



Land, rain and sweat: Building a database of what we need for building a temporally dynamic and a spatially-explicit agent-based model of Neolithic occupation in Languedoc-Roussillon, France

Mehdi Saqalli, Marie-Alexandrine Sicre, Odile Peyron, Pierre Sabatier, Nathalie Combourieu-Nebout, Laurent Dezileau, Matthieu Ghilardi, Catherine Kuzucuoğlu, Maria-Angela Bassetti, Boris Vannière, et al.

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Land, rain and sweat: Building a database of what we need for building a temporally dynamic and a spatially-explicit agent-based model of Neolithic occupation in Languedoc-Roussillon, France.

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Objectives and challenges

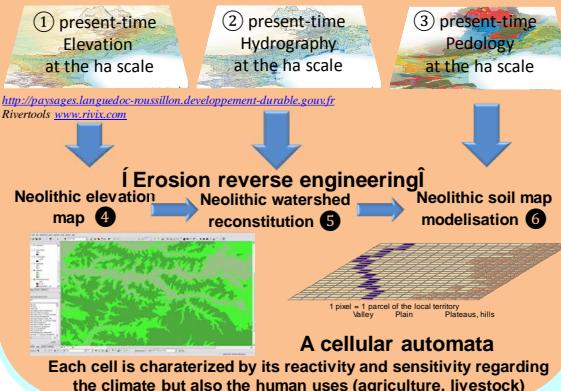
- Building a dynamic and spatially-explicit model is an interesting way for combining altogether:
- “ At the operational scale, meaning the Neolithic family level, i.e. one hectare and one season
 - “ All the biophysical and socio-economical constraints and assets this family face
 - “ Along the period and the site we considered, meaning the Languedoc Roussillon during the Neolithic era



⇒ for such a model, we need to collect accurate data, meaning:

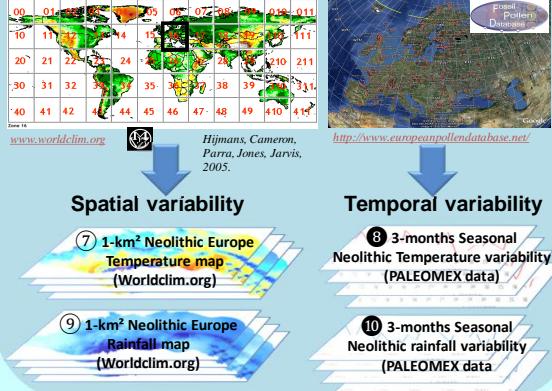
- ⇒ Precise enough, exhaustive both temporally and spatially
- ⇒ relevant, meaning having a defined impact on simulated dynamics

Reconstitute the 1-ha territory during the Neolithic era

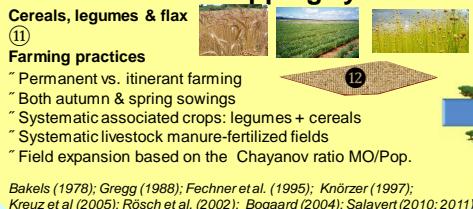


Simulate the biophysical environment

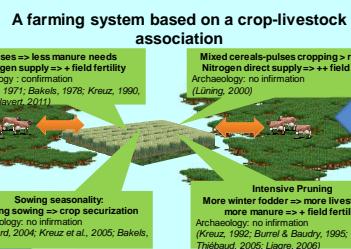
Reconstitute the season-level climate along the Neolithic era



Formalize the Neolithic manpower conditioned cropping system



Simulate the farming system



Formalize the Neolithic livestock-keeping system

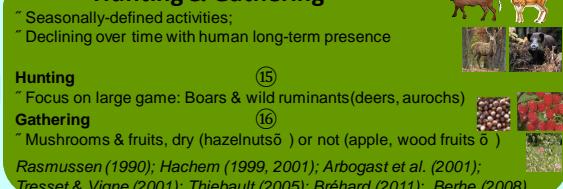


A system of activities consistent with the family rationality and constrained by the manpower availability

Technical capital:
No evidence of kart, plough or ard
Land: High land availability
Land fertility: important issue
Manpower: important issue



Hunting & Gathering



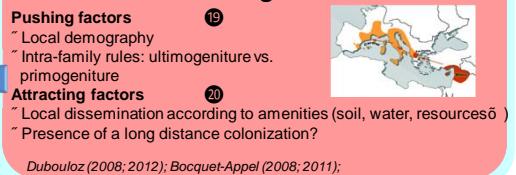
Social functioning rules



Simulating the social systems and dynamics



Colonization & segmentation rules



A long-term project to build within the PALEOMEX research group

Among all data and groups of data needed for building a socially-defined multi-agent model, few are available or not-so-hard to prepare :

- “ The white numbers (from ① to ⑯) are the data or metadata available in the PALEOMEX team or that can be constructed by one PALEOMEX member;
- “ The black numbers (from ⑭ to ⑳) are the ones not available for now. Their constructions need the building of a consensual agreement of several working hypotheses on their values and organizations

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