Island Studies Journal, 13(1), pp. 149-166

Islandness within climate change narratives of small island developing states (SIDS)

Ilan Kelman
University College London (UK)
University of Agder (Norway)
ilan_kelman@hotmail.com

ABSTRACT: Small island developing states (SIDS) are portrayed as icons of climate change impacts, with assumed islandness characteristics being used to emphasize vulnerability. Meanwhile, island resilience expressed as the stability of island 'paradises' is said to be undermined by climate change. Two dominant counternarratives have been emerging. Physical science demonstrates the limited empirical evidence at the moment for SIDS being destroyed due to climate change. Notwithstanding that such empirical evidence could appear in the future, social science counternarratives are challenging notions of SIDS' peoples inevitably fleeing their homes as climate refugees. Instead, SIDS' peoples have strong abilities and desires to make their own mobility decisions, whether due to climate change or other impetuses. Consequently, islandness within SIDS' climate change narratives is not necessarily problematic, but instead can help islanders address climate change and wider challenges. The counternarratives, even if not entirely contradicting the dominant narratives, provide needed nuances, balance, and contextualization to provide a full picture of SIDS, islandness, and climate change.

Keywords: climate change, migration, mobility, refugees, resilience, small island developing states (SIDS), vulnerability

https://doi.org/10.24043/isj.52

Introduction

Climate change narratives have long used islands, islanders, and island communities to demonstrate detrimental climate change impacts. These narratives promote assumed islandness icons, such as being small and low-lying, to emphasize vulnerability to climate change impacts. Island resilience expressed through the icon of geomorphological and societal stability is said to be undermined by climate change. 'Resilience thinking' espouses a normality in which shocks and adversity can be absorbed or overcome to continue island life as it, allegedly, has always been.

These dual narratives, of island vulnerability and island resilience to climate change because of islandness characteristics, impose numerous assumptions about islands and islandness which are rarely deconstructed or tested. This paper uses one category of islands iconized as being climate change victims, the small island developing states (SIDS), to describe and interrogate such assumptions, using counternarratives to provide more nuanced and balanced pictures of islandness within climate change narratives.

The next section discusses SIDS and climate change followed by discussion of SIDS' climate change narratives of vulnerability and resilience based on assumed islandness features. Then, two classes of counternarratives are detailed: physical science covering SIDS' geomorphology and social science covering SIDS' peoples' migration. The penultimate section analyzes islandness

and icons of it within SIDS' climate change narratives and counternarratives. The conclusions indicate that the narratives can lead to misleading policies and practices. The counternarratives provide needed nuances, balance, and contextualization to provide a full picture of SIDS and islandness for formulating and enacting successful responses to climate change.

Small island developing states (SIDS) and climate change

SIDS have been at the vanguard of raising climate change as a major topic of concern (Ashe et al., 1999; Betzold, 2010; Betzold et al., 2012). SIDS represent several dozen countries, primarily islands and archipelagos in the tropics and subtropics, which have joined together through perceived commonalities regarding development challenges and ways of overcoming those challenges, mainly in UN-related development contexts (Betzold, 2015; Fry, 2016). The SIDS group is rarely interrogated regarding its relevance to islandness, island studies, and island development.

The acronym 'SIDS' itself embodies assumed islandness icons of vulnerability and resilience which are not represented by all group members. Despite the first 'S' in SIDS standing for the stereotypical island moniker 'small', Papua New Guinea (PNG) is a SIDS although larger in area and population than New Zealand. The term 'island' does not apply to the SIDS of Belize, Guinea-Bissau, Guyana, and Suriname, except as language and cultural islands—but other countries in similar contexts such as Brazil and Equatorial Guinea are not SIDS. Similarly, 'developing' applies to many SIDS, especially those officially classified as Least Developed Countries, but Singapore is a SIDS and is considered to be developed. For the final 'S', several SIDS are not states because they are not fully sovereign, such as the New Zealand affiliates of Cook Islands and Niue.

SIDS use the islandness icons embedded in the acronym to represent their climate change interests. In November 1989, representatives from several island countries gathered in Maldives for the *Small States Conference on Sea Level Rise* (http://www.islandvulnerability.org/slr1989.html). *The Malé Declaration on Global Warming and Sea Level Rise* was produced from the conference, describing the mean global temperature increasing 1–2°C by 2030 and causing development challenges for small island states. The declaration called for richer countries to support other countries in dealing with climate change through training, technology, and funds (see also Lewis, 1990).

Following this conference, SIDS founded the Alliance of Small Island States (AOSIS; http://www.aosis.org) in 1990. AOSIS brings together SIDS governments to present an *ad hoc*, unified voice for lobbying and negotiating for SIDS interests, mainly on climate change within the UN system. AOSIS' strength is often seen with respect to agenda-setting for sustainable development including through ensuring that ocean-related interests remain prominent and that small countries' vulnerabilities are highlighted (Betzold, 2010; Betzold et al., 2012). The success of the lobbying by AOSIS and SIDS is debated. In the Paris Agreement addressing climate change (UNFCCC, 2015), AOSIS was highly influential in maintaining discussion on a target of a global mean temperature change of 1.5°C above pre-industrial levels, but the agreement ultimately settled on 2°C (Fry, 2016; UNFCCC, 2015).

SIDS remain at the forefront of islandness literature, policy, and practice regarding climate change. With respect to islandness, islands, and climate change, they have therefore created and perpetuated many of the key narratives, reinforcing islandness icons.

Narratives of SIDS' vulnerability and resilience to climate change

Many climate change narratives about SIDS adopt assumed islandness icons of vulnerability and resilience, yet fail to present a lucid understanding of climate change and its potential impacts on SIDS. Climate change has two official definitions from the United Nations (UN):

- The Intergovernmental Panel on Climate Change (IPCC) is a UN body tasked with synthesizing and assessing the member governments' views of the state of climate change science, with a mandate to provide a balance amongst perspectives. The IPCC (2013-2014, p. 5) defines 'climate change' to be "A change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer."
- The United Nations Framework Convention on Climate Change (UNFCCC) is the UN policy body aiming for international action on climate change. UNFCCC (1992, Article 1, Paragraph 2) defines 'climate change' to be "A change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods."

The main difference between these two definitions is that IPCC covers all shifts in the climate whilst UNFCCC focuses on shifts from anthropogenic causes. The principal similarity is that climate change is observed purely in the environment, through statistics about the climate which "in a narrow sense is usually defined as the average weather, or, more rigorously, as the statistical description in terms of the mean and variability of relevant quantities over a period of time ranging from months to thousands or millions of years" (IPCC, 2013-2014, p. 5). Consequently, climate means average weather as described by parameters such as temperature, precipitation, and wind. With weather being based in the environment, climate change according to the IPCC and UNFCCC is an environmental phenomenon, though with anthropogenic influences.

Climate-related environmental phenomena can lead to adverse impacts on society including SIDS, such as casualties, infrastructure damage, and livelihood interruption. These adverse impacts are often termed a 'disaster' which is "A serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts" (UNISDR, 2017, online). With respect to weather and climate, a disaster by definition involves the environmental phenomenon—such as a drought, a flood, fog, hail, or a storm—as a 'hazard' which interacts with 'vulnerability', an entirely societal process in which people, communities, infrastructure, and institutions cannot experience the hazard without damage and disruption.

Vulnerability has long had numerous theories and interpretations, with SIDS frequently iconized in climate change venues as being particularly vulnerable to climate change impacts due to their island characteristics (e.g., Hall, 2012; IPCC, 2013-2014). Others drive deeper, deconstructing and critiquing the assumption that islandness icons unquestionably cause vulnerability by pointing out exceptions, balancing evidence, and how islandness overcomes vulnerability (Campbell, 2009; Lewis, 2009). With respect to disasters, case studies which would later be labelled as SIDS were foundational for understanding the long-term political processes which accrue and perpetuate vulnerability and resilience to disasters. Campbell (1984) and Gane (1975) covered Fiji; Hewitt (1983) included PNG; Lewis (1984) used Antigua; and O'Keefe & Conway (1977) focused on the Caribbean. This work solidified the view of vulnerability as the root cause of disasters through being a chronic and typical societal condition, built up by a combination of (i) internal community factors such as discrimination and prejudice, and (ii) external factors such as governance, resource distribution, and exploitation by outsiders (Hewitt, 1980, 1983; Lewis, 1999, 2009; Torry, 1979; Wisner et al., 2004).

These theories apply to vulnerability to all environmental phenomena, including weather hazards and their drivers, such as climate change by either UN definition, the El Niño Southern Oscillation (ENSO) cycle, and other variabilities including the North Atlantic

Oscillation. The term 'environmental hazard', though, has ambiguities. A drought can be due to societal water use rather than precipitation changes, potentially making a drought entirely caused by people and society (Glantz & Katz, 1977; Wilhite & Glantz, 1985). The term 'storm' as representing extreme parameters of precipitation and wind, and the term 'tropical cyclone' as representing an extreme storm, are both defined arbitrarily, such as through the Beaufort Scale or the Saffir Simpson Scale. The key to defining a disaster involving an environmental phenomenon remains people's and society's inability to deal with the environmental phenomenon due to vulnerability which can then make the environmental phenomenon seem to be a hazard.

The process through which people, communities, and institutions could deal with environmental phenomena is often termed 'resilience'. As with vulnerability, resilience has numerous threads in academia, leading to multiple meanings, contentions, and applications (Alexander, 2013), including for analyzing islandness (Campbell, 2009; Lewis, 2013). As with vulnerability, resilience is a political process involving rules and regulations, resource allocation, and individuals or collectives making decisions regarding infrastructure, planning, design, social norms, permissible behaviour, and other aspects of society (Gaillard, 2007, 2010; Lewis, 2013; Pugh, 2014; Sudmeier-Rieux, 2014). Examples are promulgating, monitoring, and enforcing building codes and planning regulations; regulating subsidies for infrastructure upgrades; permitting staff to work at home during adverse weather; and maintaining food, water, and energy supplies.

Despite earlier work providing wider island-related resilience perspectives for climate change (Lewis, 1990), much contemporary climate change work (IPCC, 2013-2014) uncritically adopts ecology's definition of resilience referring to stable systems absorbing external disturbances or rapidly returning to the pre-disturbance state (Begon et al., 2014). From an islandness perspective, it repeats the iconized trope of idyllic paradises where the people have long lived in stable harmony and hence were resilient, yet they are now threatened with destruction by the external forces of climate change to which they are vulnerable.

While no outcome is inevitable, SIDS' islands, communities, and peoples have vulnerabilities and resiliences to climate change, as do all places and populations. Climate change impacts on SIDS have the potential to significantly damage, possibly even destroy, communities and countries, irrespective of actions taken. Three main sources of possible devastation for SIDS are postulated:

1. Sea-level rise, with three causes: (i) slow melting of ice (glaciers, ice sheets, and permafrost) leading to centimetres of sea-level rise over years; (ii) thermal expansion of water bodies leading to metres of sea-level rise over decades; and (iii) non-negligible probabilities of ice sheet collapse (Greenland and Antarctica), possibly leading to tens of metres of sea-level rise most likely over centuries. Sea-level rise could possibly submerge islands or cause them to erode.
2. Ocean acidification occurs when oceans absorb carbon dioxide from the atmosphere. The gas combines with water to form carbonic acid which lowers the ocean's pH. Ocean acidification could exacerbate shingle beach erosion and, coupled with elevated sea-surface temperatures, could lead to major coral mortality through bleaching. Without a protective reef, many SIDS' islands would be exposed to the full power of oceanic waves, storms, and currents.
3. As the weather and oceans change, so will ecosystems, affecting local food and water supplies. Groundwater supplies could be contaminated from saltwater intrusion. These changes will impact human and environmental health across SIDS.

These climate change impacts are not SIDS-specific or, indeed, island-specific. For instance, coastline changes such as erosion and accretion are relevant around the world while ecosystem changes are seen on mountains and in landlocked forests. Highlighting and examining climate change impacts in SIDS contexts, rather than selecting a specific impact

and analyzing it globally, is important for gleaning insights into the intersection of climate change impacts and narratives with islandness.

As a prominent example in the public consciousness, the media have picked up the idea of climate change destroying SIDS communities leading to forced movement. Some media have constructed a narrative of doom (see analyses by Farbotko, 2005, 2010), continually referring to different case studies, many of which are from SIDS, as the world's first 'climate refugees' or 'climate change refugees' (Table 1). They fail to note that there could be only a single 'first'. Table 1 is not comprehensive, but is merely illustrative of what is frequently reported, with the selection representing different geographical regions and different points along the political spectrum while aiming to avoid tabloid-type sensationalist or purely ideological media. The examples in the table are not necessarily examples of actual climate change migration or climate change refugees. They are selected to list stories which report this alleged phenomenon, whether or not it is the case, indicating how a 'first' label can become the importance of the story provided, irrespective of how many 'firsts' there have been.

Table 1: Illustrative examples of media references to the world's first climate (change) refugees (which are not necessarily examples of actual climate change migration).

Date	News source	Location of first climate (change) refugees	Website
30 July 2004	BBC	Shishmaref, Alaska	http://news.bbc.co.uk/1/hi/world/europe/3940399.stm
6 December 2005	UNEP	Tegua, Vanuatu	Quoted by Ballu et al. (2011), with the original press release preserved at: http://web.archive.org/web/20140921180800/http://grida.no/news/press/1533.aspx
7 December 2009	*The Telegraph*	Carteret Islands, PNG	http://www.telegraph.co.uk/news/earth/carteret-islands/6752962/The-worlds-first-climate-change-refugees.html
7 August 2014	*Smithsonian Magazine*	A Tuvaluan family in New Zealand	http://www.smithsonianmag.com/smart-news/worlds-first-climate-change-refugees-were-just-granted-residency-new-zealand-180952279
10 September 2014	*The Guardian*	Bangladesh	https://www.theguardian.com/environment/climate-consensus-97-per-cent/2014/sep/10/in-the-years-of-living-dangerously-part-3
21 November 2015	*South China Morning Post*	A family from Kiribati deported from New Zealand	http://www.scmp.com/magazines/post-magazine/article/1880135/ready-bail-kiribati-struggles-keep-its-population-afloat

Such media stories and constructs are often reinforced by academic works perpetuating myths of ruined atolls producing climate (change) refugees. Adger & Barnett (2005) and Pilkey & Young (2009) stated that New Zealand has a special immigrant category to help settle Pacific islanders who are fleeing from climate change impacts. No official

documentation of New Zealand's Pacific Access Category could be found linking it to climate or environmental change. Duong (2009) frames Tuvalu under climate change as a drowning paradise from which the tearful islanders are forced to move. Halstead (2016, p. 819) describes SIDS as "sinking islands: early victims of climate change…forced [to] abandon their homelands, which are no longer livable."

Consequently, an academic and media narrative develops of SIDS' peoples as vulnerable to climate change because their islands and communities will be devastated. According to this narrative, they have been resilient due to their isolation and stability in their island communities, which is now being undermined by climate change.

Counternarratives

Not all available evidence currently supports island doom scenarios. Two dominant counternarratives exist: physical science regarding SIDS' geomorphology and social science regarding SIDS' peoples' migration.

SIDS' geomorphology

The counternarrative based on physical science emerges from recent studies demonstrating limited empirical evidence at the moment for island communities being destroyed under climate change impacts. Table 2 lists illustrative examples of empirical studies of low-lying SIDS' islands changing under measurable sea-level rise which were found through a literature search of peer-reviewed scientific papers covering SIDS island geomorphological changes and measurable sea-level rise. Pacific SIDS have so far tended to be studied more than other locations for this topic, leading to Table 2's Pacific focus. Some islands are eroding (but not always due to climate change; see also Woodroffe, 2008), some are accreting, some are changing longitudinally, and some are seemingly unaffected. Table 2's patterns are corroborated elsewhere, such as for an island in southwestern Bangladesh where worsening flooding from the ocean was attributed more to anthropogenic deforestation and embankments than to sea-level changes (Auerbach et al., 2015). The studies tend to highlight areal changes without always fully detailing volumetric changes.

Within the geomorphological changes, coral reefs can have resilience. Perry et al. (2015) postulate that coral growth under some scenarios could keep up with sea-level rise and ecosystem changes. Corals' ability to flourish under rapid sea-level changes was demonstrated empirically in the Solomon Islands by Saunders et al. (2016). They used satellite imagery from before and after a 2007 earthquake which caused subsidence, combined with *in situ* observations in 2013, to show that the coral reefs remained vibrant despite the sudden, relative sea-level rise. Transferability of the results to other situations is unclear because corals vary in health and ecosystem characteristics and because tectonic subsidence is different from climate change-induced sea-level rise combined with other climate change impacts.

Local societal action, rather than climate change, has long been responsible for many difficulties seen today related to "disappearing SIDS' and 'dying corals'. Examples are coral mining in Maldives (Brown & Dunne, 1988), sand mining in Kiribati (Duvat, 2013), and tourism development in coastal Barbados (Mycoo, 2014). Crosby et al. (2002, p. 124) document how anthropogenic damage to reefs in Pacific SIDS—through capturing species whose hunting is outlawed alongside "destructive fishing practices such as the use of dynamite, poisons, and illegal gear"—leads to significant erosion. For Fongafale Islet, Tuvalu, post-independence land reclamation in flooding swamps led to settlements which are now seen to be vulnerable to sea-level rise impacts (Yamano et al., 2007).

Consequently, the resilience narrative of islands (as ecosystems and as geomorphological systems) being stable and thus resistant to physical changes is not supported by the evidence (see also DeLoughrey, 2013). Both environmental and societal changes ensure that SIDS

remain in flux physically. As Dickinson (1999, 2009) details, most Pacific atolls emerged from the sea and became stable enough to permit long-term settlement only from the mid-Holocene, after sea level started to drop from up to two metres above its present value. Once those atolls were established and settled, the islanders often sought to artificially stabilize the islands, against the natural tendency to fluctuate in area, volume, and shape.

Table 2: Illustrative examples of changing geomorphology of SIDS' islands from the peer-reviewed literature

Reference	SIDS locations studied	Results
Albert et al. (2016)	33 reef islands of the Solomon Islands	Island responses range from entire disappearance to minor accretion.
Ballu et al. (2011)	Torres Islands, Vanuatu	Tectonic subsidence is dominating sea-level rise as the reason for ocean encroachment.
Biribo & Woodroffe (2013)	Reef islands of Tarawa Atoll, Kiribati	Significant erosion and accretion are observed, but mainly due to local societal activities.
Ford (2012)	Majuro, Marshall Islands	Sea-level rise is measurable, but atoll changes are mainly from local societal activities. Where societal activities are less noticeable, some shorelines are eroding and some are accreting.
Ford & Kench (2015)	Eight islands of the Marshall Islands	Sea-level rise is measurable, but all the islands show net accretion.
Kench et al. (2015)	29 islands of Funafuti Atoll, Tuvalu	Sea-level rise is measurable, with island responses ranging from severe erosion to significant land gain.
Mann et al. (2016)	Takú Atoll, Papua New Guinea	Sea-level rise is measurable, but is not dominating natural shoreline dynamics.
McLean & Kench (2015)	Over 200 Pacific islands	Despite measurable sea-level rise, little evidence exists of island sizes being reduced, with both local societal activities and wider environmental cycles dominating sea-level rise.
Rankey (2011)	17 atolls across Kiribati	Increased rates of change for both erosion and accretion.
Webb & Kench (2010)	27 atoll islands across the Federated States of Micronesia, Kiribati, and Tuvalu	Sea-level rise is measurable, but the islands showed a mixture of erosion, accretion, and stability, with only a few islands losing area overall.
Yates et al. (2013)	47 atolls of Manihi and Manuae, French Polynesia	Despite measurable sea-level rise, most island areas are expanding or remaining stable, although major localized changes are seen. Two atolls showed local societal activities influencing the changes.

SIDS' peoples' migration

Social science counternarratives challenging notions of climate change refugees demonstrate that little empirical or policy evidence exists at the moment for this form of migration (Bettini, 2013; Hartmann, 2010; Nicholson, 2014), including from SIDS. Rather than the islandness icons and stereotypes of SIDS' peoples being passive while living in their stable paradises until forced out by climate change, the social science counternarrative details that SIDS peoples have strong knowledge, wisdom, and abilities for dealing with significant social and environmental changes as part of typical island life (Gaillard, 2007; Lewis, 1999; Méheux et al., 2007).

Within typical island life, SIDS' peoples accept population mobility as part of islandness (DeLoughrey, 2007; Hau'ofa, 2008; Nixon and King, 2013). They also accept that, contemporarily, they might need to resettle and rebuild communities due to climate change's impacts (McNamara, 2009; McNamara & Gibson, 2009). They reject the notion of fleeing as climate refugees (McNamara & Gibson, 2009), instead aiming to control the process of moving, to make decisions in their own ways on their own terms, and to request outside assistance to support these processes when they need it, such as land to move to along with resources to support any move. As one example, Kiribati developed a "migration with dignity" policy (Wyett, 2014) to effect population movement on the country's own terms.

In fact, many SIDS peoples have lived for centuries or millennia through social and environmental changes, although many communities were destroyed by such changes. Consequently, analogies from history inform decision-making in the present (Glantz, 1988) so that successes could be emulated and failures avoided. Around the South Pacific during the 14th century, major sea level and climatic shifts led many island communities to move or to disappear (Nunn, 2003; Nunn et al., 2007). Many volcanic eruptions have led SIDS communities to evacuate from their islands without a guarantee of return. Examples are Niuafo'ou, Tonga, in 1946 (Lewis, 1979) and Manam Island, PNG, in 1957 (Taylor, 1963) and 2004 (Mercer & Kelman, 2010). Drawing on histories and experiences of major changes leading to SIDS' peoples' migration can assist in better addressing options for island futures under climate change.

Other experiences exist of SIDS communities becoming virtually uninhabitable. Nauru had extensive phosphate reserves which were depleted soon after 2000 (Connell, 2006). Through a combination of domestic mistakes and external exploitation (Weeramantry, 1992), revenues were squandered without alternative livelihoods being developed, leaving the country depending on external aid. Discussions about relocating the people to Australia reignited a forced migration plan proposed several decades before, which the Nauruans opposed (McAdam, 2017). Similarly, Banabans tried but failed to oppose forcible relocation from their equatorial Pacific island, now governed by Kiribati, due to phosphate mining and the Japanese occupation during the Second World War (Tabucanon, 2012). The analogues with climate change are evident: islands become almost uninhabitable from internal and external factors, with migration being an option, but islanders wish to control mobility decisions and their own fates.

No SIDS' environment or culture has been stable or static, whether due to climatic changes, volcanic eruptions, mining, fishing, planting, or artificial shoreline modification. Migration of SIDS' peoples' continues for family, health, education, livelihoods, adventure, an urban lifestyle, and the opportunity to send remittances (Hau'ofa, 2008; King, 2009; Nixon, 2008).

Consequently, the narrative of climate change refugees fleeing their SIDS' homes is challenged by the social science counternarrative of the islandness characteristic of SIDS' peoples as migrants, as they have always been. Only a handful of SIDS have current communities which are older than a few millennia; for example, few indigenous groups remain on Caribbean SIDS while Dickinson (2009) describes timelines of Pacific settlement. Once SIDS communities and cultures were established, they retained in-migration, outmigration, and circular migration as a vital part of their society (Bellwood, 2013). Considering how many Pacific and Indian Ocean islands within or near contemporary SIDS were not inhabited when Europeans started exploring, although some like Henderson Island in the Pitcairn group had been settled earlier (Weisler, 1994), plenty of territory remained for indigenous peoples to migrate to, if they had had the time to continue exploring. The flows of people supported trade, adventure, genetic diversity, and livelihoods, with outmigration assisting in keeping communities the right size for the resources available rather than wrecking their environment through overconsumption.

This migration history of SIDS' peoples and the frequent desire to move—such as the Pacific Access Category mentioned earlier—does not justify forced migration, whether due to climate change, nuclear testing, mineral exploitation, or military base construction, all of which have occurred for SIDS (e.g., DeLoughrey, 2007, 2013). It counters the narratives that SIDS' peoples would be resilient only by maintaining the status quo in their current homes and that they have lived in stable communities until climate change manifested. Instead, migration has long been part of SIDS' peoples' resilience in dealing with social and environmental changes which originate both internally and externally.

Balancing islandness and icons of it within SIDS' climate change narratives

In the previous section, the counternarratives did not necessarily refute the narratives entirely, instead balancing, contextualizing, and nuancing them, providing subtleties and provisos. The counternarratives also show how it would be counterproductive to idealize SIDS' capabilities to deal with climate change and to assume that SIDS' resiliences will permit them to deal with climate change easily. Yet idealization and iconization often occurs. Emerging from the previous discussion, SIDS' islandness icons with respect to climate change fall into three main categories:

1. Low-lying and thus vulnerable to climate change.
2. Small and thus assumed to have few resources and to require help, leading to vulnerability to climate change.
3. Stable physically and socially, which confers resilience to climate change.

All three have been critiqued with respect to islandness (Baldacchino, 2004, 2007, 2008; Campbell, 2009; Grydehøj & Hayward, 2011; Lewis, 2009; Selwyn, 1980; Shaw, 1982) and are now explored further with respect to climate change.

Iconizing SIDS as low-lying does not express the full variety of communities. SIDS such as Comoros and St. Vincent are mountainous with active volcanoes, as is PNG with its highest point more than 4.5 kilometres above sea level. A series of coral terraces, some rising steeply from the shoreline, forms Barbados. Nevertheless, irrespective of elevation changes, significant SIDS' infrastructure sits close to sea level and so is potentially threatened by sea-level rise and other coastal impacts of climate change. Much important infrastructure of the capital cities Castries, St. Lucia, and Victoria, Seychelles, amongst others, is coastal and close to sea level despite the cities' islands being mountainous. Many key roads on Jamaica's and Fiji's main islands are coastal and experience erosion-related damage.

Yet a few SIDS, including Tuvalu and Maldives, comprise only low-lying atolls. Others such as Kiribati are often said to rise barely above sea level, but have both coral atolls and mountains. For example, Wyett (2014, p. 171) refers to Kiribati as "low-lying" and "likely to be among the first victims of such a disaster" of "the inundation of an entire nation due to anthropogenic climate change," yet the country's highest point is 81 metres above sea level. Nonetheless, the majority of the country's population and infrastructure sits within two metres of sea level and it would not be feasible for everyone to settle on the country's highest parts. Similarly, most Tongan settlements are low-lying even though Tonga's highest point is a volcano rising more than one kilometre above sea-level. The entire country is not likely to disappear due to climate change, even under extreme sea-level rise scenarios, but it might be difficult for the country, even under moderate sea-level rise scenarios. Despite this diversity of SIDS landscapes, the islandness characteristic 'low-lying' is used to imply that SIDS' peoples and countries will drown, sink, disappear, or be submerged (see critiques by Dawson & Hayward, 2016).

Another islandness icon presumed to create vulnerability to climate change is smallness in land area and population, generating expectations of limited resources and limited abilities. Many SIDS, including Seychelles and Marshall Islands, have populations in the tens of

thousands, so technical specialists are not always available to cover the wide range of topics affected by climate change. SIDS' governments therefore pool resources to create regional agencies supporting all member countries by employing the best specialists from around the SIDS and from other countries.

For climate change, the two main examples are the Caribbean Community Climate Change Centre in Belize and the Secretariat of the Pacific Regional Environment Programme in Samoa. Pooling resources and responsibilities is one example where SIDS have not been inhibited by their small populations, instead implementing their own approach to serve their own needs and to take advantage of their smallness. Smallness narratives mask other abilities which SIDS' peoples have long used to thrive in their homes during social and environmental changes, such as tapping into the vast resources of the ocean (Hau'ofa, 2008) so that small land areas do not limit livelihoods.

Consequently, the islandness characteristic of smallness is assumed to create climate change-related vulnerabilities for SIDS, but the evidence suggests that smallness-related vulnerability to climate change can be overcome. Resilience can be born of smallness as well. Smallness can be a vulnerability if it is made to be so, but smallness can be made an advantage.

The third islandness icon category in climate change narratives is physical and social stability, implied to create resilience through an idyllic existence in island paradises that are being ruined by climate change. Conversely, as detailed in the previous section, societal change through population mobility has helped to maintain many SIDS' societies and communities (e.g., McCall & Connell, 1993). Whereas island studies and other fields discuss 'migration' and 'mobilities' (e.g., Randall et al., 2014), climate change literature has tended towards more alarming vocabulary such as 'evacuation', 'fleeing', 'abandonment', and 'displacement', presuming forced migration. The wording is accurate sometimes, but it has long been known that population movements happen along a continuum of forced and voluntary migration, combining elements of both (Hugo, 1996). A balance is needed, examining each context.

For example, people from the Carteret Islands, PNG, are seemingly moving due to presumed climate change impacts or perceptions thereof (Connell, 2016; Yamamoto & Esteban, 2014), a decision that might yet loom for numerous other SIDS communities. Or they might be moving because resources are not being provided to permit them to deal with climate change while staying in their homes. In such cases, how much of the forced migration is a choice by outsiders not to help? Does such migration exemplify climate change adaptation or a failure to provide support to adapt (Stojanov, 2014)?

SIDS' peoples' migration and mobilities have long occurred for many reasons, including climate-related changes. Population movement is an islandness trait, supporting the peoples' survival, thriving, and resilience. Contemporary climate change will not alter this characteristic, but adds another factor into the gamut of reasons for SIDS' peoples choosing and being forced to move. Migration from SIDS should not be idealised, since it contributes to removing skills and abilities from the populations, as demonstrated for Cape Verde (Atchoaréna et al., 2008). SIDS' societal fluxes bring vulnerabilities and resiliences, as do SIDS' ever-morphing landscapes (see also Table 2).

Even lack of erosion does not preclude migration forced by geomorphological alterations linked to climate change. In 1972, Tuvalu experienced a cyclone that built a coral rubble wall larger than some of the country's smaller islands (Baines & McLean, 1976; Maragos et al., 1973). Although land expanded, such a scale of change occurring periodically could make living on the island difficult, if not impossible. Yet this is part of SIDS' typical geomorphological instability, even if modified by climate change.

Moreover, even though little empirical evidence exists at the moment for islands disappearing due to climate change, such empirical evidence might appear in the future. In particular, some evidence of islands accreting or remaining stable under measurable sea-level

rise is due to local societal activities, including reclamation—the large scale of which Grydehøj (2015) details for the SIDS of Bahrain. This evidence demonstrates the feasibility of action to prevent island disappearance (see also the proposals in Gerrard & Wannier, 2013 and Yamamoto & Esteban, 2014) as is being attempted in Maldives (Sovacool, 2012).

Furthermore, observations of sea-level rise to date have measured principally ice melt, with thermal expansion manifesting over coming decades and ice sheet collapse always remaining a possibility. Sufficient island geomorphological changes for remaining above sea level in ice sheet collapse scenarios might not be feasible (Hardy & Nuse, 2016). Sea-level rise accelerated markedly from 1993 to 2014 (Chen et al., 2017), so island geomorphology might respond differently to higher and faster sea-level rise. The islandness icons and assumptions within SIDS' climate change narratives are not necessarily obviated by the counternarratives, but they are balanced, nuanced, and contextualized.

Table 3: Summary of islandness within SIDS' climate change narratives and counternarratives.

Narratives	Islandness icons	Counternarratives
Climate change physically dooms SIDS through island disappearance.	SIDS are low-lying and small, leading to physical vulnerability to climate change.	Scenarios exist in which physical destruction occurs, but the limited empirical evidence so far does not support this outcome. SIDS are not entirely small or low-lying.
Climate change socially dooms SIDS through forced migration.	SIDS are low-lying and small, leading to social vulnerability to climate change due to few human resources and few abilities to deal with challenges.	Scenarios exist in which forced migration occurs, and some is now occurring due to climate change only, but the theoretical analysis and limited empirical evidence available so far does not support this outcome as being widespread or common. Even for the few communities moving only due to climate change, options exist to remain, but resources are not being made available for these options. Additionally, some of those moving or considering moving do not wish to be labelled as helpless victims, instead seeking to control their own fates. All peoples and places, including SIDS, have vulnerabilities to climate change, but they also have resiliences for dealing with climate change.
Climate change undermines the idyllic status quo for SIDS' islands, peoples, and life.	SIDS are geomorphologically and societally stable which creates resilience.	SIDS' environments and peoples have always undergone various forms of change including erosion and migration, sometimes thriving and sometimes experiencing disaster.
SIDS' peoples are desperate for the outside world to assist them in avoiding climate change-related doom.	SIDS are small which creates vulnerability while reducing abilities to deal with climate change.	SIDS seek external support for making and enacting their own climate change- related decisions. Requesting and deserving assistance does not mean lack of domestic interest or abilities.

Conclusions

As with everyone, SIDS' peoples have vulnerabilities and resiliences to climate change. Climate change narratives about SIDS emerge based on assumptions and icons about islandness, such as islandness creating vulnerabilities to climate change. These narratives can be damaging to SIDS' efforts to maintain viable countries, cultures, and livelihoods. They are also are challenged by counternarratives (Table 3).

Exploring counternarratives does not indicate that all the narratives are entirely incorrect, but does nuance, balance, and contextualize them, explaining how the islandness characteristics which can create vulnerability to climate change can also support SIDS' resilience to climate change. SIDS should embrace their characteristics and use them for tackling climate change, rather than being discouraged by their own traits. Adopting the narratives and icons wholeheartedly could lead to misplaced policies and practices for dealing with climate change. They distract from the full range of options available, becoming a self-serving structure to support external climate change research, policy, and practice rather than to support SIDS.

Yet, SIDS' concerns about climate change and subsequent decision-making should never be dismissed. Highlighting the counternarratives and exposing iconization does not diminish the climate change challenges facing SIDS.

Misleading narratives dominating science, policy, and practice agendas can be constructively overcome by adopting and promoting the counternarratives for action on climate change within wider development contexts, especially noting that nothing in these counternarratives is new, since many islanders from and outside of SIDS espouse the core points for contexts much wider than climate change (Baldacchino, 2007; Grydehøj, 2011; Hau'ofa, 2008; Nixon, 2008; Nixon and King, 2013; Weeramantry, 1992). Islandness within climate change narratives of SIDS is neither helpful nor harmful in and of itself; its impact depends on how it is applied, used, abused, and misused, which is a choice by those employing the narratives—including scientists and SIDS peoples. SIDS deserve the world's support to deal with climate change concerns on their own terms, without exaggerating the situation or neglecting science and history.

References

Adger, W.N., & Barnett, J. (2005). Compensation for climate change must meet needs. *Nature*, 436(7049), 328. https://doi.org/10.1038/436328c

Albert, S., Leon, J.X., Grinham, A.R., Church, J.A., Gibbes, B.R., & Woodroffe, C.D. (2016). Interactions between sea-level rise and wave exposure on reef island dynamics in the Solomon Islands. *Environmental Research Letters*, 11(5), paper 054011. https://doi.org/10.1088/1748-9326/11/5/054011

Alexander, D.E. (2013). Resilience and disaster risk reduction: an etymological journey. *Natural Hazards and Earth Systems Sciences*, 13(11), 2707-2716. https://doi.org/10.5194/nhess-13-2707-2013

Ashe, J.W., Van Lierop, R., & Cherian, A. (1999). The role of the Alliance of Small Island States (AOSIS) in the negotiation of the United Nations Framework Convention on Climate Change (UNFCCC). *Natural Resources Forum*, 23(3), 209-220. https://doi.org/10.1111/j.1477-8947.1999.tb00910.x

Atchoaréna, D. Dias Da Graça, P., & Marquez, J.M. (2008). Strategies for post-primary education in small island developing states (SIDS): Lessons from Cape Verde. *Comparative Education*, 44(2), 167-185. https://doi.org/10.1080/03050060802041076

Auerbach, L.W., Goodbred Jr., S.L., Mondal, D. R., Wilson, C.A., Ahmed, K.R., Roy, K., Steckler, M.S., Small, C., Gilligan, J.M., & Ackerly, B.A. (2015). Flood risk of natural

and embanked landscapes on the Ganges–Brahmaputra tidal delta plain. *Nature Climate Change*, 5(2), 153-157. https://doi.org/10.1038/nclimate2472

Baines, G.B.K., & McLean, R.F. (1976). Re-surveys of 1972 hurricane rampart of Funafuti Atoll, Ellice Islands. *Search*, 7(1-2), 36-37.

Baldacchino G. (2008). Studying islands: on whose terms? Some epistemological and methodological challenges to the pursuit of island studies. *Island Studies Journal*, 3(1), 37-56.

Baldacchino, G (ed.) (2007). *A world of islands: an island studies reader*. Charlottetown & Luqa: Institute of Island Studies, University of Prince Edward Island & Agenda Academic.

Baldacchino, G. (2004). The coming of age of island studies. *Tijdschrift voor economische en sociale geografie*, 95(3), 272-283. https://doi.org/10.1111/j.1467-9663.2004.00307.x

Ballu, V., Bouin, M.N., Siméoni, P., Crawford, W.C., Calmant, S., Boré, J.M., Kanas, T., & Pelletier, B. (2011). Comparing the role of absolute sea-level rise and vertical tectonic motions in coastal flooding, Torres Islands (Vanuatu). PNAS, *Proceedings of the National Academy of Sciences*, 108(32), 13019-13022. https://doi.org/10.1073/pnas.1102842108

Begon, M., Howarth, R.W., & Townsend, C.R. (2014). Essentials of ecology, 4th ed. Chichester: Wiley.

Bellwood, P. (2013). *First migrants: ancient migration in global perspective*. Chichester: Wiley Blackwell.

Bettini, G. (2013). Climate barbarians at the gate? A critique of apocalyptic narratives on 'climate refugees'. *Geoforum*, 45, 63-72. https://doi.org/10.1016/j.geoforum.2012.09.009

Betzold, C. (2015). Adapting to climate change in small island developing states. *Climatic Change*, 133(3), 481-489. https://doi.org/10.1007/s10584-015-1408-0

Betzold, C. (2010). 'Borrowing' power to influence international negotiations: AOSIS in the climate change regime, 1990-1997. *Politics*, 30(3), 131-148. https://doi.org/10.1111/j.1467-9256.2010.01377.x

Betzold, C., Castro, P., & Weiler, F. (2012). AOSIS in the UNFCCC negotiations: from unity to fragmentation? *Climate Policy*, 12(5), 131-148. https://doi.org/10.1080/14693062.2012.692205

Biribo, N., & Woodroffe, C.D. (2013). Historical area and shoreline change of reef islands around Tarawa Atoll, Kiribati. *Sustainability Science*, 8(3), 345-362. https://doi.org/10.1007/s11625-013-0210-z

Brown, B.E., & Dunne, R.P. (1988). The environmental impact of coral mining on coral reefs in the Maldives. *Environmental Conservation*, 15(2), 159-165. https://doi.org/10.1017/S0376892900028976

Campbell, J. (1984). Dealing with disaster: hurricane response in Fiji. Honolulu: East-West Center.

Campbell, J. (2009). Islandness: vulnerability and resilience in Oceania. *Shima*, 3(1), 85-97.

Chen, X., Zhang, X., Church, J.A., Watson, C.S., King, M.A., Monselesan, D., Legresy, B., & Harig, C. (2017). The increasing rate of global mean sea-level rise during 1993–2014. *Nature Climate Change*, 7, 492-495. https://doi.org/10.1038/nclimate3325

Connell, J. (2016). Last days in the Carteret Islands? Climate change, livelihoods and migration on coral atolls. *Asia Pacific Viewpoint,* 5(1), 3-15. https://doi.org/10.1111/apv.12118

Connell, J. (2006). Nauru: the first failed Pacific state? *The Round Table*, 95(383), 47-63. https://doi.org/10.1080/00358530500379205

Crosby, M.P., Brighouse, G., & Pichon, M. (2002). Priorities and strategies for addressing natural and anthropogenic threats to coral reefs in Pacific Island Nations. *Ocean & Coastal Management*, 45(2-3), 121-137. https://doi.org/10.1016/S0964-5691(02)00051-0

Dawson, H., & Hayward, P. (2016). Introduction – Submergence: a special issue on Atlantis and related mythologies. *Shima*, 10(2), 1-9. https://doi.org/10.21463/shima.10.2.03
DeLoughrey, E.M. (2013). The myth of isolates: ecosystem ecologies in the nuclear Pacific. *Cultural Geographies*, 20(2), 167-184. https://doi.org/10.1177/1474474012463664
DeLoughrey, E.M. (2007). *Routes and roots: navigating Caribbean and Pacific island literatures*. Honolulu: University of Hawai'i Press.
Dickinson, W.R. (2009). Pacific atoll living: how long already and until when? *GSA Today*, 19(3), 4-10. https://doi.org/10.1130/GSATG35A.1
Dickinson, W.R. (1999). Holocene sea-level record on Funafuti and potential impact of global warming on Central Pacific atolls. *Quaternary Research*, 51(2), 124-132. https://doi.org/10.1006/qres.1998.2029
Duong, T.T.V. (2009). When islands drown: the plight of climate change refugees and recourse to international human rights law. *Journal of International Law - University of Pennsylvania Law School*, 31(4), 1239-1266.
Duvat, V. (2013). Coastal protection structures in Tarawa Atoll, Republic of Kiribati. *Sustainability Science*, 8(3), 363-379. https://doi.org/10.1007/s11625-013-0205-9
Farbotko, C. (2010). Wishful sinking: disappearing islands, climate refugees and cosmopolitan experimentation. *Asia Pacific Viewpoint*, 51(1), 47-60. https://doi.org/10.1111/j.1467-8373.2010.001413.x
Farbotko, C. (2005). Tuvalu and climate change: constructions of environmental displacement in the Sydney Morning Herald. *Geografiska Annaler – Series B: Human Geography*, 87(4), 279-293. https://doi.org/10.1111/j.0435-3684.2005.00199.x
Ford, M. (2012). Shoreline changes on an urban atoll in the Central Pacific Ocean: Majuro Atoll, Marshall Islands. *Journal of Coastal Research*, 28(1), 11-22. https://doi.org/10.2112/JCOASTRES-D-11-00008.1
Ford, M., & Kench, P.S. (2015). Multi-decadal shoreline changes in response to sea level rise in the Marshall Islands. *Anthropocene*, 11, 14-24. https://doi.org/10.1016/j.ancene.2015.11.002
Fry, I. (2016). The Paris Agreement: an insider's perspective – the role of Small Island Developing States. *Environmental Policy and Law*, 46(2), 105-108.
Gaillard, J.C. (2010). Vulnerability, capacity and resilience: perspectives for climate and development policy. *Journal of International Development*, 22(2), 218-232. https://doi.org/10.1002/jid.1675
Gaillard, J.C. (2007). Resilience of traditional societies in facing natural hazards. *Disaster Prevention and Management*, 16(4), 522-544. https://doi.org/10.1108/09653560710817011
Gane, M. (1975). Report of a mission to assess the hurricane factor for planning purposes in Fiji. *Bradford Disaster Research Unit Occasional Paper 9*. Bradford: University of Bradford.
Gerrard, M.B., & Wannier, G.E. (eds.) (2013). *Threatened island nations: legal implications of rising seas and a changing climate*. Cambridge: Cambridge University Press.
Glantz, M.H. (Ed.) (1988). *Societal responses to regional climatic change: forecasting by Analogy*. Boulder: Westview.
Glantz, M.H., & Katz, R.W. (1977). When is a drought a drought? *Nature*, 267, 192-193. https://doi.org/10.1038/267192a0
Grydehøj, A. (2015). Making ground, losing space: land reclamation and urban public space in island cities. *Urban Island Studies*, 1, 96-117. https://doi.org/10.20958/uis.2015.6
Grydehøj, A. (2011). Making the most of smallness: economic policy in microstates and sub-national island jurisdictions. *Space and Polity*, 15(3), 183-196. https://doi.org/10.1080/13562576.2011.692578
Grydehøj, A., & Hayward, P. (2011). Autonomy initiatives and quintessential Englishness on the Isle of Wight. *Island Studies Journal*, 6(2), 179-202.

Hall, C.M. (2012). Island, islandness, vulnerability and resilience. *Tourism Recreation Research*, 37(2), 177-181. https://doi.org/10.1080/02508281.2012.11081703

Halstead, E. (2016). Citizens of sinking islands: early victims of climate change. *Indiana Journal of Global Legal Studies*, 23(2), 819-837. https://doi.org/10.2979/indjglolegstu.23.2.0819

Hardy, R.D., & Nuse, B.L. (2016). Global sea-level rise: weighing country responsibility and risk. *Climatic Change*, 137(3), 333-345. https://doi.org/10.1007/s10584-016-1703-4

Hartmann, B. (2010). Rethinking climate refugees and climate conflict: rhetoric, reality and the politics of policy discourse. *Journal of International Development*, 22(2), 233-246. https://doi.org/10.1002/jid.1676

Hau'ofa, E. (2008). *We are the ocean*. Honolulu: University of Hawai'i Press.

Hewitt, K. (Ed.) (1983). Interpretations of calamity from the viewpoint of human ecology. Boston: Allen & Unwin.

Hewitt, K. (1980). Review of the Environment as Hazard, by Burton, I, Kates, R. & White, G. (1978). *Annals of the Association of American Geographers*, 70(2), 306-311.

Hugo, G. (1996). Environmental concerns and international migration. *The International Migration Review*, 30(1), 105-131. https://doi.org/10.2307/2547462

IPCC (2013-2014). *Fifth assessment report*. Geneva: IPCC (Intergovernmental Panel on Climate Change).

Kench, P.S., Thompson, D., Ford, M.R., Ogawa, H., & McLean, R.F. (2015). Coral islands defy sea-level rise over the past century: records from a central Pacific atoll. *Geology*, 43(6), 515-518. https://doi.org/10.1130/G36555.1

King, R. (2009). Geography, islands and migration in an era of global mobility. *Island Studies Journal*, 4(1), 53-84.

Lewis, J. (2013). Some realities of resilience: an updated case study of storms and flooding at Chiswell, Dorset. *Disaster Prevention and Management*, 22(4), 300-311. https://doi.org/10.1108/DPM-03-2013-0053

Lewis, J. (2009). An island characteristic: derivative vulnerabilities to indigenous and exogenous hazards. *Shima*, 3(1), 3-15.

Lewis, J. (1999). Development in disaster-prone places: studies of vulnerability. London: Intermediate Technology. https://doi.org/10.3362/9781780442013

Lewis, J. (1990). The vulnerability of small island states to sea level rise: the need for holistic strategies. *Disasters*, 14(3), 241-248. https://doi.org/10.1111/j.1467-7717.1990.tb01066.x

Lewis, J. (1984). A multi-hazard history of Antigua. *Disasters*, 8(3), 190-197. https://doi.org/10.1111/j.1467-7717.1984.tb00874.x

Lewis, J. (1979). Volcano in Tonga. *Journal of Administration Overseas*, XVIII(2), 116-121.

Mann, T., Bayliss-Smith, T., & Westphal, H. (2016). A geomorphic interpretation of shoreline change rates on reef islands. *Journal of Coastal Research*, 32(3), 500-507. https://doi.org/10.2112/JCOASTRES-D-15-00093.1

Maragos, J.E., Baines, G.B.K., & Beveridge, P.J. (1973). Tropical Cyclone Bebe creates a new land formation on Funafuti Atoll. *Science*, 181(4105), 1161-1164. https://doi.org/10.1126/science.181.4105.1161

McAdam, J. (2017). The high price of resettlement: the proposed environmental relocation of Nauru to Australia. *Australian Geographer*, 48(1), 7-16. https://doi.org/10.1080/00049182.2016.1202376

McCall, G., & Connell, J. (eds.) (1993). *A world perspective on Pacific Islander migration: Australia, New Zealand and the USA*. Kensington: Centre for South Pacific Studies.

McLean, R., & Kench, P. (2015). Destruction or persistence of coral atoll islands in the face of 20th and 21st century sea-level rise? *WIREs Climate Change*, 6, 445-463. https://doi.org/10.1002/wcc.350

McNamara, K.E. (2009). Voices from the margins: Pacific ambassadors and the geopolitics of marginality at the United Nations. *Asia Pacific Viewpoint*, 50, 1-12. https://doi.org/10.1111/j.1467-8373.2009.01376.x

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, 475-483. https://doi.org/10.1016/j.geoforum.2009.03.006

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. https://doi.org/10.1007/s11069-006-9001-5

Mercer, J., & Kelman, I. (2010). Living alongside a volcano in Baliau, Papua New Guinea. *Disaster Prevention and Management*, 9(4), 412-422. https://doi.org/10.1108/09653561011070349

Mycoo, M. (2014). Sustainable tourism, climate change and sea level rise adaptation policies in Barbados. *Natural Resources Forum*, 38(1), 47-57. https://doi.org/10.1111/1477-8947.12033

Nicholson, C.T.M. (2014). Climate change and the politics of causal reasoning: the case of climate change and migration. *The Geographical Journal*, 180(2), 151-160. https://doi.org/10.1111/geoj.12062

Nixon, A.V. (2008). What racial hybridity? – sexual politics of mixed-race identities in the Caribbean and the performance of blackness. *Lucayos*, 1, 90-105.

Nixon, A.V., & King, R.S. (2013). Embodied theories: local knowledge(s), community organizing, and feminist methodologies in Caribbean sexuality studies. *Caribbean Review of Gender Studies*, 7, 1-16.

Nunn, P.D. (2003). Nature-society interactions in the Pacific islands. *Geografiska Annaler B*, 85(4), 219-229. https://doi.org/10.1111/j.0435-3684.2003.00144.x

Nunn, P.D., Hunter-Anderson, R., Carson, M.T., Thomas, F., Ulm, S., & Rowland, M.J. (2007). Times of plenty, times of less: last-millennium societal disruption in the Pacific Basin. *Human Ecology*, 35, 385-401. https://doi.org/10.1007/s10745-006-9090-5

O'Keefe, P., & Conway, C. (1977). Natural hazards in the Windward Islands. *Bradford Disaster Research Unit Occasional Paper 14*. Bradford: University of Bradford.

Perry, C.T., Murphy, G.N., Graham, N.A.J., Wilson, S.K. Januchowski-Hartley, F.A., & East, H.K. (2015). Remote coral reefs can sustain high growth potential and may match future sea-level trends. *Nature Scientific Reports*, 5, Article number: 18289.

Pilkey, O.H., & Young, R. (2009). *The rising sea*. Washington, DC: Island Press.

Pugh, J. (2014). Resilience, complexity and post-liberalism. *Area*, 46(3), 313-319. https://doi.org/10.1111/area.12118

Randall, J.E., Kitchen, P., Muhajarine, N., Newbold, B., Williams, A., & Wilson, K. (2014). Immigrants, islandness and perceptions of quality-of-life on Prince Edward Island, Canada. *Island Studies Journal*, 9(2), 343-362.

Rankey, E.C. (2011). Nature and stability of atoll island shorelines: Gilbert Island chain, Kiribati, equatorial Pacific. *Sedimentology*, 58, 1831-1859. https://doi.org/10.1111/j.1365-3091.2011.01241.x

Saunders, M.I., Albert, S., Roelfsema, C.M., Leon, J.X., Woodroffe, C.D., Phinn, S.R., & Mumby, P.J. (2016). Tectonic subsidence provides insight into possible coral reef futures under rapid sea-level rise. *Coral Reefs*, 35(1), 155-167. https://doi.org/10.1007/s00338-015-1365-0

Selwyn, P. (1980). Smallness and islandness. *World Development*, 8(12), 945-951. https://doi.org/10.1016/0305-750X(80)90086-8

Shaw, B. (1982). Smallness, islandness, remoteness, and resources: an analytical framework. *Regional Development Dialogue*, 3, 95-109.

Sovacool, B. (2012). Perceptions of climate change risks and resilient island planning in the Maldives. *Mitigation and Adaptation Strategies for Global Change*, 17(7), 731-752. https://doi.org/10.1007/s11027-011-9341-7

Stojanov, R. (2014). *Migration as adaptation? population dynamics in the age of climate variability*. Brno: Global Change Research Centre, Academy of the Sciences of the Czech Republic.

Sudmeier-Rieux, K.I. (2014). Resilience: an emerging paradigm of danger or of hope? *Disaster Prevention and Management*, 23(1), 67-80. https://doi.org/10.1108/DPM-12-2012-0143

Tabucanon, G.M. (2012). The Banaban resettlement: implications for Pacific environmental migration. *Pacific Studies*, 35(3), 1-28.

Taylor, G.A. (1963). Seismic and tilt phenomena preceding a Pelean type eruption from a basaltic volcano. *Bulletin of Volcanology*, 26(1), 5-11. https://doi.org/10.1007/BF02597269

Torry, W.I. (1979). Hazards, hazes and holes: a critique of The Environment as Hazard and general reflections on disaster research. *Canadian Geographer*, 23(4), 368-383. https://doi.org/10.1111/j.1541-0064.1979.tb00672.x

UNFCCC (2015). *Conference of the Parties, Twenty-first session, Paris, 30 November to 11 December 2015, FCCC/CP/2015/L.9/Rev.1*. Bonn: UNFCCC (United Nations Framework Convention on Climate Change).

UNFCCC (1992). *United Nations Framework Convention on Climate Change*. New York, NY: UN (United Nations).

UNISDR (2017). *Terminology*. Geneva: UNISDR (United Nations Office for Disaster Risk Reduction). http://www.preventionweb.net/english/professional/terminology

Webb, A.P., & Kench, P.S. (2010). The dynamic response of reef islands to sea-level rise: evidence from multi-decadal analysis of island change in the Central Pacific. *Global and Planetary Change*, 72, 234-246. https://doi.org/10.1016/j.gloplacha.2010.05.003

Weeramantry, C. (1992). *Nauru: environmental damage under international trusteeship*. Oxford: Oxford University Press.

Weisler, M.I. (1994). The settlement of marginal Polynesia: new evidence from Henderson Island. *Journal of Field Archaeology*, 21(1), 83-102.

Wilhite, D.A., & Glantz, M.H. (1985). Understanding the drought phenomenon: the role of definitions. *Water International*, 10(3), 111-120. https://doi.org/10.1080/02508068508686328

Wisner, B., Blaikie, P., Cannon, T., & Davis, I. (2004). *At risk: natural hazards, people's vulnerability and disasters*, 2nd edn. London: Routledge.

Woodroffe, C.D. (2008). Reef-island topography and the vulnerability of atolls to sea-level rise. *Global and Planetary Change*, 62, 77-96. https://doi.org/10.1016/j.gloplacha.2007.11.001

Wyett, K. (2014). Escaping a rising tide: sea level rise and migration in Kiribati. *Asia & the Pacific Policy Studies*, 1(1), 171-185. https://doi.org/10.1002/app5.7

Yamamoto, L., & Esteban, M. (2014). Atoll island states and international law: climate change displacement and sovereignty. Berlin: Springer. https://doi.org/10.1007/978-3-642-38186-7

Yamano, H., Kayanne, H., Yamaguchi, T., Kuwahara, Y., Yokoki, H., Shimazaki, H., & Chikamori, M. (2007). Atoll island vulnerability to flooding and inundation revealed by historical reconstruction: Fongafale Islet, Funafuti Atoll, Tuvalu. *Global and Planetary Change*, 57(3-4), 407-416. https://doi.org/10.1016/j.gloplacha.2007.02.007

Yates, M.L., Le Cozannet, G., Garcin, M., Salai, E., & Walker, P. (2013). Multidecadal atoll shoreline change on Manihi and Manuae, French Polynesia. *Journal of Coastal Research*, 29(4), 870-882. https://doi.org/10.2112/JCOASTRES-D-12-00129.1