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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Building a dynamic and spatially-explicit model is an interesting way for combing altogether:
- At the operational scale, meaning the Neolithic level, i.e. one hectare and one season
- All the biophysical and socio-economic 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, exhaustively both temporally and spatially
  ⇒ relevant, meaning having a defined impact on simulated dynamics

Formalize the Neolithic livestock-conditioning system

Cattle, sheep, goats, pigs

Livestock-conditioning practices
− Collective management of herds, family use of by-products
− Afluminants pastures: meadows, forest foddering by pruning, fields refuse
− Pigs feeding: house wastes & refuses, oak acorns

Hunting & Gathering
− Seasonally-defined activities
− Declining over time with human long-term presence

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

Technical capital:
- No evidence of karts, plough or ard
- Land: high land availability

Land fertility: important issue
Manpower: important issue

Social functioning rules

Rules from archaeology
- Altites of the house remnants
- Anhames depatial distribution & size

Rules from socio-anthropology
- Añirages, inheritances, food redistribution, manpower allocation
- Afamily organization (nuclear, enlarged, communitarian...)

Simulating the social systems and dynamics

Pushing factors
- Local demography
- Añira family rules: ultimogeniture vs. primogeniture
- Attracting factors
- Local discrimination against amenities (soil, water, resources...)
- Presence of a long distance colonization?

Colonization & segmentation rules

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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 10) are the data or metadata available in the PALEOMEX team or that can be constructed by one PALEOMEX member;
- The black numbers (from 11 to 20) are the ones not available for now. Their construction need the building of a consensual agreement of several working hypotheses on their values and organizations

References:
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- 3. GUSPEUM: UMR 7246, OINS: Université de Franche-Comté, Besançon, Dijon, Paris, Aix-en-Provence, Aix-en-Provence, Marseille; 5. Géosciences Paléoenvironnement, UMR 7246, OINS, Université de Lyon, Lyon, France; 7. UMR 6014 CNRS: Université de Paris, Centre de l’Université de Paris. L1 & L2, UER UMRS UMR 9110: Ch. Environnement et Génétique, Université de Poitiers, Parthenay, Bordeaux, Poitiers; 11. UMR 6055 CNRS: Université de Caen-Normandie.