

WEATHERSCAPING: AN ATLAS OF BITS, ATOMS AND CLOUDS

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HYBRID
ELEMENTAL MEDIA
DATA ATMOSPHERES
WEATHERSCAPING
COMPLEXITY

This essay navigates the intersection of artistic research and elemental media, adopting the epistemology of "Weatherscapes" as a basis for exploring the parallels in the terminology of uncertainty, transparency, and control shared by data and meteorology. It reflects on the shifts in scale from digital bits to atoms in processes of ontology, employing metaphors such as clouds and turbulence to interrogate the epistemological dimensions of digital knowledge. Weatherscaping emerges as an epistemological and speculative framework for process-

ing the experiential nature of fragmented knowledge that defines human terrestrial existence living on a planet enveloped by its atmosphere. Between Bits and Atoms, the Atlas is an investigation of the relationship between human beings, data and weather, weaving together the individual with the global, questioning the jump of scales and the invisible layers that intrinsically entangle us with the surrounding matter(s) in time of layered crisis. The scope is introducing Weatherscaping Epistemology: a shift from being in the weather to be a weather being.

WEATHERSCAPING

(Verb).

The process of entangling the human identity within a broader system, by freeing

Identity/Society boundaries aesthetically and practically designing them as the behaviours and emergences of atmospheric phenomena (such as clouds, fogs, flows, ebbs, waves, storms).

This could imply echoing within the awareness of a belonging to a complex adaptive system that transcends the sole human being (ego-tistical) scale in favour of an eco-systemic one. The shift from being in the weather to be a weather being.

Epistemologically embodying and embedding transparency, uncertainty and fluidity.

As a practice, Weatherscaping is a practical act of de-territorialization, a way of putting back into the initial conditions of turbulence matters such as: volumes and voids of the urban (buildings and public spaces), bodies (as citizens and specimens), ideas and dreams.

Example.

“Do you remember what the weather in your dreams was?”

Shifts to

“Do you remember which weather you are in your dreams?”

WHAT HAPPENS UNDER THE ATMOSPHERE: HUMANS AS INHABITANTS OF THE AIR AND DATA ASSEMBLAGE

Atmosphere:

*A: the gaseous envelope of a celestial body
(such as a planet)*

B: the whole mass of air surrounding the earth

C: a surrounding influence or environment (Cambridge Dictionary, 2025)

Weather:

Weather is defined as the state of the atmosphere at a given time and place, with respect to variables such as temperature, moisture, wind speed and direction, and barometric pressure. The atmosphere is responsible for weather patterns and climate. Without it, there would be no clouds, rain, wind, or any other weather phenomena. (Cambridge Dictionary, 2025)

We move through air, yet we cross invisible layers: of particulate matter, of lost (yet noble) gases, of data. The atmosphere is the boundaryless medium in which these constant feedback loops take place, at the crossover of bits and atoms (Ishii, 1992).

"Humans have become increasingly datafied with the use of digital technologies that generate information with and about their bodies and everyday lives. The onto-epistemological dimensions of human-data assemblages and their relationship to bodies and selves have yet to be thoroughly theorised." (Lupton, 2018).

This offers an opportunity of speculation, a crossover of elemental media (Furuhata, 2012) for human-data assemblages.

Data and atmospheric phenomena share fundamental common terminology around the concepts of transparency, uncertainty and control. Nevertheless, these terms can deeply share different meanings and open up a debate around the implications between the superposition of the two domains in building new paradigms for our identity. An in-tangible part of our identity is coded (and de-coded) into data, transforming us into "human-data assemblages" (Lupton, *ibid.*). This particulate knowledge is stored into Cloud systems. In 1807, Alexander von Humboldt's representation of Chimborazo Volcanoes became the precursor to any technology that now allows us to see through the solid matter. (Figure 1). Its "X-Ray" vision of Chimborazo resonates with the data we could see if we imagine the Cloud System of our personal data flowing above our heads, across the in-visible matter.

CLOUD(Y) KNOWLEDGE

As intrusive thoughts slip through consciousness, above us drifts a fragmented stratum of our digital selves: traces of identity dispersed across networks, suspended in the air like an ethereal digital cumulonimbus. Our movements through the city are entangled with these intangible emissions; we continually generate, feed, and circulate data (Floridi, 2009) that expands this invisible Weatherscape. The stream of information we scroll each day are stored in “Clouds”, invisible agglomerates floating above our heads, where our identities, stocked and stored in a series of binomial bits (0 and 1).

Just as clouds coalesce, drift, and dissipate in the atmosphere, one is left to ask: where do the ephemeral traces of our digital lives accumulate? These are virtual meteorological formations, digital clouds: constructed landscapes composed of archived memories, residual data, and traces of what once existed materially but now persists in immaterial form (Floridi, 2015). Control increasingly permeates these formations: we geoengineer meteorological clouds and amplify the capacity of digital ones, extending surveillance and storage far beyond the visible.

In this paradigm, identity becomes a datafied entity-encoded, stored, and modulated as part of a human-data assemblage (Lupton, 2018). The cloud no longer signifies lightness or freedom, but becomes a dense and energivore (Montserrat, 2022) repository of subjectivity, stripped of the fluidity that characterizes atmospheric vapors. This shift raises fundamental questions concerning what it entails to be human in a hyperconnected era (Floridi, 2015), and whether our identities might now be understood as cloud-beings embedded within a changeling gaseous Weatherscape. Our digital presences (Goriunova, 2019) are condensed into invisible binary structures suspended overhead, shaping and shadowing our lived experience. These atmospheric archives,

composed of particulate knowledge, recast us as cloud-beings, entangled formations in a constantly modulating system of memory, control, identity. Does this particulate knowledge make us human-cloud assemblages?

Luke Howard, referred to as “The Godfather of Clouds”, the “Namer of the clouds”, and the “Father of Meteorology”, spent the majority of his life dedicated to trying to define and classify the changeling gaseous matter flying above his head and his house in London.

His definition of Cirrus, made in 1802 is the following:

“Parallel, flexuous, or diverging fibres, extensible in any or all directions” (Howard, 1802)

The particulate knowledge (Bits and Atoms) that constitutes our floating identity, makes it very cloudy. The experienceability of atmospheric knowledge is rather a luminous force that disrupts our homogenized, flattened representation of space. While data generate abstraction, they simultaneously restore an identity that moves fluidly within the cloud of experienceable atoms. Experienceable atmospheres, as connotated by Y. Furuhashi (2019) as which obfuscates “obvious” visibility yet also makes visible and revealing qualities such as temperature, humidity, and wind, making the physical environment more “sensible and tangible”.

These opaque zones create dense glitches and blurred boundaries in our society of transparency (Han, 2015). No horizon visible, just a white intangible filter between us and the world.

“Gazing into the sky during the day, it’s tough to get a handle on what’s happening up there. Our atmosphere seems tantalizingly close and yet mysteriously distant. The life-sustaining air we breathe envelops our planet like a pale-blue security blanket, clinging to us by the force of gravity. We see birds, planes, an ever-changing patchwork of clouds and, in some places, air pollution. Farther out, our Moon glows down on us and a blazing Sun hangs in the sky. From our Earth-bound perspective, it’s hard to tell where our atmosphere ends and space begins.” (Buis, 2019)

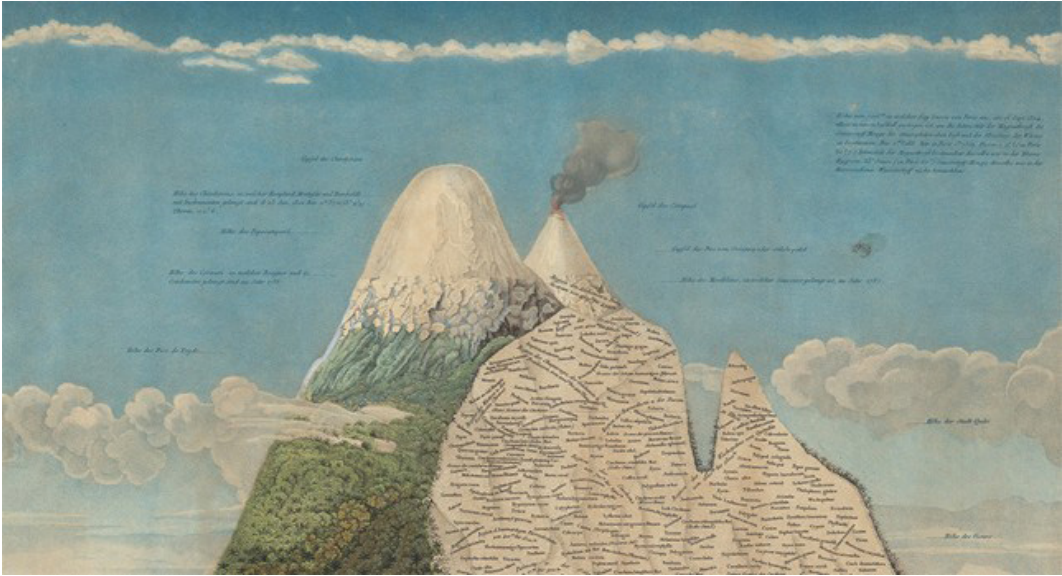


Fig. 1 Alexander von Humboldt, *Tableau Physique Cross-section of the Chimborazo* (1807), published in: German History Intersections, Zentralbibliothek Zürich.

The atmosphere under (and in) we live below is boundaryless (NASA,2019). We are a turbulence in this matrix of data. We compose space, and at the same time we avoid thinking of our “state”(Shaw,1964) as a necessity. Casualty and necessity. At the same time, we live in interesting and hybrid times (Kluitenberg,2006) where technology collects, amplifies, and senses the invisible layers that escape our perception (Haskell,2024).

Could we dissolve identity boundaries and create new systemic structures, more compatible with the interconnectivity that runs between the individual and the earthly scale?

A WEATHERSCAPING EXERCISE: CLOUD SWIMMING

An exercise of Weatherscaping.

An observation session on the gaseous state of matter. Conditions: 3pm, February Afternoon. Light Blue Sky, Clouds in flashes. Length of the exercise: 3 hours with up-and-downs of attention span, pauses for the eyes to

rest and to write down the observed variations.

The sky passes above us, while we are closed in boxes that block our view, and suddenly the windows seem like the only way out.

Of some soft masses, I don't understand if they are made up of greyer parts or are their shadows.

The shadow of the clouds.

Gradually, all levels of the sky are distinguished. We flatten reality into infinite scrolling on a flat screen, but the sky has infinite depth.

The endlessly frayed edges of the clouds no longer appear white after a while. The clouds move very fast.

Something deep and very high at the same time. Without warning, the drawings of an imperceptible and unexpected rain appear on the ground. I've lost count of how many clouds there are.

What is made of light and what is not. Who touches your grey areas and who wears wool hats.

Now, a meeting of waves, like a satellite photo imprinted in blue, which isn't blue, but we perceive it as such. How strange, some human beings have their portals to the world: the colour of the sky, the colour of the sea, and others the colour of the ponds, the woods and all the organic living things that make up this planet. in 16 x 16 billion shades.

"Parallel, flexuous, or diverging fibres, extensible in any or all directions".

A background of clouds that look like the traces left by the waves on the sand. Imprinte (Impresse) and imprints that overlap an imperceptible scythe.

The sun reflects on your feathers and the blonde highlights of your hair and then you take off without thinking, and that's why you fly so well. I know that we are under the same blanket of atmospheric layers that envelops us, and I feel when you reach out and think of me. I practice searching for the moon in the afternoon sky, even if it's 3.25pm.

End of the exercise. Nothing happened, I just stared at the clouds for all the hours of light I was given today. And

everything happened, in this stasis, everything moved, a quadrant of the sky moved and is reflected on your wings, which have always been spread.

Only now do I realize that my grandfather carried in his eyes all the clouds that allowed him to always be a clear sky and a natural bastion in an airy perspective.

Today nothing happened, I just looked at the clouds for hours, and everything happened.

(Maybe, I'm better at resonating with clouds than with people.)

The sun passes through the feathers, and I think it is not a question of free will but of a stubborn idea that our human brains can explain the world without caring about the empty universes of which we are the accumulation in dense points.

If you are an antenna for the universe, you feel confused if too many electromagnetic storms overlap between you in the sky, as if you were a jinn lost between the centuries and created from energy and vaporous matter.

Maybe it's inside where you have to fill the space before you start emptying it. Gradually, fade away.

Cirrus, Cumulus, Layers.

First the Cumulus, then the layers.

Nothing has changed, everything has changed. Pupils of the air in a liquid society, under the same layers of pm10, which make our horizons orange and carcinogenic, but in the end, from one hemisphere to the other, from a frog's breath taking mine and vice versa entering our lungs and make us permeate each other. Fernweh baby.

On bridges of clay, gold, or maybe just glass and water.

I see.

Under this post-industrial god of ours who says that we are made of the same substance as dreams, but also as our parents, more specifically and literally, made of the same molecules of clouds, icebergs and water.

Now, in this world of grandfathers-glaciers that will flood us, of galaxies of dances in garages, we are ready to regenerate constantly, because life is this flying over our invisible

attacks, trying to wrap them in an embrace which makes us cross them like Eurydice who vanishes at the exit of the cave.

We, lost Orpheus, turn around and no longer see anything, standing on foot at the flashing level crossing, smiling at the blossoming of Spring being back.

Ready to float, again and again.

A TURBULENCE OF POETIC BREVITY - PARTICULATE KNOWLEDGE

The experienceable tangibility of atmospheric knowledge is rather a luminous force that disrupts our homogenized, flattened representation of space. While data generate abstraction, they simultaneously restore an identity that moves fluidly within the cloud of experienceable atoms.

In Giorgione's *The Tempest*¹, weather ceases to function as a passive backdrop and instead emerges as a destabilizing force that fractures the coherence of the scene. Much like Campbell's (2003) notion of "a landscape rendered according to momentary, fleeting appearances," the storm in *The Tempest* resists fixity, asserting itself as a volatile presence that unsettles the pictorial order.

The lightning does not illuminate but rather ruptures the scene, foregrounding turbulence as both subject and structuring principle of space. Here, the Weatherscape is neither a frame nor a background, but an in-between that envelops both human and non-human existence in it, shifting the locus of meaning from anthropocentric stability to the ephemeral, unpredictable forces of the changeling elemental world.

The uncertain boundaries of the atmosphere, bridges our floating identities in a constant, ebbing flow of bits and atoms. Wind keeps blowing over our turbulences, that shakes us from the micro-scale of the blood turbines inside our organs' cavities, and over our heads while bombs, earthquakes or toxic clouds shake our existence in the constant emergence of being Weatherscapes.

What happens in between this state of matter/knowledge/chaotic events? The thick-time (Neimanis,2017) interstitial matter of the turbulence in-between:far from cloud swimming, or fog permeating, far from iceberg's cracking trajectories.

Between the density of molecular memory and the abstraction of empty space (Agamben,2008), between human perception and the inaudible frequencies of more-than-human dreams (Haskell,2024), lies a field of fractured relation, where perception fails to encompass the full ontological "weight of the world". Here, the self dissolves into a diffuse, cloudy, liquid, gaseous, entangled intimacy with the Earth's ongoing composition.

Suspended in a state of perpetual tension, particulate knowledge is assembled either in solid or gaseous form, as in Magritte's "The Battle of the Argonne"(1959)². The cloud and the stone-like islands float as aggregates that hold both identity and matter. What unfolds between them is an invisible struggle between gravitational and attractive forces. The thick-time (Neimanis and Walker,2014) produced through the interaction of these two floating forms of particulate knowledge above the Argonne is a space of possibility: an intangible atlas in which humans operate as turbulence across multiple scales.

According to Neimanis and Walker, "the relationship between human bodies and climate according to what we call "thick time," a transcorporeal stretching between present, future, and past, that foregrounds a nonchronological durationality" (2014). This might be what holds the cloud and the granite in perfect balance, over the sleeping city of Argonne.

Encountering Earth's constant flow of turbulence. Fog, Clouds, Icebergs "forces" us to put our human turbulence into perspective, and to adapt to navigate a dense time, a chaotic amount of data typhoons, a series of uncertain transparencies.

Foremost, as a strange knotted syllogism, we changed the weather and the climate during the last centuries. We are now navigating into the ebb,flows and storms of our actions



Fig. 2 L.Artioli, *Weatherscapes Atlas*, 2025, An Exercise of Cloud Swimming, digital collage

and our moody behaviour. We are a conglomerate of turbulences, that flows into our veins, and runs between the infinity of scales that characterise our Weatherscapes.

"But what if we zoom in even further, to the atomic level? At the very smallest level, according to Jeremy Rifkin, there are only vibrating quantum particles that don't seem to sit in one place. That means, on a basic level, there are only oscillations and waves — there are no fixed things. Everything is moving and changing, always — 'a non-material world of pure temporality,' he writes. What we perceive as a phone, a rock, or a person is merely a temporary coming-together of matter that will inevitably fall apart at some point. This is, of course, how we think about the weather — a storm, for example, as a temporary and passing phenomenon. But we can think of all things like that.

In this sense, we are the same as the weather."(Brain and Nathanson,2023).

NOTES

- 1** Giorgione, *The Tempest*, c. 1508. Oil on canvas, 82 × 73 cm. Gallerie dell'Accademia, Venice. Image source: Wikimedia Commons
- 2** René Magritte, *The Battle of the Argonne*, 1959. Oil on canvas, 50 × 61 cm. Private collection.

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