



Rock Art Studies: News from the Alps (2010-2014)

Claudia Defrasne

► To cite this version:

Claudia Defrasne. Rock Art Studies: News from the Alps (2010-2014). Rock Art Studies: News of the world, 5, 2016. halshs-01439888

HAL Id: halshs-01439888

<https://shs.hal.science/halshs-01439888>

Submitted on 24 Jan 2017

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

ROCK ART STUDIES: NEWS OF THE WORLD V

edited by

**Paul Bahn, Natalie Franklin,
Matthias Strecker and Ekaterina Devlet**

ARCHAEOPRESS ARCHAEOLOGY

ARCHAEOPRESS PUBLISHING LTD

Gordon House
276 Banbury Road
Oxford OX2 7ED

www.archaeopress.com

ISBN 978 1 78491 353 3

ISBN 978 1 78491 354-0 (e-Pdf)

© Archaeopress and the authors 2016

Cover images: Sikachi-Alyan rock art site, Russian Far East (photo Igor Georgievskij)

This volume has been supported by the Institute of Archaeology, Russian Academy of Sciences

All rights reserved. No part of this book may be reproduced, in any form or by any means, electronic, mechanical, photocopying or otherwise, without the prior written permission of the copyright owners.

Printed in England by Oxuniprint, Oxford

This book is available direct from Archaeopress or from our website www.archaeopress.com



WILLIAM BREEN MURRAY†

Contents

Contributors	iii
Preface	vii
Paul Bahn, Natalie Franklin, Matthias Strecker and Ekaterina Devlet	
New Developments in Pleistocene Art, 2010-2014	1
Paul G. Bahn	
Rock Art Studies in the Nordic Countries 2010-2014	19
Ulf Bertilsson and Johan Ling	
Post-Palaeolithic and Megalithic Art in Southern Europe, 2010-2014	33
Primitiva Bueno-Ramirez and Rodrigo de Balbín-Behrmann	
News from the Alps (2010-2014).....	43
Claudia Defrasne	
Recent Work on Saharan rock art (2010-2014)	55
Jean-Loïc Le Quellec	
Rock Art in Southern Africa: New Developments (2010-2014).....	75
Jean-Loïc Le Quellec	
Recent Work in the Near East	89
S. Lemaître	
Rock Art Studies in Northern Russia, the Urals and the Far East 2010-2014	97
Ekaterina G. Devlet and Alexander S. Pakhunov	
Rock Art Studies, Management and Presentation in Central Asia (2010-2014).....	115
Boris Zheleznyakov and Ekaterina Devlet	
Rock Art Research in Siberia in 2005-2014	127
Elena A. Miklashevich	
Mongolian Rock Art: Current Work 2010-2014.....	151
Esther Jacobson-Tepfer	
Rock Art Research in India 2010-2014	155
James Blinkhorn	
Recent Rock Art Studies in Southeast Asia	163
Victoria N. Scott and Noel H. Tan	
Recent Rock Art Research in China.....	171
Paul S. C. Taçon and Qinglin Yang	
Rock Art Research in Korea (2010-2014): Daegok-Ri (Bangudae) Petroglyphs in Ulsan	179
Seog Ho Jang	

Research, Management and Conservation of Rock Art in Australia 2010-2014	187
Natalie Franklin	
Pacific Rock Art from 2010 to 2014: Research Trends, Conservation and Losses	205
Rachel Hoerman	
Recent Rock Art Research in Canada	215
Dagmara Zawadzka	
North American Rock Art Research 2010-2014.....	225
Reinaldo Morales Jr.	
Rock Art Research In Mexico (2010-2014)	245
William Breen Murray†, Francisco Mendiola, María de la Luz Gutiérrez and Carlos Viramontes	
Recent Rock Art Studies in the Maya Region and the Intermediate Area, 2010-14.....	267
Martin Künne and Suzanne Baker	
Caribbean Rock Art 2010-2014: Documentation, Dating and Definitions	285
Michele H. Hayward and Michael A. Cinquino	
Rock Art in Ecuador: Research 2010-2014	295
María Fernanda Ugalde	
Rock Art Studies in Brazil (2010-2014)	303
Andrei Isnardis Horta and André Prous	
Rock Art Studies in Peru (2010-2014).....	315
Matthias Strecker	
Rock Art Studies in Bolivia (2010-2014).....	323
Matthias Strecker	
New Research on Ancient Images: Rock Art Studies in Argentina (2010-2014)	329
Dánae Fiore and Mara Basile	
Rock Art in Chile (2010-2014)	349
Marcela Sepúlveda, Gloria Cabello and Daniela Valenzuela R.	

News from the Alps (2010-2014)

Claudia Defrasne

The Alps are a vast mountainous territory divided into France, Switzerland, Italy, Liechtenstein, Austria, Germany and Slovenia (Figure 1). Frequency of rock art studies varies dramatically depending on the regions, the Mont Bego area (France) and the Valcamonica and Valtellina (Italy) being the most studied. Eastern regions are far less investigated.

Rock imagery in the Alps has existed from at least the Neolithic period to the 20th century. The presence of Palaeolithic engravings in Valcamonica is accepted by some specialists (e.g. Martini *et al.* 2009) but such

an assertion should be considered with caution in the absence of sufficient data.

This synthesis summarizes 51 books, articles and Ph.D. dissertations published or discussed from 2010 onwards, chosen for the importance of the discoveries they are describing, for the relevance of the scientific issues addressed, for the thoroughness of the methods used, and for their contributions to Alpine rock imagery studies (Table 1). Many other interesting studies could not be addressed within the limitations of this article.

TABLE 1. LIST OF THE SITES MENTIONED WITH THEIR LOCATION, ALTITUDE, PERIOD AND BIBLIOGRAPHY.

N°	Name of the site	Location	Altitude	Type	Period	Bibliography
1	Faravel	Freissinières, Hautes-Alpes, France	2133	Painted rockshelter	Neolithic ? Iron Age ?	Walsh <i>et al.</i> forthcoming
2	Genevray necropolis	Thonon-les-Bains, Haute-Savoie, France	457	Reused engraved rocks in tombs	Neolithic	Baudais 2007
3	Oullas rockshelter	Saint-Paul-sur-Ubaye, Alpes-de-Haute-Provence, France	2390	Painted rockshelter	From Neolithic to modern period	Defrasne 2014; Defrasne and Bailly 2014; Le Quellec <i>et al.</i> 2015
4	Susa valley	Torino, Piedmont, Italy	781-1096	Engraved rocks	From Neolithic (?) to modern period	Toso 2012
5	Bego Mount	Tende, Alpes-Maritimes, France	1900-2800	Engraved rocks	From Neolithic to modern period	Huet 2012; Bianchi 2013
6	Bramois	Bramois, Valais, Suisse	?	Statue-menhir	Neolithic period	Mottet 2009
7	Crête des Barmes	Saint-Léonard, Valais, Suisse	1600-2000	Engraved rocks	Neolithic, Bronze Age?	Cassen 2014
8	Saint-Vincent	Saint-Vincent, Aosta, Aosta valley, Italy	?	Engraved rocks	Neolithic?	Fossati 2014
9	Chenal rockshelter	Montjovet, Aosta, Aosta valley, Italy	640	Engraved rockshelter	From Neolithic to modern period	Arcà <i>et al.</i> 2013
10	Bessa plateau	Torino, Piedmont, Italy	300-400	Engraved rocks	From Neolithic (?) to modern period	Vaudagna 2003
11	Balma dei Cervi	Crodo, Verbano-Cusio-Ossola, Piedmont, Italy	?	Painted rockshelter	Neolithic ?	De Giuli and Priuli 2013
12	Balm d'la Vardaiola	Varzo, Verbano-Cusio-Ossola, Piedmont, Italy	1950	Painted rockshelter	Neolithic ?	Gambari 2007
13	Aga Mountain	Carona, Lugano, Ticino, Switzerland	2112-2427	Engraved rocks	From the III ^d century BCE to modern period	Casini and Fossati 2013; 2014
14	Ca Morei	Teglio, Sondrio, Lombardy, Italy	?	Female statue-menhir	Chalcolithic	Casini <i>et al.</i> 2012
15	Monticolo di Darfo	Darfo Boario Terme, Brescia, Lombardy, Italy	350	Engraved rocks	From Neolithic to modern period	Troletti 2013b
16	Anvòia	Ossimo, Brescia, Lombardy, Italy	860	Ceremonial site with statue-menhirs	Chalcolithic	Fedele 2013
17	Camerata 4	Lòzio, Brescia, Lombardy, Italy	720-750	Female statue-menhir	Chalcolithic	Fedele <i>et al.</i> 2014

N°	Name of the site	Location	Altitude	Type	Period	Bibliography
18	Castegno Büso and Mulini di Camerata	Ossimo and Lözio, Brescia, Lombardy, Italy	720-790	Engraved rocks	Neolithic	Fedele <i>et al.</i> 2014
19	Bedolina, Coren di Redondo, Seradina I and Piè	Capo di Ponte, Brescia, Lombardy, Italy	?	Engraved rocks	Mainly Bronze Age and Iron Age	Marretta 2013
20	Campanine di Cimbergo	Cimbergo, Brescia, Lombardy, Italy	400-800	Engraved rocks	From Neolithic to modern period	Troletti 2013a
21	Cevo and the Furloni fragment	Cevo, Brescia, Lombardy, Italy	?	Female and undetermined statue-menhirs	Chalcolithic	Sansoni 2013
22	Vezzano 1 and 2	Vezzano, Trento, Trentino Alto Adige, Italy	730	Male and female statue-menhirs	Chalcolithic	Pedrotti and Steiner 2014
23	Senales valley	Trento, Trentino Alto Adige, Italy	700-2900	Engraved rocks	From Neolithic (?) to modern period	Cavulli 2012
24	Val di Fiemme	Cavalese, Tesero, Panchià, Ziano, Predazzo, Trento, Trentino Alto Adige, Italy	1000 to 2357	Painted rockshelters	Modern period	Bazzanella <i>et al.</i> 2012; 2014 Vanzetta 1991
25	Velturmo-Tanzgasse	Velturmo, Bolzano, Trentino Alto Adige, Italy	851	Ceremonial site with statue-menhirs	Chalcolithic	Tecchiati 2013

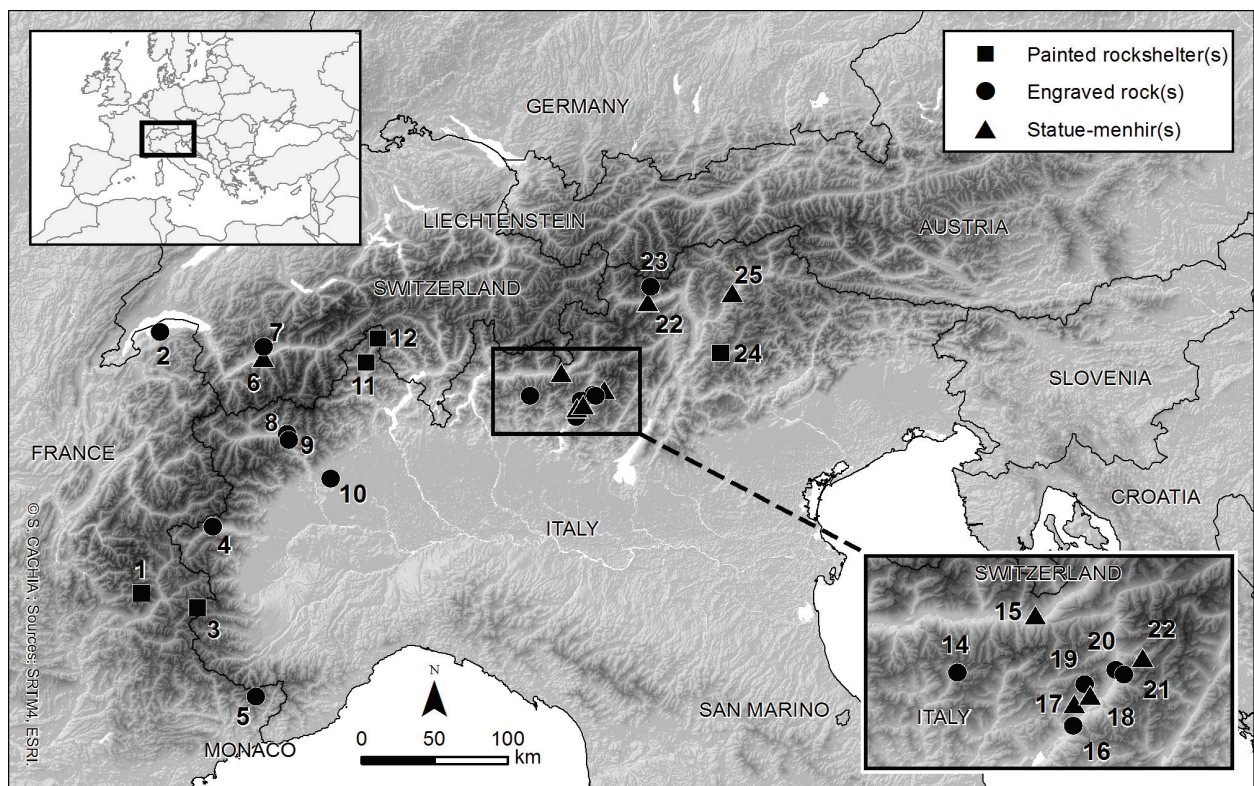


FIGURE 1. LOCATION OF SITES MENTIONED.

New discoveries of painted rock-shelters and engraved rocks

Western Alps

The oldest Alpine rock paintings, attributed to the Neolithic period and exclusively located in the western Alps from 420 to 2390 m a.s.l., are schematic, reminiscent of paintings from south-eastern France. Others are attributed to the Iron Age (Arcà and Fossati 2012). A new painted rock-shelter with schematic paintings was

discovered in 2010 in the Ecrins National Park (Hautes Alpes, France) on the Faravel plateau, studied since 1998, at 2133 m a.s.l. Located in a sandstone layer and open to the south, this rock-shelter forms a protected area of 12.76 sq m with a height of 0.70 to 1 m (Figure 2). Paintings composed of red clay with iron oxide include a wounded deer facing a dog, reminiscent of other sites such as Pierre Escrite (Alpes-de-Haute-Provence, France) (Hameau and Garidel 1997) and Porto Badisco (Apulia, Italy) (Graziosi 1996). The roof surface might have been previously pecked to receive the paintings.

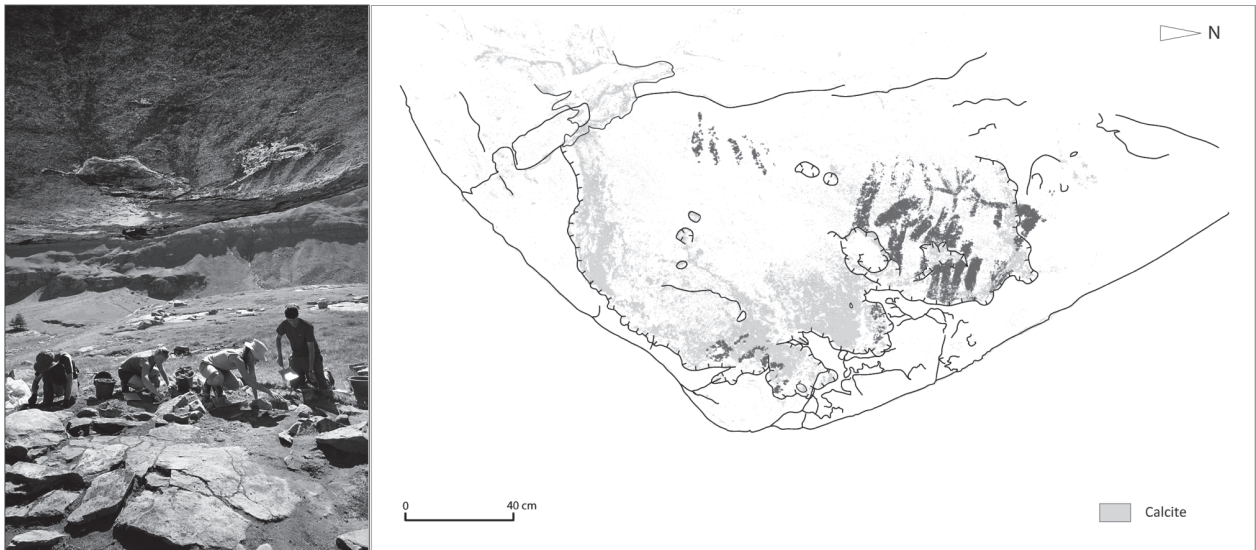


FIGURE 2. THE FARAVEL ROCK-SHELTER. VIEW FROM THE ROCK-SHELTER (PHOTO: L. DAMELET, CENTRE CAMILLE JULLIAN UMR 7299 AMU-CNRS-MCC) AND DRAWING (C. DEFRASNE).

Photos of the paintings were enhanced using DStretch and recorded with a white-light scan, whilst the rock-shelter and surrounding landscape were scanned using a Faro laser scanner. Excavation of the rock-shelter is still ongoing. On the basis of the context, the technique and the painted theme, we propose to assign these paintings to the Neolithic period or to the Iron Age (Walsh *et al.* forthcoming).

In the Aosta valley (Italy), two rocks were discovered in 2014 at Saint-Vincent and described by Fossati in a preliminary paper in which complete tracings are not yet published. These rocks display at least 10 pecked ibex with straight bodies and overly large horns, five fringed figures and adjacent or joined reversed U-shaped figures. He also describes two schematic human figures (Fossati 2014). These ibex are reminiscent of the distinctive animal imagery of the statue-menhirs erected during the 3rd millennium BCE in Valcamonica, and of the statue-menhir fragment from Bramois (Wallis, Switzerland) discovered in a house contemporary to the Petit Chasseur (Wallis, Switzerland) and Saint-Martin-de-Corléans (Aosta, Italy) Neolithic cemeteries, being engraved with an animal figure and concentric circles (Mottet 2009: 111). Fossati also evoked Breton imagery but it is difficult to have a precise idea of the validity of such a comparison without a complete recording of this imagery.

Central Alps

Moving to the Lepontine Alps and to the Val Antigorio (Italy), a second painted rock-shelter, the *Balma dei Cervi*, was discovered in 2011 a few miles from the

Balm d'la Vardaiola painted site. This rock-shelter (6 x 1.5 m) is in a long cliff of micaschists overlooking the valley and facing west. Imagery is schematic, composed mostly of anthropomorphs with semi-circular arms and legs, and isolated or aligned dots. About 40 figures have been identified, constituting what appears to be the largest collection of Alpine painted rock imagery. An isolated trace of a possible schematic human figure has been discovered 15 m to the north, so it is possible that paintings were initially more numerous (De Giuli and Priuli 2013). The omnipresence of the human figure is particularly striking and specific to this site.

In the Rhaetian Alps, new engravings at Bedolina, Coren di Redondo, Seradina I and Piè in Valcamonica (Italy) led A. Marretta to rightly question the landscape interpretation of the so-called 'topographic engravings' (Marretta 2013). Such a reading of very different geometric figures (pecked patches, grids, double-base rectangles, rectangles filled with dots...) was convincingly proposed by Arcà (2004) and never contested. But some features of these new geometric arrangements, as detailed by the author, are inconsistent with the landscape interpretation (Marretta 2013). In addition to some inconsistencies that have been highlighted, one could add that some of Arcà's comparisons between geometric figures and real structures are taken from distant archaeological contexts (grid building structures in Pakistan, a defensive wall in Spain) (Arcà 2004: Figure 15.10 and 15.11). Finally, the way space is conceived and represented strongly depends on the ontology. The 'bird's-eye view' should not be taken for granted (Marretta 2013: 349). Marretta rightly cautions against a single interpretation for so

many different geometric figures, and questions the role of our western ontology in the interpretation of abstract images. In western Valcamonica, geometric figures and cupmark arrangements at Castegno Büso and Mulini di Camerata (720-790 a.s.l., Lòzio valley) are considered by Fedele to be evidence of Borno 1-type sites. They are attributed to the 4th millennium BCE and interpreted as the 'phase 0' of the ideological phenomenon attested by the ceremonial sites with statue-menhirs of the 3rd millennium BCE (Fedele 2011; Fedele *et al.* 2014: 70, 81). Their description is part of a very detailed article on the prehistory of this understudied valley, where the Ceresolo statue-menhirs were discovered. The destruction of part of the Camerata area by a construction site in spite of a notification by the author reveals an important institutional problem in the Valcamonica archaeology management (Fedele *et al.* 2014: 86, 88).

New Chalcolithic statue-menhirs from the Camunian province

In the central Alps, particularly in the Camunian province (Valcamonica, Valtellina, Val Venosta, Borno plateau and Lòzio valley, Italy) (Fedele 2008), six Chalcolithic statue-menhirs were discovered out of context: Ca Morei in the Teglio area (Valtellina) (Casini *et al.* 2010), Cevo and the Furloni fragment in Valcamonica (Sansoni 2013), Camerata 4 in the Lòzio Valley (Fedele *et al.* 2014: 72, 78, 82, 86) and Vezzano 1 and 2 in Val Venosta (Pedrotti and Steiner 2014). The Cevo statue-menhir shifts northward the limit of ceremonial sites in Valcamonica. As the Vezzano statue-menhirs are being restored, no recording of them has yet been published, but a preliminary and precise description has been given by A. Pedrotti. Vezzano 2, reused after having been turned upside down, illustrates the complex biographies (Fedele 2006: 57) of some of these stone bodies (Pedrotti 2014: 119-21). Two statue-menhirs without engraved imagery were also discovered in the Veltur-Tanzgasse ceremonial site in Trentino (Italy) (Tecchiati 2013: 469-70).

Recording of Alpine rock imagery

With very few exceptions (ANISA 2012; Marretta *et al.* 2013; Brandner 2014; Colella *n.d.*), engravings are still recorded by the rubbing method (Gambari and Arcà 2012; Poggiani Keller 2013: 221, 225) or by applying a plastic sheet to the rock surface, a technique strangely considered as the most accurate and up-to-date (Arcà *et al.* 2014: 33).

However, rock art recording methods from digital photographs and 3D models are starting to be used. RTI (Reflectance Transformation Imaging) has been cited for the Vezzano statue-menhirs (Pedrotti 2014: 116). Since 2010, the present author has been studying the Oullas rock-shelter (2390 m a.s.l., Alpes-de-Haute-Provence,

France) (Figure 3). The rock surface displays painted tree-like figures overlapped by Chalcolithic Remedello-type daggers (2900-2400 BCE), providing the only clue for the dating of such schematic paintings which are spread over Provence and the western Alps. Imagery recording was carried out using DStretch. This study revealed the efficiency of the plug-in for recording Iron Age and modern incisions. It also made it possible to discover a painted date (1568) with a signature and a non-identifiable figure under calcite (Defrasne 2014; Defrasne and Bailly 2014; Le Quellec *et al.* in press). Recording techniques for extensive engraved outcrops is the subject of the 3D-Pitoti project, involving a European multi-disciplinary team and focusing on Valcamonica. This project aims to develop a 3D scanning toolkit for high resolution acquisition at different scales of the engravings and their environmental context. This requires the use of micro-aerial vehicles and visual Structure-from-Motion techniques. Intelligent data processing for the classification and clustering of the engraved figures is also being developed. Algorithms are created to separate the figures from their rock surface (Seidl and Breiteneder 2012; Seidl *et al.* in press; Zeppelzauser and Seidl, forthcoming) and to describe in a semi-automatic way the shape and appearance of engravings. Then the engravings are classified into typological categories. It is hoped that such techniques for rock art recording will become standard in the near future.

Previously known sites, new studies

Chronocultural issues

In the Aosta valley at Montjovet (Italy), the Chenal rock-shelter (16.6 x 5.1 m, 640 m a.s.l.) is essential to the understanding of the early phases of Alpine rock imagery (Arcà *et al.* 2014). The rock-shelter faces north-east and overlooks the valley. Three hundred figures have been recognized. What is particularly striking is that pecked U-shaped figures (*motivi a giogo*), rectangles with appendices (*motivi a scudetto*) and rectangles with an apical protuberance (*figure apicate*), and also their associations, are respectively reminiscent of the bird, the male sex and the 'surface' of Breton imagery dating back to the 5th millennium BCE (Cassen 2007). These similarities need to be interpreted against the close relationships between distant European regions related to the circulation of Alpine polished stone axes as shown by P. and A. M. Pétrequin. They are also coherent with the recognition of an engraved stone axe attributed to the period 4600-4300 BCE associated with a rectangular figure at the *Crête des Barmes* in Saint-Léonard similar to Breton associations (Wallis, Switzerland) (Cassen 2014: 295). Another comparison could be proposed with the covering slab of tomb No. 105 of the Genevray cemetery (Baudais *et al.* 2007). The existence in the Alps of a Neolithic imagery, probably the oldest, shared by distant European regions, should become a key chapter of Alpine rock art studies.

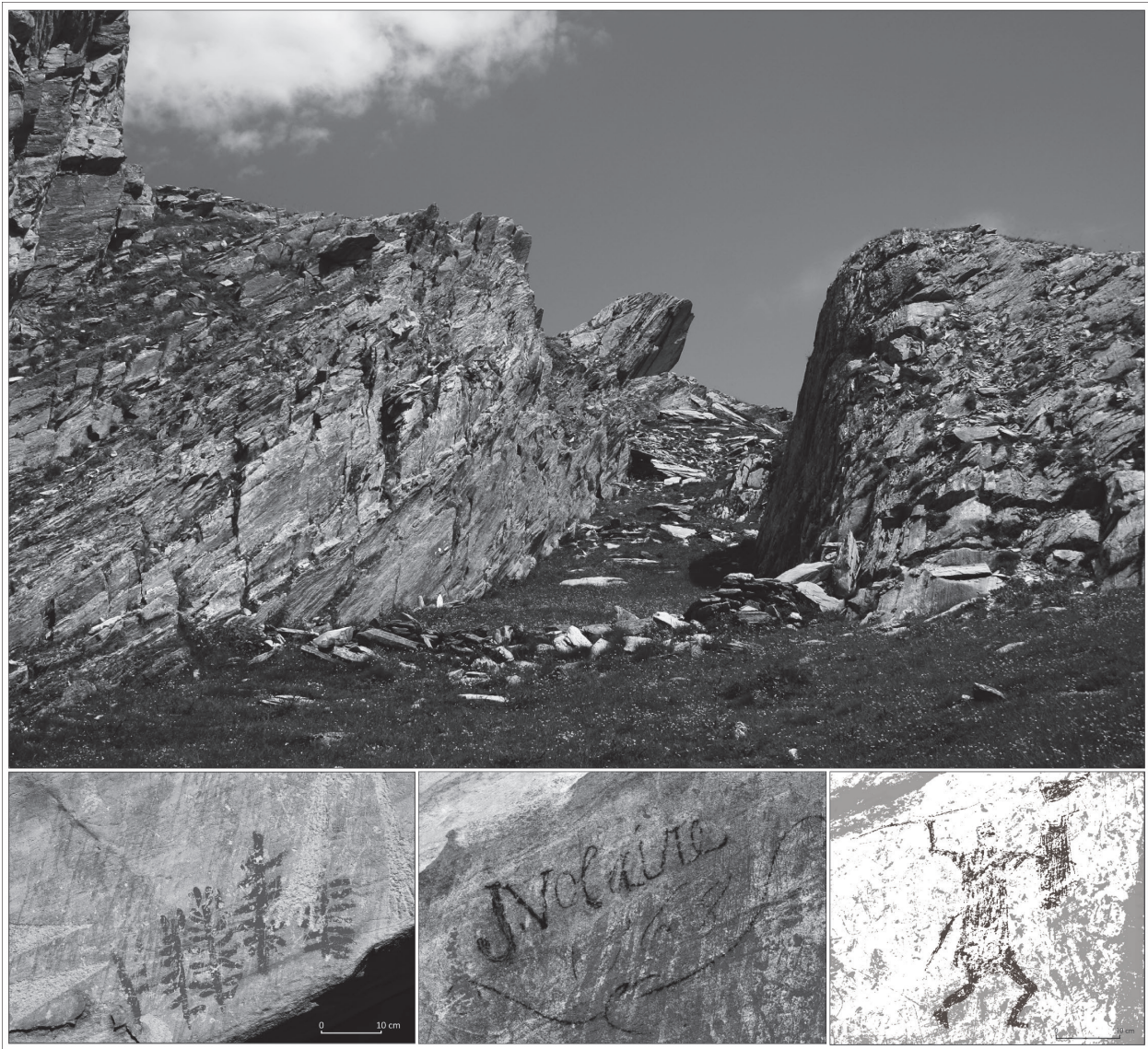


FIGURE 3. THE OULLAS ROCK-SHELTER. VIEW OF THE TALWEG LINED WITH SCHISTOSE CLIFFS AND EXAMPLES OF PAINTINGS AND ENGRAVINGS. FROM LEFT TO RIGHT: NEOLITHIC TREE-LIKE FIGURES, SIGNATURE ASSOCIATED WITH THE DATE 1568 AND THE INCISED IRON AGE WARRIOR (PHOTOS AND DRAWING: C. DEFRASNE).

In the Bego area (comprising the *Vallée des Merveilles* and Fontanalba) (1900-2800 m a.s.l., Alpes-Maritimes, France), N. Bianchi's Ph.D. thesis addressed the chronocultural attribution of the engraved weapons from both the archeological remains in this high-altitude site and typological comparisons between engraved weapons and real ones discovered in dated archaeological contexts. According to the author, images of flint and metal daggers and halberds were pecked from 3700 BCE to the Final Bronze Age. From superimpositions, she showed that incised images were made during prehistoric times and could have coexisted with pecked engravings until the Early Bronze Age. Like T. Huet, she suggested that the oldest engravings are located in the lower part of the *Merveilles* area close to the rock-shelters occupied during the Neolithic period. Moreover,

the oldest engraved daggers are concentrated in the *Vallée des Merveilles* itself. Finally, Bronze Age daggers are engraved in the *Merveilles* area whereas Bronze Age halberds are engraved in Fontanalba. As regards cultural issues, engraved Neolithic daggers are reminiscent of Rinaldone and Remedello specimens, but also of daggers from southern France. Then, during the Bell Beaker period, the author stresses influences from northern Italy and Spain. Connections with central Europe are evoked for the Bronze Age (Bianchi 2013).

GIS analyses

GIS analyses have been recently introduced into Alpine rock art studies, but are still rare. Huet employed statistical and spatial analysis to study the Bego imagery.

He concluded that the spatial distribution of themes is not closely related to environmental features. However, some exceptions appeared interesting: pecked patches and fringed figures are engraved in the lower part of the *Vallée des Merveilles* and Fontanalba areas, while grids, ‘skins’ (rectangular figures with appendices) and fringed figures are close to streams or lakes. Moreover, fringed figures are mostly engraved on subvertical edges; red rock surfaces are preferred, and have bigger engravings – the bigger the rock, the bigger the engraving. Huet defined three types of corniforms correlated with distinct spatial distributions and interpreted as evidence of a chronological evolution. From superimpositions (18 of them previously unpublished), the archaeological context of the Bego area and comparisons with other cultural contexts, Huet proposed a revised chronological sequence of the Bego imagery from 5500-5300 BCE to 2350-1800 BCE. Hafted halberds, ‘realistic’ human figures and corniforms with rectangular bodies and tails from Fontanalba could be the more recent figures. Grids, pecked patches and close geometric figures may be the older images. The author stressed the particular features of the so-called *Roche de l’autel* located in the *Vallée des Merveilles*. It is the most engraved rock, with the main concentration of daggers, and their dimensions are bigger than on the other rocks. Moreover engravings are mainly located on the north edge, whereas elsewhere the south-east edges are preferred (Huet 2012).

In Valcamonica, most publications focus on restricted areas or on themes, or are based on empirical observations. However, only broad and systematic analyses with objective tools will highlight some readable structural features of this sizeable documentation (300,000 engravings). Craig Alexander has provided the first GIS analysis of Valcamonica Iron Age rock art within a broad theoretical framework, seeking to understand its spatial distribution and social role. Alexander showed how Iron Age rock imagery is located within the ‘taskscape’, in pasturing and farming areas, and consequently is connected to daily life, thus arguing against interpretations involving ritual and initiation rites. The spatial distribution also suggests that the rock art was at least partly expressing identity and local traditions, since the assemblage of image types varies across the valley (Alexander 2011).

An innovative approach using GIS analyses was used by F. Troletti to study the little-studied historical engravings in Valcamonica (Italy). He focused on Campanine di Cimbergo (400-800 m a.s.l.) (Troletti 2013a) and Monticolo di Darfo (350 m a.s.l.) (Troletti 2013b). Engravings from Campanine, mostly dating back to the 14th-16th centuries, have been studied, comparing their spatial distribution with the Austro-Hungarian Cadastre for Lombardo-Veneto (1813). This allowed the author to suggest that figurative engravings are located in herding and farming areas, whereas schematic ones are located in areas where stone

and minerals were extracted. Once again, engravings may be connected to working activities and daily life.

Shepherds culture

Engravings and paintings made by shepherds are an essential part of Alpine rock imagery. In the Val Brembana (Lepontine Alps, Switzerland), incised engravings including a Latin alphabet (3rd-1st centuries BCE) and the name of the peaks and passes god *Poininos* in the Lepontic alphabet (a Celtic dialect, 3rd-2nd centuries BCE), evidence of a high-altitude sanctuary, are located in the foothills of the Aga Mountain (2112-2427 m a.s.l.) (Casini *et al.* 2014). Using engravings, municipal archives and interviews, Casini *et al.* (2013) also studied the shepherds’ engravings and the high mountain pasture economy from the 15th to the 20th centuries. The authors addressed the origin of the shepherds and the connection between engravings and material culture, some images being common to rocks and wooden or horn objects. In the Dolomites (Italy), the Val di Fiemme hosts an impressive corpus of paintings made by shepherds since at least 1558. The APSAT (*Ambiente e Paesaggi dei Siti di Altura Trentini*, 2008-2011) project aims at recording each of the inscriptions and structures used by shepherds. The corpus comprises 2400 painted limestone surfaces and 30,000 inscriptions (names, dates, animal and human drawings, hunting scenes, animal head counts, family signs, Christian symbols, messages dealing with a special event, diary information or political events) located from 1200 to 2357 m a.s.l. Paintings are made of red ochre from local mines (Vanzetta 1991), also used to mark cattle. This project included ethnoarchaeological interviews and physical-chemical analysis of pigments to determine their origin and binders (milk, carotenoids). The *Archivi di Pietra* project focuses on ethnographical studies performed since 2006 by the *Museo degli Usi e Costumi della Gente Trentina*. These studies led to the discovery of two painted rock-shelters, both used as resting places or as shelters. Excavations were carried out and revealed a human presence from the Eneolithic or beginning of the Bronze Age (Bazzanella *et al.* 2012, 2014). This cross-disciplinary research might serve as an example of the way a rock art study has to be done. It is interesting to note again the connection between painted motifs and material culture (Bazzanella *et al.* 2014). It should also be noted that such paintings, considered transgressive, were made and known by a small group of people, revealing that relationships with the environment could vary according to the different segments of society (Bazzanella *et al.* 2014: 176).

Cupmarks

Cupmarks are the most widespread anthropogenic mark on Alpine rock surfaces, and raise chronological and functional issues. The subject had been little studied until the last few years. It is admitted that cupmarks are

a single and transchronological expression of various cultural stimuli. Only systematic and spatial analyses can improve their understanding. This is the case of two spatial analyses carried out in the Senales valley (Cavulli 2012) and in the Susa valley (Toso 2012) in Italy. They led to very similar results, reminiscent of observations made by A. Vaudagna on the Bessa plateau (Vaudagna 2003). It appears that cupmarks are closely linked to the environment. They are mainly located in a position commanding views, on crests, on south-west exposed slopes, or along the main paths (routes through the mountainous environment in the valley bottom, horizontal routes on slopes or to sacred mountains), in summer pastures, close to shepherd structures and sacred constructions. Connections are also attested between such engravings and oral traditions. Arcà and Rubat-Borel (2014) addressed the chronological issue from dated archaeological contexts, but omitting the Genevray necropolis, and concluded that most cupmarks and grooves are associated with Bronze Age and Iron Age contexts, and that their number and density increased over time.

Advances in the study of the Chalcolithic statue-menhirs and their context

Significant advances in the study of Chalcolithic engraved statue-menhirs and their context come from the Camunian province and particularly from the work carried out by Fedele at the Anvòia ceremonial site (860 m a.s.l.) on the Borno Plateau (Brescia, Italy) (Fedele 2013b). He rightly continues to claim that imagery has to be studied against its archaeological context (Fedele 2012). Such a point of view is increasingly shared, and a high quality collective book about the archaeological context of the 3rd millennium BCE was published recently (De Marinis 2013). An article by Fedele focused on Alpine societies and their evolution from 3400 to 2200 BCE. The author interpreted the statue-menhirs depicting real people as a transformation of the Borno 1-type boulders in the context of Yamnaya-Vučedol influences and the importance given to the individual. In parallel, these influences, also expressed in engraved value-laden objects such as copper weapons, may have led to mortuary practices in multiple stages and places. Both ceremonial and mortuary sites are considered to be evidence of an ancestor's ideology (Fedele 2013c). At Anvòia, ¹⁴C data revealed a 'reconsecration' of the ceremonial site during the 4th century (Fedele *et al.* 2010).

Other studies focused on specific statue-menhirs. A new recording of Cemmo 3, essential to the understanding of the chronology of the imagery from Chalcolithic 2 to the Bronze Age, has been published by De Marinis and Fossati (2012). In the same way, the tracing of the impressive and complicated Anvòia-M1 (Ossimo 4) statue-menhir has been revised (Casini *et al.* 2014: 149; Fedele 2013b) and

new statue-menhirs from Anvòia have been published (Fedele and Fossati 2012a, 2012b). In a very interesting article, Casini (2010) studied the female imagery of the statue-menhirs and proposed convincing comparisons between images and body ornaments from archaeological contexts. An innovative study considers the ideological meaning of the geological features from the very special Anvòia 14 (previously M14) sandstone monolith. The main specificity of the monolith is its bichromy, violet engravings standing out intentionally from the yellow crystalline coating of the perfectly flat frontal edge. Chalcolithic groups selected this geological specificity to depict a body providing cognitive and aesthetic values in bichromy (Danesi *et al.* 2014). Plasagròp M1 (previously Ossimo 6) has been published in detail for the first time. The particularity of this boulder is the scarcity of its engraved imagery, the only example of a partitioned belt in the Valcamonica area, coupled with an extensive reddish-brownish pigmentation, which has led Fedele to interpret this combination as evidence of painted imagery that has disappeared (Fedele and Fossati 2013).

In 2013, the present author presented her Ph.D. thesis about the symbolic relationships between the Chalcolithic groups of the Camunian province and their environment, based on the statue-menhirs and their imagery. She focused on the uses of stones, the animal imagery of male statue-menhirs and the engraved material culture. Data were collected in a relational database, then used to perform a structural analysis with Multiple Correspondence Analysis and Hierarchical clustering, both aimed at highlighting emic categories. These were then interpreted thanks to archaeological context and recent anthropological studies. In spite of the abstraction of the statue-menhirs, recurrent iconic shapes have been identified, suggesting that, as in neighbouring regions, they are stone bodies, of either geological or anthropic origin. The great variability of shapes and dimensions depends first on the surrounding geological environment of the ceremonial sites, but also on the gender of the depict people. Female statue-menhirs are smaller than male ones, and the shape and processing of both genders are contrasted (roundness and rib-shape vs frontality and rectangularity in Val Venosta, pointed vs rounded top in Valtellina). Similar conclusions about the statue-menhirs from Lunigiana, Trentino, Aosta and Wallis have been published (Harris and Hoffman 2014). The practices in evidence at the ceremonial sites, reflecting connections between real bodies and stones, invite us to consider that statue-menhirs were treated as real people and were much more than representations. The engraved material culture highlights the fact that objects are strongly related to the bodies and are of great importance in the construction of social identities and gender. What I consider the main conclusion of this study, to be confirmed by the numerous unpublished statue-menhirs, concerns the relationships between some animal species and male statue-menhirs that may be divided into two classes:

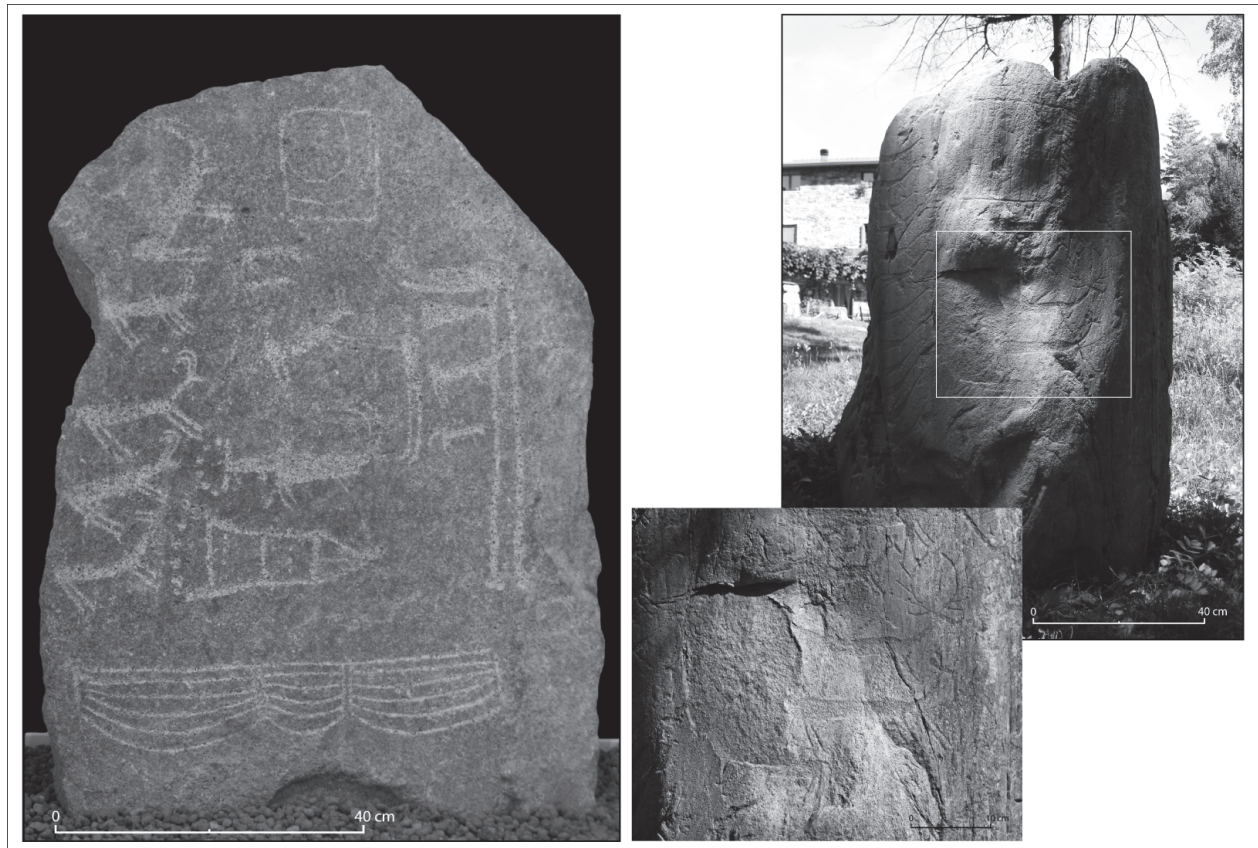


FIGURE 4. EXAMPLES OF IBEX (TIRANO-LOVERO, VALTELLINA ON THE LEFT) AND DEER (OSSIMO 7, BORNO PLATEAU ON THE RIGHT) STATUE-MENHIRS (PHOTOS: C. DEFASNE). ON BOTH STATUE-MENHIRS, IBEX AND RED DEER ARE ASSOCIATED WITH CHAMOIS.

deer statue-menhirs and ibex statue-menhirs (Figure 4). These two animal species, the only ones closely related to the dog, allowed the Chalcolithic communities to build differences between male individuals, underlying the social role of non-human animals and perhaps of hunting, and their influence on the social structure of the Chalcolithic groups. They contributed to the building of male identities and to structuring the male part of the society. Strong links between social and ecological facts have been pointed out (Defrasne 2013).

However, the imagery of the statue-menhirs is too often studied without taking into account the fact that the boulders are stone bodies, and this has led some authors to interpret images that are not immediately recognizable as symbols (Casini *et al.* 2014). In this respect, Fedele and I proposed a reconsideration of the interpretation of the radiated circles engraved at the top of the male statue-menhirs and the *bandoliera*, strangely understood as a sun and a map of a megalithic structure. From imagery and the archaeological context at different scales, we suggested that these images should be interpreted as body ornaments – a necklace and an ornament worn on a shoulder strap or a baldric (Defrasne and Fedele, forthcoming). Fedele also focused on ploughing images, and considered that they could have been engraved from the 4th millennium on Borno 1-type boulders. Their standardized depictions

led him to rightly interpret these key images as ideograms and not as scenes, and to stress that they do not highlight the object but much more the action implying a pair of oxen, a man and the ground surface. The interaction with the ground, also conveyed by the location of this image at the base of the statue-menhirs, appears to be an important aspect of the ideology when interpreted against the increased and renewed human impact on the environment caused by the animals drawn from the mid-4th millennium BCE onwards (Fedele 2013a).

Conclusion

Whatever the chronological period, rock art in the Alps appears as a social construct of the mountainous environment from the Neolithic period onwards. Studies performed on historical corpuses led to observations that should be kept in mind when studying prehistoric imagery, particularly the relationships with material culture and daily life. We should also dismiss the temptation to automatically interpret prehistoric images through comparison with familiar shapes.

However, there is substantial work to be done. Many Alpine corpuses still await systematic analysis, and excavations should be undertaken around engraved rocks to investigate practices that may be linked to the imagery.

References

- Alexander, C. 2011. *Valley of pitòti: GIS-based socio-spatial analysis of rock-art in Valcamonica (BS), Lombardy, Italy*. Ph.D. thesis. University of Cambridge: Cambridge.
- ANISA 2012. *Forschungswoche der ANISA 2012: 3-D-Dokumentation (Photogrammetrie) von Felsbildern auf dem Dachsteingebirge*. <http://www.anisa.at/Forschungswoche%20der%20ANISA%202012.htm>
- Arcà, A. 2004. The topographic engravings of Alpine rock-art: fields, settlements and agricultural landscapes, pp. 318-49 in (C. Chippindale and G. Nash, eds) *Pictures in Place: the Figured Landscapes of Rock-Art*. Cambridge University Press: Cambridge.
- Arcà, A., Daudry, D., Fossati, A. E., Morello, F. and Raiteri, L. 2014. Il riparo inciso di Montjovet-Chenal (AO), seimila anni e più di iconica rupestre, pp. 27-66 in (R. De Marinis, ed.) *Le manifestazioni del sacro e l'età del Rame nella regione alpina e nella pianura padana, Studi in memoria di Angelo Rampinelli Rota, Atti del Convegno di Brescia, Palazzo Broletto, 23-24 maggio 2014*. EUROTTEAM: Brescia.
- Arcà, A. and Fossati, A. E. 2012. Le pitture rupestri sotto riparo dell'arco alpino, uno sguardo d'insieme. *Preistoria Alpina* 46 (2): 173-78.
- Arcà, A. and Rubat Borel, F. 2014. Rocce a coppelle, elementi di un paesaggio progettato e monumentalizzato. Contestualizzazione archeologica e ambientale nella regione alpina, pp. 333-46 in (N. Negroni Catacchio, ed.) *Preistoria e protostoria in Etruria. Paesaggi cerimoniali. Ricerche e scavi. Atti dell'undicesimo incontro di studi, Valentano (VT) – Pitigliano (GR), 14-16 Settembre 2012*. Centro studi di preistoria e archeologia: Milan.
- Baudais, D., Gatto, E., Gisclon, J.-L. and Saintot, S. 2007. Coffres en pierre, coffres en bois : la nécropole néolithique moyen de Genevray (Thonon-les-Bains, Haute-Savoie, France), pp. 155-76 in (P. Chambon and P. Moinat, eds) *Les cistes de Chamblandes et la place des coffres dans les pratiques funéraires du Néolithique moyen occidental. Actes du colloque de Lausanne, 12 et 13 mai 2006*. Lausanne and Paris.
- Bazzanella, M., Bernabei, M., Bontadi, J., Belli, R., Kezich, G., Toniutti, L. and Wierer, U. 2012. Le scritte dei pastori delle Pizancae in Val di Fiemme (Trentino): verso un'ipotesi interpretativa del graffitismo pastorale alpino, pp. 329-39 in (I. i. d. p. e. protostoria) *XLII Riunione scientifica dell'I.I.P.P. L'arte preistorica in Italia. Trento, Riva del Garda, Val Camonica, 9-13 ottobre 2007*. Museo tridentino di Scienze naturali: Trento.
- Bazzanella, M., Kezich, G. and Pisoni, L. 2014. 'Adio Pastori!'. Ethics and Aesthetics of an Alphabetized Pastoral Subculture. The Case of Fiemme in the Eastern Alps (1680-1940). *Boletín del Museo Chileno de Arte Precolombino* 19 (1): 22-35.
- Bianchi, N. 2013. *Art rupestre en europe occidentale: Contexte archéologique et chronologique des gravures protohistoriques de la région du Mont Bego. De la typologie des armes piquetées à l'étude des gravures schématiques-linéaires*. Ph.D. thesis, 2 vols. Université de Perpignan.
- Brandner, D. 2014. *Notgasse revisited. Forschungsberichte der ANISA für das Internet 2*. http://www.anisa.at/Notgasse_Brandner_ANISA_2014.html
- Casini, S. 2010. I monoliti istoriati con simbologia femminile della Valcamonica e della Valtellina. Riflessioni e nuovi spunti di ricerca. *Notizie archeologiche bergomensi* 16: 5-20.
- Casini, S., De Marinis, R. C. and Fossati, A. 2014. Aspetti simbolici dello stile III A in Valcamonica e Valtellina: ipotesi interpretative, pp. 147-65 in (R. De Marinis, ed.) *Le manifestazioni del sacro e l'età del Rame nella regione alpina e nella pianura padana, Studi in memoria di Angelo Rampinelli Rota, Atti del Convegno di Brescia, Palazzo Broletto, 23-24 maggio 2014*. EUROTTEAM: Brescia.
- Casini, S., Fossati, A. and Simonelli, M. 2010. Una nuova stele femminile dell'età del Rame in Valtellina. *Notizie archeologiche bergomensi* 18: 53-57.
- Casini, S., Fossati, A. and Bassi, S. 2013. Arte dei pastori e relazioni con l'economia negli alpeggi (XV-XX secolo), pp. 207-24 in (D. Daudry, ed.) *Actes du XIII^e Colloque sur les Alpes dans l'Antiquité Brusson / Vallée d'Aoste, 12-14 octobre 2012*. Société Valdôtaine de Préhistoire et d'Archéologie: Aoste.
- Casini, S., Motta, F. and Fossati, A. E. 2014. Un santuario celtico alle fonti del Brembo? Le iscrizioni in alfabeto di lugano incise su roccia a carona (Bergamo), pp. 103-20 in (P. Barral, J.-P. Guillaumet, M.-J. Roulière-Lambert, M. Saracino and D. Vitali, eds) *Les Celtes et le Nord de l'Italie (Premier et Second Âges du Fer). Actes du XXXVI^e colloque international de l'A.F.E.A.F. (Vérone, 17-20 mai 2012)*. SAE: Dijon.
- Cassen, S. 2007. Le Mané Lud en images. Interprétations de signes gravés sur les parois de la tombe à couloir néolithique de Locmariaquer (Morbihan) *Gallia Préhistoire* 49: 197-258.
- Cassen, S. 2014. Sites de passage (1). Le modèle carnacois des pierres dressées à l'épreuve des rivières, des lacs et des montagnes (France, Suisse, Italie), pp. 281-302 in (R.-M. Arbogast and A. Greffier-Richard, eds) *Entre archéologie et écologie, une préhistoire de tous les milieux : mélanges offerts à Pierre Pétrequin*. Presses Universitaires de Franche-Comté: Besançon.
- Cavulli, F. 2012. I massi coppellati della Val Senales come fenomeno simbolico-funzionale legato al territorio. Metodi e risultati preliminari. *Preistoria Alpina* 46 (2): 83-91.
- Colella, M. n.d. *I cavalieri della Forra di Paspardo. I dipinti dell'età del Ferro nell'arte rupestre della Valcamonica*. Centro Camuno di Studi Preistorici: Capo di Ponte.

- Danesi, A., Poggi, D. and Fedele, F. 2014. Selezione del litotipo e ricerca di effetto cromatico nell'età del Rame: il caso del monolito Anvòia 14 (Ossimo, Valcamonica). *Notizie archeologiche bergomensi* 22: 31-44.
- De Giuli, A. and Priuli, A. 2013. The wall paintings of La Balma dei Cervi in the Antigorio Valley (Leptontine Alps - Piedmont). *Adoranten*, pp. 9-96.
- De Marinis, R. and Fossati, A. E. 2012. La stele Cemmo 3. *Preistoria Alpina* 46 (2): 283-85.
- De Marinis, R. C. (ed.) 2013. *L'Età del rame, la pianura padana e le Alpi al tempo di Ötzi*. Compagnia della stampa / Massetti Rodella Editori: Brescia.
- Defrasne, C. 2013. *Images gravées et corps de pierre. Fragments d'ontologie dans les Alpes centrales du IIIe millénaire av.n.è.* Thèse de Doctorat, 2 volumes, Aix-Marseille Université-Università di Napoli Federico II (dir. M. Bailly, F. Fedele). Aix-en-Provence.
- Defrasne, C. 2014. Digital image enhancement for recording rupestrian engravings: applications to an Alpine rockshelter. *Journal of Archaeological Science* 50: 31-38.
- Defrasne, C. and Bailly, M. 2014. Les Oullas: an image-bearing rockshelter on a Neolithic Alpine path?, pp. 101-10 in (M. Besse, ed.) *Around the Petit-Chasseur Site in Sion (Valais, Switzerland) and New Approaches to the Bell Beaker Culture, Proceedings of the International Conference, Sion, Switzerland - October 27-30 2011*. Archaeopress: Oxford.
- Defrasne, C. and Fedele, F. G. (forthcoming) Contextualiser l'imagerie préhistorique. Les figures circulaires et la figure 'a bandoliera' des monolithes chalcolithiques centre-alpins. *Bulletin de la Société préhistorique française* 112 (3).
- Fedele, F. G. 2006. *Asinino-Anvòia: il Parco archeologico*. Cooperativa archeologica Le Orme dell'Uomo: Cervenno.
- Fedele, F. G. 2008. Statue-menhirs, Human Remains and Mana at the Ossimo 'Anvòia' Ceremonial Site, Val Camonica. *Journal of Mediterranean Archaeology* 21 (1): 57-79.
- Fedele, F. G. 2011. Origini dell'ideologia cerimoniale centroalpina dell'età del Rame: una 'fase zero' di IV millennio? *Notizie Archeologiche Bergomensi* 19: 77-100.
- Fedele, F. G. 2012. Statue-menhir alpine: la ricerca di un contesto. *Rivista di Scienze Preistoriche* 62: 169-94.
- Fedele, F. G. 2013a. Diffusion de la traction animale en Europe: Contexte et idéologie d'après l'imagerie rupestre des Alpes centrales italiennes, pp. 227-44 in (M. A. Borrello, ed.) *Les Hommes Préhistoriques et les Alpes*. Archaeopress: Oxford.
- Fedele, F. G. 2013b. Il sito cerimoniale di Anvòia a Ossimo (Valcamonica), pp. 197-207 in (R. C. De Marinis, ed.) *L'età del Rame. La pianura padana e le Alpi al tempo di Ötzi*. Compagnia della Stampa Massetti Rodella editori: Brescia.
- Fedele, F. G. 2013c. La società dell'età del Rame nell'area alpina e prealpina, pp. 45-67 in (R. C. de Marinis, ed.) *L'età del Rame : la pianura padana e le Alpi al tempo di Ötzi*. Compagnia della Stampa Massetti Rodella editori: Brescia.
- Fedele, F. G. and Fossati, A. E. 2012a. L'area cerimoniale di Anvòia a Ossimo, Valcamonica : i monoliti simbolici e il loro contesto. *Preistoria Alpina* 46 (2): 189-99.
- Fedele, F. G. and Fossati, A. E. 2012b. Massi, menhir e stele : alcuni particolari monoliti simbolici dal sito cerimoniale calcolitico di Anvòia a Ossimo (Valcamonica). *Preistoria Alpina* 46 (2): 281-82.
- Fedele, F. G. and Fossati, A. E. 2013. Il monolito M1 di Plasagròp ('Ossimo 6'). *Notizie archeologiche bergomensi* 21: 51-63.
- Fedele, F. G., Fossati, A. E. and Giorgi, A. 2014. *Archeologia preistorica della valle di Lòzio (Valcamonica). Primo contributo. Notizie archeologiche bergomensi* 22: 45-94.
- Fedele, F. G., Terrasi, F. and Capano, M. 2010. Datazioni radiocarboniche AMS per l'area a statue-menhir di Ossimo 'Anvòia', Valcamonica : primi risultati. *Notizie archeologiche bergomensi* 18: 19-32.
- Fossati, A. E. 2014. Saint Vincent, nuove incisioni rupestri preistoriche. Société Valdôtaine de Préhistoire et 'Archéologie. <http://www.archeosvapa.eu/?p=743>
- Gambari, F. M. and Arcà, A. 2012. Le statue-stele di Vestigné, fraz. Tina. Indagini geologiche, verifiche subacquee ed esame degli elementi iconografici. *Preistoria Alpina* 46 (2): 211-33.
- Graziosi, P. 1996. *The Prehistoric Paintings of the Porto Badisco Cave*. Origines: Florence.
- Hameau, P. and Garidel, Y. 1997. Les peintures de Pierre Escrite (Chasteuil, Alpes-de-Haute-Provence) et la représentation du cerf dans l'art schématique postglaciaire. *Bulletin de la Société préhistorique française* 94: 83-96.
- Harris, S. and Hofmann, K. P. 2014. From Stones to Gendered Bodies: Regional Differences in the Production of the Body and Gender on the Copper Age Statue-Menhirs of Northern Italy and the Swiss Valais. *European Journal of Archaeology* 17 (2): 264-65.
- Huet, T. 2012. *Organisation spatiale et sériation des gravures piquetées du mont Bego*. Université Nice Sophia Antipolis.
- Le Quellec, J.-L., Duquesnoy, F. and Defrasne, C. 2015. Digital image enhancement with DStretch: is complexity always necessary for efficiency? . *Digital Applications in Archaeology and Cultural Heritage*. Available online 23 January 2015.
- Marretta, A. 2013. The Abstract Mind. Valcamonica Complex Geometric Compositions in the Light of New Discoveries, pp. 343-56 in (E. Anati, ed.) *XXV Valcamonica Symposium. Art as a source of history. Città della Cultura - Capo di Ponte (Italy), September 20 to 26, 2013*. Edizioni del Centro: Capo di Ponte.

- Marretta, A., Martinotti, A. and Colella, M. 2013. Un'esperienza di procedura documentativa e analitica informatizzata di tecniche e sequenze istoriative su due frammenti litici con graffiti protostorici da Piancogno (Valcamonica, BS). *Archeologia Postmedievale* 17: 319-28.
- Martini, F., Baglioni, L. and Poggiani Keller, R. 2009. Alle origini dell'arte rupestre camuna, pp. 183-96 in (R. Poggiani Keller, ed.) *La Valle delle incisioni. 1909-2009 cento anni di scoperte. 1979-2009 trenta anni con l'Unesco in Valle Camonica. Brescia, Palazzo Martinengo, 21 marzo-10 maggio 2009*. Tipografia camuna: Brescia.
- Mottet, M. 2009. Le Néolithique final de Bramois. *Sedunum Nostrum* 14: 102-11.
- Pedrotti, A. and Steiner, H. 2014. Due nuove statue-stele da Vezzano, comune di Silandro (Val Venosta, BZ): primi dati sull'uso della trasformazione e reimpiego dei monumenti nel gruppo atesino, pp. 111-26 in (R. De Marinis, ed.) *Le manifestazioni del sacro e l'età del Rame nella regione alpina e nella pianura padana, Studi in memoria di Angelo Rampinelli Rota, Atti del Convegno di Brescia, Palazzo Broletto, 23-24 maggio 2014*. EUROTEAM: Brescia.
- Poggiani Keller, R. 2013. Le sanctuaire mégalithique d'Ossimo-Pat (Valcamonica, Brescia, Italie), pp. 219-26 in (M. A. Borello, ed.) *Les hommes préhistoriques et les Alpes*. Archaeopress: Oxford.
- Sansoni, U. 2013. La stele di Cevo e il frammento Furloni, pp. 209-19 in (R. De Marinis, ed.) *L'età del Rame. La pianura padana e le Alpi al tempo di Ötzi*. Compagnia della Stampa/Massetti Rodella Editori: Brescia.
- Seidl, M. and Breiteneder, C. 2012. Automated Petroglyph Image Segmentation with Interactive Classifier Fusion, in (B. Triggs, K. Bala and S. Chandran, eds) *Proceedings of the Eighth Indian Conference on Computer Vision, Graphics and Image Processing (ICVGIP '12), Mumbai, India - December 16-19, 2012*. ACM: New York. <http://dl.acm.org/citation.cfm?doid=2425333.2425399>
- Seidl, M., Wieser, E. and Alexander, C. (in press) *Automated classification of petroglyphs. Digital Applications in Archaeology and Cultural Heritage*. Available online 14 March 2015.
- Tecchiati, U. 2013. Luoghi di culto, sepolture e sepolcreti dell'età del Rame dell'area atesina, pp. 457-78 in (R. C. De Marinis, ed.) *L'età del Rame. La pianura Padana e le Alpi al tempo di Ötzi*. Compagnia della Stampa Massetti Rodella editori: Brescia.
- Toso, A. 2012. Multidisciplinary Approach To The Study Of The Rock Art: A Case Of Study From Susa Valley, Italy. *Revista Arkeogazte* 2: 138-57.
- Troletti, F. 2013a. Methodology for Research in Common Era Rock Engravings. An Example: Comparing the Austrian Cadastre with the Site of Campanine di Cimbergo, pp. 423-30 in (E. Anati, ed.) *Art as a source of history. Atti del XXV Valcamonica Symposium, Capo di Ponte, 20-26 Settembre 2013*. Edizioni del Centro: Capo di Ponte.
- Troletti, F. 2013b. Crosses and Monstrances in the Historical Rock Art of Monticolo. Some Considerations and Interpretation Proposal, pp. 113-20 in (E. Anati, ed.) *Art as a source of history. Atti del XXV Valcamonica Symposium, Capo di Ponte, 20-26 Settembre 2013*. Edizioni del Centro: Capo di Ponte.
- Vanzetta, G. 1991. *Le scritte delle Pizzancae e la 'cava del bol'*. Manfrini: Calliano.
- Vaudagna, A. 2003. Censimento delle incisioni rupestri della Bessa. *TRACCE* 15.
- Walsh, K., Mocci, F., Defrasne, C., Dumas, V. and Masinton, A. (forthcoming) 3D Laser scanning in an Alpine landscape - the rock paintings in the Abri Faravel (Southern French Alps). *Internet Archaeology*.
- Zeppelzauer, M. and Seidl, M. (forthcoming) Efficient Image-Space Extraction and Representation of 3D Surface Topography, in *Conference Proceedings of ICIP - IEEE International Conference on Image Processing 2015*. Quebec, Canada, IEEE.