UNIVERSITY of CALIFORNIA PRESS | Media+Environment

Hepach, Maximilian, Ryan Bishop, J. R. Carpenter, Jussi Parikka, and Birgit Schneider. 2024. "Wind Humanities: An Elemental Media Approach." *Media+Environment* 6 (2). https://doi.org/10.1525/001c.127444.

WIND AS MODEL, MEDIA, AND EXPERIENCE

Wind Humanities: An Elemental Media Approach

Maximilian Hepach[1,2a], Ryan Bishop[3b], J. R. Carpenter[4c], Jussi Parikka[5,6d], Birgit Schneider[7e]

[1] Institute of Arts and Media, University of Potsdam, Potsdam, Germany, [2] Durham University, Durham, UK, [3] Department of Art and Media Technology, University of Southampton, Southampton, UK, [4] University of Leeds, Leeds, UK, [5] Digital Design and Information Studies, Aarhus University, Aarhus, Denmark, [6] Winchester School of Art, University of Southampton, Southampton, UK, [7] Institue of Arts and Media, University of Potsdam, Potsdam, Germany

Keywords: wind, weather, elements, environmental humanities, media theory, elemental media, artistic research

https://doi.org/10.1525/001c.127444

This article introduces wind humanities as a burgeoning field, exploring how wind shapes experience, reasoning, artistic and knowledge production. It positions wind as a medium, model, and lived experience, drawing on environmental humanities, media studies, and artistic practice to investigate wind's methodological, epistemological, and ontological implications for humanistic inquiry. The authors situate this emergent field within the broader environmental and elemental turn in the humanities and media studies, highlighting its connections to new materialism and its potential to transform our understanding of both wind and the elemental more broadly. They suggest a rich and evolving landscape of inquiry around wind, highlighting past work and introducing the ten contributions to this stream, which explore wind as media, model, and experience across military technology, volumetric poetry, a libretto, animacies, aesthetics, diffraction, environmental perception, risk communication, indigenous cosmologies, and energy infrastructure.

We introduce this stream on wind as media, model, and experience with a provocation and call for the wind humanities. Inspired by previous work in both the environmental humanities and media studies, wind humanities not only signals an encyclopedic interest in yet another aspect of the environment and its elemental manifestations—ocean, ice, air, *and wind*—but also calls attention to the specific challenges and modes of experiencing and reasoning

a Maximilian Gregor Hepach is Assistant Professor (Research) of Geography at Durham University. His research focuses broadly on weather and climate, phenomenology, and media theory. His most recent project, funded by the Wellcome Trust, is titled "Under Pressure" and investigates the historical and cultural geographies of weather's impact on physiological and psychological health.
hepach@uni-potsdam.de

b Ryan Bishop is Professor of Global Art and Politics, Winchester School of Art, University of Southampton (UK). His book *Technocrats of the Imagination: Art, Technology and the Military-Industrial Avant-garde* (with John Beck, Duke University Press, 2020) is available OA. He co-edits the journal *Cultural Politics* (Duke UP) as well as the journal's book series and the book series "Technicities" (with Jussi Parikka, Edinburgh University Press).

c J. R. Carpenter is an artist and a writer working across performance, print, and digital media. Her work asks questions about place, displacement, colonialism, and climate. She is a Lecturer in Creative Practice in the School of English at University of Leeds.

d Jussi Parikka is professor of Digital Aesthetics and Culture at Aarhus University, where he is the co-director of the Environmental Media and Aesthetics research program. Parikka was also a Co-Investigator in the "Weather Reports: Wind as Media, Model, Experience" project at the University of Southampton.

e Birgit Schneider is a media scholar and visual culture expert. She is professor of knowledge cultures and media environments at the University of Potsdam, Germany. Her research focuses on scientific images, the history and present-day status of data visualizations and especially climate visualizations at the intersection of science, aesthetic and politics. She publishes in the fields of climate discourse, cultural geography, media studies and environmental humanities.

that wind facilitates, challenges the editors themselves faced over the past two and a half years as collaborators on the Weather Reports research project at the University of Southampton (UK) and University of Potsdam (Germany).

We build on the long and ongoing *environmental turn* in the humanities, which, from its inception in the 1960s, sought to emphasize the mutual social construction of society and environment (White 1967; Carson 1994). More recently, both anthropogenic climate change and wider debates around the Anthropocene have centered ecological questions with increasing urgency in both the environmental humanities and media studies (for an overview, see Rose et al. 2012; Starosielski 2019; Castree 2021; on the "elemental Anthropocene," see Neale et al. 2019).

Aside from a broad interest in natural environments, issues of environmental justice, and the cultural politics of human and nonhuman life's sustainability, humanities scholarship has more recently crystallized around particular elements and material properties, forming subdisciplines and niches not unlike in the natural sciences themselves. Without any claim to completeness, we note the particular interest in the self-proclaimed blue or ocean humanities (Linton 2010; Neimanis 2017; Mentz 2018), ice humanities (Dodds and Sörlin 2022), energy humanities (Szeman and Boyer 2017), and atmospheric humanities.

Media studies specifically has seen its own turn toward the elemental, both concerning the elements that constitute media technologies (e.g., rare-earth minerals, carbon) and environments as elemental media (Horn 2018; Parikka 2015; Schneider and Zemanek 2020; Starosielski 2019; López et al. 2024), the latter of which is of particular interest to us here. Work in media studies has developed broad theories of elemental media (J. D. Peters 2015), focused on particular forms of elemental mediation—for instance, through heat (Starosielski 2021), water (Borbach 2019; Jue 2020), fog (Furuhata 2019b), clouds (Carpenter 2017), and air (Horn 2018)—turned to the staging of particular elemental milieus and their metabolization (Förster 2021; Wessely 2019), and inspired other disciplines to call for closer attention to elements through the prism of media (D. P. McCormack 2018; D. McCormack and Engelmann 2021). In foregrounding the question of mediation through "elemental analysis" (Starosielski 2019, 1), media theorists not only contribute to our understanding of the elemental but are themselves transformed by literally and figuratively passing through, exposing themselves to, and submerging into different elemental milieus.

In other words, both the humanities and media studies are themselves, in a manner of speaking, instructed by the elements. Attention to the elemental refashions an earlier shift promoted by certain strands of media theory: technological conditions of knowledge are now complemented by the elemental conditions in which our theoretical and empirical work takes place. Each element poses unique methodological, epistemological, and ontological

questions and challenges for humanistic inquiry, without any claim that they do so in isolation. Any categorization invites one to ask how elements might combine and coexist, intermingle and infuse, or escape categorization altogether. Elemental conditions imply that different material and energetic compositions of the world demand a fine-tuning of, or at the very least reflection on, methods and theoretical approaches. This interest in the elemental across disciplines complicates Soper's (1995, 151) common-sense argument and dichotomization that "it is not language that has a hole in its ozone layer; and the 'real' thing continues to be polluted and degraded even as we refine our deconstructive insights at the level of the signifier." The signifier is itself implicated in the elemental (on the "terrestrial biases that have calcified in the way that we figuratively speak about the world," see Jue 2020).

In many ways, this elemental turn is related to work in new materialism, which developed as "a response to the linguistic turn that has dominated the humanities in the past few decades and that, it is claimed, has neglected the materiality of matter" (Jagger 2015, 321). New materialism too has sought to theorize "the interimplication of the discursive and the material [...] in a way that is more respectful of the agency of matter" (Jagger 2015, 321; Barad 2007; Alaimo and Hekman 2008), notably with respect to weather (Neimanis and Walker 2014; Tuana 2008) and climate (Colebrook 2012). This work reframing ecology has also included a shift from pristine natures to the dirty medianatures that define contemporary technical media (Parikka 2012), resonating with terms in architectural discourse, such as subnatures (Gissen 2009), which connote the less glamorous side of nonhuman elements.

This transformative potential of thinking through environments/elements is further emphasized when attention is turned to the specific pragmatics of media's and mediation's verb forms. As Ivakhiv and López (2024, 20) argue, 'the materialist turn in media studies is less interested in what media *are* than in what media *do*," echoing Deleuze and Guattari (1987). Attending to how elements saturate, fissure, downwind, gravitate, suspend, buoy, weather, and seep refigures how one makes sense of the world (Neimanis and Walker 2014; Choy and Zee 2015; Jue and Ruiz 2021; Billé 2020). This attention to elemental processes in turn calls into question any strict (linguistic) dichotomization and separation between elements at the level of the signifier. Phases of matter and movement mean that elements bleed and mix into each other—any elemental milieu always already exceeding itself (K. Peters and Steinberg 2019)—much like words, as leaky pots, drain any meaning put into them (Plato, Cratylus, 440c; Griffith 2017). Further work in anthropology and media studies on wind in particular, where elemental divisions are shown to be culturally and situationally specific (Furuhata 2019a; Zee 2022), casts doubt on the very possibility of taxonomizing the elemental, as prefacing "humanities" with "blue," "ice," or "atmosphere" might suggest. In other words, such terms are primarily meant as pragmatic placeholders that help

hold focus on particular aspects, conditions, or moments of material and energetic transfer, as well as drainages and leakages of meaning, at the center of elemental media.

Having thus highlighted both the potential and the impossibility of thinking with and through a single element in abstract, we now return to the provocation at the heart of this introduction: the wind humanities.

To state the obvious: wind is not a circumscribed object of experience. Hence innumerable cultural techniques have emerged throughout human history to capture and represent wind's energy and force. Here, wind comes into view as an atmospheric medium, as part of an ontology of non-objects. But wind is not so much a medium of experience in the same way ocean and air might be. In the opening of his commencement speech to the graduating class at Kenyon College (2005), David Foster Wallace opens with the frequently cited joke:

> There are these two young fish swimming along and they happen to meet an older fish swimming the other way, who nods at them and says "Morning, boys. How's the water?" And the two young fish swim on for a bit, and then eventually one of them looks over at the other and goes "What the hell is water?" (Wallace 2009)

"The point of the fish story," Wallace goes on to explain, "is merely that the most obvious, important realities are often the ones that are hardest to see and talk about" (Wallace 2009). Returning to the elemental origins and logic of this joke, (elemental) media tend to fade into the background of experience as they "are vessels and environments, containers of possibility that anchor our existence and make what we are doing possible" (J. D. Peters 2015, 2; on fish and media, see also McLuhan 1969, 22). In enabling experience, they escape it. To draw attention to elemental media then requires a sort of amphibious perspective (Jue 2020), such that one holds in view differences in what differing media render possible, a strategy that goes at least as far back as Plato (Hepach 2022).

Wind's relation to mediation is, by contrast, more complicated. Although one can certainly step into a wind, winds do not tend to fade into the background of experience. Even the most constant wind changes—changes that are noticed both in bodily experience (the pressure on one's skin, the rushing in one's ear) and through various mediations (getting caught in leaves, plastic bags, and wind socks, or howling through cracks and crevices). These examples are part of the phenomenological repertoire of sensing wind, not to mention the sort of fine-tuned measurement devices that capture exactly what is not phenomenological but is still real (on media theories of more-than-human sensing, see Bishop 2011, 2015). These simple mediations, where wind encounters surfaces, provide the principle for sensing

or measuring wind, either through careful phenomenological observation (Beaufort scale) or specific wind-catching instruments (Schneider et al. 2021) including present-day lidar, sodar, and radar technology. In short, while clouds and winds might not be countable (J. D. Peters 2015, 166), the whole history of what one might call cultural techniques of wind can be interpreted as a rise to this challenge—wind being accounted for as force, energy, value, vehicle, danger, and so forth.

Wind perspectives foreground differences in the composition and properties of air, how air is moved, and what moves with the air. As Huler (2004, 90) notes, when describing "clouds, trees, or anything else, you focus in on that specific thing, ignoring everything else. To describe the wind, you do the opposite: you look at everything else. It's mind-expanding."

The literal nature of this mind expansion has more recently been spelled out by Guldin (2023, 11–12), arguing that the problem of capturing wind in perception—wind's invisibility, vagrancy, and ephemerality—repeats itself on a conceptual level with metaphor, which itself cannot be defined, slips through our fingers, and never comes to rest. Thinking wind through metaphors and metaphors through wind—that is, attending to the aeolian interimplication of language and matter—sets off a "cognitive process which generates similarities, creates a network of relation and thus enables completely new insights" (Guldin 2023, 12–13; translation by authors). Wind is thereby one example of what one might call elemental co-elucidation or the elemental instruction of thought.

Observing and thinking with the wind takes you to different places. Wind draws together and cuts across different spatial and temporal scales, as dominant winds at different altitudes shape global weather (e.g., the jet stream), distribute life (e.g., pollen) and pollution (e.g., wildfires), and are given local names that shape regional history and culture (e.g., the mistral) and can dominate a news cycle (e.g., hurricanes/typhoons).

In atmospheric terms, wind is not unlike climate as it cuts across dichotomies such as global-local and natural-cultural. Like climate, wind is not an immediate, conspicuous object of perception; climate, too, is phenomenologically uncountable (Rudiak-Gould 2013). Like climate, wind's ephemeral nature motivates a turn to instruments, measurement, calculation, abstraction, and modeling in order to arrive at an objective, scientific perspective on wind (Edwards 2010). Like climate, wind draws together different spatial and temporal scales. Local winds tie into global atmospheric circulation, becoming both an effect and an agent of climate change through their role in desertification, in changing circulation patterns, and in intensifying storms. Anxiety around "global stilling," the slow cessation of wind due to climate change, draws further attention to our increasing reliance on wind as (energy) infrastructure (D. P. McCormack 2017; Howe 2019; Fish 2023). Like climate, wind is geographically specific and is culturally

stabilized by becoming tied into a wider context of meaning (Hulme 2017). Like climate, wind is thought to influence both physical and mental states (Watsuji 1961). Wind, in summary, focalizes the larger epistemological and ontological problems we face in light of climate change (what is changing for whom and where).

With no claim to completeness and in acknowledgment of the European and North American skew of the authors, we suggest the following works as possible forebears of the wind humanities *à venir*: Groupp (2024) on the geopolitics of wind; Chang and Chien (2023) on cultures of wind (see also Bulian 2015; Rohland 2022); Sabin and Cantos (2023) on a critical theory of wind; Corbin (2022) on a history of wind (see also Watson 1984; Huler 2004); Zee (2022) on an anthropology of wind (see also Choy and Zee 2015; Schnegg 2019); Candido (2021) on wind architecture; Engelmann (2021) on wind and affect; Ogawa (2021) on the phenomenology of wind; Nieuwenhuis (2019) on wind and breath (see also Zee 2015); Elizabeth Hsu (2007) on wind, the body, and (Chinese) medicine (see also Kuriyama 1994); Büttner (2014) on the poetics of wind (see also Reed 1983; Carpenter 2020); Veale, Endfield, and Naylor (2014) on the local geography of wind; and Mădălina Diaconu (2013; Madalina Diaconu 2024) on the aesthetics of wind.

In addition to theory and cultural history, art also played a key role in our thinking on wind. We scoured art history for images of wind: in painting, trees bent by the wind, blowing hair, flapping flags, clothes or laundry, sea spray, sailing ships, windmills, or umbrellas blown away by the wind were particularly important subjects for visualizing the moving power and effects of wind. This might not come as a surprise. Besides classical accounts in painting or drawing, much of more recent art practices have also made the wind itself the medium of art as kinetic experience, as cosmic force, or as elemental medium in its own right.

As part of *Weather Reports*, we collated a list of over two hundred wind artworks. Providing a noncomprehensive, chronological list across different media, we can highlight some examples: Leonardo Da Vinci's *Aerial Screw* (drawing, 1489); Suzuki Harunobu's *Young Woman Bathing in the Summer Rain* (woodblock print, 1765); Joseph Turner's *Storm at Sea* (painting, 1822–23); Claude Monet's *Effet de vent, série des peupliers* (painting, 1891); Victor Sjöström's *The Wind* (film, 1928); Hans Haacke's *Blue Sail* (indoor installation, 1965) and *Sky Line* (outdoor installation, 1967); Laura Grisi's *Wind Speed 40 Knots* (film, 1968); Raphael August Opstaele's *Vlissingen Wind Organ* (outdoor installation, 1975); Marina Abramovic's and Ulay's *Breathing Out, Breathing In* (performance, 1977); Ursula Sax's *Wind Sculptures* (outdoor installation, 1987); Theo Jansen's *Strandbeests* (sculpture, 1989); Jeff Wall's *A Sudden Gust of Wind (after Hokusai)* (photograph, 1993); Rikuo Ueda's *Wind Drawing* (drawing, 1999); Janet Echelman's *The Eye of the Storm* (outdoor installation, 1999); Tim Prentice's *Long*

Zinger (outdoor installation, 2000); Tim Knowles's *Oak on Easel* (drawing, 2005); Claire Morgan's *Gone with the Wind* (indoor installation, 2008); Emily Parsons-Lords's *Our Fetid Rank (Margaret Thatcher's Bottom Lip and Bill Clinton's Tongue)* (film, 2015); Ayumi Ishii's *The Breath from Which the Clouds Are Formed* (print, 2015); Ulrike Könighofer's *Wind Recorded* (indoor installation, 2015); Julius von Bismark's *One More Night* (photograph, 2016) and *Die Luft muss man sich wegdenken* (indoor installation, 2017); Juan Duarte Regino's *Aeolian Artefacts* (outdoor installation, 2017); Ali Miharbi's *The Wind* (indoor installation, 2017); Sizhu Li's *What is Watt?* (indoor installation, 2018); Susan Walsh's *Wind Drawing, Beacon, NY #9* (drawing, 2018); J. R. Carpenter's *This is a Picture of Wind* (online, 2018); Morten Riis's and Marie Højlund's *Nephew vs. Overheard* (film and soundscape, 2018); Haseeb Ahmed's *The Library of the Winds* (indoor installation, 2019); Forensic Architecture's *Cloud Studies* (film, 2020); Simone Fehlinger's *New Weather TV: Generic Weather(s)* (film, 2022); Albert Figurt's *Windy Reasonings* (film, 2022); and Víctor Mazón Gardoqui's *Vortex: Actions for a Moving Body* (indoor installation, 2023) (Gardoqui and Parikka 2024).

Such a list brings into view the recurring strategies to catch the wind: raising sails (Leonardo, Haacke, Jansen, Echelmann), balloons (Haacke), flags (Sax, Prentice), feathers (Morgan), and tents (von Bismarck); translating wind kinetically from outdoors to indoors through fans (Haacke, Königshofer, Li), vanes (Miharbi), and wire (von Bismarck); capturing the wind of breath (Abramovic and Ulay, Parsons-Lords, Ishii); foregrounding wind's agency by allowing it to draw (Ueda, Knowles, Walsh), sing (Ahmed, Opstaele, Regino, Riis and Højlund, Gardoqui), move (Jansen), and interrupt (Harunobu, Wall); highlighting its environmental impact on clouds (Forensic Architecture), oceans (Turner), and trees (Monet, Grisi); and attending to wind's metaphorical qualities informing moods and poetics through film (Sjöström, Figurt) and web-based media (Carpenter).

We want to briefly acknowledge three special issues that preceded *Wind as Media, Model, and Experience*, which insightfully open up wind to humanities research, before detailing our own. The first is the 2023 summer issue of *VENTI* (an online journal on air, experience, and aesthetics) on wind, which features contributions on the role of wind in aesthetics, architecture, film, indigenous cosmology, American and Chinese literature, philosophy, and theater (Wendler 2023). The second is the *Monsoon Assemblages Forum,* published in *GeoHumanities* (2021) as one output of the *Monsoon Assemblages* ERC research group (University of Westminster, 2016–21). In the introduction, Bremner (2021, 1) argues that the South Asian monsoon, defined by the American Meteorological Society's *Glossary* as a wind, "is more than an annual meteorological event." Drawing on Tsing's (2015, 23) concept of "open-ended gatherings," Bremner defines the monsoon as "an assemblage of human and nonhuman ways of being,

knowing and intra-acting across difference, forming an emergent multiplicity whose story humans are part of, but by no means author." Drawing on new materialist theory (Barad 2007), Bremner conceives of the monsoon as a material, spatial-temporal practice, as a "'spacetimemattering' that reorganizes air, water, land, settlements, cities, buildings and bodies through heat, wind, rain, seepage, flow and flood." Bremner's approach both highlights the difficulties of attempts to circumscribe wind, extracting it from the meteorological and socio-material context in which it is embedded, and presents a further exercise in mind expansion.

The third and final special issue we wish to highlight—*Wind, Life, Health: Anthropological and Historical Perspectives*—resulted from a conference on wind and appeared in *The Journal of the Royal Anthropological Institute* (2007). Predating the new materialist turn, contributions to this issue examine "the richness of human ideas and practices surrounding wind, breath, spirit, sentiment, life, and health by seriously exploring the primordial human experience of being immersed in the winds in the environment and breathing them in" (Elisabeth Hsu and Low 2007, iii). Paying particular attention to the phenomenology of wind and its sensory anthropology across different historical periods, geographic locations, and (indigenous) cultures, the authors identify a "fundamental congruency in the way wind has been perceived by peoples in different parts of the world" (Elisabeth Hsu and Low 2007, iii), an "apparent cross-cultural similarity of wind ideas" (Low and Hsu 2007, 2). Going beyond an encyclopedic interest in wind, the editors argue that wind "could arguably be used as a conceptual tool to inform a fundamental set of core dichotomies [...] through which the conundrum of life continues to be explored: being and becoming, reality and appearance, subject and object, nature and culture, mind and body" (Low and Hsu 2007, 2). Wind, as "both felt and tangible, and thus physical and elusive," overlaps with "notions of spirit, divinity, breath, smell, and shadow" and enters into "a family of resemblances to inform ontology and epistemology" (Low and Hsu 2007, 2).

This stream of *Media+Environment* shares many of the same concerns and asks questions closely related to the previous work outlined above, unpacking the multidimensionality of wind. However, the pieces gathered here more closely attend to how wind is *mediated* through different technologies, socio-material practices, and other elements. In drawing together wind as media, model, *and* experience, each piece centers the conceptual and empirical challenges of setting wind into focus in a different register. To this end, this stream brings together a variety of contributions that pay close attention to mediation in theory and practice, including artistic methods. Below, we present an overview of the contributions in alphabetical order of the authors.

Ryan Bishop traces wind as central player in military history and strategy, drawing a line from nineteenth-century physics and the study of dynamic systems to the influence of microclimates and meteorological modeling in World War I, to atomic weapons development and the emergence of ecological research, and finally to the contemporary application of very short-term low-atmospheric turbulence in twenty-first-century urban warfare.

J. R. Carpenter and Jules Rawlinson contribute to expanding modes of criticism of literary works written in and with code languages, situating a discussion of their collaborative research process directly within the libretto they devised for their live performance of *An Island of Sound*, a browser-based work by J. R. Carpenter. Artistically, *An Island of Sound* contributes a feminist, polyvocal, and decolonial approach to thinking about the emergence and propagation of phantom islands in the colonial imaginary. This thinking is undertaken through and with the elemental media of wind.

Presented as a series of volumetric visual poems and critical reflections, Richard Carter's *Lines of Flight* explores how gliding flight offers entryways into mapping and imagining the more-than-human dimensions of atmospheric being. Inspired by Carter's own perspective on the airborne encounter as a glider pilot, as well as an artist and an academic, *Lines of Flight* documents a poetic process in which the practical demands of reading and negotiating a fluctuating aerial environment feed into an evolving dialogue concerning what it means to think about and with the more-than-human atmospheric domain.

Intertwining film, poetry, and satellite imagery, Sasha Engelmann's article investigates the animacies of winds in Italy and the Balkans, probing winds' lively relations to sand and dust, materiality and memory. The animacies of wind are examined specifically in relation to the Scirocco and the Jugo, two interrelated southerly winds commonly blowing in spring and autumn that sometimes bring "Saharan dust" to Europe. In dialogue with recent work in the social sciences and humanities that demonstrates how air and dust "from the South" are treated as foreign "intrusions" into Europe, this article proposes a focus on animacies to further probe and nuance these claims, and shows how the wind acts as a force of de/humanization, as agency leaking across borders of life and nonlife, and as shape-shifting coauthor of collective memory.

Abelardo Gil-Fournier and Jussi Parikka engage with aesthetics of air through cultural techniques of spatialization and rescaling. While such a focus has a long and interesting media history, here the authors draw especially on Gil-Fournier's art practice. The article builds an art and curatorial research angle on how the management of wind and air currents is introduced in Gil-Fournier's exhibition *The Raft: Three Acts for an Exposure to the Elements,* which was shown at the Fundación Cerezales Antonino y Cinia (FCAYC) in León, Spain in 2023–24. The article addresses technical operations of

the image, curatorial practice, and architectural considerations as ways of framing air and wind. While attending to the history of management of air in art and design, it also develops a theoretical response to the question: How do material limitations and conditions of institutional practice address multiscalar planetary space?

In "Reading Wind Diffractively," Maximilian Hepach and Birgit Schneider combine elemental media theory and feminist new materialism to make sense of how wind is diffracted and rendered stable through different elemental media. Exploring heterogeneous diffractive practices across present-day aeolian sensing and nineteenth-century aeolian geology (Muir) and art (Van Gogh), Hepach and Schneider develop "elemental chiasmus" as a new method for media theory.

Combining autoethnographic writing and short videos taken in and around the San Francisco Bay Area, Aster Hoving's essay is an analytic experiment that mimics the cloud-connected ecosystem it investigates, gently holding together redwood forests, Silicon Valley, and an artwork in the port of San Francisco. Tracing how the fog sculpture *Fog Bridge #72494* (2013), by Fujiko Nayaka, combines ecological, technological, and embodied modes of environmental perception, this essay situates the sculpture among environmental art and scholarship interested in the tensions and relations between distinct yet not discontinuous modes of environmental perception, in particular of wind.

In exploring risk communication in villages in the Philippines, Inez Ponce de Leon reveals competing lifeworlds in understanding typhoons. Local governments and scientists treat hazards as context-disconnected variables, while citizens experience the typhoon as a melding of wind and water, formless and invisible in their enmeshment. When cast against a backdrop of precolonial myths and multiple cultures, such lived realities necessitate risk communication that embraces the fluidity of hazards, rather than forcing a disaggregated appraisal. As wind and water blend, so might risk communication weave into conversations that acknowledge the near-indistinguishable layers of Filipino history and heritage.

Artists Janine Randerson and Rachel Shearer discuss how sound-orientated media artworks attune our perceptions to meteorological forces, focusing on winds as active exchangers with unruly twenty-first-century weathers. They foreground two media artworks, *Koea o Tāwhirimātea – Weather Choir* and their collaborative artwork, *MĀKŪ, te hā o Haupapa: Moisture, the breath of Haupapa* (2022–23), as generative catalysts for eco-social activism, drawing in ancient Māori and Moana cosmologies of wind and weather. The artworks map the winds with Indigenous names, drawing harmonic and aharmonic sounds into dialogue with numerical datasets to negotiate local and global scalar relations.

Taking as a starting point that wind, as a speculative fluctuating force of nature, is used as an ancillary source of energy, May Ee Wong analyzes how wind is promoted as an abundant renewable energy resource that will usher in an era of fossil fuel–free energy production. "From Wind Turbines to Energy Islands: Wind as Model Power in Denmark" examines the mediated conditions behind this planetary-scale proposition in Denmark's plans to develop a new offshore wind energy hub, the "energy island." In thinking through wind as elemental medium and its construction as infrastructure, the article demonstrates how wind becomes (de)territorialized into a replicable and circulatable environmental data model to become "wind energy."

Acknowledgments

This stream emerged out of the research project "Weather Reports: Wind as Media, Model, Experience" (2022–24), which was made possible by generous funding from the Arts and Humanities Research Council (AHRC: AH/W010526/1) and the German Research Foundation (DFG: 468455590). Ideas were developed at two project events at both host institutions of *Weather Reports*: an environmental hackathon at the University of Potsdam (May 2023, together with the Potsdam Network for Digital Humanities) and a wind symposium at the University of Southampton (May 2024), as well as during a series of workshops on wind, weather, and the elements at the Brandenburg Center for Media Studies (ZeM). At these events, we were very fortunate to benefit from discussions with and support from Richard Corne, Simone Fehlinger, Elizabeth Kent, Giacomo Marinsalta, Sybille Neumeyer, Peer Trilcke, and Michael Schnegg. Laura Cinti's postdoc contributions to our final event and the conclusion of our grant were key to the success of both. We are immensely grateful to the authors in this stream for contributing such unique, valuable, and sometimes deeply personal perspectives on wind. Furthermore, we would like to thank the editors of this journal for their extensive and kind support in bringing this stream to fruition. We would also like to thank our copyeditor Elise Misao Hunchuck and the many anonymous peer reviewers for their careful and insightful comments. Finally, we want to thank the University of Southampton Library and their Open Access grant, which provided funds to publish this stream.

Author Biographies

Maximilian Gregor Hepach is Assistant Professor (Research) of Geography at Durham University. His research focuses broadly on weather and climate, phenomenology, and media theory. His most recent project, funded by the Wellcome Trust, is titled "Under Pressure" and investigates the historical and cultural geographies of weather's impact on physiological and psychological health.

Ryan Bishop is Professor of Global Art and Politics, Winchester School of Art, University of Southampton (UK). His book *Technocrats of the Imagination: Art, Technology and the Military-Industrial Avant-garde* (with John Beck, Duke University Press, 2020) is available OA. He co-edits the journal *Cultural Politics* (Duke UP) as well as the journal's book series and the book series "Technicities" (with Jussi Parikka, Edinburgh University Press).

J. R. Carpenter is an artist and a writer working across performance, print, and digital media. Her work asks questions about place, displacement, colonialism, and climate. She is a Lecturer in Creative Practice in the School of English at University of Leeds.

Jussi Parikka is professor of Digital Aesthetics and Culture at Aarhus University, where he is the co-director of the Environmental Media and Aesthetics research program. Parikka was also a Co-Investigator in the "Weather Reports: Wind as Media, Model, Experience" project at the University of Southampton.

Birgit Schneider is a media scholar and visual culture expert. She is professor of knowledge cultures and media environments at the University of Potsdam, Germany. Her research focuses on scientific images, the history and present-day status of data visualizations and especially climate visualizations at the intersection of science, aesthetic and politics. She publishes in the fields of climate discourse, cultural geography, media studies and environmental humanities.

REFERENCES

Alaimo, Stacy, and Susan Hekman. 2008. *Material Feminisms*. Bloomington, IN: Indiana University Press.

Barad, Karen Michelle. 2007. *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning*. Durham, NC: Duke University Press. https://doi.org/10.2307/j.ctv12101zq.

Billé, Franck, ed. 2020. *Voluminous States*. Durham, NC/London: Duke University Press. https://doi.org/10.1215/9781478012061.

Bishop, Ryan. 2011. "Project Transparent Earth and the Autoscopy of Aerial Targeting: The Visual Geopolitics of the Underground." *Theory, Culture and Society* 28 (7–8): 270–86. https://doi.org/10.1177/0263276411424918.

———. 2015. "Smart Dust and Remote Sensing: The Political Subject in Autonomous Systems." *Cultural Politics* 11 (1): 100–110. https://doi.org/10.1215/17432197-2842445.

Borbach, Christoph. 2019. "Navigating (through) Sound: Auditory Interfaces in Maritime Navigation Practice, 1900–1930." *Interface Critique*, no. 2, 17–33.

Bremner, Lindsay. 2021. "Introduction: Thinking with the Monsoon." *GeoHumanities* 7 (1): 1–5. https://doi.org/10.1080/2373566X.2021.1922091.

Bulian, Giovanni. 2015. "Invisible Landscapes. Winds, Experience and Memory in Japanese Coastal Fishery." *Japan Forum* 27 (3): 380–404. https://doi.org/10.1080/09555803.2015.1042012.

Büttner, Urs. 2014. "'denselben Wind, den auch die Wolken fühlen'. Der poetische Ertrag von Rilkes Schwedenreise im Herbst 1904." *Zeitschrift für Germanistik* 24 (2): 312–27. https://doi.org/10.3726/92142_312.

Candido, Christhina. 2021. "Wind, Making the Invisible Visible: Design for and with Natural Ventilation." In *Drawing Climate: Visualising Invisible Elements of Architecture*, edited by Daniel J. Ryan et al. Basel: Birkhäuser. https://doi.org/10.1515/9783035623611-003.

Carpenter, J. R. 2017. *The Gathering Cloud*. Devon: Uniformbooks.

———. 2020. *This Is a Picture of Wind*. Sheffield: Longbarrow Press.

Carson, Rachel. 1994. *Silent Spring*. Boston, MA: Houghton Mifflin.

Castree, Noel. 2021. "Environmental Humanities." In *International Encyclopedia of Geography*, 1–24. Wiley. https://doi.org/10.1002/9781118786352.wbieg2127.

Chang, Yi-Ting, and Shiuh-Shen Chien. 2023. "Wind–Human Resonance in a Polluted City: The Case of Dalinpu in Kaohsiung, Taiwan." *Annals of the American Association of Geographers* 113 (5): 1135–52. https://doi.org/10.1080/24694452.2023.2174496.

Choy, Timothy, and Jerry Zee. 2015. "Condition—Suspension." *Cultural Anthropology* 30 (2): 210–23. https://doi.org/10.14506/ca30.2.04.

Colebrook, Claire. 2012. "A Globe of One's Own: In Praise of the Flat Earth." *SubStance* 41 (1): 30–39. https://doi.org/10.1353/sub.2012.0012.

Corbin, Alain. 2022. *A History of the Wind*. Cambridge: polity.

Deleuze, Gilles, and Félix Guattari. 1987. *A Thousand Plateaus*. Minneapolis, MN/London: University of Minnesota Press.

Diaconu, Mădălina. 2013. "— Grasping the Wind? Aesthetic Participation, between Cognition and Immersion." *Contemporary Aesthetics* 11:0.

Diaconu, Madalina. 2024. *Aesthetics of Weather*. London: Bloomsbury. https://doi.org/10.5040/9781350416697.

Dodds, Klaus, and Sverker Sörlin, eds. 2022. *Ice Humanities: Living, Working, and Thinking in a Melting World*. Manchester: Manchester University Press. https://doi.org/10.7765/9781526157782.

Edwards, Paul N. 2010. *A Vast Machine: Computer Models, Climate Data, and the Politics of Global Warming*. Cambridge, MA: MIT Press.

Engelmann, Sasha. 2021. "Floating Feelings: Emotion in the Affective-Meteorological Atmosphere." *Emotion, Space and Society* 40:100803. https://doi.org/10.1016/j.emospa.2021.100803.

Fish, Adam. 2023. "Elemental Monsters: Aeolian Politics and the Protests Against Renewable Energy in Tinos, Greece." In *Vision and Verticality*, 95–203. Cham: Palgrave Macmillan. https://doi.org/10.1007/978-3-031-39884-1_16.

Förster, Desiree. 2021. *Aesthetic Experience of Metabolic Processes*. Lüneburg: meson press.

Furuhata, Yuriko. 2019a. "Of Dragons and Geoengineering: Rethinking Elemental Media." *Media+Environment* 1 (1): 0.

———. 2019b. "The Fog Medium: Visualizing and Engineering the Atmosphere." In *Screen Genealogies: From Optical Device to Environmental Medium*, edited by Craig Buckley et al., 187–214. Amsterdam: Amsterdam University Press. https://doi.org/10.2307/j.ctvs32t6s.10.

Gardoqui, Víctor Mazón, and Jussi Parikka. 2024. "Vortex: Artistic and Curatorial Practices for Wind." *Cultural Politics* 20 (3): 485–97. https://doi.org/10.1215/17432197-11321330.

Gissen, David. 2009. *Subnature: Architecture's Other Environments: Atmospheres, Matter, Life*. 1st ed. New York: Princeton Architectural Press.

Griffith, Jeremy. 2017. "From Leaky Pots to Spillover-Goblets: Plato and Zhuangzi on the Responsiveness of Knowledge." *Dao* 16 (2): 221–33. https://doi.org/10.1007/s11712-017-9548-8.

Groupp, Emilia. 2024. "Ventography and the Spatial Politics of Wind." *Environment and Planning D: Society and Space* 0 (0): 1–23. https://doi.org/10.1177/02637758241281657.

Guldin, Rainer. 2023. *Philosophie des Windes. Versuch über das Unberechenbare*. Bielefeld: transcript. https://doi.org/10.1515/9783839468432.

Hepach, Maximilian Gregor. 2022. "Ephemeral Climates: Plato's Geographic Myths and the Phenomenological Nature of Climate and Its Changes." *Journal of Historical Geography* 78:139–48. https://doi.org/10.1016/j.jhg.2022.04.003.

Horn, Eva. 2018. "Air as Medium." *Grey Room* 73:6–25. https://doi.org/10.1162/grey_a_00254.

Howe, Cymene. 2019. *Ecologics: Wind and Power in the Anthropocene*. Durham, NC: Duke University Press. https://doi.org/10.1215/9781478004400.

Hsu, Elisabeth, and Chris Low. 2007. "Preface." *Journal of the Royal Anthropological Institute* 13 (s1): Siii-Siv. https://doi.org/10.1111/j.1467-9655.2007.00426.x.

Hsu, Elizabeth. 2007. "The Experience of Wind in Early and Medieval Chinese Medicine." *Journal of the Royal Anthropological Institute* 13 (s1): S117-34. https://doi.org/10.1111/j.1467-9655.2007.00400.x.

Huler, Scott. 2004. *Defining the Wind: The Beaufort Scale, and How a Nineteenth-Century Admiral Turned Science into Poetry*. New York, NY: Crown.

Hulme, Mike. 2017. *Weathered. Cultures of Climate*. London: Sage. https://doi.org/10.4135/9781473957749.

Ivakhiv, Adrian, and Antonio López. 2024. "When Do Media Become Ecomedia?" In *The Routledge Handbook of Ecomedia Studies*, edited by Antonio López et al., 19–34. Oxon: Routledge. https://doi.org/10.4324/9781003176497-3.

Jagger, Gill. 2015. "The New Materialism and Sexual Difference." *Signs* 40 (2): 321–42. https://doi.org/10.1086/678190.

Jue, Melody. 2020. *Wild Blue Media*. Durham, NC: Duke University Press. https://doi.org/10.1515/9781478007548.

Jue, Melody, and Rafico Ruiz, eds. 2021. *Saturation. An Elemental Politics*. Durham, NC: Duke University Press. https://doi.org/10.1515/9781478013044.

Kuriyama, Shigehisa. 1994. "The Imagination of Winds and the Development of the Chinese Conception of the Body." In *Body, Subject & Power in China*, edited by Angela Zito and Tani E. Barlow, 23–41. Chicago, IL: The University of Chicago Press.

Linton, Jamie. 2010. *What Is Water? The History of a Modern Abstraction*. Vancouver/Toronto: UBC Press. https://doi.org/10.59962/9780774817035.

López, Antonio et al., ed. 2024. *The Routledge Handbook of Ecomedia Studies*. Oxon: Routledge. https://doi.org/10.4324/9781003176497.

Low, Chris, and Elisabeth Hsu. 2007. "Introduction." *Journal of the Royal Anthropological Institute* 13 (s1): S2–17. https://doi.org/10.1111/j.1467-9655.2007.00425.x.

McCormack, D., and S. Engelmann. 2021. "Elemental Worlds: Specificities, Exposures, Alchemies." *Progress in Human Geography* 45 (6): 1419–39. https://doi.org/10.1177/0309132520987301.

McCormack, Derek P. 2017. "Elemental Infrastructures for Atmospheric Media: On Stratospheric Variations, Value and the Commons." *Environment and Planning D: Society and Space* 35 (3): 418–37. https://doi.org/10.1177/0263775816677292.

———. 2018. *Atmospheric Things: On the Allure of Elemental Envelopment*. Durham, NC: Duke University Press. https://doi.org/10.1215/9780822371731.

McLuhan, Marshall. 1969. *Counterblast*. New York: Harcourt.

Mentz, Steve. 2018. "Blue Humanities." In *Posthuman Glossary*, edited by Rosi Braidotti and Maria Hlavajova, 69–72. London/New York, NY: Bloomsbury Academic.

Neale, Timothy et al. 2019. "Introduction: An Elemental Anthropocene." *Cultural Studies Review* 25 (2): 109–14. https://doi.org/10.5130/csr.v25i2.6885.

Neimanis, Astrida. 2017. *Bodies of Water. Posthuman Feminist Phenomenology*. London/New York, NY: Bloomsbury Academic. https://doi.org/10.5040/9781474275415.

Neimanis, Astrida, and Rachel Loewen Walker. 2014. "Weathering: Climate Change and the 'Thick Time' of Transcorporeality." *Hypatia* 29 (3): 558–75. https://doi.org/10.1111/hypa.12064.

Nieuwenhuis, Marijn. 2019. "Porous Skin: Breathing Through the Prism of the Holey Body." *Emotion, Space and Society* 33:100595. https://doi.org/10.1016/j.emospa.2019.100595.

Ogawa, Tadashi. 2021. *Phenomenology of Wind and Atmosphere*. Mimesis International.

Parikka, Jussi. 2012. *What Is Media Archaeology?* Cambridge: polity.

———. 2015. *A Geology of Media*. Minneapolis, MI/London: University of Minnesota Press. https://doi.org/10.5749/minnesota/9780816695515.001.0001.

Peters, John Durham. 2015. *The Marvelous Clouds. Toward a Philosophy of Elemental Media*. Chicago, IL: University of Chicago Press. https://doi.org/10.7208/chicago/9780226253978.001.0001.

Peters, Kimberley, and Philip Steinberg. 2019. "The Ocean in Excess: Towards a More-than-Wet Ontology." *Dialogues in Human Geography* 9 (3): 293–307. https://doi.org/10.1177/2043820619872886.

Plato. 1997. "Cratylus." In *Complete Works*, edited by John M. Cooper and D. S. Hutchinson. Indianapolis: Hackett.

Reed, Arden. 1983. *Romantic Weather: The Climates of Coleridge and Baudelaire*. Hanover: Brown University Press.

Rohland, Eleonora. 2022. *Changes in the Air: Hurricanes in New Orleans from 1718 to the Present*. Oxford: Berghahn Books. https://doi.org/10.1515/9781785339325.

Rose, Deborah Bird et al. 2012. "Thinking Through the Environment, Unsettling the Humanities." *Environmental Humanities* 1 (1): 1–5. https://doi.org/10.1215/22011919-3609940.

Rudiak-Gould, Peter. 2013. "'We Have Seen It with Our Own Eyes': Why We Disagree about Climate Change Visibility." *Weather, Climate, and Society* 5 (2): 120–32. https://doi.org/10.1175/WCAS-D-12-00034.1.

Sabin, Lucy, and Jorge Olcina Cantos. 2023. "Weathering Saharan Dust Beyond the Spanish Mediterranean Basin: An Interdisciplinary Dialogue." *Environment and Planning D: Society and Space* 41 (6): 1036–57. https://doi.org/10.1177/02637758231217789.

Schnegg, Michael. 2019. "The Life of Winds: Knowing the Namibian Weather from Someplace and from Noplace." *American Anthropologist* 121 (4): 830–44. https://doi.org/10.1111/aman.13274.

Schneider, Birgit et al. 2021. "Atmo-Medien und Atmo-Ästhetik des Windes." In *Parahumane Bilder*, edited by Carolin Lano et al., 191–216. Würzburg: Königshausen und Neumann.

Schneider, Birgit, and Evi Zemanek. 2020. "Spürtechniken. Von der Wahrnehmung der Natur zur Natur als Medium – Einleitung." *Medienobservationen* 0 (0): 0.

Soper, Kate. 1995. *What Is Nature?* London: Blackwell.

Starosielski, Nicole. 2019. "The Elements of Media Studies." *Media+Environment* 1 (1): 0.

———. 2021. *Media Hot and Cold*. Durham, NC: Duke University Press. https://doi.org/10.1215/9781478021841.

Szeman, Imre, and Dominic Boyer, eds. 2017. *Energy Humanities: An Anthology*. Baltimore, MA: John Hopkins University Press.

Tsing, Anna Lowenhaupt. 2015. *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins*. Princeton, NJ/Oxford: Princeton University Press. https://doi.org/10.1515/9781400873548.

Tuana, Nancy. 2008. "Viscous Porosity: Witnessing Katrina." In *Material Feminisms*, edited by Stacy Alaimo and Susan Hekman, 188–213. Bloomington, IN: Indiana University Press.

Veale, Lucy et al. 2014. "Knowing Weather in Place: The Helm Wind of Cross Fell." *Journal of Historical Geography* 45:25–37. https://doi.org/10.1016/j.jhg.2014.03.003.

Wallace, David Foster. 2009. *This Is Water. Some Thoughts, Delivered on a Significant Occasion, about Living a Compassionate Life*. New York, NY: Hachette.

Watson, Lyall. 1984. *Heaven's Breath: A Natural History of Wind*. London: Hodder & Stoughton.

Watsuji, Tetsurō. 1961. *A Climate. A Philosophical Study*. Tokyo: Ministry of Education.

Wendler, Jenna. 2023. "Wind." *VENTI* 2 (3): 0.

Wessely, Christina. 2019. "Watery Milieus: Marine Biology, Aquariums, and the Limits of Ecological Knowledge circa 1900." *Grey Room* 75:36–59. https://doi.org/10.1162/grey_a_00269.

White, Lynn. 1967. "The Historical Roots of Our Ecologic Crisis." *Science* 155 (3767): 1203–7. https://doi.org/10.1126/science.155.3767.1203.

Zee, Jerry. 2015. "Breathing in the City. Beijing and the Architecture of Air." *Scapegoat* 8:48–58.

———. 2022. *Continent in Dust: Experiments in a Chinese Weather System*. Oakland, CA: University of California Press. https://doi.org/10.1525/9780520384101.

SUPPLEMENTARY MATERIALS

Header image

Download: https://mediaenviron.org/article/127444-wind-humanities-an-elemental-media-approach/attachment/258262.jpeg