Pierre Casadebaig

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bio

I have a scientific background in biology and have maintained an artistic practice since 2021. I live and work in Toulouse. Currently, my scientific and artistic research coexist in a complementary manner, primarily sharing technical tools. I hope that the progressive convergence of these practices opens pathways toward original approaches to communicate the interdependencies of living systems.

research - science. I am a biologist. I study how plants function, how they interact with each other and with their environment. I explore how community ecology and data science can help to design and grow more sustainable cropping systems.

research - creation. I am interested in algorithmic art, using computer code as a creative medium (Levin, 2021).
I use data visualization techniques, seeking the boundary between explanation and suggestion. I readily adopt a systematic research approach to create images (Molnar, 1984).

exhibitions

2024 - Solo, *Ridge Regression*, Heft gallery, New York, USA (Online)
2023 - Collective, *Dispyr*, Verse gallery, London, UK
2022 - Collective, *Arithmetic Phenomena*, Verse gallery, London, UK (Online)
2022 - Collective, NFT Show Europe, Valencia, Spain (pdf)

education

2008 - PhD in Agronomy, University of Toulouse
2004 - MSc in Plant Physiology, University of Montpellier

Levin, G. (2021). Code As Creative Medium: A Handbook for Computational Art and Design. MIT Press.
Molnar, V. (1984). Eloge de l'ordinateur (dans les arts visuels).

coding aesthetics. I use a programming language (R) to write algorithms that generate digital images. The idea is to code a sequence of operations, balancing defined rules and chance, that produces a new output each time the computer runs it. These outputs are instructions (vector images) to drive a plotter, a handmade method for drawing these images on paper with various graphic techniques. The whole process consists in repurposing a tool originally designed for statistical analysis and the quantitative display of information for artistic ends.

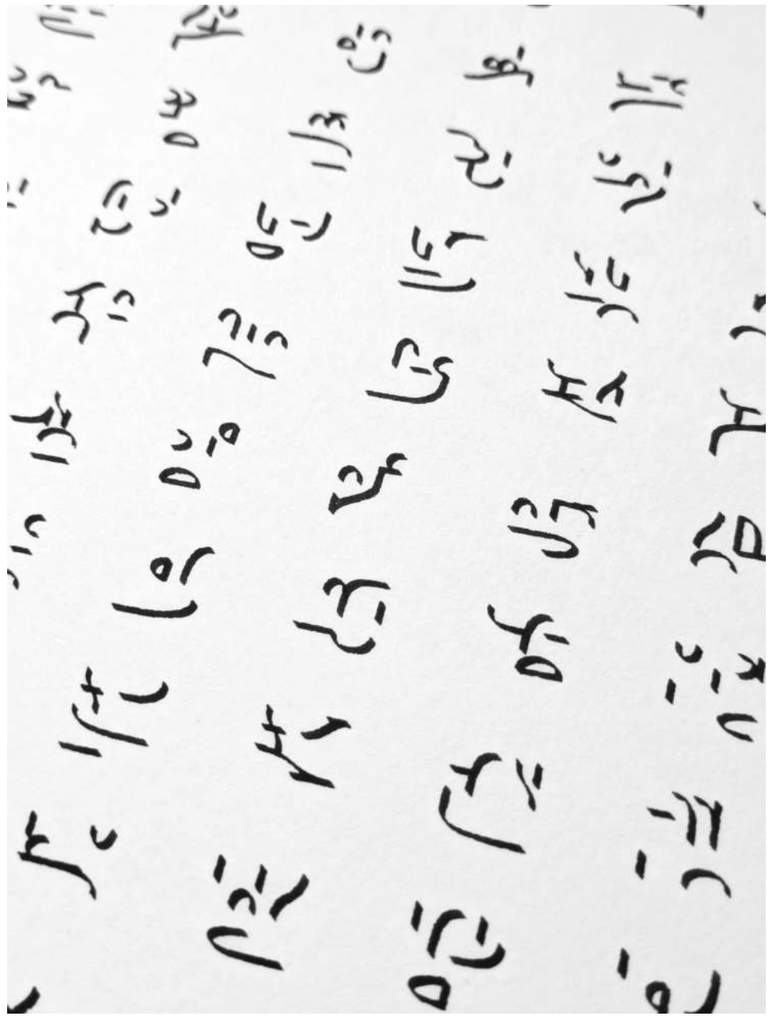
I often use existing data, treating it as a malleable material to create diverse visual representations. I have mostly worked with elevation data, particularly well suited to represent landscapes — this document traces the evolution of my questions on this subject.

using a plotter. Unlike a printer, which stays relatively independent of the creative process, using a plotter influences choices upstream. On one hand, by imposing constraints: thinking in terms of lines (vectors) rather than points (bitmap). But also by simplifying the code, where using a brush rather than a pen yields fluid lines without explicitly coding for that aesthetic. This “negotiation” between digital and analogue is particularly motivating.

exploring simplicity. Automation, by producing a great number of shape variations, raises the question of what each representation brings. For example, out of a thousand mountain shapes, some are immediately recognizable, while others are not perceived as meaningful. This experience of the essence of a subject makes it possible to move a little more objectively toward simpler forms, without losing their evocative power. It is as if this diversity avoided a kind of regression toward an average form.

composing with the code. Algorithmic art forces me to make the steps of creation explicit, whereas questions of composition and balance seem instead to be a matter of intuition. I work on composition systems in the hope of being surprised by their results. The goal is not to control every aspect of the image, but to create conditions favorable to the emergence of less predictable images.

developing intuition. This creative process, by shortening the time between implementing a change and observing its effect, could sharpen intuition. Creative code makes it possible to weave links that are hard to see at first. What happens in the transformation of topographical data into calligraphic gestures, between writing and drawing, between what we can read and what we see?



> *A few composition rules are enough to bring forth a fictional writing system.* Each character is composed of three elements, themselves made of two trajectories chosen at random within a regular grid.

2024, Symbolic landscapes

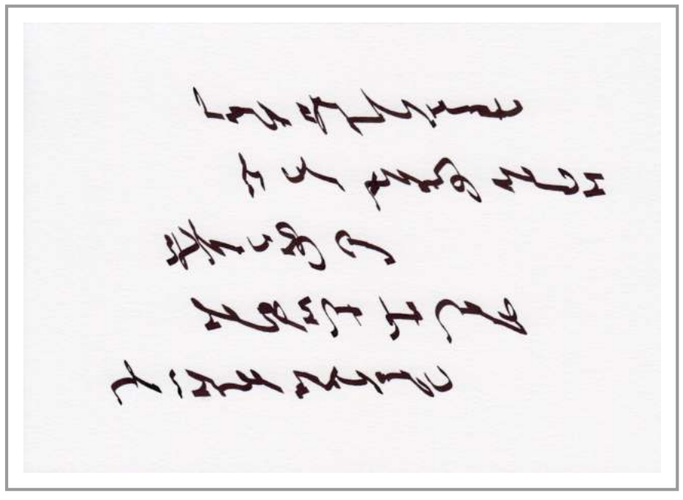
How can landscape representation move closer to language?

This system transcodes altimetric data into simple movements, inspired by calligraphy. This work explores alternatives to the usual modes of representing geographic information. By summarising this information to a few major lines, and by equipping the plotter with a brush, the generated signs recode geography. The difficulty is finding a balance between the richness of the data and a graphic legibility, necessary to build a coherent system of signs.

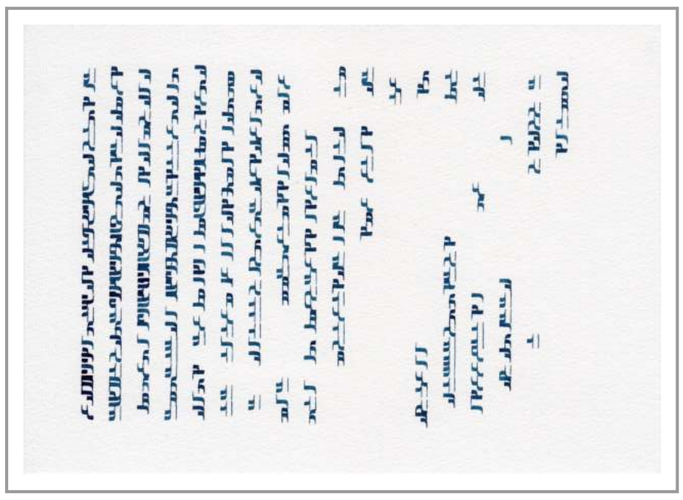
The challenge is to reach a level of abstraction that allows us, starting from geographic data, to meet what concrete poetry and asemic writing explore from the text itself: compositions that are neither purely descriptive (cartography) nor purely linguistic (prose). A kind of territorial poetry?

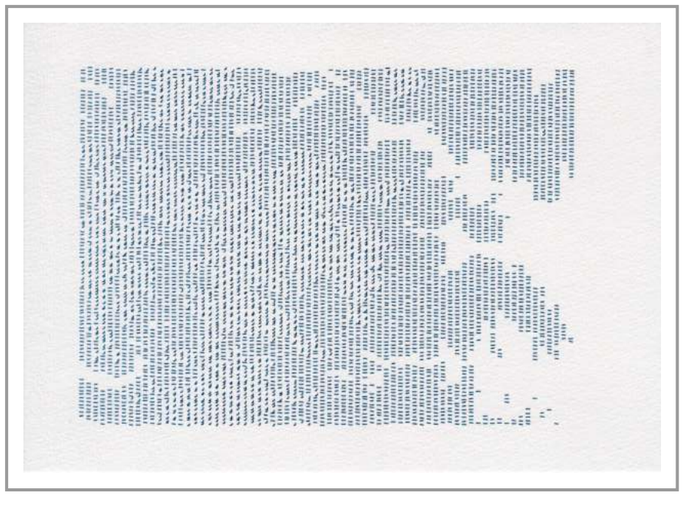
Ridge Regression # 6, 28, 5 and 2, 2024. ink on paper, 148 x 210 mm.

Wind Mountain, 2023. ink on paper, 210 x 297 mm.



studies on generating asemic signs, 2024.
ink on paper, 148 x 210 mm.





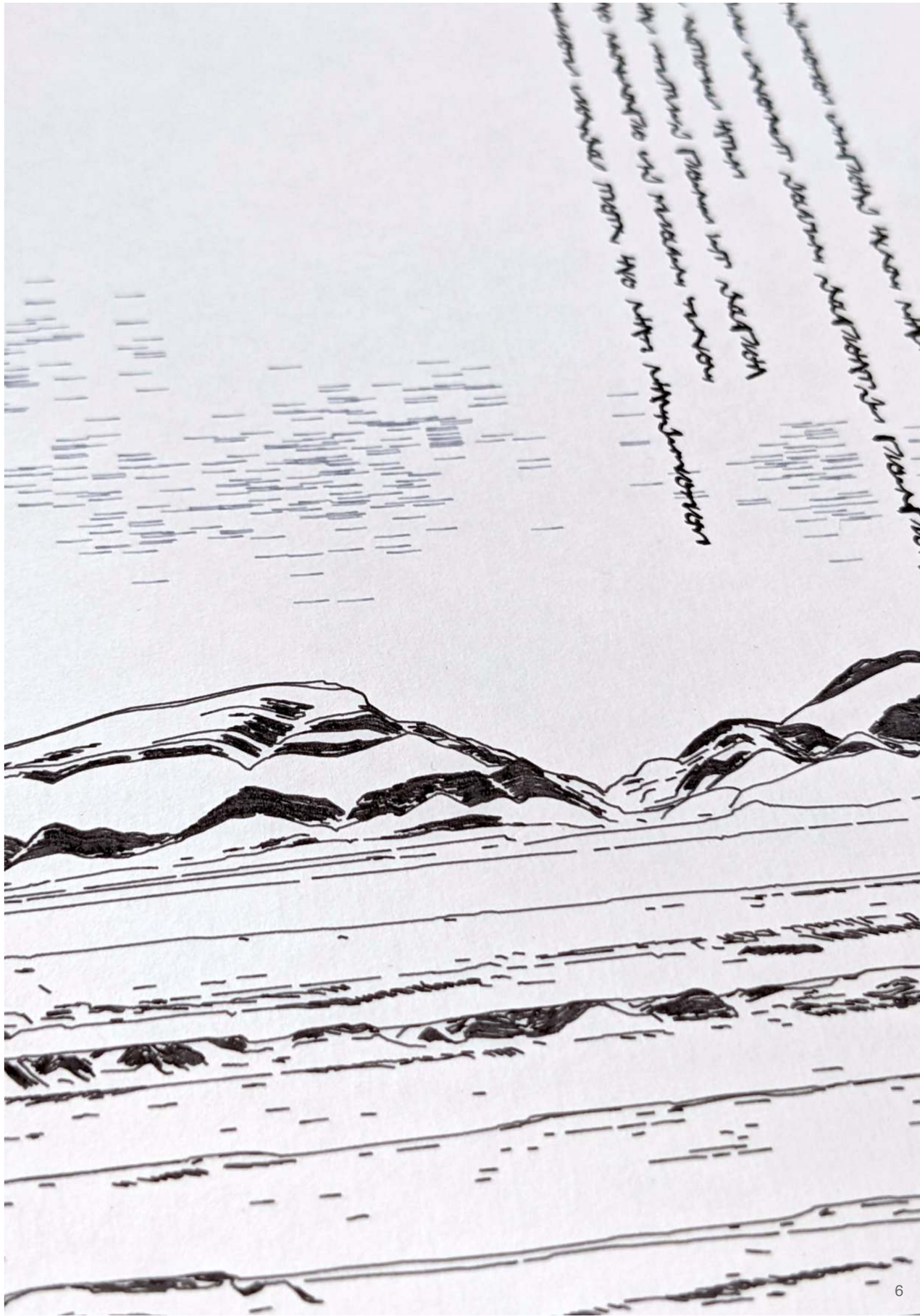
studies on representing landscapes with signs, 2024.
digital file and ink on paper, 148 x 210 mm.

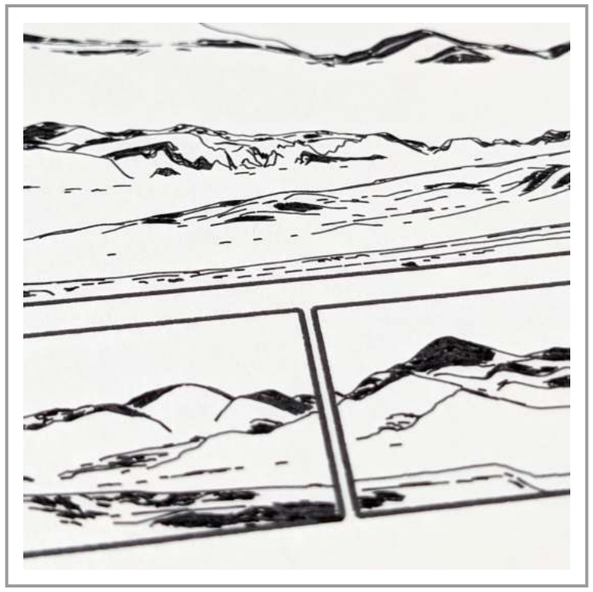
2023, Combined landscapes

How to generate fictional landscapes from real fragments?

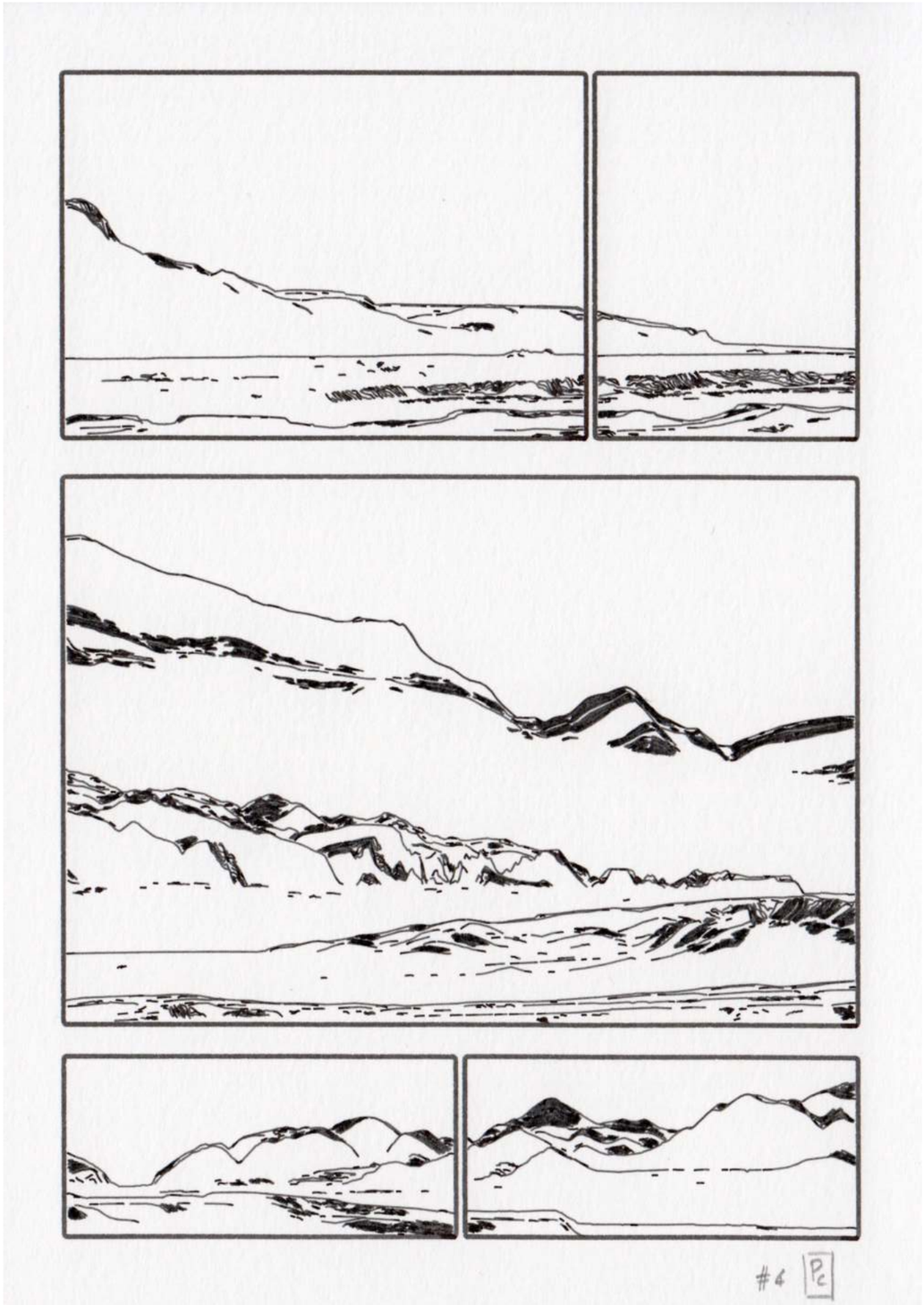
Ridge Regression is a series of generative landscapes that draws upon real elevation data and plays with the topography of France's diverse mountain ranges. The generated landscapes are neither real nor completely fictional (Cozens, 2005), but created by a computational process from these authentic data. The algorithm generates a variety of elements that are selected and recombined to create new landforms, like an evolutionary process applied to geology (Casadebaig, 2024).

Cozens, A. (2005). Nouvelle méthode pour assister l'invention dans le dessin de composition originales de paysages. Éditions Allia. Casadebaig, P. (2024). Conceptual basis and parameterization of the "ridge regression" algorithm. art.casadebaig.net.

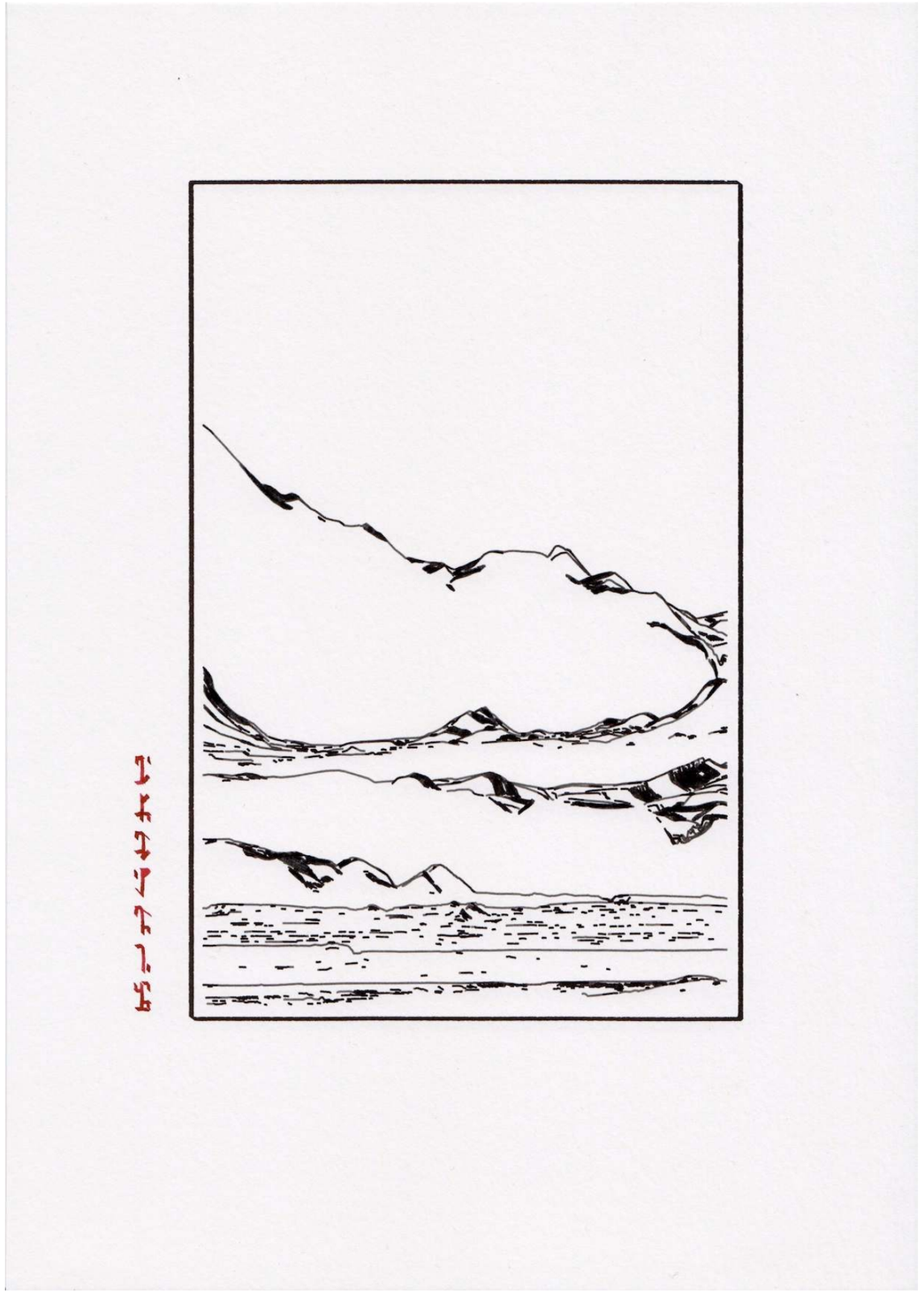




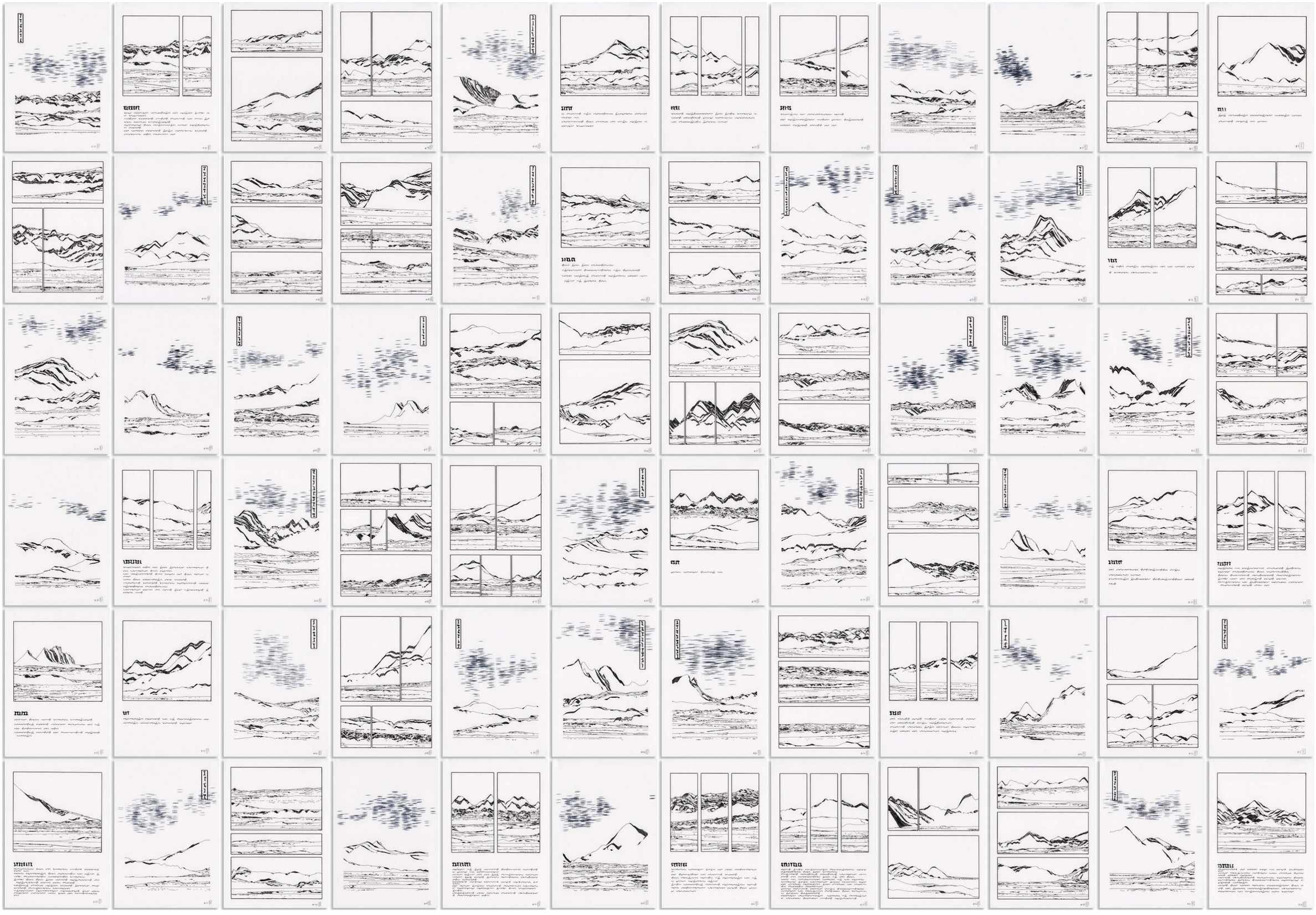
▲ *Ridge Regression*, 2023. ink on paper, 148 x 210 mm (details).
◀ *Ridge Chemistry*, 2022. ink on paper, 325 x 500 mm.



Ridge Regression #4, 2023. ink on paper, 148 x 210 mm.



Ridge Regression, variation, 2023. ink on paper, 210 x 297 mm.



72 selected iterations of the *Ridge Regression* algorithm, 2023. assemblage of scanned drawings, ink on paper, 148 x 210 mm.

2022, Transformed landscapes

How to represent geological time?

This algorithm applies a transformation to the altimetric data before rendering it. It reshapes the landscape, to simulate anything from a rise in sea level to an erosion process that radically metamorphoses it. The absence of scale blurs perception, and the mountainous relief passes for an oceanic surface.

90 x 45 km, f(42.7, -0.425), f(42.7, -0.962), 2022. assemblage of two bitmap images from a transect of the Pyrénées.

25 x 25 km, f(43.31, 2.244), 2025. digital bitmap image.

25 x 25 km, f(43.40, 0.353), 2024. ink on paper, 210 x 210 mm (details).

25 x 25 km, f(43.35, 0.637), 2024. ink on paper, 210 x 210 mm (details).

2021, Altered landscapes

Why represent what already exists?

This algorithm is a starting point; it transforms altimetric data (a digital elevation model) into a series of lines, a logic compatible with the use of a plotter. This series, *dispyr*, seeks to emulate the aesthetic of an etching with code, by playing with noise addition and data removal. Each print produces a new image, based on a 15 x 20 km area chosen at random in the Pyrénées range (Casadebaig, 2022).

Casadebaig, P. (2022). Conceptual basis and parameterization of the “dispyr” algorithm. art.casadebaig.net.

Three Pyrenean Fragments, 2021. 148 x 210 mm, ink on paper.

360 random iterations of the *Dispyr* algorithm, 2021. digital bitmap file.