

## Nine thousand years of human/landscape dynamics in a high altitude zone in the southern French Alps (Parc National des Ecrins, Hautes-Alpes)

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**SUMMARY** - *Nine thousand years of human/landscape dynamics in a high altitude zone in the southern French Alps (Parc National des Ecrins, Hautes-Alpes)* - Since 1998, a group of archaeologists has been studying the long-term history of human settlement and activity in the mid to high altitude (1800 m and above) in the Parc National des Ecrins (southern French Alps). This research has identified a number of different phases of settlement since the end of the last Ice Age (10,000 years ago). Our research demonstrates that people moved into these high altitude zones as soon as the glaciers retreated. The first phase of extensive, and relatively intense, activity dates to the Bronze Age (c. 2000 BC). During the Iron Age and Roman period there appears to have been a reduction in the level of activity. However, from the early medieval period onwards there is incontrovertible evidence for a substantial increase in activity. This culminates with the emergence of a "busy" landscape during the post-medieval period when mining and pastoral activities were at their peak.

**RIASSUNTO** - *Novemila anni di dinamiche umane e paesaggistiche in una zona d'alta quota nelle Alpi meridionali francesi (Parc National des Ecrins, Hautes-Alpes)* - Dal 1998 un gruppo di archeologi studia la storia degli insediamenti e delle attività umane nelle zone di media e alta quota (a partire da 1800 m di altitudine) nel Parc National des Ecrins (Alpi meridionali francesi). Questa ricerca ha permesso di identificare diverse fasi di popolamento che si sono succedute a partire dalla fine dell'ultima glaciazione (10.000 anni fa). Le nostre ricerche dimostrano che le popolazioni umane giunsero in queste zone d'alta quota non appena i ghiacciai cominciarono a ritirarsi. La prima fase d'attività estensiva e relativamente intensa è datata all'età del Bronzo (2000 a.C. circa); durante l'età del Ferro e l'epoca romana sembra invece che abbia subito una contrazione. In ogni modo, dall'inizio dell'epoca medievale si nota un sicuro incremento dell'attività. Questa situazione porterà, in epoca post-medievale, a un paesaggio "attivo", caratterizzato dal massimo sviluppo del lavoro legato alle miniere e alla pastorizia.

*Key words:* Alps, France, landscape, prehistory, protohistory, antiquity

*Parole chiave:* Alpi, Francia, paesaggio, preistoria, protostoria, antichità

### 1. INTRODUCTION

The diachronic study of demographic patterns and their variations across space is a fundamental research question in modern archaeology (Sbonias & Bintliff 1999). In this paper, we present a synthesis of six years of fieldwork undertaken in the Ecrins National Park in the southern French Alps, where a research group has been working since 1998. More specifically, one of us, Palet-Martinez, has been working on the extreme western edge of the national park in the Champsaur, whilst Mocci and Walsh have been carrying out research further to the east in the Freissinères commune

(Fig. 1). In both study areas we decided not to prioritise any particular historical period, or type of site. Our aim was to develop an image of how human settlement has waxed and waned in the mid to high altitude zone (1800 m and above) throughout the entire Holocene. Few high-altitude diachronic studies have taken place anywhere in the Alps; although there have been a number of research projects which consider specific chronological periods in the past (Bailly-Maître 1996; Bailly-Maître & Bruno Dupraz 1994; Barge-Mahieu *et al.* 1998; Bintz 1999; Della Casa *et al.* 1999; Fedele 1992; Fedele 1999). Our collaboration with palaeoenvironmentalists, in particular palynologists, informs our

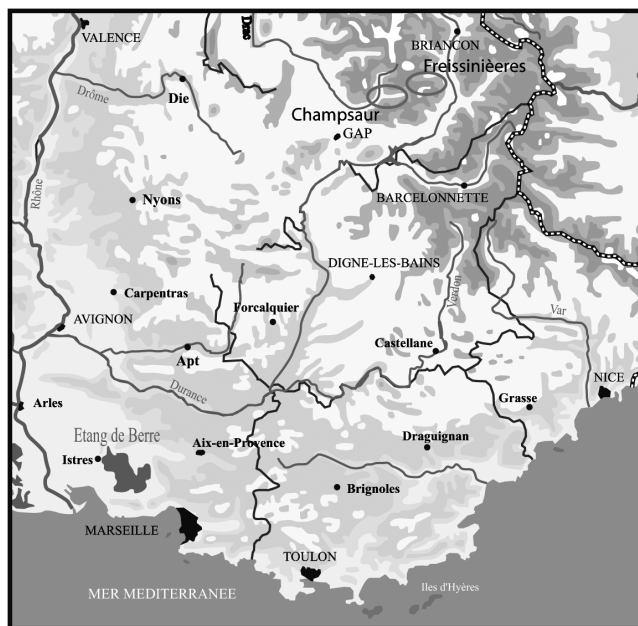


Fig. 1 - Location of the study areas.

Fig. 1 - Localizzazione delle aree di studio.

understanding of the dynamic that exists between people and this harsh landscape (Segard *et al.* 2003; Walsh *et al.* 2005). The research in our two study zones (the Champsaur and Freissinières) has revealed that there were periods when activity in the high-altitude zone was relatively intense, and other periods when people seem to have been absent from these areas. It is also apparent that despite some similarities in the chronology of the phases of activity between the Champsaur and Freissinières there are also some subtle and interesting differences. This paper will consider these similarities and differences, after having presented the results of our fieldwork in these two study areas.

## 2. METHODOLOGY

Our fieldwork in the southern French Alps started in 1998 with field reconnaissance (the search for possible archaeological sites: structures and artefact scatters). Two study areas were chosen, one in the Freissinières Valley and the other in the Champsaur (Fig. 1). Between 1998 and 2004, the two teams have recorded around 240 new sites. Almost 30 of these sites have been the object of exploratory and/or open excavations. We have 40 secure dates for these sites or different phases of activity on the same site.

The ephemeral nature of most alpine archaeological sites meant that very little material culture was found during the initial prospection phase; although, a large number of upstanding remains (foundations of walls

and loosely structured stone boundaries) were discovered. Consequently, it was almost impossible to give any accurate dates to most of the sites discovered. In both study areas, a number of structural remains were found at altitudes between 2000 and 2400 m. The only way to successfully date such sites, and investigate their function, was to excavate them.

The strategy in the Champsaur has been to study a number of different zones within this massif, and develop a broad overview of the nature and chronology of activity within this study zone. In the Freissinières Valley, the approach has been slightly different: the decision was made to concentrate on one particular plateau (Faravel) and develop a deep understanding of all sites in this relatively small, four kilometre-square area. During the final year of research at Freissinières, two sites in the adjacent Chichin Valley were excavated in order to confirm our ideas regarding site-type chronology.

Many of the prehistoric sites have produced flint assemblages. These assemblages have been studied by specialists (Tzortzis in Walsh & Mocchi 2003), and the results of this work allow us to infer the nature of activity associated with these sites. Small quantities of shards and metal slag have been found on some sites. However, the majority of sites from later periods have tended to produce little artefactual material. There are two possible reasons for this: first, the taphonomic processes (thin, aerobic soils) do not favour the preservation of most artefact types; second, the relatively low levels of activity in such a marginal milieu leave low numbers of artefacts in the archaeological record. All sites have yielded carbonised wood. When found in secure archaeological contexts, this material has been carbon-14 dated. All charcoal has also been subject to anthracological study. Each piece of carbonised wood has been identified down to species or genus. This information is useful for two reasons: first, the presence of different species on an archaeological site can give precise information on the composition of the local flora. This can be contrasted with the broader palaeoecological information presented in the pollen diagrams (Court-Picon 2003). Second, the anthracological data allows us to consider the nature of choices made by people when exploiting different species of tree for different tasks.

In many ways, the study of palynological sequences provides us with the most useful information regarding changes in vegetation and the nature of human/vegetation dynamics. The appearance of certain nitrophilous genera, such as *Rumex*, *Plantago* and *Ranunculaceae*, is indicative of grazing animals. Such a change in the composition of the flora usually includes

a reduction in forest cover. In many parts of the Alps, we see the beginnings of such a trend during the mid to late Neolithic. As much of the palynological work is still ongoing, the detailed results of this work will not be presented in this contribution. Thus far, the majority of the palynological work has taken place in the Champsaur. Cores have been taken from both peat and lake sediments at different altitudes; from valley bottom to high-altitude plateau. Some general trends apparent in the palynological record are considered in the discussion section.

The combination of approaches outlined above allows us to present an image of how trends in human activity over a broad chronological scale have varied within a particular space; in many ways, this landscape is in fact one big archaeological site. Rather than investigating one particular building, or cave with deep and/or detailed stratigraphy, our chronological depth exists across horizontal space, and is represented by the various signs of human-landscape activity that exist across our study zone.

### 3. RESULTS: ENVIRONMENT AND SETTLEMENT IN ALPINE NICHES

#### 3.1. *Epipalaeolithic and Mesolithic: Hunting and gathering in the alpine zone*

Whilst a good amount of research into the prehistory of the northern French Alps, and parts of the Italian Alps, has already taken place (Bintz *et al.* 1995; Bintz 1999; Fedele 1992; Morin 2000), our understanding of early prehistoric settlement in the high altitude zones of the southern French Alps is quite limited. Research that has taken place in our area, has taken place at lower altitudes towards valley bottoms at 1000 to 1500 m (Muret 1991).

Stone tools represent Pre- and early Holocene peoples across four different archaeological sites in our study area. The chronological spread of sites for this period presents us with a rather unfocussed, or broad temporal scale. Here, we can only hope to present an image of incursions into high alpine zones and the characteristics of the climatic context within which these incursions took place.

An Epipalaeolithic tool (a backed-blade) from Faravel XX (2400 m) is an ephemeral, although enigmatic, piece of evidence for human activity at a high altitude during the Allerød climatic amelioration. It seems quite plausible that hunters moved into any accessible zone as soon as the glaciers made an initial retreat about 13,000 years ago. The evidence for Meso-

lithic activity in this area is far more substantial; Faravel XIII (Fig. 2) comprises a scatter of c. 400 (149 objects, or fragments, plus 291 pieces of débitage) pieces of worked Mesolithic flint in an open-air location at 2200 m on the Faravel plateau (Mocci *et al.* 2005). The assemblage includes microflakes and prepared cores, indicating that some of the tool production would have taken place on site. Geometric and non-geometric microliths were produced, as well as geometric points fabricated by the micro-burin technique. The assemblage includes scrapers and burins, Montbani bladelets, a concave-truncated trapeze microlith (Montclus trapeze) and elements of Sauveterrian or Castelnovian points. This Sauveterrian (c. 7000 BC) site would have served as a temporary summer hunting camp. Another site, some 200 m away, Faravel XVIII (a surface scatter of 270 flint objects over 300 m<sup>2</sup>), is dated to the end of the Mesolithic (Castelnovian) period (c. 6000 BC).

#### 3.2. *The Neolithic*

Traditionally, archaeologists have characterised the Neolithic as the period when many peoples settled and developed agriculture and an associated sedentary lifestyle. However, many archaeologists would now contend that this view of the Neolithic is too simplistic (Tringham 2000). The Neolithic period at Faravel is represented by five flint scatters dated to the middle Neolithic. FXXII yielded 23 pieces of flint, including one medial fragment of a retouched blade, as well as other blade fragments. FXVII produced flint and one piece of Neolithic pottery. Some stratified flint was also found on one of the excavated sites. These sites are all situated on top of drumlins, or in one instance, on a cliff edge overlooking a lake (Lac de Fangeas) and grassland some 100 metres below (Fig. 1). Despite the fact that this period witnesses the first incursions of pastoralists into upland alpine pastures in some parts of the Alps (Brochier 1999), the evidence that we have in the Ecrins points to a continuation of short cycles of hunting activity which we assume took place during the clement months.

#### 3.3. *The Bronze Age*

A series of eight sites from Faravel and the Champsaur have been carbon-14 dated to the Bronze Age. Many of these sites possess similar characteristics: a polygonal enclosure (c. 100 m<sup>2</sup>) with a smaller "domestic" living area attached, or just adjacent. These domestic structures are always roughly ovoid, or trapezoidal in form. The sites are presented in chronological order below.

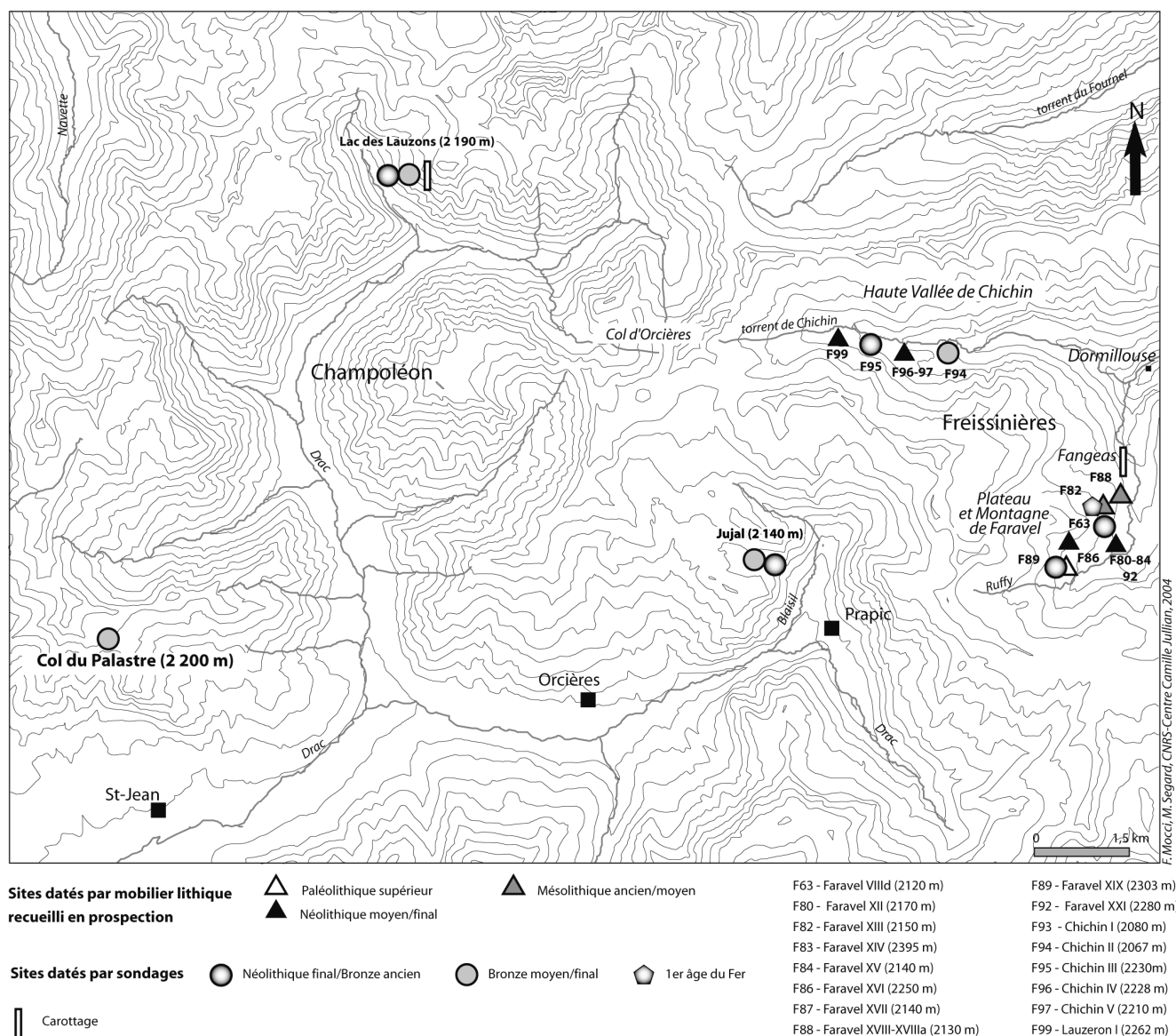


Fig. 2 - Distribution of dated sites in the Freissinières and Champsaur study zones.  
 Fig. 2 - Distribuzione dei siti datati nelle aree di studio di Freissinières e Champsaur.

Chichin III (2200 m) is small, roughly circular structure of about 8 m<sup>2</sup> (Fig. 3). This site has been <sup>14</sup>C to 2580-2520 BC (Poz 5500). Three metres to the southwest of this structure, Chichin IIIa (2460-2200 BC (Poz 5498)) is a relatively large structure of about 60 m<sup>2</sup>. As with all of these structures, it comprises a zone of large blocks of rock (from 20 cm up to almost 1m in diameter) that delimit a roughly ovoid zone. This “wall” measures between 1 m and 3 m in thickness. At Faravel, a similar site (Faravel XIX at 2,310 m) has been dated to 2150-1920 BC (Pa 2209). The only difference here is that a small internal structure was found within the larger “enclosure”. The entire site covers an area of 100 m<sup>2</sup>. A similar radiocarbon date (2150-1920 BC (Pa 1841)) was obtained at the Faravel VIII d site at 2200 m. Whilst it is somewhat

smaller at 20 m<sup>2</sup>, the shape and construction methods are clearly similar. In the Champsaur, the Lac des Lauzons site (2190 m) is characterised by a number of structures that are comparable to those found at Faravel and Chichin. As at Faravel XIX, a small trapezoidal structure constitutes the Lac des Lauzons II site (Fig. 4). The carbonised wood from this structure yielded a date of 2050-1500 BC (Pa 1973) and a second date of 1610-1310 (Pa 1971), attesting to either second phase of use or perhaps continual use throughout the early to middle Bronze Age. The next site in our sequence is also from the Champsaur. Situated at 2140 m, the Jujal II site comprises an ovoid structure of about 150 m<sup>2</sup>. As at the Lac des Lauzons, two phases of activity have been identified. At Jujal, the first phase comprises the opening up of an area



Fig. 3 - Plans and photographs of the Bronze Age structures of Chichin III and IIIa (top) and Faravel XIX (bottom).  
 Fig. 3 - Pianta e fotografie delle strutture di Chichin III e IIIa (in alto) e Faravel XIX (in basso) risalenti all'età del Bronzo.

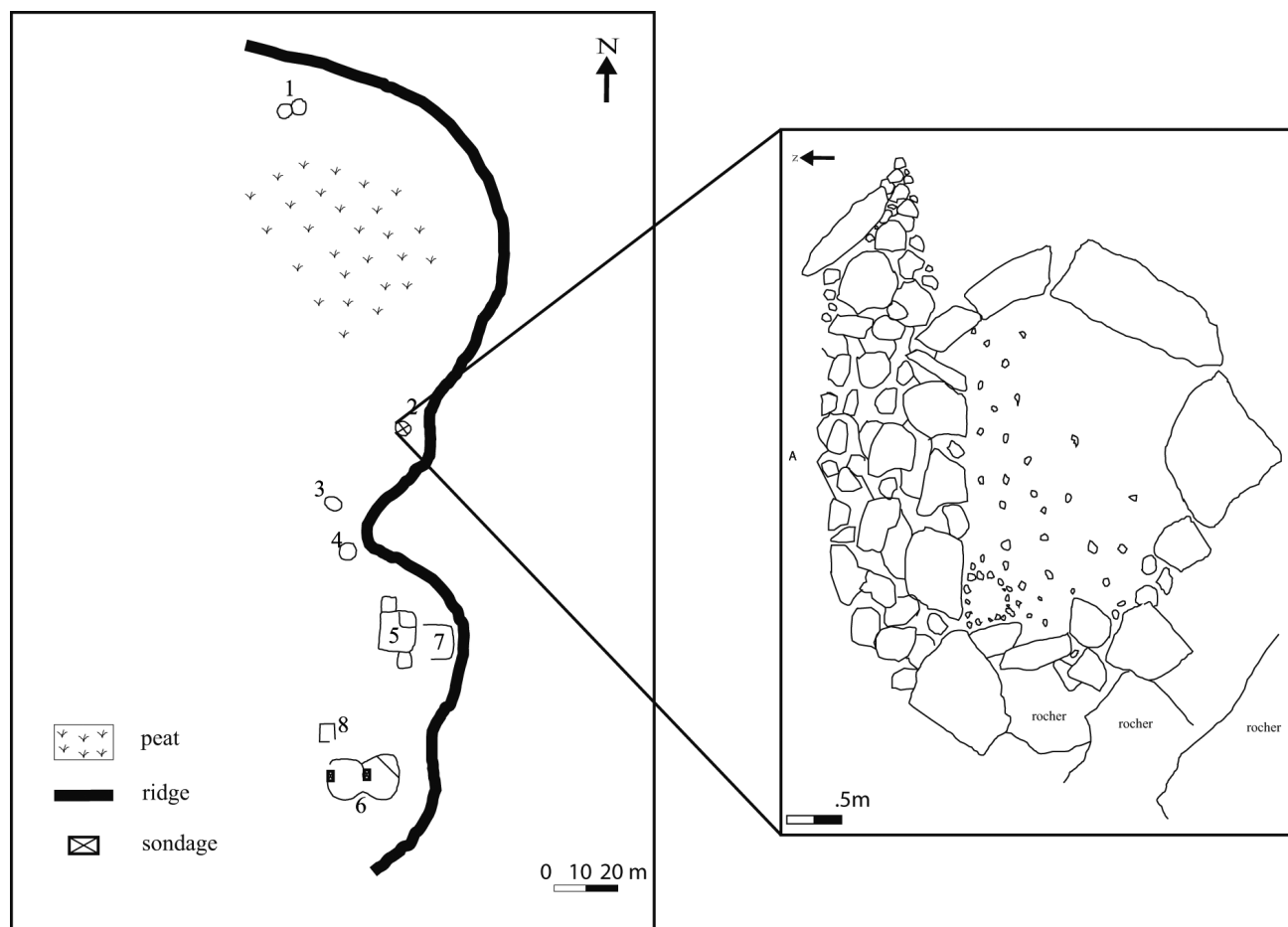


Fig. 4 - Plan of the Lac de Lauzons zone, with detail of the Bronze Age structure (Lac de Lauzons II).

Fig. 4 - Pianta della zona attorno al Lac de Lauzons, con dettaglio della struttura datata all'età del Bronzo (Lac de Lauzons II).

of forest and the implantation of the stone structure. This took place at around 1690-1440 BC (Pa 2140). A second phase of burning was dated to 1270-1010 BC (Pa 2145). Back in the Freissinières Valley, the final Bronze Age site here is Chichin II (2070 m) (Fig. 5). This site is the most enigmatic of all those that we have excavated as its architectural characteristics are quite different. Chichin II comprises a small circular structure of 4.5 m<sup>2</sup>. It sits within what appears to be a very ephemeral enclosure. It does not appear to have the same kind of relationship with a substantial enclosure that we see at the other Bronze Age sites. The excavation of this site also yielded some 30 pieces of worked flint. The majority of these were found within the circular structure, whilst a small proportion was found just on the northern exterior edge of the structure (Fig. 5). The diagnostic elements in this assemblage appear to possess Neolithic characteristics, whilst the carbonised wood from the same layer has been dated to 1540-1410 BC (Poz 5603). It is therefore quite possible that a Neolithic artefact facies continued into the second millennia BC in this part of

the Alps. The alternative explanation is that our radiocarbon date reflects a later phase of activity, although the stratigraphic information tends to support the first hypothesis. Whatever the reason, we should always be aware of the problems associated with chrono-typologies, not just in terms of dating associated archaeological features, but also when we make inferences regarding the nature of economic and social systems with which a site is supposedly associated. The final element at Chichin II is an abutting square structure. The stratigraphic relationships between the two elements suggested that this was added onto the Bronze Age site at a later date, and this hypothesis was confirmed by a radiocarbon date (see below). The site at the Col du Palastre in the Champsaur represents the final phase of the Bronze Age in our study areas (Fig. 6). Situated at 2200 m, this site is a relatively complex series of structures comprising rectangular and polygonal enclosed areas that have been dated to the Roman and Medieval periods (see below), but a small trapezoidal structure in the north-west corner of this site was dated to 1220-790 BC (Pa 2236).

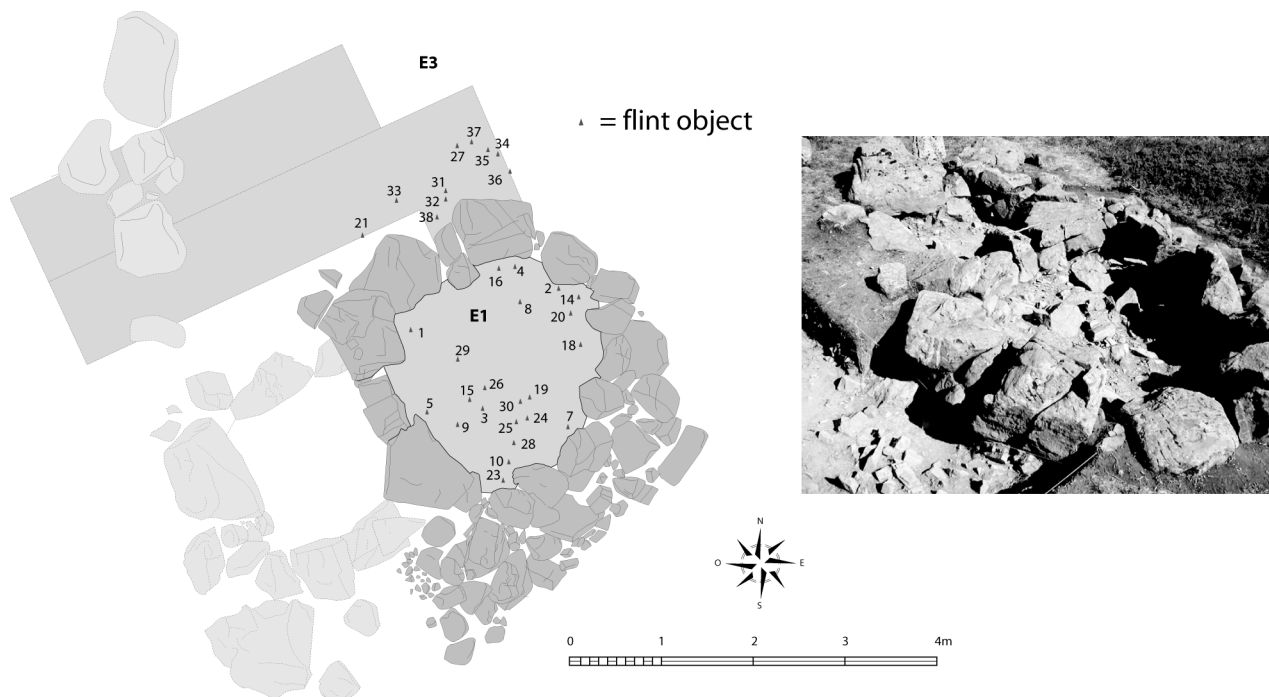


Fig. 5 - The Bronze Age site at Chichin II, Freissinières.  
 Fig. 5 - Il sito dell'età del Bronzo presso Chichin II, Freissinières.

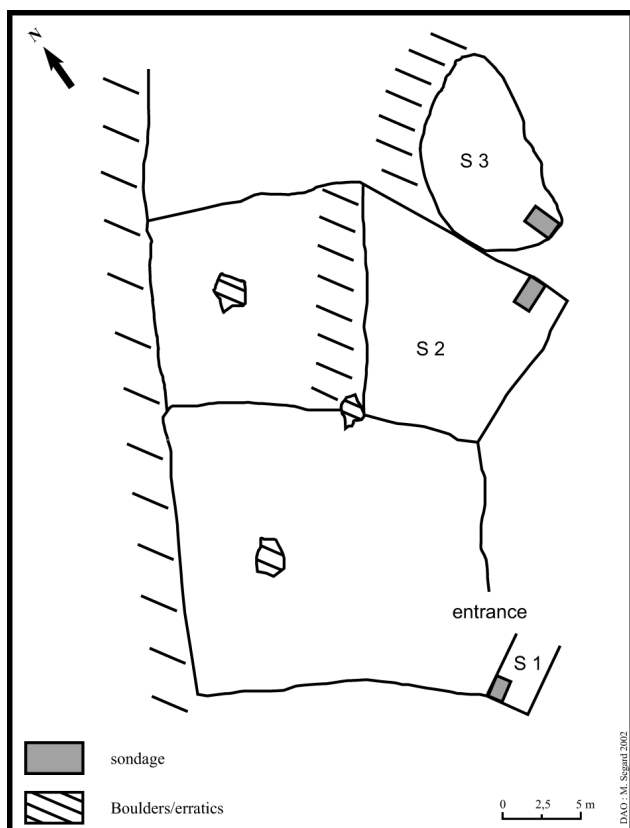


Fig. 6 - The multi-period site at the Col du Palastre, Champsaour. Sondages 2 and 3, Bronze Age; sondage 1, eighteenth century AD.  
 Fig. 6 - Il sito con evidenze risalenti a più periodi presso Col du Palastre, Champsaour. Sondaggi 2 e 3, età del Bronzo; sondaggio 1, XVIII secolo d.C.

### 3.4. The Iron Age and Roman Period

In the Freissinières study area, there is one site dated to the Iron Age period: Faravel XIII B comprised three ephemeral post-holes with some charcoal found therein. This charcoal was dated to 770-400 BC (Pa 2113). For the Roman period, we also only have one site: Faravel XIV (2450 m) is a single small circular structure of about 10 m<sup>2</sup> and was carbon-14 dated to 110BC-130AD (Pa 2097). In the Champsaour, two sites have been dated to the Roman period (Palet-Martinez *et al.* 2003). Col du Palastre III (2200 m) comprises a relatively small enclosure covering an area of about 50 m<sup>2</sup> dated to 110BC-260AD (Pa 2239), whilst one part of the Vallon de la Vallette site has been dated to 20-220 AD (Pa 2304). The Cheval de Bois III site is a poorly conserved structure for which the abandonment is dated to 420-610 AD (Pa 2138); thus it falls within the very end of the Roman period, or perhaps the start of the Early Medieval period.

### 3.5. The Medieval Periods

There are five early medieval sites in our study area. Unlike the Bronze Age sites that were described above, there is more variation in the form of these sites. In the Freissinières commune, the Lac de Fangeas sits just 100 m below the Faravel plateau, in an area where we have about thirty stone-built structures, some of which were abandoned only in the early part of the twentieth century (Fig. 2).

The only Early Medieval site in this sector is Fangeas VII (2100 m), 100 m to the west of the Lac de Fangeas. This small structure consists of a roughly circular wall of about 2 m in diameter. The first phase of occupation on this site is dated to the eighth century AD (670-1000 AD (Pa 2235)). In the Champsaur study area, there are four Early Medieval sites: Clot Lamiande II and IV, Cabane de la Barre IV, and a site at Vallon de la Vallette. As we move into the eleventh to sixteenth centuries, there is a dramatic increase in the number of high altitude sites. In the Freissinières study zone (Faravel, Fangeas and Chichin), we have excavated or, sondaged, eight sites. At Faravel and Fangeas, we have four sites dated to this period (Faravel VIIc, VIIIa, XII and Faravel VIIIb) (Fig. 2). The majority of the sites comprise substantial, partitioned stonewalled buildings (10-20 m<sup>2</sup> internal area), built up against a series of drumlins. In the Champsaur, a twelfth century presence is attested to at Chapeau Roux (970-1160 AD (Pa 2300)), Jas du Cros III (960-1250 AD (Pa 2238)) and at Cheval de Bois II (1030-1220 AD (Pa 2142)). In some instances, there are groups of between four and a dozen of these “domestic” structures connected to one another, such as at the Jas des Provençaux in the Champsaur where one part of the structure has been dated to 1270-1410 AD (Pa 2296).

Around Fangeas, there are another twenty sites with similar structural characteristics to those detailed above. There is also a similar number on the Faravel plateau and about thirty in the Champsaur. Many of these must be contemporary with, or slightly older than, the sites that we have excavated. We have excavated samples of structures that possess architectural characteristics that differ from the norm. Fangeas VI and VIIb (occupied in the post medieval period) are examples of such structures. These two sites are both ephemeral small single-spaced structures. These structures, and others like them, are located in an area adjacent to a number of silver mines (Ancel 1995). Both structures produced small quantities of silver-bearing lead slag. Moreover, the study of the substantial carbonised wood assemblages from Fangeas VI revealed a group of species directly associated with disturbed ground and spoil from mining (Py in Walsh 2002).

In both of our study areas, we have a number of modern and contemporary sites (dated to the seventeenth through to nineteenth centuries). In some instances, these are sites, such as at Col du Palastre and Chapeau Roux in the Champsaur, that also include structures occupied much earlier in the past. There is little doubt that many of the sites that we have in our inventories for Freissinières and the Champsaur date to this period. As with many regions in Europe, the

eighteenth and nineteenth centuries see an enormous increase in settlement and activity across many rural zones, no matter how supposedly marginal.

#### 4. DISCUSSION

Up until now, the publications on our research in the Ecrins National Park have tended to treat our results as one data set; identifying and commenting on the chronological changes in settlement patterns across Freissinières and the Champsaur as one ensemble (Segard *et al.* 2003; Walsh & Mocci 2003; Walsh 2005). Whilst the two zones do share some important similarities, such as the appearance of the first built structures during the late third and second millennia BC, it is now clear that they present some differences. An example of such a difference is the evidence in the Champsaur for a Roman and Early Medieval presence in the alpine zone, whilst activity on the Faravel plateau and at Fangeas appears to be almost non-existent for these periods. The following discussion will consider these trends, and contrast our two study zones within a framework that reassesses the use of climate to explain the waxing and waning of activity in the alpine zone. An overview of the palaeoecological evidence is also presented as a part of this discussion.

##### 4.1. *Climate, people and activity in a marginal zone*

Until relatively recently many of the models used to explain activity in high altitude alpine niches were deterministic in one sense or another: at the fundamental level, fluctuations in climate (especially temperature) were directly correlated with phases of human settlement in the Alps (Bocquet 1997). Figure 7 presents a resume of our principal results. The diagram comprises a list of all of the securely dated sites that have been sondaged or excavated in the Ecrins. This data is plotted over grey bars that represent the periods of climatic deterioration; this climatic information is taken from several different sources (in particular Magny 1995; Miramont & Jorda 1999). This diagram demonstrates that there is no clear correlation between climatic characteristics and the presence or absence of human activity in these high altitude zones. The Roman and Medieval periods highlight this point most effectively: the early to middle Roman period is characterised by a relatively warm period, but there is a relative absence of sites, whilst the Little Ice Age (fifteenth to eighteenth centuries AD) witnesses the highest levels of activity in our study area. The waxing and waning



Atmospheric data from Stuiver et al. (1998); OxCal v3.9 Bronk Ramsey (2003); cub r:4 sd:12 prob usp[chron]

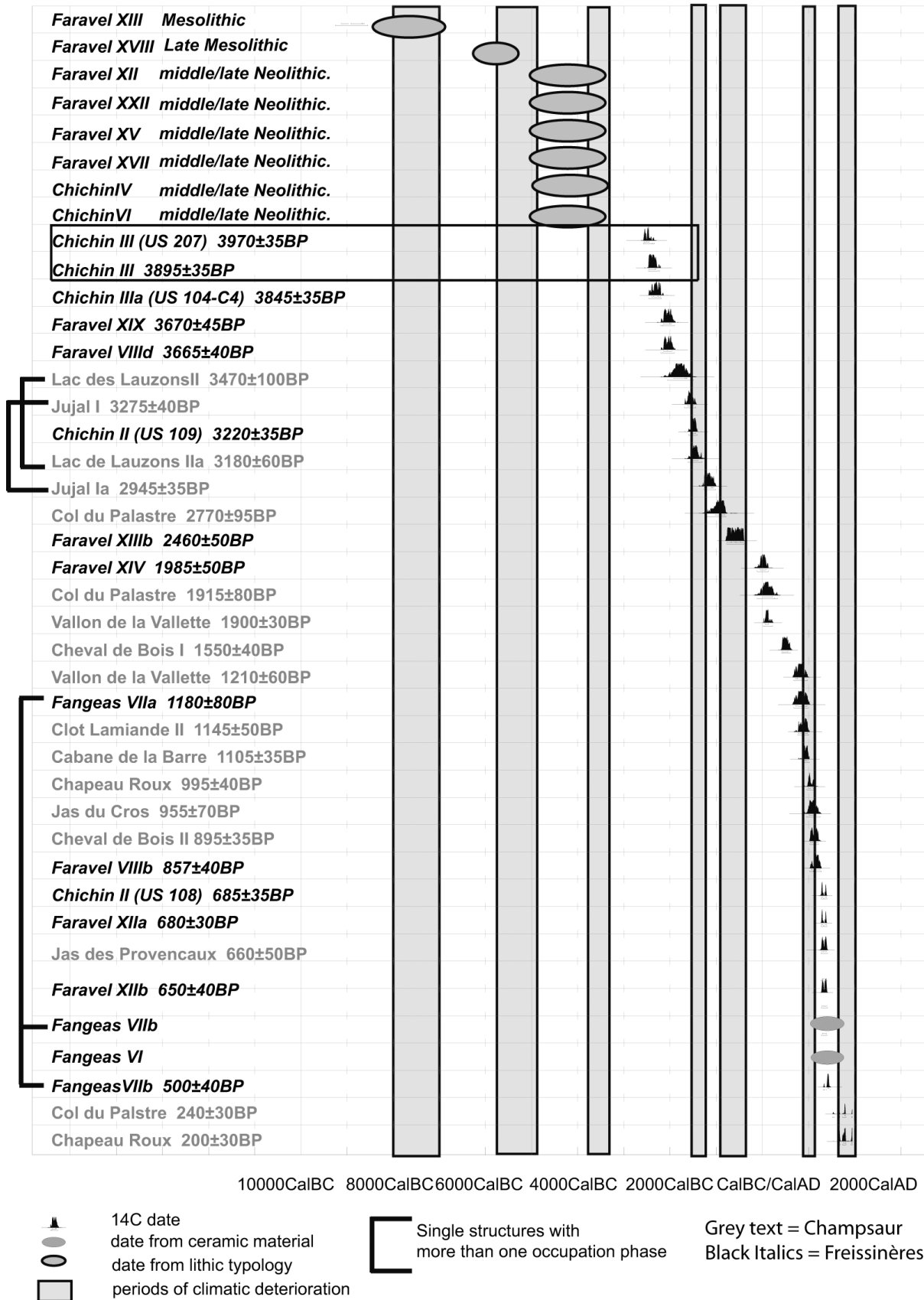


Fig. 7 - Plot of securely dated archaeological sites against phases of climatic deterioration.

Fig. 7 - Siti archeologici con datazione certa e fasi di deterioramento climatico.

of human activity in these zones was never controlled by fluctuations in climate. Rather, cultural processes influenced people's decisions to move into and work the alpine zone. One way to reconsider why people choose to exploit these high altitude zones is to assess the different ways in which these different cultures perceived and negotiated risk. There is no doubt that Mesolithic hunter-gatherers had a very different appreciation of risk compared to the Romans and, in turn, Medieval societies would have assessed risk in a very different way to Roman society. It is the evolution and changes in cultural attitudes towards these mountains that would have affected peoples' decisions to go there to live and work.

#### 4.2. *The ninth to fifth millennia BC*

For the Mesolithic and Neolithic periods, our evidence is entirely based on flint-scatters: there are no definite structures. Nearly all of the evidence for these prehistoric periods comes from Freissinières, and in particular, from the Faravel Plateau. There is little doubt that during this period people were involved in hunting. Even if there was some summer pastoral activity during the fifth to fourth millennia BC, it seems more than likely that hunting would also have taken place. The regional pollen diagrams confirm the advance of the fir and pine forest during the Mesolithic (de Beaulieu 1994; Tessier *et al.* 1993). The rhythm of the advancing and retreating timberline is an important element in any alpine landscape. Today, the timberline in this part of the Alps is at about 2000 m. During the past, this tree limit has moved above and below this line. This movement is largely dictated by changes in climate. During the relatively warm period towards the end of the Mesolithic (Magny 1995) the tree line was undoubtedly higher, perhaps towards 2100/2200 m (the altitude at which our hunting camps are located). As the forest/open plateau boundary fluctuated, it seems plausible that the slow cycle associated with long-term climate change would have influenced where hunters chose to locate themselves in their quest for the ideal hunting camp.

The provenancing of the raw materials used by these hunter-gatherers, especially flint, gives us some notion of the areas over which these people either moved during the resource gathering, or the areas over which they traded and exchanged materials (see Angelucci 1999). The petrographic analysis and provenancing of the raw materials from Faravel reveal that the nearest sources of flint for the tools found at Faravel are at least 50 km away (a significant distance within the Alpine zone) (Bressy 2002). Alpine hunter gathers probably

roamed over large territories, spending relatively short periods at high alpine camps.

A consideration of the ways in which different groups of people have moved around and across mountains and valleys over the least 10,000 years is essential. Today, many people move from one valley to another by travelling along valley bottoms, and then climbing up to their destination. There is no doubt that in the past mountain peoples moved from one valley to another via mountain ridges: this is far more efficient when one is on foot. In addition, the relative hazards of moving through the mountains in this manner would have been fewer in the past. The forest at lower altitudes (from at least 2000 m downwards) would have been an obstacle in itself. Moreover, the forest was dense and visibility reduced; it was also the home for a number of wild and potentially dangerous animals.

Consequently, the ways in which people move through mountain systems is informed by their perception of risk. Hunter-gatherers may well have roamed over seemingly large and impressive areas within the alpine zone, but we should also consider that they may well have kept to the high altitude zones during the summer months, traversing ridges and cols, rather than moving down into and along valleys – their modes of movement through the different vertical alpine zones may have been quite different to later societies, where boundaries were often defined by the valley itself. This does not mean that hunting and gathering groups did not move down into valley bottoms. For much of the year they would have had little choice, October through to April in the sub-alpine and alpine zone being the inhospitable months. In addition, even if Neolithic peoples were only using the sub-alpine and alpine zone for hunting (and not for grazing); we know that they were certainly returning to settlements at lower altitudes. It is in these lower zones that we have clear palaeoecological evidence for the first impacts on the forest and the development of agricultural production.

#### 4.3. *The late third and second Millennia BC*

As detailed above, we have at least eight late third and second millennia sites in our study areas (three in the Champsaur and five in Freissinières). There are other sites with similar characteristics that we have not investigated; therefore, this number could quite easily be greater. The appearance of built structures during this period is common to both study areas, and is therefore an important development that does not appear to be confined to one particular area. The sites from Freissinières and the Champsaur reveal a high level of in-

vestment in the construction of structures that represent activities that were probably repeated each year. Moreover, such structures would probably not have been built unless the occupants had used them for a good portion of the summer.

We can almost envisage that shepherds moved from one site to another as the summer grazing season unfolded. It is interesting to note that Faravel VIII (at 2200 m) and Faravel XX (at 2400 m) produced almost identical radiocarbon dates. This could represent the presence of several shepherds exploiting adjacent pastures, or the movement of one flock up over pastures of increasing altitude during the summer. It is also apparent from the palaeoecological evidence that these people were actively manipulating the sub-alpine forest environment. The palaeoecological evidence for this period comes from two sources; anthracological and palynological data. The pollen data demonstrates that the Bronze Age witnesses an increase in deforestation that started during the Neolithic towards the valley bottoms. There are two clear phases, during the early and then the late Bronze Age, when the upper limit of the forest is cleared, or perhaps partially cleared in the process of creating routes for transhumance to the high altitude summer pastures (Walsh *et al.* 2005; Walsh & Mocchi 2003). These pollen data for the Bronze Age also include species indicative of pastoral activities. Spores from coprophilous fungi are also present. The anthracological evidence also points to an active manipulation of the forest milieu. At the Jujal I site, the first radiocarbon date (1690-1440 BC (Pa 2140)) is taken from a substantial layer of carbonised wood on top of which the stone structure was built. This is followed by a later phase of burning dated to 1270-1010 BC (Pa 2145). It appears that the area around Jujal I was cleared and then maintained, most probably for grazing. The combination of palynological and anthracological data at this site presents us with a clear image of how and when people were actively managing their landscape.

In both our study areas, there is a marked increase in activity at around or above 2000 m. This increase in activity is mirrored across the Alps at lower altitudes. This process should be seen as part of the secondary products revolution (Sherratt 1997). It included the exploitation of a wide range of ecological niches and, where possible, the application of a complex exploitation strategy, where two or more productive tasks took place within one niche. This period marks a departure in terms of people's relationships with this alpine landscape. Before the late third and second millennia BC it appears that risks (as presented by perceived hazards within any given area) were perhaps passively obviat-

ed. After this, it seems the first attempts to control and manage economic and personal risk through the proactive manipulation of the environment occurred. The presence of multiple (and contemporary) structures also implies that several groups of people may well have been present in any given sub-alpine/alpine zone at one time. The very presence of other people would have provided a form of risk management: mutual support during times of danger (whether this was the rescuing of stranded animals, or mutual assistance as a result of injury from landslides, avalanches, storms or exposure) is the most basic and human form of risk negotiation. The other fundamental difference between these later prehistoric peoples' perceptions and management of risk is that the corollary of a structured hierarchical society implies that risk negotiation was perhaps only undertaken by those amongst the lower social orders. The demarcation of tasks and risk negotiation within hunter-gatherer groups was not as marked. It is perhaps not surprising that the earliest evidence for seasonally permanent activity in the alpine zone (i.e. evidence for people remaining in one area in the high altitude for much of the summer) appears at a time when social hierarchies become increasingly complex.

#### 4.4. *The fifth century BC to the fifth century AD*

With only one ephemeral site (Faravel XIIIb) dated to the Iron Age, and another small site (Faravel XIV) dated to the very end of the Iron Age (or the period when the Roman Empire starts to influence the French Alps), it seems that the high altitude zone in the Freissinières Valley witnessed a relative reduction in activity. The lack of Iron Age sites across both of our study zones implies a reduction of activity at high altitudes. Our pollen diagram from a peat bog at Fangas (2000 m) does show that the forest continued to open during this period, plus there was an increase in pastoral indicator species. Therefore, it appears that people continued to work in the sub-alpine zone during this period. However, the quasi-absence of dated structures in this sector does pose a problem. It is possible that the alpine pastures were used for short periods of time, with people returning to the valley bottoms each day. Perhaps settlement was concentrated towards the nodes of exchange and commerce lower down. Despite the lack of archaeological excavation in valley bottoms, there is plenty of evidence for protohistoric activity in the Alps. The distribution of burial and associated metalwork demonstrates that complex trading patterns did exist (Bocquet 1997). We have to assume that many of the towns that grew during the Roman period had protohistoric antecedents, although this hypothesis is not

without its problems (Arnaud 2002). People may well have been attracted to the developing complex urban centres, and a part of this could have been a new emphasis on valley-based communication and a reduction of activity at higher altitudes.

In spite of the favourable climate during the early Imperial period, the only sites in our study areas that are potentially *Roman* are all dated to the very beginning and the very end of Roman presence in the Alps. When we look closely at the dates from the Champsaur, it seems possible that Col du Palastre, and one phase of activity at Vallon de la Vallette, represent “Roman” activity in this area. The fact that the Champsaur is a more open valley system, with easy access from the town of Gap, may explain this continuity. The pollen diagram from Fangeas implies pastoral and perhaps even mining activity (as represented by an increase in lead isotopes), but as with the Iron Age, the lack of dated sites suggests that the use of the sub-alpine and alpine zone changed during this period. Perhaps, a few shepherds and miners worked in this area for short periods of time. The majority of people were probably attracted to the urban zones and the axes of communication during the Roman period, and regular incursions into the high altitudes would take place within more open valley systems such as that in the Champsaur.

Low-levels of Roman activity in high altitude zones are also attested in the Pyrenees (Galop 1998). Central to an appreciation of landscape perception in the Roman period is the idea of the transfer of urban values (where possible) onto rural contexts. Changes in notions of ownership and control of territories during the Roman period would have radically altered the manner in which the landscape was defined and perceived (Belotti 2000; Leveau 1993). Moreover, Roman notions of risk and the associated desire to control landscapes (in every sense) led to a withdrawal from the risk-laden sub-alpine and alpine and a concentration of activity towards the controllable urban nodes and communication routes. The indices that we do have for activity in the high altitude zone may represent the continual presence of non-Romanised peoples, perhaps living literally on the margins of Roman society.

#### 4.5. *The Medieval Periods*

The Cheval de Bois I site in the Champsaur is dated to the cusp of the late Roman and Early Medieval periods. It is interesting that this site is the first in a sequence of nine sites, or dated phases, in the Champsaur that range from the sixth century AD through to the eleventh century AD (Fig. 7). There are only two sites from the Freissinières sector dated to this period. This

difference may reflect a real difference in the settlement histories between the Champsaur and Freissinières. As with the Roman period, this heightened presence in the Champsaur may be due to the relative openness of the valley system here. As people started to move back into the upland sub-alpine zone during the Early Medieval period, it makes sense that the initial phase of settlement increase should take place in the more accessible areas. This trend of increasing activity in the high altitude zone continued into the eleventh through to the fourteenth centuries. The expansion of large numbers of people into the Alps from urban centres such as Lyon, partly as a consequence of a desire to avoid religious persecution (Audisio 1998), is reflected in our archaeological record.

## 5. CONCLUSION

Our research has demonstrated that Alpine zones have never been a “closed” space. Mountains have always been traversed, used by hunters, and then by pastoralists and miners. Whilst transhumance did eventually emerge as one of the principal activities in upland alpine areas, its evolution was not one of gradual and unbroken intensification over time. There were cycles of intensive activity, followed by relative inactivity: the Neolithic was not necessarily the beginning of stable summer pastoral activity. The late third and second millennia witnessed the first major intensification of alpine economic activity, with the development of the dual mining-pastoral system. A decline in high altitude activity then characterised the late protohistoric and classical periods in the Freissinières Valley, whilst there seems to have been some level of continuity in the Champsaur. The medieval period saw the development of the “busy” landscape, which achieved its zenith during the eighteenth and nineteenth centuries.

The alpine milieu provides archaeologists with a series of interesting problems. The relative dearth of artefactual evidence compared with sites at lower altitudes is a problem, but this demonstrates why this marginal environment is so interesting and important. The alpine milieu appears so harsh in many ways, but in others, it is so appealing and productive. It is this enigma that we attempt to unravel.

## ACKNOWLEDGEMENTS

This fieldwork could not have taken place without the support and help of colleagues at the Centre Camille Julian, Aix-en-Provence. Financial support comes

from the *Service Regional pour l'Archéologie (PACA)*, *Le Parc National des Ecrins* and the *Communauté des Communes de l'Argentières-la-Bessée* as well as the British Academy and the CNRS support for UK/French partnerships. I should also like to thank the following specialists for their reports on finds and anthracological evidence: Stefan Tzortzis, Jean-Pierre Bracco, Céline Bressy, Aline Durand, Vanessa Py, Stéphane Reynaud, Brigitte Talon, Lucy Vallauri. Philippe Leveau should also be thanked for his continual support over the years. Finally, this work could not have taken place without the continued help and encouragement of Florence Mocci and Vincent Dumas both on and off the mountainside.

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