

# 3a

## ROCK ART AND HUMAN USE OF SPACE IN DESERT LANDSCAPES: A COMPARATIVE PERSPECTIVE

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The aim of this session is to discuss the relationship between rock art and use of space in desert environments. Worldwide, a great internal heterogeneity regarding the distribution and availability of resources, and the conditions for the establishment of settlement and human circulation networks, among other aspects, characterise these ecosystems. Thus, we seek contributions that address rock art as an indicator to assess the mode and intensity of human occupation in arid and semi-arid regions from different continents.

We particularly welcome those presentations that emphasise the way that the intrinsic ecological variability of these ecosystems affected the modes of organisation and behaviour of the human groups under study, evaluating the differential use of space within them, as well as the articulation and hierarchy between sectors with diverse geographic and ecological characteristics through the execution of rock art motifs. Due to the increasing number of published papers that explore these issues during the last years, we consider the development of these topics essential for the archaeology of desert environments in general, and for rock art studies developed in these regions in particular.

In addition to this, we argue that the study of the material aspects acquired by visual communication in these environments allows us to deepen our knowledge about certain social aspects of the human populations that inhabited them. We refer to the following: processes linked to the dynamics of information exchange and interaction between groups; the existence of processes of social competence and the delimitation of geographical barriers; the definition of territories and the symbolic demarcation of special spaces. Nevertheless, we also offer the opportunity to present works that deal with other subjects based on the study of rock art (painted and engraved motifs and geoglyphs) in desert or semi-desert regions. Since we understand human groups may have channelled visual communication of through other material means, we also welcome those works that compare representations executed on fixed rock supports with images made on mobile items.

We are also interested in discussing explicitly the theoretical and methodological approaches used to address the issues mentioned in the different case studies.

Among others possible, these may include the contextualisation of rock art and its articulation with other lines of archaeological evidence, the analysis of stylistic variability between diverse ecological regions or the identification of patterns in the distribution of motifs across different spatial and temporal scales, digital techniques of rupestrian art documentation. In addition, we emphasise the importance of applying a comparative perspective. Without neglecting the important contextual differences in each case, we believe that the conceptual framework of some debates and the methodological strategies used for their discussion may constitute important frames of reference between arid regions of different continents.

Finally, with the set of presentations we hope that this session constitutes a space that stimulates a constructive discussion through the exchange of theoretical and methodological perspectives, conceptual tools and concrete research practices among colleagues working in desert regions from around the world.

## Linking the sea with the desert: reflections about emplacement, variability, and representations in El Médano rock art (Atacama littoral, northern Chile)

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**Keywords:** marine hunting, harpoon, Atacama Desert coast, El Médano, navigation

The Atacama Desert (northern Chile) presents a large diversity of rock art expressions. Among them, the El Médano style stands out, characterised mainly by marine referents and an essentially coastal geographical distribution. In this article, the authors present internationally the recent discovery of archaeological sites where this rock art style has been recorded. One case is analysed to show the possible existence of internal style variability: on one hand, schematic and lineal representations, and on the other, naturalistic and figurative. The authors discuss their representations and motifs to reveal trends and hypotheses about ancient marine hunting practices, and also explore aspects such as animal species diversity, capture devices, laterality and disposition, number of boats involved, crews by vessel, quantity of harpoon lines employed to retain each animal, and the anatomic parts of the prey where the harpooning took place. Lastly, they compare the results with archaeological, ethnohistorical and ethnographic records. Even when their social practices were multiple and diverse in their representational sphere, the authors suggest there was an intention to over-represent the marine hunting face to the rest and to seafarers and hunters over other agents. The authors interpret it as an allegory of probable political and economic values.



Fig.1 - Detail from one of the principal's panels from Izcuña site, Paposo (I02, Block 09, & Panel 08). (photo Benjamín Ballester)

Fig.2 - Detail of another panel from Izcuña site, Paposo (I09, Block 02, & Panel 01). (photo Benjamín Ballester)

## Rock art and social dynamics of the Later Stone Age in the Matobo, Zimbabwe

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**Keywords:** Matobo, Later Stone Age, Style, Information Exchange Theory, Zimbabwe

The Matobo hills in southwestern Zimbabwe (over more than 2000 km<sup>2</sup>) have a wide range of landscapes (narrow plains, open plains, broken hills) in a general semi-arid environment. Enrolled on the UNESCO Cultural Heritage List, they are renowned worldwide for the fineness of their rock paintings attributed to the Later Stone Age populations of foragers. Thanks to a long history of archaeological research, N. Walker identified a regional model of diachronic population dynamics during the LSA: climatic and related ecosystem changes through the Late Pleistocene and Holocene brought about radical transformations in demography, food supply, settlement patterns and social structuring. From 2017 onwards, a new international Franco-Zimbabwean project began exploring change and continuity in the Matobo foragers' rock art through deep time (ca. 13,000 to 2,000 BP). Together with the characterisation and dating of stylistic changes, the second issue is to identify the agents involved in the dynamics of foragers' rock art in terms of intensity (start/stop) and content (style). This paper advances the theoretical background of the project and predictive model of rock art diachronic dynamics derived from Walker's model and based on Information Exchange Theory, subject to future tests.



Fig.1 - Semi-arid landscape of the Matobo hills. (photo C. Bourdier)  
Fig.2 - Detail of the various intermingled rock art sets at Bambata cave: white elephants, red and yellow antelopes, and red humans. (photo C. Bourdier, National Monuments and Museums of Zimbabwe)

## El Medano rock art style on the coast of Atacama desert in Chile: cetacean hunting or cetacean social agents?

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**Keywords:** Atacama desert coast, pictographs, cetaceans, reinterpretation, strandings

The investigations carried out lately on the Pajoso/Taltal coast (25 ° S, Atacama Desert), have enabled a reassessment of the traditional academic interpretation of the El Médano style pictographs of the area, which defined the representation of physical hunting of whales since 1000 to 2000 years ago. New data shows there was no whaling in the area during either historical or prehistoric times, information that adds to the recently obtained dates for pictographs of Medano style coastal modality (6492-6426 BC, C14 and Archeomagnetism). Thus, a reinterpretation of the ethnohistorical and ethnographic data in light of the new archaeological information corroborates that local human groups never hunted cetaceans; rather, they articulated their social cycles with the cyclic presence of migration cetaceans by the coast. These marine animals acting as agents that, through strandings, generated the fruition of activities and ceremonies of social convergence among the human groups.



Fig.1 - Quebrada El Médano, Taltal, Chile. (photo José Castelleti, 2017)  
Fig.2 - Quebrada El Médano, Taltal, Chile. (photo José Castelleti, 2017)

## Paintings and engravings in the most arid zone of southernmost Patagonia (Argentina, South America): distribution of rock art across space

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**Keywords:** Southernmost Patagonia, engravings, paintings, variability, use intensity

Fig. 1 - Tridigits and geometric paintings from Meseta río Robles (Ea. La Carlota), area between Gallego and Chico rivers, Pali Aike volcanic field, Santa Cruz, Argentina. (photo L. Manzi)  
Fig. 2 - Figurative engravings from Meseta río Robles (Ea. La Carlota), area between Gallego and Chico rivers, Pali Aike volcanic field, Santa Cruz, Argentina. (photo L. Manzi)

The zone between Gallego and Chico rivers in the Pali Aike volcanic field at 52° S (Southernmost Patagonia, South America) is, ecologically, a dry steppe in contrast with the wet steppe south of Chico River. Although not fully published, this area was traditionally characterised as one of low use intensity where few known rock art sites. In the last years, several research projects have focused surveys in this area, so revealing a different picture than previously known. The authors recorded abundant paintings and engravings along with high concentrations of lithic artefacts and bones. Moreover, they reassigned dates for human occupation (previously assigned to the last 2000 years BP) to the Middle Holocene, ca. 4800 BP. The rock art, traditionally characterised by geometric abstract paintings, has revealed the existence of animal engravings and large anthropomorphic paintings, so extending the temporal range of rock art execution and pointing out supra-regional connections. The authors' aims are twofold: to present this new rock art evidence for the area between Gallego and Chico rivers; to compare the spatial distribution and density of rock art motifs and lithic artefacts on a regional scale to assess human use of space according to different environments.



## Rock art engravings scattered on the desert

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**Keywords:** engravings, landscape, desert, La Rioja

The aim of this presentation is to discuss the location of rock art in a particular semi desert environment: La Rioja province (Argentina). The centre south region of the province has a variety of rock art engravings styles. The different styles correspond to two periods: the Integración Regional Period from AD 500 to AD 1000 and the Desarrollos Regionales Period from AD 1000 to AD 1450.

Although there is a great availability of rock surfaces to engrave representations, rock art occurs in certain isolated places on red sandstone outcrops and boulders. Rock art location has no direct association with water sources or settlement sites. One finds it on walls with wide visibility in open areas suitable for hunting, strategic places during the winter when guanacos descend from the mountains to the valleys.

The archaeological record (pottery and stone tools) is superficial and concentrates on sheltered areas beside the sandstone outcrops with no evident settlement structures. The author's research focuses on understanding the distribution of the representations in the landscape in order to understand if they indicate certain paths, hunting areas, social boundaries or ritual landmarks.



Fig.1 - Los Colorados, La Rioja, Argentina.

Fig.2 - Human figures, Los Colorados, La Rioja.

## Painting landscapes throughout time in the Andean Highlands, Arica foothills, northern Chile

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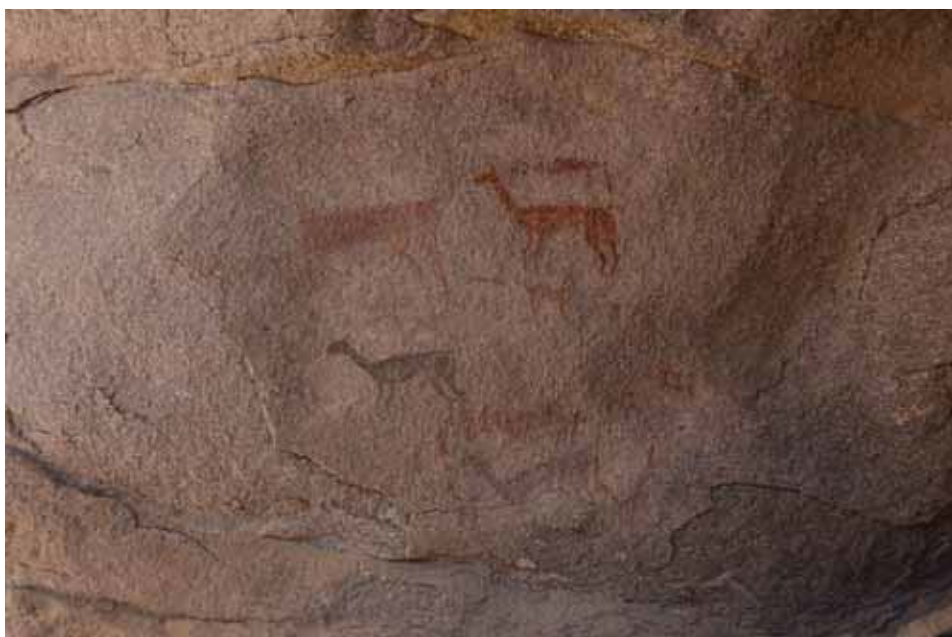
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**Keywords:** pre-Hispanic, paintings, distribution patterns, rock art, landscape, Northern Chile

Fig. 1 - Pampa El Muerto 8 rock shelter, precordillera de Arica, Chile.  
(© Guerrero Bueno)

Fig. 2 - Pampa Oxaya 7 rock shelter, precordillera de Arica, Chile.  
(© Guerrero Bueno)

The foothills of Arica show one of the largest concentrations of pre-Hispanic rock paintings in the Atacama Desert, mostly camelids and human representations. Studies carried out in this region allowed the definition of a stylistic classification for the earliest representations—the Naturalistic Tradition, chronologically ascribed to the Late Archaic and Formative periods (4000 BC to AD 500). Yet, the characterisation and distribution of late and more recent periods is missing and thus do not contribute to the evaluation of the construction of rock art landscapes through time and possible links between different localities of the region. This study compares two archaeological localities (at roughly 3100 metres above sea level) that have rock art: Pampa El Muerto and Pampa Oxaya. The authors look at the spatial distribution analysis and comparison of the representation patterns identified in the first locality. They also discuss stylistic variability at the motif and scenic composition level, as well as the site location in both localities characterised by similar geomorphology, logistic and temporary human occupation. Further to the construction of rock art landscapes, the authors evaluate the role of the paintings as an expression of visual communication in the highlands of the northern Chile.





## Hunter-gatherer land use strategies and hand stencils in Southern Patagonia, Argentina

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**Keywords:** hunter-gatherers, hand stencils, paintings; Patagonia, Middle and Late Holocene, climatic change

Nowadays, Argentinean Patagonia is mostly a desert environment. Palaeoclimate records suggest that these environmental conditions have been present during the last 2500 years. Among other designs, a large quantity of hand stencils characterise the rock art of this region. This type of motif, documented in most research areas, has a wide distribution. The available information suggests that hand stencils were produced since the initial occupations of Patagonia (ca. 10 000 years BP) until contact with populations of European descent (ca. 300 years BP).

The general aim of this paper is to appraise differential spatial and temporal trends in the production of hand stencils in Argentinean Patagonia; furthermore, how these relate to different land use strategies carried out by hunter-gatherer groups. In particular, the authors consider the information on rock art from the Cardiel Lake basin and Strobel Plateau located in central-western Santa Cruz Province, Argentina. Current research suggests there was an intense and complementary occupation of these two areas during the Late Holocene (last 2500 years). The authors propose that the production of hand stencils was more important in areas used for residential purposes, like the Cardiel Lake basin, where all age groups participated in the process. The authors determine age groups through the measurement of the hand stencils.

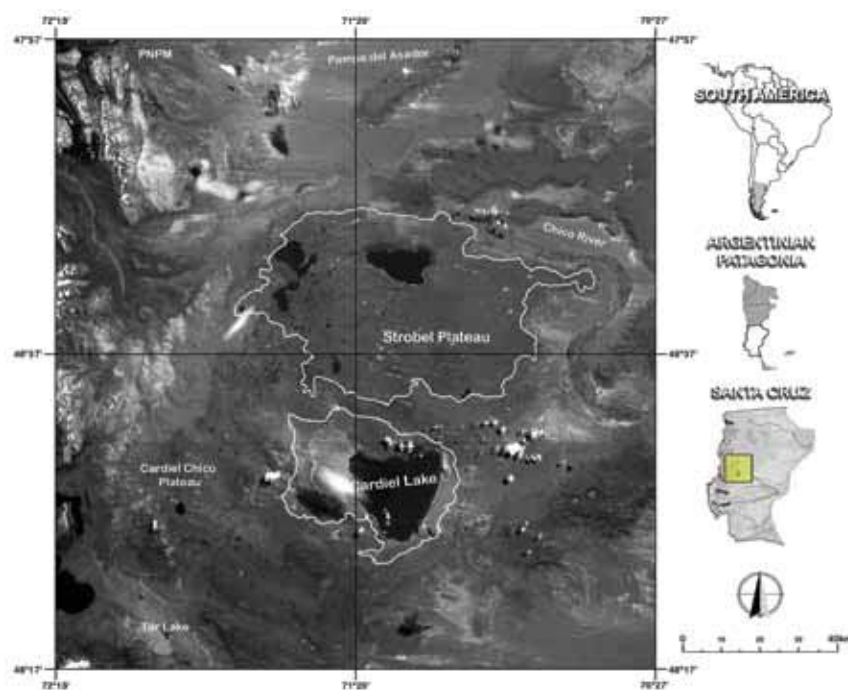


Fig.1 - Location of Cardiel Lake basin and Strobel Plateau, Argentinean Patagonia-South America. (author Francisco Guichón)

Fig.2 - Hand stencils in the Cardiel Lake basin (original photograph and image with DStretch filter). (author Francisco Guichón)

## **Rock art, embodiment, and the use of space in far west Texas**

An investigation of both painted and engraved rock art motifs in the northern Chihuahuan Desert provides an ideal springboard for understanding relationships between landscapes, place, people, and the negotiation of identity through time. In this paper, the author employs archaeological and anthropological approaches to rock art and focuses on somatic motifs in far west Texas.

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landscape, embodiment,  
identity, social theory

## Tracking change in rock art vocabularies and styles at Marapikurrinya (Port Hedland, NW Australia)

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**Keywords:** desert, style, settlement, function, regionalism

Marapikurrinya (Port Hedland, Northwest Australia) engraving province falls within a maritime desert located on a thin fertile coast fringed by semi-arid Pilbara desert. The rock art province found here is stylistically unique and internally heterogeneous. Track motifs form a significant component within this repertoire, both human and other animal, comprising roughly 30% of all engravings.

There are discrete styles within this engraving body, arguably produced semi-continuously over the last 7000 years, from the point of sea-level stabilisation in this region. One proposal is that changes in these styles reflect and negotiate environmental, demographic and social changes. In the most recent stylistic phases, track motifs dominate and perhaps reflect change in marking strategy from localised territorial bounded art to regional social harmonisation.

This paper explores the potential functions of track motifs as a vocabulary distinct from other figurative art, using Marapikurrinya as a case study. This paper presents the relationship between these tracks and other Australian arid zone track styles to understand human use of this seasonally arid landscape.



## Between mountains and deserts: an ancient route of hunter-gatherer abstract rock art in northern Mexico

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**Keywords:** abstract rock art, Mexico, Durango, hunter-gatherers, Late Archaic Period

This paper presents a comparative analysis between the “Archaic Pictorial Tradition” from the highlands and eastern valleys of the Sierra Madre Occidental of the State of Durango and that of the hunter-gatherer rock paintings from the desert plains and mountains of the Bolsón de Mapimí in the same state. The study provides information about the possibility of an ancient east-west route that connected two major mountain ranges of Mexico, the Sierra Madre Oriental and the Sierra Madre Occidental, during the Late Archaic Period (2000 BC to AD 600 A.D.). The main characteristics of the rock art that enabled communication among hunter-gatherer groups in this big area are probably its abstract character and structural organisation. These two properties are central to this work.



## The rock art of Pukara de Rinconada (Puna of Jujuy, Argentina) in a micro-regional context

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**Keywords:** rock art, Pukara de Rinconada, Jujuy, Argentina

Since the early twentieth century, Pukara de Rinconada (Puna of Jujuy, Argentina) attracted the attention of several investigators interested in the archaeology of this area. The authors' current studies started in 2004 in the southern sector of the Pozuelos basin, the surrounds of Pukara de Rinconada. These studies allowed them to analyse the transformation of sociocultural landscapes through time. In this context, the aim of this work consists in the presentation and analysis of the Pukara rock art manifestations, following the stylistic definitions proposed by the authors' team in the area. The authors base the proposed theoretical-methodological framework on the contextual and stylistic analysis, as well as landscape archaeology.

Results indicate the existence of a very important "node" for this region. This site combines most of the styles and stylistic modalities defined for the area, depicting exclusive motifs not recorded in other sites until now. Likewise, the art presents a great diachronic complexity with multiple resignifications associated with several and diverse evidences from different chronologies. The emplacement selected for Pukara de Rinconada constitutes an inflection point in the landscape with high visual permeability and physical control of the main transit routes in this area.



## Rock art, long distance interaction and human adaptations in Northern Mexico Highland desert landscapes: a study of the rock shelter of San Jerónimo

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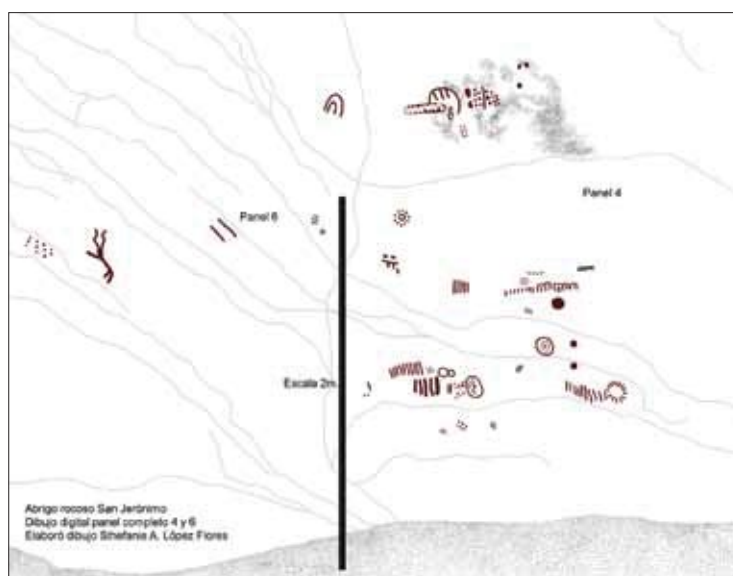
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**Keywords:** rock art, hunter-gatherer interactions, Northern Mexico deserts, San Jerónimo, rock shelter

Fig. 1 - The San Jeronimo Rockshelter. (drawings Stephanie A. López-Flores)  
Fig. 2 - San Jeronimo Rockshelter, northern-south view. (photo J. I. Macías)

Recent research carried out in basins of the Sierras Transversales ranges of the Northern Mexico Highlands reveal a quite different picture for the desert landscapes of Northern Mexico, often perceived as homogeneous territories where hunter-gatherer societies once lived in isolation. This paper aims to show how the rock art sites and open-air camps are vestiges of hunter-gatherer societies who exploited local resources – peoples linked to outsider sedentary groups. The proposal includes SEM, XRF and FTIR analyses applied to rock art pigment-samples from the rock shelter of San Jerónimo, and artefact studies from other sites. The authors expect to improve existing ideas about local adaptations, rock art styles and long-distance interactions developed by the Northern Mexico desert societies over time.



**‘Water, water,  
everywhere, Nor  
any drop to drink’...:  
the predicament  
of coastal deserts  
for hunter-gatherer  
signalling behaviour**

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gatherers, coastal deserts,  
arid zone, rock art, identity  
signalling

Like Coleridge’s *Rime of the Ancient Mariner*, coastal hunter-gatherer-fisher people of Murujuga lived with the resources of a bountiful sea in an arid landscape where limits on potable water constrain human survival. In the outer islands of the Archipelago, with near continuous maritime resources and littoral zone (shellfish, fish, turtle rookeries), stone resources for stone tool manufacture and the construction of myriad stone features, the absence of reliable water except during the cyclonic summer season would have constrained permanent occupation. This must have affected the way that people signalled information about their personal and group identity. This paper considers occupation models and symbolic behaviour for Murujuga in terms of the changing access to water from deep time, through the last Ice Age and into the recent past, when the rising sea levels created this maritime desert.



Fig.1 and 2 - Rosemary Island (top) on the platforms of the coast and (bottom) the inland valleys with older occupation evidence. (author Jo McDonald, Copyright CRAR+M Database)

## Distribution model among the rock engravings in the Sonoran desert, region of El Arenoso, Caborca, Sonora, Mexico

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**Keywords: Desert, Sonora,  
Trincheras Tradition, Hohokam  
Culture, petroglyphs,  
Distribution model**

Fig.1 - Petroglyph in the hill of El Peñasco with geometric elements.  
(photo A. Rubio)

Fig.2 - The pre-Hispanic rupestrian site of El Puerto I in a relatively flat area.  
(photo B. Menéndez)

The Desert of Sonora is part of the ancient corridors of North America characterized by the arid ecosystems. This desert is one of the areas with the highest concentration of petroglyphs or rock art engravings in the so-called El Norte of Mexico. Within this area is placed the El Arenoso's region that is located culturally between the prehispanic groups of the Trincheras Tradition (Sonora, Mexico) and the Hohokam Culture (Arizona, USA). The record of these manifestations presents a large number of representations with two significant variables: 1) Selection of the places, and 2) Specific typologies. These traits pose a model that could be extrapolated to another regions.





## Anthropomorphic motifs in the northern Calchaquí valley, Salta, Argentina

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**Keywords:** social interaction, rock engravings, anthropomorphic motifs, Calchaquí valley, rivers

Within the framework of social interaction, this paper reports on the analysis of a series of blocks with rock engravings next to the Calchaquí River in the province of Salta, Argentina. The context of the blocks receives particular consideration based on location and connections with archaeological sites. Inquiries make comparisons with other zones with similar rock representations, determining associations in style and place (in this case, next to rivers or surrounds with water). In Andean cosmology, ritual permeates other fields of social life – everything that constitutes Andean life is part of ritual practice. Thus, the authors do not establish a division between ritual and everyday events, but contemplate the symbolic as part of the same universe in which all spheres of social life of the Andean communities meet. In this sense, the practice of making rock art is fundamental for the communities, as it not only serves as a means of expression and communication, but also as a means of reaffirming collective memory.



Fig.1 - Menhir in Pozo Bravo archaeological site.

Fig.2 - Menhir found in the same site.

## Warriors and landscape: rock art as visual markers in spaces of the Tehuacán-Cuicatlán, Mexico

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**Keywords:** rock art, warriors, México, archaeological landscape, desert landscape

The Tehuacán-Cuicatlán Biosphere reserve in México is a semi desert area where human activity adapted to the wild ecology over centuries. The cave paintings of "Cerro Dade" (Dade Hill), Tequixtepec, Oaxaca, depict warrior-like anthropomorphic figures and shield-like circular shapes.

These "public space" paintings, visible to many, have some connection with others in the reserve, where the creation of "warrior" figures continues over time, but differ in style, depending on pigment tone and brush stroke. This reinforces the notion of the use of particular areas of the landscape as "public spaces", meaning the easy access and visibility of the paintings, contrary to hidden areas where the paintings express myths.

This paper propose a stylistic taxonomy of these rock paintings, depictions that may indicate territorial marking intent on the archaeological landscape of the Tehuacán-Cuicatlán Biosphere reserve.



Fig.1 - Cerro Dade, Mixteca, Oaxaca.  
(photo © Sandra Ramírez)

Fig.2 - Teotitlán, Oaxaca, Tehuacán -  
Cuicatlán Biosphere Reserve.  
(photo © Sandra Ramírez)

## Rock art: repertoire of signs and allusion of possible worlds

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**Keywords:** rock art, theories of signs, allusions

Rock art, in the history of humanity, offers an ambiguous and concurrently poignant record. The first feature alludes to its semantic properties, the second, testimony as thought and sensibility that come from the depths of time. This paper examines the problem of extensional referentiality and implications of rock art signs in the author's research area, a semi-arid Mediterranean region. First, the author reviews some dimensions of rock art and links with contemporary theories of the sign, since archaeologists make real efforts to know what it means and can provide some useful criteria for developing rock art research.

Theories of the sign evoked in this paper have a common, realistic principle: allusion constituted in relation to a possible world, to actually existent entities, as well as conceived ones like magical beings. They further assume that reality precedes the sign and is different from it, implying the this exists.

The author explores this issue in a set of rock art assemblages, examines their extensional reference from the standpoint of environmental realism, and argues that ubiquity is a quality-nucleus of rock art.



## ‘Andean summer-break’: rock art insights on information networks in the desert-highland interface in Northern Patagonia (South America)

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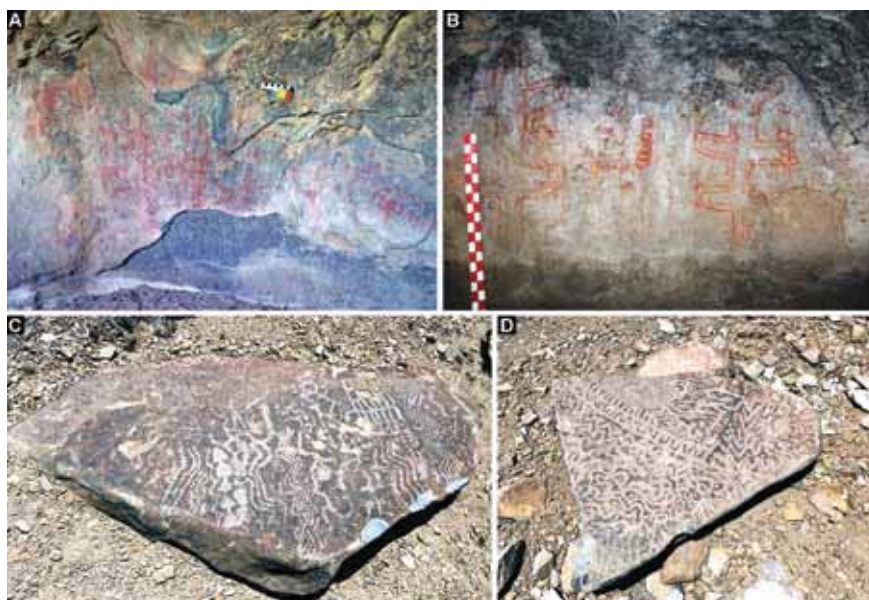
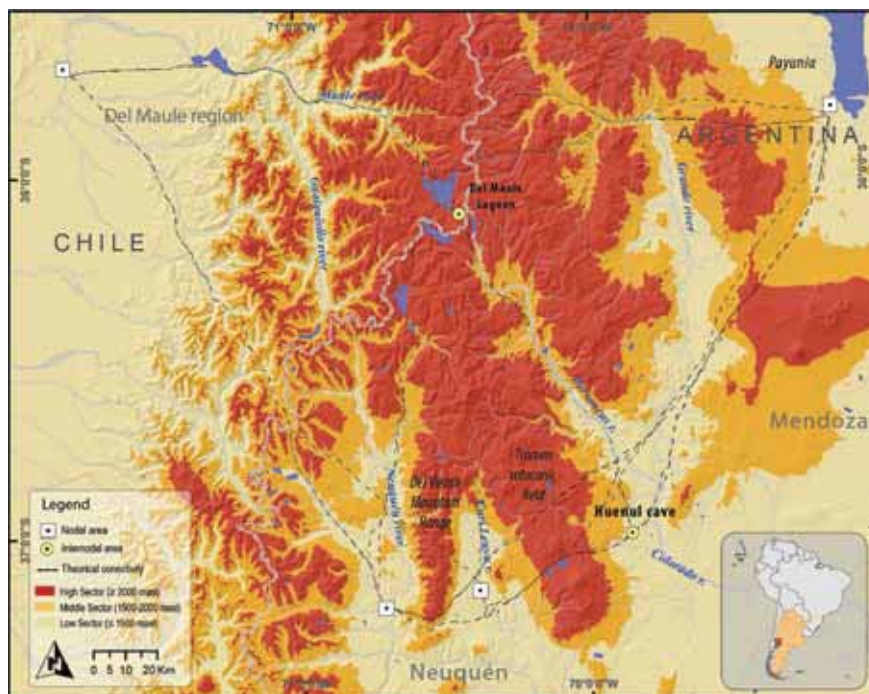
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**Keywords:** Rock art, Northern Patagonia, GIS, Geographic connectivity, Information networks, Trans-Andean social interaction

Fig.1 - Study area (Northwestern Patagonia, South America) and seasonality reconstruction with GIS. References: High sector: areas not available on winter. Middle sector: transitional areas. Low sector: areas available all year round. (© by authors)

Fig.2 - Rock art from different ecological contexts of the macroregion under study. A & B: paintings from the Barrancas-Buta Ranquil Region (lowlands). C & D: engravings from Colomichicó site (Andean highlands). (© by authors)

We have been carrying out research to assess the scale of human mobility and ecological complementarity across southern Andean deserts and highlands during the late Holocene. This macro-region is located at the western limit of the South American Arid Diagonal and presents high topographic and ecologic variations with a marked seasonality. Specifically, in this study we address rock art spatial distributions to delve into the information networks unfolded by hunter-gatherers over this landscape during the last 3000 years. We develop a GIS spatial analysis to model the connectivity between different ecological contexts based on geographical and ecological variables. The degree of connectivity will be assessed according to the seasonal availability of these environments. Our results show a major hierarchical position of the seasonal highland environments in information networks when compared to other biogeographical contexts. We suggest that one key reason for their past importance is related to their potential for population convergence, supported by crucial features: trans-Andean circulation, pastures with high summer productivity and access to primary outcrops of obsidian. On this scenario, the selection of rock art as the preferred communication device may have been useful to multiple ends: signal circulation paths, enhance information exchange and assure social interaction among generally dispersed human groups, even in the absence of face-to-face interaction.



## Intertwined landscapes: the rock art of hunter-gatherer and agrarian communities in the semi-arid north of Chile

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**Keywords:** Chile, desert, hunter-gatherers, agrarian communities, landscape, tradition

From the eleventh to sixteenth centuries, hunter-gatherer and agrarian communities coexisted in the valleys of North-Central Chile, albeit occupying different spaces: while hunter-gatherer settlements were located in arid places within the valleys, such as ravines and interfluves, agrarian communities placed theirs at the bottom of these valleys where they could carry out agricultural practices. These different groups also made different kinds of rock art: hunter-gatherers produced paintings and agrarian communities, engravings.

Considering the above, this paper compares the spatial distribution of both kinds of rock art in the semiarid region of North-Central Chile (30° S.). Results show how each rock art set related to a particular placement and audience. These differences indicate the unfolding of particular strategies of social reproduction and landscape construction conducted by hunter-gatherer and agrarian communities. Furthermore, the spatial distribution of hunter-gatherer rock paintings suggests a long tradition of reoccupation and repainting of the same places since the beginning of the Late Holocene (ca. 2500 BC) until the sixteenth century.



Fig.1 - North Central Chile. (photo Troncoso, Intertwined landscapes)

## Looking for seasonal pastures: the Chacarilla wetland and its naturalistic llama engravings in the core of northern Chile Atacama Desert

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**Keywords:** llama engravings,  
Chacarilla wetland, northern  
Atacama Desert, Chile

Fig.1 - Water spring next to  
Chacarilla-15. (photo Daniela  
Valenzuela, FONDECYT 1070140)  
Fig.2 - Panel 25 with naturalist camels  
covered by the archaeological deposit.  
(photo Daniela Valenzuela, FONDECYT  
1070140)

Chacarilla-15 (1680 metres above sea level) is a small oasis formed by phreatic water within a canyon that drains on to the Pampa del Tamarugal basin (ca. 1200 metres above sea level). This wetland was active and recurrently visited from about 4750 BP until a few decades ago, attracted by fresh water and vegetation. The site contains at least 35 panels with approximately 224 figures that extend for more than 100 metres. An archaeological deposit covered figures on lower sections of some panels. An excavation over three-metre deep yielded 31 radiocarbon dates, which reveal limited domestic activities from 4750 to 500 BP, with the more intensive occupation during the Formative period (Neolithic) between 3500 to 2000 BP. This paper proposes that Chacarilla-15 was an economic and ritual node where herders from the Loa basin, more than 80 km to the south, and agro-foresters from Pampa del Tamarugal basin congregated, as seen in rock art styles and pottery traditions. The authors explore the relationships between palaeoclimatic conditions, patterns of mobility, and the emergence of ritual and economic places shared by populations of different cultural traditions.



## Ecologically favoured spot or 'sacred landscape': human use of space investigated by rock art analysis and vegetation monitoring at the Brandberg/Daureb, Namibia

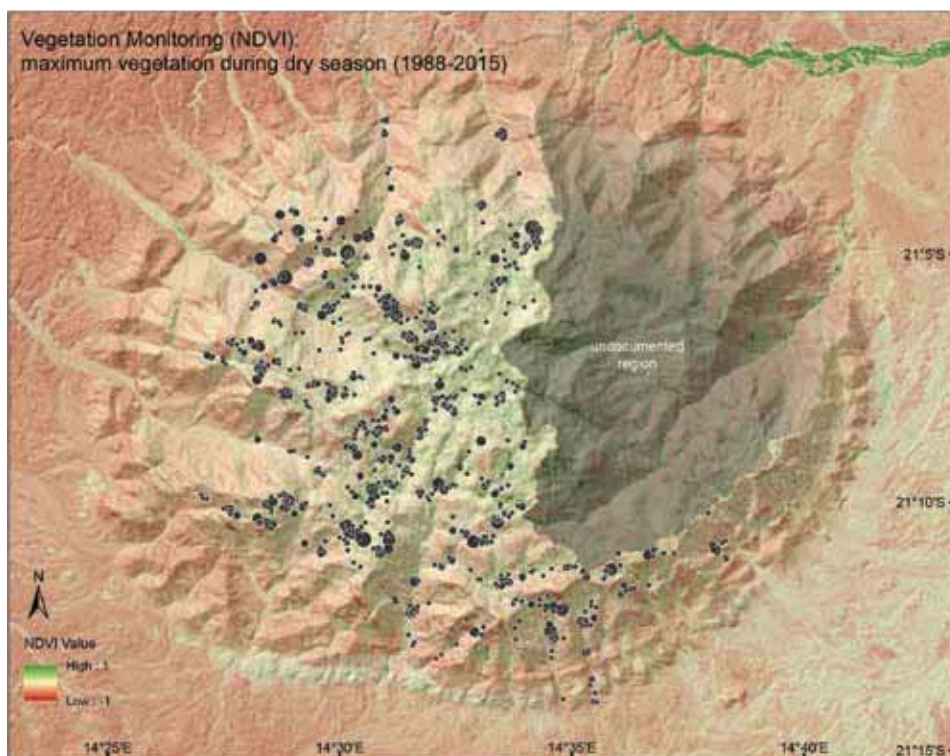
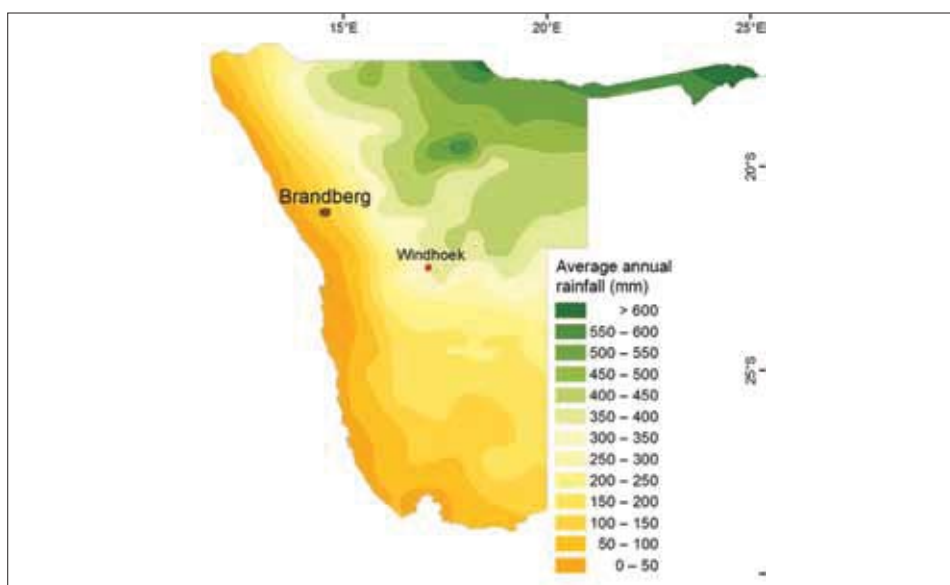
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**Keywords:** rock art, GIS, land use, hunter-gatherers, Namibia

Fig.1 - Average annual rainfall in Namibia and location of the Brandberg/Daureb at the fringe of the hyper arid Namib Desert. Oliver Vogels (data source: CRC 389, University of Cologne)

Fig.2 - Maximum vegetation (green) during the dry season at the Brandberg/Daureb corresponding with the location of rock art sites. Normalized Difference Vegetation Index (NDVI) applied to a series of Landsat satellite images (1988-2015). Oliver Vogels (data sources: datenportal.ianus-fdz.de; Landsat 4-8, courtesy of the U.S. Geological Survey)

The broad field of landscape archaeology is the usual approach for investigating human use of space in prehistory. Patterns of resource exploitation often form the focus for deriving clues from an artefact spectrum. In contrast, social or religious landscapes are determined by investigating rock art regions. The interpretative friction between human environments as 'resource spots' and 'sacred landscape' becomes especially evident in the mountain range of the Brandberg/Daureb in Namibia. This region's location on the fringe of the hyper-arid Namib Desert, its topography and occasional water sources and flora and fauna make it a point of particular ecological interest. A given standpoint considers the climate largely unchanged during the Holocene. Thus, monitoring vegetation via satellite imagery from the past 30 years helps explain the location of many of the rock art sites of the Brandberg/Daureb by regional seasonality. On the other hand, statistical analysis of 39,000 depictions shows that the rock art focuses social and cosmological discourses. Considering both observations reveals the massif's role—how it shaped daily activities such as resource exploitation, social events like initiation rites, and the discourse between humans and other beings within the hunter-gatherer cosmos.



## Symbolic responses to the Inca: inter-regional variability in rock art at the southern edge of the empire

The Inca Empire extended south along the Andes to the high-altitude deserts of the Argentine provinces of San Juan and Mendoza and central and semi-arid north regions of Chile in South America. Previous research in these four regions has tracked the presence of Inca conquest and cultural influence through ceramics and architecture, but paid less attention to rock art. The authors show maps displaying the spatial distribution of Inca sites and rock art motifs assigned to the same period. Within the four regions, Inca-period motifs are diverse and include shields, knives, and anthropomorphic designs with ponchos. The authors assess diverse criteria used to assign these motifs to the Inca period and their stylistic relationships to Inca ceramics, architecture, and ethnohistoric documents from other regions. There is a comparison of these rock art motifs and other closely associated motifs. Maps rank the regions' spatial density of sites and motifs as general indicators of the relative intensity of the influence of the Inca Empire. The paper suggests that inter-regional differences in rock art motifs reflect internal variability in Inca conquest strategies and local responses.

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**Keywords:** Inca Empire, rock art, imperial strategies, local responses

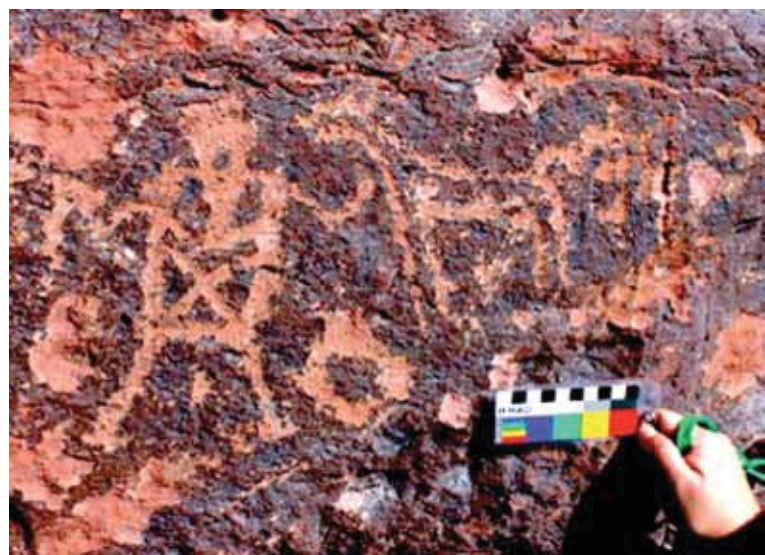


Fig. 1 - Cerro Mercachas, Aconcagua Valley, Chile. (photo Andrés Troncoso)  
Fig 2. - Cerro Tunduqueral, Uspallata Valley, Argentina. (photo Sol Zárate)