Obsidian and the archaeology of Baja California

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In this paper, we present the latest information from our ongoing study of the geological sources of obsidian in the state of Baja California and their archaeological distribution. We are particularly interested in the potential for obsidian studies to illuminate cultural or linguistic boundaries, seasonal movements, and trade networks in prehistoric and colonial Baja California.

An update on sources

Through a combination of previous research by American and Mexican scholars, as well as our own research since 2009, our understanding of the geological sources of obsidian in Baja California is growing rapidly. Thus far, at least 13 chemically distinct sources of artifact-quality obsidian have been identified in archaeological or geological deposits in the state of Baja California. As we will discuss, it appears that indigenous peoples in Baja California did not use all of these geological sources to the same degree.

Much of our own research has centered on the northeastern region of Baja California, where we have been working to understand the nature of several obsidian sources. To date, the primary source locality is known for two of the sources in this region: Lágrimas de Apache and Puerto el Parral. Three others have been documented in secondary geological contexts: San Felipe, Kiekierly, and El Regino. And several more, including an obsidian chemical group first noted at Mission Santa Catalina, have been noted only in archaeological contexts.

Further south, the region around Bahía de los Angeles also contains multiple obsidian chemical groups observed in geological contexts and in archaeological assemblages. These include substantial deposits on Isla Ángel de la Guarda, as well as several other chemical groups whose geological sources are as yet unknown (Bowen 2009). The peninsula's most extensively exploited source of geological obsidian, the Valle del Azufre source, lies just south of the Baja California border in Baja California Sur (Shackley et al. 1996).

Given that the primary source localities are known for less than half of the obsidian chemical groups identified by researchers, it is perhaps premature to draw conclusions about the cultural distribution of obsidian in the region. Pending this crucial piece of the puzzle, we review the archaeological data amassed thus far, and assess the potential of obsidian studies to aid the archaeology of Baja California.

Archaeological obsidian

Since 2009, we have analyzed 180 obsidian artifacts from 45 different archaeological sites in Baja California. Aside from 35 specimens collected by Panich at Mission Santa Catalina in the Sierra Juárez, all of the artifacts analyzed were recovered through INAH projects and donations. Most of the materials in our database were collected in projects led by Archaeologist Antonio Porcayo. The vast majority of these specimens appear to date the late prehistoric period or the early historic period.

Along the international border, for example, many sites contain obsidian artifacts derived from Obsidian Butte in Imperial County, California. This pattern follows that noted for late-prehistoric San Diego County.

Yet many sites in the Sierra Juárez and neighboring areas, including a shell midden site at La Jovita on the Pacific Coast, contain artifacts that belong to the same chemical group as the obsidian from Mission Santa Catalina. While the exact geological source for this obsidian is still unknown, the somewhat restricted geographical distribution suggests that it may be in the Sierra Juárez or the nearby Sierra de las Pintas.

The apparent obsidian source at Lágrimas de Apache may have not been used frequently in prehistory. Thus far, only one artifact – a flaked nodule from El Mayor – has been linked to this geological source. Of course, sampling size may be an issue, as few sites from the immediate area are present in our sample.

Directly south of San Felipe, on the Gulf of California coast, a number of sites have been sampled. All of the artifacts from these sites can be linked to the "San Felipe" obsidian source. While the exact location of this source is also unknown, we have discovered unmodified obsidian nodules on a beach south of the Percebu Lagoon, suggesting that the source is in the nearby Sierra San Felipe. Interestingly, many of the artifacts from the shell middens south of San Felipe exhibit water-worn cortex, indicating that indigenous inhabitants were collecting nodules on beaches or from arroyos, rather than from an actual quarry site.

Further south, Puerto el Parral appears to be the dominant obsidian source in sites located along the Gulf of California coast and in scattered inland sites. These sites include several sites excavated along the coast between Puertecitos and San Luis Gonzaga, as well as at inland sites ranging from El Cartabón to the Laguna Chapala area. Thus far, the archaeological occurrence of Puerto el Parral obsidian is predominantly oriented to the south of the primary source in Arroyo Matomí.

At least three other obsidian sources are represented by artifacts in our sample from this region. These include the Kiekierly obsidian group (noted in an arroyo 5 km south of Puertecitos) and the El Regino chemical group, which is present in arroyos from the El Regino site (10 km south of Puertecitos) all the way to Isla el Huerfanito. We have also identified artifacts from an as-yet-unknown source of obsidian, first noted at the site of El Juanjo.

The remainder of the artifacts in our sample are from several sites near the 28th parallel. The majority of these artifacts are from the nearby Valle del Azufre source, located in Baja California Sur. Yet at least two other obsidian sources are represented in minor quantities. The locations of these sources are unknown.

While intriguing, these data are not comprehensive. To begin to flesh out the picture of archaeological obsidian in Baja California, we can also include previous studies, where available. In Jerry Moore's work in the San Quintin–El Rosario region, he reported XRF data from 24 artifacts from 11 different sites. Most of these artifacts (n = 19) were from the Puerto el Parral source, while three were from San Felipe (Moore 2001). Two others were listed as unknown or questionable. These data provide intriguing details about obsidian use on the Pacific coast, a significant gap in our database.

Data from Eric Ritter's work at Bahia de los Angeles also help to fill in the gaps in our data, with an additional 96 obsidian artifacts (from ca. 15 sites). The majority of those artifacts (n = 65) are from the nearby obsidian quarries on Isla Angel de la Guarda, but at least five other obsidian sources are represented (Ritter 1994, 1995, 1997). One source, Unknown A, to which 23 artifacts were attributed, was also represented at several sites on the 28th parallel in our study.

Implications and prospects

Obsidian studies may help us address several important issues in Baja California archaeology. We believe that the north-south distribution of certain obsidian sources in our study may provide important clues to two questions in particular:

1) To what extent can the distribution of obsidian artifacts further our understanding of late prehistoric ethnolinguistic boundaries?

2) Can obsidian studies provide information about seasonal mobility and territoriality? In an earlier paper about the prospects of obsidian studies to advance Baja California archaeology, Don Laylander (2005:107) examined the idea that the "north-south discontinuities in the distribution of obsidian from particular sources may mark the geographical boundaries" between documented ethno-linguistic groups. He urged caution on this front, citing the wide distribution of Valle del Azufre obsidian from Ignacieño territory well into the San Borja area to the north and southern Cochimí region to the south. While his point is well-taken, the Valle del Azufre source is unique among peninsular obsidian sources in its abundance and nodule size.

In Alta California, researchers have noted that linguistic boundaries impeded long distance trade of obsidian and other resources. It may still be possible to search for patterns in areas of Baja California where the available sources are more or less equal in their abundance and quality. In the far northern peninsula, for example, it appears that the unknown obsidian type first noted at Santa Catalina is restricted primarily to Kumiai territory (assuming that Santa Catalina was originally a Koahl settlement, as proposed by Owen, Meigs, and others).

Other sources in the northern region also appear to have restricted use areas. The San Felipe source is not present in the far northern regions, perhaps representing the proposed social distance between the Kiliwa and their Yuman neighbors to the north. The archaeological distributions of the Puerto el Parral, Kiekierly, and El Regino obsidians are also interesting. All three are heavily oriented to the south. This pattern may either represent Kiliwa ties to the Cochimí, or perhaps even a boundary area between the Cochimí and Yuman groups.

These north-south patterns may also be valuable for understanding seasonal mobility and territoriality. Scholars disagree on whether peninsular groups maintained localized, autonomous territories at the clan level, or if individual clans (or bands) maintained cross-peninsular ranges that took them from the Pacific to the gulf during the course of a year.

Jerry Moore (2001) has suggested that the presence of Puerto el Parral obsidian in the San Quintin/El Rosario region is evidence of east-west, cross-peninsular procurement ranges. Yet the strong southerly distribution of Puerto el Parral obsidian in our sample and its presence in southern sites investigated by Ritter indicates that obsidian from this source was not restricted along an east-west axis. This pattern suggests that the exploitation of the Puerto el Parral source was not tied to east-west seasonal procurement ranges. More data are needed, particularly from the Pacific coast and from interior sites, but we are hopeful that obsidian studies will allow us to test hypotheses about late prehistoric settlement and mobility strategies.

Conclusion

Obsidian studies have great potential to advance our understandings of indigenous life in Baja California. At present, such interpretations are limited by our incomplete knowledge of the geological distribution of obsidian on the peninsula, as well as by relatively coarse-grained archaeological data. Future research will require additional field survey for geological sources and

prehistoric quarries as well as the continued analysis of archaeological specimens, particularly from sites with secure dates.

Previous researchers in Baja California and elsewhere have suggested that patterns of obsidian conveyance typically follow least-cost and distance decay models in which people relied on the closest source of good quality obsidian. Our data suggest that obsidian use and conveyance in Baja California may have been more complicated, particularly in the northern half of the peninsula. Future research on Baja California obsidian will undoubtedly shed new light on late prehistoric and early historic lifeways in the region.

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