**‘Do you dive?’: Methodological considerations for engaging with ‘volume’**

**Abstract**

The idea that we inhabit three dimensions is clearly not new, yet the explicit articulation of ‘volume’ in recent literature has proved to be an extremely useful means through which to produce novel insights into the conduct and practice of geopolitics. Whilst the value of engaging with ‘volume’ has been well established and taken discussions in new directions, yet the practicalities of doing this research are yet to be considered in great detail. How methodologically do we approach the three-dimensional within political geography? Whilst this paper does not seek to outline a methodological framework, it draws on my own research to prompt discussion about the role of ‘immersive’ methodologies in generating different perspectives within political geography. The paper ends by suggesting that a stronger interface between political geography and methodologies utilised in other geographical sub-disciplines might be useful in producing novel insights into the earth’s geopolitical volumes.

As Gavin Bridge (2013:55) writes, ‘thinking volume rather than area should come easily’. We are, after all, ‘embodied, earthly creatures’, always inhabiting three dimensions. Yet it is only recently that the value of ‘thinking volume’ within geopolitics has been explicitly articulated (Elden 2013). Whilst earlier writing on territory and space sought to draw boundaries ‘*across* the landscapes of the state’ (O’Tuathail and Dalby 1998:3, emphasis added), a voluminous, or volumetric analysis would seek to move beyond the horizontal, ‘*across’* axis (Elden 2013). Rather than interpreting ‘global political space’ as a flat, bounded entity, scholars including Weizman (2001), Elden (2013), and Adey (2013, 2015) have sought to establish more three dimensional, or voluminous, understandings of space and territory that are better able to account for the heights and depths of geographical practice and power, in addition to accounting for how the human body becomes immersed in volume. The air, sea, and urban spaces have proved to be particularly fruitful environments in which to deepen and invigorate geographical research as notions of ‘surface’ are unsettled and cracked open by the incorporation of ‘volume’ (Adey 2013, Garrett 2016, Harris 2015, Graham and Hewitt 2013).

The focus of this paper will be on one area that, in spite of the increasing salience of ‘volume’ within political geography, is somewhat unaccounted for. Whilst the ‘*why?’* of volume research is well-established, *how* methodologically do we approach the three-dimensional? How can political geographers combine existing and established methods like interviews and archival work with more innovative and experimental ways of knowing the world to better grasp the complexities of immersive volumes? To be clear, the paper does not intend to establish a methodological framework through which these questions are answered, nor does it seek to position exploratory and experimental methods and more established methods as somehow in opposition to one another in an unproductive dichotomy (Merriman 2014:170). Rather, by drawing upon the struggles and experiences in my own research, it seeks to prompt dialogue and discussion about how the volumes of the earth can be explored in practice in order that researchers and students might be better equipped to interrogate spaces that can be difficult to grasp and comprehend (see Adey 2015, Steinberg 1999, Rozwadowski 2010). Moreover, if we are to understand volumes as immersive states, then the researcher’s body inevitably plays a role in the process of constructing and interpreting these spaces. In centralising and openly engaging with this embodied process, fresh insights into ‘volume’ might emerge and more nuanced, differentiated, and experiential accounts of the interplays between space, body, and the political generated.

In order to situate and contextualise some of these questions, the paper will begin by taking stock of existing literature on volume and the volumetric. With a particular focus on political geography, it will trace the evolution of the concept to identify a methodological lacuna. Drawing on work in social and cultural geography, anthropology, and sociology, the second section will explore the potential of more experimental, embodied, and (auto)phenomenological approaches where the researcher’s own body is utilised as a research tool and means of collecting data. Before concluding, I will draw on my own research of undersea environments, which included attending to the idea of ‘immersion’ by learning to scuba dive, to elucidate how this may (or may not) work in practice.

Finally, the paper concludes by suggesting that further engagement with methodologies are necessary to critically interrogate the concept and practice of volume. This might involve building stronger interfaces between political geography and other geographical sub-disciplines to incorporate methods that are experimental and experiential. In doing so, we might be better placed to understand what it means to be geopolitically differentiated subjects (Colls 2012), better equipped to engage with research participants and to corporeally unsettle the horizontal ‘axis’, and more open to the creative and experimental within political geography.

**Tracing the emergence of the geopolitical ‘volume’**

Tracing the emergence of volume within human geography is not an easy task. Scholarship on elemental spaces such as the sea and air, for example, may not refer to ‘volume’ explicitly but nonetheless deal with the three dimensional (see Elden 2013 for some examples of this). The air in particular has proved a productive space in which and through which to adopt a distinctly ungrounded approach to geographical and geopolitical questions. Work by scholars such as Adey (2015b), Williams (2010, 2011), Gregory (2011), and Neocleous (2013) all point to a volume in which the practices of power and politics play out. Elden (2013) too highlights to the work of thinkers like Sloterdijk who take seriously the idea of volume (or more specifically ‘spheres’) in the construction of political and social lives. The idea that the world plays out in three dimensions is clearly not new (Adey 2013, Elden 2013b) but paying specific attention to spaces as volumes can yield interesting insights that take discussions about the construction and practice of geopolitical space in new directions.

For conceptual clarity, my starting point for tracing recent articulations of volume and the volumetric will be Eyal Weizman’s (2002) work on the ‘politics of verticality’. Rather than conceptualise different three dimensional spaces and substances as separate and distinct entities, Weizman draws spaces such as air and subterranean tunnels, and substances such as water and sewage together to create a compelling and insightful narrative of how power is exerted and resisted in, over, and under the West Bank. Within this politics of verticality, Weizman argues that ‘a new understanding of territory’ emerged - no longer were the Occupied Territories conceived of as the flat, two dimensional surface ‘across’ which power moves (see O’Tuathail and Dalby 1998), rather, they were thought of ‘as a large three dimensional volume, layered with strategic, religious, and political strata’ (Weizman 2002). As ‘new and intricate frontiers were invented’ in these spaces, struggles over the control of the West Bank travelled, moved, and were situated in the air, in the sub-terrain, on roads, in hills and valleys. As these diverse spaces and substances become embroiled in the conflict, the two dimensional, static territorial construct associated with traditional political geography is unravelled.

Building on this articulation of territory, Stuart Elden (2013) has also sought to expand, heighten, and deepen an otherwise flat geopolitical discourse. Drawing on the work of Sloterdijk, Virillo, and others, Elden argues for the need to think ‘about volume, through volume, with volume, rather than simply the vertical to make sense of the complexities of territory’ (35). What would it mean, asks Elden, to ‘secure the volume’ rather than the ‘area’ and how do our understandings of the politics of space morph and change when heights and depths alongside surfaces are brought into the conversation? Returning to the West Bank, Elden explores some of these complexities via tunnels and other volumetric infrastructure to extrapolate some of the multifaceted ways in which power is exerted through and in various political volumes. His cause, writes Adey (2013:52) is to ‘account for the political depths that are filled with volume or rather fill-out volume with rocks, minerals, fossils, bridges, bunkers, airwaves, aeroplanes, and infrastructure’.

For Elden, the term ‘volumetric’ is important because it hints at a phenomenon, or a ‘determination of political space’ that is calculable (2013:35, see also Elden 2005, Dalby 2013). This in turn, he argues, has the potential to open up some of the technologies of territory such as measuring, surveying, managing, controlling, ordering, weighing, and calculating to geographical interrogation. Through Elden’s calculative and scientific logic, of geo-politics, geo-metrics, and geo-power, the ‘earth; the air and the subsoil; questions of land, terrain, territory and earth processes’ can be better incorporated into understandings of the practice and construct of territory (49).

Yet, as Adey (2013) highlights, engaging with volumes can produce much more than calculable insights. How, for example, are volumes ‘experienced and made present to the lives that live them?’ ‘What is left beyond the scientific, geological, and political-technological’? What else fills volume? (Adey 2013:52). Objects, bodies, atmospheres, and lived experiences are all examples of the ‘things’ that fill volume but remain somewhat incalculable. Bodies in particular offer a very different understanding to the calculable and geo-metric. Bodies, after all, not only exist in-volumes but function as-volumes in their own right (2013:52). They act, inhabit, shape, and are immersed in the three-dimensional whilst also having their own three-dimensional geographies and volumes that interact intimately and minutely with surrounding space (see Protevi 2009, McCormack 2015, Squire 2016). Bridge (2013:55) hints at some of these complexities in his discussion on tunnels – their volume allows bodies to proliferate unseen and ‘to under-mine’ structures of power but ‘at the same time the possibilities of this position cannot be separated from the ‘*fear* of being unable to return to the surface, of permanent exile from the social realm, of becoming lost from the world’ (emphasis added). Tunnels exemplify ‘political possibilities’ as well as ‘terrors’. In this example, the immersive and surrounding nature of the volume produces certain embodied affects, the release of adrenaline perhaps or feelings of claustrophobia which work to affect how the space itself is used and inhabited and even *who* is able to do the inhabiting.

Whilst writing about the air rather than tunnels, Adey (2015:57) highlights that phenomenological accounts of volumes give the sense of ‘immersion’ in a way that is ‘qualitatively different to recent volumetric accounts’. Honing in on the elemental has been a constructive means of accessing these immersive states. Adey (2015:66) for example, argues that an elemental notion of air may offer a means to explore geopolitics in relation to its constitutive materials, giving space to ‘the seemingly unspaced’, offering a ‘thicker materiality’ of volumes and materials that ‘coalesce into certain conditions or possibilities’ and structures of feeling (71). As McCormack (2015:87) suggests, we, as voluminous elemental entities are ‘completely immersed’ in a ‘kind of envelope of all envelopes that we might call ‘world’. It is therefore worth thinking through, suggests McCormack (2015:87) the ways in which ‘one body, human or non-human, mediates or translates the affects of another, or in other words how wind becomes shivering, sun becomes warmth, gas becomes death’ (see also Squire 2016a).

Urban geographers have been at the forefront of engaging with this immersive understanding of volume even if the term ‘volume’ is not explicitly used (see Graham and Hewitt 2013). The work of Bradley Garrett (2016:1), for example, has proved instrumental in framing ‘undergrounds’, such as sewer systems, as sites of ‘embodied engagement and creative imagination’, raising novel questions about the relationship between the body, place, and space in the city. As part of a wider ‘vertical turn’, urban geographers have been ‘pulling back the curtain’, inhabiting undergrounds to better understand these spaces as ‘deep, tangled conduits of connections and flows and as sites of expansionism, insurgency and social negotiation’ (Garrett 2016:2). Through exploring the underworld of sewer systems, Garrett (2016:4) describes the affect of being immersed in the underground environment: ‘it was that the future was being built, a future that felt like an experiment in process all around them’.

This work forms part of a wider non-representational turn that has sought to ‘problematise predominantly visual representational models, and to consider more imaginative means by which to investigate more affective and multisensory experiences of space’ (Paterson 2017:3, see also Dixon and Straughan 2010 and Butz and Besio 2009). It is a turn that, as Colls (2011:432) highlights, is often located in cultural geography. The work of Hayden Lorimer and John Wylie are prime examples of this and whilst they also do not refer to ‘volume’ explicitly, we see the value of embodied immersion and ‘going there’ methodologies (Lorimer 2006:497) in generating significant geographical insights that emphasise the ‘fundamental tangibility of human experience’ (Dixon and Straughan 2010:450). Turning to Lorimer first, he sought to reconstruct the ‘entwined biographies of human and animal subjects’ through the practice of herding by walking ‘a topography of traditional grazing grounds’ with past herders (Lorimer 2006:497). In doing so, he argues that he was exposed to ‘microgeographies of worldliness’ and provided with an opportunity to ‘get closer to something of the vital, animate, and lively energies that announce themselves as landscape’ (Lorimer 2006:517). Simultaneously, Lorimer’s embodied engagement with his subject matter reveals how ‘conceptual insights, however modest,’ can be generated in making ‘something knowable, meaningful, or recoverable’ as the researcher makes a ‘conscious effort to turn inwards’ (2006:515). Similarly, John Wylie also adopts an ‘experimental approach’ in his ethnographic research on walking a coastal path (2005:234). Through the process of walking, he sought to ‘activate a space and time within which’ he could ‘explore issues of landscape, subjectivity and corporeality’ (2005:234). In the process, he was able to momentarily grasp some of the highly varied textures of the environment (see Dixon and Straughan 2010), to widen the ‘perceptual register’ (Paterson 2017:4) of geographic thought and to offer nuanced insights into the self-landscape relationship through the process of self-narration.

This is not to say, however, that the practice of geographical (and specifically geopolitical) research should become an experience that ‘is circumscribed or singular to those who have had the opportunity to inhabit that territory’ (Lorimer 2006:516). Instead we might, across both cultural and political geography, ‘envisage a more inclusive sort of intellectual investment: one that accommodates understandings of living in the thick’ of the world (516). Geopolitical questions can (as Lorimer argues in relation to cultural geography) be reanimated by intimacy in conduct and encounter’ (Lorimer 2006:515). With a geopolitical landscape increasingly attuned to ‘embodied experience’ and the ways ‘geopolitics affects, controls, and constructs bodies as well as how geopolitical constructs are realised through embodied action and experience’ (McKinnon 2016:286), taking personal, embodied encounters seriously may be a positive step forward. This is especially salient and worthy of greater attention given that political geography seems ‘afloat…with volumes’ (Adey 2015:55).

**Immersive methods**

As Merriman (2014) helpfully highlights, new ways of thinking do not necessarily mean that new methods are needed. Indeed, Merriman argues that there is a danger of over valorising the experimental and the novel at the expense of extremely valuable pre-existing methodological frameworks. Similarly, as Paterson (2017:7) attests, we must be wary of the ‘haptic’ and embodied standing for ‘something non-specific that simply opposes the centrality of visual experience’. This being said, if we are to take seriously the idea that ‘methods have ontological consequences’ (Buller 2013:375), then it is worth considering how questions pertaining to the geopolitical ‘volume’ and ‘immersion’ are approached.

The volume of water seems a good place to start when considering these questions. The Oxford Dictionary (no date) defines the word ‘immerse’ as ‘to dip or submerge in water’ whilst Lehman (2013:52) and Steinberg and Peters (2015) highlight the capacity of oceanic volumes to create politically vital relations between different spaces and to raise interesting geographical questions that have application beyond the sea. Moreover, the work of Merchant (2011a, 2011b, 2014), Straughan (2012) and Adams (2016) offer some wonderful insights into the ways that the diving body of the researcher can reap fascinating insights about the nature of the watery volumes in which they are immersed, or submerged. In seeking to understand the ‘novel characteristics of underwater space, its texture, viscosity, atmosphere, and physical properties’, Merchant (2011a:216), for example, demonstrates through a phenomenological account of novice divers how the seascape can no longer be considered an inert background or setting for human action – it is a space that is moved *through* (Merchant 2014). Similarly, Straughan (2012:19) interrogates sense of ‘touch’ in the undersea environment through her own diving body to elucidate how water becomes, for some, a ‘therapeutic landscape’ away from terra firma. Straughan herself describes how ‘the water surrounding me is stimulating that familiar sense of cleansing, release and freedom that I feel most when my head and body are submerged in water’ (Straughan 2012:19). It is only through immersing herself that Straughan is able to take ‘account of the body in terms of its physicality and emotionality in concert with the textural qualities of water’ – these are emotions ‘mobilised *via* *immersion* in water’ that would otherwise remain unknown (25 emphasis added).

These embodied and phenomenological accounts once again sit more broadly in response to the ‘so-called crisis of representation’ (Butz and Besio 2009:1664). Within this ‘crisis’ new methodologies have emerged that seek to deal with the complexities of the social via experimental and embodied methods. As Adams St Pierre (2015:138, emphasis in original) highlights somewhat exasperatedly, *‘we are bodies* and are completely entangled in the world’. Similarly, as Brigg and Bleiker (2010:780) assert, researchers ‘share one commonality: we serve as a type of ‘hub’ through which the world becomes known’ and perhaps there is a need to more directly engage with the body, or the ‘self as a methodological resource’. Autophenomenology or autoethnography[[1]](#footnote-1) is one method that seeks to incorporate lived, embodied experience into the research process (see Anderson 2006a, Ellis et al 2011). Premised on the idea that methods should be responsive to ‘both the phenomenon and the subjective interconnection between researcher and researched’ (Finlay 2009:6-7), autoethnographic and autophenomenological researchers seek to gain ‘fresh, complex, rich descriptions of a phenomenon as it is lived’ by taking seriously ‘embodied experiential meanings’. In other words, the researcher seeks to position themselves as the vehicle through which to explore phenomenon as they are experienced, rather than through engaging with others doing the ‘experiencing’.

Leon Anderson (2006a) for example, uses his membership in a community of skydivers to analyse his own embodied experience of jumping from a plane. Whilst Anderson has previously conducted ethnographic research among homeless people on streets and in shelters, even spending ‘time in jail with some of them’, he writes that he ‘never completely inhabited their world – physically, psychologically, or socially’ (Anderson 2006b:354-355). This is ‘dramatically different’ from his experiences conducting a skydiving autoethnography where he is completely immersed physically, psychologically, and socially in the world of air and of the sky diving community. There is an ‘autoethnographic sensibility’ at play here that sees the ontological separation of academic researchers from their research subjects diminished (Butz and Besio 2009:1669). We see similar sensibilities at play in the work of Spinney (2009, 2015, see also Cook 2013) whereby interviews are conducted cycling (or running in the case of Cook) alongside the participant to better access the intertwining of movement, meaning and affect and the embodied sensibilities of these particular practices (see also McCormack’s 2008 work on dancing bodies).

Of course, other methodologies such as interviews and archival research can also keep the researcher in touch with material worlds via the body but it is perhaps worth thinking about *who* is being interviewed and *which* sources are most fruitful in achieving this. In response to Adey (2013), Elden (2013b), for example, acknowledges the need to engage with actors such as engineers, planners, labourers, and miners to better understand the relationship between bodies and volumes. Tunnel diggers, excavators, and geologists, and those who are engaging with volumes with their hands and bodies would be rich sources of information. Their experiences of physically engaging with and actively constructing elemental and voluminous spaces are vital yet they are rarely the protagonists in academic writing on geopolitical volumes. Addressing this would be one means of destabilising top-down academic perspectives through the recovery and excavation of alternative narratives and testimonies (Dobraszczyk et al. 2016:28).

Similarly, certain archival sources might be more insightful than others. Personal diaries, journals, and logs, for example, provide insight into what Lorimer (2003) would term, ‘the small stories’. Whilst much is ‘contingent on the availability of ‘sources’ which capture (or at least take us closer to) the smells, sounds, sights, and feelings of direct embodied experience (202), Lorimer demonstrates the value of documents such as field journals in bringing the researcher closer to the embodied experiences of others. There is potential for an ‘interesting zone’ of inventiveness’ (Timm Knudsen and Sage 2015:7) to emerge here when trying to gain access to the immersive and embodied nature of volumes when methods such as interviews, archival work, and the phenomenological come together. In the following section, I adopt a more personal tone to reflect on how my research interacts with this zone and the potential it holds for exploring immersive volumes.

**‘Do you dive?’**

My research sought to explore certain aspects of undersea, or sub-marine, geopolitics. My key case studies are a series of experimental undersea living projects conducted by the US Navy during the Cold War. The experiments, known as Sealab (I,II, and III) (see Squire 2016b), saw men (or aquanauts as they were known) living and working up to 62m down on the US continental shelf for up to 30 days. Unable to quickly return to the surface, they were in every sense fully immersed in their environment. Indeed, water, as Ten Bos (2009:78) asserts, is ‘pre-eminently apt as a means of surrounding’; similarly Straughan (2012:22) describes how divers are always touched and touching the liquid volume – ‘they are supported, suspended, moved, and compressed by the water that encompasses them’.

Prior to this research, I had never spent any time underwater. Initially, I did not expect this to be significant as my primary research methods were interviews and archival work. Sources such as diaries, chronicles, physiological and psychological reports, and photographs provided rich insights into what Dwyer and Davies (2010:91) refer to as ‘archives of the feeling body’. Similarly, Lawrence and Schaeffer (1998 in Lorimer 2003a:202) suggest that whilst there are inherent difficulties of tracing ways of moving, feeling, performing, and being in the past, archives can function to ‘construct a body that no longer exists’ enabling the researcher to present a ‘substantiated and convincing account’ of past embodied experience (Baker 19997:232). Interviews too proved to be very insightful in terms of gaining access to what it was like to work for extended periods in the ‘immersive and overwhelming presence’ (Adey 2013:53) of the sea. Participants remembered in detail how cold the water was and how they feared getting lost in the murk of the sea.

Yet throughout the initial process of establishing contact with my research community a question continually emerged that could not be answered by this ‘orthodox cannon of methods’ (Spinney 2015:232). I was asked on numerous occasions, ‘do you dive’? Just as Adrian Howkins (2010) experienced when writing about the history of Antarctica, the question of ‘Have you been there?’ or in my case, ‘do you dive?’ loomed large. As Howkins (2010:514-515) illustrates these questions are not insignificant. On the contrary they reveal the importance of the researcher ‘visiting the places they write about’ and, rightly or wrongly, confers a ‘sense of legitimacy’ and authority over the research process. ‘Extreme environments’, writes Howkins (2010:515), only ‘heighten this sense of legitimacy’ because they are difficult to access and to inhabit them requires significant effort and investment of both time and money. In an interview with a former aquanaut this became apparent when he asked if I was a diver. Conscious of my comparative lack of knowledge I replied that I was ‘a very new one’. He responded by saying ‘well, still, you’ve been trained, you’ve been underwater. When people talk to you about this, that, or so forth, there won’t be a word that you don’t understand’. He later added, ‘you’re a diver, you’re trained, so you know what happens’. As a ‘diver’ it felt like I had been accepted and my presence there, as Howkins (2010:218) experienced with the Antarctic, gained a legitimacy that it did ‘not necessarily deserve’.

As is hinted at in the above example, being a ‘diver’ not only gave a sense of legitimacy but also gave me insights into the language and practices of my research community. It ensured that I did not ‘lose touch with the material world’ that I was studying (Ryan 2015:575) whilst also providing a form of language training as I became familiar with the technical terms and colloquialisms of inhabiting water. The phrase ‘you’ve been underwater’ is also not insignificant. As Shreeves (2005:31) asserts ‘diving isn’t what you do. It’s who are’. For divers, the activity and sense of community associated with the practice is more than simply a hobby or pastime. According to Shreeves, it is an identity marker. Within the research context this is important, as Dunn (2010:112) elucidates, building rapport with a research community 'is basically a matter of understanding their model of the world and communicating your understanding symmetrically.' There was something significant about having been under the sea, about being part of a diving community, and in sharing a love and interest in inhabiting and moving through the water column that enabled an openness and conferred a legitimacy to my conversations.

Clearly I cannot claim to possess the levels of knowledge and experience of my research community who were professional divers by training. As Donna Harraway highlights, ‘you cannot relocate into any possible vantage point’ (Harraway 1997:287). It is here where I differentiate this methodology from the ‘full-immersion’ method described by Desmond (2011:61, see also Adams 2016) – ‘the method that requires investigators to become, as completely as possible that which they wish to understand’. This was something I could not practically achieve. As Adams (2013, 2014) highlights in his immersive research on hunting, accruing the skills necessary to be able to fully immerse himself took a lifetime of patience, practice and generational knowledge transference. Whilst my research was not fully immersive in this sense, Adams (2016) also demonstrates the value of openness and of being vulnerable to new experiences. In his case, the process of training in skin diving opened up new insights into his sense of self in relation to the planet. In embracing this openness, Brigg and Bleiker (2010:795-798) assert that the researcher is better able to mobilise faculties such as intuition and emotion, bringing new insight to bear on the ‘envelopment of humans with their world and perhaps even engender new ways of understanding and solving the problems and puzzles’ which may animate critical geopolitical research in environments like the sea, ice, and air.

This vulnerability to the world, however, can also have unforeseen consequences. In addition to inhabiting water, I also completed a ‘dive’ in a hyperbaric chamber. Chambers enable the body to be taken to a designated depth by compressing the air inside – a practice that in itself raises interesting questions about depth and verticality as your body ‘dives’ whilst stationary. In my research, chambers are important spaces as they were pivotal in ascertaining the limits of the body in pressurised environments so that Navy experiments could be replicated with fewer unknowns in the sea. The dive I completed was to 40m and took place in a highly controlled, calculable, and safe environment wherein compressed air fills the chamber at a pre-determined rate until you ‘arrive’ at 40m. The air is subsequently decompressed in accordance with established, calculated tables (designed by the US Navy) to bring the body safely back to the surface.

In spite of the extensive precautions and risk assessments, I emerged from the chamber with decompression sickness. More commonly known as ‘the bends’, decompression sickness occurs when nitrogen bubbles form in your tissues and bloodstream. In scuba diving this might occur after a rapid ascent through water where your body has not had adequate time to rid itself of excess nitrogen absorbed at depth. In the highly controlled space of the chamber, the bends was an unfortunate and unlucky occurrence. Whilst this was obviously an unintentional consequence of my research, it did provide interesting insights into some of the voluminous and elemental questions I have sought to explore, whilst also raising important methodological questions. Air, according to Philippopoulos-Mihalopoulos (2016:151) is ‘heavy’ and it ‘forcefully pushes in all directions’. The air inside the chamber offers a perfect case study of this as it literally compresses the body. As I was ‘enveloped by inhuman dynamics’ in the chamber (Tironi and Farias 2015:170), the air became hot and thick, my vocal chords were strained, and as I ‘surfaced’, new volumes in the form of bubbles emerged from my cells and into my bloodstream. Volumes clearly matter here. In this volume, despite the calculation, precautions, and well-established safety norms, there remained excesses that were incalculable in the collision of my body, the air, and pressure. The ‘force of the elemental’ (Adey 2015:54) came to imprint itself on my physiology in an unexpected and uncomfortable way and in doing so, demonstrated something of the incalculability of the immersive volume (McCormack 2015:87). There will always be unpredictable dimensions to the three dimensional and no amount of mapping, tabling, and calculation (either of the environment or the body) can fully predict of comprehend the intricate and complex relationship that the body forms with an elemental surround.

Methodologically, this is important. ‘*The world’* write Dewsbury et al. (2002:437, emphasis in original) *‘is more excessive than we can theorise…the world does not add up*’. It is therefore ‘important to consider how we learn to welcome this situation; how we may learn to write and research within it’. As they highlight, there is always ‘somebody else, a dangerous supplement…another example to be given’ (Dewsbury et al 2002:438). Out of the eight ‘divers’ in the chamber I was the only one with the bends. My experience was unstable and not the norm but it is here that its value may also be articulated. As Colls (2012:435) highlights, ‘subjectivity is deliberately unstable and not fixed and it is the forces or intensities in bodies that are productive and not the unified ‘subject’’. These differences allow for the ‘emergence of different knowledges that are productive of new ways of thinking about the world’. Whilst writing about feminist geographies and the more-than-representational, the same principles can be applied in political geography. Immersive methodologies provide a series of moments through which to think through the ‘nature of ‘difference’ and the conditions, locations, and methodologies through which a subject is differentiated’ (Colls 2012:435) across the geopolitical sphere. Different scales and intensities are free to emerge in the process and we are perhaps better able to critically interrogate what it means to be geopolitically differentiated subjects as a range of ‘forces operate differentially across a range of spatial scales to produce contingent and multiple subjectivities ⁄ differences’ (Colls 2012:440). In doing so, our engagements with the geopolitical world, and specifically here the geopolitical volume, might become something that we have not yet known (Colls 2012:440).

**Conclusions**

Immersive methodologies come with many challenges as well as opportunities. To learn to dive takes a significant investment of both time and money[[2]](#footnote-2), it requires a body that is able to tolerate depth, and much like Adams’ (2014, see also Lee 2012) experience of hunting, the more time I spent underwater, the stronger the desire to learn more and do more which again places strains on time, money, and body. Yet, if these constraints can be safely and appropriately overcome, immersion in and of itself and in conjunction with other methodologies might provide opportunities to gain novel insights into the geopolitical ‘volume’ and allow for more experimental narratives and ‘modes of address’ (Wylie 2005:235).

 In the highly specific context of my research, the (auto)phenomenological proved to be extremely useful. Practically, it legitimised my presence among my research community and gave me insight into some of the language nuances in diving. I came to understand some of the specificities of the body-water relationship and, in the process, was drawn into a collision between the incalculable and the calculable and the associated excesses that result when tables and calculations are imposed on recalcitrant elements and bodies. Someone else may have had an entirely different experience, but as Colls (2012) highlights, these differences are vital and in themselves have the potential to raise exciting and unexpected insights. Notwithstanding the above, Merriman (2014:177) also highlights the inherent importance and value of experimentation (see also Wylie 2005). According to Merriman, it aids self-discovery facilitates discussion, and the process can become equally, if not more, significant than the outcome. Whilst there may be aspects of volumes and the elemental that remain ‘in excess of the apparatuses of their capture’ (Lehman 2013:52, see also Philippopoulos-Mihalopoulos 2016), consciously inhabiting the earth as it is understood volumetrically and pro-actively engaging with those that not only inhabit, but engineer, work, craft, and create volumes can work to further disrupt the two dimensional gaze in political geography and unsettle the idea that our engagements with ‘volume’ take place across or along an x and y axis.

As Timm Knudsen and Sage (2015:6) highlight, this approach might entail a need ‘to complicate the dichotomy between doing something to the world and investigating it’ (Timm Knudsen and Sage 2015:6). Cultural and social geographers, along with anthropologists and sociologists seem much more at ease with this experimental, and even playful, process than those engaging with political geography (see Hawkins 2015). A more open and fluid dialogue and stronger interface between geography’s sub-disciplines and social science partners might provide a means to address this. Conversing with physical geographers who study volumes, inhabit them, sample them, core them, and handle the earth’s three dimensional materialities would also enrich the conversation (see Dalby 2013). Engaging in the experimental and immersive is not necessarily straightforward and it involves being open to new experiences, vulnerabilities and sensibly accounting for risks. Whilst this process has not been fully embraced in political geography, the world can clearly ‘reveal itself during the performative research process’ (Timm Knudsen and Sage 2015:6). Having permission institutionally and within the sub-discipline of political geography to participate in experimental practices forms part of the challenge of understanding the earth’s immersive volumes and their geopolitical manifestations.

**Bibliography**

Adams, M. (2013). ‘Redneck, Barbaric, Cashed up Bogan? I Don’t Think So’: Hunting and Nature in Australia. *Environmental Humanities,* 2: pp.45-59

Adams, M. (2014). Caught in the Net of Life and Time. *Meanjin Quarterly*, 73(2): no page numbers, <http://www.theguardian.com/commentisfree/2014/jun/16/caught-in-the-net-of-life-and-time-what-modern-hunting-means-to-me> (last accessed 27.6.16)

Adams, M. 27 April 2016. A silver bowl filled with snow, a heron hidden in the moon - full-immersion methodologies. Australian Centre for Cultural Environmental Research Blog <http://www.uowblogs.com/ausccer/2016/04/27/a-silver-bowl-filled-with-snow-a-heron-hidden-in-the-moon-full-immersion-methodologies/#more-3337> (last accessed 27.6.16)

Adams St Pierre, E. (2015). Troubles with Embodiment. In: Perry, M. and Medina, C. (eds) *Methodologies of Embodiment: Inscribing Bodies in qualitative research*. Routledge: New York, pp.138-145

Adey, P. (2013). Securing the volume/volumen: Comments on Stuart Elden’s Plenary paper ‘Secure the volume’. *Political Geography,* 34: pp.52-54

Adey, P. (2015a). Air’s affinities: Geopolitics, chemical affect and the force of the elemental. *Dialogues in Human Geography,*5(1): pp.54-75

Adey, P. (2015b). *Air*, Reaktion: London

Allen-Collinson, J. and Hockey, J. (2010). Feeling the way: Notes toward a haptic phenomenology of distance running and scuba diving. *International Review for the Sociology of Sport*, pp.1-16

Anderson, L. (2006a). Analytic Autoethnography. *Journal of Contemporary Ethnography,* 35(4): pp.373-395

Anderson, L. (2006b). On Apples, Oranges, and Autopsies A Response to Commentators. *Journal of Contemporary Ethnography,* 35(4): pp.450-465

Ash, J. and Simpson, P. (2014). Geography and Post-phenomenology. *Progress in Human Geography,* 23(1): pp.1-19

Baker, A. (1997). “The dead don't answer questionnaires”: Researching and writing historical geography. *Journal of Geography in Higher Education,* 21(2): pp.231-243

# Bridge, G. (2013). Territory, now in 3D!. *Political Geography,* 34: pp.55-57

Brigg, M. and Bleiker, R. (2010). Autoethnographic International Relations: Exploring the self as a source of knowledge. *Review of International Studies,* 36(3): pp.779-798

Buller, H. (2014). Animal Geographies II: Methods. *Progress in Human Geography,* 39(3): pp.374-384

Butz, D. and Besio, K. (2009). Autoethnography. *Geography Compass,* 3(5): pp.1660-1674

Colls, R. (2012). Feminism, bodily difference and non-representational geographies. *Transactions of the Institute of British Geographers,* 37: pp.430-445

Cook, S. (2013). Experiencing the Run: ‘Go-Along’ and Video Ethnography’, Paper presented at RGS-IBG Postgraduate Mid-Term conference, Birmingham United Kingdom, 25.3.13-26.3.13, abstract available at [10.6084/m9.figshare.931752](http://dx.doi.org/10.6084/m9.figshare.931752)

Dalby, S. (2013). The geopolitics of climate change. *Political Geography,* 37: pp.38-47

Dewsbury, J. Wylie, J. Harrison, P. and Rose, M. (2002) Enacting geographies, *Geoforum* 32: pp.437-441

Dixon, D. and Straughan, E. (2010). Geographies of touch/touched by geography. *Geography Compass,* 4/5: pp.449-459

Dobraszczyk, P. López Galviz, C. and Garrett, B. (2016). Digging up and digging down: urban undergrounds.  *Journal of Contemporary Archaeology*, 2(2), part Extended Forum, pp.26-30

Dwyer, C., and Davies, G. (2010). Qualitative methods III: animating archives, artful interventions and online environments. *Progress in Human Geography* 34(1), pp.88-97

Elden, S. (2005). Missing the point: globalization, deterritorialization and the space of the world. *Transactions of the Institute of British Geographers,* 30(1): pp.8-19

Elden, S. (2013a) Secure the volume: Vertical geopolitics and the depth of power. *Political Geography,* 34: pp.35-51

Elden, S. (2013b). Bodies, Books, Beneath: A reply to Adey and Bridge. *Political Geography,* 34: pp.58-59

Ellis, C. Adams, T. and Bochner, A. (2011). Autoethnography: An Overview. *Historical Social Research,* 36(4): pp.273–90

Finlay, L. (2009). Debating Phenomenological Research Methods. *Phenomenology & Practice,* (3)1: pp.6-25

Garrett, B. (2016.) Picturing urban subterranea: Embodied aesthetics of London’s sewers. *Environment and Planning A*, pp.1-33 [doi:10.1177/0308518X16652396](http://dx.doi.org/10.1177/0308518X16652396)

Graham, S. and Hewitt, L. (2013). Getting off the ground: On the politics of urban verticality. *Progress in Human Geography,* 37: pp.72–92

Gregory, D. (2011). From a view to a kill: drones and late modern war. Theory, culture and society, 28: pp.188-215

Haraway, D. (1997). The persistence of vision. In: Conboy, K. Medina, N. and Stanbury, S. (eds) *Writing on the body*, Columbia University Press: New York, pp.283-295

Harris, A. (2015). Vertical urbanisms: Opening up geographies of the three-dimensional city. *Progress in Human Geography,* 39(5): pp.601-620

Hawkins, H. (2015). Creative Methods: Knowing, Representing, Intervening. *Cultural Geographies* 22(2), pp.247-268

Heinerth, J. (2015). Sexism: Alive and well in scuba diving, *Diver Magazine,* 40 (7), available at <http://divermag.com/sexism-alive-and-well-in-scuba-diving/> (last accessed 23.06.16)

Howkins, A. (2010) ‘Have you been there?’ Some thoughts on (not) visiting Antarctica, *Environmental History,* 15: pp.514-519

Lehman, J. (2013). Volumes beyond volumetrics: A response to Simon Dalby’s ‘The Geopolitics of Climate Change’. *Political Geography,* 37: pp.51-52

Lorimer, H. (2003). Telling small stories: Spaces of knowledge and the practice of geography. *Transactions of The Institute of British Geographers,* 28: pp.197-217

Lorimer, H. (2005). Cultural Geography: the busyness of being more-than-representational. *Progress in Human Geography,* 29: pp.83-94

Lorimer, H. (2006). Herding memories of humans and animals. *Environment and Planning D: Society and Space*, 24(4): pp. 497-518

McCormack, D. (2008). Geographies for Moving Bodies: Thinking, Dancing, Spaces. *Geography Compass,* 2(6): pp.1822-1836

McCormack, D. (2015). Envelopment, exposure, and the allure of becoming elemental. *Dialogues in Human Geography,* 5(1): pp.85-89

Merchant, S. (2011a). Negotiating Underwater Space: The Sensorium, the Body and the Practice of Scuba Diving. *Tourist Studies,* 11(3): pp.215-234

Merchant, S. (2011b). The Body and the Senses: Visual Methods, Videography and the Submarine Sensorium *Body and Society,* 17(1): pp.53-72

Merchant, S. (2014). Deep Ethnography: Witnessing the Ghosts of SS Thistlegorm. In: Anderson, J. and Peters, J. (eds), *Water Worlds: Human Geographies of the Ocean, pp.*119-135

Merriman, P. (2014). Re-thinking mobile methods. *Mobilities, (9)2: pp.167–187*

Neocleous, M. (2013). Air power as police power. *Environment and Planning D: Society and Space,* 31: pp.578 – 593

Ó Tuathail, G. and Dalby, S. (1998). Introduction: Rethinking geopolitics: towards a critical geopolitics. In :Ó Tuathail, G. and Dalby, S. (eds) *Rethinking Geopolitics,* Routledge: London, pp.1-15

Oxford Dictionary (no date) ‘Immerse’ <http://www.oxforddictionaries.com/definition/english/immerse> (last accessed 24.06.16)

Paterson, M. (2017). Architecture of sensation: Affect, motility, and the oculomotor. *Body and Society*, 31(1): pp.3-35

Paterson, M. (2006). Feel the presence: technologies of touch and distance. *Environment and Planning D: Society and Space,* 24: pp. 691-708

Perry, M. and Medina, C. (2015). Working through the contradictory terrain of the body in qualitative research. In: Perry, M. and Medina, C. (eds) *Methodologies of Embodiment: Inscribing Bodies in qualitative research*, Routledge: New York, pp.1-14

Philippopoulos-Mihalopoulos, A. (2016). Withdrawing from atmosphere: An ontology of air partitioning and affective engineering. *Environment and Planning D: Society and Space,* 34(1): pp.150–167

Protevi, J. (2009). *Political Affect: Connecting the Social and the Somatic*, University of Minnesota Press: London

Ryan, B. (2015). Security spheres: a phenomenology of maritime spatial practices. *Security Dialogue,* 46(6): pp.568-584

Shreeves, K. (2005) The Underwater Adventure: The Other 70% of Earth, in Richardson, D. Kinsella, K. and Shreeves, K. (eds), *The Encyclopaedia of Recreational Diving,* International PADI Inc.: California, pp.2-63.

Spinney, J. (2009). Cycling the city: movement, meaning and method. *Geography Compass* 3(2): pp.817-835

Spinney, J. (2015). Close encounters? Mobile methods, (post)phenomenology and affect. *Cultural Geographies,* 22(2): pp.231–246

Squire, R. (2016a). Rock, water, earth, and fire: foregrounding the elements in the Gibraltar-Spain dispute. *Environment and Planning D: Society and Space*, 34: pp.3545-3563

Squire, R. (2016b). Immersive terrain: The US Navy, Sealab, and Cold War undersea geopolitics. *Area,* 48(3): pp.332-338

Steinberg, S. (1999). Navigating toward multiple horizons: Towards a geography of ocean space. *Professional Geographer,* 51(3): pp.366-375

Steinberg, S. and Peters, K. (2015). Wet ontologies, fluid spaces: giving depth to volume through oceanic thinking. *Environment and Planning D: Society and Space,* 33: pp.247-264

Straughan, E. (2012). Touched by water: The body in scuba diving. *Emotion, Space and Society*, 5: pp.19-26

Ten Bos, R. (2009). Towards an amphibious anthropology: water and Peter Sloterdijk. *Environment and Planning D: Society and Space*, 27: pp.73-86

Timm Knudesen, B. and Stage, C. (2015). Introduction: Affective Methodologies. In: Timm Knudsen, B. and Stage, C. (eds) *Affective Methodologies,* Palgrave Macmillan: Hampshire, pp.1-25

Tironi, M. and Farias, I. (2015). Building a park, immunising life: Environmental management and radical asymmetry. *Geoforum*, 66: pp.167-175

Weizman, E.(2002). Control in the air. *Open democracy*, http:⁄⁄www.opendemocracy.net⁄conﬂict-politicsverticality ⁄ article\_810.jsp (Accessed 20th March 2017)

Williams, A. (2010). A crisis in aerial sovereignty? Considering the implications of recent military violations of national airspace. *Area,* 42(1): pp.51–59

Williams, A. (2011). Reconceptualising spaces of the air: performing the multiple spatialities of UK military airspaces. *Transactions of the Institute of British Geographers,* 36(2): pp.253-267

Wylie, J. (2005). A single day’s walking: narrating self and landscape on the South West Coast Path. *Transactions of the Institute of British Geographers,* 30(2): pp.234-247

1. Autophenomenology and autoethnography are complex concepts (Ash and Simpson 2014). The two terms have been used interchangeably (see Anderson 2006a, Merchant 2014) and, whilst aware of wider debates surrounding the deployment of the terms, I use them here to understand the body as a methodological resource. [↑](#footnote-ref-1)
2. There are other social factors at play here too, diving for example, is a highly gendered activity – see Heinerth 2015. [↑](#footnote-ref-2)