

Montology 2

Fausto O. Sarmiento  
Alexey Gunya *Editors*

# Mountain Lexicon

A Corpus of Montology and Innovation

 Springer

# **Montology**

Volume 2

## **Series Editor**

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This book series results from perceived needs to fill gaps in modern geographical thought, by bringing a transdisciplinary, decolonial and inclusive way of mountain cognition. The establishment of Montology, as the transdisciplinary science of mountains, allows to produce this book series that incorporates not only descriptive narratives about mountains, but also recent about-face towards an Spinozan epistemology of the mountainscape. Convergent science of mountains allows for considering hybrid spaces where culture and nature have shaped and continue to model different topographies and mindscapes around the world. Attuned to the recent shift of the trope of mountain geographies, this book series is envisioned as the go-to reference for learning about mountains from different perspectives, with a refreshed insight from the global South to the global North, incorporating socio-ecological production landscapes and seascapes, arguing for the biocultural heritage microrefugia conservation and not only sustainable, but regenerative development scenarios, in the new era of climate change woes and the reality of catastrophic pandemics.

Fausto O. Sarmiento • Alexey Gunya  
Editors

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# Foreword

The book series *Montology* published by Springer, addressed primarily to academic and university audiences, appeared at a very “right” time: almost half a century of increased attention to mountain studies (IGU, Geoecology Commission and UNESCO MAB-6) and the inclusion of chapter “[Mountains and Mountaineering](#)” in the *Global Agenda 21* (Rio 1992).

The second volume of the *Montology* series, with 31 chapters written by seasoned and junior mountain scholars and researchers, representatives of both the Global North and the Global South (and East), evokes in the author of these notes many memories and emotions, and most importantly, a desire to critically evaluate the half-century route taken to climb to the heights of mountain knowledge. And it is no less critical and interesting to review the traverse of new issues and new challenges currently proposed by the *montology* approach, starting with the innovative trope of decolonial scholarship and its parlance. Naturally, many questions arise.

I have no doubt that they will also arise in future readers of this volume and will cause a new wave of interest and discussions in the study of mountains, developing a mountain trope of nature-culture hybrid of co-created socioecological systems (SES) in the context of global changes and uncertainties of the twenty-first century.

Thus, the first quarter of the twenty-first century, which was marked by several events on a global scale, provides very serious reasons for this worrisome perception:

- The world population will grow to 8.2 billion people by the end of 2024; in the 1970s, it was 3.7 billion!
- In 2017, the urban population (3348 million) in the world for the first time exceeded the rural population (3328 million).
- In the middle of the twenty-first century, the urban population will be 6.2 billion people and the rural population will be 2.1 billion (<https://www.demoscope.ru/>).
- The speed and scale of global climate change has become a reality and a mandatory item on the development agenda both at international (global) and national/regional levels.
- The problem of mass—labor, political, environmental—migrations from depressed regions has become global problem (South to North; Middle East to

Europe; South to North America; Central Asia to Northern Eurasia; South to South; and South Asia to Gulf countries).

- With the total development of the Internet and mobile communications, the world has become “flat” and (virtually) accessible at any distance, at any time and at any altitude.
- Covid-19 epidemic and regional arm conflicts of the 2020s caused a global geopolitical crisis in the international relations and security system, which some politicians and experts call the beginning of the Third World War.

Considering such a turbulent picture of the world of the first quarter of the twenty-first century, the question of the role and place of the world’s mountainous regions and the population living “on the upper floors of the planet” becomes very relevant. It requires new assessments and reflections. However, the same is the fate of cities, islands, seacoasts, deserts and, in general, all the places where people live in “their” socio-ecological systems (SES) and lifescapes.

A montological approach at this dramatic time should help to adequately assess the state and development trends of mountain territories and understand their right place and mission in the global, regional and local dimensions. The book touches on almost all aspects of the mountain issues and provides a description of new terms and concepts, a new language of montology, to which you still need to get used to.

Let me briefly touch on some topics that, I believe, have substance and implications:

**Glocalization** The concept dates to the 1970s and was used by the Japanese in the 1980s in connection with agricultural activities in local business community. The term “glocalization” or “*dochakuka*” (in Japanese) literally meaning “to do something natively”. In the academic mountain community, this approach—reflecting global processes at the local level—was applied in the 1970s in the MAB-6/UNESCO mountain project in Switzerland (Messerli and Messerli 2008). At the beginning of the twenty-first century, the UNESCO MAB program proposed the use of Mountain Biosphere Reserves global network as territories and observatories for assessing the global climate change impact and adaptation at the local/regional level. This project (25 selected mountain BRs were involved) is a good case of the practical implementation of the *glocalization* concept. The glocalization approach in this case opens good prospects for searching for optimal models of “life in the mountains” and trajectories of their sustainable and regenerative development, considering local specificities and development potentials.

**Mountain Development Models** To those models mentioned in the book, Allan’s accessibility (1986) and “center-periphery” (P. Messerli 1986), I would like to add the AKRSP (Aga Khan Rural Development Support Program) model, widely known in the Islamic world. This is a remarkable example of how Western principles of cooperation (Switzerland, Germany) were successfully implanted on the “Islamic soil” in the Karakoram (Pakistan, Hunza, Pamir), the Himalayas, and other regions. It is a unique and successful experience of Pakistani scholars (Akhtar Hameed Khan, Shoab Sultan Khan) and the Aga Khan Foundation (AKF) in adapting the

European model of cooperation to Islamic soil and creating an institute for management and development—AKRSP (<http://akrsp.org.pk/>). Also the Bhutan’s Gross National Happiness model (GNH instead of GDP), where the Western interpretation of the “happiness” category found a popular response and was officially implemented in the National Development Strategy in a Buddhist country, should be also named (Badenkov 2017)

These principles also were used through the creation of the University of Central Asia (<https://ucentralasia.org/>), focused on training experts, scholars and practitioners who know and understand the mountain development issues first-hand, but from the inside-out. With the slogan “One university—three campuses” in the Pamir and Tien Shan mountains”—this educational model was implemented by this institution of knowledge. It was one of the key principles of UCA’s campus’s location: not in capital cities, far from the mountains, but *in situ*, in the mountains, where the problems of life and development are nearby, and students and university professors are immersed in this real lifescape and mountainscape! And in this case, the concept linked with glocalization approach is not an abstract model of cognition but a reality of daily life for adaptation to global challenges and coping with environmental changes (see Fig. 1). There are few universities in Latin America exploring models of “multiversity” (Uruguay) and Pluriversity (Bolivia, Peru) allowing direct inclusion of local knowledges into academic training.



**Fig. 1** University of Central Asia (UCA) campus in Naryn, Tien-Shan, Kirgizstan, 2016. The campus was designed in Japan and built by residents using local materials. (Source: Yuri Badenkov)



## Conclusion

The concept of *glocalization* can be a good basis for determining the place and role of mountain territories and, accordingly, a transdisciplinary Montology approach in mountain research and development in the turbulent and Internet-transparent world of the twenty-first century.

The timeliness of the Montology series' 2nd volume appearance also perfectly corresponds with the 5-year UN Plan for Sustainable Mountain Development (2023–2027) and, a point worth of our attention, is the creation of a Global Mountain University under the auspices of the United Nations University (UNU). This new international institute (a consortium of “mountain universities” around the world) should become a driver and platform for promoting the montology with its 4D perception of mountain lifescapes (Sarmiento et al. 2023). In any case, the Montology Course as a transdisciplinary introduction to research and studies of mountains should take one of the central places in the curriculum of this one and other “mountain” universities in the world.

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# Geopoetic Dawn

## Mountain Chains

The urn of the atmosphere, in which things seem saved to last, being more naked than anywhere, brings the mountain closer and plays sleight of hand with distance.

The wonder is there, one day away, and you think you can touch the ridges on the back and the cracks on the maned helmet. There is no such thing.

The large seams and the little wrinkles that can be seen from below are mountain ranges that can be trekked in months and valleys even larger than ours.

The staunch light, which confesses all the accidents and cuts it off with a glorious brutality, allows us in the valley to believe that we live between its breasts and that we always live at its feet, or more below them, because in the end they are fine hidden like the feet of virgins, whose cloak drags.

*Gabriela Mistral's Political Writings*. Selection, prologue and notes by Jaime Quezada. 2nd edition. Economic Cultural Fund. Santiago de Chile, 1994. 206–07.

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Our efforts to make this book possible represent the support of the International Geographical Union's (IGU) Commission of Mountain Studies (CMS) to further learning and advocate mountain research and studies globally, represented by the efforts of all its steering committee members. The idea that originated the book series on Montology gets continuity with the joint editorial efforts of academic collaboration in difficult time of tensions, wars, and terrorism.

We will also express our gratitude to all students and curious learners of the global South, who had reached to us through our academic practice, not only in the United States of America or in Russia, but also internationally, to increase our understandings and assimilate our approaches to montology attuned with the decolonial turn in the frame of sustainable and regenerative development.

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# An Introductory Cautionary Note on Mountain Terminology



Fausto O. Sarmiento and Alexey Gunya

## Introduction

We have faced an interesting geoeological inquiry by identifying the current disciplinary field terminology that identifies the new tendency of consilience in transdisciplinary mountain science, particularly considered from the different ways of knowing (*c.f.*, epistemic), the reality of itself (*c.f.*, ontological), and the symbology and signs (*c.f.*, semiotic), angles that researchers bring to their practice of mountain geoeology. It has been argued that montology (itself a neologism suggested in the 1980s, actively debated in the 2000s, and recently formalized and popularized in the 2020s) should incorporate the decolonial turn (Maldonado-Torres and Cavooris 2017), not only in the humanities—that had been postulated based on the geopoetics and political ecology of French philosophers and the Western academia critical of post-colonialism (Gallien 2020)—but also in the “hard sciences” with quantitative, numeracy-driven research, as well as in the “soft sciences” with qualitative, literacy-driven exploration (Grosfoguel 2007; Terry et al. 2024). Linguists are concerned with semantics to investigate the origins (*c.f.*, etymology), the explanations (*c.f.*, onomastics), the causations (*c.f.*, etiology), the poiesis (*c.f.*, toponymy) and the implications (*c.f.*, critical cognition) of place naming in mountain environments and the parlance of mountain geographers, researchers, and practitioners. This volume helps to translate and update terminology that may or may not be effectively used without bias in mountain geography, helping the reader to unlock decolonial understanding as related to mountains and non-Cartesian conservation.

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The production of the book series on Montology prompted a global reflection on the dramatic influence of local scholars and the novel mountain theory produced by eastern scholars and knowledge-holders from the global south, with their own take on content production and innovation of professional practices dealing with mountain “convivial” conservation management and the implications of sustainable and regenerative mountain development (Sarmiento 2022). The first volume of the series brought the need to delineate a primer of mountain geographies by re-writing important chapters in our understanding of mountains as socioecological systems (SES) and not only as a physical feature of topographic relief and geomorphic processes. By generating the last chapter of the montology palimpsest, we argued for the imperative mountain relationalities of coalescing understandings from several backgrounds into a cohesive, panoptic, and synthetic corpus of mountain science, including the decolonial view into the innovation of montological applications and associated terminology. We highlighted the argot woes that motivated this second volume (Sarmiento and Gunya 2022), offering a smooth transition between the first two volumes.

## Terminology Standards

We argue that the indiscriminate use of terms has often misled our understanding about mountains as SES because of cultural descriptors of mountains as social constructs had seldom been included in the definition. For instance, in different areas of the world, *mountain metaphors* are often referred either to (1) the secondary growth of the fallow terrain, (2) to the isolated and mysterious hinterland, (3) to the dangerous state of extenuating anxiety, (4) to the stepwise procedure of ascending complexities, (5) to arduous trajectory to the apex of a profession, (6) to the accumulation of troubled, incomplete chores, or (7) almost everything else that denotes verticality, whether in space, time, or function (Körner et al. 2021). Therefore, priorities to set up research questions and practices dealing with mountainscapes have, heretofore, reflected hidden hierarchies, subjacent biases, and outdated narratives of hegemonic etiology that decolonial scholarship of mountains is debunking.

Rhetorical devices in defining “mountain” have failed in compelling a unique agreed-upon definition. This lack of accord is manifested in every level of the scale, from the macro- (*c.f.*, mole-hill controversy), to the meso- (*c.f.*, alpine tree line), to the micro- (*c.f.*, surface gradient inversion) scale of analyses. This difficulty forces situational uncertainties from the soft scientists, now required to write-up positionality statements before their writings get published, and forces methodological complications from hard scientists that need to present apolitical views of natural history priority areas in their reports, in “supposedly neutral” situational research practice. Messerli and Ives (1997) said it better: “*The inability of scholars to produce a rigorous definition that has universal application and acceptance has often led to time-consuming debate with no satisfactory result*” coining the idea that defining the term mountain is like chasing a chimera. However, there is now



consensus about “mountain” as a social construct (Debarbieux and Rudaz 2015; Sarmiento 2022). Furthermore, in the UNESCO Decade of Indigenous Languages (2022–2032), there is a tendency to bring back the vernacular term to name mountains, to recover the ecological meaning of place naming instead of paying tribute to rich patrons, explorers, or heroes of colonization efforts from past conquests and imperial hegemony (Mamontova and Klyachko 2022).

This discursive narrative conundrum is forcing many researchers to have to develop their own definition, or to create/recreate conventions that could fit the intended mountain’s attribute. For instance, according to Malanson et al. (2011), we should use caution with the term “alpine treeline,” but rather use the term “treeline ecotonal region” (TER). In South America, there was a call to replace the term *Alpine* with the correct localized descriptor of *Andean* tree line (Acosta-Solís 1984; Sarmiento 2012). As a matter of illustration for students of mountain geography, we posited the question: What is the tallest mountain on Earth? Curiously, traditional bibliographic sources point to Mt. Everest as the tallest, measured above the sea level as the conventional zero level. Critical biogeographers challenged that response with the proverbial “it depends”: It is certainly a challenge to get the average level of the sea, as each ocean has differential temperature, salinity, and magnetism, which gives significant differences on average; moreover, differences in time are also of concern, such as the cyclicity of oceanic temperatures and acidities changing on decadal seasons (c.f., El Niño Tropical Oscillation), besides the circannual variations due to moon-earth gravitational fields, or monthly variations in high-tide, or even the circadian change of high/low tide ratio every 6 h within a day. Furthermore, even the name Everest is now no longer favored in the decolonial trend that sees vernacular nomenclature as a more just descriptor of Mt. *Sagarmatha* in Nepal, or *Chomolungma* in China.

The same criticism is placed for the tallest mountain in North America; Mt. McKinley, that from a short-raised base, it protrudes more than 5000 m of huge prominence. So, under this “convention,” the now called Mt. *Denali* is the tallest mountain on Earth. So, depending on the convention assumed, other candidates to be considered as the tallest in the planet are *Chimburasu* (due to planetary radius), *Mauna Kea* (due to continuous slope), *Kilimanjaro* (due to ratio of flat land surrounding the vertical Z axis), *Sierra Nevada de Santa Marta* (due to linear proximity to seashore), *Kosciuzko* (due to stronger gravitational field) or even *LamLam* (due to its origin in the depths of the Mariana’s trench). As you can see, even such an elemental question related to the elevation of the summits brings contempt, and its resolve depends on the dominant paradigm and convention one adheres to (Sarmiento et al. 2017). See Fig. 1.

## Colonial Parlance Reframed

The training of mountain scholars throughout the twentieth century reflected a lingo established mostly out of the geographies of empire (Bowd and Clayton 2019), with their research on mountain objects (including people) affected by Europhilous



**Fig. 1** The majestic Mt. Chimborazo (or *Chimburasu* in the vernacular *Kichwa Puruwa*) is the tallest mountain on Earth, if measured from the geometrical center of the planet. The geodetic radius on the equatorial Andes is longer than to the summit of Mt. Everest (or *Sagarmatha* in the vernacular Sanskrit Nepali) in the Himalayas, because the planetary bulge of the obloid spheroid rotational shape of the planet. This location makes Riobamba (2750 masl), in Ecuador, the mountain cityscape closer to the sun! For revisiting the “Third French Geodetic Expedition” that recently came to conclude the exact altitude of Mt. Chimborazo, see Dangles 2023). (Source: Photo by Omar Vasco Casco. @dronriobamba)

lenses or rather Westernized approaches to understand mountains as a static space defined by the hegemonic imperatives of the global north. Much as the narrative of “tropicality” (sensu Pierre Gourou) in his paradigmatic book *Les Pays Tropicaux* (1969) that was heavily contested for its neocolonial and postcolonial flare to classify tropical countries and peoples, in the literature about mountains rather “mountainity” was normative for the understanding of an inert system, catalogued mostly

from geomorphic and geologic considerations with minimal or null influence of mountain people, criticized as an incomplete field of study (Peattie 1936). The resurgence of studies centered in mountain communities and mountain people as positive agents (Ives and Messerli 1994) provided fodder to integrate the “social” factor to the “physical” monikers present in most references of the time, separating the prosperous lowlands from the depauperated highlands. Furthering the Earth Summit with their *opus magnum* “Mountains of the World” (Messerli and Ives 1997), the mountain scientists and advocates succeeded in the UN Declaration of 2002 as the “International Year of Mountains.” At this point, the decolonial turn had already started in the global south, and books about mountains with the indigenous and local or situational perspective appeared (Sarmiento 2003). Following the trend of consilience and transdisciplinary integration to understand mountains, the Mountain Geography literature started using the lingo of social scientists as well as the physical scientists to grapple with mountain studies in the popularization of montology (Sarmiento 2020; Sarmiento and Gunya 2022). The use of terms often characterizing Marxist geographers, and the push toward equality and inclusiveness of Feminist geographers, contributed to generate a better argot to identify decolonial scholarship of mountain geographies.

## A Fresher Framework

Since the required reframed narrative of decolonial turn, mountains are no longer seen as mere ecosystems. They are now considered coupled and adaptive socio-ecological systems (SES) that could be better represented using the set theory approach with logical relations, diagramed by John Venn in the 1880s. Ever since, the intersecting circles of the Venn’s diagrams show the creation of new sets developed in the boundary layers, and identify the core disciplinary theory in their centers. The spheres concept, thus, became the crux to understand the collection of properties belonging to an identifiable term that is made of all the “mass” attributed to such property, both materially and intellectually. Environmental science argot is filled with such broad intellectual entities: e.g., hydrosphere, atmosphere, lithosphere, pedosphere, zoosphere, phytosphere, biosphere, technosphere, theosphere, noosphere, etc. We enlist here a collection of the most frequently used “spheres” that share the same statements of material elements and possible imaginaries that identify the mountain landscape in question (Table 1). The importance of the “audience effect” prompted the popularization of *eco*—prefixes to become ubiquitous in the conservation literature of the XX Century, particularly with the strengthening of the environmental movement in the United States and the establishment of Earth Day (Adams et al. 1997). Nowadays, the incorporation of the mountain trilemma (*Mountainity*, *Mountainness*, and *Mountainitude*) requires amplifying the audience effect in the XXI Century by using the suffix—*scape* to denote *physicalities* of the habitat, *mentalities* of the habits, and *spiritualities* of mountains and their human, non-human, and more than human co-inhabitants (Sarmiento 2022).

**Table 1** List of neologisms of the suffix—*scape* included in the innovation of the theoretical foundation of montology, as the trend to incorporate the mountain trilemma (Mountainity, Mountainness, Mountainitude) interplaying in the socioecological system

<i>__Scape</i>	We use the Venn's concept of spheres (both material and imaginary) to create a set that exemplifies complex relationships and logical convergent epistemologies.
Term-suffix	Explanations of spheres
<i>Aidscape</i>	The sphere of national and international institutions that provide help in case of disaster relief or poverty alleviation
<i>Bankscape</i>	The sphere of financial institutes and banks that provide financial support to conservation programs as investment, profit seeking or collateral divestments
<i>Beachscape</i>	The sphere of material elements and imaginaries that create the sense of place in a seashore flat surface often affected by high and low tide wave migration and erosion
<i>Carescape</i>	The sphere of institutions that provide health and related wellbeing support to people or beings other than people in ravaged landscapes
<i>Circuitscape</i>	The sphere of connections, nodes, and transistors that made the cybernetics operate successfully in the system
<i>Cityscape</i>	The sphere of material elements and imaginaries that create the urban space and appropriate city-like behaviors in urbanite or suburbanite communities
<i>Culturescape</i>	The ethnosphere of diverse groups of people and their tangible and intangible heritage
<i>Datascape</i>	The technosphere of binary records and other numerical and algorithmic codes applied to describe physical features and imaginary cases for computational calculations
<i>Desertscape</i>	The sphere of material elements and imaginaries that create the desert as a vacuum or empty space driven mostly by a dearth of precipitation or input of fertility and productivity
<i>Disasterscape</i>	The sphere of factors and processes that create risk and generate catastrophic outputs
<i>Dunescape</i>	The sphere of desert elements and imaginaries that create the sense of place of dunes as moving sandy mountains
<i>Farmscape</i>	The sphere of rural elements and imaginaries that create the sense of place of agricultural production and livestock rearing lifestyle
<i>Fearscape</i>	The sphere of emotions and imaginaries that generate fear and dark outlooks in dangerous mountain frightening situations
<i>Filmscape</i>	The sphere of material elements and imaginaries that create de visual categories of video production
<i>Firescape</i>	The sphere created by burning the physical elements of the system and the imaginaries of ignited elements, whether as consequence of pyromaniac or wildfire behaviors, or a cultural fire of ritual and as management tool.
<i>Foodscape</i>	The sphere of material elements and imaginaries that create food hubs, food deserts and food supply to humans and their foodstuff
<i>Forestscape</i>	The sphere of material elements and imaginaries that create the sense of place of forests including the biota and particularly trees
<i>Fundscape</i>	The financial sphere of donors and funding sources that exist to support applied research for conservation and development

(continued)

**Table 1** (continued)

<i>__Scape</i>	We use the Venn’s concept of spheres (both material and imaginary) to create a set that exemplifies complex relationships and logical convergent epistemologies.
Term-suffix	Explanations of spheres
<i>Greenscape</i>	The sphere of material elements and imaginaries that create the sense of place of intelligent design and environmentally friendly buildings and structures that minimize negative impacts
<i>Hardscape</i>	The sphere of material elements and imaginaries that compose the sense of difficult situations or risky and dangerous processes
<i>Hazardscape</i>	The sphere created by situations conducive to high risk of disaster, including institutions, construction materials, building design and educational level of the people
<i>Heartscape</i>	The sphere of emotions and imaginaries that generate love and bright positive outlooks in romantic situations
<i>Hellscape</i>	The sphere of material elements and imaginaries that create a sense of place of chaotic behaviors with negative consequences of infernal damnation
<i>Historyscape</i>	The sphere of material elements, artifacts and imaginaries that create a sense of place of congruent historicities
<i>Humanscape</i>	The sphere of material elements and imaginaries that create the sense of place of artificial, often manicured spaces
<i>Ideascape</i>	The sphere of thoughts, emotions and imaginaries that create a sense of place of innovation, mental comfort and engaging discoveries
<i>Inscape</i>	The sphere of mental capacities to integrate the information captured from the exterior by the senses that allow for the creation of a particular and individual image of reality
<i>Knowledgescape</i>	The sphere of material elements and imaginaries that create a sense of place where different ways to learn converge to generate new ontologies and epistemologies
<i>Landscape</i>	The sphere of material elements and imaginaries that create a sense of place where you can grasp in a gaze the phenotypic and cryptotypic manifestations of reality
<i>Langscape</i>	The sphere of material elements, diverse practices and vocabularies that create a sense of place of common corpus for spoken communication and verbal clues
<i>Leescape</i>	The sphere of material elements and imaginaries that create an abstract subject perceived from the effect of windward drivers affecting the other side, unseen leeward of the mountain
<i>Legalscape</i>	The sphere of formal procedures, institutes and coded articles that create a sense of justice and security in compliance with environmentality
<i>Linescape</i>	The sphere of material elements and imaginaries that created an illusion of rectilinear arrangement, a vector-based display of interconnected circuitry in the mountain side, with ridgeline, treeline, timberline, property line
<i>Linkscape</i>	The sphere of material elements and imaginaries that created a sense of connectedness, connectivity, and connectance of the linked and nexused system’s parts

(continued)

**Table 1** (continued)

___ <i>Scape</i>	We use the Venn's concept of spheres (both material and imaginary) to create a set that exemplifies complex relationships and logical convergent epistemologies.
Term-suffix	Explanations of spheres
<i>Literaryscape</i>	The sphere generated by writing about real or imaginary places and epochs, including the tools of the trade and the resulting publications of fabled locations
<i>Mindscape</i>	The sphere of material elements and imaginaries that create a sense of self with unique psyche and ways to interpret reality
<i>Moderscape</i>	The sphere of material elements and imaginaries that create a sense of place of progress and state-of-the-art tools and environs
<i>Moonscape</i>	The sphere of material elements and imaginaries that create a sense of place of death, desolation and often derelict spaces
<i>Mountainscape</i>	The sphere of material elements and imaginaries that create a sense of place of vertical space and altitudinal adaptations
<i>Mudscape</i>	The sphere of material elements and imaginaries that create a sense of place of dilapidated, melted, muddy situations
<i>Music scape</i>	The sphere of material elements and imaginaries that create a sense of place of melodic and rhythmic productions generating specific types of melodies or genera
<i>Officescape</i>	The sphere of material elements and imaginaries that create a sense of place where jobs require a desk, a bookshelf, a storage box, and tools of the trade
<i>Playscape</i>	The sphere of material elements and imaginaries that create a sense of place of joyful entertainment and amusement, often associated with children oriented natural areas, gardens or courts
<i>Politicscape</i>	The sphere of public approaches for the common good generating the identification of special tendencies in relation of governance and social management
<i>Religiouscape</i>	The sphere of material elements and imaginaries that create a sense of place of spirituality, rituals and dogmatic understanding of realities in churches, shrines or the use of other sacred sites and symbols
<i>Riskscape</i>	The sphere of material elements and imaginaries that create a sense of place of insecure and dangerous situations often shrouded by uncertainty
<i>Riverscape</i>	The sphere of material elements and imaginaries that create a sense of place of riparian and riverine environs with flowing water and riverbanks
<i>Ruinscape</i>	The sphere of material elements and imaginaries that create a sense of place of abandoned structures or forgotten buildings
<i>Skyscape</i>	The sphere of material elements and imaginaries that create a sense of place of contemplation of celestial and ethereal situations
<i>Seascape</i>	The sphere of material elements and imaginaries that create a sense of place of marine environments with salt water and coastal and estuarine brackish water, including algae, mangroves, and maritime formations
<i>Soundscape</i>	The sphere of material elements and imaginaries that create a sense of place of audible and communicative situations with auditory clues, including those low/high frequency areas for echolocation

(continued)

**Table 1** (continued)

<i>__Scope</i>	We use the Venn’s concept of spheres (both material and imaginary) to create a set that exemplifies complex relationships and logical convergent epistemologies.
Term-suffix	Explanations of spheres
<i>Southscape</i>	The sphere of material elements and imaginaries that create a sense of place of poverty and underdevelopment situations with mostly rural depauperated communities
<i>Taskscape</i>	The sphere of related and sequential activities that accomplish specific tasks needed for the ecological niche to function due to the temporality of the interactions and the hierarchy of deliverables
<i>Tautoscape</i>	The sphere of rhetorical convolutions saying or doing a different thing to arrive from distinctive angles to the original thing
<i>Technoscape</i>	The technosphere of material elements and imaginaries that create a sense of place with innovative construction, machines, new materials, and development of robotic manufacturing
<i>Terracescape</i>	The sphere of material elements and imaginaries that create a sense of place of slope terrains with echelon-like adaptations such as stone walls and terraces
<i>Terrandscape</i>	The lithosphere of material elements and imaginaries disconnected from the aqueous substrate of oceans, living bare land and open soils of terrestrial ecosystems
<i>Viewscape</i>	The sphere of material elements and imaginaries that create a sense of place of concordant points of view or ways of seeing distant targets
<i>Warscape</i>	The sphere of material elements and imaginaries that create a sense of place of violence, murder, attacks and massive disorder generated by weapons and destruction, social animosities or manufactured scarcity, and recalcitrant hate
<i>Wastescape</i>	The sphere of material elements and imaginaries that create a sense of place of derelict, dirty, disorganized debris filled unusable stuff; they are found as portions of underutilized or disregarded land, often featuring brownfields, pollution, abandonment, and underserved functionality
<i>Waterscape</i>	The sphere of material elements and imaginaries that create a sense of place of cloudy, foggy, wet, aquatic, submerged underground aquifers, and icy and snowy surroundings
<i>Worldscape</i>	The sphere of material elements and imaginaries that create a sense of place of global interconnectedness and immediacy, mediated by international flows of hegemonic power relations
<i>Xeroscape</i>	The sphere of material elements and imaginaries that create a sense of place of desertic, water deprived situations
<i>Zombiescape</i>	The sphere of material elements and imaginaries that create a sense of place with inert, with no will to act on a conscious manner, but rather on impulse, fuzzy goals, or religious zealous
<i>Zomiascape</i>	The sphere of material elements and imaginaries that create a sense of place with no governmental action and anarchical independence from power relations, i.e., looking like Zomia

Source: Adapted from Sarmiento and Gunya 2022

## Some Examples of Mountainscapes

This list is not exhaustive by any measure; however, it tends to incorporate the innovation of critical biogeography and political ecology in our better cognizance of mountains as SES and in the parlance of mountain geographers. For the sake of argument, we selected just five terms that may help in realizing the intricate nature-culture hybridity that brings a new poiesis for mountains with its etiology framed by *spatiality* and *historicity* in the co-created human dominated vertical ecoregion, emphasizing ancient landscape stewardship and modern conservation needs. Selected suffixes in montology are included *in extenso* within the following chapters in this volume. However, as a matter of illustration, we include here only five selected subheadings, namely:

- *Mountain soundscape*: The sphere of material elements and imaginaries that create a sense of place in audible and communicative situations. You may grasp this meaning when walking on a ridgeline exposed to the strong winds of the Bernoulli effect and the white noise produced by surface vegetation (*c.f.*, phytophony), whose swoosh canopy is constantly windswept. This unique sound is familiar to those mountaineers accustomed to long treks and strenuous hikes to the summit and finding flagged trees or stunted and twisted chaparral (drier hilltops), elfin forests (mesic hilltops), and krummholz (wetter hilltops). Another typical sound of the mountains is the murmur generated by soft breezes engulfing the base of brooks or gorges (*c.f.*, geophony) and precipitous cliffs that are thus sculpted by the winds of the Venturi effect, particularly impressive in the coves of ancient *Araucaria* forests due to the proximity of melting glaciers and the movement of the coriaceous leaves of the monkey-puzzle tree, a living fossil formation in southern Chile and Argentina, whose *Mapuche* inhabitants had learned to interpret and use for ethnometeorology and weather forecast. A famous soundscape site in Japan, near Kyoto, is the bamboo grove of the *Arashiyama* Mountains, one of the preferred destinations for a multitude of tourists to experience the murmur of the bluish-gray thicket and to experience the restoring *Shinrin-yoku*, or forest bathing. Similarly, the effects of nature's sounds in the primeval forests of *Kasugayama Genseirin*, in the mountainous Nara Prefecture, are a top experience for the auditory senses. Furthermore, people living in these aeolic environments have captured the sounds in their musical instruments (*c.f.*, anthropophony), such as the *erke* in Argentina, the *siku* or "zampoña" in Peru, the *kina* or "quena" in Bolivia, the panpipe or "rondador" in Ecuador, the *alphorn* in Switzerland, or the *Xiao Gudi* flutes in China. Similarly, the running white waters of the cleavage of slopes produce a unique noise that identifies this type of landscape in mountain brooks with cascading and running waters and boulders moving with the strong current downslope or with continual orographic rain (*c.f.*, hydrophony). This peculiar attribute of babbling or rippling is being captured by Australian aboriginals in the *didgeridoo*, or ceremonial *rainsticks*, which likely originated in India. This is the proverbial advocacy of Leopold's