

(SOREMA program, ANR INEGALITES 2011)

Health geography:

the variability of health risks as territorial constructions and space practices indicator.

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The fundamental questions of geographical studies

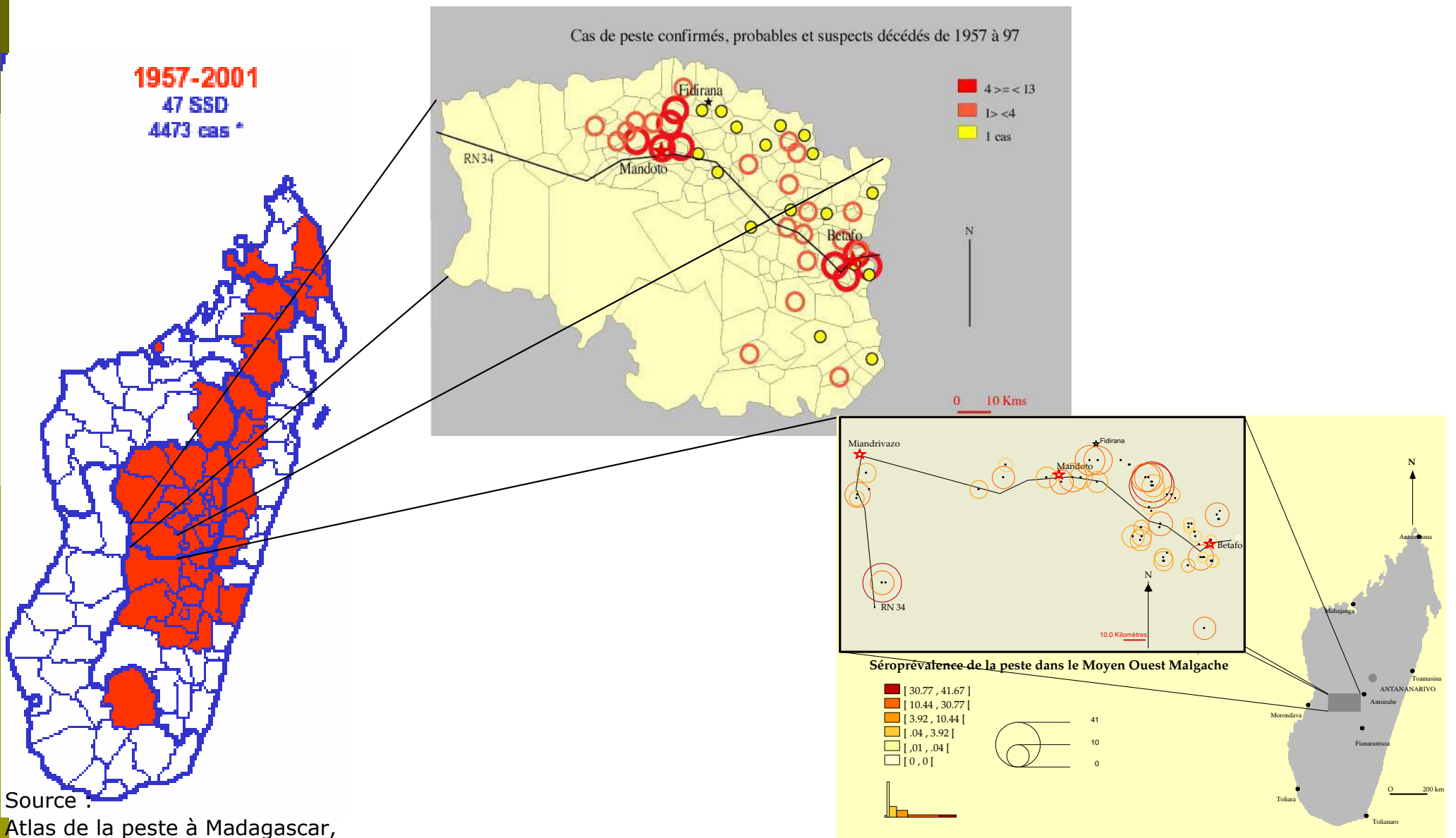
- Why here and not there, or why different levels in different places ?
- Why now and not before, or why does the observed phenomenon decrease or increase ?
- What are the underlying processes which can explain spatial disparities ?

Position of health geography

- The fundamental position of health geography:
 - Disease disparities are related with contamination determinants (biological, social, political, migrations, way of live...)
 - Disease disparities are related with care (health care distribution and care recourse, drugs availability...)
 - Health profiles are determined by both fields and health disparities reveal disparities in territories history and way of management by various stakeholders

- The question of scale:
 - Potential area
 - Functional area
 - Shared spaces

Spatial variability of plague in Middle-West Madagascar, ANR Program DIFFUPESTE



Human plague prevalence disparities depending to geographical systems

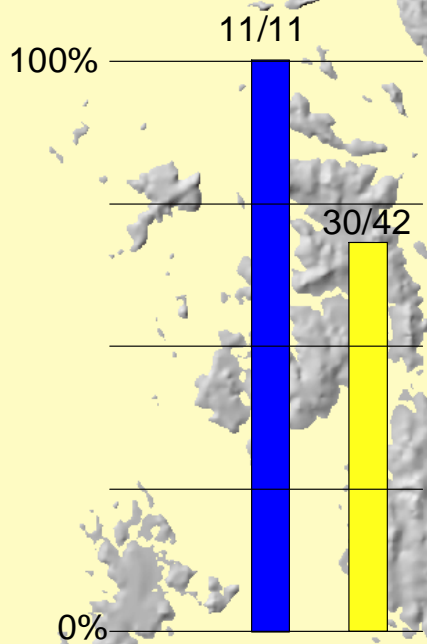
Altitude (en jaune, inférieure à 800 m)



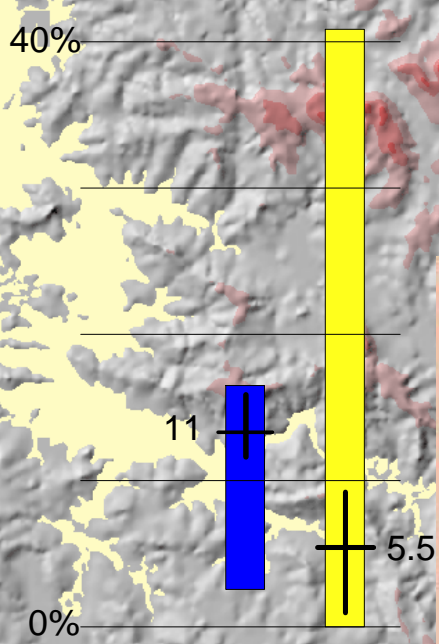
Village pesteux des hauts plateaux, région de Fianarantsoa



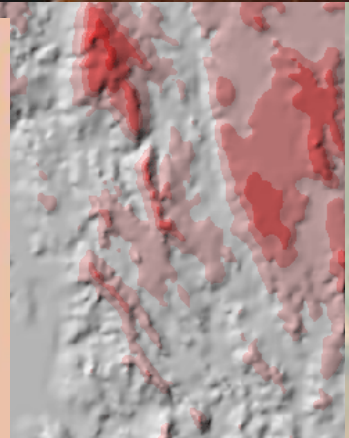
% de villages touchés par la peste



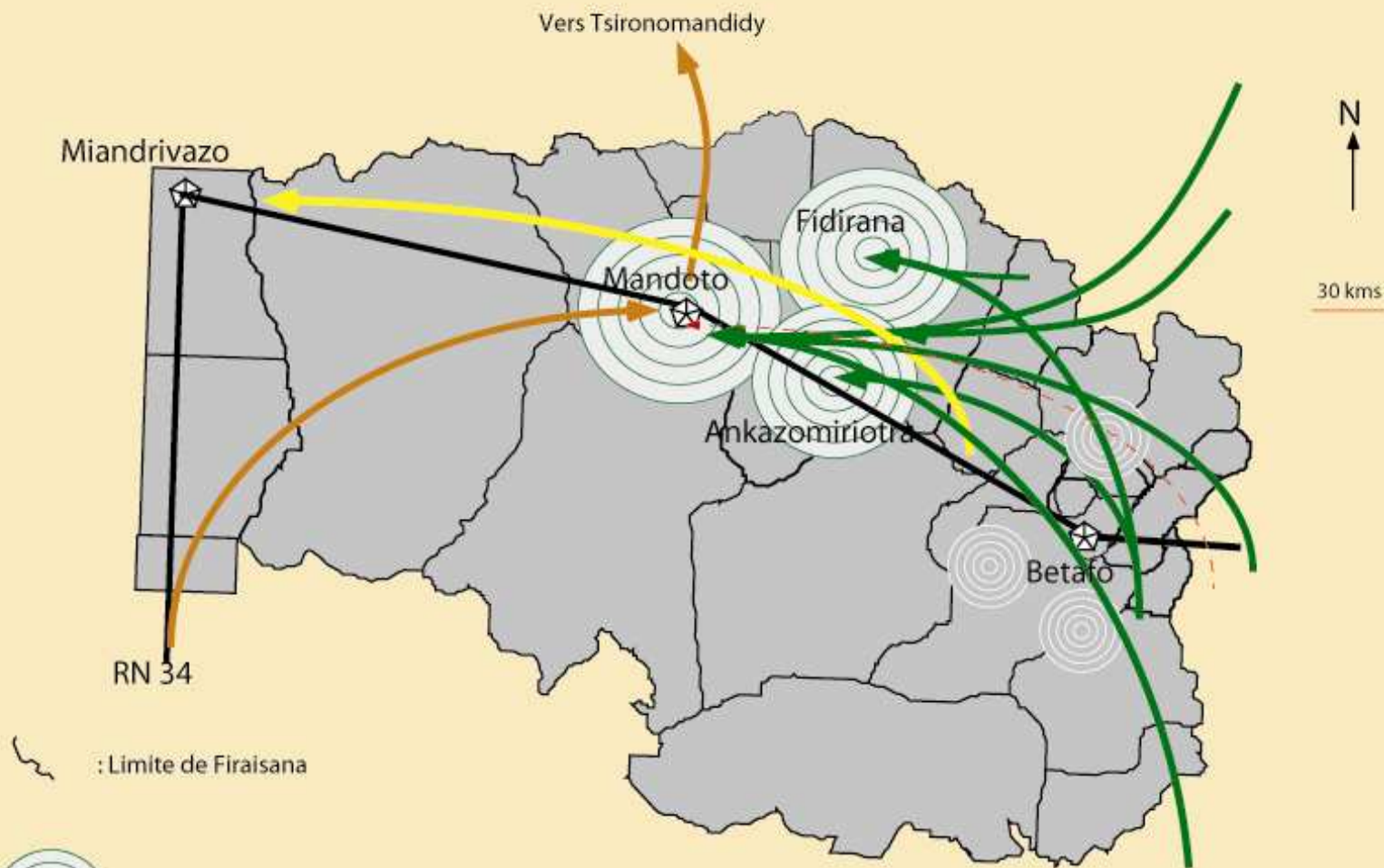
Séroprévalence (moy, sd, min-Max)



Petit hameau enclavé entouré de haies de sisal



Phénomènes migratoires dans le Moyen - Ouest



~ : Limite de Firaiana

☉ : Zone de colonisation agricole et d'immigration temporaire et définitive

☉ : Pôle d'attraction pour la vente du bétail

☉ : zone peu mobile

Courants migratoires actuels :

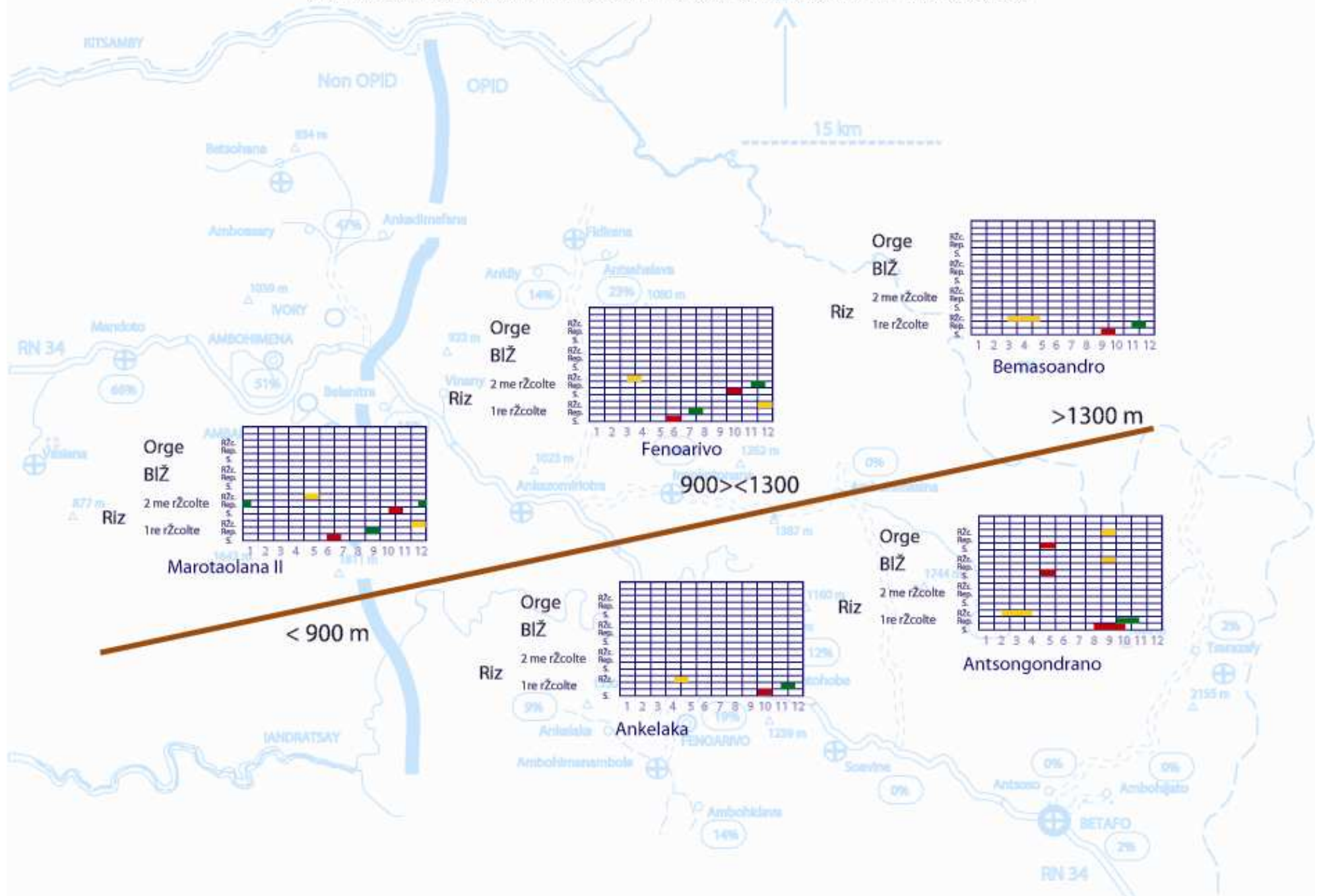
— : migrations définitives (courant faible)

— : migrations temporaires agricoles

— : migrations temporaires convoyage de bétail

— : migrations temporaires quête de l'or

Carte III.8.5 : Variations des calendriers agricoles dans le Moyen ouest malgache (Handschemacher, 1998)

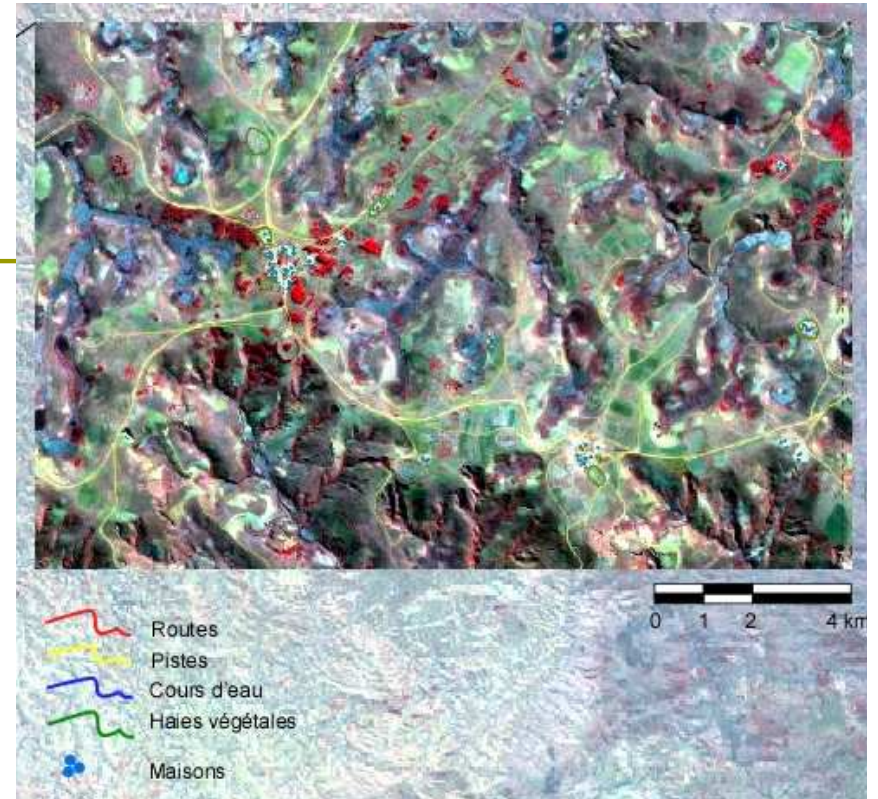


Discriminating factors at regional scale:

- ❑ An homogeneous plague circulation in the peneplain of Mandoto with little marked relief, a weak to average population densities but big villages, spaces offered to agricultural colonization and migration = physically and socially open spaces
- ❑ A plague focused in small valley on the west limit of Vakinankaratra, a marked relief, small human establishments in spite of high population densities. Ancient populated space = socially and physically closed spaces

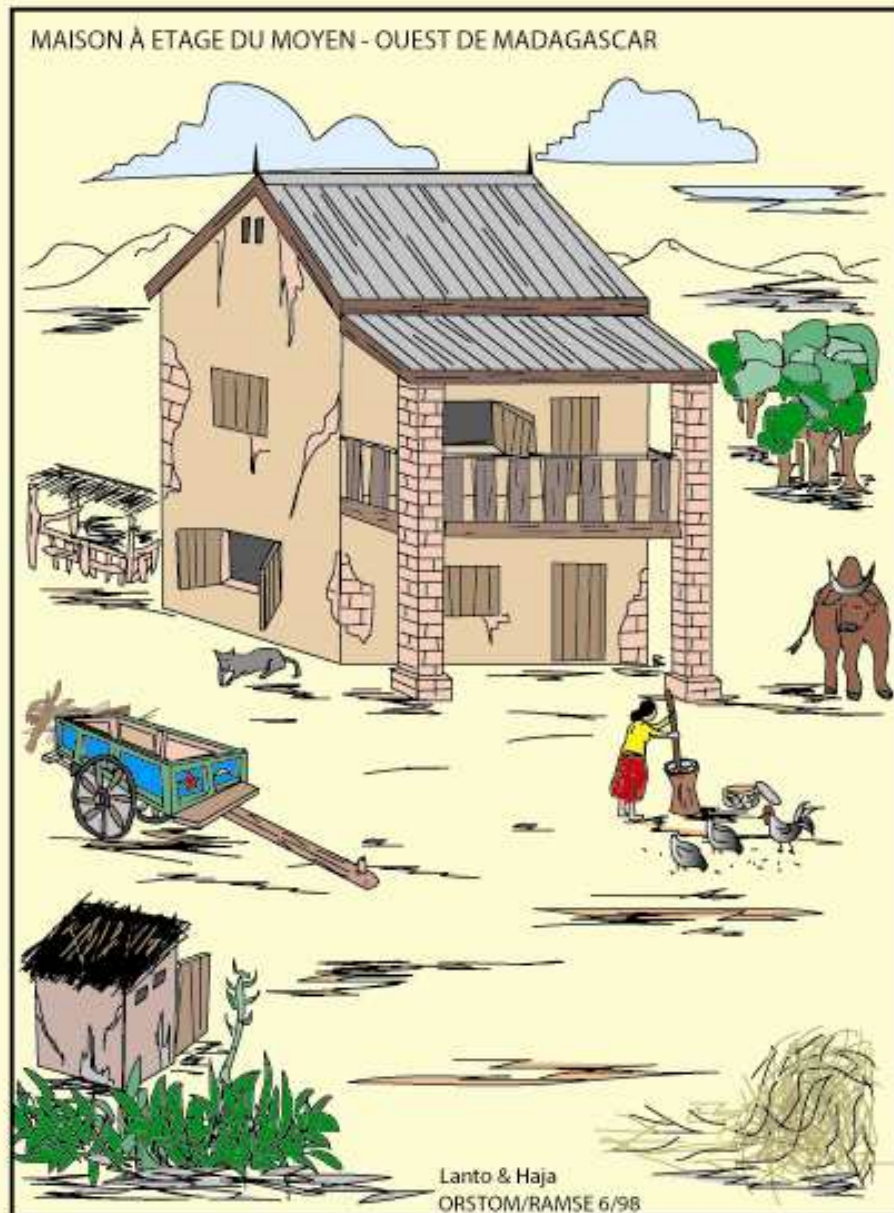
To explain spatial variability of plague

- Spatial indicator generalization
- Linkage between genetic and geographic distance of hosts (*R. rattus*)

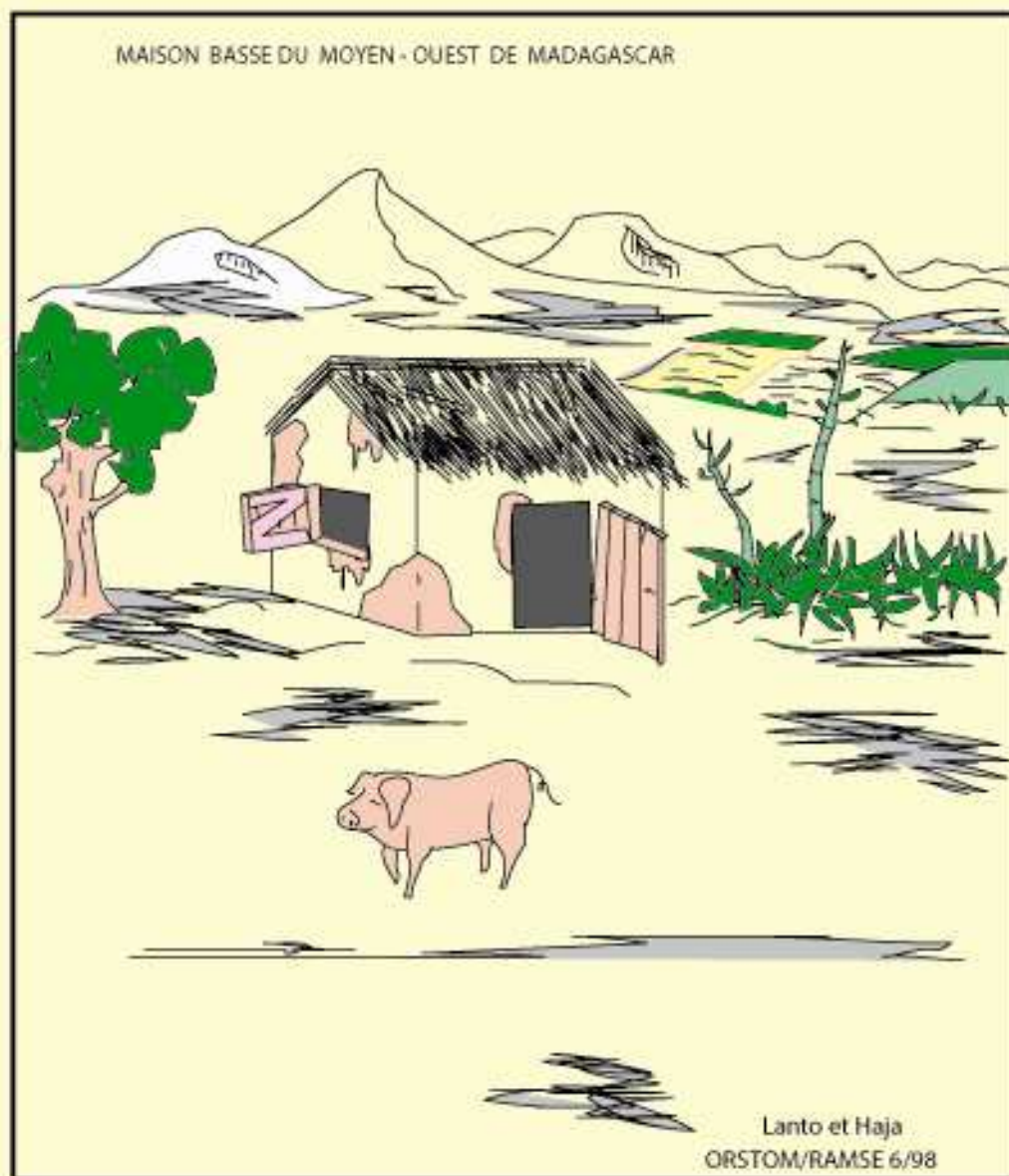


- Space practices et relationship between human communities
- Understanding territorial functioning

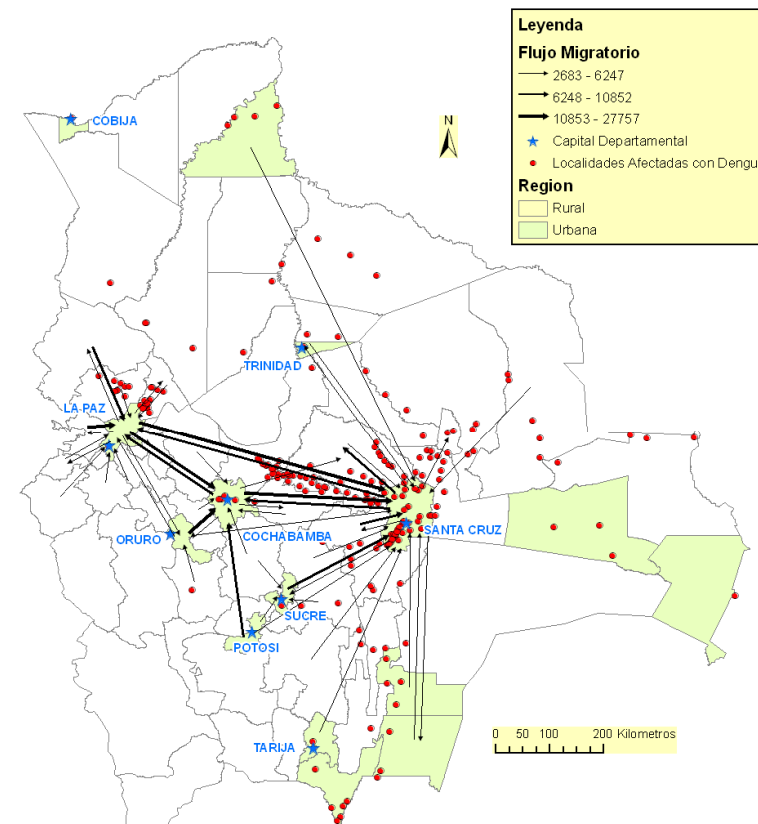
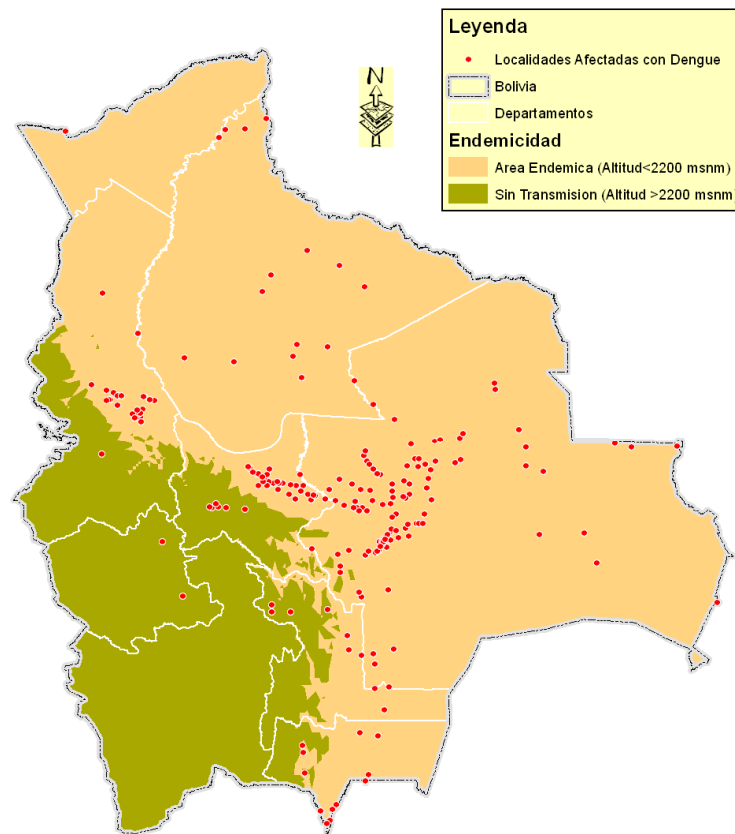
Maison à risque réduit



Maison à risque majeur

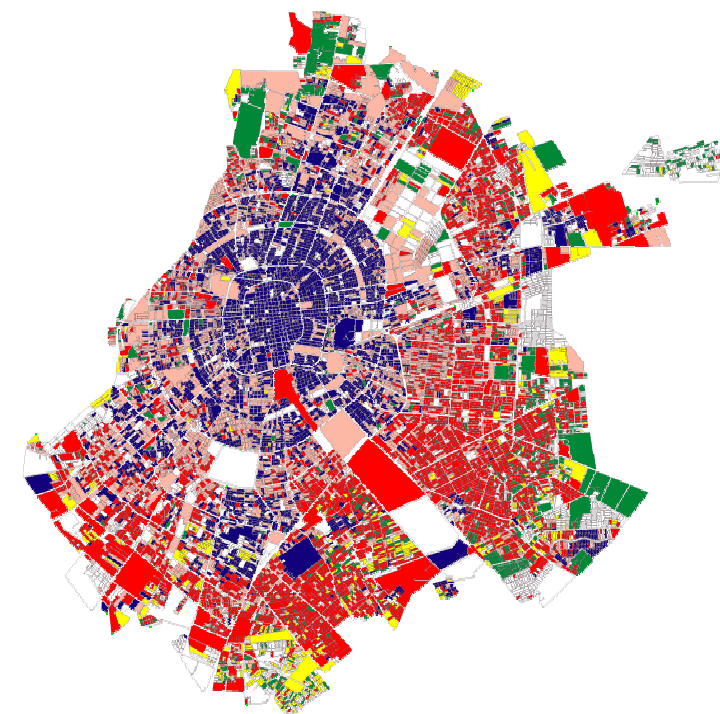
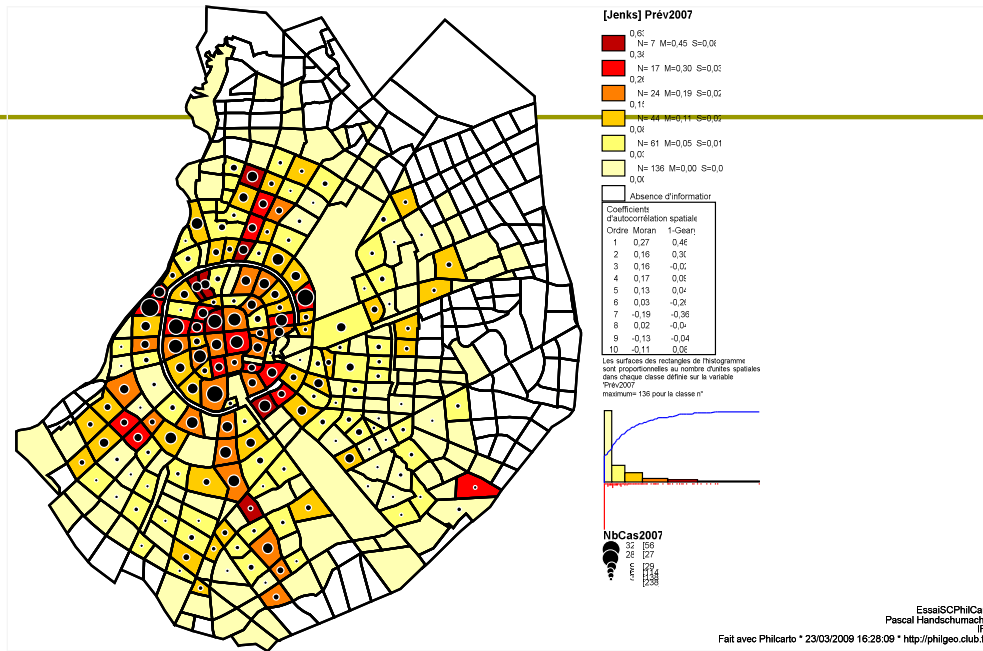


Spatial variability of dengue in Santa Cruz de la Sierra (Bolivia). ANR Program EPIDENGUE

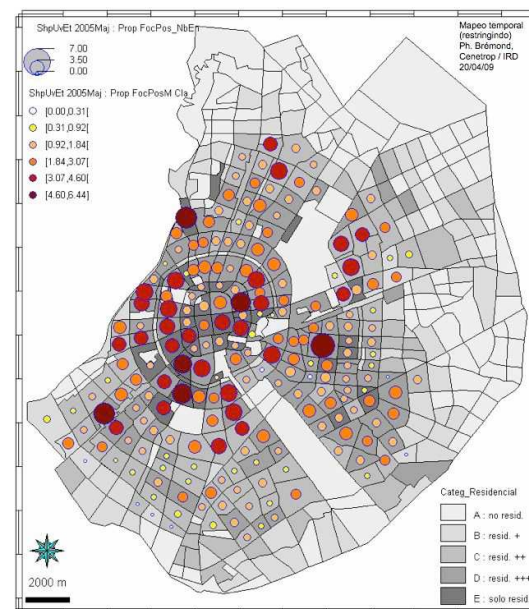


B. Gozavez-Kreuzer et W. Huanca-Sirpa

Dengue as urban diversity revelator in Santa Cruz de la Sierra (Bolivia)



Mean number of positif *Aedes focus*



Source : Ph. Brémond



Seeking causes and processes

- A generalized but heterogeneous entomological risk
- An heterogeneous distribution of illness in man
- Reveals urban complexity
- => need to reconstruct urban profiles at the right scales
- Seeking processes underlying spaces at risk construction

Conclusion

- ❑ Disease spatial heterogeneity and circulation reveals territories disparities
- ❑ The fundamental levels are defining the geographic systems, articulating various risk factors in specific complex systems
- ❑ Defining the weakest level in the different systems helps us how to act to reduce the risk upstream the disease by identify the right levers