



# Book of abstracts

**XVIII<sup>o</sup> CONGRES UISPP PARIS JUIN 2018**  
**18th UISPP WORLD CONGRESS, PARIS, JUNE 2018**

# Table of contents

<b>XVIIIe congres UISPP Paris.pdf</b>	<b>1</b>
<b>IX-1. Resilience of landscape</b>	<b>2</b>
RESILIENCE: THE IMPORTANCE OF THE LONG TERM, Sander Van Der Leeuw . . . . .	3
Applying the concept of panarchy in archaeogeography: the example of resilience of routes in the longue durée., Robert Sandrine . . . . .	4
Le concept de résilience au service d'une reconstruction des réseaux commerciaux protohistoriques: Le cas de la basse vallée de la Seine (Normandie), Jérôme Spiesser	5
Estimating resiliency gains from agricultural terracing in the ancient Maya polity of Caracol, John Weishampel [et al.] . . . . .	6
Weathering climate change in East Africa: Archaeological perspectives on local and regional resilience, vulnerability and sustainability during the late Holocene, Paul Lane . . . . .	7
Quelle résilience dans les paysages contestés de l'anthropocène? Ressources, énergies et changements socio-écologiques dans la vallée du rift., Benoit Hazard .	8
Comprendre les mécanismes de résilience du réseau viaire parisien aux périodes médiévale et moderne., Lea Hermenault . . . . .	9
Neolithic – Iron Age in Northern Finland: Landscape and resilience, Karen Niskanen [et al.] . . . . .	10

## **IX-1. Resilience of landscape**

# RESILIENCE: THE IMPORTANCE OF THE LONG TERM

Sander Van Der Leeuw \* 1,2

<sup>1</sup> Complex Adaptive Systems – United States

<sup>2</sup> Arizona State University (ASU) – 900 S Cady Mall, Tempe AZ, United States

Ever since the introduction of the term "resilience" in ecological studies by C.S. Holling in the late seventies, the concept (and its later multiscale version "*Panarchy*", cf. Gunderson & Holling 2002) has attracted the attention of archaeologists who saw its potential for improved understanding of long-term socio-environmental dynamics in the past. But how about the contribution of archaeology to the concept of resilience? The longer-term (in some cases millennial) perspective that the discipline brings to the study of resilience has been important in at least two ways. First, it has focused the mind of both archaeologists and resilience scholars on the multi-scalarity of any kind of socio-environmental dynamics, which includes very slow dynamics, but also second-order dynamics (the change of change). Both of these are difficult to observe over shorter scales, even centuries. Second, it has placed both transformative change and its absence (systemic stability) in one and the same theoretical framework, moving us from a "dynamic equilibrium" perspective to a "complex systems" perspective that includes tipping points and system state transitions. I will illustrate these points with some examples drawn from our work in the Mediterranean.

**Keywords:** resilience, longue duree, archéologie

---

\*Speaker

# Applying the concept of panarchy in archaeogeography: the example of resilience of routes in the *longue durée*.

Robert Sandrine \* <sup>1</sup>

<sup>1</sup> École des hautes études en sciences sociales (EHESS) – École des Hautes Études en Sciences Sociales  
[EHESS] – 190-198 av. de France, 75013 PARIS, France

The concept of resilience, which ecologist C. Holling theorised from the 1970s onwards, enables to study systems with complex and non-linear trajectories characteristic of the socio-natural systems studied by archaeologists and geographers. This involves rethinking the articulations of space and time within systems. Temporalities of diachrony and synchrony, formalised by Ferdinand de Saussure in 1916, no longer suffice to describe and understand the trajectories of complex systems. French archaeo-geographers propose to use other forms of temporal perception such as hysteresis or *uchrony*. The association of temporal and spatial scales in a long-term model of resilience of forms can be articulated with the panarchic model of ecologists, and make it possible to take into account time gaps, accelerations, possible reactivations etc. which constitute the systems' dynamics. This approach gives its full place to trace being a testimony of the past of a system's trajectory, but also a potentially active agent of present or future systems. More broadly, this questioning around trace invites to overcome the past/present, nature/culture cleavages and therefore bridge the gap between disciplines, particularly between archeology and geography, for a better understanding of socio-natural systems' resilience.

**Keywords:** landscape, resilience, panarchy, roads, archaeogeography, temporalities

---

\*Speaker

# Le concept de résilience au service d'une reconstruction des réseaux commerciaux protohistoriques: Le cas de la basse vallée de la Seine (Normandie)

Jérôme Spiesser \* 1,2

<sup>1</sup> Université Paris 1, Panthéon-Sorbonne (UP1) – Pres Hesan, Université Paris I - Panthéon-Sorbonne – 12 place du Panthéon - 75231 Paris Cedex 05, France

<sup>2</sup> Archéologies et Sciences de l'Antiquité (ArScAn) – Université Paris I - Panthéon-Sorbonne, CNRS : UMR7041, Université Paris X - Paris Ouest Nanterre La Défense – Maison René Ginouvès Boîte 3 21, allée de l'université 92023 NANTERRE CEDEX, France

Depuis la fin des années 1990, certaines voies protohistoriques ont commencé à être identifiées grâce aux nombreuses fouilles engendrées par le développement de l'archéologie préventive. Il est alors apparu que les chemins constituaient des éléments morphogènes du paysage dès cette période, organisant notamment les habitats et les structures parcellaires situés à proximité. Ces voies de communications ne sont cependant appréhendées que de manière ponctuelle. Grâce au concept de résilience et dans l'objectif de discerner les réseaux viaires gaulois à l'échelle régionale, une confrontation a été réalisée entre l'orientation des cheminements de la carte d'Etat-major et celle des 83 habitats laténiens fouillés dans la basse vallée de la Seine. Par iso-axialité, cette méthodologie a permis de faire apparaître 26 routes potentiellement gauloises, autorisant pour la première fois une vision régionale des réseaux commerciaux protohistoriques.

**Keywords:** réseau, viaire, Protohistoire, resilience, Normandie

---

\*Speaker

# Estimating resiliency gains from agricultural terracing in the ancient Maya polity of Caracol

John Weishampel <sup>\*† 1</sup>, Adrian Chase<sup>‡ 2</sup>, Arlen Chase <sup>3</sup>, Diane Chase <sup>3</sup>

<sup>1</sup> University of Central Florida (UCF) – United States

<sup>2</sup> Arizona State University (ASU) – United States

<sup>3</sup> University of Nevada Las Vegas (UNLV) – United States

Like a forensic scientist interpreting fingerprints and blood splatter patterns to reveal the timeline associated with the struggle and resistance associated with a crime scene, landscape archaeologists analyze the configuration and chronology of settlement features to document the story arc of societies. As new prospecting tools become available, new data types help flesh out details to more fully understand the innovations civilizations used to overcome challenges that are often a result of environmental drivers. One example of an ancient landscape-scale innovation is the widespread application of agricultural terraces across the Maya civilization in Mesoamerica. The development of these vast, geo-intensive, hillside modifications corresponds to a series of droughts prior to the abandonment of numerous polities. Only recently, with the advances in LiDAR (Light Detection and Ranging) technology have archaeologists been able to visualize and quantify the extent of these earthworks across large city-states. Environmental modeling (e.g., hydrologic, sediment transport, and agricultural production) allows us to determine the soil retention and water holding capacity of these systems to project the increases in resiliency/longevity brought about by these topographic alterations. Using the example from Caracol, the largest archaeological site in Belize, we are able to estimate the contribution that terrace construction had on soil and water management for this society of nearly 150,000 inhabitants.

**Keywords:** Agricultural terracing, Landuse change, LiDAR, Maya, Soil and water management

---

\*Speaker

†Corresponding author: John.Weishampel@ucf.edu

‡Corresponding author: adrianszchase@gmail.com

# Weathering climate change in East Africa: Archaeological perspectives on local and regional resilience, vulnerability and sustainability during the late Holocene

Paul Lane \* <sup>1</sup>

<sup>1</sup> Uppsala Universitet [Uppsala] (Department of Archaeology Ancient History) – P.O. Box 626, SE-751  
26 Uppsala, Sweden

”Weather” and ”Climate” are quite different things – or so we are regularly told. We can all experience good, bad or indifferent weather, and wrap those experiences into our biographic memories and narratives. We have all heard that ”climate change is now”, even if some are sceptical of the veracity of such a statement. But, even though we can experience different climates by travelling to different parts of the world, we are also cautioned not to equate unusual weather with climate change, because, as NASA’s website tells us, the difference between the two is ”a measure of time”. Archaeology is an excellent means of understanding how humans responded to past climate change, how they ”adapted” over the long-term, and can provide insights into what current climate change may presage. But, what can we tell about how people in the past ”weathered” such change and so made it ”normal”? What do archaeological traces at the local level tell us about the resilience of populations at a wider landscape scale, and can we infer different degrees of vulnerability from these traces? Resilience is about accommodating change, rebounding from socio-ecological disturbances, and about domesticating the unusual and the extreme, anticipating the unexpected. Using data from East Africa this paper examines how archaeologists conventionally understand past climate change, and asks how might we re-think the material record of adaptive behaviour to better understand what it means to live through an era of rapid climate change? The paper will conclude with a discussion of why such knowledge about the past may be helpful for the future.

**Keywords:** Resilience, Landscape, East Africa, Livelihoods, Farming, Pastoralism

---

\*Speaker



# Quelle résilience dans les paysages contestés de l'anthropocène? Ressources, énergies et changements socio-écologiques dans la vallée du rift.

Benoit Hazard \* <sup>1</sup>

<sup>1</sup> Institut Interdisciplinaire d'Anthropologie du Contemporain (IIAC) – CNRS : UMR8177, Ecole des Hautes Etudes en Sciences Sociales (EHESS) – 105, boulevard Raspail 75006 Paris, France

L'anthropocène tend à s'imposer à la fois comme un discours environnemental d'échelle globale et un paradigme des sciences sociales. Unité de classification du temps dans lequel nous vivons, ce récit propose une perspective transhistorique tout en créant, d'ores et déjà, des "anthroposcènes", c'est-à-dire des *paysages humains* résilients au changement global, et caractérisés par l'exploration de nouvelles ressources. En Afrique de l'Est, l'énergie de la géothermie fournit un exemple des politiques d'adaptation et de la manière dont elles poussent les sociétés pastorales vers des situations d'effondrement. Cette présentation interroge les usages de la résilience dans la compréhension des changements socio-écologiques. Elle suggère que la volatilité des ressources forme un seuil critique à partir duquel la résilience et de l'adaptation deviennent inopérantes.

**Keywords:** Anthropocene, Resilience, Landscape, Pastoralism, Kenya

---

\*Speaker

# Comprendre les mécanismes de résilience du réseau viaire parisien aux périodes médiévale et moderne.

Lea Hermenault \* 1

<sup>1</sup> Archéologies et Sciences de l'Antiquité (Eq. Environnement) (UMR 7041) – CNRS : UMR7041 – France

Dans cette communication nous aimerions interroger les mécanismes de la résilience des formes viaires en milieu urbain, en nous intéressant au cas de la ville de Paris. Nous montrerons dans un premier temps la grande stabilité des tracés du réseau viaire parisien aux périodes médiévale et moderne en comparant différentes reconstitutions du réseau et représentations planimétriques de la ville. Puis, nous présenterons plusieurs petits cas d'étude qui montrent que la stabilité des tracés viaires n'empêche en rien les structures qui les bordent (bâti, parcellaire) d'évoluer parfois très rapidement. Ces reconfigurations matérielles aux abords des voies semblent cependant conserver certains traits communs, notamment d'ordre fonctionnel : ainsi, nous verrons que les activités commerçantes dominant toujours à proximité des voies les plus fréquentées. Le constat de la prédominance de ces activités allié à l'examen de la particularité de leurs besoins (les activités commerciales ne peuvent se passer des flux de circulation pour fonctionner), nous amèneront à proposer une modélisation des interactions systémiques qui s'établissent entre le bâti, la voie et le flux qu'elle supporte. Ces interactions, qui rappellent que la rue aux périodes médiévale et moderne était autant un espace d'échanges que de circulations, permettent de mieux comprendre la résilience des formes viaires sur le temps long.

**Keywords:** résilience, réseau viaire, Paris, système, interactions, période médiévale, période moderne

---

\*Speaker

# Neolithic – Iron Age in Northern Finland: Landscape and resilience

Karen Niskanen \* <sup>1</sup>, Ville Hakamäki <sup>1</sup>, Aki Hakonen <sup>1</sup>

<sup>1</sup> University of Oulu – Finland

This paper uses a resilience framework to examine the temporal and spatial scale of shifting social practices in Northern Finland from the Neolithic to the Iron Age, largely in response to ecological changes and increased social complexity. According to the traditional point of view, at the end of the Neolithic, there was a clear shift in population concentration from the east towards the southern and western coastal areas, leaving the south-eastern and northern parts of Finland with a more nomadic population. The demographic shift has been attributed, in part, to ecological changes brought about by borealisation, the gradual spread of Norway spruce (*Picea abies*) from the east, and the resulting change from temperate, deciduous forests to forests dominated by spruce. This borealisation had a major impact on the forest system, climate, and food resources for the hunter-gatherers. Although the Bronze Age, in particular, has traditionally been characterised as a period with a relative lack of permanent settlement, evidence presented here suggests there may have been, in fact, a more stable occupation over the *longue durée* as the hunter-gatherer communities adapted to the Neolithisation and the advent of metal within this ecosystem, and interacted with populations across a broad area of Fennoscandia. The authors consider from a resilience perspective: 1) Archaeological indications of continuity of site-use and landscapes of northern rock art sites from the Late Neolithic to the Early Bronze Age; 2) Continuity on the Bothnian Bay coast from 5000 BCE to 500 CE; and 3) Iron Age burial sites and their contexts.

**Keywords:** Bothnian Bay, Resilience, Hunter, gatherers, rock art, Finland

---

\*Speaker