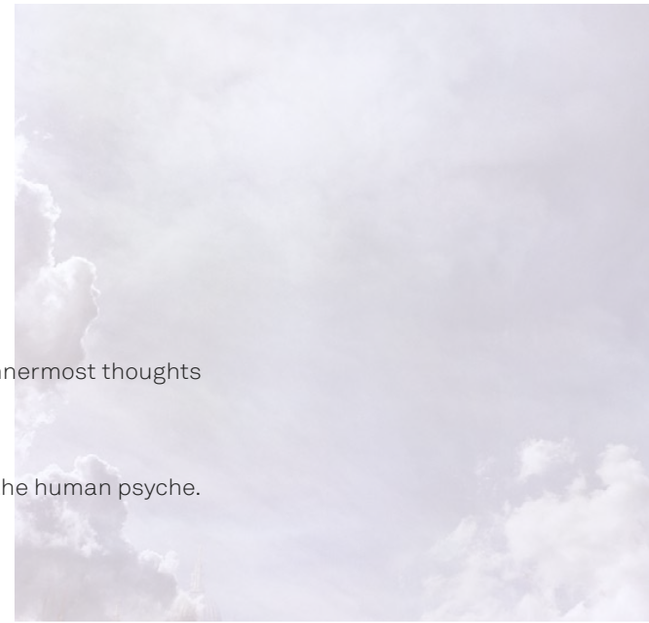
View Cloud from Eye Position

Has the reader any distinct idea of what clouds are?

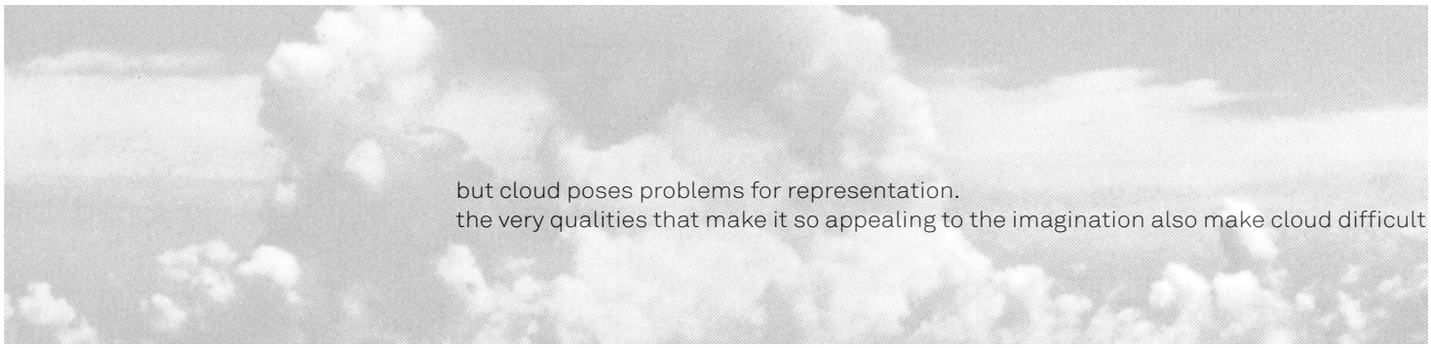
John Ruskin, *Modern Painters* vol. 5, 1860



cloud belongs to the imagination.

we look up and see our desires and fantasies, our past and future, our innermost thoughts scattered across the blue.

If the endless dark of the night sky is a reminder of our insignificance,
pareidolia invites us to claim the random forms of cloud as outposts of the human psyche.



but cloud poses problems for representation.
the very qualities that make it so appealing to the imagination also make cloud difficult to describe.

… the sky does not occupy a place,
and cannot be measured;
and as for clouds,
nor can their outlines be fixed
or their shapes analysed in terms of surfaces.
A cloud belongs
to the class of "bodies without surfaces,"
as Leonardo da Vinci was to put it,
bodies that have no precise form or extremities…

Hubert Damisch, *A Theory of /Cloud/*, 1972

cloud has long marked a limit in Western art.
it is visible, but lacks a tangible surface, fixed shape, or clear boundaries.
it resists the efforts of the pen and the brush.
it cannot be accommodated within conventional systems of linear perspective.

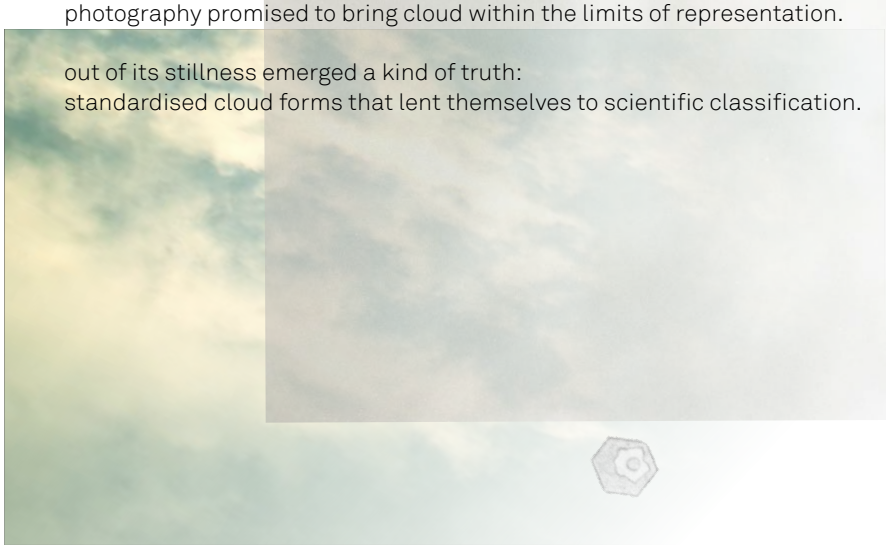
for art, cloud is a metaphor and never a fact.

in the nineteenth century, as painting aligned itself with the emerging field of meteorology,
art seemed poised to reverse this order.

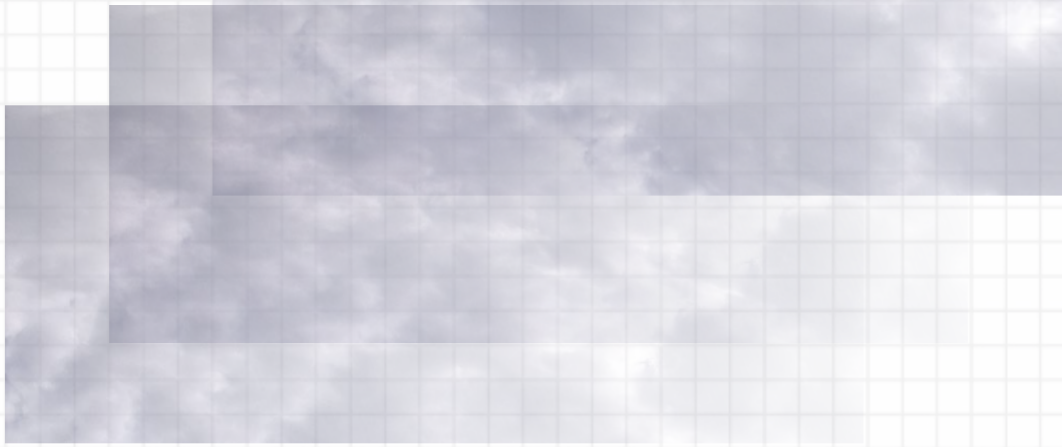
John Constable's knowledge of meteorology rivalled that of the best scientists of his era.
It was said that his clouds were so realistic,
they not only portrayed precisely the atmospheric conditions in the moment they were painted,
they also predicted the weather to come.

by the turn of the twentieth century,
photographic emulsions were fast enough to capture and immobilise the shifting outlines of cloud.
photography promised to bring cloud within the limits of representation.

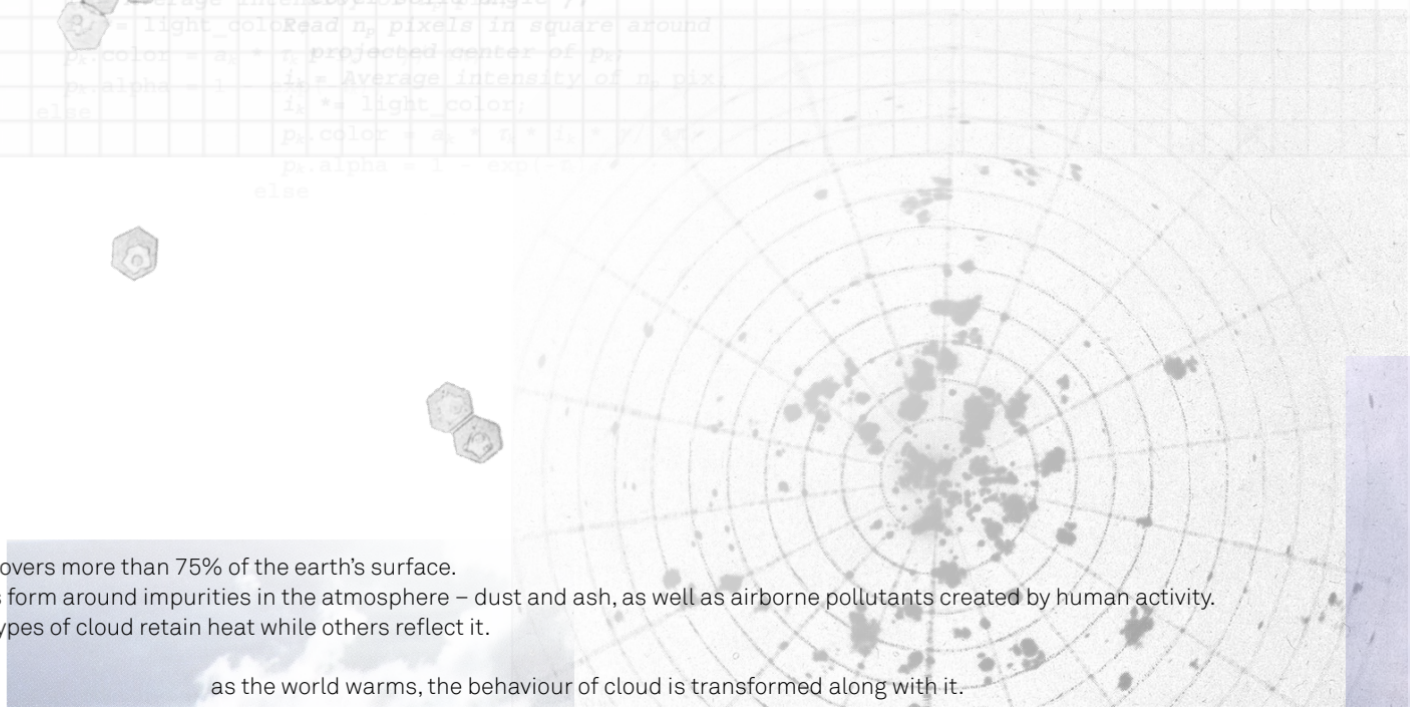
out of its stillness emerged a kind of truth:
standardised cloud forms that lent themselves to scientific classification.



but arresting the movement of cloud goes against its very nature.
photography's hold on cloud is spurious – it can describe a cloud's exterior, but not what goes on within.

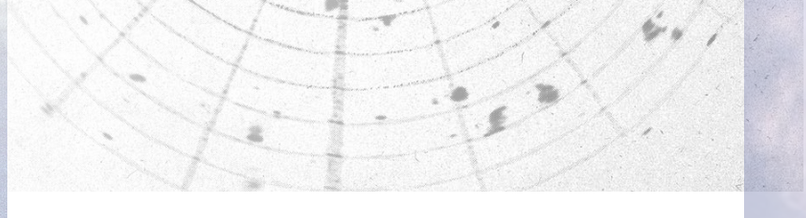


digital technologies meet with a different kind of resistance.
the outward appearance of cloud is notoriously hard to render, so computer graphics mimic its interior life instead.
particle generation systems use thousands of tiny, randomly generated digital objects
to simulate the movement and behaviour of the individual droplets of water or ice that make up a cloud.



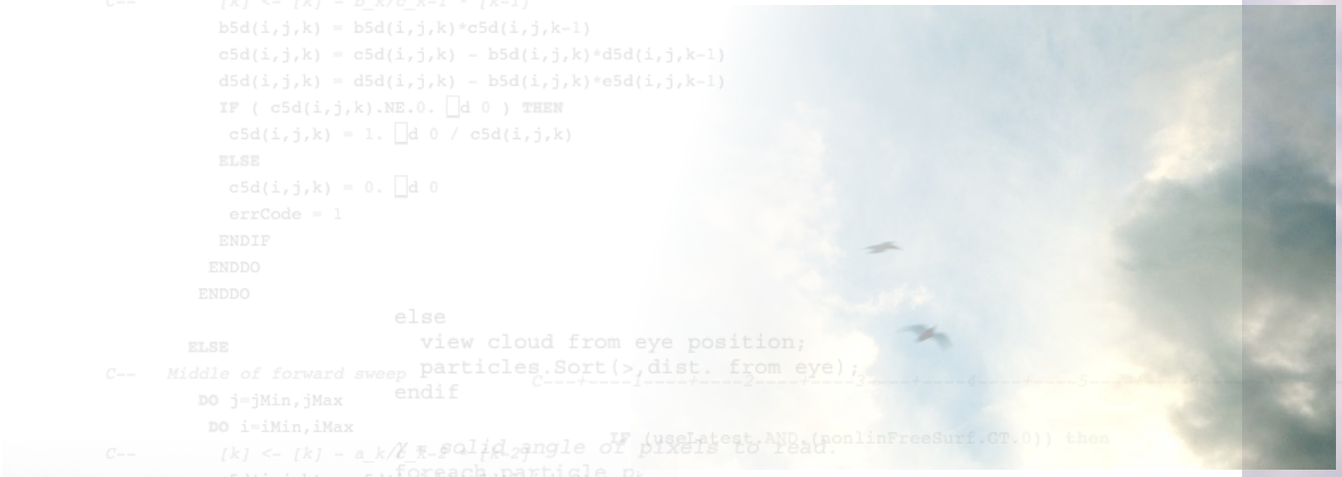
cloud covers more than 75% of the earth's surface.
it takes form around impurities in the atmosphere – dust and ash, as well as airborne pollutants created by human activity.
some types of cloud retain heat while others reflect it.

as the world warms, the behaviour of cloud is transformed along with it.



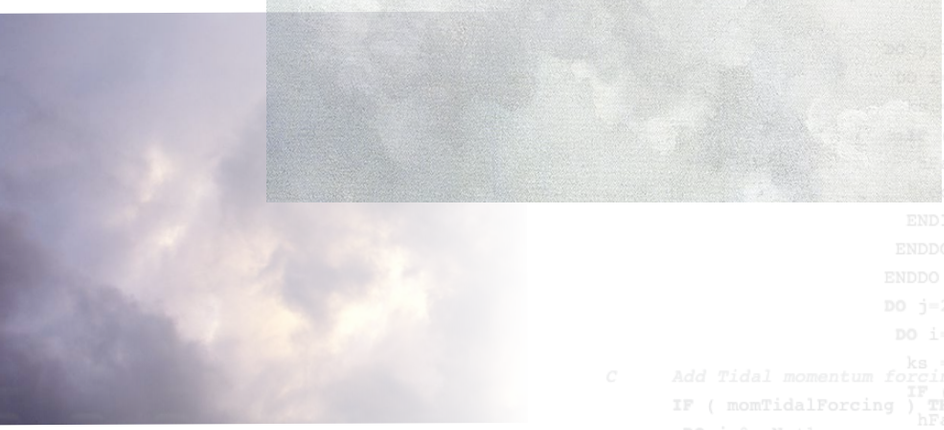
Look through my eyes up
At blue with not anything
We could have ever arranged
Slowly taking place.

W.S. Graham, *Enter a Cloud*, 1974



cloud is a representation of the sky's lost innocence.

it is an engine of climate change, and the visible trace of a process in which we also have a hand
a continuously changing index of the troubled relationship between humanity and nature.



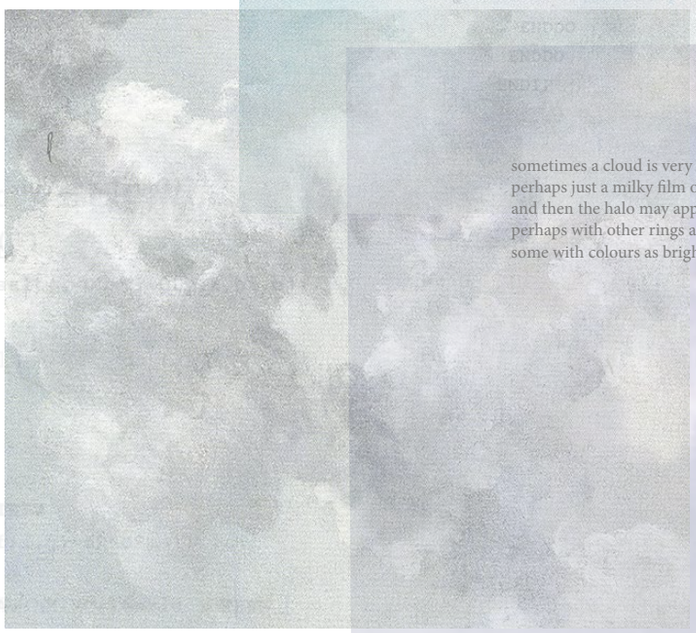
predicting the behaviour of cloud is a hedge against an uncertain future.
today, the most compelling representations of cloud are not visual images, but prognostic models,
made up of sequences of numbers and letters that mean nothing to the untrained eye.

heavenly Clouds, great goddesses for lazy men –
from them we get our thoughts,
our powers of speech, our comprehension,
our gift for fantasy and endless talk …

Aristophanes, *The Clouds*, 423 BCE

global climate models include systems for the simulation of general atmospheric circulation,
oceanic circulation, land and sea ice, atmospheric chemistry, land hydrology and biogeochemistry,
along with a computational infrastructure that enables the various modules to talk to each other.

the supercomputers that run climate simulations are capable of carrying out trillions of calculations every second.

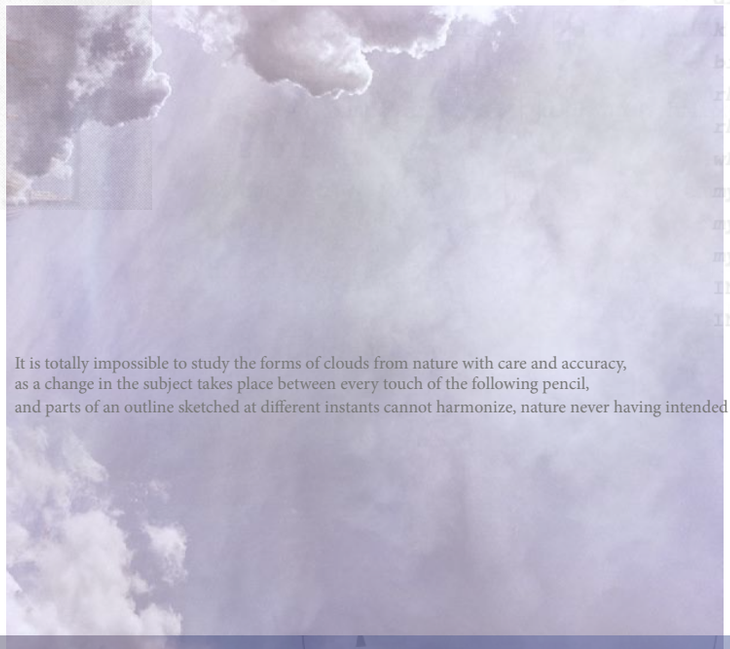


sometimes a cloud is very thin and diffuse
perhaps just a milky film over the blue sky
and then the halo may appear very bright
perhaps with other rings and arcs around it
some with colours as bright as those of the rainbow

Herman Flohn, *Climate and Weather*, 1969

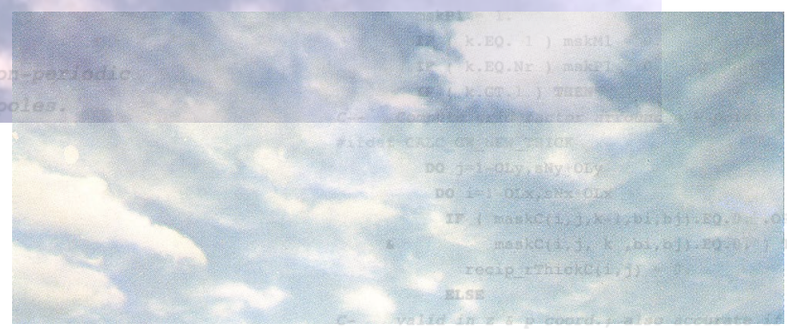
but even the most powerful computers cannot describe everything that takes place inside a cloud.

the microphysics of cloud formation includes processes – the nucleation of cloud droplets around airborne particles, wind dynamics and convection, variations in atmospheric temperature and pressure – that are not fully known, and too intricate to simulate in detail.



It is totally impossible to study the forms of clouds from nature with care and accuracy,
as a change in the subject takes place between every touch of the following pencil,
and parts of an outline sketched at different instants cannot harmonize, nature never having intended them to come together.

John Ruskin, *Modern Painters* vol. 5, 1860.

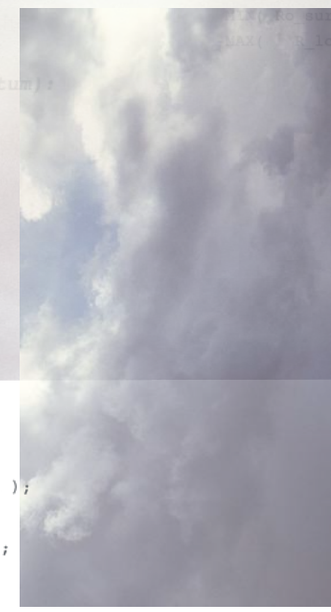


of the million or more lines of code that make up a climate model,
those that simulate the formation and behaviour of cloud are some of the most complex.

they are also some of the least reliable.

If Clouds were the mere result of the condensation of water Vapour in the masses of atmosphere which they occupy,
if their variations were produced by the movements of the atmosphere alone,
then indeed might the study of them be deemed an useless pursuit of shadows,
an attempt to describe forms which, being the sport of winds, must be ever varying,
and therefore not to be defined.

Luke Howard, *On the Modifications of Clouds*, 1802



cloud is the wild card in climate change models.
the lines of code that predict its behaviour – grounded not in scientific fact, but in approximation and simplification and visionary conjecture – also emulate its fugitive nature.

Thomas Forster, *Researches About Atmospheric Phaenomena*, 1813.

The atmosphere and its phaeomena are everywhere,
and thunder rolls, and rainbows glitter in all conceivable situations,
and we may view them whether it may be our lot to dwell in the frozen countries of polar ice,
in the middle climates of the temperate zone,
or in the parched regions which lie more immediately under the path of the sun.

in the matter of cloud,
there is no truth untroubled by doubt
no act of reason unshaped by fancy.

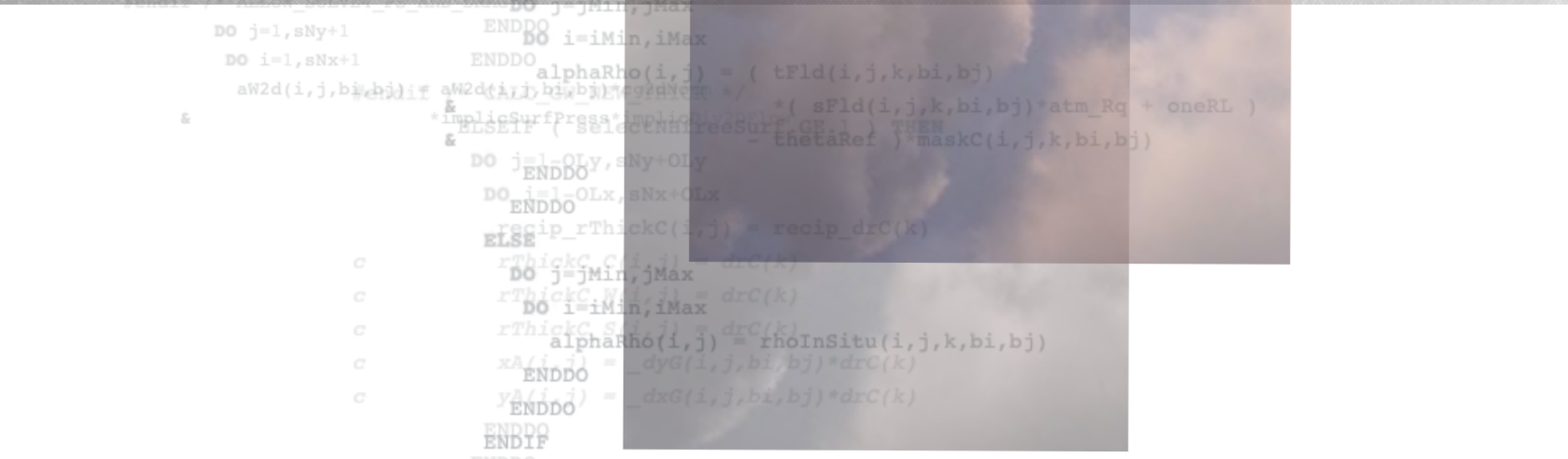
clouds have often been observed
moving with a great noise
close to the earth,
terrifying those who heard and saw them
as portents of some catastrophe

Aristotle, *Meteorologica*, 350 BCE

look up and see our hopes and desires, our past and our future, our darkest fears,
scattered across the blue.

between the simple realities of earth and sky
cloud presents an intractable problem

a veil of intermediate being
that cannot show us our future without surrendering the very quality that defines it.



Eugenie Shinkle 2019