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Learning from the archives of island jurisdictions: Why and how island history should inform disaster risk reduction and climate action

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Abstract: There is a growing literature challenging assumptions about what ‘data’ on disaster risks and climate change can be and arguing for the need to account for experiences and knowledge from across deeper history. In this paper, we argue that small island states and sub-national jurisdictions can especially benefit from a broader understanding of what data can be and we illustrate how historical narrative and descriptive data from archives can act as a valuable source of knowledge on disasters and climate, both past, and present. Yet, in order to use (and not misuse) these archival sources, we must first appreciate how islands and their histories have previously been engaged with, and how certain narratives about small islands may have shaped how historical data is engaged with (or not). We critically analyse current approaches when engaging with island histories, with particular consideration of the legacy of colonisation and imperialism, and how this is manifested in historical data and methods. Finally, we explore how island histories can educate and inform, locally and globally, realising connections between communities across time and space. We conclude that narrative and descriptive archival historical data is an invaluable source for understanding island vulnerability and resilience. Without such data, our understanding, and our efforts to address contemporary challenges, are likely to be flawed. However, we caution against elevating any one type of data or disciplinary lens. By combining such data with multiple types of data, both literate and non-literate, we can reach a deeper historical and long-term understanding of disaster risks and climate change in small island states and sub-national island jurisdictions.

Keywords: archival data, climate change, disasters, island histories, narratives,

Introduction

Much of the recent attention on small islands are framed around the considerable challenges they face, from the impacts of climate change (IPCC, 2012; UNEP, 2014), to environmental degradation (Seetanah et al., 2019) and sustainable development (Douglas, 2006). These challenges are primarily portrayed as new, emerging, and unprecedented. As a consequence of this focus, discussions about both resilience and vulnerability on small islands are fixated with the future. The solutions to which, and the data behind these solutions, are mostly drawn from the production of ‘new’ knowledge from western approaches, science, and positivist epistemologies.

This article discusses and critically assesses how data, knowledge, and ideas are approached and used (or rather *not* used, as is often the case) in the discourses of small island vulnerability and resilience. This work particularly discusses the under-utilised potential for descriptive archive historical data to contribute important lessons for understanding the highly place-based cultural, social, and political dynamics of island vulnerability and resilience (Kelman & West, 2009; Lewis 2009), as well as how to apply this elsewhere and extending these implications beyond in-situ. Importantly, we explore how the past and present governance of small island states and sub-national jurisdictions, often rooted in settler colonial contexts, has important ramifications for how archives are accessed, engaged with, and understood.

Such discussions are timely, with high-level policy processes in both disaster risk reduction (DRR) and climate change adaptation (CCA) highlighting the need for locally relevant solutions (Aitsi-Selmi et al., 2015; Soanes et al. 2021; UNFCCC, 2009), and growing awareness of the need to ‘decolonise’ dominant systems of knowledge production (Radcliffe, 2017). These discussions are also apt thanks to social science research demonstrating that human vulnerability and resilience develop and act out over the long term (Bankoff, 2007; Endfield, 2007; Garcia-Acosta, 2007; Lewis, 1999). Consequently, appreciation that research and policy should account for these long-term and historical processes has increased (Bankoff, 2004; Endfield, 2012, Lewis, 2012). Progress has particularly been made in research investigating the role of history in disasters (García-Acosta, 2017; Oliver-Smith, 1996; Schenk, 2007), although empirical data are still relatively rare, partly due to disciplinary separation between historians and contemporary researchers, including from small islands. Tellingly, islands and history as research fields share a common trope, as both have been suggested to be ‘laboratories’ with which to test hypotheses (Farbotko, 2010; van Bavel et al., 2020). Yet despite significant insights and literature from social science and anthropology into social adaptation processes that unfold across long periods (Bankoff, 2004; Glantz, 1988; Hewitt, 1983; Oliver Smith, 1996) including on islands (Kelman et al., 2015; Klöck & Nunn 2019; Lewis, 1990; Mercer, et al. 2012), most attempts to provide adaptation in practice are fixated on the future and the expected impacts of climate change, while the long-term historical context is overlooked.

This paper examines small islands as a subset of small states and territories including sub-national island jurisdictions. This is an important distinction, as any scale of examination brings its own geographic epistemologies (see Grydehøj, 2020) and a large proportion of the literature concerning climate change effects, impacts, and resources examine sovereign small island states (Betzold, 2010; Docherty & Giannini, 2009; Kothari, 2014), with some notable exceptions (Baldacchino & Milne, 2006; Petzold & Ratter 2019). In many cases, the extraterritorial lands of primarily mainland countries – whether near or far – are left at the margins of analyses, raising many questions concerning the postcolonial experience of climate change for ‘overseas’ territories, dependent islands, or islands that are not sovereign countries. Thus this paper adopts a broad definition of small islands to try and account for the diverse experiences (and lessons) from small islands and sub-national island jurisdictions.

In terms of structure this paper first details the context of how islands and their history have been engaged with in the past, and the various island discourses that have become prevalent. The second section of the paper discusses how new and emerging research and concepts approach island histories, including the contemporary need for nuance when examining island history in the context of vulnerability and resilience. The third section discusses the potential (and pitfalls) for the extension of historical data and studies beyond their

application in-situ. The paper concludes with recommendations regarding the use of historical data, including (but not limited to) archive data (both quantitative and qualitative) when attempting to understand island vulnerability and resilience. Ultimately showing that without placing descriptive archive data alongside other island data sources, understandings of island vulnerability and resilience and consequent decision making are likely to be flawed.

Issues with how islands, history, and island history have been engaged with in the past

Portrayals and discussions of vulnerability and resilience on small islands are often characterised by certain narratives or tropes. These narratives have historical legacies that can influence how small island states and sub-national jurisdictions, their resilience, and their vulnerability are understood today, including which sources of data are prioritised and which are overlooked in the search for solutions to contemporary challenges.

One particularly prevalent trope is of small islands being ‘the canary in the coal mine’ that considering the relatively early and severe impacts of climate change predicted, including increased temperatures, ‘extreme’ weather events, and sea level rise (United Nations, 2010; IPCC, 2012; UNEP, 2014), islands offer a ‘bellwether’ of impacts, responses, and adaptations (Farbotko, 2010; Hanna & McIver, 2014). Similarly, islands are often portrayed as being on the ‘front lines’ of a ‘war’ on climate change (Kelman & West, 2009; UNESCO, 2009). These framings ‘instrumentalise’ islands and islanders (Chandler & Pugh, 2021), presenting them as important, not necessarily in their own right, but as a portent of things to come elsewhere, and the first places to offer insights into adaptation (Lazrus, 2012). There has been some progress in dispelling these tropes, and they continue to be resisted (Farbotko, 2005; Klöck & Nunn 2019, McNamara & Gibson, 2009), yet these and other tropes are still often deterministically attributed to islands, mainly by non-island scholars (Nimführ & Otto, 2020).

Critically, these modern discourses have historical legacies, and the portrayal of islands as small-scale ‘laboratories’ that can offer insights into effect and response have long-term European colonial roots (Dodds & Royle, 2003; Farbotko, 2010). Colonial expansion by Europeans after the 1400s led to a prevalent discourse of small islands as unspoiled ‘island Edens’ that could be used to experiment on and observe the natural world (Royle, 2001), but that were also presented as social metaphors (Grove, 1993). As Orłowski (2021) notes in the case of the Canary Islands this included the presentation of islands as microcosms in early examinations and explanation of climate by western scientists like Alexander Von Humboldt. This led to small islands enacting some of the earliest examples of sophisticated state-led conservation in developing nature reserves and initiatives. Indeed the role of the colonial government naturalist was pioneered on small islands, like Mauritius, where concerns of species extinction also emerged clearly for the first time. Small islands became some of the first places to develop colonial legislative conservation explicitly connecting climate change and human-driven environmental change, marking a shift in the use of scientific information and a greater readiness of colonial states to intervene in environmental matters (Grove, 1988,1993). It is this same island ‘Eden’ discourse that is traded on in tourism campaigns, both old and new (Salazar, 2010), and more recently appropriated to suggest that once paradisiacal islands are now despoiled or broken by disasters and climate change (Schulenburg, 2003).

A parallel discourse is of islands being vulnerable as a result of several characteristics. Primary of which is their ‘small’ size. The label of ‘small’ is itself one of the tropes determining how islands are engaged with, as the often externally ascribed concept of smallness is of course

relative (see Jedrusik, 2011). Other characteristics include limited resource bases, growing populations, or relative isolation, among others (Kelman 2020; Méheux et al., 2007; Pelling & Uitto, 2001; United Nations, 2010). Much of the early modern academic discourse about island vulnerability focused on economic dimensions. Briguglio (1995), for example, argued that small islands are often geographically isolated and insular, and as a result have limited resources and low economic development with small and poorly diversified economies, which in turn has increased their reliance on overseas trade and imports. Certain other physical characteristics are also used to justify this discourse of vulnerability including their often low-lying nature or large coastlines relative to their total land area (also known as the insularity index, see Nunn & Kumar, 2006). The discourse of island vulnerability and the frequently used archetype of islands at the mercy of climate change is problematic, as it simplifies island realities by presenting the severity of climate impacts as a focal point and islanders themselves as being defined and encapsulated by their peripheral, immobile, and isolated nature (Walshe & Stancioff, 2018). As Kelman (2020) argues, both the labels vulnerability and resilience are socially and culturally manufactured and can ultimately be either empowering or disempowering for development.

Instead, islands (and islanders) do not conform to these tropes and have considerably more complex relationships with climate and climate change (Grydehøj, 2014). Many of the discourses surrounding island vulnerability assume that islands represent closed systems, insulated from global connections. Instead, islanders can also be characterized by their movement and agency (Bernardie-Tahir, 2014) and closed systems rarely exist, either in the context of the ubiquitous spread of neoliberal capitalism, or in the sense of connections (of all kinds) between islands (Hau'ofa, 1994). Equally, islands are often 'crossroads' for trade and tourism, partly due to their insularity (Royle, 2001). These portrayals are therefore ahistorical, neglecting the long term networks of movement and migration, as well as disregarding the fact that climate change is a global and continual process that is not necessarily defined as being anthropogenic (see IPCC, 2012). Furthermore, these portrayals overlook that islands have responded (successfully and otherwise) to long histories of disasters and climate changes (Barnett & Waters, 2016; Nunn & Kumar, 2018; Nunn 2014; Mercer et al. 2012,) and in doing so have demonstrated that local knowledge and culture may impart the ability to successfully respond to environmental variability (Campbell, 2009; McMillen et al., 2014).

The potential impacts of climate change on islands are well researched (McGree et al. 2019; Power et al. 2017), in part as a result of concern related to the characteristics described above. Yet, it is important to avoid immediately associating islands with vulnerability alone and 'problematizing' small islands (Kelman & Khan, 2013). Such problematizing of islands and the accompanying predictions of climate change doom neglect the original historical sources and creation of vulnerability, themselves deeply rooted in colonial legacies (Barclay et al., 2019; Frankema & Masé, 2014). The island vulnerability discourse also often has unrecognised historical roots, intertwined with colonialism. In many places, the tropes of island Edens were gradually replaced (or combined) with islands being portrayed as vulnerable in the nineteenth century. This was partly due to colonial importation of disease and environmental degradation when tropical small islands were portrayed as unhealthy, overpopulated, and 'plagued' by pandemics and pestilence, particularly seen as hazardous places for European health and morals (Bankoff, 2001; Livingstone, 2002). This European-focused geography of risk, predicated by the emerging disciplines of tropical medicine, geography, and anthropology (Adamson et al. 2018), endured well into the 20th century (Black, 1966; De La Blanche, 1965; Semple, 1911). Thus the historical legacies of the intertwined island tropes, from 'canaries in

the coal mine' to colonial island laboratories and islands as 'Eden' (spoilt and unspoiled), to island vulnerability, are not often widely recognised.

It is not just island discourses and tropes that have long historical roots that are overlooked. Studies of disasters and climate on small islands are also often constrained to a timeframe that neglects the long and very long-term historical context and processes. This is largely due to a focus on, and prioritisation of, scientific, positivist, and instrumental understandings and metrics of past disasters and climate. When it comes to the examination of specific island climate or disasters, the connection between 'the historical' to contemporary contexts are often poorly understood or neglected entirely. This is despite a body of literature from social science studies investigating past disasters and climate in social terms, from history (Bankoff, 2004, 2012; García-Acosta, 2002, 2017), geography (Field & Kelman, 2018; Skilton, 2019), and human ecology (Hewitt, 1983). Beyond such studies, disasters are frequently presented as singularities (Rivera, 2020). The considerable body of 'classical' historical literature that does engage with disasters or climate on islands, for the most part, either approaches the past as a curiosity, disconnected or irrelevant to the present, or deploys narrow and reductionist environmental determinism, including incorrectly attributing societal shifts to single hazards, disasters, or climatic changes (Butzer & Endfield, 2012). This is not to say that past changes in climate and disasters have not dislodged societies from their developmental trajectories, but rather that there is a danger that these shifts are attributed to single climate changes or disasters alone, in the absence of the complex social, political, economic and other factors that are crucial to understanding disasters. There are comparatively fewer forward-looking attempts to use historical disaster or climate research to investigate how vulnerability and resilience is created to inform our understanding today (Bankoff, 2004; Schenk, 2015).

This imbalance is partly a result of disciplinary siloes, issues, structures, and norms, and as Waddell (1977) noted, the early social science tradition in the West typically fragmented reality and promoted a type of functional analysis that was "profoundly ahistorical". This particularly meant that the processes and forces that underlie the supposedly objective phenomena of "natural hazards" and "disaster" were often neglected in research, as were the human actions that might accentuate the gravity of hazards.

This is not a problem unique to islands, as Riede (2014) notes, despite the repeated calls for research to consider the historical dimensions of disasters and to look beyond narrow physical dimensions to the complex place based disaster vulnerability (García-Acosta, 2002, 2017), relatively few studies have (Janku et al. 2012; Mauch & Pfister 2009). Consequently, historical disaster research as a whole tends to be 'case study focused' and neglects the long-term social contexts in which disasters occur (Hall, 2017; Reilly, 2009). The existing literature also tends to treat island climatic extremes as non-recurring 'one-offs', when instead viewing these as cyclical occurrences, and in the context of longer histories, can uncover the social structures that precede a disaster and influence the ability of communities to respond, which itself is shaped by past disasters (Walshe et al., 2020). While academia is starting to appreciate this role that history (both physical and social) plays in disasters, most policy-driven attempts at DRR or CCA on small islands rely on data with very limited time depth. These often try to isolate or address a single physical impact, hazard, or risk, the proposed solutions to which are uncritically imported from elsewhere (Nunn, 2009, 2012). As a result, DRR on islands (and elsewhere) rarely articulates the long term processes behind disasters (Lewis, 2012).

This limited time depth is partly due to a focus on 'low hanging fruit' in terms of data, particularly in the form of instrumental data on small islands with colonial histories.

Consequently, quantitative historical data may be prioritised in decision making which can result in maladaptive behaviours or actions (Nissan et al. 2019). Equally, this risks neglecting the influences on island vulnerability and resilience from before the period that instrumental data represent. This can result in ‘ontological traps’ where ‘short-termism’ is given priority over longer-term thinking and locally-sourced solutions (Baldacchino, 2018). Furthermore, as argued by Lewis (2009, p. 7) to understand ‘compound’ vulnerabilities, the impact of any risk must be placed in its historical context and sequence of recurring events (of all types), that are inseparable from the socio-economic, cultural, political and natural factors that have accrued from the interaction of these over time (Endfield & Veale, 2017).

Current approaches and contemporary needs when engaging with island histories

Despite the progress made in dispelling unhelpful tropes, and putting islands concerns ‘on the map’, most notably through the work of the Alliance of Small Island States (AOSIS; e.g. Ourbak & Magnan, 2018), small island states and sub-national jurisdictions still regularly find themselves at the margins of regional and global governance. Grydehøj et al. (2020) note the prominence of islands in China’s Belt and Road Initiative (BRI), especially through its 21st-Century Maritime Silk Road, but Li et al. (2020) point to the lack of climate action in many BRI countries and the absence of a climate cooperation mechanism as signs that the framework marginalises island concerns and needs. Following campaigning by Comhairle nan Eilean Siar, Orkney Islands Council, and Shetland Islands Council, the principle of ‘island-proofing’ (meaning that national policy and legislation must consider islands’ needs) has been developed in UK policy and features firmly in Scotland’s National Islands Plan (Sindico & Crook, 2019). The question then becomes how to articulate and inject island challenges and priorities into national and global policy discourse.

Small island states and sub-national jurisdictions may not be well-served by the dominant forms of knowledge production encountered in global climate discourse, which frequently draws on complex global climate models that are too coarse in resolution to capture the very existence of some small islands (e.g. Cantet et al., 2014; Centella-Artola et al., 2015). Indeed much of the discussion about the impacts of climate change on small islands have been based on global or regional studies predicting higher sea levels (Walsh et al., 2012) or sea surface temperature increases (IPCC, 2013; Ruosteenoja et al., 2003).

Decision-makers want information at island-scale, and although the computational techniques exist to downscale climate data in this way, the results may not be more meaningful or reliable (Webber, 2017). In French Polynesia, interviews with institutional actors suggest that there is an overabundance of scientific data, but still a lack of public engagement and political will on climate change (Terorotua et al., 2020). Similarly, in the South Pacific, the groups that communicate climate change information felt that the global nature of scientific information passed down made it inaccessible, and instead that actions, lessons, and communication about climate change and adaptation should be locally grounded and contextualised, including the use of traditional or local knowledge where possible (Walshe et al., 2018). This suggests that more of the same data, drawing on positivist physical science traditions, may not be the answer to catalysing climate action. Furthermore, climate models themselves are a product of historical and political contexts, which, although they do not alter the laws of physics, may have implications for how they are deployed to produce policy-relevant knowledge (Heymann & Dalmedico, 2019). Against this backdrop, it is prudent to reflect on how other forms of ‘data’, such as historical records, can be incorporated into climate

governance and decision-making in small island states and sub-national jurisdictions (Foley, 2018).

Archival sources have been widely used in climate reconstruction, with phenological observations and data series critical to these endeavours (e.g. Brázdil et al., 2016; García de Cortázar-Atauri et al., 2010). For example, García et al. (2003) use records of cereal production, maintained to calculate taxes, as a proxy for rainfall in the Canary Islands between the 1500s and 1800s. These inventive methodologies combine qualitative and quantitative approaches and produce valuable datasets that enhance our understanding of climate change's physical impacts, but in converting some of the rich descriptive meanings contained in archival sources into narrower numerical data, information about climate change's cultural impacts can be lost. For example, in Orkney's school log books, seasonal cycles in the sowing and planting of certain crops are apparent, and when unseasonable weather alters expected patterns, the communities as a whole are impacted, with the school's calendar shifting in response. Similarly, in Mauritius, descriptive data regarding historical cyclones can be converted into instrumental categories (Garnier & Desarthe, 2013), yet the severity of disaster impacts and experience are not determined by physical metrics but are instead dictated by vulnerability, which can be revealed by examining the same descriptive record that is overlooked in the process of conversion to quantitative measurements (Walshe et al., 2020).

If we work with rich descriptive archive materials, rather than metricise them, historical documents can unlock key data about vulnerability and forgotten or neglected local knowledge with direct relevance to current challenges, much in the same way traditional knowledge is shown to (Hall, 2019; Kelman et al., 2016; Nunn & Campbell, 2020). Such connections of long term island history to contemporary challenges have been theorised as 'trajectories' in vulnerability and resilience over time (Barclay et al. 2019; Fazey et al., 2011; Hicks & Few, 2015). Recent research builds on this understanding and suggests that conceptualising these long-term patterns as helical in shape and nature may account for the complex, obscured, slowly changing structural influences of island vulnerability that extend into the distance in time and space (Walshe et al., 2020).

The importance of tracking the influences on vulnerability back as far as possible in a small island context is also illustrated by Frankema and Masé (2014), who detailed several early historical decisions and power dynamics that to a large extent determined the levels and distribution of devastation in the 2010 Haiti earthquake. Similarly, Sword-Daniels et al. (2014) uncovered the role of historical context in long-term disaster recovery on Montserrat, while Barclay et al. (2019) exposed historical drivers of vulnerability concerning agricultural, economic, and social practices in Dominica.

Historically-informed understandings are crucial to evaluate and inform policy solutions to address contemporary environmental and sustainability challenges. As Brisset (2017) illustrates with the Sustainable Development Goals and their application in the Caribbean, while the aspirations of the goals are commendable, the problems they seek to address, such as poverty and environmental degradation, are heavily rooted in unequal power structures of neoliberal capitalism that promote western interests and ideas, which the goals themselves only challenge implicitly. Archival research can shed light on the socio-political processes that give rise to an accumulation of vulnerability and the policies that might successfully disrupt these patterns. As demonstrated by Duvat et al. (2021) in Saint-Martin, where past decisions relating to taxation and planning give rise to long-term trajectories of increased exposure to cyclones and cascading impacts in their aftermath. Similarly, Rivera

(2020) detailed how disaster colonialism over history can explain how procedural vulnerability is perpetuated through disasters and used to deepen coloniality in Puerto Rico.

One source that is available to achieve such a long-term understanding, is institutional records, which comprise a significant tranche of archival sources. The Rankean positivism of the mid-nineteenth century elevated institutional archives as the only location of ‘authentic record’ to provide authority over understanding of the past, grounded with ideas of imperial and racial superiority (Foucault, 1972). Douglas and Mills (2018) note that personal documents and archives can be perceived as subjective, emotional, narrow in scope, and even messy, in contrast to institutional documents and archive whose provenance imbue them with a sense of objectivity and societal importance, a separation that acts to ‘other’ the former and downplay the existence of the personal in the latter. The prevalence of institutional records necessitates reflection on who and what institution kept the record, and for what purpose. School logbooks provide insights into weather, climate, and community vulnerability in the Scottish Isles in the 1800s and early 1900s, but only as it relates to pupil absences. In these sources, the narrator is the school headteacher, with occasional entries from the school inspector; the voices of the children themselves or their parents are absent. As these sources are taken up and used by modern scholars in different ways, they inevitably become part of a chain of inferences and assumptions, and the experiences of those written about may become more distant, or, in the case of methods that focus on quantifying past weather and climate trends, removed entirely. As historical climate narratives are interpreted and woven into contemporary climate narratives, there is a need to critically reflect on whose voices are heard through archival material, whose interests were and are represented, and how this relates to current contexts (Carey, 2012).

In settler colonial contexts, the issue of who controls the archives is contentious (e.g. Luker, 2017). Though colonialism is not limited to small island states and sub-national jurisdictions, Baldacchino & Royle (2010) note that small islands were frequently amongst the first spaces to be colonised, and the last to obtain independence while being amongst the most profoundly affected by forms of external control. Overseas territories have been referred to as the ‘confetti of empire’ (Guillebaud, 1976) or ‘colonial confetti’, too small to sustain independence (Amoamo, 2017), making them spaces in which the influence of the empire persists long after mainland colonial possessions had gained their independence. Indeed, Connell and Aldrich (2020) note a preference for autonomy or semi-sovereignty amongst residents, but ‘autonomy’ can take different forms and does not always equate to meaningful self-government (Gonshor, 2013).

The implications of colonial pasts and presents for archive historical research in small island states and sub-national jurisdictions are wide-reaching. Documents may not be held in the place where they originated, but in archives of the former colonial power, as in the case of the Migrated Archive held in the UK National Archive at Kew, comprised of documents brought to Britain from across the world as the British Empire disintegrated (Lowry, 2019; Rawlings, 2015). In the case of the Virgin Islands, Danish archivists first removed many records to Denmark when the territory was sold to the United States, who then removed what was left to Washington, leaving Virgin Islanders without access to their archives (Bastian, 2001). Such archives can be considered ‘dark archives’ in that they are unknown or unavailable (Maly, 2013). Digitisation may form part of the solution to decolonising these archives, but it also shapes how people can interact with these documents, and raises issues of ownership and sovereignty, potentially perpetuating familiar patterns of imperialism in the digital world (Jeurgens & Karabinos, 2020). Archival records constitute material cultural heritage, as well

as data, and digitisation cannot address the physical separation from the documents themselves (Winn, 2015).

Wareham (2002) notes that archives and archival systems are a form of knowledge production that was imposed on Pacific island societies, in service of these outside interests. Marginalised voices may not be openly or purposefully included in archives and archival systems, or may be misrepresented. Thus, colonial archives particularly reflect the voice of an elite who were not only unfamiliar with the environment and climates (including its extremes) they found themselves posted to, but also oblivious to the experiences of local communities (Endfield & Tejedo, 2006). As Odumosu (2020) describes, archival collections are sites of “colonial hauntings” (pp. 290), which demands “extra care in the witnessing gaze” (pp. 300). Even when indigenous voices are present in the documents, the colonial gaze infiltrates how knowledge is translated and documented. Poai (2016) notes that from the vast corpus of Hawaiian-language materials available, a mere fraction has been translated, sometimes badly, and this has come to shape ‘canon’ understandings of Hawaiian history. Andrade (2016) highlights how ‘tailored’ views of history have shaped two Supreme Court cases, to the detriment of the Native Hawaiian community. Jeurgens and Karabinos (2020) give the example of wills made by employees of the Dutch East India Company in Batavia and the Cape of Good Hope, now available online via The Dutch National Archives; the index of names, created by 19th-century archivists, obscures women and indigenous people, even though they are present in the documents themselves as beneficiaries, debtors, creditors and so on. It is an example of what Wright (2019) refers to as the “non-neutrality” of archives and archiving.

Archives can also act as inadvertent stores for the kinds of embodied knowledge regarding the environment held in communities; that is, the range of perceptions, beliefs, customs, and practices that arise over time as a response to living in a specific place and environment (Mercer, 2007). As noted by Wareham (2002), in many Pacific islands, oral history is the preferred mode of transmitting knowledge. By one estimate, out of over 3000 languages spoken worldwide, only 78 have a literature (Ong, 2013), with a vast amount of knowledge lost and at risk of future loss. Where oral history traditions have lapsed or knowledge lost, archive historical research can inform and revitalise. For example, Sato et al. (2018) draw on chants, songs, stories, and articles about Hawaiian land snails, or *kāhuli*, to infer information about its historic range and cultural significance, but report that it was difficult to locate expert interviewees to help contextualise the archival findings, as few practitioners considered themselves knowledgeable on *kāhuli*, perhaps as a result of their increasing rarity. Documenting contemporary oral knowledge and history can also be integrated into archive collections themselves, and can therefore be a way to protect current knowledge for the future and remember or revitalise past lost knowledge (e.g. see Sisau et al., 2018). Thus archive knowledge should be placed alongside other forms of data and knowledge, and for such efforts to be successful consideration of whose archives and knowledge are being created and used is essential.

Climate change and disasters also pose risks to archives themselves; in tropical climates, high humidity necessitates careful environmental controls to prevent the decay of paper records (Wareham, 2002), and sea level rise poses a risk that may necessitate the relocation of some small island archives (Gordon-Clark, 2012).

Despite these caveats and limitations, there is much to be gained from transdisciplinary approaches to island vulnerability and resilience incorporating historical archive research. While the global nature of current climate policy discourse risks neglecting the human

dimension and local concerns (Heymann, 2019), engaging with historical sources can aid in conveying the extent to which current climate and environmental change are linked to human actions, over much longer timescales than might be appreciated (Fleming, 2014). This is crucial when we consider how historical legacies, such as the settlement histories referred to earlier, cast a long shadow of environmental harm. For example, US territorial islands today are still disproportionately burdened with hazardous waste they did not generate (Thomson & Samuels-Jones, 2020).

Extending beyond in-situ

The relative smallness of ‘small’ islands in terms of land area is associated with a boundedness that does not bely connection (Brinklow, 2013). Hau’ofa (1994) writes of Oceania as a boundless world, where the sea connects rather than separates island peoples, supporting trade, cultural exchange, and kinship networks, which endures despite the divisions imposed by western imperialism. Climate change and disaster risk engagement and action has much to gain from embracing this worldview, which stands in stark contrast with the already critiqued view of islands as isolated ‘laboratory’ spaces (Farbotko, 2010).

This re-realisation of islands as deeply connected spaces can help with how information about climate change is shared, both between island communities and with mainland communities who, perhaps because of harmful tropes, see climate change as something that is forever happening ‘somewhere else’, either in space or time (Mataki et al., 2006). History can be a valuable catalyst for such conversations, as stories of the past facilitate thinking about the future, through collaborative scenario-building (e.g. Sheppard, 2011) and sharing socio-climate imaginaries (Milkoreit et al., 2017).

The past is accepted to not necessarily be the key to anticipating future hazards, and the concept of climate uniformitarianism has long been disputed, along with the dangers of directly forecasting for climate by analogy (Glantz, 1996). On top of this, climate change means that the frequency or magnitude of hazards may be altered in context-specific ways (e.g. Bacmeister et al., 2018; Taylor et al., 2018). But it is also problematic to frame climate change impacts on small islands as ‘unprecedented’ and entirely new; that fundamentally different hazards and experiences are now occurring (Kelman, 2014), and thus lessons from hazards of the past do not apply today.

A connected issue, particularly for those small islands and territories that have developed rapidly, is that lessons from the past are considered no longer relevant today because of the changes that modernity has brought. Additionally, new technological and scientific solutions can be seen to preclude the need to look for solutions from the past. This is also not unique to islands, as it has been suggested that modern societies may have a ‘blind spot’ regarding the lessons that could be learned from disasters in history due to the current focus (and arguably over-reliance) on techno-centric solutions such as early warning systems (Schenk, 2015).

Similarly, the increasing presentation of certain hazards and disasters as being ‘Black Swans’ (Taleb, 2007) relies on their designation as ‘unprecedented’, with limited recognition that the historical terms to make these assertions are almost always instrumental western and positivist, and thus comparatively short, detaching these events from the rest of human-environment relations and social life (Hewitt, 1983). This reinforces the need to pay attention

to the role of the historical record in determining the different scales at which ‘extreme’ vs ‘routine’ is decided and for whom (Bankoff, 2012).

As discussed already, this does not mean history has nothing to share, just that more creative approaches might be required. Historical analogues provide one framework for relating past vulnerability and resilience to contemporary challenges elsewhere. For example, Gibbons and Nicholls’ (2006) study of island abandonment in the Chesapeake Bay in the early 20th Century highlighted the loss of community services as a tipping point for outward migration, which may help with understanding responses to sea level rise in low-lying island states and sub-national jurisdictions today. In this way, analogues can be spatial as well as temporal. However, each island experiences climate change differently depending on local context and historic precedents and so caution is also needed when extrapolating local findings to the wider context (Walshe & Stancioff, 2018). Downward counterfactual analysis is one creative approach that has been suggested as a way to extend historical analogues through a consideration of how disasters might have been worse (see Woo, 2019) and as a way to address ‘limited historical records’ (Lin et al., 2020). Yet, to do so requires careful consideration of who is participating and which record of past disasters is being used, since in most places the accepted version of history is based on the limited and narrow instrumental record, and descriptive historical sources, from archives (Walshe et al. 2020) to geomorphology (Nunn, 2014) continue to be overlooked.

To fully realise the value of archival research, such diverse island ‘datascape’ (not just types of data, but also recognition of different ways of knowing) need to be brought together. Broad-brush global and regional climate models and top-down decision-making structures may be ill-suited to small island states and sub-national jurisdictions, where they cannot capture local detail such as complex topography and coastlines (e.g. Foley & Kelman, 2018). Yet, as mentioned above, these tools have a role to play in helping us explore possible futures, in a world where our climate is changing in ways that may find analogues in our past, but which we have not directly experienced before. However, within knowledge production systems and epistemologies that prioritise quantifiable knowledge, there is perhaps a risk that the usefulness of such tools is elevated and their limitations overlooked (Nissan et al., 2019). There has been a much-needed growth of interest in, and appreciation of, perceptions, experiences, and local knowledge to inform environmental decision making, particularly regarding the use of traditional and local knowledge of climate and disasters (Janif, et al. 2016; Nakamura & Kanemasu, 2020) and its integration with policy (Alexander, et al. 2011; Mercer, et al. 2007). For example, Chambers et al. (2021) demonstrate a participatory approach to constructing traditional seasonal calendars in the Pacific, recognising the value of experiential and embodied traditional or local knowledge. Combining traditional and local knowledge with historical narratives and appropriate application of climate models and quantitative data, cognizant of the strengths and weaknesses of all these types of information, would be a welcome step forward. Creative approaches are also needed to craft and communicate stories and lessons learned from such diversified knowledge, and here, climate arts and humanities can play a vital role (Galafassi et al., 2018; Sou & Douglas 2019).

Conclusion

This article has detailed the historical roots of the way islands and island histories have been engaged with in the past, and the connection (or lack of connection) to history in current approaches that consider contemporary challenges and needs. We, therefore, suggest three

intertwined recommendations when discussing climate change and disasters or when trying to understand island vulnerability and resilience.

1. *More island history is needed*

Firstly, it is clear that looking to the past, and to historical sources, may offer solutions to some of the challenges that islands face, both today and in the future, and this represents an underexploited resource. Therefore, *more* island history, and data from these histories, are needed. One essential source of which is archive historical data to account for the longer-scale processes and patterns that are shown to play a central role in island experiences of disasters and climate change.

2. *These island histories must draw from different 'datascares' and diverse types of data, especially documentary descriptive sources*

While more island history is needed, it is also clear that *more of the same* type of history (concentrating on physical, instrumental, and positivist cycles and processes) cannot alone be the solution. It is at least equally important to investigate human social responses, experiences, and the role of the extremes of the past (Janku et al., 2012; Mauch & Pfister, 2009; Schenk, 2015, 2007), simply put, to ensure that diverse voices, stories, and narratives are part of island histories.

These histories should include the rich descriptive and documentary records in island archives and elsewhere, as a way to extend beyond the often narrow focus on instrumental records. Such sources offer 'new' knowledge of responses in the past and can inform policy and practice, as well as broaden the range of options for responses today (Jeffers, 2021). Yet, no single source, including those from archives should be elevated as superior above other sources of knowledge, about either the past or present, from literate and non-literate ontologies and traditional and local knowledge, to other forms of vernacular and experiential knowledge. Rather, these 'datascares' should be drawn together to gain a braided account of islands that also reaches across scales, to make connections between the local, regional, and global. This would also help challenge some of the prevailing tropes of islands (and island research) being isolated, both geographically and theoretically (Stratford, 2013).

3. *This combined data-scape approach must consider whose history and data it is.*

Finally, it is not just that rich qualitative histories are needed, but that these should acknowledge *whose* history it is that is being prioritised and the issues and limitations that come along with that.

As noted above, there is no shortage of descriptive and narrative histories on small islands, including on climate and disasters. Yet these only represent a small subset of island voices and the archive itself is not objective; the facts 'emerging' from which are often not self-evident. Rather, the history produced is as much about the author and the archive as it is about the past (Carr, 1961). In the 20th century, the field of island history was awash with single causal narratives, mostly of white men in power and how they changed history, partly because this was the primary story that colonial archives *could* tell. To an extent, this is still true today, but historiography has changed significantly and is still changing, embracing the need for culturally sensitive and care centered archival practice (Agostinho, 2019; Gilliland et al., 2008), as well as acknowledging uncertainty and rejecting the single dimension explanations of the

past and disasters (Knowles, 2019). Perhaps most importantly, history is increasingly attempting to include the marginalised voices that were previously absent, providing important differing perspectives on island disasters and climate.

This article joins and extends to islands the recent calls for recognition of the biases that befall studies of the history of climate and society worldwide, and particularly the lack of granularity in understanding the local effects and responses to changes in climate over time, partly as a consequence of the challenges of interpreting historical sources (Degroot et al., 2021). Thus the past is not a 'closed book' but rather a diachronic dataset. History impacts society, and past society shaped history, which in turn influences how people respond or understand challenges today, but also how history is recorded today, which will impact how future generations perceive their vulnerability and hazards.

Therefore, there are important parallels with the growing calls for scholarship to consider island perspectives and experiences in conversations about climate change and disasters (Hofmann & Lübken, 2015; Lewis, 1990; Moncada et al., 2018). These arguments must be extended to island histories since it is on islands that local and alternative voices and stories in history are needed most.

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References

- Adamson, G. C. D. Hannaford, M. J. & Rohland, E. J. (2018). Re-thinking the present: the role of a historical focus in climate change adaptation research. *Global Environmental Change*, 48, 195-205.
- Agostinho, D. (2019). Archival encounters: rethinking access and care in digital colonial archives. *Archival Science*, 19(2), 141-165.
- Aitsi-Selmi, A., Egawa, S., Sasaki, H., Wannous, C., & Murray, V. (2015). The Sendai framework for disaster risk reduction: Renewing the global commitment to people's resilience, health, and well-being. *International Journal of Disaster Risk Science*, 6(2), 164-176.
- Alexander, C., Bynum, N., Johnson, E., King, U., Mustonen, T., Neofotis, P., Oettlé, N., Rosenzweig, C., Sakakibara, C., Shadrin, V. and Vicarelli, M (2011). Linking Indigenous and Scientific Knowledge of Climate Change."

Bioscience 61 (6):477-484.

- Amoamo, M. (2017). Re-imaging Pitcairn island. *Shima: The International Journal of Research into Island Cultures*, 11(1), 80-101.
- Andrade, T.J. (2016). (Re) righting history: deconstructing the court's narrative of Hawai'i's past. *University of Hawaii Law Review*, 39, 631-684.
- Bacmeister, J. T., Reed, K. A., Hannay, C., Lawrence, P., Bates, S., Truesdale, J. E., ... & Levy, M. (2018). Projected changes in tropical cyclone activity under future warming scenarios using a high-resolution climate model. *Climatic Change*, 146(3), 547-560.
- Baldacchino, G. (2018). Seizing history: development and non-climate change in Small Island Developing States. *International Journal of Climate Change Strategies and Management*. 10(2), 217-228
- Baldacchino, G. & Milne, D. (2006) 'Exploring sub-national island jurisdictions: An editorial introduction', Round Table. Routledge, pp. 487–502.
- Baldacchino, G., & Royle, S.A. (2010). Postcolonialism and islands: introduction. *Space and Culture*, 13(2), 140-143.
- Bastian, J. (2001). A question of custody: the colonial archives of the United States Virgin Islands. *The American Archivist*, 64(1), 96-114.
- Bankoff, G. (2012). Historical concepts of disaster and risk. In B. Wisner, J.C. Gaillard & I. Kelman (Eds.), *The Routledge handbook of hazards and disaster risk reduction* (pp. 37-47). London: Routledge.
- Bankoff, G. (2007) 'Comparing vulnerabilities: Toward charting an historical trajectory of disasters', *Historical Social Research*, 32(3), pp. 103–114.
- Bankoff, G. (2004). Time is of the essence: disasters, vulnerability and history. *International Journal of Mass Emergencies and Disasters*, 22(3), 23-42.
- Bankoff, G. (2001). Rendering the world unsafe: 'vulnerability' as western discourse. *Disasters*, 25(1), 19-35.
- Barclay, J., Wilkinson, E., White, C.S., Shelton, C., Forster, J., Few, R., Lorenzoni, I., Woolhouse, G., Jowitt, C., Stone, H., & Honychurch, L. (2019). Historical trajectories of disaster risk in Dominica. *International Journal of Disaster Risk Science*, 10(2), 149-165.
- Barnett, J. & Waters, E. (2016). Rethinking the vulnerability of small island states: climate change and development in the Pacific Islands. In J. Grugel & D. Hammett (Eds.), *The Palgrave handbook of international development* (pp. 731-748). London: Palgrave Macmillan.
- Bernardie-Tahir, N. (2014). Opening up the island: a 'counter-islandness' approach to migration in Malta. *Island Studies Journal*, 9(1), 43-56.

- Betzold, C. (2010). ‘Borrowing’ power to influence international negotiations: AOSIS in the climate change regime, 1990-1997. *Politics*, 30(3), 131-148.
- Black, F. L. (1966). Measles endemicity in insular populations: critical community size and its evolutionary implication. *Journal of Theoretical Biology*, 11(2), 207-211.
- Brázdil, R., Dobrovolný, P., Trnka, M., Potopová, V., Hlavinka, P., & Zahradníček, P. (2016). Drought reconstruction based on grape harvest dates for the Czech lands, 1499-2012. *Climate Research*, 70(2-3), 119-132.
- Brinklow, L. (2013). Stepping-stones to the edge: artistic expressions of islandness in an ocean of islands. *Island Studies Journal*, 8(1), 39-54.
- Briguglio, L. (1995). Small island developing states and their economic vulnerabilities. *World Development*, 23(9), 1615-1632.
- Brissett, N. O. (2018). Sustainable development goals (SDGs) and the Caribbean: unrealizable promises? *Progress in Development Studies*, 18(1), 18-35.
- Butzer, K. W. & Endfield, G. H. (2012) Critical perspectives on historical collapse. *Proceedings of the National Academy of Sciences of the USA*, 109(10), 3628-3631.
- Campbell, J. (2009). Islandness: vulnerability and resilience in Oceania. *Shima: The International Journal of Research into Island Cultures*, 3(1), 85-97.
- Cantet, P., Déqué, M., Palany, P., & Maridet, J. L. (2014). The importance of using a high-resolution model to study the climate change on small islands: the Lesser Antilles case. *Tellus A: Dynamic Meteorology and Oceanography*, 66(1), 24065.
- Carey, M. (2012). Climate and history: a critical review of historical climatology and climate change historiography. *Wiley Interdisciplinary Reviews: Climate Change*, 3(3), 233-249.
- Carr, E. (1961). *What is history?* London: Penguin.
- Centella-Artola, A., Taylor, M. A., Bezanilla-Morlot, A., Martinez-Castro, D., Campbell, J. D., Stephenson, T. S., & Vichot, A. (2015). Assessing the effect of domain size over the Caribbean region using the PRECIS regional climate model. *Climate Dynamics*, 44(7), 1901-1918.
- Chambers, L. E., Plotz, R. D., Lui, S., Aiono, F., Tofaeono, T., Hiriasia, D., Tahani, L., Fa’anunu, O., Finaulahi, S., & Willy, A. (2021). Seasonal calendars enhance climate communication in the Pacific. *Weather, Climate, and Society*, 13(1), 159-172.
- Chandler, D. & Pugh, J. (2020) ‘Islands and the rise of correlational epistemology in the Anthropocene: Rethinking the trope of the “canary in the coalmine”’, *Island Studies Journal*, 16(1), pp. 209–228.
- Connell, J., & Aldrich, R. (2020). A decolonised world?. In *The Ends of Empire* (pp. 1-34). Singapore: Palgrave Macmillan.

- De La Blanche, V. (1965). *Principles of human geography*. London: Constable.
- Degroot, D., Anchukaitis, K., Bauch, M., Burnham, J., Carnegy, F., Cui, J., de Luna, K., Guzowski, P., Hambrecht, G., Huhtamaa, H. and Izdebski, A. (2021). Towards a rigorous understanding of societal responses to climate change', *Nature*, 591, p. 20.
- Docherty, B. and Giannini, T. (2009). Confronting a rising tide : a proposal for a convention on climate change refugees. *Harvard Environmental Law Review*, 33, 349-403.
- Dodds, K. & Royle, S. A. (2003) Introduction: rethinking islands. *Journal of Historical Geography*, 29(4), 487-498.
- Douglas, C. H. (2006). Editorial: Small island states and territories: sustainable development issues and strategies - challenges for changing islands in a changing world. *Sustainable Development*. 14(1), 75-80.
- Douglas, J., & Mills, A. (2018). From the sidelines to the center: reconsidering the potential of the personal in archives. *Archival Science*, 18(3), 257-277.
- Duvat, V. K., Volto, N., Stahl, L., Moatty, A., Defosse, S., Desarthe, J., ... & Pillet, V. (2021). Understanding interlinkages between long-term trajectory of exposure and vulnerability, path dependency and cascading impacts of disasters in Saint-Martin (Caribbean). *Global Environmental Change*, 67, 102236.
- Endfield, G. H. (2012). The resilience and adaptive capacity of social-environmental systems in colonial Mexico. *Proceedings of the National Academy of Sciences*, 109(10), 3676-3681.
- Endfield, G. H. (2007). Archival explorations of climate variability and social vulnerability in colonial Mexico. *Climatic Change*, 83(1-2), 9-38.
- Endfield, G. H. and Tejedo, I. F. (2006). Decades of drought, years of hunger: archival investigations of multiple year droughts in late colonial Chihuahua. *Climatic Change*, 75(4), 391-419.
- Endfield, G. H. & Veale, L. (2017). *Cultural histories, memories and extreme weather: A historical geography perspective*. London: Routledge.
- Farbotko, C. (2010). Wishful sinking: disappearing islands, climate refugees and cosmopolitan experimentation. *Asia Pacific Viewpoint*, 51(1), 47-60.
- Farbotko, C. (2005). Tuvalu and climate change: constructions of environmental displacement in the Sydney Morning Herald. *Geografiska Annaler*, 87(4), 279-293
- Field, J. & Kelman, I. (2018) 'The impact on disaster governance of the intersection of environmental hazards, border conflict and disaster responses in Ladakh, India', *International Journal of Disaster Risk Reduction*, 31, pp. 650–658.

- Fazey, I., Pettoirelli, N., Kenter, J., Wagatora, D., & Schuett, D. (2011). Maladaptive trajectories of change in Makira, Solomon Islands. *Global Environmental Change*, 21(4), 1275-1289.
- Fleming, J. R. (2014). Climate, change, history. *Environment and History*, 20(4), 577-586.
- Foley, A. M. (2018). Climate impact assessment and ‘islandness’: challenges and opportunities of knowledge production and decision-making for Small Island Developing States. *International Journal of Climate Change Strategies and Management*, 10(2), 289-302.
- Foley, A. M., & Kelman, I. (2018). EURO-CORDEX regional climate model simulation of precipitation on Scottish islands (1971-2000): model performance and implications for decision-making in topographically complex regions. *International Journal of Climatology*, 38(2), 1087-1095.
- Foucault, M. (1972). The discourse on Language. In *The archaeology of knowledge and the discourse on language* (pp. 215-238). New York: Pantheon Books.
- Frankema, E. & Masé, A. (2014). An island drifting apart: why Haiti is mired in poverty while the Dominican Republic forges ahead. *Journal of International Development*, 26(1), 128-148.
- Galafassi, D., Kagan, S., Milkoreit, M., Heras, M., Bilodeau, C., Bourke, S. J., ... & Tàbara, J. D. (2018). Raising the temperature: the arts on a warming planet. *Current Opinion in Environmental Sustainability*, 3, 71-79.
- García-Acosta, V. (2017). Building on the past: disaster risk reduction including climate change adaptation in the Longue Durée. In I. Kelman, J. Mercer & J.C. Gaillard (Eds.). *The Routledge handbook of disaster risk reduction including climate change adaptation* (pp. 203-213). Abingdon: Routledge.
- García-Acosta, V. (2007). Risks and disasters in the history of the Mexico Basin: are they climatic or social? *The Medieval History Journal*, 10 (1-2), 127-142.
- García-Acosta, V. (2002). Historical disaster research. In S.M. Hoffman & A. Oliver-Smith (Eds.), *Catastrophe and culture: The anthropology of disaster* (pp. 49-66). Oxford: James Currey Ltd.
- García de Cortázar-Atauri, I., Daux, V., Garnier, E., Yiou, P., Viovy, N., Seguin, B., ... & Chuine, I. (2010). Climate reconstructions from grape harvest dates: methodology and uncertainties. *The Holocene*, 20(4), 599-608.
- García, R., Macias, A., Gallego, D., Hernández, E., Gimeno, L., & Ribera, P. (2003). Reconstruction of the precipitation in the Canary Islands for the period 1595–1836. *Bulletin of the American Meteorological Society*, 84(8), 1037-1040.
- Garnier, E. & Desarthe, J. (2013). Cyclones and societies in the Mascarene islands, 17th-20th centuries. *American Journal of Climate Change*, 2(1), 1-13.

- Glantz, M. H. (1996). *Societal responses to regional climatic change: forecasting by analogy*. Chicago: Routledge
- Glantz, M. H. (1988). *An essay on the interactions between climate and society*. Boulder CO: National Center for Atmospheric Research.
- Gibbons, S. J. A., & Nicholls, R. J. (2006). Island abandonment and sea-level rise: an historical analog from the Chesapeake Bay, USA. *Global Environmental Change*, 16(1), 40-47.
- Gilliland, A., McKemmish, S., White, K., Lu, Y., & Lau, A. (2008). Pluralizing the archival paradigm: can archival education in Pacific Rim communities address the challenge? *The American Archivist*, 71(1), 87-117.
- Gonschor, L. (2013). Mai te hau Roma ra te huru: the illusion of ‘autonomy’ and the ongoing struggle for decolonization in French Polynesia. *The Contemporary Pacific*, 25(2), 259-296.
- Gordon-Clark, M. (2012). Paradise lost? Pacific island archives threatened by climate change. *Archival Science*, 12(1), 51-67.
- Grove, R. (1993). Conserving Eden: the (European) East India companies and their Environmental Policies on St. Helena, Mauritius and in Western India, 1660 to 1854. *Comparative Studies in Society and History*, 35(2), 318-351.
- Grove, R. (1988). *Conservation and colonial expansion: A study of the evolution of environmental attitudes and conservation policies on St. Helena, Mauritius and in India, 1660-1860*. PhD Thesis, University of Cambridge.
- Grydehøj, A. (2014) Guest editorial introduction: understanding island cities. *Island Studies Journal*, 9(2), 183-190.
- Grydehøj, A., Davis, S., Guo, R., & Zhang, H. (2020). Silk road archipelagos: islands in the Belt and Road Initiative. *Island Studies Journal*, 15(2), 3-12.
- Guillebaud, J. C. (1976). *Les confettis de l'Empire: Martinique, Guadeloupe, Guyane française, La Réunion, Nouvelle-Calédonie, Wallis-et-Futuna, Polynésie française, Territoire français des Afars et des Issas, Saint-Pierre-et-Miquelon, Terres australes et antarctiques françaises, Nouvelles-Hébrides, archipel des Comores* (Vol. 5). Paris: Seuil.
- Hall, A. (2019). Historical understandings of weather and society, from the everyday to the extreme. In H. Von Storch (Ed), *Oxford research encyclopaedia of climate science*. Retrieved from : <https://oxfordre.com/climatescience/view/10.1093/acrefore/9780190228620.001.0001/acrefore-9780190228620-e-719?rkey=sllID8&result=1>
- Hall, A. (2017). Remembering in God’s name. In *Cultural histories, memories and extreme weather* (pp. 112-132). London: Routledge.

- Hanna, E. G. & McIver, L. (2014). Small island states: canaries in the coal mine of climate change and health. In C.D. Butler (ed), *Climate change and global health* (pp. 181-192). Wallingford: CABI.
- Hau'ofa, E. (1994). Our sea of islands. *The Contemporary Pacific*, 6(1), 148-161.
- Hewitt, K. (1983). The idea of calamity in a technocratic age. In K. Hewitt (Ed.), *Interpretations of calamity: The risks* (pp. 3-32). Boston MA: Allen & Unwin.
- Hicks, A., & Few, R. (2015) Trajectories of social vulnerability during the Soufriere Hills volcanic crisis, *Journal of Applied Volcanology*, 4(1), 1-15.
- Heymann, M. (2019). The climate change dilemma: big science, the globalizing of climate and the loss of the human scale. *Regional Environmental Change*, 19(6), 1549-1560.
- Heymann, M., & Dalmedico, A. D. (2019). Epistemology and politics in Earth system modeling: historical perspectives. *Journal of Advances in Modeling Earth Systems*, 11(5), 1139-1152.
- Hofmann, R. & Lübken, U. (2015). Introduction: special issue 'Small islands and natural hazards'. *Global Environment*, 8(1), 4-15.
- IPCC (2013). *Climate Change 2013: The physical science basis: Working Group I Contribution to the 5th Assessment Report of the Intergovernmental Panel on Climate Change*. T. F. Stocker et al. (Eds.), Cambridge: Cambridge University Press.
- IPCC (2012). *Managing the risks of extreme events and disasters to advance climate change adaptation: Special Report of the Intergovernmental Panel on Climate*. C.B. Field et al. (Eds.). Cambridge: Cambridge University Press
- Janif, S.Z., Nunn, P.D., Geraghty, P., Aalbersberg, W., Thomas, F.R. and Camailakeba, M., (2016) Value of traditional oral narratives in building climate-change resilience: insights from rural communities in Fiji. *Ecology and Society*, 21(2).
- Janku, A., Schenk, G. J., & Mauelshagen, F. (Eds.). (2012). *Historical disasters in context: Science, religion and politics*. New York: Routledge
- Jedrusik, M. (2011) Island studies. Island geography: but what is an island? *Miscellanea Geographica*. 15(1), 201-212.
- Jeffers, J. M. (2021). Particularizing adaptation to non-predominant hazards: a history of wildfires in County Donegal, Ireland from 1903 to 2019. *International Journal of Disaster Risk Reduction*, 58, Advance online publication 102211.
- Jeurgens, C., & Karabinos, M. (2020). Paradoxes of curating colonial memory. *Archival Science*, 1-22
- Kelman, I. (2020). Islands of vulnerability and resilience: Manufactured stereotypes?. *Area*, 52(1), 6-13.

- Kelman, I., (2014). No change from climate change: vulnerability and small island developing states. *The Geographical Journal*, 180(2), 120-129.
- Kelman, I., Lewis, J., Gaillard, J. C., Mercer, J (2015) 'Island contributions to disaster research', *Global Environment*, 8(1), pp. 16–37.
- Kelman, I., Gaillard, J. C., Lewis, J., & Mercer, J. (2016). Learning from the history of disaster vulnerability and resilience research and practice for climate change. *Natural Hazards*, 82(1), 129-143.
- Kelman, I. & Khan, S. (2013). Progressive climate change and disasters: island perspectives. *Natural Hazards*, 69(1), 1131-1136.
- Kelman, I. & West, J. J. (2009) Climate change and small island developing states : a critical review. *Ecological and Environmental Anthropology*, 5(1), 1-16.
- Klöck, C. & Nunn, P. D. (2019). Adaptation to climate change in small island developing states: a systematic literature review of academic research. *Journal of Environment and Development*, 28(2), 196-218.
- Knowles, S. G. (2019). *The other uncertainty: The view from disaster history, Items: Insights from the social sciences*. Retrieved from: <https://items.ssrc.org/chancing-the-storm/the-other-uncertainty-the-view-from-disaster-history/>
- Kothari, U. (2014). Political discourses of climate change and migration: resettlement policies in the Maldives. *Geographical Journal*, 180(2), 130-140.
- Lazrus, H. (2012). Sea change: island communities and climate change. *Annual Review of Anthropology*, 41(1), 285-301.
- Lewis, J. (2012). The good, the bad and the ugly: disaster risk reduction (DRR) versus disaster risk creation (DRC). *PLoS currents*, 4.
- Lewis, J. (2009). An island characteristic. *Shima: The International Journal of Research into Island Cultures*, 3(1), 3-15.
- Lewis, J. (1999) *Development in Disaster-Prone Places, Development in Disaster-Prone Places*. London: Practical Action Publishing.
- Lewis, J. (1990). The vulnerability of small island states to sea level rise: the need for holistic strategies. *Disasters*, 14(3), 241-249.
- Li, C., Chen, J., & Grydehøj, A. (2020). Island climate change adaptation and global public goods within the Belt and Road Initiative. *Island Studies Journal*, 15(2), 173-192.
- Lin, Y. C., Jenkins, S. F., Chow, J. R., Biass, S., Woo, G., & Lallemand, D. (2020). Modelling downward counterfactual events: unrealized disasters and why they matter. *Frontiers of Earth Science*, 8(1) 1-16

- Livingstone, D. N., (2002). Race, space and moral climatology: notes toward a genealogy. *Journal of Historical Geography*, 28(2), 159-180.
- Lowry, J. (2019). Radical empathy, the imaginary and affect in (post) colonial records: how to break out of international stalemates on displaced archives. *Archival Science*, 19(2), 185-203.
- Luker, T. (2017). Decolonising archives: indigenous challenges to record keeping in 'reconciling' settler colonial states. *Australian Feminist Studies*, 32(91-92), 108-125.
- Mataki, M., Koshy, K. and Nair, V. (2006). Implementing climate change adaptation in the Pacific Islands: adapting to present climate variability and extreme weather events in Navua (Fiji). *AIACC Working Assessments of Impacts and Adaptations to Climate Change*, No. 34.
- Maly, T. (2013). Dark archives. *Contents Magazine*, 5. Retrieved from: <http://contentsmagazine.com/articles/dark-archives/>
- Mauch, C. & Pfister, C. (2009). *Natural disasters, cultural responses: Case studies toward a global environmental history*. Washington DC: Lexington Books.
- McGree, S. Herold, N., Alexander, L., Schreider, S., Kuleshov, Y., Ene, E., Finaulahi, S., Inape, K., Mackenzie, B., Malala, H. and Ngari, A (2019) 'Recent changes in mean and extreme temperature and precipitation in the western Pacific Islands', *Journal of Climate*. American Meteorological Society, 32(16), pp. 4919–4941
- McMillen, H. L., Ticktin, T., Friedlander, A., Jupiter, S. D., Thaman, R., Campbell, J., Veitayaki, J., Giambelluca, T., Nihmei, S., Rupeni, E., Apis-Overhoff, L., Aalbersberg, W., & Orcherton, D. F. (2014). Small islands, valuable insights: systems of customary resource use and resilience to climate change in the Pacific. *Ecology and Society*. 19(4), 44-61.
- McNamara, K. E. & Gibson, C. (2009). "We do not want to leave our land": Pacific ambassadors at the United Nations resist the category of 'climate refugees'. *Geoforum*, 40(3), 475-483.
- Méheux, K., Dominey-Howes, D., & Lloyd, K. (2007). Natural hazard impacts in small island developing states: a review of current knowledge and future research needs. *Natural Hazards*, 40(2), 429-446.
- Mercer, J., Gaillard, J. C., Crowley, K., Shannon, R., Alexander, B., Day, S., & Becker, J. (2012). Culture and disaster risk reduction: lessons and opportunities. *Environmental Hazards*, 11(2), 74-95.
- Mercer, J., Dominey-Howes, D., Kelman, I. and Lloyd, K., (2007) The potential for combining indigenous and western knowledge in reducing vulnerability to environmental hazards in small island developing states. *Environmental Hazards*, 7(4), pp.245-256.

- Milkoreit, M., Kapuscinski, A. R., Locke, K., & Iles, A. (2017). Imaginary politics: climate change and making the future. *Elementa: Science of the Anthropocene*, 62(5) 1-18
- Moncada, S., Briguglio, L., Bambrick, H., & Kelman, I. (2018). Guest editorial. *International Journal of Climate Change Strategies and Management*, 10(2), 214-216.
- Nakamura, N., and Y. Kanemasu. (2020) Traditional knowledge, social capital, and community response to a disaster: resilience of remote communities in Fiji after a severe climatic event. *Regional Environmental Change* 20 (1).
- Nimführ, S. and Otto, L. (2020) 'Doing research on, with and about the island: Reflections on islandscape', *Island Studies Journal*, 15(1), pp. 185–204.
- Nissan, H., Goddard, L., de Perez, E. C., Furlow, J., Baethgen, W., Thomson, M. C., & Mason, S. J. (2019). On the use and misuse of climate change projections in international development. *Wiley Interdisciplinary Reviews: Climate Change*, 10(3), e579.
- Nunn, P. D. (2014). "Geohazards and myths: ancient memories of rapid coastal change in the Asia Pacific region and their value to future adaptation." *Geoscience Letters* 1 (3):1-1.
- Nunn, P. D. (2012). *Climate Change and Pacific Island Countries*. Suva, Fiji: United Nations Development Programme, Asia Pacific Regional Centre.
- Nunn, P.D., (2009) Responding to the challenges of climate change in the Pacific Islands: management and technological imperatives. *Climate Research*, 40(2-3), pp.211-231
- Nunn, P. D. & Campbell, J.R. (2020). Rediscovering the past to negotiate the future: how knowledge about settlement history on high tropical Pacific Islands might facilitate future relocations. *Environmental Development*. Advance online publication 100546.
- Nunn, P. D & Kumar, R. (2018). Understanding climate-human interactions in Small Island Developing States (SIDS). *International Journal of Climate Change Strategies and Management*, 10(2), 245-271.
- Nunn, P. D. & Kumar, R. (2006) *Coastal history in the Asia-Pacific region*. Berlin: Springer.
- Odumosu, T. (2020). The crying child: on colonial archives, digitization, and ethics of care in the cultural commons. *Current Anthropology*, 61(S22), S289-S302.
- Oliver-Smith, A. (1996) Anthropological research on hazards and disasters. *Annual Review of Anthropology*. 25(1), 303-328.
- Ong, W. J. (2013). *Orality and literacy: the technologizing of the world*. New York: Routledge.
- Orlowski, B. M. (2021). *Rivalling disaster experiences*. Bielefeld: Transcript Verlag.
- Ourbak, T., & Magnan, A. K. (2018). The Paris Agreement and climate change negotiations: small islands, big players. *Regional Environmental Change*, 18(8), 2201-2207.

- Pelling, M. & Uitto, J. I. (2001). Small island developing states: natural disaster vulnerability and global change. *Environmental Hazards*, 3(2), 49-62.
- Petzold, J. & Ratter, B. M. W. (2019) 'More than just SIDS: local solutions for global problems on small islands', *Island Studies Journal*, 14(1), pp. 3–8.
- Poai, A. K. (2016). Tales from the dark side of the archives: making history in Hawai'i without Hawaiians. *University of Hawaii Law Review*, 39, 537-560
- Power, S. B., Delage, F., Wang, G., Smith, I., & Kociuba, G (2017) 'Humans have already increased the risk of major disruptions to Pacific rainfall', *Nature Communications*. Nature Publishing Group, 8(1), pp. 1–7.
- Radcliffe, S. A. (2017). Decolonising geographical knowledges. *Transactions of the Institute of British Geographers*, 42(3), 329-333.
- Rawlings, G. (2015). Lost files, forgotten papers and colonial disclosures: the 'migrated archives' and the Pacific, 1963-2013. *Journal of Pacific History*, 50(2), 189-212.
- Reilly, B. (2009). *Disaster and human history: Case studies in nature, society and catastrophe*. Jefferson: McFarland & Co.
- Riede, F. (2014). Towards a science of past disasters. *Natural Hazards*, 71(1), 335-362.
- Rivera, D. Z. (2020). Disaster colonialism: a commentary on disasters beyond singular events to structural violence. *International Journal of Urban and Regional Research*. Advance online publication
- Royle, S. A. (2001). *A geography of islands: Small islands insularity*. London: Routledge
- Ruosteenoja, K., Carter, T. R., Jylhä, K. & Tuomenvirta, H. (2003). Future climate in world regions: intercomparison of model based projections for the new IPCC emissions scenarios. *The Finnish Environment*. Retrieved from: https://helda.helsinki.fi/bitstream/handle/10138/40608/FE_644.pdf?sequence=1
- Salazar, N. B. (2010) *Envisioning Eden: Mobilizing imaginaries in tourism and beyond*. Oxford: Berghahn Books.
- Sato, A. Y., Price, M. R., & Vaughan, M. B. (2018). Kāhuli: uncovering Indigenous ecological knowledge to conserve endangered Hawaiian land snails. *Society & Natural Resources*, 31(3), 320-334.
- Schenk, G. J. (2015). 'Learning from History'? Chances, problems and limits of learning from historical natural disasters. In F. Kruger, G. Bankoff, T. Cannon, B. Orłowski, & E.L.F Schipper (Eds.), *Culture and disasters: Understanding cultural framings in disaster risk reduction* (pp. 72-88). London: Routledge.
- Schenk, G. J. (2007). Historical disaster research. state of research, concepts, methods and case studies. *Historical Social Research*. 32(3), 9-31.

- Schulenburg, A. H. (2003). 'Island of the blessed': Eden, Arcadia and the picturesque in the textualizing of St Helena. *Journal of Historical Geography*, 29(4), 535–553.
- Semple, E. C. (1911). *Influences of geographic environment, on the basis of Ratzel's system of anthropo-geography*. London: H. Holt.
- Seetanah, B., Sannasse, R., Sheereen F. Soobaruth, Y. Giudici, G., Nguyen, A. (2019). Impact of economic and financial development on environmental degradation: evidence from small island developing states (SIDS). *Emerging Markets Finance and Trade*, 55(2), 308-322.
- Sheppard, S. R., Shaw, A., Flanders, D., Burch, S., Wiek, A., Carmichael, J., ... & Cohen, S. (2011). Future visioning of local climate change: a framework for community engagement and planning with scenarios and visualisation. *Futures*, 43(4), 400-412.
- Sindico, F., & Crook, N. (2019). Placing the community at the heart of island governance: the Islands (Scotland) Act 2018. *Edinburgh Law Review*, 23(3), 441-448.
- Sisau, P., Lane, G. Leach, J., & Nombo, P. (2018). *TK Reite Notebooks: documenting and practicing traditional knowledge for future generations*, Retrieved from <http://proboscis.org.uk/projects/ongoing/tk-reite-notebooks/>
- Skilton, L. (2019) *Tempest: Hurricane Naming and American Culture*. Baton Rouge: LSU press
- Soanes, M. Bahadur A, Shakya C, Smith B, Patel S, del Rio CR, Cogger T, Dinshaw A, Patel S, Huq S, Musa M (2021) Principles for locally led adaptation A call to action Issue Paper. Available at: www.icccad.net/our-team/saleemul-huq/ (Accessed: 28 May 2021).
- Sou, G., & Douglas, C. J. (2019). *After Maria: everyday recovery from disaster (comic)*. Manchester UK: University of Manchester. Retrieved from: <http://hummedia.manchester.ac.uk/institutes/hcri/after-maria/after-maria-eng-web.pdf>
- Stratford, E. (2013). Guest editorial introduction. The idea of the archipelago: contemplating island relations', *Island Studies Journal*, 8(1), 3-8.
- Sword-Daniels, V. L., Twigg, J. and Loughlin, S .C (2014). Time for change? Applying an inductive timeline tool for a retrospective study of disaster recovery in Montserrat, West Indies. *International Journal of Disaster Risk Reduction*. 12125-12133.
- Taleb, N. N. (2007). *The black swan: The impact of the highly improbable*. New York: Random House.
- Taylor, M. A., Clarke, L. A., Centella, A., Bezanilla, A., Stephenson, T. S., Jones, J. J., ... & Charlery, J. (2018). Future Caribbean climates in a world of rising temperatures: The 1.5 vs 2.0 dilemma. *Journal of Climate*, 31(7), 2907-2926.

- Terorotua, H., Duvat, V. K., Maspataud, A., & Ouriqua, J. (2020). Assessing perception of climate change by representatives of public authorities and designing coastal climate services: lessons learnt From French Polynesia. *Frontiers in Marine Science*, 7, 1-16
- Thomson, R., & Samuels-Jones, T. (2020). Toxic colonialism in the territorial isles: a geospatial analysis of environmental crime across US territorial islands, 2013-2017. *International Journal of Offender Therapy & Comparative Criminology*, Advance online publication
- UNEP (2014). *Emerging Issues for Small Island Developing States*. Retrieved from: <https://www.unenvironment.org/resources/report/emerging-issues-small-island-developing-states>
- UNESCO (2009). *Climate frontlines*. Retrieved from: <http://climatefrontlines.org/en-GB/node/554>
- UNFCCC (2009). *Climate Change Adaptation Strategies for Local Impact - Key Messages for UNFCCC Negotiators Technical Paper for the IASC Task Force on Climate Change 2 Climate Change Adaptation Strategies for Local Impact*. New York: United Nations.
- United Nations (2010). *Trends in sustainable development: Small island development states (SIDS)*. Retrieved from: <https://sustainabledevelopment.un.org/index.php?page=view&type=400&nr=1954&menu=151>
- van Bavel, B., Curtis, D. R., Dijkman, J., Hannaford, M., de Keyzer, M., van Onacker, E., & Soens, T. (2020). *Disasters and history: The vulnerability and resilience of past societies*. Cambridge: Cambridge University Press.
- Waddell, E. (1977). The hazards of scientism: a review article. *Human Ecology*, 5(1), 69-76.
- Walsh, K. J., McInnes, K. L., & McBride, J. L. (2012) Climate change impacts on tropical cyclones and extreme sea levels in the South Pacific: a regional assessment. *Global and Planetary Change*. 80(1) 149–164.
- Walshe, R. A., Adamson, C.D, & Kelman, I. (2020). Helices of disaster memory: how forgetting and remembering influence tropical cyclone response in Mauritius. *International Journal of Disaster Risk Reduction*. Advance online publication 50
- Walshe, R. A. & Stancioff, C. E. (2018). Small island perspectives on climate change. *Island Studies Journal*, 13(1), 13-24.
- Walshe, R. A., Seng, D. C., Bumpus, A. and Auffray, J. (2018). Perceptions of adaptation, resilience and climate knowledge in the Pacific. *International Journal of Climate Change Strategies and Management*, 10(2), 303-322.
- Wareham, E. (2002). From explorers to evangelists: archivists, recordkeeping, and remembering in the Pacific Islands. *Archival Science*, 2(3-4), 187-207.

- Webber, S. (2017). Circulating climate services: Commercializing science for climate change adaptation in Pacific Islands. *Geoforum*, 85, 82-91.
- Winn, S. R. (2015). Ethics of access in displaced archives. *Provenance: Journal of the Society of Georgia Archivists*, 33(1), 5.
- Woo, G. (2019). Downward counterfactual search for extreme events. *Frontiers in Earth Science*, 7, 1-12
- Wright, K. (2019). Archival interventions and the language we use. *Archival Science*, 19(4), 331-348.