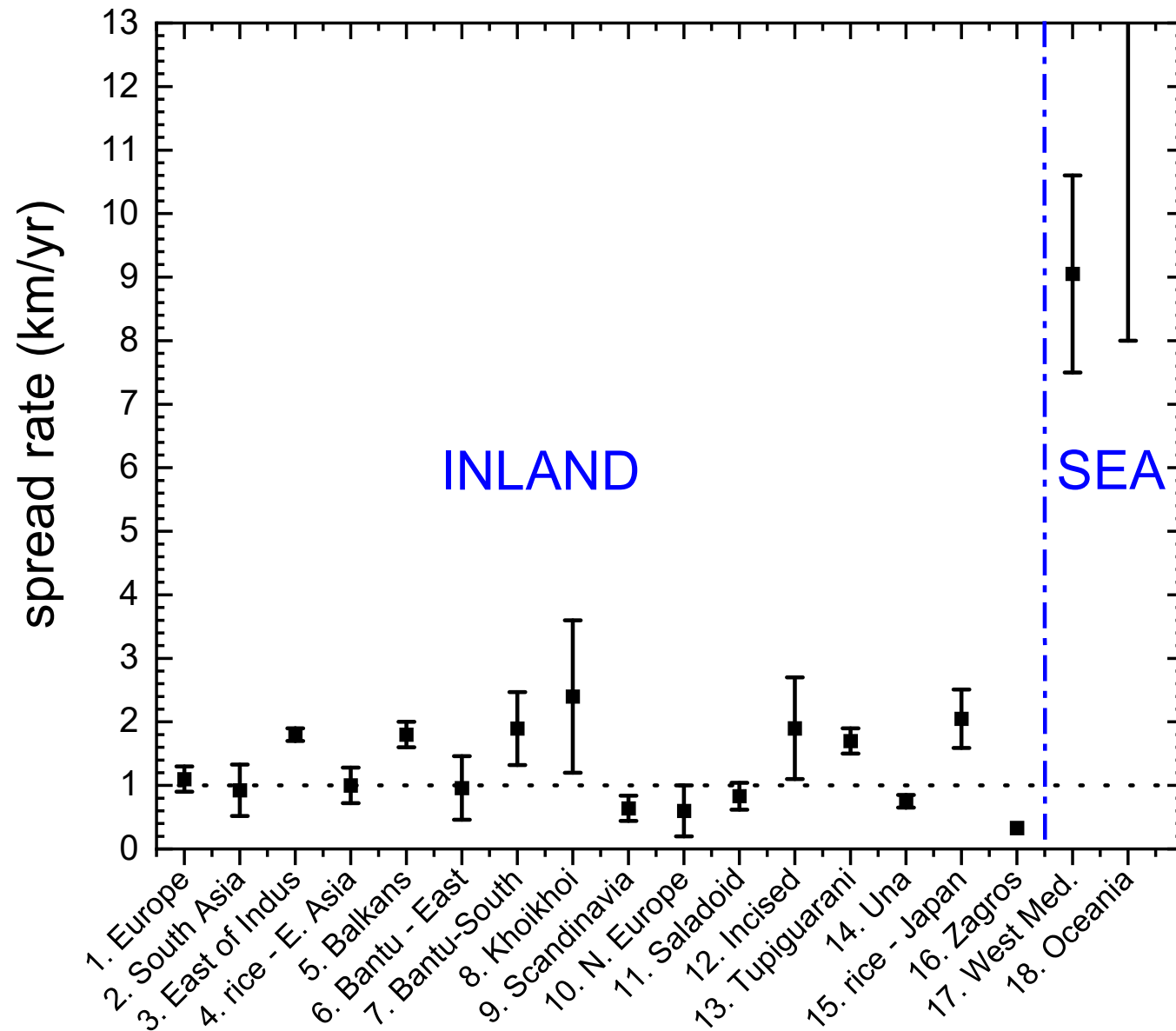


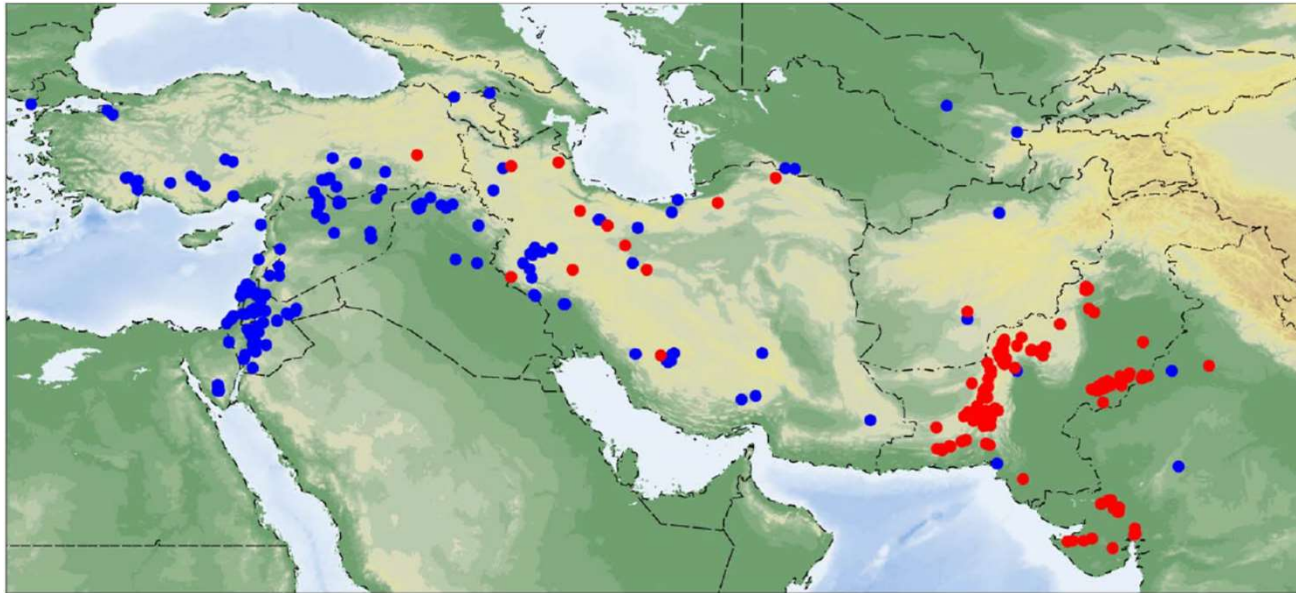
Fig. 1. Archaeological map of agricultural homelands and spreads of Neolithic/Formative cultures, with approximate radiocarbon dates.

Prehistoric dispersals of farming and herding

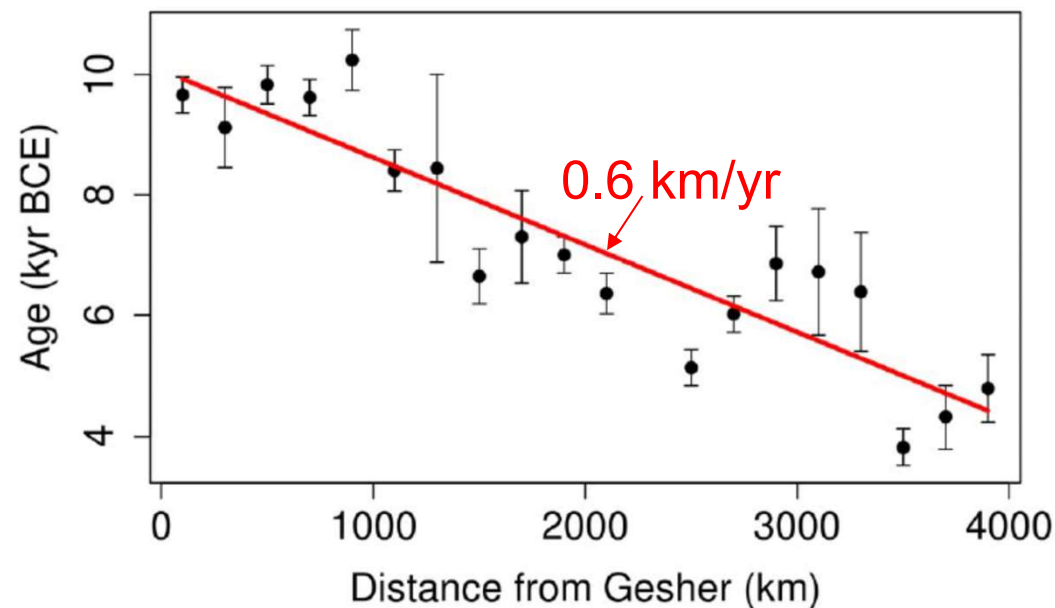


J. Fort, Tendencies in the tempo of premodern expansions. Submitted (2024)

South Asia



Sites shown with blue symbols have ^{14}C dates available, and those in red are archaeologically dated.



Gangal,
Sarson &
Shukurov,
*The Near-
Eastern
Roots of the
Neolithic in
South Asia*,
PLoS One
(2014)

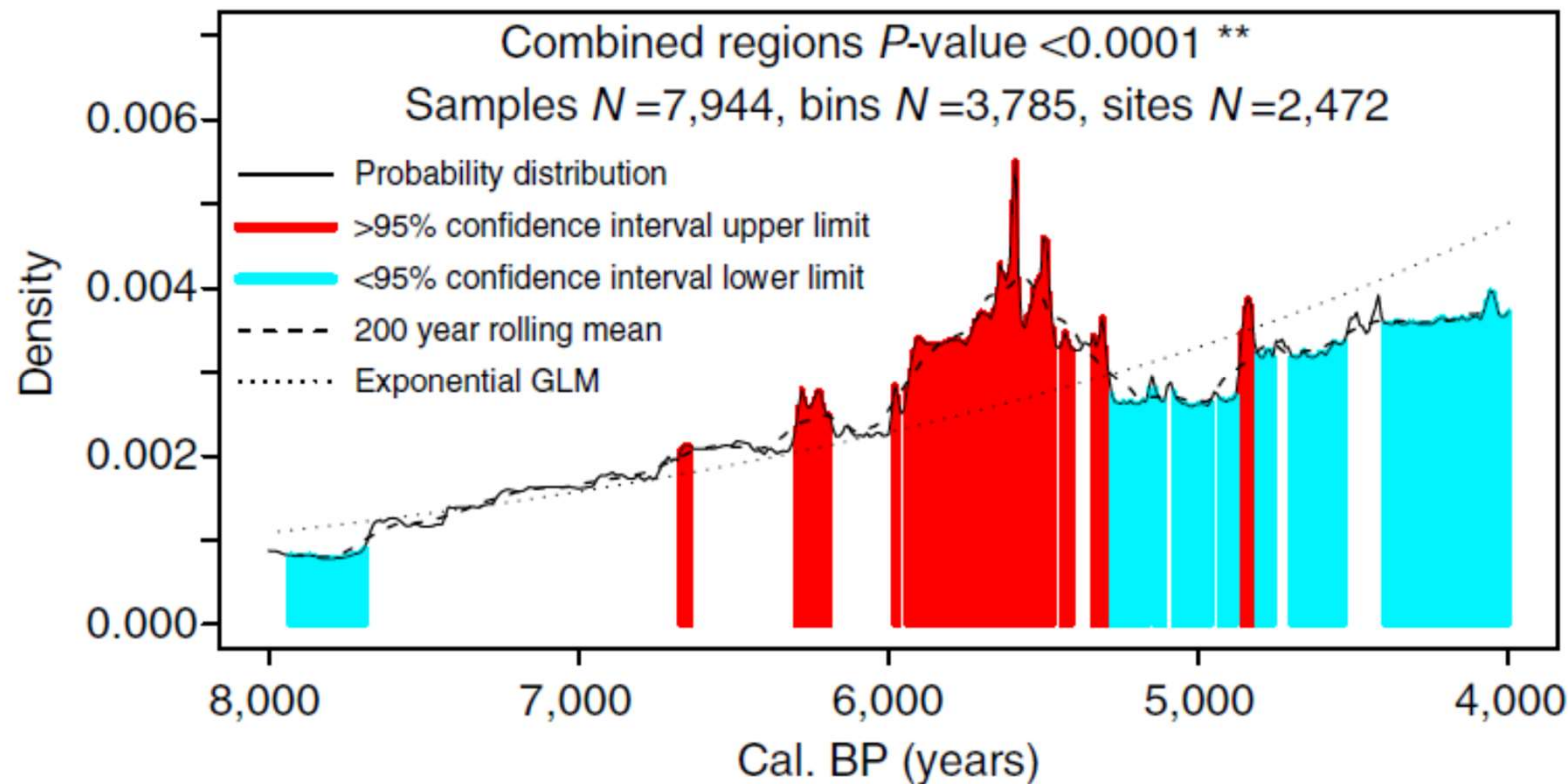
Talks in this session will also cover the following regions

- **Graeme Sarson *et al.*, South Asia.**
- **Lasse Sorensen, South Scandinavia.**
- **Joaquim Soler *et al.*, The western Sahara.**
- **Christopher Edens, Southwest Arabia.**
- **Maria Guagnin & Alexander Wasse, Northern Arabia
& the Jordanian Badia.**
- **Alan Simmons, Cyprus.**

Demography

Shennan *et al.*, *Nature Comm.* (2013)

Identification of boom and bust patterns by plotting
Summed Probability Distributions (SPDs)
during thousands of years



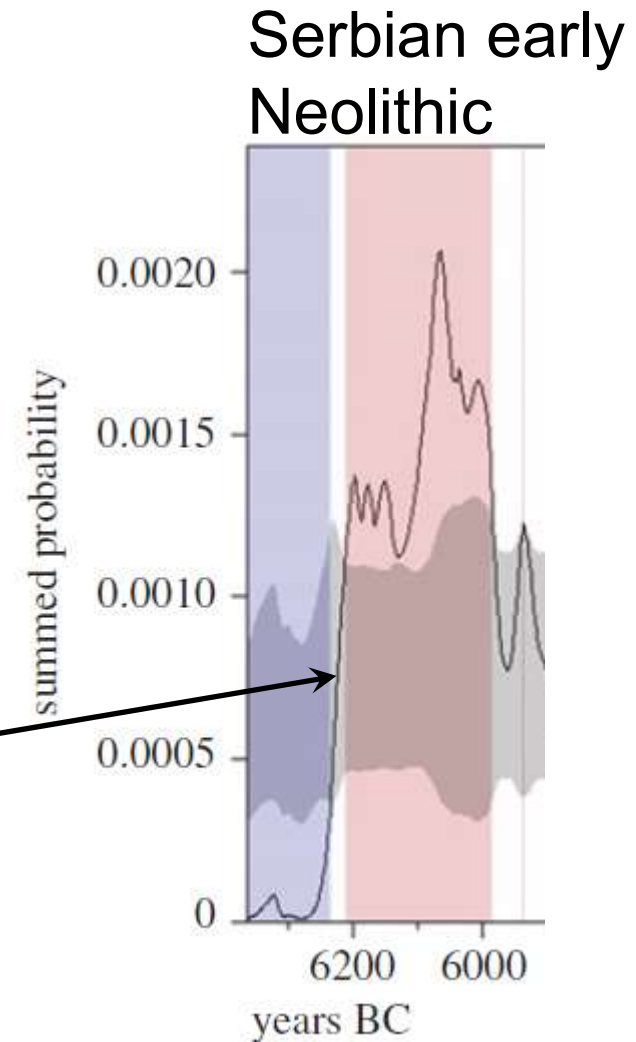
Central
and
Northwest
Europe

Demography

Porcic *et al.*,
Phil. Trans. Roy. Soc. (2021)
have used SPDs over much
shorter time intervals (<100 yr)
to estimate initial growth rates,
which are necessary to model
waves of advance

growth rate=2.4%

Ethnographic range = 2.1-3.4%



Demography

Talk in this session on demography

Oreto García-Puchol *et al.*,

The Neolithic demographic transition using SPDs from an eastern Iberian dataset.

The spread of culture

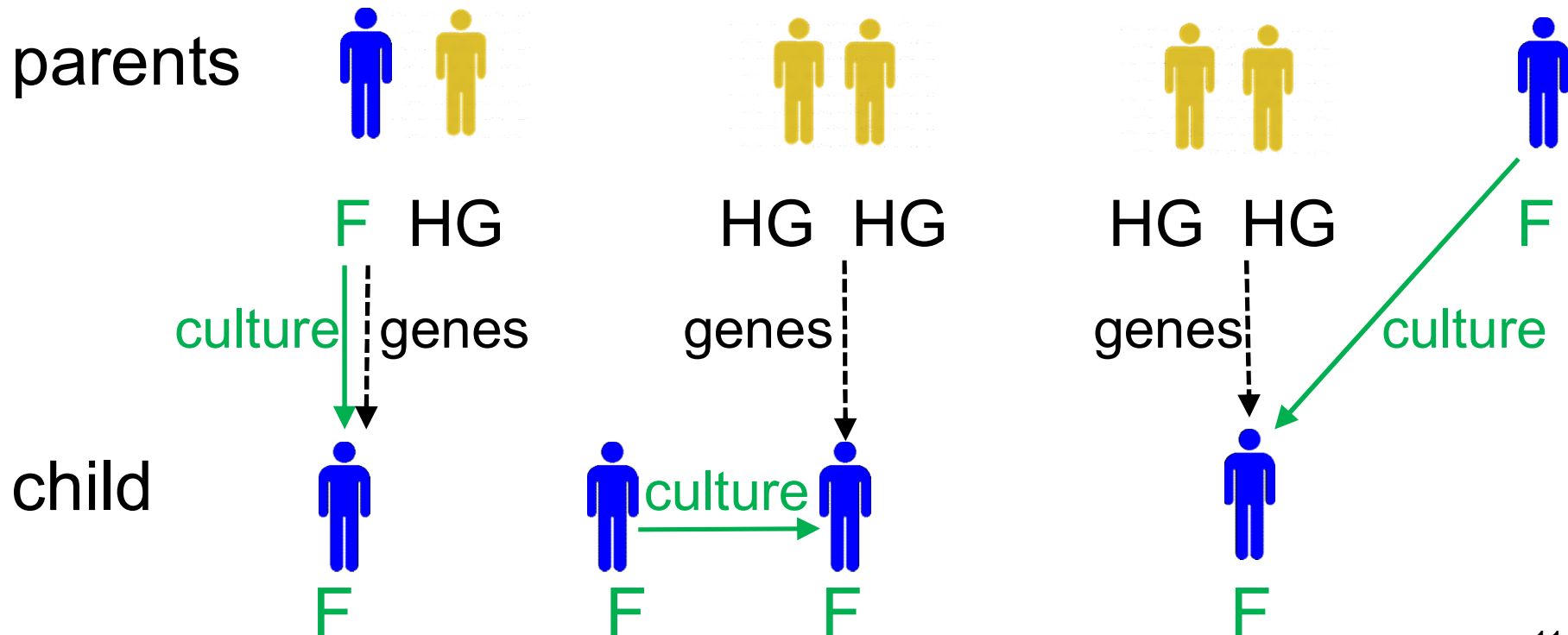
Cultural transmission leads to a faster spread.

3 types:

vertical

horizontal

oblique



The spread of culture

Talks in this session on cultural spread

- **Stephen Shennan *et al.*,**

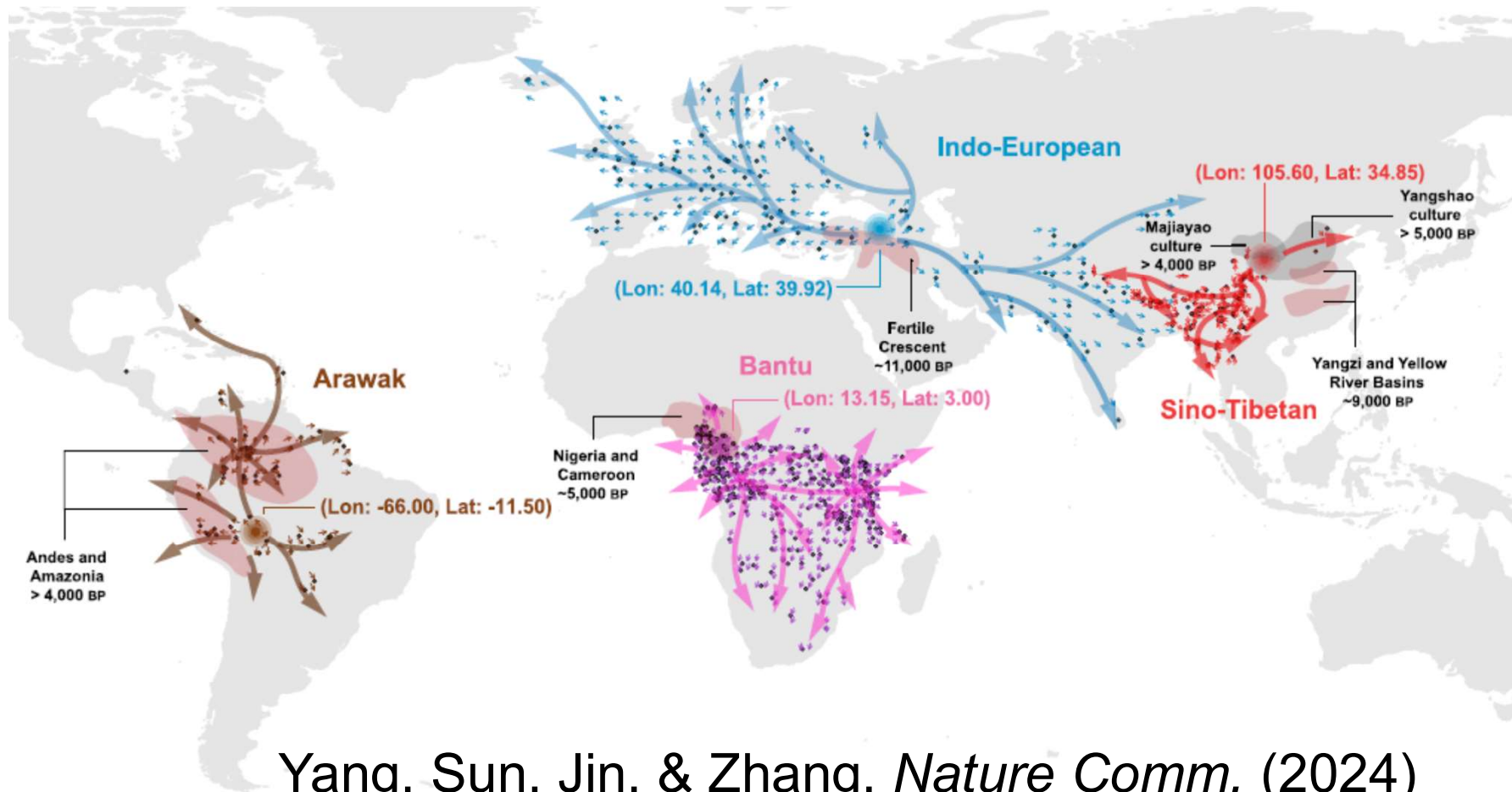
Post-marital residence rules and transmission pathways in cultural hitchhiking during demographic dispersal

- **Juan José Ibáñez *et al.*,**

Spread of ideas and objects in Southwest Asia

Linguistics

Some authors have reconstructed dispersals of languages, some of them related to farming dispersals, and estimated spread rates



Linguistics

Talks in this session on language spread

· **Sizhe Yang & Menghan Zhang,**

Inferring language dispersal patterns with velocity field estimation.

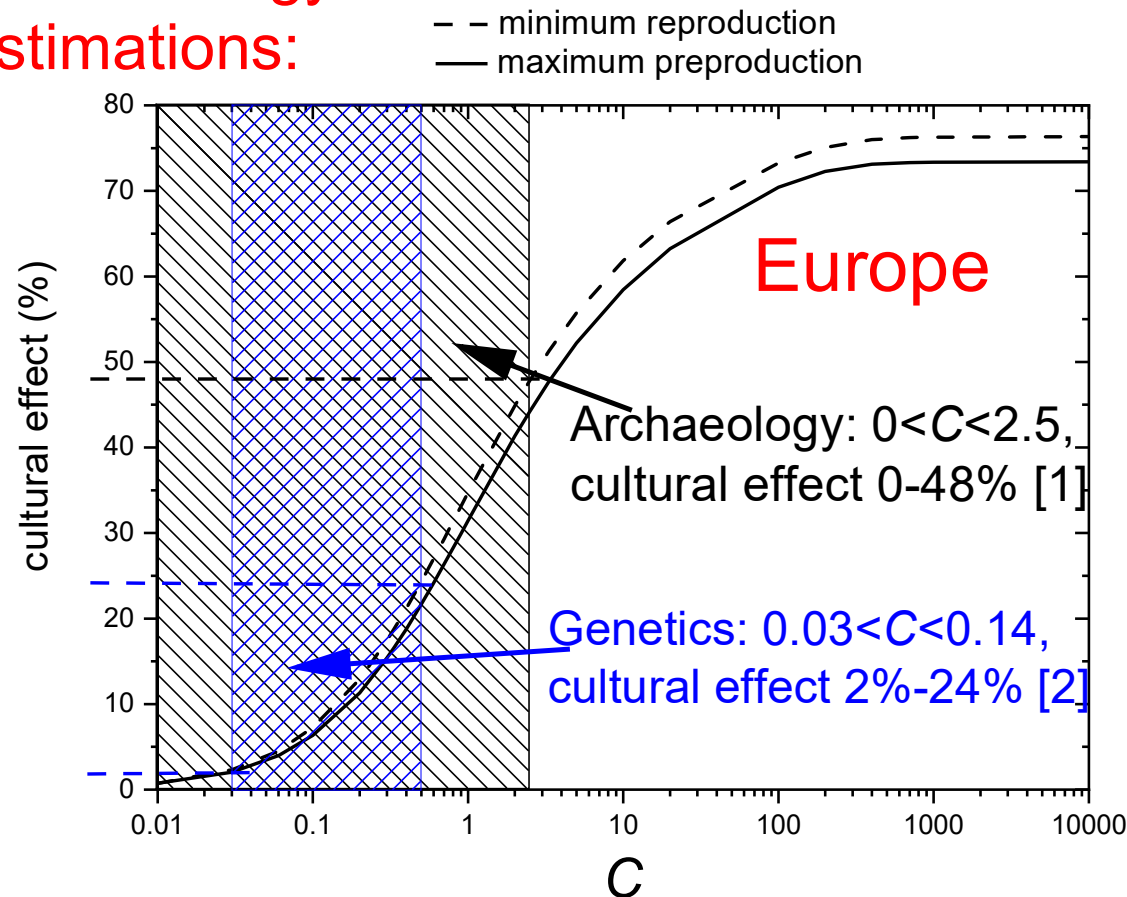
· **Soren Wichmann,**

Climate-induced language spread in Africa, Eurasia and South America.

Ancient genetics

· Ancient genome-wide studies have shown that >90% of the genomic ancestry of early European farmers is due to a population source in Anatolia (Mathieson *et al.*, Nature 2015).

· Archaeology and Genetics can lead to independent estimations:

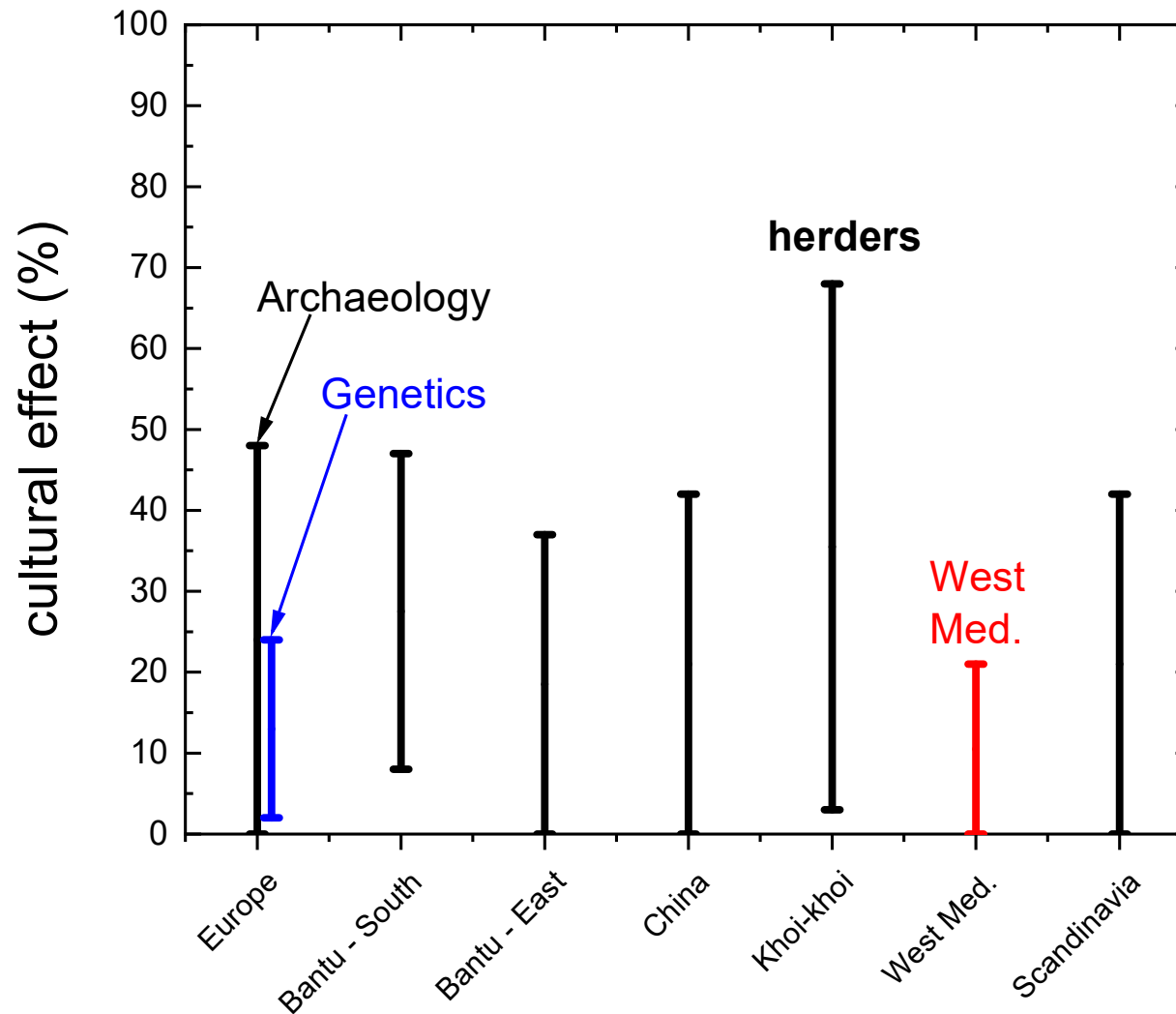


C = intensity of
cultural
transmission

[1] Fort, *PNAS* 2012

[2] Fort & Pérez-Losada,
Nature Comm. 2024

Prehistoric dispersals of farming and herding



J. Fort, The spread of agriculture: general laws in prehistory?
in Simulating transitions to agriculture in prehistory,
eds. S. Pardo-Gordó & S. Bergin (Springer, Cham, 2021), p. 17-28.

Ancient genetics

·**Talk:** Mathias Currat & Alexandros Tsoupas,
Modelling population dynamics on the continental route of the European Neolithic expansion.

·**Poster:** Hanna Moots,
The Neolithic transition in peninsular Italy: new methods and a growing dataset of ancient genomes.

Domestication

Talks in this session on domestication

- **Konstantina Saliari et al.,**

Cattle and aurochs in Neolithic Austria.

- **Hugo Rafael Oliveira et al.,**

The domestication and spread of oat cultivation in Europe.

- **Marco Merlini,**

Semi-domestication of deer.

Models of Neolithization

Talks in this session

- **Niels Johannsen,**

Niche construction: a framework for studying Neolithization processes.

- **Tristan Carter & Rose Moir,**

The appropriation of HGs sacred landscapes as a mode of Neolithization.

Thank-you.

Please enjoy the session!